CHAPTER 3 - TRANSPORTATION SYSTEMS

3.1 INTRODUCTION

Understanding Hampton's transportation system requires an awareness of its historical development, its residents and the resulting transportation infrastructure. Since its settlement in 1638, the Town has obviously faced marked change before evolving into the community it is today. In more recent times, the Town's location in a rapidly growing region, with ocean frontage and related recreational facilities, coupled with good accessibility to the regional transportation system, have been the most significant elements in shaping the community. Not only does the resulting transportation system have the primary function of facilitating the movement of people, goods and services into, out of and throughout Town, but it is also the framework upon which Hampton is built.

Hampton's transportation system both influences, and is influenced by, land use patterns in Town. The downtown and Hampton Beach areas both developed as relatively high-density areas of residential and commercial land uses, due in part to early reliance on freight and passenger railroad and trolley service. Alternatively, low-density development in outer areas and linear commercial development along major road corridors that came with the explosion in private auto use have resulted in large distances between residents' homes and workplaces, home and shopping destinations, and the necessity for an automobile for virtually all trips.

In recent years, land use and transportation planners alike have come to recognize that the interaction between land use and transportation must be understood and accounted for in order to intelligently plan for a balanced and efficient transportation system. Failing to do so increases the cost of maintaining the transportation system in the future, and will also likely increase the backlog of roadway improvements necessitated by poorly planned growth. Conversely, integrating land use and transportation planning creates the opportunity to reduce the need for roadway expansions and improvements, maintain the local character, and develop into a "livable" community.

The Town's general goal for its transportation system is to improve safety while providing for efficient travel on major corridors, reducing accident rates, and accommodating all roadway users. Integrating land use and transportation decision-making is an important component in the effort to maintain a vibrant and healthy community. Transportation improvements will need to include a mix of carefully selected facility improvements, provision of a variety of travel mode choices, and preventative measures such as land use and access management.

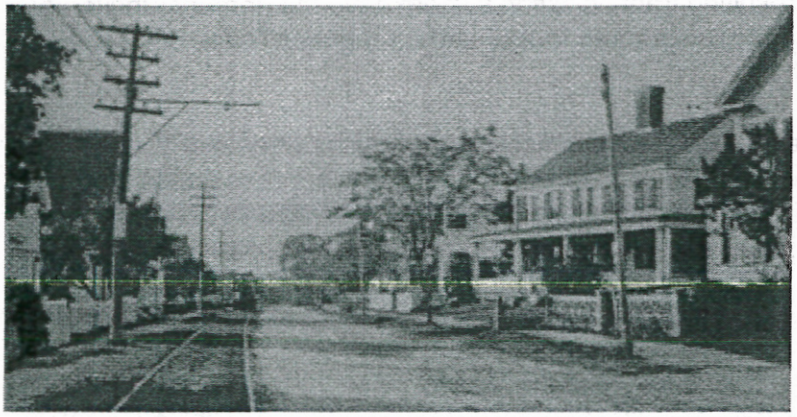
For additional information regarding the transportation system in Hampton see the Hampton Beach Master Plan, which is included as a separate chapter in the Hampton Master Plan.

3.2 HISTORY OF THE TRANSPORTATION SYSTEM

Hampton began as an agricultural community, relying on its abundant natural resources to sustain its local economy; a modest tourist business at the beach subsequently began to develop. Major roads in the Town's early history included Exeter, Lafayette, Winnacunnet, Mill, Locke, Mace, Little River, Barbour and Landing roads, and Ann's Lane. Established in 1761, Lafayette Road was the major north-south route in New England, and a significant stagecoach route between Portsmouth and Boston. However, it was a toll road, which aggravated travelers. A free bridge called the shunpike was built upstream and

many people took the more circuitous route to avoid paying the toll on Lafayette Road. The towns of Hampton and Hampton Falls took ownership of the bridge in 1826 and subsequently removed the toll.

Two modes of early transportation--railroads and electric trolleys--greatly influenced the development of Hampton's land use and transportation system. The arrival of the Eastern Division of the Boston & Maine Railroad (running parallel to today's Route 1) in 1840 prompted the development of a commercial area around Route 1/NH 27, which still serves as Hampton's commercial center. Trains carried both passengers and freight (including farm and fishing products) to Boston and points beyond. While passenger service ended in 1965, freight trains still operate infrequently from Portsmouth.

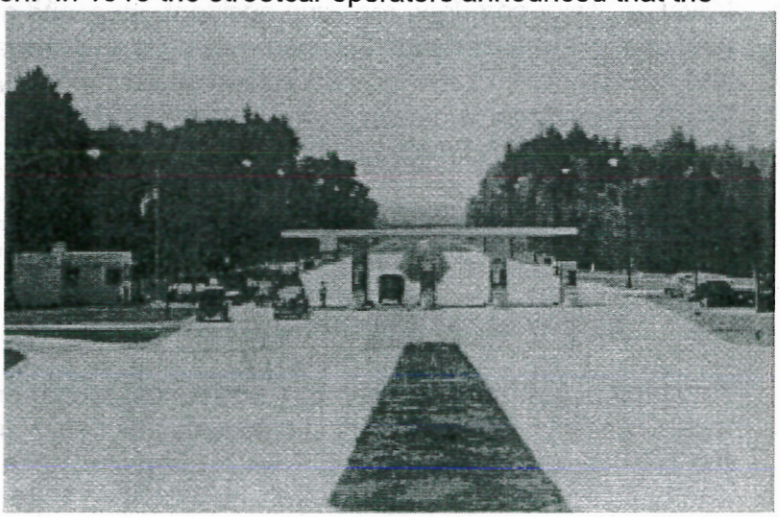


Source: Hampton, A Century of Town and Beach: 1888-1988, Randall, Peter Evans, Peter E. Randall Publisher, 1989

Hotel and summer home development began to mushroom at the end of the 19th century, spurred by electric trolley service, which began operation in 1897. Initial service connected Exeter and the Hampton Center train depot to Hampton Beach, but it was also tied into trolley lines from Massachusetts. The Exeter Street railway entered Hampton on High Street, followed High Street to Lafayette Road, turned south on Lafayette to Winnacunnet, and paralleled Winnacunnet east to Ocean Boulevard. From there, spurs were developed south to Hampton Beach and north to Portsmouth. With the advent of trolley service, tourism at Hampton Beach became the town's largest industry. The owners of the street railway opened the Hampton Beach Casino in 1899 and extended trolley service to its doorstep to further encourage ridership.

By 1904, trolley service began to run into trouble, with profits during the summer months not always able to support the costs of operating in the off-season. In 1919 the streetcar operators announced that the company would shut down; voters in Hampton, Exeter, Hampton Falls and Seabrook approved the municipal ownership and operation of the line. The Town-owned trolley went out of business in 1926, when it could no longer compete with the private automobile.

The explosion in popularity and private ownership of automobiles resulted in vast changes to the Town over its history. As autos became more common, roadways were upgraded, speed limits enacted and enforced, traffic signals installed (Hampton's first in 1924), and new roads constructed. One of the greatest changes came with the opening of Interstate 95 (the Seacoast Turnpike) in 1950,



Early photo of Interstate 95 tollbooth. Source: Images of America: Hampton and Hampton Beach, William H. Teschek, Arcadia Press, 1997

which replaced Route 1 as the major route for north-south travel. This brought phenomenal growth and change to the entire region.

3.3 EXISTING TRANSPORTATION SYSTEM AND CONDITIONS

3.3.1 Roadway Network

This section will detail the characteristics and functions of the existing roadway portion of Hampton's transportation network. First, the section will discuss the purpose and type of classification of the roadway system. This will be followed by a discussion of traffic volumes and growth, roadway safety, and recommendations for improvements to the transportation system in Hampton.

3.3.1.1 State and Federal Roadway Classification

New Hampshire State law adopted in the 1940s serves as the basis for the State Road System Classification that is still in use today. This classification scheme has eight categories of public roads; each roadway is grouped based on the role of the roadway as well as on the entity responsible for its maintenance. Hampton is served by State-classified Class I, II, IV, V and VI roadways, as shown in **Table TS-1** and **Map TS-1**.

TABLE TS-1: ROAD MILEAGE BY STATE CLASSIFICATION

STATE CLASS	2002
Class I (State-maintained)	16.5
Class II (State-maintained)	3.1
Class IV (Urban-compact)	31.6
Class V (Town-maintained)	39.8
Class VI (Non-maintained)	1.1
Private Roadways	13.7
TOTAL	105.8

Class I roads are State-maintained trunk line or primary highways. There are presently 16.5 miles of Class I highways in Hampton, comprised of primarily of Interstate 95 and its ramps, NH 101 and its ramps, as well as portions of US 1, Winnacunnet Road, and NH 1A. Class II roads are State-maintained secondary highways. There are approximately 3.1 miles of Class II highways in Hampton, comprised of NH 101 East of the interchange with US 1, and NH 1A South of the intersection with Winnacunnet Road. Class IV roads, otherwise known as Urban Compact roads, make up a large percentage of Hampton's Roads. These are roadways that are located within the NH DOT established Urban Compact Boundaries of a town. The roadways may be owned by either the State or the community, but are maintained by the local community with some financial support from NH DOT for maintenance. Hampton has approximately 31.6 miles of Class IV roads, which encompass most of those roadways in and around the center of the town such as much of Lafayette Road (US 1), All of Exeter Road/High Street (NH 27) and much of Winnacunnet road. There are 39.8 miles of Class V roads, or town owned and maintained roads, in Hampton, which represents the largest percentage of the Town's roadway network. This category is the only to have grown appreciably in the last decade. New residential subdivision streets that are turned over to the Town become Class V roads once they become public. Class VI roads are non-maintained roadways belonging to the Town. There is just over 1 mile of Class VI road in Hampton.

