# Chapter 5 Transportation



"Everything in life is somewhere else, and you get there in a car."  $\sim E.B.$  White

## Chapter V Transportation

## **5.1 INTRODUCTION**

This chapter of the Tamworth Master Plan includes an inventory of the existing highway network in the town of Tamworth. It discusses highway classification and traffic volumes as well as issues related to road maintenance and road design. The results of the Community Survey are reviewed. Recommendations to improve the highway network and mobility in general, are also provided.

In Tamworth, as in most rural areas in the United States, automobiles are the dominant mode of transportation. Tamworth's transportation system is predominantly a network of roads and highways. Historically, roads evolved from earlier transportation systems such as footpaths and carriage ways, and were one of the first public investments to be paid for through local taxes. Road maintenance and construction expenditures continue to constitute a significant portion of the town budget. In 2007, highway maintenance represented 29 percent of actual town expenditures.

## 5.2 ROADS

## Classification of Highways and Roads

The State Aid classification system, which is identified in RSA 229-231, divides responsibility for road construction, reconstruction, and maintenance among state agencies, federal agencies, and local municipalities. This classification system also provides a basic hierarchy of roadways.

The following is a description of the State Aid classification system, with examples of each category in Tamworth:

**Class I, Trunk Line Highways**, consists of all existing or proposed highways on the Primary State Highway System, except the portions of such highways within the compact areas of cities and towns. (Only cities and towns with a population of 7,500 or more can have designated urban compact areas.) The State assumes full control and pays all costs of construction, reconstruction and maintenance of Class I highways.

In Tamworth, Class I Highways include New Hampshire Route 16 and Route 25.

**Class II, State Aid Highways**, consist of all existing or proposed highways on the Secondary State Highway System, excepting portions of such highways within the compact sections of cities and towns, which are classified as Class IV highways. All sections improved to the satisfaction of the Commissioner of Transportation are maintained and reconstructed by the State. All unimproved sections, where no state and local funds have been expended, must be maintained by the city or town in which they are located, until improved to the satisfaction of the Commissioner. All bridges improved to state standards on Class II highways are maintained by the State. All other bridges on the Class II system shall be maintained by the city or town until such improvement is made. Bridge Aid funds may be utilized to effect such improvements.

In Tamworth, Class II Highways include New Hampshire Routes 41, 113, and 113A.

**Class III, Recreational Roads**, consist of roads leading to, and within, state reservations designated by the Legislature. The NH Department of Transportation assumes full control of reconstruction and maintenance of such roads.

In Tamworth, the road leading from Route 16 to White Lake State Park is a Class III road.

**Class IV, Town and City Streets**, consist of roads within the compact areas of cities and town with a population of 7,500 or more. The extensions of Class I (excluding turnpikes and interstate portions) and Class II highways through these areas are included in this classification. There are currently twenty-six municipalities in New Hampshire with compact areas listed in RSA 229:5.

Tamworth does not have a designated Urban Compact Area at this time, and thus there are no Class IV roadways in Tamworth.

**Class V, Rural Highways**, consist of all other traveled highways which the city or town has the duty to maintain regularly.

**Class VI**, **Unmaintained Highways**, consist of all other existing public ways, including highways discontinued as open highways and made subject to gates and bars, and highways not maintained and repaired in suitable condition for travel thereon for five successive years or more. However, if a city or town accepts from the State a Class V highway established to provide a property owner or property owners with highway access to such property because of a taking under RSA 230:14, then notwithstanding RSA 229:5, VII, such a highway shall not lapse to Class VI status due to failure of the city or town to maintain and repair it for five successive years, and the municipality's duty of maintenance shall not terminate, except with the written consent of the property owner or property owners.

Examples of Class VI roadways in Tamworth include Hackett Hill Road, Osgood Road, and Old Gilman Road. A complete Class VI Road Study has not been finished.

