

# Chapter 5

## Transportation



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### 1.0 INTRODUCTION

Transportation means access to work, commerce, recreation, and services. An effective transportation system provides all citizens safe and efficient access to these basic needs, whether by car, bicycle, snowmobile, or on foot. Through transportation planning a community can help meet the needs of all its residents, ensuring that future generations will also be afforded the same access to those needs.

Transportation planning is a three-step process. We must:

- 1) understand where we are **today**;
- 2) decide where we want to be in the **future**; and
- 3) determine the best **ways** to get there.

The Transportation chapter addresses these three steps by examining existing conditions in the town's transportation system, identifying land use implications for the future, and finally proposing implementation steps for the Town to pursue. By following this three-step process Bridgewater can help to ensure all its residents are provided with a safe and efficient transportation system for work, rest, and play.

### 2.0 EXISTING TRANSPORTATION FACILITIES

There are approximately 30 miles of maintained roads within Bridgewater, of which approximately 27 miles are municipally-maintained roads. The major arteries of the road network in Bridgewater are US Route 3 (Daniel Webster Highway), and NH Route 3A (Mayhew Turnpike) which serves as a major north-south route through the community.

**Table 1: Road Mileage by State Highway System Classification**

| Class | Mileage | Notes                                   |
|-------|---------|---|
| I     | 2.96    | Daniel Webster Highway, Mayhew Turnpike |
| II    | 4.60    | River Road, Depot Street                |
| V     | 22.18   | Town Roads                              |
| VI    | 2.88    | Not Maintained and Discontinued Roads   |

All of the roads in Bridgewater are part of the transportation system. Class V Roads are the chief priorities for local maintenance and improvements. Working with the Lakes Region Planning Commission, the Bridgewater Highway Department collected data on all roads maintained by the town in the summer of 2000. Table 2 represents a condensed version of the complete database.

Table 2 depicts the extent of roads maintained by the Town, and Table 3 identifies areas needing improvement in the next six (8) years. Collecting this data and identifying priorities forms a basis for the *Capital Improvement Program (CIP)* of the Town of Bridgewater.