REPLACE PAGE WITH MAP TS-1

STATE ROADWAY CLASSIFICATION MAP

Map TS-1
State Roadway System Classification
Hampton, New Hampshire
February 14, 2003

1 - Evergreen Rd.
2 - Oakdale Ave.
3 - Pineknoll Rd.
4 - Cedarview Ln.
5 - Sweetbriar Ln.
6 - Coffin Dr.
7 - Wingate
8 - Driftwood Rd.
9 - Depot Square
10 - Hackett Ln.
11 - Moore Ave.
12 - Newman St.
13 - Higgin Ln.
14 - Middle Rd.
15 - Beatrice Rd.
16 - Swain Ct.
17 - Morningside Dr.
18 - Eastmor Ln.
19 - Hurd Ave.
20 - Spruce St.
21 - Ash St.
22 - Overlook St.
23 - Crest St.
24 - Viking St.
25 - Sapphire Ave.
26 - Pearl St.
27 - Victor Rd.
28 - Greene St.
29 - Lancaster St.
30 - Moccasin Ln.
31 - Wild Rose Ln.
32 - Boars Head Ter.
33 - Anchor Ct.
34 - Sunsurf Ave.
35 - Cliff Ave.
36 - Charles St.
37 - Williams Ave.
38 - Chase St.
39 - Bittersweet Ln.
40 - Diane Ln.
41 - Keefe Ln.
42 - Auburn Ave. Ext.
43 - Dow Ave.
44 - Duston Ave.
45 - Thornton St.
46 - Portsmouth Ave.
47 - Dupuis Cir.

rotated 10 degrees West

SCALE 1:31,000

0 0.25 0.5 1 Miles

LEGEND

State Roadway Class

- I
- II
- IV
- V
- VI

- Private Roads
- Urban Compact
- Stream
- Intermittent Stream
- Marsh or Swamp Outline
- Bodies of Water
- Railroads
- Town Boundary

MAP DATA SOURCES

Base Features

Base features (transportation, political and hydrographic) were automated from the USGS Digital Line Graph data, 1:24,000, as archived in the GRANIT database at Complex Systems Research Center, Institute for the study of Earth, Oceans and Space, University of New Hampshire, Durham, NH; 1992-1999. The roads within the Rockingham Planning Region have been updated by Rockingham Planning Commission and by NH Department of Transportation through ongoing efforts.

This map was funded by a grant from the New Hampshire Coastal Program pursuant to the National Oceanic and Atmospheric Administration Award (NA17OZ1129)
June 2002, New Hampshire Office of State Planning, Rockingham Planning Commission

Rockingham Planning Commission

In addition to the public roadway system, there are approximately 13.7 miles of private roads in Hampton. While the Town is not responsible for maintaining those roadways, and does not provide trash pick-up or school bus service on private roads, the Town is responsible for providing Police, Fire and emergency vehicle services which access these roadways.

In addition to the State classification scheme, there is a Federal Classification system. The Federal system consists of 4 primary types of roads, and each facility is classified based on the type of service that is intended to be provided. These classifications, which complement the State classifications, are primarily based on the traffic capacity and volumes attributed to the roads, and are further divided into rural and urban systems. The system is hierarchical in its organization, with higher order roadways (arterials) more oriented towards moving traffic, and lower order roadways (collectors and local streets) more oriented towards providing access to land uses adjacent to the roadway. This is important for two reasons; first, because they are used to determine where and under what conditions Federal highway funds may be utilized. Roads that have a functional class of Collector or higher are eligible for Federal highway funds. Second, understanding the function of each roadway is important for setting policy and for designing improvements.

Each of the four basic functional classes is represented in Hampton as described below and shown on **Map TS-2**. Many roadways carry multiple classifications depending on their location (urban/rural) and the amount of traffic that they service. When a roadway transitions from a "urban" to a "rural" area, its functional classification usually changes as well. **Table TS-2** contains examples of Hampton roadways classified as Collector or above.

- *Principal Arterial*: Serves major centers of activity, the highest traffic volume corridors, and the longest routes. In addition, they generally carry the major portion of traffic entering and exiting the community. Routes 1 and 101 perform that function in Hampton

- *Minor Arterial*: Links and supports the principal arterial system. Minor arterials are roads which place a greater emphasis on land access than the principal arterial and therefore offer a lower level of mobility. They serve as links between larger and smaller towns or as connections between collectors and the primary arterials. Route 27/High Street, Ocean Boulevard, and Winnacunnet Road as well as others perform this function within Hampton.

TABLE TS-2: FEDERAL FUNCTIONAL CLASSIFICATION

Roadway	FEDERAL FUNCTIONAL CLASSIFICATION		
	Principal Arterial	Minor Arterial	Collector
U.S. Rte 1	√		
NH Rte 101	√		
NH Rte 27		√	√
Winnacunnet Rd		√	
Ocean Blvd		√	√
High Street		√	
Ashworth Ave		√	
Brown Ave			√
Ann's Lane			√
Locke/ Little River/ Woodland Roads			√
Mill Road			√

REPLACE PAGE WITH MAP TS-2

FEDERAL FUNCTIONAL CLASSIFICATION MAP

Map TS-2
State Roadway Functional Classification
Hampton, New Hampshire
February 14, 2003

1 - Evergreen Rd.
2 - Oakdale Ave.
3 - Pineknoll Rd.
4 - Cedarview Ln.
5 - Sweetbriar Ln.
6 - Coffin Dr.
7 - Wingate
8 - Driftwood Rd.
9 - Depot Square
10 - Hackett Ln.
11 - Moore Ave.
12 - Newman St.
13 - Higgin Ln.
14 - Middle Rd.
15 - Beatrice Rd.
16 - Swain Ct.
17 - Morningside Dr.
18 - Eastmor Ln.
19 - Hurd Ave.
20 - Spruce St.
21 - Ash St.
22 - Overlook St.
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24 - Viking St.
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29 - Lancaster St.
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35 - Cliff Ave.
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42 - Auburn Ave. Ext.
43 - Dow Ave.
44 - Duston Ave.
45 - Thornton St.
46 - Portsmouth Ave.
47 - Dupuis Cir.

N
W E
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rotated 10 degrees West

SCALE 1:31,000

0 0.25 0.5 1 Miles

LEGEND

Legend

- Interstate (Rural)
- Other Principal Arterial (Rural)
- Minor Arterial (Rural)
- Major Collector (Rural)
- Minor Collector (Rural)
- Local Road or Street (Rural)
- Other Principal Arterial (Urban)
- Minor Arterial (Urban)
- Collector (Urban)
- Local Road or Street (Urban)
- Other Uncoded Roads

- Stream
- Intermittent Stream
- Marsh or Swamp Outline
- Bodies of Water
- Railroads
- Town Boundary

MAP DATA SOURCES

Base Features

Base features (transportation, political and hydrographic) were automated from the USGS Digital Line Graph data, 1:24,000, as archived in the GRANIT database at Complex Systems Research Center, Institute for the study of Earth, Oceans and Space, University of New Hampshire, Durham, NH; 1992-1999. The roads within the Rockingham Planning Region have been updated by Rockingham Planning Commission and by NH Department of Transportation through ongoing efforts.

This map was funded by a grant from the New Hampshire Coastal Program pursuant to the National Oceanic and Atmospheric Administration Award (NA17OZ1129)
June 2002, New Hampshire Office of State Planning, Rockingham Planning Commission

NOAA

NH Coastal Program

GRANIT Geographically Referenced Information System

Rockingham Planning Commission

- *Collector*: Provides both access to land uses along the roadway and circulation within residential neighborhoods, and/or to commercial and industrial areas. It differs from the arterial system in that the facilities on the collector system may penetrate residential neighborhoods. Conversely, the collectors also collect traffic from the local streets in residential neighborhoods and channel it into the arterial system. This classification can be further divided into major and minor collectors. Ocean Boulevard for instance, is classified as a Minor Arterial for 1.2 miles of its length in Hampton, and as a Major collector for the remaining 0.8 miles.

- *Local Roads*: Comprise all facilities not on any of the three systems described above. Their function is to primarily provide direct access to abutting land and access to the higher order systems. They offer the lowest level of mobility, and service to through traffic movement is usually discouraged. Local roads are generally not eligible for federal funding for improvements or maintenance.

3.3.1.2 Urban Compact

Hampton is one of 27 communities in New Hampshire that are part of the Urban Compact Program which defines who is responsible for maintenance and operational control of highways within densely populated areas. The Urban Compact program provides funding on a per mile basis for communities to maintain the State Primary and Secondary system roadways (except turnpikes and freeways) within their defined urban compact boundaries. Communities with urban compacts are also eligible for the NH DOT's Urban Allocation program to fund roadway improvements on roads within the compact boundaries. This program distributes an annual statewide allocation of $5 million in Federal transportation funding among 40 communities (27 urban compact communities) to fund improvements on roadways with a functional classification of "Minor Collector" or above.

The definition of Class IV highways is laid out in RSA 229:5. IV:

> "Class IV highways shall consist of all highways within the compact sections of cities and towns listed in RSA 229:5, V. The compact section of any such city or town shall be the territory within such city or town where the frontage on any highway, in the opinion of the commissioner of transportation, is mainly occupied by dwellings or buildings in which people live or business is conducted, throughout the year and not for a season only."

TABLE TS-3: URBAN COMPACT MILEAGE

Road Type	Mileage
State Primary System within Urban Compact [Winnacunnet Road & Lafayette Road (US 1)]	3.1
State Secondary System within Urban Compact [High Street and Mill Road]	3.7
Town & City maintained streets within the Urban Compact [Locke Road, Ann's Lane, Exeter-Hampton Road]	24.8
TOTAL (miles)	**31.6**

This boundary is established by the Department of Transportation and incorporates all town maintained streets and state roadways within the area. In Hampton there are three roadway types that are present within the Urban Compact; State Primary System Roadways (Such as Lafayette Road), State Secondary System roadways (High Street), and town owned facilities such as Ann's Lane and Locke Road. **Table TS-3** and **Map TS-1** provide additional detail regarding the Hampton

Urban Compact roads.