"Takes rocks and gravel, baby, make a solid road, Make a solid road. Takes rocks and gravel, baby, make a solid road, Make a solid road. Takes a good woman mama, To satisfy my weary soul." ~Bob Dylan

Road Class	ass Description		Surface Type
Class I Primary State highways, maintained by state [Rts Minor arterial – carry mostly through some local traffic		14.64	Paved
Class II Secondary	State numbered town highways connecting towns [Routes 41, 113 & 113A, and the section of Cleveland Hill Rd. from Remick Farm to #741] Major and minor collectors; carry through traffic and local traffic	20.00	Paved
Class III Recreation	White Lake State Park	.53	Paved
Class V Rural Roads	Town roads intended to carry local traffic	58.22	Paved, gravel & graded dirt
Class VI Unmaintained	Unmaintained town roads	>3.75	Dirt

#### Table 5.1 Simplified Functional Road Classification System for Tamworth

#### Scenic Classifications

There are two scenic road classification schemes in New Hampshire: **Scenic and Cultural Byways** and **Scenic Roads**. These designations are separate from the State Aid classification system.

The New Hampshire Scenic and Cultural Byways Program was established in 1992 under RSA 238:19 "... to provide the opportunity for residents and visitors to travel a system of byways which feature the scenic and cultural qualities of the state within the existing highway system, 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." Through this designation, roadways are eligible for federal funds for interpretive centers, scenic overlooks, safety improvements, and marketing materials. Because the region's economy relies so heavily upon tourism, it is essential that travel throughout the region be an enjoyable experience; infrastructure and capacity must be maintained.

The Lakes Region Scenic Byway includes Route 25 through Tamworth.

Scenic Roads are special town designations of Class IV, V, and VI highways where cutting or removal of a tree, or disturbance of a stone wall must go through the hearing process and written approval of local officials. (See RSA 231:157).

Tamworth designated all roads in town as Scenic Roads by town meeting vote in 1979.

"When all's said and done, all roads lead to the same end. So it's not so much which road you take, as how you take it."

~Charles de Lint

## Existing Traffic Volumes and Trends

The New Hampshire Department of Transportation (NHDOT) collects traffic counts in accordance with federal guidelines under the Federal Highway Performance Monitoring Program (HPMS.) HPMS guidelines describe federal procedures for sampling highway and road volumes. These procedures provide the Federal Highway Administration with highway volumes for design standards and meet the Environmental Protection Agency's requirements for estimating vehicular highway travel.

The New Hampshire Department of Transportation (NHDOT) and the nine regional planning commissions conduct traffic counting programs throughout the state. NH DOT maintains permanent automatic traffic recorders that measure traffic volumes on a daily basis at selected locations. Seasonal counts are conducted on an annual basis by regional planning commissions (RPCs) at locations selected by NH DOT from an existing set of sample points on state and local roads. Seasonal traffic volumes are collected using automatic traffic recorders (a.k.a. the black rubber tubes you may see stretched across the road in the summer). The RPCs typically collect seven-day counts. These seven-day samples are adjusted for seasonal traffic variations and percentage of truck traffic, and reported as Average Annual Daily Traffic (AADT). NHDOT publishes the seasonal and permanent traffic volume data in their annual Traffic Volume Report.

Variations occur throughout the year due to special events, seasonal changes, etc.



