

Chapter 4

Transportation



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Transportation

1.0 INTRODUCTION

Gorham's transportation system is an important component of the quality of life and economic vitality of the community and the region. This is evident in Gorham's regulation of land use and in its investments in the expansion of its infrastructure, both of which play an important role in the evolution of development patterns. Therefore, attention must be given to the impact that public policies have on the interconnected land use and transportation systems. This chapter provides guidance, context, and recommendations for addressing current and future transportation needs.

To be consistent with the community's vision, the goal in this section is to strive to meet all of the various transportation needs, while still maintaining and enhancing the environment and quality of life of Gorham. The transportation infrastructure must be designed to serve local



needs, must be compatible with local land use and community character, while also accommodating regional transportation needs.

Gorham has a number of transportation systems operating within its borders. While dominated by the automobile, much of the downtown is conducive to walking and bicycling. Residents' and visitors' inter-regional transportation needs are served by automobiles and limited bus service. U.S. Route 2 passes through the center of Gorham and serves most of the local traffic in

the community, but it is also a major truck transportation route between Canada and the Atlantic seaboard.

Downtown traffic is often considered intrusive and, at times, congested. This is due to several contributing factors: the Town is an employment center; there are currently few alternatives to the automobile for addressing the transportation needs of local residents or visitors; and Gorham's limited local road network is also part of the commuting and commerce system for the region.

2.0 EXISTING TRANSPORTATION FACILITIES

There are approximately 32 miles of roads within Gorham, of which 19 miles are municipally-maintained roads. Of those 19 miles of municipally maintained roads, 17 miles are paved and 2 miles are gravel. The remaining 13 miles of road are composed of State of New Hampshire roadways, and roadways maintained by the Forest Service.

The major arteries of the road network in Gorham are US Route 2, the primary east-west route in the region, and NH Route 16. Both routes have been the subject of major corridor studies that explored the relationship of land use and transportation along the entire roadway in New Hampshire. The NH Department of Transportation, the Office of State Planning, and North Country Council coordinated these efforts Gorham was an active participant in both efforts. The major findings in both efforts included:

- An Understanding of the relationship between land use and transportation activities;
- An identified need to promote Access Management;

Reports from both of these corridor studies are available at the Gorham Town Hall, and some of the findings have been included in this chapter. Recent public discussions with the New Hampshire Department of Transportation have confirmed the public's interest in maintaining the Berlin-Gorham Road as a five lane roadway with two northbound lanes, two southbound lanes, and center turning lanes where necessary. The Gorham roadway system can be found on Map I

2.1 Classification of Highways and Roads

2.11 Ownership and Maintenance Responsibility

The State Aid classification system, which is identified in RSA 229-231, establishes responsibility for construction, reconstruction and maintenance as well as eligibility for use of State Aid funds. This classification system also provides a basic hierarchy of roadways. The following is a description of the State Aid system:

Class I, Trunk Line Highways, consist of all existing or proposed highways on the Primary State Highway System, excepting all portions of such highways within the compact sections of cities and towns. The state assumes full control and pays all costs of construction, reconstruction and maintenance of these sections. The portions of the system in compact areas are controlled by the cities and towns under Class IV highways. In Gorham U.S. Route 2 is the only Class I Highway.

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, again, are classified as Class IV highways. In Gorham this includes New Hampshire Route 16.

All sections improved to the satisfaction of the commissioner 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 of Transportation.

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.

Class III, Recreational Roads, consist of all such 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. The first ½ mile of Jimtown Road up to Moose Brook Park is a recreational road.

Class IV, Town and City Streets, consist of all highways within the compact sections of cities and towns. Extensions of Class I (excluding turnpikes and interstate portions) and Class II highways through these areas are included in this classification. Municipalities with compacts are listed in RSA 229:5. Gorham does not have a designated Urban Compact area at this time.

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 (5) 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 (5) successive years, and the municipality's duty of maintenance shall not terminate, except with the written consent of the property owner or property owners.

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). Gorham has no designated Scenic roads at this time.

Scenic Byways, 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." In Gorham there are two designated Scenic Byways the Presidential Range Trail and the Woodland Heritage Trail.

New Hampshire's Scenic and Cultural Byways program is one of many now in place nationwide, and is eligible for Federal Highway Administration Scenic Byway funds. The only regulation attached to Scenic and Cultural Byways designation is "no new billboards."

2.12 Function and Design

Section 4.1 of this chapter describes the classification of each roadway in Gorham. Section 4.2 then shows the existing Gorham Road Dimensional Standards, and a series of suggested street design standards. Local roads have been defined as major local, minor local, and minimum local. The stated purpose of each road type should be the basis for its design, use, and maintenance requirements. Local roads serving smaller residential developments could be reduced in scale to enhance neighborhood character, slow traffic speeds, reduce construction and maintenance costs, and still provide safe access.

On state routes the Town of Gorham should work with the NHDOT 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 modes beyond motor vehicles.