3.3.1.3 Traffic Volumes and Growth

The NHDOT's Bureau of Transportation Planning Traffic Research Section monitors traffic growth throughout New Hampshire and publishes monthly Automatic Traffic Recorder Reports for many locations. In addition, NHDOT and the Rockingham Planning Commission conduct traffic counts during the summer months at supplemental locations responding to community requests. Over the years, traffic volumes have been monitored at approximately 72 locations within Hampton. Many of these locations have been monitored only infrequently, while others are checked every few years or even annually. In addition data from studies performed by NHDOT, Hampton, The Rockingham Planning Commission, and other agencies, is available to supplement the regularly (or irregularly) scheduled traffic counts. The most recent counts from some of these locations are shown in **Table TS-5** below. The volumes are shown in Annualized Average Daily Traffic or AADT. AADT is the average daily traffic that has been adjusted to eliminate seasonal fluctuations.

TABLE TS-4

Hampton Toll Plaza Permanent Recorder Counts		
YEAR	AADT	GAIN/LOSS
1980	26,238	NA
1990	48,331	84.2%
1991	48,187	-0.3%
1992	49,263	2.2%
1993	49,996	1.5%
1994	51,318	2.6%
1995	53,000	3.3%
1996	54,179	2.2%
1997	56,443	4.2%
1998	58,880	4.3%
1999	60,800	3.3%
2000	61,556	1.2%
2001	62,636	1.8%

As with many communities in the region, Hampton has exhibited some significant increases in traffic volumes over the past several decades. In an effort to monitor changes in traffic volumes the NHDOT and the Rockingham Planning Commission (RPC) conduct annual traffic counts using automatic recorders at varying locations throughout the region. In addition, the NHDOT maintains a network of permanent counters at key locations around the State to monitor long-term trends. There is a set of these devices in Hampton, located on Interstate 95 at the Hampton Toll Plaza, and **Table TS-4** shows the volumes that have been measured at that location since 1980. Overall, volume on Interstate 95 has increased from an Average Daily Traffic (ADT) of just over 26,000 cars per day in 1980 to approximately 48,000 cars per day in the year 1990 and nearly 63,000 vehicles per day in 2001. This translates to an overall average growth rate of 4.1% per year. Much of this growth occurred during the 1980's, and is reflected in the large jump (nearly double) in traffic volumes between 1980 and 1990. The average annual growth rate during this period was slightly over 6%. Since 1990 growth is still occurring, but at a significantly slower rate than that of the 1980's. The AADT at the tolls was approximately 62,636 in 2001 which reflects a growth rate of about 2.4% per year since 1990. If the growth from the 1980's was continued out to 2001, the AADT would be closer to 93,000 vehicles per day.

A second permanent recorder station in the region is located on Route 1 in North Hampton, just North of the town line with Hampton. This recording station shows a much different growth pattern than the location on Interstate 95. Looking at the period from 1991 to 2001, the traffic on Route 1 over that counter has remained almost constant, with an average annual growth rate of 0.121% per year. This is reflected in other areas on Route 1 in Hampton as well, as the counts on that facility show with growth rates that are relatively flat and showing declining traffic in some cases.

In general, traffic on the collector roadways in Hampton is growing faster than the traffic on the primary arterials in the town. The collector roadways such as Mill Road, Ann's Lane, Locke Road, and Brown

TABLE TS-5: HAMPTON TRAFFIC COUNTS

		ANNUALIZED AVERAGE DAILY TRAFFIC (AADT)											
	Location	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Ave Annual Growth
ARTERIAL CORRIDORS	NH 27/High St												
	Exeter Rd (Rt 27) East of NH 101 Ramps			9200	9700				9600	9808		11000	2.23%
	NH 27 West Of US 1 Near Bridge		11000			11000			12000			14175	2.82%
	NH 27 East Of Locke Rd				5000				7000				8.41%
	NH 27 East Of US 1				8500	7300	8200			7900			-1.46%
	NH 27 West Of NH 1A			8600	3400				5600			6757	-3.01%
	NH 101												
	NH 101 East Of I-95 Ramp				6800				19000			13000	9.26%
	NH 101 West Of US 1	9000	7100	9400		8400		10000	10000	12000		15000	5.11%
	NH 101 East of US 1									14000		15000	3.45%
	NH 101 W. Of Landing Rd	11800		12000		10000		13000		14000		19523	5.03%
	NH 101E												
	NH 101E (Winnacunnet Rd) East of US 1				6600				6700	6700			0.30%
	NH 101E (Winnacunnet Rd) East of Mill Rd				6300				7100				2.99%
	NH 101E (Winnacunnet Rd) West Of Landing Rd				6400				7700			8800	4.55%
	NH 101E (Winnacunnet Rd) West Of NH 1A				3000				4100			4900	7.01%
	US 1												
	US 1 North of B&M Bridge (North Hampton)	16482	16350	16290	16298	16630	16915	16652	16467	16913	16668	16683	0.12%
	US 1 North Of Ann's Lane			20000			20000			16000			-3.72%
	US 1 (Lafayette Rd) North Of NH 101				9300				9900				1.56%
	US 1 (Lafayette Rd) South of NH 101	20200		21000		20000		21000			20000		-0.11%
	NH 1A												
	NH 1A North Of NH 27 (Sb-Nb)			6500	4300				8800			6100	-0.79%
	Ocean Blvd South Of 6Th St				4200				9200				19.60%
	NH 1A North Of Winnacunnet Rd				4600				9500			7200	6.40%
	NH 1A South Of Winnacunnet Rd		8800	9600		8700			11000		7000		-2.86%
	NH 1A North of NH 101 (Church St)							13000			7900		-16.60%
	NH 1A At Seabrook Town Line	11746	9139	9874	9779	10219	10181	9925	10669	10674	10506	11705	-0.03%
COLLECTOR ROADWAYS													
	Mill Rd North Of Winnacunnet Rd					2800			3300				5.48%
	Mill Road North Of Ann's Lane	3700			3800	3600		4100			4600		2.42%
	Watson's Lane Midway between US 1 & Mill Rd							2000			2700		10.00%
	Ann's Lane West Of Philbrick Terrace							4300			4600		2.25%
	Mace Rd East Of Mill Rd	4000		4400		4100	4500	47000		4000	4400		1.06%
	North Shore Rd West of North Beach Rd					1100	1200			1100			0.00%
	Little River Rd North of Barbour Rd				2200				2600				4.18%
	Little River Rd North of High Street				1700				1900				2.78%
	Locke Rd North of Winnacunnet Rd				1600				2000				5.58%
	Brown Ave South Of Highland Ave				2700				4100				10.44%
	Brown Ave North of Susan Lane				1700				2500				9.64%
	Towle Farm Rd Over I-95			2400					2310		2300		-0.61%
	Drake Side Rd Under B&M Railroad			1200			1200		1510		1700		4.98%

Avenue are showing growth rates that are on average approximately double those of the growth occurring on the arterial streets (4.5% to 2.2%). While many of these collector streets are relatively low volume roads so that a small change in volume can lead to a large percentage increase, it does point to a pattern of individuals seeking alternative routes around congested arterials. When this is combined with an overall much smaller amount of growth on the arterial roadways, this pattern becomes more apparent. Looking specifically at Hampton Center and its approaches for example, volumes have been level on Lafayette Road through the area, declining on High Street between US 1 and Locke Road, and increasing on surrounding roads such as Ann's Lane, Mill Road, Watson's Lane, Locke Road, Winnacunnet Road and Mace Road.

3.3.1.4 Motor Vehicle Accidents

TABLE TS-6: ACCIDENT TYPES

Accident Type	Number	%
Collision with another Motor Vehicle	1440	70.0
Collision with a Fixed Object	278	13.5
Collision with a Parked Vehicle	42	2.0
All Other Types	298	14.5

The State Traffic Accidents Database shows that in the period between 1993-1999 there were approximately 2000 reported accidents in Hampton, 70% of which involved a collision between two or more motor vehicles (**Table TS-6**). Of these accidents, there were 7 with fatalities (7 total fatalities) and 435 with injuries for a total of 606 injuries. Of accidents with injuries, Lafayette Road has the most entries in the database with 115, followed by Ocean Boulevard with 49. There were 207 injury accidents that occurred at some point unrelated to an intersection along the roadway, 91 that were intersection related, and another 38 were related to parking lots and driveways/entrances.

The most prevalent general accident location in Hampton were those that occurred "Along the Road", and if accidents that occurred at driveway access points are included, this type of accident makes up almost 46% of all those recorded between 1993-1999 (**Table TS-7**). Intersection related accidents make up another 21% of accidents in Hampton. The high volume and percentage of accidents that are occurring along the roadway can be an indicator of both congestion, as well as inadequate access/egress from driveways. Vehicles stopping in the travel lane to make right or left turns can cause many of these accidents as drivers are not expecting traffic to stop. Not knowing what vehicles were doing immediately prior to the accident limits the conclusions that can be drawn from the analysis, but it does point out that there is a problem.

