7. Transportation and Circulation

Introduction

Sandwich has several modes of transportation and transportation facilities. The roadway system ranges from gravel country roads that have changed little over the past 20-30 years to a two-lane arterial state highway that passes through the eastern portion of the town.

Associated with the roadway system are much more limited facilities for bicycles and pedestrians, mostly in Center Sandwich. A privately operated mini-bus service has just started in Sandwich and adjacent towns. There is no rail service.

Sandwich's existing roadway transportation system mirrors the historical movement of people and goods and has played an instrumental role in the way that the town has grown and developed. The major roadways that have contributed to the historic growth and development of the town are NH Route 113 and Route 25. Route 113 runs in an east-west direction through Center Sandwich, from the Route 3 and I-93 corridors to the west. Other roadways have contributed to both access to and growth of the town, such as Squam Lake Road and NH Route 109. Interstate 93 is the most prominent regional travel corridor, providing access to Sandwich and nearby communities, although its effect is somewhat limited by the 15-mile distance from the nearest interchange (#24) in Ashland.

While there are several major roadways providing travel within Sandwich, travel and circulation is somewhat restricted in the north-south direction because much of the northwest portion of Sandwich is occupied by the White Mountain National Forest.

Sandwich's roadway system is more than a system of streets for automobile traffic to get from one place to another. It is also closely linked to the use of land adjacent to it. Roadways open up views and provide access. By their design and location they can determine the flow and safety of traffic. Streets are also used by cyclists and pedestrians, particularly in the village areas such as Center Sandwich and North Sandwich.

As Sandwich continues to grow, the town will need to respond to changing demands for providing a well-managed transportation system. This section of the Master Plan updates the inventory from the transportation chapter of the 1981 Master Plan, assesses the current transportation system, evaluates the community's desire for a transportation system and proposes recommendations for achieving the town's transportation goals.

Regional Transportation System

Sandwich is part of the Lakes Region Planning Commission, which manages the regional transportation planning program in cooperation with the NH Department of Transportation

(DOT). The Commission prepares biennial regional transportation plans that guide development of the transportation system for 20 years. The more specific tasks to be conducted by the LRPC are done through the Unified Planning Work Program (UPWP) and are accomplished over a two-year period.

The most recent plan was completed in January, 2008 and includes projects that are to be fully or partially funded by the state from 2009 to 2035. The regional plan serves as a guide for the development of regional transportation improvement programs (TIP). The TIP is developed biennially and submitted to the NHDOT for their consideration and implementation.

In addition to the long-range plan, a four-year Transportation Improvement Plan (TIP) was also completed in October of 2008. This plan identifies specific projects for implementation in each of the Lakes Region communities through 2012. The projects in the TIP and Long Range Plan were adopted through a cooperative process between the NH DOT, the regional planning commissions and the local communities. The local communities have representation on a Technical Advisory Committee (TAC) and a Policy Advisory Committee. Sandwich does not have a member on the TAC. The laws place strong emphasis on plans that:

- reflect locally established project priorities;
- are financially realistic;
- are consistent with the State's plan for air quality attainment (the 'SIP') and
- are developed with meaningful public involvement.

Typical projects include:

- Construction, reconstruction, resurfacing, restoration, and rehabilitation;
- Capital costs for transit projects and publicly owned intra-city or inter-city bus terminals or facilities;
- Highway and transit safety improvements;
- Fringe and corridor parking facilities;
- Carpool and vanpool projects;
- Participation in wetland mitigation and wetland banking;
- State bicycle and pedestrian coordination;
- Pedestrian and bicycle facilities;
- Acquisition of scenic and historic sites;
- Scenic and historic highway programs;
- Rehabilitation of historic facilities;
- Preservation of abandoned transportation corridors;
- Control and removal of outdoor advertising; and
- Mitigation of water quality impacts from roadway runoff.

There are eight projects within the Lakes Region that are scheduled to move forward for the 10-year period 2009-2018. None of these is within Sandwich.

Regional Highway Network within Sandwich

There are several transportation routes that carry the majority of long distance travel, both within and to and from the region. These routes carry the highest volumes of people and goods between the communities, the regional employment and other activity centers. A number of these major routes are near or within the Town of Sandwich. **See attached map, Roads by Legislative Class in Appendix B.**

Interstate 93 (I-93) is a four lane divided highway that runs in a north-south corridor approximately 15 miles west of Sandwich. The route serves as a major commuter corridor in the region, as well as handling year round tourist traffic. Based on NH DOT traffic volume reports this roadway experiences almost 20,000 vehicles per day. It is classified as a major arterial roadway by NH DOT.

NH 25 is a major east-west two lane roadway that runs through a small portion of southeastern Sandwich for about 4 miles. It originates at the Vermont border, proceeds through Holderness in the west and runs through Moultonborough, Sandwich and Tamworth, and then to the NH state line with Maine in the east. It carries approximately 4,000 vehicles per day and is classified as minor arterial roadway by NH DOT.

NH 113 is a two lane roadway that provides a link from I-93 to the west through Sandwich to Tamworth to the east. Volumes vary from approximately 600 vehicles per day at the Holderness town line with Sandwich to approximately 1100 near Center Sandwich to 240 at the Tamworth town line. It is classified as a collector roadway by NH DOT

NH Route 113A is also a two lane roadway that splits off from Route 113 at North Sandwich Village and travels north east to the Tamworth town line. It carries approximately 460 vehicles per day and is classified as a collector roadway by NH DOT.

NH Route 109 is a north-south roadway that extends from Center Sandwich at the intersection with NH 113 south to the Moultonborough line and then continues further to the Town of Wolfeboro and eventually into Maine. It is a two lane roadway that carries up to 1500 vehicles per day near the intersection with Route 113 and as little as 780 per day near the Moultonborough line. It is also classified as a collector roadway by NH DOT.