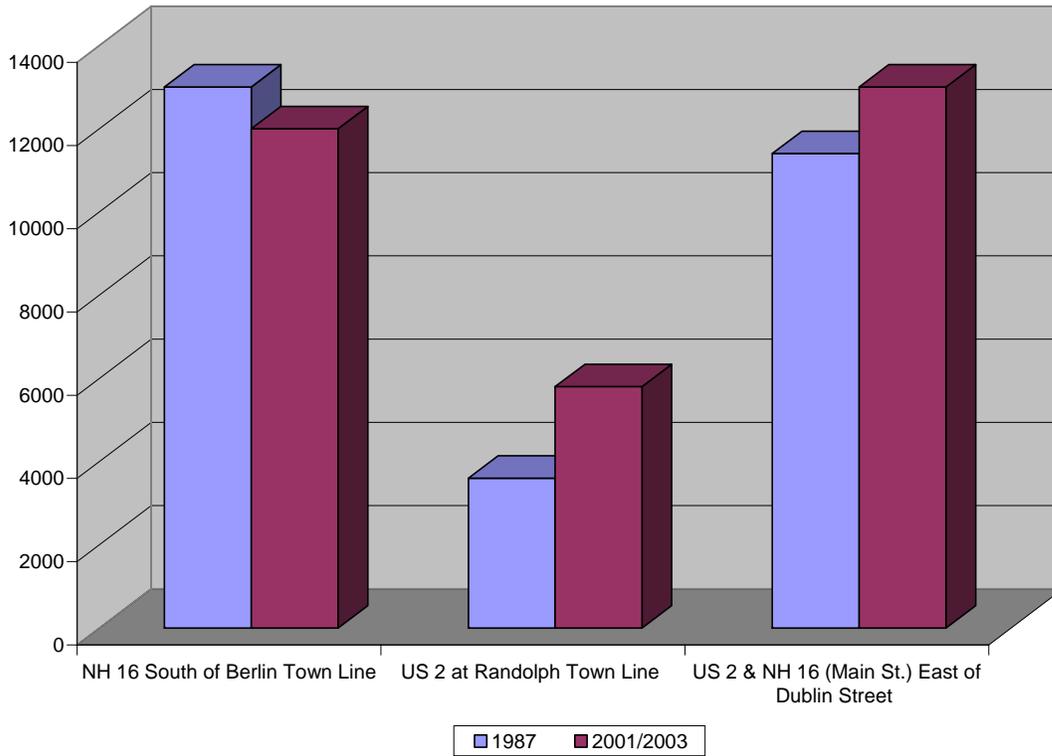
2.2 Existing Traffic Volumes and Trends

Traffic circulation within and through Gorham is probably the most important transportation issue facing the community. Congestion during peak periods is widely known to residents. The structure of the local highway network requires local and regional travelers to share, to a significant degree, the major arterials in Gorham. Local traffic consists mainly of trips from residential areas in and around downtown Gorham and neighboring communities to local businesses and services. The commercial areas in Gorham, such as the Berlin-Gorham Road, are also attracting more short and long-range trips each year. These linked commercial trips generate substantial turning movements. The combination of local trips and through trips on the major arterials often results in slow traffic, capacity constraints, delays, and an increase in vehicle collisions.

From 1982 to 2003 traffic volumes increased from an average of 9,500 vehicles per day on Main Street to an average of 13,000 vehicles per day. This represents a 37% increase in traffic volume in the downtown area. The most interesting aspect of this change in volume is that the first 20% of the increase took place by 1987. Traffic volumes have actually been fairly stable in the past 15 years. Figures 4.1 and 4.2 illustrate other increases in traffic volumes on Gorham's roadways.

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Figure 4.1 Traffic Counts



Overall, traffic in Gorham has grown as the community’s role as a tourist destination has increased over the past 20 years. Traffic volumes vary greatly over the course of a year in Gorham due to this role in the tourism industry. There are several peaks in annual traffic volume, which generally fall within mid-winter, mid-summer, and fall. These peaks correspond to the winter sports season, the summer vacation period, and fall foliage. Table 4.2 show Annual Average Daily Traffic (AADT) counts for Gorham in greater detail.



Main Street – Gorham, New Hampshire

Table 4.2 Average Annual Daily Traffic Counts for the Gorham Area

Location	1982	1987	1990	1995	1997	1998	1999	2000	2001	2003
NH 16 South of Berlin Town Line		13000	12000	11000	11000		13000		12000	
US 2 at Randolph Town Line	2600	3600	4800	5600	6100		6200		5800	
NH 16 at Martins Location Town Line	1700	3400	3100	3200	3500		3300		2900	
NH 16 North of US Route 2		12300		11000		15000				12000
US 2 East of Jimtown Road			6800				7800			
US 2 & NH 16 (Main St.) East of Dublin Street	9500	11400	12000	15000	15000		14000			13000
NH 16 South of US 2			3200		4200			3500		3600
US Route 2 at Shelburne Town Line									5300	
Jimtown Road over Moose Brook					730			880		780

*Source: NH Department of Transportation

2.3 Pavement Condition

The New Hampshire Department of Transportation evaluates all state roadways and the Interstate System using a Ride Comfort Index (RCI) of 1 to 5. The rating is based on the roughness of the surface and the amount of work needed to correct it. U.S. Route 2 west of its intersection with NH Route 16 North is classified by the RCI as needing no work. Sections of U.S. Route 2 East and sections of NH Route 16 are classified by RCI as needing some work. A few small sections of NH Route 16 in the southern portion of Gorham are classified as needing major work. These improvements are handled by NHDOT District 1, based in Lancaster.