LOCATION	1994	1998	2001	2004	2007
Bearcamp Hwy west of jct of NH 25 & NH 113	4,615	4,996	4,627	5,081	5,100
NH 16 1/10 Mile north of NH 113	6,300	7,600	*	*	*
NH 113 south of NH 113A	2,600	2,400	*	*	*
NH 113 south of Fairgrounds Road	2,500	2,100	2,100	2,100	2,000
NH 113 west of Washington Hill Road	660	770	*	*	*
NH 25 (Ossipee Mtn Hwy) at Ossipee Town Line	4,700	4,700	4,900	4,700	5,500
NH 16 north of Old NH 16	7,100	8,300	*	*	*
Old NH 25 east of Gilman Valley Road	3,900	*	4,200	4,500	*
NH 113 (Jackman Pond Rd) at Sandwich Town Line	520	700	740	770	740
NH 113 (Tamworth Rd) at Bear Camp River Bridge	2,100	2,100	4,300	2,900	1,900
NH 113 (Deer Hill Rd) at Madison Town Line	*	540	650	740	640
NH 113 (Jackman Pond Rd) north of NH 25	790	970	1,200	1,300	970
NH 113A at Wonalancet River	210	230	230	220	240
Bunker Hill Road east of NH 113	90	80	170	150	210
NH 113A north of Gardner Hill Road	280	320	420	380	300
NH 41 at Ossipee Town Line	2,500	3,600	3,700	4,700	4,800
NH 16 (White Mtn Hwy) north of Maple Rd	7,400	7,200	7,700	8,400	7,600
NH 113 (Tamworth Rd) north of NH 25	1,300	1,700	1,600	1,800	1,800
NH 113 (Chocorua Rd) at Bryant Brook	1,800	1,800	1,800	1,900	1,600
NH 113 (Jackman Pond Rd) west Of Bunker Hill Rd	*	840	580	1,100	850
Chocorua Lake Road over Chocorua Lake Outlet	190	150	170	190	130
NH 113 (Chocorua Rd) over Chocorua River	1,500	1,700	1,700	1,800	1,900
NH 16 (White Mtn Hwy) over Chocorua River	6,900	6,800	6,800	7,600	7,500
Cleveland Hill Road over Mill Brook	210	220	140	240	240
Main St over Swift River	1,200	1,900	1,400	1,400	1,300
Depot Road over Bryant Brook	390	630	700	690	760
NH 25 & NH 113 (Bearcamp Hwy) over Sanger Brook	4,900	5,100	4,400	5,200	5,000
Mill Road over Bearcamp River	20	*	10	30	30
Old NH 25 (Whittier Rd) over Stony Brook	700	710	620	460	390
Bemis Mountain Road over Cold Brook	110	50	60	60	50

\* Data is not collected at each location every year

**Table 5.2 Annual Average Daily Traffic** - the total volume of traffic at the given locationfor a 24-hour period representing an average day for the year.

"If you don't know where you're going, any road will get you there." ~*Cheshire Cat* 

## Traffic Problems

The Annualized Average Daily Traffic numbers mask certain persistent traffic problems. For instance, the traffic light in West Ossipee creates a traffic jam that can back up for two or three miles on Sunday nights and on holiday weekends. The flashing yellow light at the Route 16/113 intersection in Chocorua Village serves as the State's acknowledgment of this hazardous intersection. For traffic on Route 113, it can be very challenging to try to cross Route 16 during periods of high traffic volume.

## Pavement Conditions

The road agent assesses road conditions each year to prioritize repairs. But there has been no systematic study of town road surface conditions. Pavement conditions of town-owned roads could be surveyed by the Lakes Regional Planning Commission, using Road Surface Management System software developed by the University of New Hampshire for use by small towns. RSMS software provides for an inventory of town roads and documents the condition of road surfaces. It allows the user to prioritize repairs and will assign a recommended repair strategy for each road or road segment. The serviceability and the cost of maintenance for a road within the initial 75 percent of a pavement's design life is less than one-fifth the cost of maintenance and reconstruction during the final 25 percent of the design life. The purpose of developing a road surface management system is to help the road agent determine when a road will reach that critical 75 percent point.

The reports resulting from an RSMS study could provide assistance in assigning specific repair strategies and prioritizing repair needs. This software system is designed to be flexible and is not intended to take the place of the town road agent's experience and judgment. The RSMS software allows the user to prioritize repairs based on general weighing factors including traffic volume, roughness, and road conditions.

## Bridge Data

There are twelve town bridges, with a total length of 420 feet:

over Chocorua River on Scott Rd. over the lake on Chocorua Lake Rd. over Paugus Brook on Fowlers Mill Rd. over Wonalancet River on Fowlers Mill Rd. over Swift River on Main St. over Mill Brook on Cleveland Hill Rd. over Mill Brook on Bunker Hill Rd. over Mill Brook on Bryant Rd. over Bryant Brook on Depot Rd. over Bearcamp River on Mill Rd. over Cold Brook on Mountain Rd. over Stony Brook on Gilman Valley Rd.

Spans less than ten feet don't technically count as bridges, so the bridges on Chocorua Lake Rd., Philbrick Neighborhood Rd., etc. are not included.