TABLE TS-7: ACCIDENT LOCATIONS

Accident Location	Number	%
At Intersection	300	14.6 %
Intersection Related	128	6.2 %
Along the Road	811	39.4 %
Along Road at Driveway Access	128	6.2 %
Off Roadway on Shoulder/Median	72	3.5 %
Off Roadway Beyond Shoulder	42	2.5 %
Ramp/Rotary	68	3.3 %
Toll Plaza/Booth	159	7.7 %
In a Driveway	25	1.2 %
In a Parking Lot	216	10.5 %
Other/Unknown	109	5.3 %

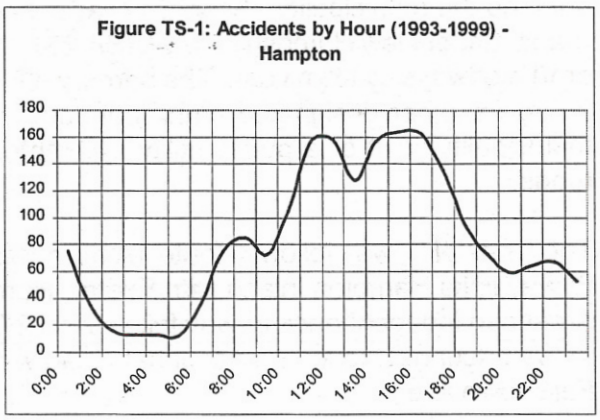
Accident Types and Locations

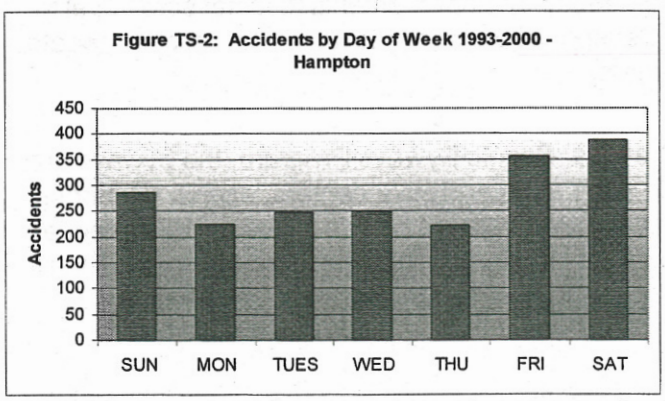
There are several locations in Town with a particularly high incidence of traffic accidents. Many of these locations are characterized by high traffic volumes and/or multiple curb cuts. Lafayette Road in particular has a large number of accidents that

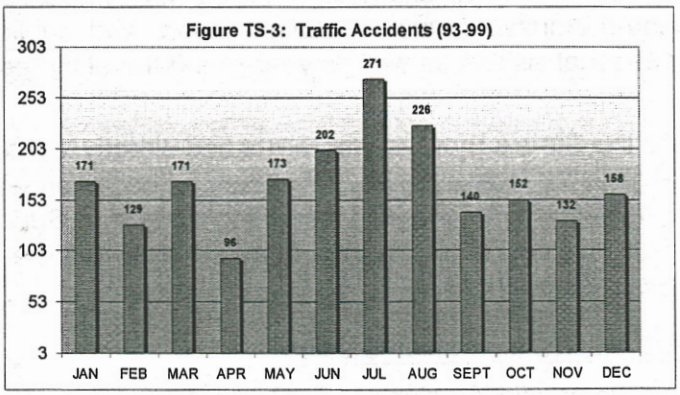
occur on, or at an intersection with it. There are approximately 430 accidents in the database where Lafayette Road is referenced either as the street on which the accident occurred, or as the intersecting street. Of those accidents with Lafayette Road listed as the "Accident Street", 103 occurred at an intersection or were related to an intersection. An additional 172 accidents occurred along the roadway, with 42 of these being at driveway access points. There are nearly 60 accidents where Lafayette Rd is listed as the intersecting street. The highest accident intersection in Hampton is the Lafayette Road/ Winnacunnet Road intersection which had 28 accidents at or nearby during the 1993-1999 time period. This is followed by the intersection of Lafayette Road with Exeter Rd/High Street (24 accidents) and the intersection of Winnacunnet Road with Landing Road, which had 18 accidents.

Accident Timing

In many instances, towns see an accident pattern that starts out with very low numbers of occurrences during the overnight hours and increases steadily during the day to peak during the afternoon commute time. Hampton's pattern is slightly different in that there are two distinct time periods in which much of the accident activity occurs (**Figure TS-1**). Hampton has an afternoon commuter time as its overall highest period of accident activity (3:00-5:00 PM), but also has a second peak from 11:00 AM to 1:00 PM where accidents occur nearly as frequently. This is likely due to the popularity of Hampton as a tourist destination. Tourists tend not to travel during the peak commuter times, and are more likely on the road in the middle of the day. As they are likely unfamiliar with the area, the potential for accidents increases with heavy volumes of tourist traffic. This is further borne out when examining the weekly pattern and monthly patterns of accidents. In terms of a weekly pattern of accidents, frequency follows a pattern that begins with a low days on Saturday and Sunday and steadily increases through the week peaking on Friday. Hampton however, shows a pattern that peaks on Saturday (**Figure TS-2**), followed







by the other weekend days, and the low days occur on weekdays. This points again to increased weekend traffic and tourist traffic as the foundation behind the accident pattern. Finally, examining accidents on an annual level (**Figure TS-3**), the pattern continues. There are significantly more accidents that occur during the summer than during the other months of the year. July shows the most accidents, with 271 during that month from 1993 to 1999. June and August are the only other months with more than 200 accidents.

Nearly 63% of all accidents occurred on during "clear" weather, and almost 72% occurred under dry road conditions. 13% of accidents occurred on wet road surfaces from precipitation of some kind. Another 13% occurred on roads with snow or ice on the surface.

3.3.1.5 Scenic Byways

Hampton is home to two of the State's fourteen Scenic & Cultural Byways designated through the NH Office of State Planning's Scenic & Cultural Byways Program. The Program was established in 1992 under RSA 238:19 to "promote retention of rural and urban scenic byways, support the cultural, recreational and historic attributes along these byways and expose the unique elements of the state's beauty, culture and history". Designation does not preempt local planning and zoning authority, and does not bind the municipality. Scenic byways should not be confused with the local specification of "scenic roads" under New Hampshire law (RSA 231:157), in which municipalities designate selected Class IV, V or VI highways by town vote. The primary effect of the local "scenic road" designation is that the planning board (or other designated municipal body) must approve the removal of trees or stonewalls by the municipality itself or a public utility. Hampton does not currently have any locally designated scenic roads.

The Coastal Byway follows Route 1A from Seabrook to Portsmouth, while the American Independence Byway links Hampton inland with Exeter, Hampton Falls and Kensington. The Hampton portion of the American Independence Byway follows NH 27/High St. from the Exeter town line to Rte 1A, Rte 1A south to Winnacunnet Road, Winnacunnet Road west to US Route 1, and US Route 1 south to the Hampton Falls town line.

The Rockingham Planning Commission developed a management plan for each of the two byways, with significant guidance and input from local Byway Advisory Committees that were formed for each project. The primary purpose of the management plans were to identify recommendations for protecting and managing the scenic, cultural, historic and natural resources along the byways. Transportation-related recommendations include support for roadway improvements that maximize safe and efficient traffic flow while retaining the character of the corridor, bicycle and pedestrian improvements to foster safe travel for non-motorized forms of transportation, and public transportation services to better accommodate seasonal visitors as well as year-round travel by residents.

As the State's Byways program is tied directly to the National Scenic Byways Program, the byways are eligible for federal Byways Program funds for projects such as interpretive centers, scenic overlooks, safety improvements and marketing materials. Support and involvement from the Town of Hampton, as well as the other byway communities, will be key to implementing the Management Plan's recommendations.

3.3.1.6 Transportation Studies

Traffic conditions along U.S. Route 1 have long been a primary concern for the Town. In 1988 the NHDOT contracted with Kimball Chase Co. to study U.S. Route 1 and determine the feasibility of reconstructing the roadway from Seabrook to Portsmouth. The results were released in 1989 as the U.S. Route 1 Feasibility Study. With regard to traffic and operations in Hampton, the study identified the following major problems:

- Failure conditions at Rte 1/Winnacunnet Road intersection
- Heavy congestion from Winnacunnet Road north to NH 27 (High St.)
- Failure conditions and high accident rate at Rte 1/NH 27 (High St.) intersection
- Poor conditions at Rte 1/NH 151 intersection

The study recommended a four-lane typical section with 6' raised median from the Hampton Falls town line to Winnacunnet Road, five lane typical with 16' raised median from Winnacunnet Road north to the North Hampton town line, the realignment and signalization of the Rte 1/ Winnacunnet Road intersection, addition of exclusive right turn lanes on all approaches at the Rte 1/NH 27 (High Street) intersection, and signalization of the Rte 1/Ann's Lane and Rte 1/Watson s Lane intersections. Most of the recommendations in the U.S. Route 1 Feasibility Study were not implemented, or were superceded by subsequent improvements. At this point in time, the study's usefulness has diminished for several reasons, the most basic of which is that the horizon year for the study (2000) has been reached, and traffic and land use data needs to be updated and recommendations re-evaluated.

The NHDOT has committed funding to the Rockingham Planning Commission to undertake a major update to the 1989 study. The project will examine and update the major components of the original study, for the purpose of verifying or revising the highway facility recommendations made in the original study. In addition, the update will incorporate consideration of access management, bicycle and pedestrian facilities, and will attempt to gauge the impacts of traffic diversion from I-95 on the corridor. It is expected that this study will be completed by the end of 2003. Future updates to this chapter should incorporate the findings of the study.

3.3.2 Commuting Patterns

In lieu of data on place of work from the 2000 Census, 1990 data is used in **Table TS-8** to develop a picture of the commuting patterns of Hampton residents. This chapter should be updated to incorporate the 2000 Census data when it becomes available (expected in Spring 2003).

According to the 1990 U.S. Census, a total of 6,525 Hampton residents reported being employed and working outside of their home. The majority of employed Town

TABLE TS-8:
1990 CENSUS PLACE OF WORK
EMPLOYED HAMPTON RESIDENTS[1]

# of Hampton Commuters	Place of Work
1,584	Hampton
259	Exeter
1,469	Portsmouth/Dover/Rochester Urbanized Area[2]
974	Other Rockingham Co.
274	Other New Hampshire
230	Boston, Mass.
1,424	Other Mass.
225	Maine
86	Other states/locations
6,525	*TOTAL*

[1] Does not include employed Hampton residents who reported working at home
[2] Includes Dover, Durham, Madbury, New Castle, Newington, Portsmouth, Rochester, Rollinsford, Rye and Somersworth

residents (4,560 persons, or 70%) stayed in New Hampshire for work. Approximately 25% of residents commuted to jobs within Hampton, 23% commuted to the Portsmouth/ Dover/Rochester Urbanized Area, 4% to Exeter, and 19% to other locations in New Hampshire. The City of Boston and the greater Boston metropolitan area was also a major workplace destination, attracting approximately 25% of all commuting trips made by Hampton residents.