2.4 Bridge Data

There are 3 major bridges in Gorham. One spans the Moose River, and two span the Peabody River. The Peabody River Bridge on NH Route 16 has been “red listed” by the NHDOT and the Town, and is currently being replaced. There is one box culvert in Gorham which is located under Main St. It is in fair condition, but needs repair work in the middle portion.



Peabody River Bridge

2.5 Crash Data

In 1995 there were more than 93 crashes on Gorham's roadways (see Table 4.3). These crashes were mostly on NH Route 16 and U.S. Route 2 throughout town. There were two accidents in 1995 that resulted in three fatalities. By 1999, the annual number of crashes had increased to more than 112 throughout Gorham. The crash data for 1999 shows that most crashes were still on the main roadways, NH Route 16 and U.S. Route 2.

In 2000 and 2001 the number of crashes decreased, but there were additional fatalities. In 2000 at least 87 crashes occurred in Gorham, and a July crash on NH Route 16 near Cascade Flats Road resulted in a fatality. In 2001 there were more than 85 crashes, and two additional fatalities. The first fatal crash took place in July of 2001 on Main Street near the intersection with Smith Street, and the second took place in September on Androscoggin Street. Fortunately, the 84 reported crashes in 2002 did not result in any fatalities.

Table 4.3 Gorham Crash Data 1995, 1999 & 2002

Gorham Crash Data			
	1995	1999	2002
Total Accidents	93	112	84
Pedestrian Accidents	0	1	0
Fatalities	3	0	0

* Source: NH Department of Transportation

Roadway safety is determined by a number of factors, such as road condition, traffic volume and speed, the number of access points and intersections, driver behavior, and vehicle condition. All of these factors are used to evaluate potential for accidents. Referred to as crashes by the Department of Transportation, crash data is commonly used to identify hazardous situations and plan for necessary improvements. In New Hampshire a reportable crash is an incident that causes over \$1,000 of damage or results in a personal injury. As a result the crash data reported in this section will not reflect every crash that has occurred in Gorham in a given year. Local police records may contain some additional crash data from minor incidents.

The volume of crashes on the Berlin/Gorham Road (NH Route 16) motivated the NHDOT to re-stripe the travel lanes and reduce the posted speed. Now the communities of Berlin and Gorham, and the NHDOT, are discussing future changes to this transportation link between the two communities. The Intersection of U.S. Route 2 and NH Route 16 South continues to be a safety concern. The NHDOT District Engineer has recommended that a signalized intersection be installed, but it is uncertain when that safety measure will be installed. This location is a real safety concern for the Town of Gorham, and needs to be upgraded to a signalized intersection as NHDOT has recommended. This improvement will also aid traffic flow on Main Street creating

natural breaks in the traffic flow that should reduce the number of crashes along this congested stretch of road.

2.6 Level of Service

Traffic congestion in New Hampshire is measured in terms of Level of Service (LOS) with LOS A being free flowing and LOS F being heavily congested. Level of Service is determined by comparing the volume of traffic on a roadway section to the roadway's capacity to handle the volume (based on traffic engineering procedures outlined in the Highway Capacity Manual). The capacity is based on roadway factors that affect congestion, including alignment, lane and shoulder width, and the number of access points, among others.

NHDOT has calculated the LOS for the major state highways, including state maintained and numbered routes, based on 2002 traffic data. To ensure uniformity, the traffic volumes utilized for comparison purposes were current weekday evening peak hour volumes (normally an example of a high recurring peak condition) throughout the state. In Gorham the shared portion of U.S. Route 2 and NH Route 16 was evaluated and received a high rating (LOS E and F) indicating that congestion is a major issue on this stretch of highway. US Route 2 and NH Route 16 were also evaluated elsewhere in the community and each segment received a higher rating (LOS C and D) indicating a moderate amount of congestion.

In addition to traditional highway improvements, a number of non-highway related transportation projects are being implemented incrementally to address congestion and to achieve the overall goal of moving people, goods, and services more efficiently throughout New Hampshire. NHDOT, in cooperation with Maine DOT and the Vermont Agency of Transportation, is leading an effort to implement Intelligent Transportation System (ITS) technologies in the Northern New England region. According to the US Department of Transportation, "ITS represents the next step in the evolution of the nation's entire transportation system. As information technologies and advances in electronics continue to revolutionize all aspects of our modern-day world, from our homes and offices to our schools and even our recreation, they are also being applied to our transportation network. These technologies include the latest in computers, electronics, communications and safety systems."

The goal is to manage and operate the highways more efficiently and provide timely information to the motorists about travel conditions, delays, and tourism opportunities. Such ITS technologies will assist in addressing congestion, and will extend the life of many roadways by preserving their capacity. According to the NHDOT thirty-one ITS stations will be deployed throughout New Hampshire within the next few years.