## Crash Data

Highway safety is a primary concern of New Hampshire residents and visitors alike. The number of crashes on the highways is a primary safety indicator. In 1997, only 30% of all police reported crashes were locatable. Because of this low accuracy the New Hampshire Department of Transportation (NHDOT) began an initiative to improve the accuracy of crash location reporting. In cooperation with the New Hampshire Highway Safety Agency and the University of New Hampshire Technology Transfer Center, the NHDOT distributed laptop computers and crash-reporting software to state and local police departments to facilitate the collection of crash data and improve its accuracy. The reporting system is based on pre-assigned locations called nodes with numerical designations to identify each location. The Tamworth Police Department participates in this program and has a map of Tamworth with the nodes indicated thereon.

Since implementing these improvements, the total locatable crash percentage rose from 30% in 1997 to a high of 60% in 2001. The locatable crash percentage was 57% in 2002 and 58% in 2003. (Source: NHDOT)

Table 5.3 below summarizes crash data for Tamworth recorded by NHDOT for the years 1995 through 2007. It identifies the numbers of fatal accidents, accidents where injuries were sustained, accidents where property damage only occurred (over \$1000), and accidents of a minor nature (under \$1000) or where the information was incomplete (INR). The table also summarizes the number of fatalities, pedestrian injuries, and injuries suffered in accidents.



YEAR	Fatal	Pedestrian	Injury	Injuries	Property	INR	Total
	Accidents	Accidents	Accidents		Damage		Accidents
1995	0	0	15	30	10	41	66
1996	0	0	26	40	3	46	75
1997	1	0	16	25	6	54	77
1998	1	0	22	30	7	35	65
1999	0	0	16	26	1	38	55
2000	0	0	20	29	4	46	70
2001	0	0	20	29	8	55	83
2002	0	0	22	32	3	50	75
2003	0	0	13	17	4	53	70
2004	1	0	15	19	3	54	73
2005	0	1	13	17	3	58	74
2006	0	0	13	20	0	41	54
2007	1	0	7	9	1	32	41
TOTALS	4	1	218	323	53	603	878

#### Table 5.3 Crash Data

The NHDOT has produced maps using the accumulated crash data to determine on which roads accident rates warrant further investigation, those roads where accident rates are not extremely high but may warrant further investigation and those roads which do not warrant further investigation. The map based on 2003 data shows that most roads in Tamworth do not warrant further investigation with the exception of Route 113A from Tamworth to Wonalancet which may warrant further investigation and Deer Hill Road (Route 113 east of Chocorua Village) which does warrant further investigation.

Although the number of accidents on Town roads has not warranted changes in road design, Route 16 is another matter. Chief Poirier advised that Route 16 was not designed for the current volume of traffic and that NHDOT has declared Route 16 to be the deadliest road in New Hampshire.

The Chocorua Village Safety Project is addressing Route 16 safety as it passes through Chocorua Village. The first stage of the project focuses on the intersection of Route 16 and Route 113 (Deer Hill Road). The work includes roadway narrowing, granite curbs, concrete sidewalks, improved sightlines, defined parking spaces, street trees, and bio retention drainage. Subsequent stages will be constructed as money becomes available and will include improving the Route 16 and Chocorua Road intersection, Route 16 south of the village, Route 16 north of the village, Runnells Hall Lane, the Page Hill Road and Route 113 intersection, and Deer Hill Road from Route 16 to Runnells Hall.

## **5.3 COMMUTING PATTERNS**

Information on origin and destination patterns for travel to the workplace is available from the U.S. Census. Although the 2000 U.S. Census data is now eight years old and total commuter trips have most likely changed since that time (due to residential growth and changes in employment), this information represents the latest available data on destination patterns for travel to work.