Table TS-9 below summarizes commuting modes of travel for employed Hampton residents as reported in the 1990 and 2000 Census, and compares this to 2000 data for Rockingham County and the State of New Hampshire. According to the 2000 Census, 84.7% of employed Hampton residents drove alone to work, up from 80.8% in 1990. At the same time, however, the share of commute trips made using transit increased from 0.2% to 1.4%. This increase, while relatively small, is significant, particularly in light of data indicating transit usage for all of Rockingham County only increased from 0.6% to 0.8% over the last decade. Increased use by Hampton residents is likely due primarily to the development of intercity bus service from Hampton (but subsequently discontinued) and Newburyport and the extension of MBTA commuter rail service to Newburyport in the mid- to late 1990s.

TABLE TS-9: RESIDENTS' COMMUTE MODE OF TRAVEL AND MEAN TRAVEL TIME 1990, 2000

	Hampton 1990	Hampton 2000	Rock. Co., 2000	State of NH, 2000
Drove alone	80.8%	84.7%	84.8%	81.8%
Carpooled	12.4%	5.4%	7.8%	9.8%
Public transit (incl. taxi)	0.2%	1.4%	0.8%	0.7%
Walked	2.4%	2.3%	1.7%	2.9%
Other means	2.1%	1.7%	0.8%	0.8%
Worked at home	2.3%	4.5%	4.1%	4.0%
Mean travel time to work (min.)	23.9	28.8	28.6	25.3

Source: 1990 and 2000 U.S. Census

Approximately 12.4% of Hampton residents reported carpooling to work in 1990, but by the year 2000 the percentage dropped to 5.4%. This is in line with the trend seen at the County and State levels, which both saw decreases in carpooling over the past decade. However, the number of Hampton residents who walked or bicycled to work held at 2.7% between 1990 and 2000, in comparison to a decrease in bicycling and walking trips at both the County and State levels.

In 2000, 4.5% of Hampton residents reported working at home, up from 2.3% in 1990. The 2000 figure is slightly higher than the percentage of employed residents in both Rockingham County and the State of New Hampshire who reported working at home.

The average travel time to work for Hampton's employed residents in 1990 was 23.9 minutes. This

increased nearly five minutes by the year 2000, to 28.8 minutes, close to the mean commute time for all of Rockingham County of 28.6 minutes.

3.3.3 Public Transportation

This section presents an examination of existing public transportation service available to Hampton residents, from which recommendations for improving service to Hampton residents will be developed. For the purpose of this document, public transportation is defined as any transportation service available to the general public, whether it is publicly or privately funded.

Public transportation clearly can play an important role in addressing the traffic issues that a community may be facing. It represents a more efficient use of the existing road network by carrying passengers that otherwise might be driving their own vehicles. A successful public transportation system can remove a significant number of vehicles from the roadway and offer social benefits by providing a reliable means of travel for those who are unable or otherwise choose not to drive themselves.

Seasonal fluctuations in the population (size, tenure and demographics) and tourism activity in Hampton present a particular challenge to developing a successful public transportation system. Services need to be flexible and able to either operate seasonally or otherwise adapt to the changing needs of the Town residents and visitors. There is currently very limited public transportation available in Hampton. While the Town recognizes the value of, and supports the concept of public transportation, it currently provides financial support only for the demand-response transportation service outlined in section 3.3.1 below.

3.3.3.1 Demand-Response Service

Publicly funded demand-response transportation service for medical and shopping trips is provided by Lamprey Transportation, which offers service throughout all of Rockingham County. This is the only public transportation service for which the Town of Hampton provides financial support. Service is available only for disabled residents and those ages 55 years and up. Residents must contact Lamprey Transportation in advance to schedule a pick-up time. A fare is charged for using the service.

Additional transportation services in the Hampton area are provided by a variety of health and human service agencies and ecumenical organizations; each varies in its schedule and the clientele/population that it serves. These services are typically not available to the general public, but limited to a particular agency's own clientele, the elderly population, or those with disabilities. Many of these agencies have developed their own transportation services because their clients do not have access to, or are unable to drive, a motor vehicle, and because public transportation options are not available.

3.3.3.2 Fixed-Route Bus Service

There is very limited year-round fixed-route bus service available in Hampton. Lamprey Transportation, under contract to the Cooperative Alliance for Seacoast Transportation (or COAST, the region's public transit operator) operates COAST's Seacoast Route on Fridays only along the Route 1 corridor from Seabrook to Portsmouth and Newington. Service is limited to one mid-morning northbound and one mid-afternoon southbound trip per Friday. Stops include the Galley Hatch restaurant and Atlantic Heights in Hampton, the Village Shopping Center in North Hampton, Portsmouth's Market Square, and the Newington Wal-Mart.

COAST and many coastal communities recognize a need for expanded bus service along the Route 1 corridor, but the lack of funding has been a roadblock to providing the service. However, in April 2003 COAST will expand the Portsmouth-Pease trolley route to provide service along Route 1/Lafayette Road as far south as Hillcrest Estates in Rye. COAST recently applied for, and was awarded, federal Access to Jobs funding to improve transportation for those traveling to work. One of the improvements receiving consideration is increased bus service along the Route 1 corridor.

3.3.3.3 Seasonal Trolley Service / Special Event Service

In-town transit service is currently provided by a single private operator, and is limited to service in and around Hampton Beach during summer months. This seasonal service connects the Beach area, municipal parking lots, and trolley sponsors such as hotels on Route 1. In addition, trolley service is provided between Hampton Beach and the Kittery outlet malls via High Street and Route 1, with intermediary stops in Portsmouth and at business sponsors.

Private operators also provide special shuttle service for the annual Seafood Festival at Hampton Beach. Festival goers can park for free at any of seven remote parking lots in town, or pay for parking at the Hampton Beach State Park, and ride the free shuttles to the event site.

3.3.3.4 Intercity Bus Service / Ridesharing

The NHDOT has constructed 21 Park & Ride lots around the State to encourage individual efforts to carpool and to support private intercity bus carrier service. The NHDOT maintains a lot on Route 27 in Hampton, near the I-95 toll plaza. This lot is well situated to serve Hampton and Hampton area residents who commute along I-95. The lot was upgraded and expanded to include lighting and a public telephone; it has the capacity for approximately 100 cars. Until 2002, a private operator offered bus service from the lot to downtown Boston and Logan Airport.

In 1999 the NHDOT opened a Park & Ride lot and intermodal bus terminal on Pease International Tradeport property adjacent to Exit 3 on I-95. C&J Trailways provides hourly weekday commuter bus service to downtown Boston and Logan Airport, along with frequent weekend service. Hampton residents do likely not use this lot extensively as it would require traveling north in order to access travel services to Boston.

Probably the most convenient intercity bus service and park & ride lot location for Hampton residents is from the Massachusetts Highway Department's Park & Ride lot off I-95 (Exit 57) in Newburyport, Mass. Three intercity bus companies, providing regular service to downtown Boston and Logan Airport, serve the 460-parking space lot.

Organized ridesharing is also an important opportunity for residents who commute long distances to their jobs. The NHDOT, in cooperation with the Seacoast Metropolitan Planning Organization (MPO) and COAST, has initiated ridematching services in order to help commuters find potential ridematches. In addition, the Massachusetts-based Caravan For Commuters assists groups of commuters to organize vanpools for ridesharing. The Town should assist in promoting such services as a way to reduce overall peak hour traffic congestion on the region's roadways. This could include posting informational brochures/posters in public buildings and promoting the services in any town-wide newsletters.

3.3.3.5 Passenger Rail Service

The long awaited return of passenger rail service to the Seacoast region occurred on December 15, 2001, with the start of Amtrak service on the B&M Main Line between Portland, Maine and Boston. Amtrak operates rail service under contract to the Northern New England Passenger Rail Authority (NNEPRA), the Maine State agency responsible for operation of the service. Service is currently limited to four round trips per day, with stops in New Hampshire in Dover, Durham (weekend service only) and Exeter.

Hampton residents can access the service from the Exeter train station. COAST currently provides service to the station on its Route #7 which connects Exeter to Stratham, Greenland, Portsmouth and Newington. While there are on-going discussions with both COAST and a private provider to establish transit service from the Exeter train station to downtown Hampton and Hampton Beach (initially on a seasonal basis), there are currently no formal plans to begin service operation.

Commuter-based train service to Boston is also available from the MBTA train station in Newburyport, Mass. There are currently thirteen inbound and twelve outbound trips per day, as compared to four inbound and four outbound trips per day on the Amtrak train. This service is likely much more attractive than the Amtrak service to Hampton residents traveling into Massachusetts.

There has long been interest in establishing commuter rail service to coastal New Hampshire, and more so in recent years since the extension of the MBTA commuter rail service to Newburyport. The Eastern (Hampton Branch) rail line runs through Hampton, closely paralleling Route 1. The portion of the rail corridor from the Massachusetts border three miles into New Hampshire has been abandoned by Guilford Transportation and is now owned by the State of New Hampshire. From that point north the line remains in private ownership and in active use, although freight activity is low. The line is in poor condition and supports maximum speed of only 10 m.p.h.

In 1999 the RPC published a study that examined the feasibility of developing an extension of passenger rail service from Newburyport. The Town of Hampton participated in the feasibility study through representation on the Advisory Committee. The study identified several major deficiencies that would need to be addressed in order to restore service. These included the need for all new track, ties, ballast and signals, and numerous bridge and grade crossing improvements. It was estimated that capital costs would range between $77 and $104 million, with an additional annual operating subsidy of between $1.5 and $7 million, depending on service levels. Federal Transit Administration "new starts" funding, along with significant State and/or local funds, would be needed. Other issues involved in the development of a new service include station siting, operating issues, growth impact concerns, benefits and cost of service, funding issues and institutional issues.

Building from the feasibility study, in 2001 the NHDOT and the Rockingham Planning Commission secured funding for development of an Alternatives Analysis study for the Seabrook-Kittery corridor. The purpose of the study is to evaluate a variety of public transit options in the corridor, including rail, bus and/or some combination, develop a comparison of the costs and benefits of the various options, and recommend a preferred alternative. The Town should continue its participation in the planning process by maintaining representation on the Advisory Committee, which will provide input throughout the study process. Once a preferred alternative is selected, the NHDOT, the RPC and affected communities will need to work to develop a "new starts" proposal and identify a state/local funding plan.