**Table 2: Town Roads by Surface Type**

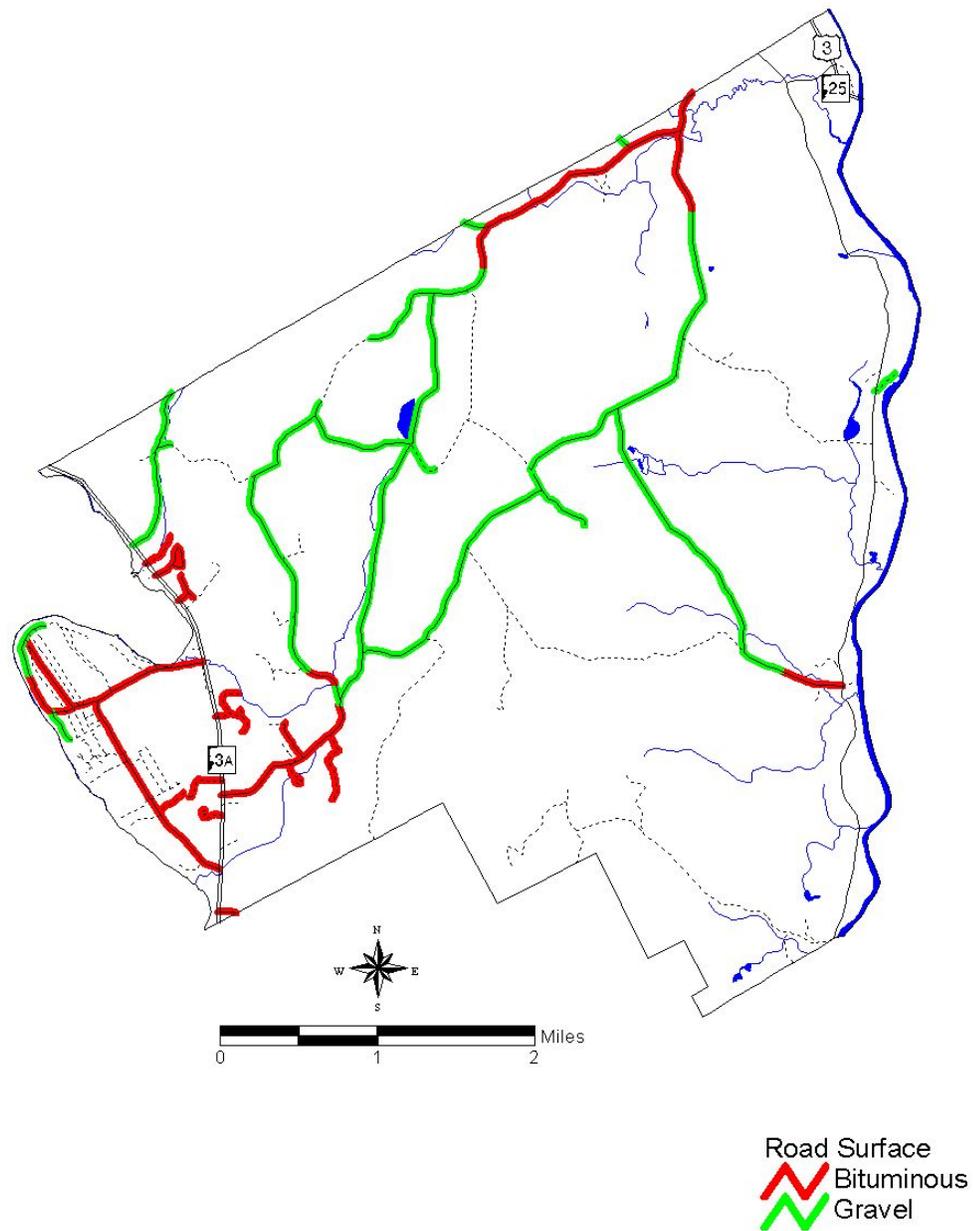
| Road Name  | Surface Type       |                |
|--|--------------------|----------------|
|  | Bituminous (Paved) | Gravel         |
| Alpine Road  | 0.2404             |                |
| Berry Hill Road ( <i>Class VI</i> )                |                    | 0.5141         |
| Bridgewater Hill Road                              | 0.77               | 2.2198         |
| Brock Hill Road                                    |                    | 0.7167         |
| Brookstone Terrace                                 | 0.051              |                |
| Carriage Road                                      | 0.4347             |                |
| Chrisden Drive                                     | 0.1548             |                |
| Dick Brown Road                                    | 2.688              | 3.1831         |
| East Clement Road                                  |                    | 0.5783         |
| East Hunt Road                                     |                    | 0.1701         |
| Foxtail Lane                                       | 0.2198             |                |
| Hammond Hill Road *                                | 0.4122             | 2.0981         |
| HB Road ( <i>Village District Road</i> )           | 0.2264             |                |
| Hemlock Brook Road                                 | 0.1418             |                |
| High Meadow Road                                   |                    | 0.0474         |
| John Smith Hill Road                               | 0.2126             | 2.0153         |
| Kingswood Lane                                     | 0.2071             |                |
| Ledgewood Terrace                                  | 0.416              |                |
| Meadow Brook Road                                  | 0.0964             |                |
| Pine Street North                                  | 0.5203             |                |
| Poole Hill Road *                                  |                    | 1.7205         |
| Ridgeview Drive                                    | 0.4746             |                |
| Rockledge Terrace                                  | 0.0365             |                |
| Sawhegenet Falls Park Road*                        |                    | 0.1467         |
| School House Road ( <i>Village District Road</i> ) | 0.3462             | 0.1584         |
| Scott Drive  | 0.0711             |                |
| Shore Drive North                                  | 0.2856             | 0.3425         |
| Shore Drive South                                  |                    | 0.2034         |
| Texas Hill Road                                    |                    | 0.0928         |
| West Clement Road                                  |                    | 0.0822         |
| West Hunt Road                                     |                    | 1.0601         |
| Whittemore Point Road North                        | 0.7314             |                |
| Whittemore Point Road South                        | 1.3347             |                |
| Woodside Drive                                     | 0.3136             |                |
| <b>TOTALS:</b>                                     | <b>10.3852</b>     | <b>15.3495</b> |
| <b>TOTAL ALL SURFACE TYPE</b>                      | <b>25.7347</b>     |                |

\* = Summer Roads

Note – Not all Class VI roads are depicted in this Table.