Average Commute Time -2000-		
	Minutes	
Tamworth	25.6	
Carroll County	26.0	
New Hampshire	24.3	
U.S.	25.5	

#### Table 5.4 Average Commute Time









**Table 5.6 Means of Transportation** 



**Table 5.7 Commute Destination** 

## **5.4 PUBLIC TRANSPORTATION**

In 2000, according to U.S. Census data, a number of Tamworth households did not have access to a vehicle. The closest bus service is in West Ossipee or Moultonborough. There is no rail service. There is not sufficient volume to justify public transportation in Tamworth, although residents have expressed the need for some type of transportation service to meet the existing needs of the elderly. Transportation for the elderly and infirm is currently being provided by private charitable organizations. (See the chapter on Community Services.) As the population continues to age, the need for transportation for the elderly will expand. The Carroll County transit committee of the governor's task force on transportation is developing a coordinated transportation plan.

## 5.5 ROAD MAINTENANCE AND IMPROVEMENT

## Road Resurfacing History and Plans

Routes 16, 25, 41,113 and 113A are State roads, and are maintained by the State. All other roads in Tamworth are maintained by the elected Road Agent. The Road Agent is essentially a subcontractor to the town. The agent hires whatever help is needed and bills the town for labor, equipment and materials.

The Community Survey revealed that most respondents feel the roads in Tamworth are kept in good condition and need few improvements, with the notable exception of Route 16 and 113 in Chocorua Village where sightlines are poor and speed is an issue.

Funding for road maintenance is procured primarily through local property taxes. In addition, the state provides communities with highway block grants to assist with road maintenance. The amount of funding is based upon highway mileage. In fiscal year 2007 (which ended December 31, 2007), Tamworth received \$97,663 in state highway assistance. This constitutes about 12.25 % of the annual operating budget. Other assistance is available for bridges.

At town meeting in 2007, voters approved the purchase of land and road maintenance equipment and the building of a municipal garage. It is anticipated that these expenditures will be cost beneficial as compared with rental.

## Bridge Repair History and Plans

Within the past five years, three bridges have been replaced – one on Bryant Road and two on Fowlers Mill Road – and railings have been replaced on the bridges on Mountain and Depot Roads. This year (2008) a culvert on Cleveland Hill Road will be replaced by a bridge. The Narrows Bridge on Chocorua Lake Road is scheduled to be replaced in 2009.

## Road Standards

All new roads built to serve development in Tamworth must be constructed to street design guidelines set forth in Tamworth's Subdivision Regulations. Currently these are the only Town road standards in effect in Tamworth. Any new roads to be built in Tamworth should be built to a set of town standards. In order to do so, Tamworth must adopt road standard regulations. If residents want a private road to become a town road, it must adhere to these standards followed by approval at Town Meeting.

## Chocorua Village Safety Project

#### Background

New Hampshire highway routes 16 and 113 intersect in the middle of the village of Chocorua. The existing road and street plan was put in place in the 1930's, when the State of New Hampshire Department of Highways built the current bridge just south of the Rte. 16 and 113 intersection. In order to make the road run in a straight line over the new bridge, a number of village services and homes were razed or relocated, and curves were straightened north and south of the intersection. Minor changes have occurred in the intervening years; the pavement area was increased during repaying, traffic islands at the intersection have come and gone, and flashing caution lights have been installed. The major change in the system is the geometric increase in traffic volume on Route 16, as well as the growing traffic volume on Rte. 113. Route 16 is the major north/south transportation corridor on the east side of the state. Both Route 25, just south of the village, and Route 113 significantly impact village traffic. These routes are two of the very few options for east/west travel in northern New Hampshire. They also carry local traffic between Tamworth and the Conway area. Chocorua is the only small village to have Route 16 going through its midst until the highway reaches Errol in far northern New Hampshire, as Route 16 has bypassed all towns south of Chocorua. The mix of 2008 vehicular usage and a 1930's road plan results in speeding through the village during times of low traffic volume, and chaos, congestion, and obstruction of traffic at high volume. There is no safe place for pedestrians either near or needing to cross the highway, and safe and unsafe places for parking are not defined. The value of frontage on Route 16 in the village is in decline.