2.7 Land Use Implications and Potential Actions

Land Use Implications

Gorham's existing transportation facilities are a critical resource for area residents and visitors, and for commerce in the region. Here are a few overall considerations related to the existing transportation facilities in Gorham:

- 1) Gorham's roadways should be designed and constructed based on the role they fill in both the local road system and the regional 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) High traffic volumes on Gorham's major routes often push traffic onto other local streets that have not been designed to handle extra capacity or control the speed of this thru traffic.
- 3) Strip development, numerous signalized 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) Gorham's roadways should not be designed for motor vehicle traffic alone. Incorporating Context Sensitive Solutions into Town and State roadway projects, to the extent practical, should help 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 Gorham. This section will be used to identify the specific actions for Gorham to take upon completion of the master plan.

- 1) There is currently a need for more comprehensive traffic count data in Gorham. This is especially true in the Downtown area. Data on the volume of trucks on Gorham's roadways would also help identify the number, frequency, and destination of these vehicles. The Town should work with the North Country Council and the NHDOT as they plan the location and timing of future traffic counts in Gorham.
- 2) Roadway improvements and future road construction should be designed to control the flow of traffic, to reduce the number of access points to the roadway, and to promote connections between adjacent commercial properties. This will help preserve the capacity of Gorham's roadways without making them unnecessarily large, and will reduce the number of conflict points where crashes can occur.
- 3) The Town of Gorham should work with the NHDOT on Context Sensitive Solutions for roadway improvements in the community. Improvements are needed on NH Route 16 north of

U.S. Route 2 (Berlin/Gorham Road), especially, and should continue to be brought to the attention of the NH DOT and the North Country Council's Transportation Advisory Committee (TAC).



Main Street – Gorham, New Hampshire

3.0 SPECIAL TRANSPORTATION ISSUES

3.1 Truck Traffic

Truck traffic is directly related to commerce and is a reality within the downtown area of Gorham. Trucks passing through town to other parts of the region are quite common. Some of the issues (speed, noise, etc.) related to truck traffic can be dealt with through the design of future roadway and intersection improvements, and the remainder must be dealt with through enforcement efforts. The Emergency Bypass soon to be constructed south of the downtown area will help divert truck traffic in emergency situations. This Bypass will be maintained for year-round emergency use. At some point in the future it may become necessary to expand this emergency bypass into a full bypass. This would allow the route to become part of the transportation system, and would allow truck traffic to avoid the dense downtown area.



3.2 Workforce Commuting

According to the 2000 Census, Gorham has 1,452 residents over the age of 16 that are part of the work force in the North Country. When looking at the commuting data for these workers we see that the mean travel time for Gorham workers is 17.4 minutes. This compares favorably to the New Hampshire average of 25.3 minutes, and the national average of 25.5 minutes. Table 4.4 shows the distribution by mode of transportation.

Table 4.4 Modes of Transportation

<i>Mode of Transportation</i>	<i>Percent of Gorham Workers</i>	<i>Percent of New Hampshire Workers</i>	<i>Percent of U.S. Workers</i>
Drive Alone	85.2%	81.8%	75.7%
Carpool	7.9%	9.8%	12.2%
Public Transportation	0%	.7%	4.7%
Walk	3.7%	2.9%	2.9%
Work at Home	1.9%	4.0%	3.3%
Other Means	1.3%	.8%	1.2%

Source: US Census 2000

Gorham’s distribution of commuters by mode of transportation is very similar to the national averages in all categories except public transportation and walking. It is understandable that Gorham’s figures for public transportation would be lower than the national average, considering the lack of public transportation in the Gorham area compared to other regions of the U.S. that

are more conducive to mass transit. The number of residents that walk to work is a very positive trend.

3.3 Bicycle & Pedestrian Facilities

3.31 Sidewalks

The only significant sidewalk network in Gorham occurs in the downtown. Pedestrian movement in the downtown is a critical mode of transportation, and a form of recreation. It is key to the quality of life, economic and physical health of the community. To support this, Gorham's streets and intersections should be designed to provide for safe and convenient pedestrian access.

There are numerous safety issues associated with specific segments of sidewalk throughout the community, including minimal separation from travel lanes, multiple and wide curb cuts, and handicapped accessibility constraints. Navigating the strip commercial areas as a pedestrian, even in those areas that have sidewalks, is a potentially serious safety concern.

3.32 Bicycle Routes

State designated bicycle routes are located along portions of the U.S. Route 2 and NH Route 16 corridors. However, due to the amount of vehicle traffic and turning movements, these corridors are not always friendly for bike riders, particularly along the commercial strip areas and in the downtown areas. Over the years there have been accidents involving bicycles and cars. A network of bicycle lanes along major roads would greatly enhance rider safety and use, and should serve riders of varying abilities. This network should include both of the roadways identified above. In order to create such a network, the Town of Gorham will have to continue to work closely with the NHDOT, which is responsible for both of these corridors.

The placement of bicycle racks or lockers within the downtown area, and at retail and employment locations throughout Gorham should be encouraged. There is a need to provide a safe location for bicycles to be secured if the community wishes to encourage this form of transportation and recreation.