Squam Lake Road. Although not a numbered state roadway, this two lane road carries traffic from the Route 25 intersection in Center Harbor to Center Sandwich. Approximately 1100 vehicles per day use this roadway, which is classified as a collector by NH DOT

Little Pond Road is also a two-lane state maintained roadway that extends from Route 109 at Lower Corner to Route 25. There is no traffic volume data for this roadway segment, which is classified as a local roadway by NH DOT.

The remaining roadways in Sandwich are local and classified as minor roadways by NH DOT.

Local Transportation System

Roadway Classification System

In New Hampshire roadways are classified in several ways for administrative and functional purposes. The administrative classification system is based upon criteria established by the NH Department of Transportation (NH DOT) for purposes of maintenance, and it identifies which level of government is responsible for maintenance and construction. The functional classification system classifies roads by their capacity to handle traffic and their particular land use setting.

Administrative Classification—Legislative Class

The Administrative Classification system identifies six classes. Four of these are found in Sandwich. A full description of each class is found in **Appendix A**. **See attached map, Roads by Legislative Class in Appendix B.** The state lists 128.8 miles of roads in Sandwich, both public and private. Of these, 30.3 miles are state roads (Class I and II). They are classified as follows:

- **Class I-Trunk Line Highways**—part of the primary state highway system. The state pays for construction and maintenance. There are 4.1 miles of Class I roads in Sandwich—all of which are NH Route 25.

- **Class II-State Aid Highways**—part of the state secondary highway system. The state also pays for construction and maintenance. Such roads as NH Routes 109, 113, 113A, Little Pond Road and Squam Lake Road fall into this category. Sandwich has 26.2 miles of Class II highways.

- **Class III, Recreational Roads and Class IV-Town and City Streets**—Sandwich does not have any recreational roads or city streets.

- **Class V-Rural Highways**—all other traveled roadways that are maintained by the town. There are 65.2 miles of rural highways in Sandwich.

- **Class VI-Unmaintained Highways**—consist of all other public ways that have been discontinued or not maintained in a suitable condition for five years or more. Sandwich has 5.1 miles of Class VI highways.

- **Private Roads.** These are privately maintained local roadways. There are 29.2 miles of private roads in Sandwich. This is a relatively high number compared to other regional communities.

The town is directly responsible for the upkeep and maintenance of approximately 65 miles of roadways, a relatively large network for a population of about 1,300 people. The cost of maintaining such a system is significant. Almost all of the Highway Department's budget is devoted to road upkeep, maintenance and repair. The 1981 Master Plan reported that in 1971 the budget for roads was almost $50,000 and by 1979 it was almost $140,000. Assuming costs for personnel, materials and vehicle maintenance/repair, the 2009 cost was approximately $500,000 or the equivalent of $7,600 per mile annually. In 1971 it was approximately $2,100 according to the 1981 Master Plan.

Functional Classification

Functional classification systems for Sandwich have been prepared by the NH DOT based upon federal standards in terms of the function the roadway serves. In many communities these systems are modified for local purposes, although Sandwich has not classified its road system this way. This system is based upon a determination of the role that each roadway system performs in terms of traffic capacity and land access. **See attached map Figure B-2, Roads by Functional Class in Appendix B.** The Sandwich functional classification system is similar to the legislative classification and is broken down as follows.

- **Arterial (Rural)** A network of continuous routes that provide mobility for relatively high vehicle volumes and high travel speeds (rural) with minimal interference to through traffic. The only roadway classified as an "arterial" in Sandwich is NH Route 25. (4.1 miles).

- **Collector (Rural)** Branches off of the arterial system that provide access to adjacent lands and provide service for travel over relatively short distances, typically to other collectors and local streets. The following roadways are classified as "rural collectors" in Sandwich—NH Route 109, NH Route 113, NH Route 113A and Squam Lake Road. In total these are 23.8 miles.

- **Local (Rural)** Branches off of the collector system that provide direct access to adjacent land, but relatively little mobility between locations. Most of these are typically locally-maintained roadways. These include the remainder of the roadway system in Sandwich except for the private and Class VI roads. (67.5 miles)

These classifications are useful for roadway planning, since they provide a means for implementing standards and specifications to handle appropriate levels of traffic, establish roadway character and identify roadway sections for maintenance and reconstruction. For example, local roads could conform to the Street Design Standards in the town's Subdivision Regulations.

Scenic Roads

Local communities may designate certain roadways within their community as scenic in accordance with NH RSA 231:157. Such a designation is a good tool for maintaining the scenic

quality of Sandwich. In 1972 the Town of Sandwich voted at Town Meeting to designate all of its town roadways as scenic with respect to this state law. However, this article does not extend to any local roads that may have been accepted by the town since that date. It is believed that the following town roads would not be considered scenic under this designation: Sandwich Slopes Road, Church Street, the initial section of Diamond Ledge Road (right after Grove Street), Mt. Israel Road (from Grove Street to Dale Road), and Grove Street. (See also the Historic Resources chapter for more on scenic roads.)

Roadway Survey Program

In 1998, the Town of Sandwich engaged the University of New Hampshire Technology Transfer Center to survey the town's roads, assess their condition and make recommendations for upgrades, with associated costs. Proposed actions ranged from minor reshaping of unpaved roads to major reconstruction, such as for Vittum Hill Road and Wing Road. The Highway Department used this document for guidance in determining its annual work program. No such survey has been conducted since that time.

Traffic Volumes

Traffic volume data is one of the components in evaluating traffic characteristics within Sandwich. This information is an important part of the process in establishing priorities for future roadway improvements. Design and safety standards for roadways typically incorporate traffic count data. Traffic counts are derived from traffic recorders at selected locations through the state and within Sandwich. These numbers are converted to Average Annual Daily Traffic (AADT) for purposes of comparing one traffic count location to another.

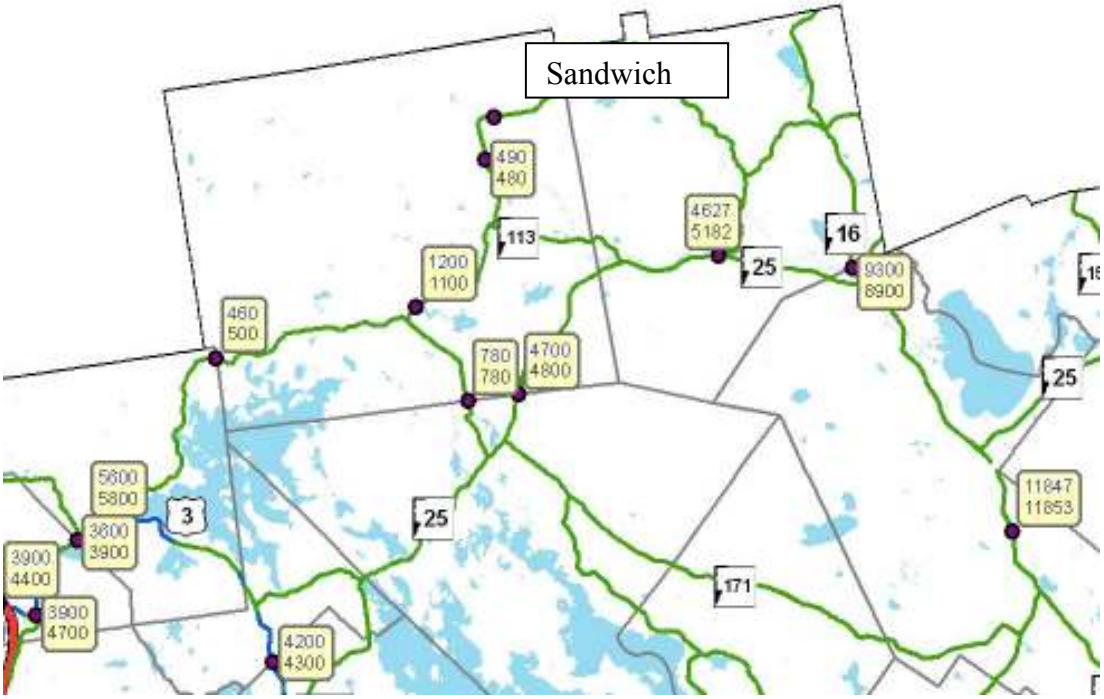
> The NH DOT's Bureau of Transportation Planning monitors traffic throughout the state and publishes monthly reports for 79 automatic traffic recorder locations. In addition, the department conducts traffic counts during the summer months at additional locations, usually under contract to the regional planning commissions. There are no permanent stations in Sandwich. The closest is in Tamworth, at the junction of NH Route 113 with NH Route 25.

Based on the regional map of selected traffic count locations in **Figure 7-1**, it would appear that traffic counts from the period of 2001 to 2006 have increased only modestly. In some instances there have been decreases, such as along Route 113 in Sandwich and Route 16 in Tamworth.

The available traffic data may not be as comprehensive as might be desired for local decision-making. However, the traffic volume data that have been collected would appear to be generally consistent with the modest increase in population in recent years. That is, while there have been some increases in traffic volume in some locations in Sandwich, for the most part volumes have been relatively flat. This assessment would indicate that the town does not need to consider significant changes to the town's roadways to accommodate changes to traffic

volume. There are no heavily travelled roadways within Sandwich. The nearest heavily travelled roadways that have an impact on traffic volumes in Sandwich are I-93 and NH Route 25. Interstate 93 is the most heavily travelled, and in 2008 recorded an average annual daily trip count at the Holderness/Plymouth town line of 18,500 vehicles, compared to 20,000 in both 2002 and 2004.

Figure 7-1. Regional Traffic Volumes, AADT; 2001 compared to 2006



Source, LRPC, Transportation Plan, 2008

In addition to the permanent recorder on I-93, NH DOT has 12 other stations throughout the town where traffic is recorded. In addition, there is a station in Holderness at the Sandwich town line on NH Route 113, and two stations in Moultonborough at the town line—one on NH Route 109 and the other on NH Route 25. However, in any given year the state may conduct counts at eight or fewer locations. In order to obtain a trend analysis for volume change at the same stations, the following figure—**Figure 7-2**—compares data from 2003 to 2009 for seven stations—four in Sandwich and three at the town line either in Holderness or Moultonborough stations. A second figure –**Fugure7-3**—compares five stations for 2004 and 2007.

For the stations in **Figure 7-2**, four showed no increase and one, NH 25 at the Sandwich town line, showed a significant decrease. Two stations (Routes 113 and 113A) showed increase, bur since the raw numbers are lower than the other stations, this increase probably cannot be considered significant.

Figure 7-2
Sandwich Daily Traffic Counts by Station, 2006 to 2009

		Traffic Trends			Change	
#	Location	2003 AADT*	2006 AADT	2009 AADT	2003 to 2009	%
1	NH 113A at Whiteface River	230	200	240	10	4.3%
2	NH113 Center Sandwich	1100	1100	1100	0	0%
3	NH 113 A at Cold River	460	480	460	0	0%
4	NH 25 at Meadow Brook	4,900	4,800	4,900	0	0%
5	NH 113 (Holderness) at Sandwich town line	420	500	610	190	45.2%
6	NH 25 (Moultonborough)at Sandwich Town Line	4,900	4,800	4,000	900	-18.4%
7	NH 109 (Wentworth Hill Rd.) at Sandwich/Moultonborough town line**	780	780	780	0	0%

Source: NH DOT

**Note: AADT means Average Annual Daily Traffic Count. It is a figure derived from traffic recorder data for a given period of time that is modeled to provide an average daily count the full year, thereby incorporating seasonal fluctuations.*

***Note: Just south of Route 113 intersection in at Lower Corner counts in 2007 indicated volumes as much as 1500.*

Figure 7-3
Sandwich Traffic Counts by Station, 2004 to 2007

		Traffic Trends		Change	
#	Location	2004 AADT	2007 AADT	2004 to 2007	%
1	NH 109 south of NH Route 113 (Center Sandwich)	1,200	1,500	300	25.0%
2	Squam Lake Road, south of Great Rock Rd.	930	1,200	270	29.0%
3	Squam Lake Road, south of NH 113	1,000	1,100	100	10.0%
4	NH 113 over Bearcamp River	880	920	40	4.5%
5	Durgin Bridge Road over Cold River	180	250	70	38.8%

Source: NH DOT

Based on the data from the 1981 plan, the traffic count on Route 25 at Meadow Brook was 3,000 vehicles per day in 1979. Over the almost 30 year period since then, the traffic has increased by 1,900 trips or 36.6%--slightly more than 1% per year. The counts on Wentworth Hill Road by contrast have increased from about 400 in 1979 to 780 (**See Figure 7-2.**) —an almost 50% increase, but this is for a relatively small raw number increase.

Figure 7-3, on the other hand, showed increases at all the stations, ranging from 40 to 300 trips (4.5 to 38.8%) during the period from 2004 through 2007. These numbers may reflect an incremental increase based on good economic growth during this period. They do not include subsequent years, such as **Figure 7-2**, when traffic counts were flat or declining, perhaps reflecting the effects of slower population growth and a slowing economy. Interestingly, the stations reporting relatively larger raw number counts tend to be in the Center Sandwich area. In other parts of Sandwich there appears to be little or no increase in numbers. While it is not completely clear why this difference my appear on the same roadway, it may be attributed to additional local traffic that is centered around the relatively higher density areas of Sandwich,

Traffic Volumes and Congestion

Traffic congestion in New Hampshire is measured by Level of Service (LOS). Based on a number of factors that affect congestion including AADT and road configurations, LOS analysis is designed as an indication of how well traffic moves along a highway system. Low congestion indicates general operating conditions where traffic is generally free flowing, medium congestion indicates stable flow approaching unstable conditions, and high congestion is associated with unstable traffic flows. Based on determinations by NH DOT, Sandwich experiences little to no congestion. The nearest medium congestion is experienced along Route 171/109 in Moultonborough, while the nearest high congestion is experienced along NH Route 25 from Meredith through Center Harbor into Moultonborough.

These congestion conditions are generally found during the summer months when there are many tourists and visitors to the Lakes Region. Variation in seasonal traffic counts tend to be more evident in communities south of Sandwich. For example, based on 2006 data, traffic counts along Route 28 in Wolfeboro showed a 30% increase in traffic whereas the NH Route 109 station in Moultonborough at the Sandwich line showed a less than 1% increase.

In general, it appears that the level of traffic has remained steady or declined at these stations for the past several years. While traffic volumes are usually correlated to population increase, it may be the increase in population in Sandwich was not significant enough to result in increased traffic volume. Some of this trend may also be due to factors such as increased gasoline prices during certain periods that may have had the effect of depressing vehicle miles traveled.

Accidents

One of the key items in determining a roadway's sufficiency is its safety. In an effort to assess roadway safety, it is useful to examine accident data. Accident data is collected by local and state police and then provided to the NH DOT. At present, the original data may not always be consistent in terms of location. Locations can be by street address, distance from an intersection or given as a street name that may not always correspond to the town's street map,

or may be referred to as a Route # or local roadway name. For example, accidents may be recorded as occurring on NH Route 109 or Wentworth Hill Road.

While NH DOT maintains the most comprehensive data base, it uses the information only for its roadway planning projects. The data is not usually analyzed on a more detailed basis for local planning purposes to determine high accident areas. Such analysis is important if there are a high number of accidents in a given location over a given period of time; such a roadway becomes a safety concern to be addressed.

There does not appear to be a significant trend in the number of accidents within Sandwich. In 1995, there were 28 accidents. By 2008 there were 42 or an increase of 50%. However, looking at the past five years of records, incremental increases in accidents does not occur annually as shown in the table.

Year	# of Accidents
1995	28
2004	42
2005	26
2006	26
2007	46
2008	42

Source: NH DOT

Of the approximately 42 accidents in 2008, 14 or 33.3 %, occurred on NH Route 25 (Whittier Highway), while another 14 occurred on one of the other state numbered roadways or Squam Lake Road. Almost 70% of the accidents occurred on the town's arterial or major collector roadways, with the remainder on local roadways. Similar numbers by location were recorded for 2004, where 13 of the reported 42 accidents were on Whittier Highway. Based on these data, the highest number of reported accidents occur on Whittier Highway and the other state aid highways within Sandwich. These traffic data are consistent with similar sized communities in the region, but the number of accidents is particularly correlated to the nature of the road system, i.e., where there are more high speed primary or arterial roadways there tend to be more accidents. It would appear that any safety improvements should be considered for these roadways in cooperation with the NH DOT.

Bridges

The New Hampshire DOT and the Town of Sandwich Department of Public Works are responsible for bridge maintenance and construction. If a bridge is on a state-aid roadway, it is the responsibility of the state, and if on a locally maintained roadway it is the responsibility of the town. There are twenty-seven (27) bridges in Sandwich—eleven under the jurisdiction of the DOT and sixteen under the jurisdiction of the town.

The New Hampshire DOT has a state-wide bridge inspection program that is based on the National Bridge Inspection Standards System. All bridges are inspected every two to three years and, depending upon location, use and condition, they may be inspected on a less formal basis more frequently. In Sandwich the last documented inspection was in 2008. Bridge condition is rated on a numerical rating system (FSR) from 1-100 where the higher the number rating the better the condition of the bridge. **See Figure 7-4** for a listing of bridges by

ownership and rating. From this inspection rating program priorities are established for maintenance, repair and replacement of bridges.

If a bridge is red listed, it receives the highest priority for repair and/or replacement, although it does not necessarily imply that the bridge is unsafe. There are no state bridges that have been red listed, but there are two local bridges in this category—the Durgin Bridge over the Cold River and the Quaker Whiteface Bridge over the Whiteface River. Durgin Bridge is also on the National Register of Historic Places—thus any repairs will need to be cognizant of this designation.

Figure 7-4. Sandwich Bridge Inventory

Location	Last Inspection	Jurisdiction	FSR Rating
Sandwich Notch Road over Algonquin Brook	Sept. 2008	Sandwich	70.1
NH 113 over Eastman Brook	July 2008	NH DOT	75.3
Sandwich Notch Road over Beebe River	Sept. 2008	Sandwich	81.8
NH 113 over Intervale Pond Inlet	July 2008	NH DOT	70.7
Sandwich Notch Road over Bearcamp River	Sept. 2008	Sandwich	81.8
Sandwich Notch Road over Bearcamp River	Sept. 2008	Sandwich	70.7
Sandwich Notch Road over Bearcamp River	Sept. 2008	Sandwich	78.0
NH 109 over Red Hill River	July 2008	NH DOT	81.4
NH 113 over Stanton Brook	July 2008	NH DOT	87.1
School house Road over Red Hill River	Sept. 2008	Sandwich	40.6
Basket Street over Bearcamp River	Sept. 2008	Sandwich	37.9
Bennett Street Loop over Pond Brook	Sept. 2008	Sandwich	76.7
Upper Road over Bearcamp River	Sept. 2008	Sandwich	68.3
Bennett Street over Pond Brook	Sept. 2008	Sandwich	97.0
NH 113 over Bearcamp River	July 2008	NH DOT	48.4
Whiteface Interval over Whiteface River	Sept. 2008	Sandwich	54.9
Young Mtn. Rd. over Cold River	Sept. 2008	Sandwich	56.5
NH 113 over Cold River	July 2008	NH DOT	50.9
Middle Road over Bearcamp River	Sept. 2008	Sandwich	47.9
NH 25 over Weed Brook	July 2008	NH DOT	82.8
Quaker Whiteface Rd. over Whiteface River*	Sept. 2008	Sandwich	37.2
NH 113 over Whiteface River	July 2008	NH DOT	72.0
Bearcamp Pond Rd. over Bearcamp River	Sept. 2008	Sandwich	56.5
Durgin Bridge over Cold River*	Dec 2009	Sandwich	Not Rated
NH 113 over Mill Brook	July 2008	NH DOT	77.9
NH 25 over Meadow Brook	July 2008	NH DOT	92.9
NH 113 over Cold River	July 2008	NH DOT	98.2
Bennett Street Loop—Not on state inventory**		Sandwich	

*Structurally Deficient—State Red List
**Discontinued by the Town in 1981, but then became a Town Road again in 1989 based on terms of a Conservation Easement for the surrounding property.

Source: NH DOT

The town has commissioned an engineering study to assess the locally-owned bridges and come up with a work program and estimates for upgrading the bridges. Upon completion, the proposed actions in this study will provide the basis for allocating costs for the future capital improvement planning.

Alternative Transportation

Rail

At present, there is no passenger rail service to or from Sandwich. The closest operating passenger rail service is from Dover, New Hampshire, which has one of the passenger stations for the new AMTRAK Downeaster service that travels over tracks currently owned by Pan American (formerly the Boston and Maine Railroad) between Portland and Boston. The State of New Hampshire is currently working on establishing rail service through a program called the NH Capital Corridor that would provide service from Concord to Lowell, which is already connected to Boston.

The closest rail bed is a north-south rail line located in West Ossipee, parallel to NH Route 16. This former passenger and freight line is currently owned by NH DOT, which is holding on to the right-of-way as part of its plan to convert it to a rail trail for bicycle travel.

Air

The closest major commercial airport with scheduled service is the Manchester-Boston Regional Airport, approximately 75 miles from Sandwich. In addition to passenger service, this facility handles both freight and cargo services. Manchester Airport is served by 8 airlines and has been one of the fastest growing airports in New England. It has recently completed a major renovation that includes the lengthening of both runways, terminal expansion and a new air traffic control tower.

In addition to Manchester, there are smaller airports, generally for locally-based or transient pilots, in both Laconia and Moultonborough. The Moultonborough airport, about four miles from Sandwich, has an approximately 3,500 foot lighted asphalt runway.

Public and Private Transit Services

Concord Trailways has stops in Moultonborough and Meredith that serve Sandwich residents. The Carroll County Transit Project, a government sponsored mini-bus service has recently been established in the Lakes Region, providing an on-demand service to area residents. The comunity survey conducted as part of this update, however, showed there was little interest in using regularly scheduled, local public transportation.

Bicycle Routes/Paths/Trails

At present, there is no local inventory of bicycle routes and paths in Sandwich. The town is part of a regional bicycle network, as defined by the New Hampshire DOT. The DOT has defined a statewide bike route that goes through Sandwich and includes Routes 113 and Route 109. There is no formal policy or program with respect to provision of bike lanes on roadways within Sandwich. The town may want to consider providing some greater opportunity for safer bicycle travel by adding shoulder pavement during roadway improvement projects.

There are numerous recreational trails in and around Sandwich, associated with and maintained by such organizations as the Appalachian Mountain Club, the Squam Lakes Association, the Wonalancet Outdoor Club, the Over-The-Hill-Hikers and the Sandwich Sidehillers. Many of these are listed in the 1981 Master Plan in the Transportation Chapter.

Sidewalks

Sandwich has a small network of sidewalks, all located in Center Sandwich and all maintained by the town. This network includes the following links:

- Central School to the intersection of Route 113 and Squam Lakes Road.
- From Squam Lake Road intersection east through downtown to Quimby Field Road
- Two short links on either side of 113 going west
- One short link on Maple Street from Church Street to the Children's Center

At present, there is no link along Maple Street between Church and Main Street, and no detailed plans for additional sidewalks elsewhere in town.

Local Transportation Projects and Funding

The town votes each year at Town Meeting to expend Highway Department funds for repair, maintenance and upkeep of roads, bridges and sidewalks. At the 2010 Town Meeting, this amounted to almost $648,000. In 2009, the Library parking lot and Quimby Field Road were repaved with associated improvements to drainage. In 2010 the Department made major repairs to Maple Ridge Road.

Major local transportation projects are funded through a Capital Improvement Plan. The highway projects that are included in the Capital Improvement Plan, while subject to change, are noted by year below for the next five years. **See Figure 7-5.** The Town Report for 2009 extends this Capital Budget out to 2030.

Figure 7-5. Five-Year Capital Project Expenditures for Roads

Road/Year	2010	2011	2012	2013	2014
Maple Ridge Road	$192,000	$100,000			
Mountain / Palmer Hill Rd.		$200,000	$160,000		$125,000
Foss Flats Road					$200,000

Source: 2010 Sandwich Town Report

Components of Change to Traffic Volumes

Population Increase

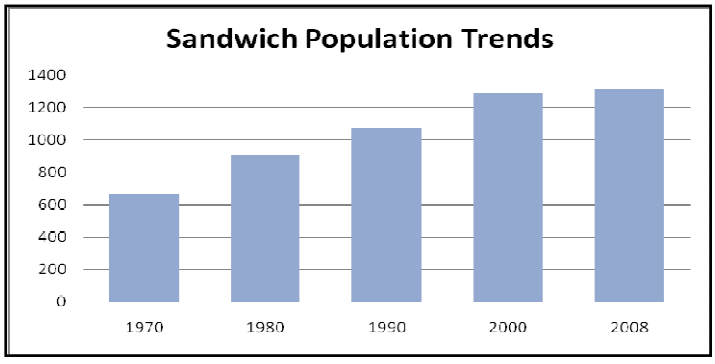
A significant component of traffic volume increase is attributable to the increase in population. This includes both regional and local growth.

Regional Growth

In 2000 the Lakes Region population was 106,428; this is projected to grow to 141,270 by 2025. This reflects the year-round population of the region. Seasonal visitors dramatically increase the actual number of people in the area and the number of vehicles on the road.

The annual rate of growth for the region during the past two decades (1980-2000) was 1.81 percent, slightly higher than the statewide rate of 1.71 percent. For the period 2000 to 2020, the annual rate of growth for the state as a whole is projected to decrease to 0.95 percent, while the Lakes Region is projected to continue to grow at an average annual growth rate of 1.45 percent. As depicted in Map 1, nine of the 30 communities in the Lakes Region are projected to experience a growth rate greater than the projected regional average. Sandwich is expected to grow at less than 1.45 %. Traffic volumes would likely increase at a similar rate.

Local Growth



Source: NH OEP, 2009

As noted in the Population Chapter of this Master Plan, since the end of World War II the population of Sandwich has grown steadily, reaching 666 in 1970 and 1,070 in 1990. By 2000, the date of the most recent census, the population had reached 1,291, approximately 21% more than 1990. Subsequent to this the population increased only slightly for the next several years to 1,316 in 2008. During this period, especially after 2007, traffic counts were relatively level or decreasing, reflecting the small population gains. Based on the most recent analysis from the NH Office of Energy and Planning, by 2020 the

population is expected to increase to 1650 *(NH OEP, 2009)* or a 25% increase. Traffic volumes would be expected to follow this projection

Change in Employment

Another component that contributes to traffic volume is the change in employment that requires many workers to commute to work. From 1996 to 2004, the increase in employment in Sandwich was almost 20%. The rate of employment growth has slowed recently because of the economic downturn (the 2008 annual employment was approximately 252, only a slight decrease in two years, but a major decrease from 2004).

	1992	1996	2000	2002	2004	2006	2008
Total Employment	173	251	287	278	301	255	252

This decrease in employment is reflected in the flat or decreased traffic counts during this same period. Since 80% of Sandwich's workers commute by automobile, traffic is very much tied to employment. It is projected that employment in the region will increase by about 12% by 2016, and it can be assumed that Sandwich will have similar growth. This employment growth is likely to increase traffic counts within the town.

Transportation System Issues and Needs

Sandwich has a significant local roadway network. Although the increase in vehicular traffic should be modest over the next 5-10 years, the town will still face continuing maintenance and upkeep of this system. This activity will continue to be a significant portion of the town's budget.

The Community Survey that was conducted in 2009 came up with the following results with respect to the town's roadway system:

Highway Maintenance—a strong majority (80%) of respondents indicated that maintenance was Excellent or Fair. The rating of Fair was selected by 46% of the respondents.

General Condition of Town Roads—a majority of respondents—61%--indicated that the roads were in Fair condition, with 17% indicating excellent and 20% indicating the roads were in Poor or Very Poor condition. With respect to state highways in Sandwich, almost half the respondents (47%) indicated that these roads were in poor or very poor condition, with another 42% indicating that they were in fair condition.

Action Plan

Vision Goal for Transportation

Provide a balanced transportation system with well-maintained public roadways lined with stone walls, open fields and trees; and encourage opportunities and facilities for pedestrians, bicyclists and recreational users.

Objective T1: Maintain and, where appropriate, improve the current roadway system to provide efficient traffic flow along the major roadway corridors while maintaining a safe environment for pedestrians.

Actions

T1.1: Consider adding an additional 2 feet of pavement to the edge of current pavement on existing roadways when undertaking repaving or reconstruction. This additional pavement will reduce pavement deterioration along the edge as well as provide a safer area for bicyclists and pedestrians.

T1.2: Consider requiring a traffic impact analysis in the subdivision and site plan regulations for any development that exceeds a threshold of 50 vehicle trips in any one hour.

Objective T2: Encourage, develop and maintain a range of non-automotive transportation alternatives that are easily available to the residents of Sandwich.

Actions

T2.1 Work cooperatively with the NHDOT to assure that any state bridges that are rebuilt or reconstructed provide adequate space for sidewalks and/or bicycle lanes.

T2.2: Develop a long-range plan for sidewalks in Center Sandwich. In the implementation phase, give first priority to a Maple Street link from Church Street to Main Street.

T2.3: Using the existing local trail system as a starting point, work toward a system of bicycle routes and multi-use trails/paths for the enjoyment of Sandwich citizens and visitors that is coordinated with state and regional trail systems.

T2.4: In cooperation with the NH DOT, properly mark and sign the state designated bike routes, including Routes 113 and Route 109.

Objective T3: Promote transportation policies and improvements that are consistent with the town's policies for protection of natural and historic resources and minimize the impact on residential neighborhoods.

Actions

T3.1: Review and, as appropriate, update the current roadway design standards to ensure that there is minimal impact to the town's streams and brooks, as well as to ensure impacts from drainage do not degrade stream and pond water quality.

T3.2: Update Site Plan Review standards to ensure that commercial development provides appropriate levels of landscaping and pedestrian walkways.

T3.3: Review the town's policy with respect to Scenic Roads and determine if all roads should be considered scenic.

Objective T4: Participate in the coordination of state and local transportation planning that addresses both local and regional needs.

Action

T4.1: Participate in the Lakes Region Planning Commission (LRPC) planning process for regional transportation planning. Advocate for the Town's interests through staff communications. Consider having a representative on both the Technical Advisory Committee and Policy Committee of the RPC.

Appendix A
State Roadway Classifications

ADMINISTRATIVE CLASSIFICATION SYSTEM

Class I, Trunk Line Highways: All existing or proposed highways that are part of the primary state highway system. The NHDOT is responsible for maintenance and construction costs of these highways except for those portions which lie within compact sections of towns and cities with a population of 7,500 or more. Those sections are the responsibility of the cities or towns as Class IV highways.

Class II, State Aid Highways: All existing or proposed highways that are part of the secondary state highway system. Maintenance and construction costs are controlled by NHDOT. Portions of these highways that are within compact sections of towns and cities with a population of 7,500 or more are classified as Class IV highways.

Class III, Recreational Roads: All roads in or leading to and from state reservations as specified by the Legislature. Maintenance and construction costs are the responsibility of NHDOT.

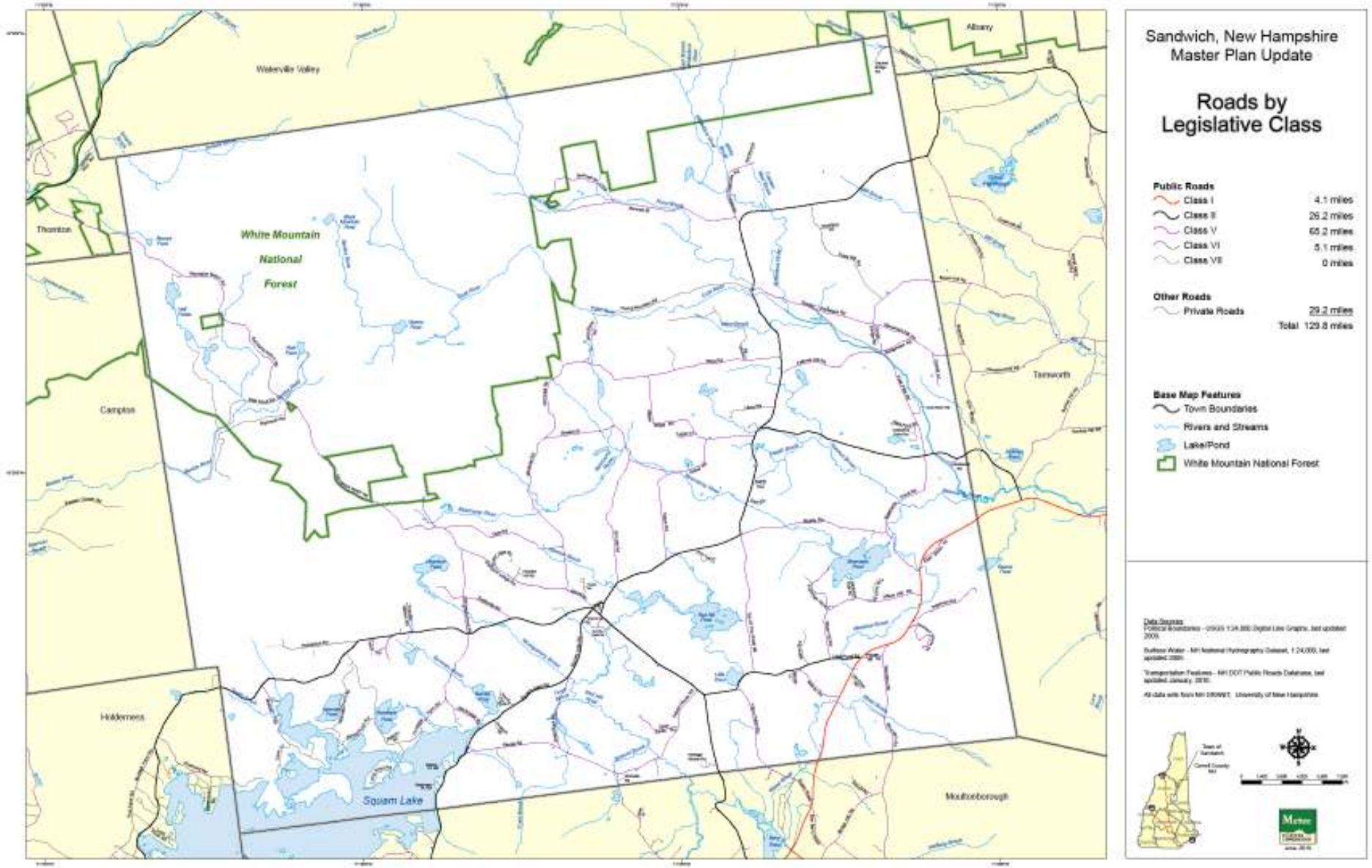
Class IV, Town and City Streets: All highways located within compact sections of cities and towns with populations of 7,500 or more. Maintenance and construction of these highways is controlled by towns and cities.

Class V, Rural Highways: All other traveled highways that are controlled by towns and cities.

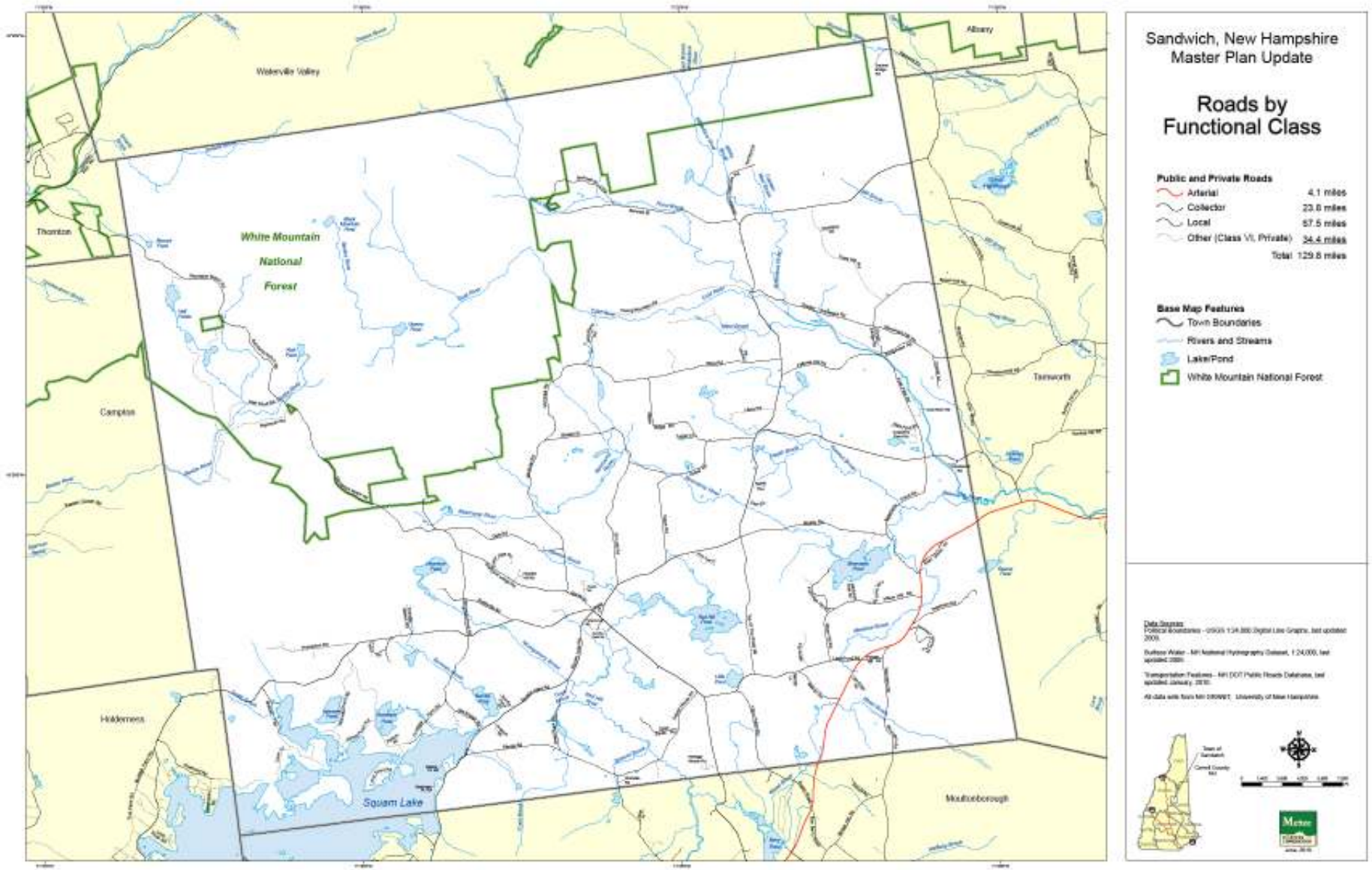
Class VI, Unmaintained Highways: All other public roadways; includes highways that have not been suitably maintained for travel for five years or more, highways closed subject to gates and bars, and highways discontinued as open highways.

Scenic Roads: These roads (excluding Class I or II highways) are designated by the town or city such that maintenance and construction of these roads is strictly regulated. Removal or cutting of trees or destruction of stone walls is strictly prohibited except as provided for under RSA 231:157.

Appendix B – Roadway Maps



Appendix B – Roadway Maps



Appendix C
Proposed Local Roadway Functional Class Standards

Collector	
Right of Way	60′
Street Width	30′
Design Speed (mph)	35-45
Drainage	Open/Closed
Capacity (ADT)	1,500-4,000
Parking	Usually
Sidewalks	Not usually
Bicycle Lane	Maybe

Local/Minor	
Right of Way	50′
Street Width	22′
Design Speed (mph)	25-35
Drainage	Open
Capacity (ADT)	500-1,500
Parking	Never*
Sidewalks	Never*
Bicycle Lanes	Maybe

*Note: Should be considered for compact areas such as Center Sandwich.