#### Local, State, and Federal Input

In the 1990's, the New Hampshire Department of Transportation's Route 16 Corridor Protection Study Report identified Chocorua Village as the number one priority for follow-up projects. This led to a series of charrettes and workshops with town officials, residents, and NHDOT to study needs and possible solutions. In 2000, a group of individuals who were concerned about village road safety and wanted to preserve and enhance the village established the Chocorua Community Association. Association members prepared a funding proposal for the Federal Highway Administration for TEA 21 funds in 2003. Congressman Bradley sponsored this request, and secured \$500,000 and \$200,000 in 2004. Another \$90,000 in State Transportation Improvement Project money, plus two smaller grants, have made about \$863,000 available for village right-of-way improvements. Another \$500,000 is making its way though the system from a budget bill passed in Congress in December 2007. The Community Association has been in communication with District 1 Congresswoman Carol Shea-Porter and Senator John Sununu and is hopeful that they will continue to find money each year to continue the funding of the village project. It is an important aspect of this project that the Town of Tamworth is the recipient of funding and the contractor for the project. This places a large burden of responsibility for the project on town officials who have many other issues that need their time and attention. This step was taken in order to preserve as much local control of this project as possible. While the project is focused upon two state highways that are of importance to a much wider population, these roadways are also critical arteries in the social and economic life of this community. How they work – both in terms of roadway design and the look and feel of the setting surrounding the roadway – will determine whether traffic will overrun the village or will be safely accommodated along with the variety of uses and users that is the essence of village life.

#### Accomplishments

The Town of Tamworth made initial use of these funds to acquire the former Chocorua Village Store property on the northwest corner of the Route 16/113 intersection and clear the site. The operation of this former business was blocking roadway redesign and crosswalk installation. The next step was to hire an engineering firm and develop a plan for the project. Drawing from that plan, the town, NHDOT, and the engineering firm Fay, Spofford & Thorndike decided to use the available funds to do a targeted portion of the project during 2008. This will reshape the intersection at the center of the village, replace antiquated roadway drainage systems, and provide pedestrian crosswalks. With all the project approvals and reviews complete, the Town has completed the bid process and has signed contracts for work to be done on the area at the very center of the project. At the time of this writing, actual construction was to start within a week or two and continue into late summer. It is too early to evaluate any outcomes at this time.



## **5.6 PEDESTRIAN AND BIKING FACILITIES**

David Bowles is spearheading a project to improve the shoulders on both sides of Route 113 from the Four Corners to the Bearcamp River Bridge. The project will make this road safer for both walkers and bicyclists.

80% of the cost is being covered by federal funds from the Highway Enhancement Fund and 20 percent is covered by the Town of Tamworth. The first phase from the Four Corners to the south end of the school should be completed in 2009 or 2010. The cost for this section is \$96,000+ with \$20,000 from the Town. With this year's budget Tamworth has \$20,000 in the fund. The second part of the plan will continue to the end of the Bearcamp Bridge and should be completed by 2011 or 2012. The cost of this section is \$45,000, with the Town paying \$9,000.



## 5.7 PARKING

Public parking in Tamworth is available at the Town Offices, the Town House, Remick Museum, the sports field on Depot Road, in front of the Village Store and at the Brett School. Twenty-one new parallel parking spaces are being constructed on the east and west sides of Route 16, north of the intersection with Route 113, as part of the Chocorua Village Safety Project. Parking in Tamworth is regulated by the Town of Tamworth Traffic and Road Regulations Policy which was adopted in 2006 pursuant to the authority granted to the Town under RSA 41:11.

In response to the survey question "Are there areas of Tamworth where parking is inadequate?" 135 people commented. 65 respondents identified Tamworth Village, 53 identified Chocorua Village and 9 thought that there was no problem. Nine respondents specifically mentioned inadequate parking when the Barnstormers are performing and seven respondents thought that K.A. Brett School had inadequate parking at sports events and community gatherings such as Town Meeting. Nineteen respondents mentioned that parking at the Dam Ice Cream Shop and the GIII convenience store in Chocorua created dangerous situations and that parking for Runnells Hall and the Chocorua Library was inadequate. Chief Poirier advised that indiscriminate, illegal parking occurs when there are performances at The Barnstormers Theatre, often blocking access ways for emergency vehicles.

In response to the survey question "Are there areas of Tamworth where handicapped parking is inadequate?" 64 people commented. 42 respondents identified the villages of Tamworth or Chocorua, 18 had no opinion or didn't know, and 4 answers were not responsive to the question.