3.3.4 Non-Motorized Transportation

3.3.4.1 Pedestrian

Walking is an important part of the transportation mix in Hampton. As mentioned earlier in this chapter, about 3% of all commuting trips made by residents are on foot or by bicycle. In addition to those commuting trips, many children walk to and from school, shoppers walk to and from downtown businesses, many residents walk for recreation and/or fitness, and in summer months throngs of pedestrians in the Beach area crowd the sidewalks and mix with vehicle traffic. The *Hampton Beach Master Plan* includes a detailed analysis of pedestrian issues and recommendations for the Beach area. As such, this chapter will address pedestrian issues more broadly for the Town as a whole.

Sidewalk connection to the Lane Memorial Library.

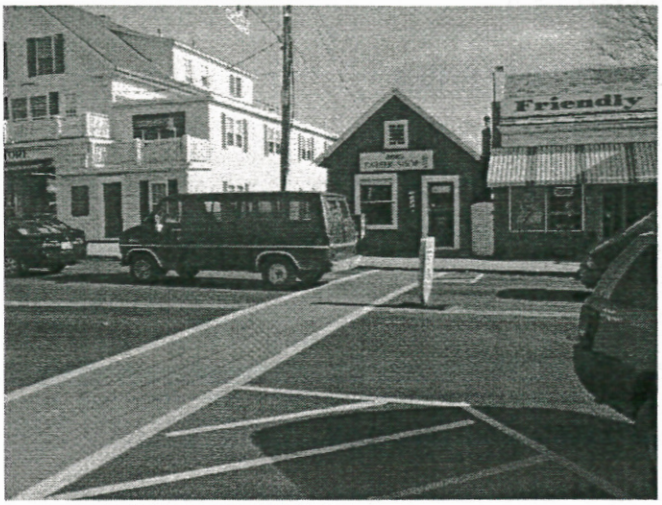
The historical development of much of Hampton along rail lines, coupled with the availability of public water and sewer and the resulting smaller lot sizes in town, have resulted in a development pattern that makes much of the community conducive to walking. A core downtown area provides shopping, services, and Town services, while additional commercial development is a short distance from the downtown and many residential areas. Several schools and recreational facilities are located within, or in close proximity to, residential neighborhoods.

Sidewalks on several major north-south and east-west roads provide a core network for the Town. The Public Works Department has two sidewalk plows for winter use to clear sidewalks on main roads in the downtown and Beach areas.

The Town has continued to invest resources into its sidewalk system, albeit on a limited basis. In recent years, the Town has improved sidewalks along Route 1 north of NH 27/High Street, extended the sidewalk on the north side of NH 27/High Street west to Route 101, and upgraded sidewalks on Mill Road between NH 27/High Street and Mace Road. The Planning Board, in reviewing commercial and residential developments, is responsible for working with applicants to obtain connections to the Town's sidewalk network as appropriate.

While basic pedestrian facilities are in place in the more urbanized parts of Town, improvements are still warranted. Primary pedestrian-related issues for the Town include:

- Adequate maintenance of existing sidewalks
- Spot improvements to correct deficiencies
- New sidewalk construction to link neighborhoods to core sidewalk network
- Safe pedestrian crossings, particularly across Route 1
- Identification of safe school bus stop locations and safe facilities for students to access those stops
- Adequate sidewalks and crosswalks in the vicinity of schools to safely accommodate students walking to school



Pedestrian crosswalk across U.S. Rte 1 south of NH 27/High St.

- Subdivision and Site Plan Review Regulations do not specifically require pedestrian facilities be provided in development proposals

The Public Works Department has endeavored to develop a list of needed sidewalk improvements in Town, but the lack of funding has limited efforts to develop a plan and make the needed improvements. A town-wide inventory of sidewalks, pedestrian crossings, primary school bus stop locations and other facilities would be useful in developing a comprehensive plan for addressing pedestrian needs. This information could be developed as a data layer in the Town's Geographic Information System (GIS) for ease of analysis and to support any other related planning efforts.

3.3.4.2 Bicycle

Bicycle transportation represents a seasonally dependent alternative to motorized transportation as well as a popular recreational activity. The popularity of cycling as both a travel mode and recreational activity has increased over the past ten years, making the potential usage higher than previously experienced. Because of the surge of summertime visitors and orientation of activity around the beach areas, the Town of Hampton in particular, is in the position to promote cycling as a means of seasonal transportation.

The Seacoast Metropolitan Planning Organization has adopted a regional bicycle plan that advocates the incorporation of bicycling design features into the transportation system and communities as a whole. Recommendations include a regional bike route network, supporting amenities (i.e. bike racks, development design to accommodate bicyclists) and education and promotion efforts. The Town successfully applied for federal Transportation Enhancement funds to implement bicycle improvements from the Exeter town line to Hampton Beach, via NH 27/High Street and Winnicunnet Road.

In 2002 the NHDOT, in coordination with the State Bicycle/Pedestrian Advisory Board and cyclists around the State, developed a statewide bicycle map that was based on the regional planning work. The network is comprised of roadways that connect communities and major centers, often with lower traffic volumes and thus reduced conflict between motorists and bicyclists. The routes through Hampton, shown on **Map TS-3**, are consistent with the Town and regional proposed bicycle route. Several of the roads have low enough traffic volumes that dedicated bicycle facilities (i.e. paved shoulders, bicycle lanes) are not necessary; however, the routes should be signed as part of a bicycle network.

A potential multi-use trail facility through Hampton exists in the form of the abandoned Hampton Branch railroad right of way discussed in Section 3.2.5 (Passenger Rail Service) above. The corridor has potential value for both motorized and non-motorized travel. The NH Department of Transportation has a policy of purchasing and "railbanking" abandoned railroad corridors when possible, thus preserving the corridor for future use. In certain cases, when funding is available, the corridor is maintained for trail use until such time as it is need for other transportation purposes.

REPLACE WITH MAP TS-3

STATE AND REGIONAL BICYCLE ROUTES

Map TS-3
State and Regional Bicycle Routes
Hampton, New Hampshire

January 2003

LEGEND

State Bicycle Route

Regional Bicycle Route

State Roadway Class

I

II

IV

V

VI

Private Roads

Stream

Intermittent Stream

Marsh or Swamp Outline

Bodies of Water

Railroads

Town Boundary

Data Sources:

Bicycle Routes were provided from the NH DOT Bureau of Transportation Planning Bicycle/Pedestrian Program. The routes were developed with the assistance of the Bicycle and Pedestrian Transportation Advisory Board and many experienced cyclists throughout the state.

Base Features (transportation, political and hydrographic) were automated from the USGS Digital Line Graph data, 1:24,000, as archived in the GRANIT database at Complex Systems Research Center, Institute for the study of Earth, Oceans and Space, University of New Hampshire, Durham, NH; 1992-1999. The roads within the Rockingham Planning Region have been updated by Rockingham Planning Commission and by NH Department of Transportation through ongoing efforts.

This map was funded by a grant from the New Hampshire Coastal Program pursuant to the National Oceanic and Atmospheric Administration Award (NA17OZ1129)
June 2002, New Hampshire Office of State Planning, Rockingham Planning Commission

N W E S

SCALE 1:50,000

0 0.25 0.5 1 Miles

Rockingham Planning Commission

s:/d-hampton/d-maps/HamptonMP03BicycleRoutes11x17.mxd

In addition to the short-term possibility of developing a trail on the right of way, the feasibility of the long-term development of a shared "rail-with-trail" project should be examined. An increasing number of these types of projects are being developed in the U.S., where a multi-use path or other trail is located on or directly adjacent to an active railroad corridor. Shared use paths are physically separated from motorized traffic by an open space or barrier.

While there has long been interest in establishing commuter rail service to the Seacoast along the former Hampton Branch corridor, it is a long-range effort. Until such time that the corridor would be developed for passenger rail service, the NH Department of Transportation, the NH Department of Resources and Economic Development's Division of Parks and Recreation Trails Bureau and affected communities should work together to examine the feasibility of developing a multi-use trail facility on the State-owned portion of the corridor.

In addition to providing adequate roadway space and other facilities for cyclists, attention needs to be given to supporting facilities at the end of the trip. The importance of basic amenities—convenient and secure bicycle parking—can't be overemphasized. Finding secure bike storage is often the most difficult part of making a bicycle trip. If there is no bicycle parking at a particular destination, cyclists will have to resort to parking and locking bicycles to street signs, trees or other objects, or simply will choose to drive an auto instead. Secure and well-located bike storage racks should be provided at major destinations, such as the beach areas, downtown, and public facilities such as parks, libraries and schools.

Many communities in New Hampshire have had success with developing bicycle facilities and sidewalks through the federal Transportation Enhancement funding program. In addition to bikeway and sidewalk construction, eligible projects include bike storage racks, promotional efforts and public education. While the funding program is very competitive, numerous communities in the Seacoast region, including Hampton, have successfully applied for these funds.

3.3.5 Freight / Goods Movement

The Seacoast area of New Hampshire is an area rich in economic potential. This potential exists, in part, because of the Seacoast's broad mix of intermodal freight transportation resources. These resources include a deep-water port, a major airport facility, a direct link to the interstate highway system, and good access to America's highly productive railway network. This system provides a foundation for supporting the area's economic growth, however these resources must be enhanced and diversified to meet the challenge of supporting future growth. Existing and future resources in Hampton will play a role in this network.

Active Hampton Branch rail line, looking north from NH 27/High St. bridge.

3.3.5.1 Rail Freight

One active rail line exists in Hampton, the Hampton Branch Line (also known as the "Mainline East" or "Eastern Line") of the B & M Railroad. This line primarily serves businesses located along the most southerly portion of the tracks. This line extends south from Portsmouth to Hampton and continues on an unused portion of the track south to Seabrook and into Newburyport, Massachusetts. Guilford Rail Lines

currently utilizes this line for occasional freight shipments to manufacturers in Hampton. As discussed in section 3.3.2.5 above, this line is being considered for potential restoration of passenger rail service, extending MBTA service from Newburyport north to Portsmouth and Kittery, ME.