As Table 2 reveals, there are more miles of town-maintained roads with gravel or dirt surfaces than those with a bituminous surface. The map below offers locations of both bituminous and gravel surface roads in Bridgewater. Although more costly at the outset, bituminous roads are in the long run much more efficiently maintained, especially in areas of high travel and where natural occurrences, such as flooding and storm water, cause recurrent damage.

### SURFACE OF TOWN-MAINTAINED ROADS



### 3.0 The Bridgewater Transportation Improvement Program

As part of the data collection process, the Bridgewater Highway Department was asked to identify those areas in town with a high priority for maintenance and improvement. The Highway Department identified fourteen (14) priority areas which require improvements over the next 8 years:

| <b>Year</b> | <b>Roadway Name</b>   | <b>Activity</b>                              |
|-------------|---|--|
| 2006        | Whittemore Point South to Intersection of North                 | Complete Resurfacing                         |
|             | Meadow Brook  | Resurfacing                                  |
|             | Alpine  | Resurfacing                                  |
|             | Shore Drive   | Complete survey, gravel and replace drainage |
|             |   |  |
| 2007        | Shore Drive North   | Upgrade                                      |
|             |   |  |
| 2008        | Scott Drive   | Upgrade                                      |
|             | Alpine Road   | Resurfacing                                  |
|             |   |  |
| 2009        | Carriage Road   | Resurfacing                                  |
|             | Chrisden Drive  | Resurfacing                                  |
|             |   |  |
| 2010        | Dick Brown Road – Rt 3a to Intersection of John Smith Hill Road | Resurfacing                                  |
|             | Fox Tail Lane   | Resurfacing                                  |
|             |   |  |
| 2011        | Pine Street North   | Resurfacing                                  |
|             |   |  |
| 2012 – 2014 | Dick Brown Road East  | Resurfacing                                  |
|             | Bridgewater Hill Road   | Resurfacing                                  |

### 4.0 ROADWAY DESIGN STANDARDS

Generally, roadway standards are established to ensure that new roads are safe in every situation. According to Bridgewater’s roadway standards, as found within the subdivision regulations, roads should be designed based on traffic volumes and terrain. Minimum roadway widths are typically from twenty feet with an additional four foot gravel shoulder on each side. More stringent design criteria have been developed for roadways with more than 120 vehicle trips per day, or a grade of 9% or greater.

In an effort to create safe roads, often an unforeseen result of roadway design standards has been the over-design of rural and lower density residential streets. Typically, over-design of these

streets includes elements such as unnecessarily wide pavement widths, as well as sidewalks and curbing which are generally suited for more urban and higher density locales. The Town should revisit the existing roadway design standards to ensure that they are meeting the needs of the Bridgewater transportation system.