3.4 Signage and Wayfinding

Gorham's signage and wayfinding systems should direct travelers to their destination safely and efficiently, and contribute to the identity of the community. There are several layers of signage, (including statewide, regional, and local) and multiple layers of wayfinding (e.g., directional, informational, vehicle-oriented). Each of these levels and layers must be well coordinated in order to effectively serve visitors to the community. These signs should be integrated with Gorham's transportation and economic development infrastructure. The following are fundamental objectives of a signage and wayfinding system for Gorham:

- Identify the routes and destinations that travelers need to get to;
- Identify important decision points along each route that will be important to travelers; and
- Provide accurate information, in a legible and consistent format, at key locations along each route.

3.41 Signage Along Major Routes

Signage along state and US routes (NH Route 16 and U.S. Route 302) provide the necessary information to keep travelers on the routes and to direct travelers to many destinations.

3.43 Local Wayfinding

A variety of signage is used in Gorham, including:

- Street signs;
- Welcome/Gateway signs;
- Downtown Gorham signs;
- Directional signs; and
- Visitor information signs.

Most of the signs are in fair to good condition, but having effective signage requires a commitment to repairing and replacing signage regularly.

3.5 Dead-End Roads

Gorham's land use boards discourage the use of cul-de-sacs unless there is a physical constraint on the site that makes it necessary. Overall, the town encourages connections to existing roadways, or the provision for future connections.

There are several advantages to this, including dispersment of traffic, improvement of emergency access, and the ability to loop utility systems. Provisions should be made in the town's land use regulations to facilitate these connections where feasible through easements for future use or actual construction. Connections should also be encouraged on existing dead-end streets where possible. In order to mitigate this improved access, the town should consider the value of traffic calming design features. These features help control the thru traffic by controlling speeds, and can enhance the character and function of the roadway as a feature of the neighborhood.

3.6 Multi-use Trails and Paths

There are a multitude of trails and paths in Gorham serving walkers, hikers, mountain bikers, horseback riders, cross-country skiers, and snowmobilers. Some of this network is within the White Mountain National Forest, but much of this network is informal and privately owned, with no formal agreements for continued use or signage.

The State multi-use “rail trail” heads west from NH Route 16 on the old B&M rail line. A trailhead has now been constructed on Route 2 West for year round use. Gorham is constructing a multi-use trail that will serve as an emergency bypass facility as well. Closed to vehicles, except in emergency situations, this 1.25 mile long facility will be 16 feet wide and will have a ledge pack surface that will easily accommodate bicycles and wheelchairs.

Gorham is also constructing a “Fit Trail” with 20 exercise stations. The trail will begin on Main Street and will weave through the common, down Bangor Street, through Libby Field, and will then tie into the Town’s multi-use trail and then into the State Rail Trail on U.S. Route 2.

The only formal motorized use trails in Gorham are snowmobile corridors.

3.7 Public Transportation Facilities

3.71 Buses

Fixed Route and Demand Response Service

Limited fixed route trolley (bus) service is provided within Gorham and Berlin by Tri-County Cap. The trolley service does not generate a great number of riders currently. One suggestion is to subsidize the service so that riders can get on and off for free. Tri-County CAP also operates a limited demand response service for their clients.

Concord Trailways

Berlin is the northern terminus of one of the Concord Trailways routes. Gorham currently has one bus leaving each morning and a return trip each evening. This service provides access to southern New Hampshire, Boston, MA, Logan Airport and points beyond.

3.72 Taxis

There is taxi service provided in Gorham by one company. Transportation is available on demand and service is provided on a 24-hour-a-day basis to any location in New England.

3.73 Rail

There are several rail rights-of-way in Gorham, and one of the rail lines is still active. The St. Lawrence and Atlantic line passes through Gorham from Maine and continues up to Montreal with a spur serving the mills in Berlin. The B&M right-of way is now owned by the State of New Hampshire and the rails have been removed west of NH Route 16. The right-of-way is now used as a year round multi-use trail.

3.74 Regional and Local Airports

There is no regularly scheduled air service in Gorham or the North Country Region. The region is limited to private aircraft flying into the Mount Washington Regional Airport and the Eastern

Slope Regional Airport in Fryeburg Village, Maine. The nearest commercial airport is located in Portland, Maine (Portland International Jetport).

Berlin Municipal Airport

Once the hub of military and civilian activity, the Berlin Municipal Airport has been serving the aviation community since the 1940's. The Airport is located 7 miles north of Berlin in the Town of Milan, New Hampshire, and sits at an elevation of 1,158 feet. The runway is 5,200 feet long by 100 feet wide. Services provided at the Airport include:

State of the Art Fuel Facilities; Seasonal Aircraft Rentals; Auto, Limo and Bus Rentals; Winter Plug In; Seasonal Flight Training; Pilots' Lounge; and after hours service.

Mount Washington Regional Airport

Located in the Town of Whitefield, NH at an elevation of 1,074 feet, the Airport's runway is 3,500 feet long and seventy-four feet wide. Services provided at the Airport include: aircraft maintenance, flight training, storage and hangar space, tie downs for aircraft, fuel, and scenic flights.

Eastern Slope Regional Airport

This municipally owned facility was constructed in 1961, and includes a 3,700-foot long runway, which restricts landing and takeoffs to small jets.

Manchester Airport

The Manchester Airport is the closest major facility, with a wide range of airlines operating regularly scheduled flights. This facility has two runways; one is 9,000 feet and 150 feet wide, and the other is 7,700 feet long and 150 feet wide. Both runways were recently extended to these lengths and the facility is growing quickly. Manchester is also one of New England's largest cargo airports, with FedEx, UPS, and Airborne Express facilities on site. The FAA operates a 24-hour Air Traffic Control Tower on site. The Airport is owned by the City of Manchester, and is operated by the City of Manchester Department of Aviation. The airport is currently handling 3.4 million passengers a year, and is projected to handle 6 million passengers annually within ten years' time.

Pease International Tradeport

Pease International Tradeport is located at the former Pease Air Force Base in Portsmouth and Newington, New Hampshire. It encompasses 3,000 acres and has one runway 11,321 feet long and 150 feet wide. The Pease Development Authority operates the Tradeport. The Tradeport handles cargo, corporate, general aviation, and limited passenger service. Pan American Airlines began scheduled passenger service to the Orlando, Florida area from the Tradeport in 1999. The Pease Development Authority is actively seeking to encourage international passenger charter travel, based on its runway length and proximity to recreational and cultural amenities.

Portland International Jetport

The Portland International Jetport, like many community airports, had its beginnings as a flying fan's private field. Today, the facility serves nearly 1.4 million passengers a year, flying on the most modern equipment of most of the major airlines. The primary runway is 6,800 feet long and 150 feet wide, and the secondary runway is 5,001 feet long and 150 feet wide. The City of Portland recently spearheaded a master planning effort for the Jetport, because of its economic development value for the City and southern Maine, that will guide the growth of this facility into the future.

3.8 Other Special Transportation Issues

The trends in commuting and transportation that have emerged for the Gorham region reflect many of the transportation trends found nationwide. The number of cars on the road and the vehicle miles traveled have increased at a greater rate than the general population. The cumulative impacts of this increased automobile dependence include: traffic congestion, air pollution, noise pollution, and higher taxes and tolls to pay for new highway projects. Social and aesthetic impacts include: less cohesive neighborhoods, lost open space, and an increase in sprawling strip commercial development. It is important to remember the strong relationship that exists between Gorham's land use and transportation systems. Action within one system will have a direct impact on the other. Focusing on the community's strengths presents opportunities to improve pedestrian connections, coordinate existing bus links, and create shuttle service to Berlin to further improve how Gorham's existing transportation system functions.

During the NH Route 16 and U.S. Route 2 Corridor Studies, and the Berlin/Gorham Design Charrette completed by Plan NH in 2002, the following topics were considered of great importance to the safety and functionality of the transportation system.

3.81 Access Management

Access Management is the process of managing the placement of driveways on roadways, especially on those roadways classified as arterials. Arterial highways are similar to limited access freeways in that their primary function is to move people and goods over long distances quickly and efficiently; however, arterials do not have the benefit of strict access controls to adjacent parcels that limited access highways have. 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.

3.82 Traffic Calming

When traffic congestion reaches a saturation point, usually during the peak hour, motorists often seek alternative routes through neighborhoods. Traffic calming techniques can be utilized to slow down and control traffic on streets where it is necessary for traffic and pedestrians to co-exist.

3.9 Land Use Implications and Potential Actions

Land Use Implications

Gorham's transportation modes and infrastructure play an important role in the quality of life of the community. An interconnected transportation system provides travelers with options as they navigate between destinations. This allows traffic to disperse, allows alternative transportation modes, and may reduce the number of vehicle miles traveled by area residents. Here are several items to considerations related to the various transportation resources in Gorham.

- 1) Signage and wayfinding are important components of the transportation system and can be instrumental in directing traffic to available parking resources. Poor signage leads to confusion and missed opportunities for visitors, and has an impact on the safety and efficiency of the roadway network.
- 2) Truck traffic is important to the economy, but can have a negative impact on traffic and travel in the community.
- 3) Pedestrian and bicycle trips reduce traffic on the roadways, promote public health, and have less impact on the environment. Gorham's current sidewalks, paths and trails play a limited role in the community's transportation system, but have the potential to accommodate a greater number of trips within the community.
- 4) Local public transportation is very limited. Nodes of development that generate a higher number of potential riders at one location (such as downtown) are more conducive to public transportation than low density strip development. Site design guidelines for developments that include provisions for pedestrian circulation and public transportation can effectively enhance the use of alternative transportation and reduce the use of single occupant automobiles.
- 5) Access management techniques benefit adjacent land uses and can enhance the character and safety of the corridor. The primary goal of implementing access management policies is to prevent the loss of roadway capacity due to development along arterials by reducing turning movements that conflict with through traffic.
- 6) Traffic calming techniques would provide an option to the community for protecting the safety and congeniality of Gorham's neighborhoods, without excluding traffic.

Potential Actions

There are an array of possible actions the Town may want to consider pursuing as it evaluates existing and future transportation modes and infrastructure in Gorham and their land use

implications. This section will be used to identify the specific actions for Gorham to take upon completion of the master plan.