3.3.5.2 Shipping

One of America's primary port facilities, the Port of Boston, is located approximately 50 miles from Hampton and provides access to major shipping lines. In addition, the Port of Portsmouth will be starting container service on a weekly basis. Other ports in the region, such as New York, Portland, and Montreal provide additional shipping facilities.

3.3.5.3 Air Freight

Like ocean based shipping, Hampton has convenient access to nearby air freight services. Boston's Logan Airport provides worldwide access to markets and services. In addition, Pease International Tradeport in Newington/Portsmouth, about 10 miles from Hampton, is a resource as both a passenger and air freight facility. Other airports in the region that offer freight service include Manchester Airport and Portland, Maine. Major carriers that provide services to these airports include Emery Air Freight, BAX, Federal Express, and UPS.

3.3.5.4 Trucking

The Hampton area is well served by motor carriers. Major local, regional and national trucking firms provide high quality and frequency services. National LTL (Less Than Truckload) carriers include Roadway, Yellow, Consolidated Freightways, and Con-Way. Regional LTL carriers include New Penn, Red Star (part of US Freightways) and Estes. Major TL (Truckload) carriers include J.B. Hunt and Schneider National. There are also bulk liquid carriers represented such as Superior and Matlack. There is also a large fleet of vehicles that service private companies such as the fleet of trucks that distribute goods to Wal-Mart and other major chain stores that have their own fleets.

As the area grows, additional truck traffic can be expected and concerns rise among residents about the volume of truck traffic on specific roadways. This can be a particularly bad problem in residential neighborhoods where noise and safety issues become a great concern. Some conflict has already arisen as a result of truck traffic that must travel local roads in order to access businesses in Hampton's Industrial-zoned district. In this case, the Town could utilize access management techniques (discussed later in this chapter) or enforce posted speed limits to mitigate residents' concerns while still allowing the necessary access to the Industrial areas.

The Town can also adopt an ordinance restricting vehicles above certain weights from designated Town roads during seasonally wet periods. In order to assure that trucks use the proper roads, the town should enforce RSA 47:17, Section VIII "Traffic Devices and Signals" which empowers the Board of Selectmen:

> "To make special regulations as to the use of vehicles upon particular highways, except as to speed, and to exclude such vehicles altogether from certain ways; to establish stop intersections, erect and provide for the control of traffic by, stop signs or other traffic devices or signals which shall conform to standards set by the highway commissioner and shall be approved by him as to type, size, installation and method of operation."

3.4 PARKING

Parking is a significant issue in several parts of Town, most notably the Hampton Beach area, downtown, and in the vicinity of the High School. The *Hampton Beach Master Plan* includes a detailed analysis of parking issues for the Beach area and should be referenced for recommendations on parking improvements for that area. This chapter will address parking issues in the other parts of the Town.

Municipal parking lot from NH 27/High St. entrance.

The Town maintains a 100+ space public parking lot behind the row of commercial businesses at the southeast corner of Route 1 and NH 27/High Street. In addition, there is a limited amount of short-term on-street parking on Route 1 and NH 27/High Street. There are approximately eight 1-hour spaces on NH 27/High Street, approximately fifteen 2-hour spaces on southbound Rte 1 and 25 spaces on northbound Route 1. All of the Town's public parking in the downtown is free of charge. In addition, there are private parking lots and other miscellaneous parking serving businesses and private residences.

The general public perception is that there is a shortage of parking for downtown businesses and residents. Inadequate identification of the Town lot as public parking, and directional signage to the lot from Route 1, may contribute to this perception. While the main entrance to the High Street public parking lot is well marked, directional signage on Route 1 is limited to a single sign on Swain Court.

The Town lot has approximately forty designated overnight parking spaces. During winter months when on-street parking is banned to allow snow removal, the Town often receives telephone calls from residents complaining of the lack of overnight parking spaces.

There is no comprehensive information on the total parking supply, usage rates and additional parking demand for either winter or non-winter months. A parking inventory and utilization study would allow the Town to determine the actual parking needs for the downtown area.

Parking conflicts are also a concern for residents in the immediate vicinity of the Winnacunnet High School campus. According to School Administrative Unit (SAU) #21 officials, only high school seniors are allowed to drive to school and park in the school lot. One unintended result of this policy is that many underclassmen drive to school and park on the street in residential areas abutting the school property. Residents have expressed concern about limited sight distance and other issues caused by the on-street parking. The Town should work with SAU officials and area residents to address this issue.

3.5 CONGESTION TOOLBOX

This section is intended to provide decision-makers with some additional guidance on methods to offset the impacts of traffic congestion as well as some resources that can be utilized in the planning process.

3.5.1 Access Management

Access Management is the process of balancing the competing needs of traffic movement and land access. The character of development and the roadway network in Hampton provide limited opportunity to widen roadways beyond the existing cross section. While there are opportunities to add turning lanes, acceleration and deceleration lanes as development and related traffic increases, there is very little space for additional through lanes of any length. Given this, it is important that the existing network be used as efficiently as possible. One method to improve the safety and efficiency of the roadway network is the use of access management. The principal of access management is to provide access to developed land (or developing) while preserving the ability of the roadway network to move traffic safely and efficiently. This primarily involves establishing principles relating to the location, design and operation of driveways accessing the public road network addressing the basic questions:

- Where should access points to the roadway be located?
- When should an access point be put in place?
- What is the most appropriate design for the access point?

This process includes:

- Understanding the functional classification of each roadway and how that reflects the importance of each roadway to mobility;
- Setting standards for each road class that address access in terms of location, spacing, design and timing.
- Applying appropriate geometric design criteria and traffic engineering analysis to any proposed access that is allowable according to access management standards.
- Adopting appropriate regulations and administrative procedures to establish the process and account for exceptions or variances.

Symptoms of Poor Access Management

- High Crash Rates
- Poor Traffic Flow and Congestion
- Numerous brake light activations by drivers in the through lanes
- Unsightly strip development
- Neighborhoods disrupted by through traffic
- Using a local street parallel to the overburdened "arterial" to make a one-way pair
- Pressures to widen an existing street or build a bypass
- Bypass routes as congested as the roadways they were built to relieve
- A decrease in property values.

Hampton is already exhibiting some of the symptoms of poor access management, specifically on the US 1 and NH 1A arterials. Traffic is congested, especially during peak periods, long queues form at traffic signals, and there are a large number of accidents, many of which are related to driveway access points or occur along the roadway away from intersecting streets.

The benefits of implementing access management are many. Safety is improved with fewer and less severe accidents, as well as improved safety for bicyclists and pedestrians. Traffic moves more smoothly

and with less overall delay due to improved use of roadway capacity. Because roadway widening is limited, access management can also be utilized to make improvements to efficiency, while at the same time enhancing community character and keep neighborhood integrity intact. Finally, corridors can become more attractive as pedestrian and bicycle oriented improvements and aesthetic treatments are implemented, and roadways are kept to a smaller scale.

There are a large number of specific techniques that are used in access management to make the best use of the roadway. The following listing encompasses the basic techniques to provide an overview of those methods.

Medians: The intent of a median is two separate opposing lanes of traffic, and there are two types; traversable and non-traversable. Traversable medians are primarily striped as two-way left-turn lanes which allow traffic to make left turns at any point. Non-traversable medians are raised to prohibit crossing although breaks may be implemented to allow for left turn bays at specific locations. Medians of any kind improve safety and traffic flow, although raised medians prove to be the most safe and efficient. An additional benefit of raised medians are that they can provide mid-street crossing refuges for pedestrians as well as allowing for landscaping that beautifies the corridor.

Auxiliary lanes: Left and right-turn lanes/bays remove turning traffic from the through lanes of the roadway minimizing traffic conflicts. These are significantly less expensive to implement (in most cases) than more significant widening and perform the task of consolidating turning traffic into specific locations.

Signalized Intersection Spacing: To facilitate efficient traffic movement, distances should be uniform between signalized intersections (ideally no less than 1/4th mile). This can also provide additional benefits if signals are coordinated.

Driveway Location and Design: The location and design of each driveway affects the ability of the driver to enter or exit a particular site. Sight distances, turning radii, and driveway widths all impact the ability of a driver to enter and exit the roadway safely and efficiently. This impacts traffic flow on the roadway be determining how smoothly and quickly a vehicle can enter or exit traffic flow. If this process is too slow, it can result in accidents and increased congestion.

Driveway Spacing: Establishes minimum distances between driveways. Driveway spacing standards should vary according to facility type, with more stringent standards applied to arterials than collectors to account for higher traffic volumes and speeds. Minimum distances should be established based on the engineering standards, driver behavior and vehicle dynamics necessary for drivers to respond to vehicles entering and exiting the roadway. An absolute minimum spacing is considered to be the stopping distance at driving speed on a facility.

Corner Clearance: This involves setting minimum safe distances between an intersection to the nearest access point. Assuring adequate lot size with appropriate corner clearance will help protect the functional integrity of the intersection and the development potential of corner lots.

Joint and Cross Access: This involves consolidating access points on adjacent parcels into a single access point.

Reverse Frontage: This method uses interior streets to connect small commercial and residential uses as opposed to allowing each an access onto a main thoroughfare. This collects traffic at intersections that can safely handle the interaction with the primary street

The Town's Site Plan Review Regulations specify that the number of access points for a development will be minimized, preferably one access point per street. Beyond that, neither the Town's Subdivision nor Site Plan Review Regulations directly address access management as part of the development review process. Guidelines could be developed as part of the Town's Subdivision or Site Plan Review Regulations, or could be developed as a separate plan for specific corridors and adopted by reference.

3.5.2 Traffic Calming

A second approach for dealing with traffic congestion is known as traffic calming. There are many different approaches to traffic calming (**Table TS-10**), but the primary method is to reduce the speed of traffic by altering the street. Limiting cars to more appropriate and safe speeds has the effect of reducing noise and air pollution, lowering the number and severity of traffic accidents, as well as increasing the capacity of the roadway to handle more vehicles.