## **5.0 BICYCLE AND PEDESTRIAN FACILITIES**

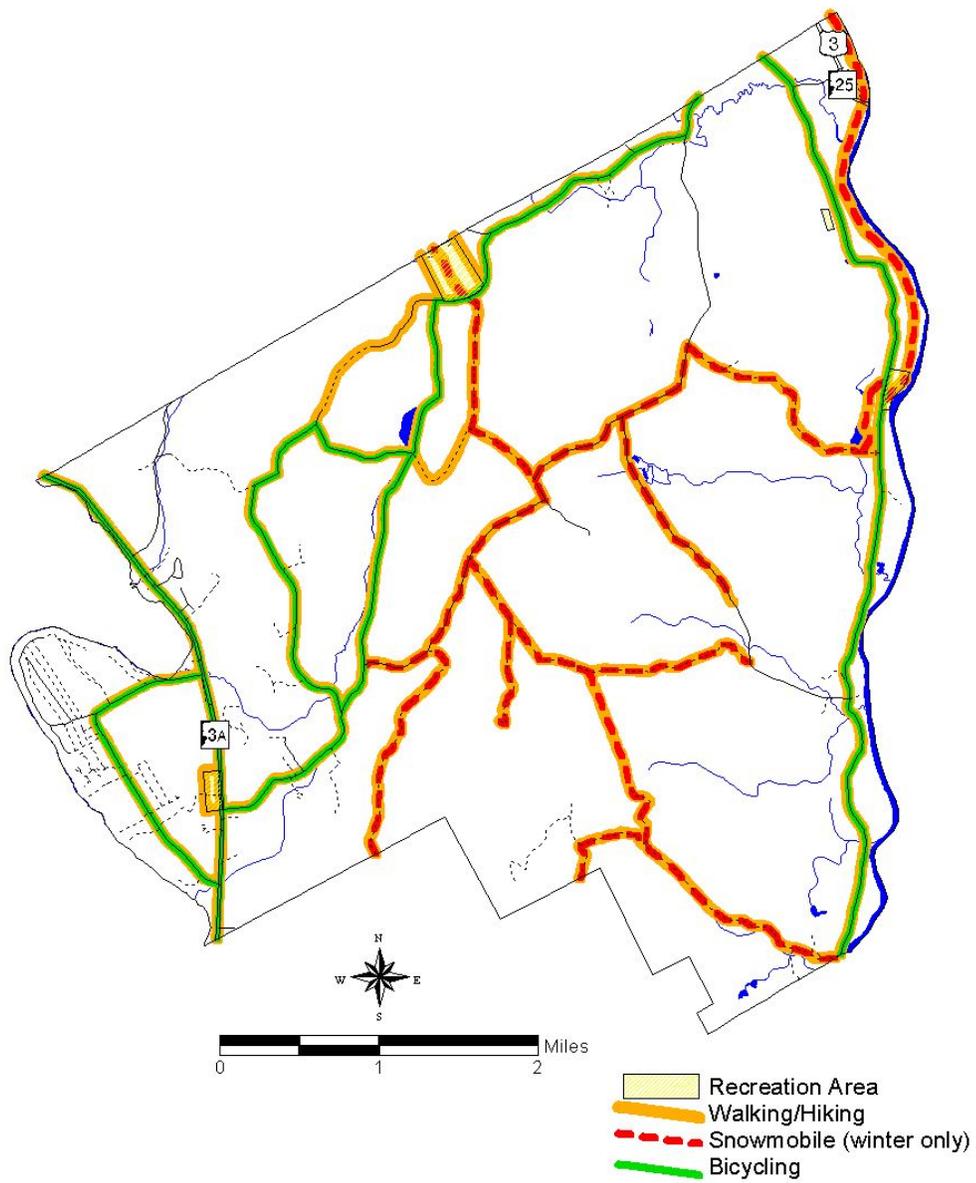
Bicycle and pedestrian facilities deserve separate attention as a transportation mode. Bicycling and walking, as well as other outdoor activities, have long been recognized as important activities which can improve a person's physical as well as mental health. This mode of transportation is important not only for personal health reasons, but also as a way of reducing the amount of travel by automobiles and the resulting energy and pollution issues automobiles present. The Town of Bridgewater should promote these activities through its transportation improvement program, and when working with developers.

The Town of Bridgewater currently faces serious safety deficiencies in the two areas of town where the demand is greatest for walking and biking. These two areas include Whittemore Point, and the area around the school and the Town Offices. However, this is not to say that these are the only places people walk and bike in Bridgewater. On the contrary, much of the town is in fact a bicycle and pedestrian facility. When conducting transportation improvements and general maintenance throughout the community, the Town should also consider the infrastructure and safety needs of these modes of travel.

The following Recreational Opportunities Map depicts areas suitable for walking and bicycling in Bridgewater. Transportation improvements should recognize these areas as important to townspeople, and search for ways to promote safe and pleasurable walking and bicycling in all of these identified areas.



## RECREATIONAL OPPORTUNITIES



## **6.0 OTHER TRANSPORTATION ISSUES IN BRIDGEWATER**

In order for Bridgewater to create a transportation system where function and safety will be improved, and the longevity of the system will be ensured for all modes, the community must recognize the connection between land use decisions and transportation improvements. The strong relationship between Bridgewater and the surrounding communities is also extremely important, and transportation between and within the communities should be enhanced to further strengthen the regional bond that they share.

Other important transportation issues for the community to be aware of include:

Access management - Access Management is the process of managing the placement of driveways on roadways, especially on those roadways classified as arterials. The speed, volume, and safety of traffic on an arterial is greatly reduced by vehicles entering and exiting side streets and driveways. In general, access management policies involve the regulation of the number of driveways, the design and placement of driveways, and the design of any roadway improvements needed to accommodate driveway traffic.

Context sensitive design – On state routes, the Town of Bridgewater should work with the New Hampshire Department of Transportation to ensure that the designs of any proposed improvements are “Context Sensitive Solutions” (CSS). The intent of CSS is to ensure that roads are not designated solely by the requirements of motor vehicle traffic. Transportation should preserve the scenic, historic, and environmental resources of the places it serves, and allow for a variety of uses beyond motor vehicles.

Many of the items discussed in this chapter can be addressed in the Bridgewater Land Use Regulations. Others can be pursued simultaneously in a non-regulatory process of outreach and education. Business owners may choose to apply access management elements into proposed changes to their properties, and may wish to work with their employees on reducing and reshaping demand on the transportation system. Organizations within the community can then be encouraged to partner on transportation services that meet the needs of their clients as well as the broader community. It is important to note that Bridgewater does not have to make all of these transportation and land use changes at once. The Implementation Chapter of this Plan will provide an opportunity for prioritizing these actions within various time periods, and assigning these tasks to responsible parties so they can be accomplished incrementally.

### **Land Use Implications and Potential Actions**

#### **Land Use Implications**

Bridgewater’s existing transportation facilities are a critical resource for area residents and visitors, and for commerce in the region. The community would like to continue to provide a safe and efficient transportation system that is sensitive to environmental, historic, cultural, and

scenic resources Here are a few items to consider related to the existing transportation facilities in Bridgewater:

- 1) Roadways should be designed and constructed based on the role they fill in the local road system. Roads should provide the necessary access while controlling the speed of vehicles. If the role of the road changes over time then the design of that roadway should change accordingly.
- 2) Reducing roadway widths reduces the amount of impervious surface in the Town. This is much better for stormwater management and slows traffic.
- 3) Strip development, intersections, and extensive curb cuts along major roadways cause friction and conflict points for through traffic. This reduces the ability of the roadway to handle the level of traffic it was designed to carry, and often leads to safety deficiencies, and the need for expensive roadway expansion earlier than expected.
- 4) Bridgewater's roadways should not be designed for motor vehicle traffic alone. Incorporating Context Sensitive Solutions into Town and State roadway projects will provide the infrastructure for a range of transportation modes and preserve some of the scenic, historic, and environmental features within the project areas.

## **Potential Actions**

*There are an array of possible actions the Town may want to consider pursuing as it evaluates and improves the existing transportation facilities in Bridgewater. This section will be used to identify the specific actions for Bridgewater to take upon completion of the master plan.*

- 1) Work to maintain seasonal road access to the Town House while maintaining the rural nature of Hammond Hill Road, Poole Hill Road, and Bridgewater Hill Road.
- 2) Develop construction and maintenance standards for the Highway Department and outside contractors to follow that promote good environmental practice and erosion control in all transportation efforts, whether during regular maintenance or transportation improvements.
- 3) Continue to review and update the snow removal and salt/sand application management plan for Bridgewater.
- 4) Design roadway improvements and future road construction to control the flow of traffic and the number of access points to the roadway. Consider requiring access management in the zoning and subdivision regulations. Discuss these requirements with the New Hampshire Department of Transportation, and consider signing a Memorandum of Understanding with the Department. This will ensure better coordination over future curb cuts.

- 5) Include provisions for bicycle and pedestrian facilities in the zoning and subdivision regulations.
- 6) Apply for Transportation Enhancement Funds, through the NH Department of Transportation, for the construction of sidewalks and multi-use paths in key locations.
- 7) Consider allowing mixed-use development when adopting changes to Bridgewater's land use regulations, so that daily activities are integrated rather than separated. Activities that are separated require vehicle trips between districts. Mixed-use development can be successful in village and commercial corridor locations. Nodes of development that generate a higher number of potential riders at one location are also more conducive to public transportation.