- 1) Evaluate the quality and effectiveness of the existing signage and wayfinding systems. Provide visible and high quality signage with accurate information in a consistent format to direct travelers to the routes and destinations the community has identified. Commit to an ongoing program of signage repair and replacement.
- 2) Accommodate walking as a key mode of transportation in the downtown by maintaining and enhancing existing sidewalks
- 3) Include provisions for bicycle and pedestrian facilities in the site plan review and subdivision regulations.
- 4) Apply for Transportation Enhancement Funds, through the NH Department of Transportation, for the construction of additional sidewalks and multi-use paths along state routes in Gorham.
- 5) Work with local providers to educate the public on how they can better access public transportation, and all of the economic, social, and environmental benefits of public transportation.
- 6) Require access management in the town regulations. Discuss these requirements with the NH Department of Transportation and consider signing a Memorandum of Understanding with the Department. This will ensure better coordination over future curb cuts. Implement access management improvements through municipal roadway projects, and the voluntary efforts of property owners to:
 - Reduce the number of curb cuts along arterials by increasing frontage requirements or the required distance between driveways, and encourage the use of common driveways.
 - Encourage the development of service roads parallel to arterials that allow for access to adjacent commercial developments. Depending on the roadway, determine whether buildings, parking, and signs should be set back from the road sufficiently to allow for a future parallel frontage road, or moved closer to the roadway with all access from the rear of the lots.
 - Require connections to adjacent developments and other local roads, not just the collector or arterial roadway to allow employees and customers to move from site-to-site without repeatedly entering and exiting the arterial.
 - Require developers to consider their plans within the context of the community and regional roadway system.

- Place parking behind or beside buildings and screen parking when possible to make the building the focal point of the destination. Use green spaces to articulate the differences between driveways, parking, and pedestrian areas.
- Allow for pedestrian access between commercial developments. Crossing points for pedestrians should be across driveways rather than through parking areas.
- Non-residential driveway entrances should be designed to prevent vehicles on the arterial from backing up while waiting to access the site. By providing adequate depth or driveway throat length at the curb cut access, vehicles are allowed sufficient maneuvering space on-site to move away from the entrance and allow other vehicles to efficiently and safely enter or exit the site.
- Vehicular and pedestrian traffic should be separated as much as possible. Foot traffic should be permitted to access buildings without crossing driveways or excessive parking areas.

7) Implement traffic calming techniques on new roadway projects and on existing roadways when possible. This includes:

- Narrowing streets – Wide streets often encourage motorists to drive faster. Extending curbs, eliminating multiple lanes, and adding bicycle lanes can help reduce speeds on existing roadways. Gorham’s street design standards should incorporate these traffic calming elements.
- Breaking up straight-aways – Straight-aways on roads encourage speeding. On existing roadways reductions in speed can be obtained by making physical alterations such as speed humps, speed tables, rumble strips, and traffic circles that require motorists to deviate from a straight line.
- Re-aligning and re-designing intersections to be more pedestrian friendly should also be considered. “Neck downs” can be added to decrease the width of road required by pedestrians to cross, and signal times can be changed to add more walk time.

8) Require dead end streets to connect to adjacent developments when feasible.

9) Changes to Gorham’s land use regulations should allow more mixed-use development so that daily activities are integrated rather than separated. Activities that are separated require vehicle trips between zones. Mixed-use development can be successful in downtown and commercial corridor locations.

10) Work with local employers to encourage Transportation Demand Management (TDM) programs for employment centers. (i.e. staggering shifts and creating car pools)

11) Evaluate the potential for expanding the trolley (bus) system during peak seasons and times.

4.0 TRANSPORTATION SYSTEM

4.1 The Network

Below is an inventory of all of Gorham's roadways by functional classification. The standards that were used for this classification can be found in Table 4.7 Street Design Standards in Section 4.2 of this chapter. As Gorham's roadways are maintained, improved, or expanded, it is important to recognize their function in the overall transportation system. The design of the roadway should then reflect its function. Over time, as development continues and traffic patterns shift, some roadways will begin to function in very different ways and this inventory will need to be revisited.

Table 4.7 Inventory of Gorham's Roadways by Functional Classification

Arterial

Berlin/Gorham Road (Route 16)
Glen Road (Route 16)
Lancaster Road (US Route 2)
Main Street (US Route 2 & Route 16)

Major Local Street

Jimtown Road
Mechanic Street

Minor Local Street

Alpine
Androscoggin Street
Bangor Street
Bell Street
Bellevue
Birch Hill Drive
Bixby
Blunden
Broadway Street
Brook Road
Brookside Drive
Candy Lane
Cascade Flats
Cascade Hill

Minor Local Street

Center Lane
Church
Claybrook Road
Corbin
Corrigan
Cottage
Country Lane
Crestwood Drive
Cross Street
Dolly Copp Road
Dublin Street
Elm Street
Evans Street
Evergreen Drive
Exchange Street
Fieldstone Road
First Street
Frazier Street
Fred's Circle
Gill Street
Glen Road Ext.
Gordon Avenue
Gorham Heights
Gorham Hill
Hamlin Avenue
Heath Road
Hemlock Road
High Street
Highland
Hitchcock Drive
Howland Ave.
Jewel St.
Keenan
Lary St.
Libby Street
Lilac Lane
Loups Garou Road
Madison

Minor Local Street

Malloy Avenue
Marois Avenue
Mascot Street
Mason Hill
McFarland Street
Mcleod Street
Mechanic Street
Memory Lane
Mill Street
Mineral Springs
Road
Morin Drive
Mt. Carter Drive
Mountain View
Road
Normand Ave.
Oak
Palmer
Paradise
Park
Peabody Street
Pellerin Street
Perkins Brook Road
Pine Mountain Rd
Power House Road
Pine Street
Pisani Street
Pleasant
Potter Street
Promenade Street
Prospect Terrace
Railroad Street
Ray Street
River
School
Second Street
Shady Drive
Simmons
Smith St.

Minor Local Street

- Spring Road
- Spruce Street
- Station Road
- Stiles Road
- Stony Brook Road
- Sunset Street
- Third Street
- Underhill Street
- Union
- Valley Road
- Washington Street
- Water Street
- Wentworth Avenue
- Western Avenue
- White Birch Lane
- Wight
- Wilfred
- Willis Pl.
- Wilson Street
- Woodbound Road
- Woodland Park

4.2 Design Standards

Currently Gorham’s road design standards, for Class V roads, are generally appropriate for handling the necessary traffic volumes without excessive pavement. The road classification shown above should serve as the basis for flexible design standards that are more appropriate to the surroundings and the function of the road. Gorham’s existing standards can be found below in Table 4.6.

Table 4.6 Gorham Road Dimensional Standards

	Local Service	Local Service	Collector	Major
Average Daily Traffic (ADT)	0-50 vehicles	51-250 vehicles	251-400 vehicles	401-Up vehicles
Pavement Width (ft)	20	22	24	Variable
Shoulder Width (ft)	2	4	4	8-10

Generally, roadway standards are established to ensure that new roads are safe in every situation. According to Gorham’s roadway standards, as found within the subdivision regulations, minimum roadway widths range from 20 to more than 24 feet in width.

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.

Below are a set of street design standards created during Phase II of the Route 2 Corridor Study that could serve as a model for future changes to Gorham’s standards.



Main Street – Gorham, New Hampshire

Table 4.7 Street Design Standards

Standard	Minimum Local Street	Minor Local Street	Major Local Street	Collector Street	Arterial Street
Number of Dwellings	2-6 dwellings	7-40 dwellings	41-150 dwellings	151-500 dwellings	>500 dwellings
ADT	20-60 vehicles	60-400 vehicles	400-1500 vehicles	1500-5000 vehicles	>5000 vehicles
Surface Width	16 feet	18 feet	20 feet	20 feet	varies
Shoulder Width	n.a.	2 feet	2 feet	4 feet	varies
Minimum Right of Way	36 feet	50 feet	50 feet	50 feet	varies
Design Speed	15 mph	15 mph	20 mph	25 mph	varies
Minimum Length of Vertical Curve	80 feet	80 feet	115 feet	155 feet	varies
Minimum Horizontal Curve radii	45 feet	45 feet	90 feet	165 feet	varies
Minimum Grade	0.5%	0.5%	0.5%	0.5%	0.5%
Maximum Grade	12%	10%	10%	8%	8%
Site Distance (both directions)	150 feet	200 feet	200 feet	250 feet	400 feet

FOOTNOTES:

[1] Shall be future anticipated traffic. (Assuming 10 trips per day per dwelling unit).

[2] All cross-section horizontal distances shall be measured perpendicular to straight-line sections and radii to curved sections.

[3] All season safe sight distance is defined as a line which encounters no visual obstruction between two (2) points, each at a height of three feet nine inches (3'-9") above the pavement and allowing for a snow window and /or seasonal vegetation. The line represents the critical line of sight between the operator of a vehicle using the access (point 1, ten feet (10') back from the road pavement) and the operator of a vehicle approaching from either direction (point 2).

4.3 Land Use Implications and Potential Actions

Land Use Implications

Gorham's network of roadways form the primary transportation system for the community and most transportation modes rely on this system. Here are a few considerations related to the network and the design standards that will be used as the basis for future improvements and new roadways in Gorham.

- 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.
- 2) Reducing roadway widths reduces the amount of impervious surface in the town. This is much better for stormwater management and calms traffic.

Potential Actions

There are a few possible actions the Town may want to consider pursuing as it evaluates the classification of roadways in Gorham and the design standards for each class. This section will be used to identify the specific actions for Gorham to take upon completion of the master plan.

- 1) Review the existing street design standards and include greater detail to ensure a hierarchy of roads in Gorham.

5.0 SUMMARY AND CONCLUSIONS

In order for Gorham to create a transportation system where function and safety will be improved, and 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 the communities of Gorham and Berlin is also extremely important, and transportation between and within the two communities should be enhanced to further strengthen the regional bond that they share.

Many of the items discussed in this chapter can be addressed in the Gorham 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 and traffic calming 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 Gorham 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.