The survey revealed that parking in general and parking for the handicapped are issues that must be addressed now and to accommodate future growth. The Board of Selectmen and The Planning Board should work with property owners and existing and future businesses in the village districts to provide adequate off-street parking areas and parking for the handicapped.

## **5.8 COMMUNITY SURVEY RESULTS**

Note: The headings below (6A, 6B, etc.) refer to specific questions on the community survey.

#### 6A Road Conditions

61.1% of the respondents think the general condition of Tamworth roads is good to excellent, with another 22.7% rating them fair. There were many suggestions about how to further improve the roads, with those most often noted relating to the refurbishing of their surfaces. Of the 482 respondents to the survey, 303 mentioned resurfacing, reconstruction, or changes to the paving of the roads. Roads specifically and overwhelmingly noted were Cleveland Hill Road, Old Route 25, Turkey Street and Depot Road. Intersection improvements, especially at the Four Corners in Tamworth Village, Page Hill and Chocorua Village, were suggested by close to 25% of the respondents. Road shoulder improvements were recommended by about 20%. Desires for safety improvements such as guard rails, turning lanes, street widening and better signage were also indicated.

#### 6B Traffic and Parking

Truck traffic and traffic speed on routes 113, 113A, 25 and 16 were repeatedly mentioned as a problem, along with concern for pedestrian and bicyclist safety on all major roads. Feelings were mixed on the use of traffic control devices. Speed bumps, center islands and traffic control lights were thought possible, but only in the villages and near the school. Other traffic control devices such as center line striping and stop lines were more generally acceptable.

It was generally felt that parking was inadequate in the villages, and that lack of accessibility for the handicapped was also a problem.

#### 6C Your Use of Transportation

Survey respondents indicated a high degree of support for more bicycle paths, sidewalks, and linked trails throughout the town. Public transportation is not now available in town and most respondents said they did not want it.

#### **6D Future Transportation Decisions**

More than twice as many respondents agreed as disagreed that Tamworth should own both its garage and road maintenance equipment. In fact, at the 2007 town meeting, it was voted that Tamworth proceed to do just that. Survey respondents also agreed to a fee of up to \$5.00 per vehicle to support Tamworth's capital improvement road fund.

## **5.9 RECOMMENDATIONS**

## Town Road Policy

How streets are designed and built is a key part of well-planned, orderly growth. The design and construction of roads affects aesthetics, public safety, and quality of life for years to come. Road design standards can fit with natural contours, preserve natural features, and meet other community objectives. One-size-fits-all design standards often lead to overdesigned roads which encourage excessive vehicle speeds and present a less attractive neighborhood streetscape. Sound road design considers topographic features to assure proper road functions and to minimize impacts to vegetative and other natural features. Sensible street alignment and design standards preserve natural features as much as possible and allow new roads to fit well with the land.

Residential street standards provide the basis for safe, efficient, and economical access to these areas. Safe residential streets are attained by specifying street geometrics that discourage excessive speeds and emphasize access. Residential houses are efficiently accessed with lower travel speeds on streets that are safer for bicyclists and pedestrians. Residential streets should promote the safe and efficient movement of vehicular and pedestrian traffic and take into consideration land use, construction, and future maintenance.

When necessary, the Town should require a traffic impact analysis of proposed developments to ensure that the design of the road matches the level of need. It is the Planning Board that requires developers to do an analysis when a project is being considered.

Many of the roads in Tamworth have very little traffic and would be considered very low-volume local roads. A very low-volume local road is a road that is functionally classified as a local road and has a design average daily traffic volume of 400 vehicles per day or less. The primary function of these roads is to provide access to residences, farms, businesses, or other abutting property, rather than to serve through traffic. Roads that are very low-volume local roads should be between 18-26 feet in width, not including travel and shoulder width. See the AASHTO 2001 publication entitled "Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT  $\leq$  400)" for more specific design guidelines for these types of roads.

Clear design requirements for Town roads allow the Planning Board and developer to design, approve, and build roads that are at the appropriate scale. Keeping pavement and travel lanes to a minimum width, relative to a street's function, helps keep speed down, preserves a more appealing streetscape, reduces costs to the developer and Town, and allows the Town to retain its rural look and feel while accommodating growth.

#### Goal:

Tamworth should have town Road Construction Standards that enhance the uniqueness of Tamworth's current and future transportation infrastructure.

#### **Recommendations:**

• The Town Road Agent and a Road Committee should compare the existing Town Road standards to that of other Towns similar to Tamworth and make

recommendations for changes/modifications, based on that review, to the Planning Board.

• Aesthetic and landscaping requirements should be researched and incorporated into the Town Road Construction standards.

• The design and planning of residential streets should follow natural contours and preserve natural features whenever practical; minimize traffic speed, volume, noise, congestion, and hazards to pedestrians; and minimize the amount of paved area to reduce storm water runoff, thereby protecting water resources and reducing construction costs.

• Tamworth should research the idea of having new roads in rural areas be consistent in design with the adjoining rural collector roads.

• The Subdivision Regulations require all new roads to be inspected by a Townselected engineer as the road is being built. The cost of these inspections is paid by the applicant.

• The Road Agent and a Road Committee should be consulted on all proposed roads prior to Planning Board consideration to allow for feedback as early in the process as possible.

#### Road Management Plan

Tamworth should develop a road management plan as a guide for major roadway improvements. It may become necessary to change or modify the plan for certain projects, as damaging storms, budget restrictions, or unexpected situations can have an impact on the timing of projects.

The financing of and planning for transportation maintenance and improvements can be difficult to accomplish in small communities with limited resources. A long-range plan will help prioritize and fund such projects.

#### Goal:

Tamworth should have a formal, comprehensive, and up-to-date road management plan.

#### **Recommendations:**

- The Town Road Agent and a Road Committee should review and amend the Road Management Plan on an annual basis and present the Plan to the Board of Selectmen for review.
- Before the Planning Board considers any subdivisions, they should consult with the Road Management Plan to ensure that the proposed roadways are in accordance with the Plan.
- Tamworth should work with regional, state, and federal agencies and programs to prepare a comprehensive transportation plan that includes funding availability for the desired projects and programs.
- It is recommended that a road conditions survey be undertaken so that the overall costs of road maintenance can be minimized.

## Land Use Implications

Transportation decisions clearly affect land-use patterns, and land-use decisions clearly affect transportation systems. Communities that integrate transportation and land-use policies are better able to manage growth, improve the efficiency of travel, and contain infrastructure costs. By providing planning support for a diverse range of mobility options,

such as automobiles, bicycling, walking, and public transportation, and the town can present a range of development opportunities to private developers. Sustainable development leverages the land use/transportation relationship to improve mobility, enhance air quality, support economic growth, and ensure the financial stability of the transportation system.

#### Goal:

Tamworth should coordinate transportation and land use policies.

#### **Recommendations:**

- The Town should encourage land use patterns that will facilitate the use of a variety of transportation modes, especially walking and bicycling, for residents of all ages.
- The Town should complete the Class VI Road study.
- The Planning Board should formulate a policy that restricts developments along Class VI roads, to minimize infrastructure costs, and preserve existing recreational opportunities.
- The Planning Board should consider the effect which proposed subdivisions may have on roads and require the developer to upgrade the roads as a condition for subdivision approval.
- The Planning Board should evaluate the impact of Access Management decisions as part of the review of any new development proposal.

## 5.10 CONCLUSION

In order to preserve the rural character of Tamworth and to avoid the disruption to the quality of life that comes from increased numbers of vehicles on the roads, this chapter supports maximizing incentives to retain Tamworth's rural atmosphere. This entails support for such measures as traffic calming, slower speeds, preservation of roads with scenic attributes, development of bike lanes, and proper consideration of road networks as part of neighborhoods, and pedestrian paths and passageways. Thought should be given to working with the state on developing public transportation in rural communities. Movement in Tamworth in all these directions would result in the improvement of the transportation infrastructure and the protection and preservation of the open space and rural character valued by the community.



Map 5.8 Roads & Bridges