TABLE TS-10: GENERAL TRAFFIC CALMING METHODS

1.	Reduce the speed at which autos travel by altering street design
2.	Change the psychological feel of the street by altering street design
3.	Increase incentives to use public transportation
4.	Discourage use of private motor vehicles
5.	Encourage more efficient travel
6.	Create strong local communities

This type of traffic calming has two general approaches; active and passive, and many individual approaches are shown in **Table TS-11** on the following page. Active techniques force a driver to change their behavior (such as a barrier forcing the vehicle to turn off a street), thereby enforce themselves. Passive controls, such as a speed limit sign or other traffic sign, do not physically require a change in behavior, but instead rely on the driver to comply with local and state laws. A second approach to implement traffic calming is to change how the street feels to the motorist. By replacing wide, open streets with more narrow travel lanes, broken site lines, and generally a more closed in feeling, drivers will have a tendency to slow down. Other methodologies for implementing traffic calming require less physical infrastructure changes, and more policy and perceptual changes within a community. Encouraging the use of transit, more efficient use of transportation, and creating strong local communities require larger changes in how land use is allocated, personal preferences for where to live and how to get around.

TABLE TS-11: TRAFFIC CALMING TECHNIQUES

Technique	Description	Use
Speed Bumps & Speed Tables	Raised humps in road surface. Speed Tables are 8-12 feet long and comfortably crossed at 15-25 mph.	Have been shown to reduce speed and volume of traffic. Speed bumps have widespread use in parking lots, but also create hazards and plowing problems. Speed tables reduce the plowing problem by providing a more gentle slope
Rumble Strips or Changes in Roadway Surface	Patterned sections of rough pavement cause slight vibrations which cause the driver to become more alert and slowdown	Can reduce accidents if properly placed. Some concerns about bike travel and increased noise.
Diagonal Diverters	Barrier placed diagonally across a four way intersection to separate it into 2 unconnected streets with each making a sharp turn.	Used in residential neighborhoods to eliminate cut-through traffic by making the route more circuitous. Best used as part of an overall plan for a neighborhood.
Dead-end Streets or Cul-de-sacs	Placing a barrier across one end of a street to eliminate motor vehicle traffic.	Used primarily in residential neighborhoods, eliminates cut-through traffic while still allowing pedestrian and bicycle access.
Semi-diverters, Neckdowns, Chicanes, Chokers & Protected Parking	Methods of restricting traffic flow without eliminating it entirely. Generally the curb is pushed out into the street at specific location(s) to create a narrowing of the roadway. Semi-diverters restrict one direction of traffic from entering a street; neckdowns and chokers reduce the width to only allow one direction of travel at a time. Chicanes extend the curb on alternating sides of the street to require vehicles to adjust their path of travel at intervals, Protected parking places curb bulb-outs at either end of parking reduce street width and reduce illegal parking.	Most of these techniques are used in residential neighborhoods to reduce the volume and speed of traffic. If sloped curbing is used, emergency vehicle movement is not blocked and snow plows can have an easier time clearing the road. Semi-diverters don't allow a vehicle to enter a street from one end, but allow two way traffic on the street itself.
Traffic Circles or Round-abouts	These are raised islands usually located at the intersection of two streets. Vehicles must go around the median to continue on the same street or to make a turn. Vehicles usually must slow to 15-25 mph to navigate them.	These work best on residential non-arterial streets where they reduce speed and accidents without diverting traffic to other streets. Can also be used on arterial and collector streets as an alternative to standard traffic signals
Stop signs, Speed Limit signs, Turn prohibition signs	Signage directs traffic to operate according to certain restrictions	Stop signs assign right-of-way, turn prohibition signs limit turning movements, and speed limit signs limit speeds (somewhat). Can be used anywhere.
One-way Streets	Discourages through traffic by eliminating travel from one direction	Used on residential streets to eliminate cut-through traffic
Traffic Signals	Properly tuned traffic signals can reduce delay on arterial streets and improve traffic flow.	Use on primary arterials. Linked and coordinated signals reduce delay, improve traffic flow and help to reduce impacts on other streets from traffic seeking alternate routes through the congested area.

3.6 RECOMMENDATIONS

3.6.1 General

1. Develop a common vision for Hampton through the update of subsequent chapters of the Master Plan, and update this Transportation Chapter as appropriate to serve that vision.

2. Town officials, including the Town Manager and Director of the Dept. of Public Works, should work with the NH Department of Transportation to gain a better understanding of the function of the Urban Compact Program and its implications regarding funding and transportation improvements for the Town of Hampton. This would include follow up with any identified actions to improve and/or clarify the program.

3. During the review of development proposals, continue to evaluate each development's effect on the surrounding transportation system. This includes holding roadway access points to a minimum as specified in the Town's Site Plan Review Regulations, and requiring appropriate traffic studies and road improvements as part of subdivision and site plan approvals.

4. Implement the transportation-related recommendations from the *Hampton Beach Area Master Plan*, specifically pertaining to roadway, parking, bicycle and pedestrian improvements.

5. Implement the transportation-related recommendations from the *Coastal* and *American Independence Byway Management Plan*, and continue to maintain representation on the American Independence Byway Advisory Committee.

6. Utilize the Geographic Information System (GIS) to develop and maintain an inventory of the Town's roadway and sidewalk infrastructure, and as a tool to manage and maintain the Town's transportation system.

3.6.2 Highways

1. Continue to participate in the update of the Route 1 Corridor Study. Upon its completion, the Town should work toward implementing relevant recommendations.

2. Develop a local transportation improvement plan that details and prioritizes needed transportation improvements. Any plan should consider all modes of transportation.

3. Develop and adopt local access management standards to guide new development and redevelopment. The Route 1 Corridor Study update will address access management on the Route 1 corridor, and could be adopted as part of the Town's Subdivision and Site Plan Review Regulations by reference.

4. Encourage the use of Intelligent Transportation Systems (ITS) technologies (i.e. traffic signal synchronization and incident management system) to improve the movement of vehicles on the existing transportation system. The Route 1 corridor would be a primary potential application.

5. Develop and adopt road design standards for primary freight and school bus routes, with adequate turning radii at intersections to accommodate the vehicles' larger sizes.

6. Design and construct pull-outs at major school bus pick-up locations, as well as at selected locations along major roadways, to address traffic queue issue by allowing traffic to pass buses once loading/unloading is finished.

7. Utilize access management techniques and/or enforce posted speed limits to mitigate residents' concerns about truck traffic accessing Industrial-zoned districts, while still allowing the necessary access to the Industrial areas.

8. Develop and adopt flexible road design guidelines to minimize unnecessary impervious surfaces and promote context-appropriate design based on the proposed roadway's function.

3.6.3 Public Transportation

1. Continue to provide financial support for existing demand-response transportation service operated by Lamprey Transportation.

2. Support public transportation services that address the seasonal fluctuation in transportation need of residents and visitors. The Town should dedicate funding to support existing COAST fixed-route bus service along the Route 1 corridor (COAST Seacoast Route). Additionally, the Town should consider dedicating funds to support seasonal trolley service and special event transit service (i.e. Seafood Festival) to serve residents, as well as to help alleviate seasonal traffic congestion.

3. Explore alternative ways of funding public transportation, including adoption of the local option vehicle registration fee as allowed under RSA 261:153 (requires approval of voters at Town meeting).

4. Coordinate with the Rockingham Planning Commission (RPC) and COAST, as appropriate, in planning future expansions in public transportation service to serve Hampton, such as modifications to COAST Route #7 or the establishment of seasonal shuttle service to/from the Exeter train station.

5. Continue the Town's participation in the development of the RPC's Alternatives Analysis study to examine the feasibility of establishing public transportation service, including a passenger rail option, from Seabrook to Kittery, Maine. Based on the study's findings, the NHDOT, the RPC and affected communities should work to implement the recommendations, including identifying a state/local funding plan, if necessary.

3.6.4 Non-motorized Transportation

1. Construct and maintain the previously funded Town bikeway project to complete the Exeter-Hampton-North Hampton bicycle route loop, and work with the NH Department of Transportation on developing and installing bike route markers.

2. Conduct a town-wide inventory of sidewalks, pedestrian crossings, primary school bus stop locations and other facilities in order to developing a comprehensive plan for addressing pedestrian needs.

3. Ensure that adequate sidewalk and bikeway connections are in place in the immediate vicinity of schools to accommodate and encourage students to walk and/or bicycle from surrounding residential neighborhoods.

4. Amend the Town's Subdivision and Site Plan Review Regulations to address the need for sidewalks in residential and commercial development proposals and connectivity within the community.

5. Coordinate with the NH Department of Transportation, the NH Department of Resources and Economic Development's Division of Parks and Recreation Trails Bureau, the Town of Seabrook and trail advocacy groups to examine the feasibility of developing a multi-use trail facility on the State-owned portion of the abandoned Hampton Branch railroad right-of-way.

6. Advocate for the examination of the long-term development of a shared "rail-with-trail" project on the Hampton Branch rail corridor, as part of the Alternatives Analysis study.

7. Develop and submit a Transportation Enhancement application for bike storage racks at selected locations in the Town, including the Hampton Beach area, downtown and selected public facilities.

3.6.5 Parking

1. Conduct a parking inventory and utilization study for the Town, focusing on the downtown area, and assess the need for additional daytime and/or overnight parking and other improvements. An adequate amount of public parking should be provided for public activity centers and facilities (i.e. Eaton Park, Public Library) appropriate for the neighborhood.

2. Work with School Administrative Unit #21 officials and area residents to address neighbors' concerns about unsafe situation created by on-street student parking.

3.6.6 Transportation Funding

1. Continue to fund the Town's Road Improvement Capital Reserve Fund (established by Article 16 at the 1998 Town Meeting).

2. Develop and present a warrant article to Town voters on implementing a local option vehicle registration fee, as allowed under RSA 261:153, for the purpose of building a dedicated funding source for other transportation improvements such as bicycle and pedestrian facilities and/or public transportation.

3. Consider the inclusion of a road impact fee in the Town's assessment methodology for the Impact Fee Ordinance, to allow the Town to require that new development pay for the increased stress on the transportation system created by the development.

Notes: