Chapter 8
Transportation

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1.0 INTRODUCTION

Littleton's transportation system directly affects the quality of life and economic vitality of the community and the region. This is most evident in Littleton'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, recommendations and context for addressing current and future transportation needs.

So as to be consistent with the 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 the community. The transportation infrastructure must be designed to serve local needs, must be compatible with local land use and community character, while also accommodating the transportation needs of the region.

As a regional center, Littleton 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, buses, and the Interstate Highway system. Nevertheless, traffic downtown 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 Littleton's local road network is also part of the commuting and commerce system for the region.

2.0 EXISTING TRANSPORTATION FACILTIES

There are approximately 94 miles of roads within Littleton, of which about 62 miles are municipally-maintained roads. Of those 62 miles of municipally maintained roads, 49 miles are paved and 13 miles are gravel. The remaining 32 miles of road are composed of the Interstate and State of New Hampshire roadways.

The major arteries of the road network in Littleton are US Route 302, the primary east-west route in the Region, and the State Highways: NH Route 18, NH Route 135, NH Route 116, and NH Route 10. These arteries link the region's two Interstate Highways, Interstate 93 and Interstate 91, which serve the area between Boston, New York City, and Montreal. The Interstate Highway system allows residents of Littleton easy access to these cities, and others easy access to Littleton. Roads in Littleton are shown on Map I the Transportation Map.

In 1987 Littleton initiated a highway rehabilitation program to upgrade existing substandard Town roadways. The most recent Road Improvement Plan was completed in September of 2002. The goal of this plan is to prioritize and complete necessary road improvements over a number of years, so as to avoid spikes in funding requests. The plan provides a solid framework for making budgeting decisions for roadway-related capital expenditures. It does not include general maintenance activities handled under the Highway Department budget.

2.1 Classification of Highways and Roads

2.11 Ownership and Maintenance Responsibility

The State Aid classification system, which is identified by 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 Littleton Class I Highways include Interstate 93 and US Route 302.

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 Littleton this includes New Hampshire Routes 10, 18, 116, and 135.

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. No such roads exist in Littleton at this time.

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. Littleton 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 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.

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).

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 Littleton there

are two designated Scenic Byways the Connecticut River Trail and the Presidential Range 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

Littleton needs to classify and define the purpose of the various individual town roads. This can be a difficult task, as many of them serve two or more functions. Nonetheless, distinctions should be made between arterials, collectors, and local roads. Further, local roads should be 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 access roads serving smaller residential developments could easily be reduced in scale to enhance neighborhood character, distinguish traffic speeds, reduce construction and maintenance costs, and still provide safe access.

Section 4.1 of this chapter describes the classification of each roadway in Littleton. Section 4.2 then shows the existing Littleton Road Dimensional Standards, and a series of suggested street design standards. On state routes the Town of Littleton 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 users beyond motor vehicles.

2.2 Existing Traffic Volumes and Trends

Traffic circulation in and through Littleton 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 Littleton. Local traffic consists mainly of trips from residential areas in and around downtown Littleton and neighboring communities to local businesses and services. The commercial districts in Littleton, such as the Lisbon Road area, 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 1989 to 2001 traffic volumes increased from an average of 4,900 vehicles per day on the Lisbon Road to an average of 13,000 vehicles per day. This represents a 165% increase in traffic volume on the Lisbon Road in just twelve years. Figures 8A and 8B illustrate other increases in traffic volumes on Littleton's roadways.

Figure 8A Traffic Counts 1981 and 2001

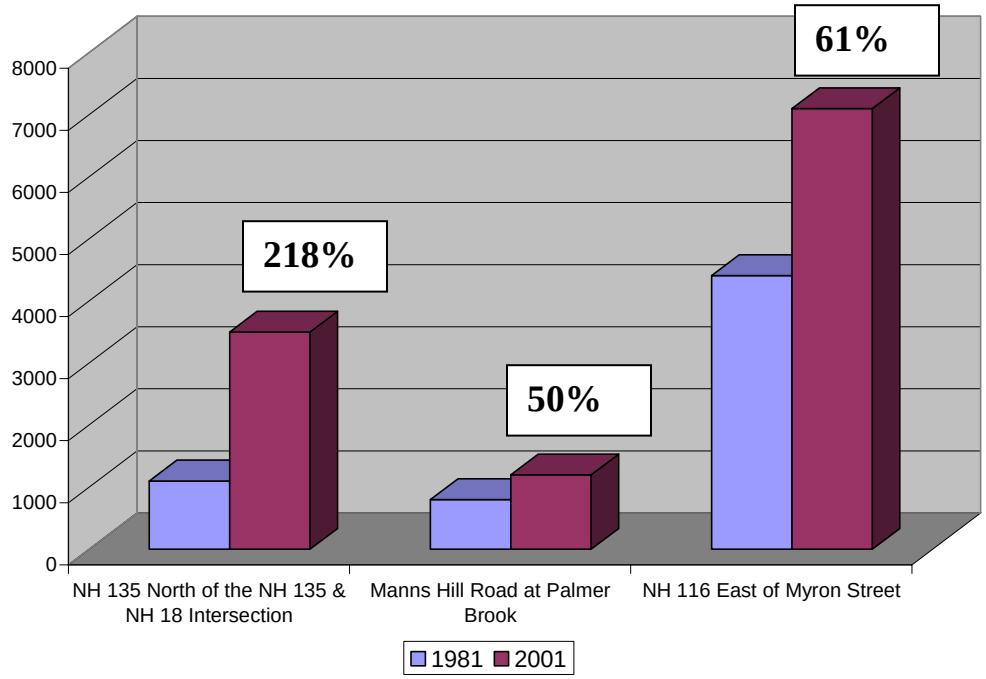
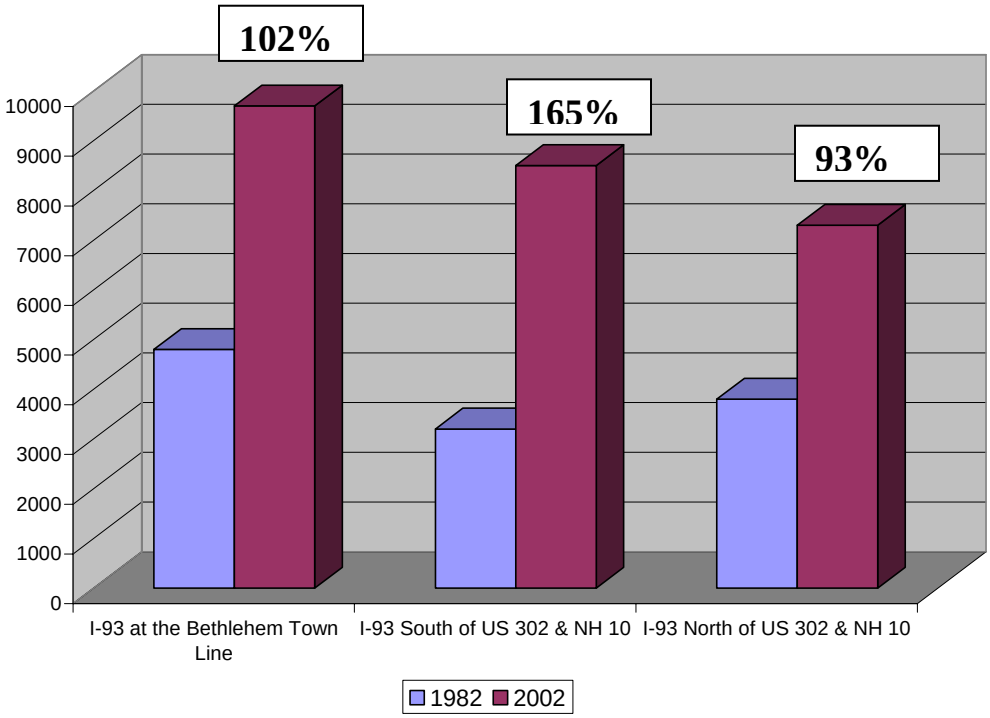


Figure 8B Traffic Counts 1982 and 2002



Overall, traffic in Littleton has grown as the community's role as a regional center has increased over the past twenty years. Traffic volumes vary greatly over the course of a year in Littleton due to the town's 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 8C illustrates Annual Average Daily Traffic (AADT) counts for Littleton in greater detail.

Table 8C Average Annual Daily Traffic counts for the Littleton Area

Location	Annual Average Daily Traffic (AADT)										
	1981	**1982**	**1983**	**1989**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
NH 18 East of NH 135	4510	4690	5130	3300	3200	3300	*	3800	*	4600	*
US 302 & NH 10 South of I-93	*	*	*	4900	10000	11000	*	9400	*	13000	*
NH 18 East of I-93	*	*	*	*	*	3400	*	*	3900	*	*
NH 18 & 135 West of NH 135	*	*	*	*	*	*	1700	*	*	3100	*
NH 135 at Dalton TL	600	500	*	*	*	1100	*	1400	*	1500	*
NH 135 North of Jct of NH 18 & 135	1100	1300	900	1500	*	1600	2700	2600	*	3500	*
I-93 NB-SB at Bethlehem TL Exit 40 - 41	*	4800	3600	7000	8700	8200	8100	9100	9100	9100	9700
NH 135 at Monroe TL	450	400	*	*	*	690	*	790	*	800	*
I-93 SB-NB South of US 302 & NH 10 Exit 41-42	*	3200	3200	5500	6800	7800	7300	8300	8300	8100	8500
I-93 SB-NB North of US 302 & NH 10 Exit 42-43	*	3800	3000	4700	5900	6400	6100	7400	6500	6900	7300
NH 135 West of Jct NH 18	*	*	*	1000	*	*	1100	*	*	1300	*
NH 116 East of Myron St.	4410	4240	4610	*	5900	6500	*	*	*	7100	*
US 302 & NH 10 East of I-93	*	*	*	*	*	*	12000	13000	*	*	11000
Mann's Hill Rd. at Palmer Brook (urban limit)	800	*	*	900	*	*	980	*	*	1200	*
I-93 SB-NB at Vermont SL	*	*	2200	3271	4091	4098	4224	4679	5062	5121	5588
I-93 NB-SB Exit 43-44	*	*	*	4400	5700	6400	6100	6800	6200	6400	6900

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. NH Route 135 and U.S. Route 302 are classified by the RCI as needing a great deal of work. These improvements are handled by NHDOT District 1 based in Lancaster. There are not currently enough federal or state funds to reconstruct these sections of roadway as needed. In the interim the NHDOT district crew continues to overlay new pavement on sections as needed. The Town also uses this RCI process to evaluate town maintained roads. They are then included in the Town's Road Improvement Plan, most recently updated in September of 2002.

2.4 Bridge Data

Three out of the four major bridges in Littleton are in good to excellent condition. The Redington Street Bridge is the only remaining bridge that has been "red listed" by the NHDOT and the Town, and is scheduled to be replaced. One pedestrian bridge exists in Littleton across the Ammonoosuc River, and a second bridge is currently under construction. Most box culverts in Littleton are in good condition with only two needing repair.

Table 8D Littleton's Bridges

Bridge Location	Maintenance Responsibility
Bridge Street over the Ammonoosuc River	Town of Littleton
Cottage Street over the Ammonoosuc River	State of New Hampshire
Beacon Street over the Ammonoosuc River	Town of Littleton
Reddington Street over the Ammonoosuc River	Town of Littleton
Pedestrian Bridge over the Ammonoosuc River	Town of Littleton
Pedestrian Covered Bridge over the Ammonoosuc River	Town of Littleton

2.5 Crash Data

In 1995 there were over 109 crashes on Littleton's roadways (see Table 8E). These crashes were fairly evenly distributed throughout town. By 1999, the number of crashes increased significantly with over 226 throughout Littleton. The crash data for 1999 shows an increase in accidents on Meadow Street, Main Street, and Cottage Street. In 2000 and 2001 the number of crashes continued to increase. In 2000 at least 238 crashes occurred in Littleton, and this also resulted in two fatalities. In 2001 the number of crashes grew to 250 and the number of injuries totaled 70.

In 2002, the number of crashes dropped slightly to 192, but a pedestrian was killed on Main Street. The wide distribution of crashes in Littleton continued in 2002 with a large number on Meadow Street, a reduction in crashes on Main Street and a slight reduction

on Cottage Street. Dells Road and other side streets experienced a slight increase in crashes in 2002.

It is difficult to determine the reasons for the drastic fluctuation in recorded accidents over the last eight years. It appears that as more development has occurred along Littleton's roadways, the downtown began to thrive, and daily traffic continued to grow, the capacity of the roadway was further strained and accident levels rose.

Table 8E Littleton Crash Data 1995, 1999 & 2002

Littleton Crash Data			
	1995	**1999**	**2002**
Total Accidents	109	226	191
Persons injured or killed	34	45	52

* Source: NH Department of Transportation

Roadway safety is determined by a number of other 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 Littleton in a given year. Local police records may contain some additional crash data from minor incidents .

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 PM peak hour volumes (normally an example of a high recurring peak condition) throughout the state. In Littleton Interstate 93 was evaluated and received a high rating (LOS A and B) indicating that congestion is not an issue on this stretch of highway. US Route 302 was also evaluated and received a lower rating (LOS C and D) indicating a moderate amount of

congestion within the developed sections of Meadow Street, Main Street, and Cottage Street.

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.

2.7 Land Use Implications and Potential Actions

Land Use Implications

Littleton's existing transportation facilities are a critical resource for area residents and visitors, and for commerce in the region. In the last twenty years, these transportation facilities have experienced an increase in demand, as Littleton's role as a regional center has increased. Here are a few items to consider related to the existing transportation facilities in Littleton:

1) Littleton'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 Littleton'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) Littleton's roadways should not be designed for motor vehicle traffic alone. Incorporating Context Sensitive Solutions into Town and State roadway projects 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 Littleton. This section will be used to identify the specific actions for Littleton to take upon completion of the master plan.

1) There is currently a need for more comprehensive traffic count data in Littleton. This is especially true in the downtown area. Data on the volume of trucks on Littleton'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 Littleton.

2) Roadway improvements and future road construction should be designed to control the flow of traffic and the number of access points to the roadway. This will help preserve the capacity of Littleton's roadways without making them unnecessarily large, and will reduce the number of conflict points where crashes can occur.

3) Work with the NHDOT on Context Sensitive Solutions for roadway improvements in Littleton. Improvements are needed on NH Route 135 and US Route 302, especially, and should continue to be brought to the attention of the North Country Council's Transportation Advisory Committee (TAC).

3.0 SPECIAL TRANSPORTATION ISSUES

3.1 Truck Routing

Littleton does not have designated routes for trucks, and truck traffic is often an issue within the downtown area. Both delivery trucks and trucks passing through town to other parts of the region are an issue. Some of the issues can be dealt with through the design of roadways and intersections, but others may require establishing delivery times, designated routes, or local ordinances. Unfortunately, there is a lack of data on the number, frequency, and destination of trucks on Littleton's roadways. Without this data it is difficult to assess which routes are actually being used by a significant number of trucks. According to NHDOT's District One Engineer Greg Placy, most of the trucks that have been observed in downtown Littleton are accessing local businesses.

In conjunction with this Master Plan update, in 2003-2004, the Littleton Places Project addressed truck traffic on numerous occasions. Project for Public Spaces, author of the Littleton Places Project Study, has suggested that truck traffic passing through Littleton be mitigated as much as possible by working with trucking companies to update their routing guidelines and re-routing trucks away from Main Street. Some of the truck by-pass options that have been discussed in meetings include:

- Trucks coming from the south and heading east from Littleton should take NH Route 302 to Brook Rd in Bethlehem. These trucks would then enter NH Route 116 via Redington Street.
- Prohibiting trucks in Littleton from turning right from Cottage Street east to Union Street:
    - Trucks within Littleton would use West Main and Union Street to head East.
- Construct a road along the rail line to access the Beacon Street Bridge.
- Build new bridge to the East of the Opera House.

The Littleton Places Report also suggested exploring the possibility of limiting truck deliveries to three designated spots on Main Street from 6:00 AM to 8:00 AM or another time period that may be more appropriate. This seems worthy of further evaluation with help from the downtown merchants and other interested parties.

3.2 Parking

Parking is one of the highest priority issues that community members mention when transportation issues are discussed. Not only is it essential that parking areas actually exist to accommodate visitors and employees, but the perception of parking availability must be considered in the creation and management of a parking system. Parking within most of the commercial and industrial areas of Littleton is handled on-site with no apparent problems.

The downtown is very different. In the downtown parking is quite different and cannot be created at each establishment. Parking throughout the downtown should be considered as an interrelated system. The current parking system is broken up into public and private areas. While parking is a priority, especially in areas predominantly accessed by cars, the causes of a perceived parking "problem" are often different than expected. Often, what may seem to be a lack of parking is actually a case of poorly managed parking. In these cases, measures such as sharing lots between adjacent uses, providing dedicated employee parking, and managing short-term parking often free up parking for visitors and customers.

In 2001 Littleton Main Street, Inc. undertook a study of the public parking spaces in the downtown. They found that there are currently 246 public parking spaces in the downtown area (Main Street from the Opera House to the Post Office, plus Mill Street and the municipal lots). This accounts for one third of the parking available in this area. The remaining 500+ parking spots are controlled by multiple owners and were not

included in this study. It is important to note that this is only a portion of the total downtown area.

The Public Parking Study found that each public space is used, on average, two to three times each day. Main Street parking spaces are the most popular and are used, on average, seven times a day. Mill Street was the second most popular parking location, and had the highest rate of all-day parking in the downtown area. The Municipal Lot and Opera House Lot are the least popular locations for parking, particularly on Saturdays.

The 2004 Littleton Places Report suggests that the following parking lots should be studied for their potential to be shared between businesses/institutions to increase overall capacity and reduce the number of entrances and exits onto Main Street:

- Community House and Post Office - There is a potential problem with the grade change between these two areas, but their proximity and combined users make this a favorable location.
- Community House and Parker's Marketplace - If these lots were combined with a connecting drive, circulation could also be improved by either closing the Community House curb cut on Main Street (moving the entrance/exit to School Street) or by limiting the Main Street curb cut to an entrance only.
- Community House - Alternatively, cars leaving the Community House parking lot could exit through a new driveway past the Veterinary Clinic and onto Maple Street (opposite Dunkin Donuts).

According to the Littleton Places Report the following lots should be studied for their potential to become dedicated merchant/employee parking with walking and possibly shuttle connections to Main Street:

- Old Littleton Hospital parking lot - Which is currently un-used. This could necessitate a shuttle service to and from Main Street
- Southern bank of the Ammonoosuc - Located adjacent to the new pedestrian bridge would enable it to serve well as a connector.
- North Side of Main Street - Under-used lots on the north side of Main Street, such as the lots above Berlin Bank, and possibly others.

Pedestrian connectors to parking lots are very important; so as to create desirable walking links between Main Street and the various parking lots. On the south side of Main Street, these connectors should be incorporated into the Riverwalk plan. On the north side, they could be along streets in some cases, or there is the potential to create a new bike/pedestrian route behind the Main Street businesses on the north side.

3.3 Workforce Commuting

According to the 2000 Census, Littleton has 3,013 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 Littleton workers is 17.7 minutes. This compares favorably to the New Hampshire average of 25.3 minutes, and the national average of 25.5 minutes. Table 8E shows the distribution by mode of transportation. Of Littleton's total workforce, only 5% commute to another state.

Table 8E Transportation Modes

Mode of Transportation	***Percent of Littleton Workers***	***Percent of New Hampshire Workers***	***Percent of U.S. Workers***
Drive Alone	74%	81.8%	75.7%
Carpool	12%	9.8%	12.2%
Public Transportation	.5%	.7%	4.7%
Walk	8%	2.9%	2.9%
Work at Home	4%	4.0%	3.3%
Other Means	1.5%	.8%	1.2%

Littleton'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 Littleton's figures for public transportation would be lower than the national average, considering the lack of public transportation in the Littleton area compared to other regions of the U.S. that are more conducive to mass transit. It is encouraging, however, to see that Littleton is well ahead of the New Hampshire and U.S. averages for the number of commuters that walk to work. This demonstrates the need for the maintenance and creation of pedestrian facilities discussed further in Section 3.4 of this chapter.

3.4 Bicycle & Pedestrian Facilities

3.41 Sidewalks

The only significant sidewalk network in Littleton occurs in the downtown. Pedestrian movement in the downtown is a critical mode of transportation. It is key to the quality of life, economic and physical health of the community. To support this, Littleton'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 found within 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, can be a dangerous undertaking.

3.42 Bicycle Routes

The State Bicycle Map designates portions of NH Routes 135 and 18, and the US Route 302 corridor as bike routes. Regional routes have also been designated on NH Route 116 and Industrial Park Road. 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 all of the roadways identified above. In order to create such a network, the Town of Littleton will have to work closely with the NHDOT, which is responsible for all of these corridors except Industrial Park Road. Additional information on bicycle routes and trails is provided in Chapter 9 (Recreation) of this master plan.

The placement of bicycle racks within the downtown area and at retail and employment locations throughout Littleton is important. There is a need to provide a safe location for bicycles to be secured. It is reported that the Town may already own three racks that had been located at the Methodist Church, the Community House, and the Opera House at one time.

3.5 Signage and Wayfinding

Littleton'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 Littleton's transportation and economic development infrastructure. The following are fundamental objectives of a signage and wayfinding system for Littleton:

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

3.51 Interstate 93 Signs for Littleton

Interstate 93 provides the primary regional access for Littleton. Primary destinations include:

-Downtown
-Commercial Corridor (along the Lisbon Road)
-Littleton Hospital
-Industrial Park

3.52 Signage Along Major Routes

Signage along State and US routes (NH Route 18, NH Route135, NH Route 116, NH Route 10, and US 302) provide the necessary information to keep travelers on the routes and to direct travelers to many destinations.

3.53 Local Wayfinding

A variety of signage is used in Littleton, including:

- Street signs
- Welcome/Gateway signs
- Downtown Littleton signs
- Directional signs
- Parking lot directional signage
- 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. Signage is not a one time purchase.

3.6 Dead-End Roads

According to Littleton's Subdivision Regulations the arrangement of streets in new subdivisions must provide for continuation into adjoining subdivisions. At the same time the regulations suggest the design should minimize "drive-thru-traffic." It is recommended that the length of dead-end streets continue to be less than 1,200 feet, and, where possible, connections should be made between new roads and existing dead-end roads.

There are several advantages to this, including dispersement 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.

3.7 Multi-use Trails and Paths

There are a multitude of trails and paths in Littleton serving walkers, hikers, mountain bikers, horseback riders, cross-country skiers, and snowmobilers. Much of this network is informal and privately owned, with no formal agreements for continued use or signage.

The Town has been considering a formal multi-use trail along the old railroad bed which runs adjacent to the Ammonoosuc River in the downtown area.

There has also been talk of a Health Trail connecting the downtown to the Littleton Regional Hospital located on NH Route 18. Existing and proposed trails provide recreational opportunities and encourage healthy activity, and can also factor into the transportation system of the community by providing additional mode choices and connections between destinations.

The only formal motorized use trails in Littleton are snowmobile corridors. The State of New Hampshire has established a network of trails connecting communities, and financially supplements the efforts of local snowmobile clubs to groom and maintain these trails. More information relative to recreational trails and paths throughout the town is available in Chapter 9 Recreation.

3.8 Public Transportation Facilities

3.81 Buses

Fixed Route and Demand Response Service

There is currently no fixed route bus service within Littleton to provide regularly scheduled public transportation. Several organizations operate their own limited demand response service to their own clients. Examples of this service are Tri-County CAP and Littleton Regional Hospital.

One group that is actively working toward bus service in Littleton is the North Country Transportation Committee. The Committee meets monthly to discuss present and future transit initiatives in the area. One of the work products generated by the North Country Transportation Committee is a *Littleton – Lancaster Corridor Study* which presents ideas for fixed route and demand response service between Littleton and Lancaster. The Committee is currently trying to secure the necessary funding to establish service in this corridor.

Three steps have been identified in this process. The first step is coordination of transportation services in Littleton. This effort would require coordinating all of the existing resources with the use of a centralized dispatch. The second step is establishing service between Littleton and Lancaster. Once these services are up and running the third step will be to look at how to include adjacent rural communities in the system.

Concord Trailways

Littleton is the northern terminus of one of the Concord Trailways routes. Littleton 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. Vermont Transit used to operate a route on US 302 connecting Maine to Vermont with a stop in Littleton, but this service has been discontinued.

3.82 Taxis

There is taxi service provided in Littleton 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.

3.83 Rail

The existing rail line through town is referred to as the Berlin Branch and is now largely inactive. The rail corridor stretches from Littleton to Jefferson and has been preserved by the State of New Hampshire, but a section of track near downtown has been removed. The Berlin Branch is owned by the State of New Hampshire and operated by the New Hampshire Central Railroad. The section in operation extends from Waumbek Junction, in Jefferson, where it meets the Groveton Branch, to Barrett, in the town of Littleton, a distance of 17.5 miles. It also has an interchange with the Mountain Division (Twin State) at Whitefield Junction, and the Mountain Division (State-Owned) at Hazens, both in the town of Whitefield. In 1993, portions of the Berlin Branch were rehabilitated through partial funding assistance from the FRA Local Rail Freight Assistance program. This corridor has been considered as a potential location for a bypass of Main Street or a multi-use path, but no formal plans are in place.

3.84 Regional and Local Airports

There is no regularly scheduled air service in Littleton or the North Country Region. The region is limited to private aircraft flying into the Mount Washington Regional Airport and other small facilities. The Lebanon, New Hampshire, Airport is the closest facility with some regularly scheduled flights.

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 74 feet wide. Services provided at the Airport include: aircraft maintenance, flight training, storage and hangar space, tie downs for aircraft, fuel, and scenic flights.

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 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.

3.9 Other Special Transportation Issues

The trends in commuting and transportation that have emerged for the Littleton region reflect many of the transportation trends found nationwide. The numbers 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 of sprawling strip commercial development. It is important to remember the strong relationship that exists between Littleton's land use and transportation systems. Action within one system will have a direct impact on the other. Focusing on the communities strengths presents opportunities to improve pedestrian connections, coordinate existing bus links, and create shuttle service to the Industrial Park to further improve how Littleton's existing transportation system functions.

3.91 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 do. 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.

3.92 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.

3.10 Land Use Implications and Potential Actions

Land Use Implications

Littleton'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 consider related to the various transportation resources in Littleton:

1) The increased level of activity in the downtown area has made the availability of parking a key problem at peak times throughout the day. This is especially true during the morning and evening commutes and at lunch time.

2) 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.

3) Truck traffic is important to the economy, but can have a negative impact on traffic and travel in the downtown area.

4) Pedestrian and bicycle trips reduce traffic on the roadways, promote public health, and have less impact on the environment. Littleton'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.

5) Park and ride lots could be an important component of demand management and encouraging alternative modes of transportation and carpooling in Littleton.

6) Local public transportation is very limited. Nodes of development that generate a higher number of potential riders at one location (such as the Industrial Park) are more conducive to public transportation than 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.

7) 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.

8) Traffic calming techniques would provide an option to the community for protecting the safety and congeniality of Littleton'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 Littleton and their land use implications. This section will be used to identify the specific actions for Littleton to take upon completion of the master plan.

1) Establish a balance of well distributed public and private parking spaces throughout the downtown area. Do not expand parking at the expense of the downtown's character. Manage these parking resources with appropriate time limits and costs to accommodate residents and visitors.

2) 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.

3) Work with local merchants and Main Street to explore the possibility of establishing delivery hours for trucks.

4) Work with the NH Department of Transportation to develop and post truck routes. A town ordinance could prohibit truck traffic on certain streets and establish local delivery routes for trucks.

5) Walking is a key mode of transportation in the downtown and commercial areas and sidewalk maintenance and enhancements should be made accordingly. Follow the format of the local "Road Improvement Plan" to evaluate the location and condition of existing sidewalks, paths and trails in Littleton to determine ownership, future improvements and connections.

6) Include provisions for bicycle and pedestrian facilities in the zoning and subdivision regulations.

7) 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 Littleton.

8) Work with the New Hampshire Department of Transportation to establish park and ride facilities, in existing parking lots, at key interchanges on I-93.

9) Encourage better coordination of existing public transportation services within the community. Secure funding for expansion of this service as ridership increases.

10) Coordinate small providers to better educate the public on how they can access public transportation, and all of the economic, social, and environmental benefits of public transportation.

11) Consider requiring access management in the zoning and subdivision 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.

12) Consider 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. Littleton'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, traffic circles, and chicanes 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 length of road required by pedestrians to cross and signal times can be changed to add more walk time.

13) Consider requiring dead end streets to connect to adjacent developments where practical.

14) When adopting changes to Littleton's land use regulations consider allowing 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, village, and commercial corridor locations.

15) Work with local employers to encourage Transportation Demand Management (TDM) programs for employment centers.

16) Evaluate the potential for a satellite parking system on edge of the commercial district and the downtown with complimentary uses (i.e. bike and rollerblade rentals, shopper storage).

17) Evaluate the potential for a trolley (bus) system during peak seasons and times.

4.0 TRANSPORTATION SYSTEM

4.1 The Network

Below is an inventory of all of Littleton's roadways by functional classification. The standards that were used for this classification can be found in Table 8G Street Design Standards in Section 4.2 of this chapter. As Littleton'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 8G Inventory of Littleton's Roadways by Functional Classification

Limited Access
Interstate 93
Arterial Streets
Cottage St
Main St
Meadow St
Union St
West Main St
Collector Streets
Bethlehem Rd
Cross Rd
Green St
Grove St
Mann's Hill Rd
Monroe Rd
North Littleton Rd
Pleasant St
St Johnsbury Rd
Major Local Streets

Beacon St
Bridge St
Brook Rd
Broomstick Hill Rd
Chiswick Ave
Church St
Coreys MHP Rd
Dells Rd
Farr Hill Rd
High St
Highland Ave
Industrial Park Rd
Maple St
Mount Eustis Rd
Oak Hill Ave
Old Whitefield Rd
Pine St
Redington St
Saranac St
School St
South Dells Rd
South St

Minor Local Streets
Ammonoosic St
Badger St
Blackberry Ln
Brickyard Rd
Bronson St
Burndy Rd
Carleton St
Clay St
Crane St
Cyr Rd
Ely St
Foster Hill Rd
Grandview Rd
Herbert Ln
Hill St
Hillside Ave
Hilltop Rd
Hubbards Rd
Jackson St
Kilburn St
Knight Ave
Merrill St
Mill St
Mount Misery Rd
North Skinny Ridge Rd
Old Partridge Lake Rd
Old Walker Hill Rd
Old Waterford Rd
Orchard Hill Rd
Oregon Rd
Osgood Farm Rd
Partridge Lake Rd
Perkins Landing Rd
Pine Hill Rd
Poulsens Point Rd
Railroad St
Remich St
Richmond St
Riverglen Rd
Riverside Dr
Rotobec Dr
Sampson Rd
Sewage Treatment Rd
Slate Ledge Rd
Washington St
West Elm St
Whitcomb Dr

Moore Ct

Wilkins Farm Rd
Willow St

Minimum Local Streets
Alder Brook Rd
Allen Rd
Autumn Rd
Balcom Rd
Birchcroft Rd
Bishop St
Bluejay Ln
Brinns Way
Bryan St
Cardinal Ln
Chickadee Ln
Cindys Dr
Cold Spring Rd
Colin Ridge
Colonial Ct
Corliss MHP Rd
Cove Rd
Crawford St
Cross St
Curtis Ct
Deer Ct
Dodge Rd
Drew St
Eames Way
Easy St
Edencroft Rd
Evergreen Ln
Fairview St
Fitch Cross Rd
Fox Ridge Rd
Gannon Rd
Gary's Dr
Girard Rd
Glen Ridge Terrace Rd
Hagar St
Hatch Brook Ln
Heather Ln
Helter Skelter Rd
Herrick Point Rd
Hidden Brook Ln
Hilltop Manor Ext
Hillview Ter
Hummingbird Ln
Joe Lahout Ln
Julias Way
Lewis Ln
Lilac Ln
MacIver Rd
McBean Cir
McDonalds MHP Rd
Meadowlark Dr
Merry Mont Rd
Mockingbird Ln
Morrison Hill Dr
Mullikin Brook Rd
Myron St
Newtons MHP Rd
North Fairview St
Oriole ln
Owen Dr
Paper Rd
Parker Village
Patriots Dr
Pest House Rd
Pike Ave
Pilgrim Dr
Point of View Dr
Poulsens MHP Rd
Purple Finch Ln
Redwing Ln
Reidy Way
River View Dr
Rock Strain Dr
Shana Ln
Skyline Ct
South Grove St
South Shore Rd
Sparrow Ln
Spruce St
Sugarwood Ln
Summer St
Summit Ave
Sunset Dr
Tamarac St
Tara Ln
Toneys MHP Rd
Towles MHP Rd
Tuck Ln
Wagon Wheel Ln
West Drew St
Wildwood Rd

Keeler Rd
Kelley Ln
Kimball St
Lafayette Ave
Ledgeway Rd
Williams Ln
Williams Rd
Winter St
Woodside Ave

4.2 Design Standards

Currently Littleton's road design standards, for Class V roads, are 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. Littleton's existing standards can be found below in Table 8G.

Table 8G Littleton Road Dimensional Standards

Average Daily Traffic (ADT)	**Local Service 0-50 vehicles**	**Local Service 51-250 vehicles**	**Collector 251-400 vehicles**	**Major 401-Up vehicles**
Pavement Width (ft)	18	20	24*	Variable
Shoulder Width (ft)	2	4	4	8-10

*Where on-street parking is expected, a 44 foot wide pavement may be required.

Generally, roadway standards are established to ensure that new roads are safe in every situation. According to Littleton's roadway standards, as found within the subdivision regulations, minimum roadway widths range from 18 to 44 feet.

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-designed of these streets include 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 the Route 2 Corridor Study that could serve as a model for future changes to Littleton's standards.

Table 8H 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

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

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 Littleton and the design standards for each class. This section will be used to identify the specific actions for Littleton to take upon completion of the master plan.

1) Consider revising the existing street design standards to include greater detail for a hierarchy of roads in Littleton.

5.0 LITTLETON PLACES

In late 2002, the Town received a major grant from the Federal Transportation and Community and System Preservation Pilot Program (TCSP). TCSP is a comprehensive initiative of research and grants to investigate the relationship between transportation and community and system preservation and private sector based initiatives. Littleton's

successful TCSP application outlined an innovative approach to developing a strategic plan for existing and future programs, projects, and facilities and all of the community's transportation systems.

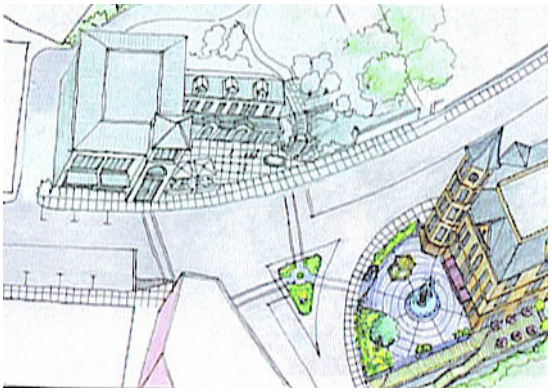
> In March of 2003, Project for Public Spaces began working with Littleton under the TCSP grant…The final report *Littleton Places* is available at the Town Office, and the information below highlights the findings of the *Littleton Places* project.

The project steering committee divided the town along its main commercial corridors and four study areas were identified: Main Street; Apthorp; Cottage Street; and Meadow Street. Some of the issues that were addressed throughout Littleton during the project included: truck through-traffic; congestion; speeding; walkability; signage; and alternate modes of transportation.

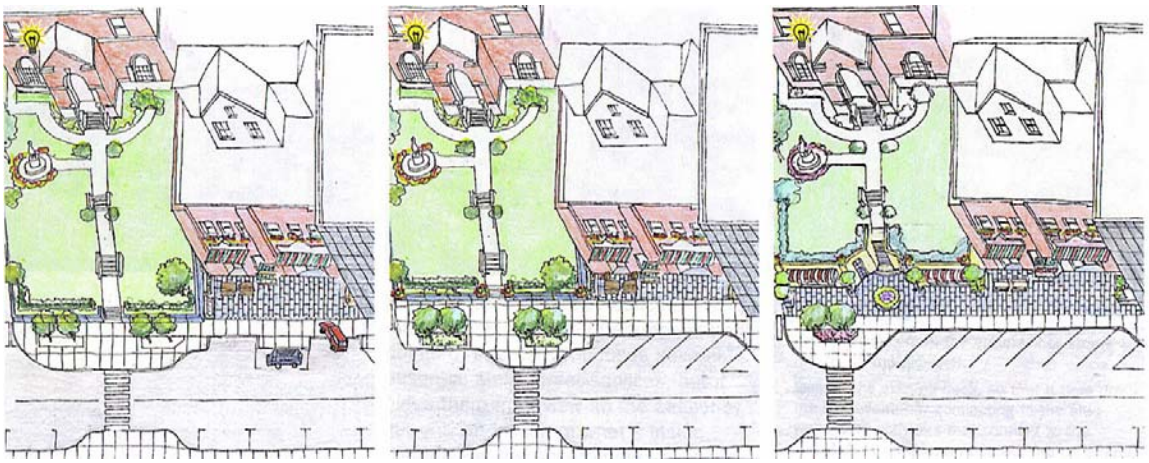
Main Street

The vision that emerged from the process was that Main Street, as it transitions into adjacent areas and streets, should expand on its local, pedestrian-oriented character and become a safer, friendlier street with less speeding traffic and more and better pedestrian crossings. The following are key opportunities identified by PPS for Main Street:

- Make the most of the plan to rebuild Main Street and its utilities by enhancing its comfort and image for pedestrians and providing better organization for traffic:
  -Improve streetscape elements
  -Create back-in angle parking
  -Redirect truck traffic
  -Create traffic calming
  -Bumpouts at intersections and midblock
  -Move valley gutters and drains
  -Apply access management techniques
- Parking access and management are central to solving the parking requirements of Main Street visitors, businesses, and residents.
- New Public Gathering spaces should increase the downtown's appeal for all users and become a point of pride.
- Security and management to discourage negative users:
  -Coordination with merchants



- ***Opera House Corner***:
  -The area in front of the Opera House needs more presence and significance.
  -Improve the Opera House façade
  -Create a small plaza outside the museum entrance
  -Make improvements to Veteran's Bridge
  -Connect to the Riverwalk
  -Newspaper stand or information kiosk
  -Create a landmark plaza in front of the bank
- ***Veterans' Bridge***:
  -Restore the bridge to pedestrian users
  -Dress up the bridge and add seating with a view of the river
  -Connect the Bridge to the Riverwalk
- ***Main and Pleasant***:
  -Shorten the crosswalk
  -Even out the sidewalk
  -Create more amenities
  -Paint a mural on the blank wall
  -Plantings
  -The improved sidewalk in front of the church can be the site of church sales
  -Add night lighting
  -Create a space for truck deliveries
- ***Main and Clay***:
  -Use (untinted) bank windows and facade to promote town activities.
  -Add potted plants and a bench to the widened sidewalk.
  -Redevelop the adjacent vacant lot



- ***Porfido's and the Library***:
  -PPS has created three alternatives to deal with the existing access and image problems.

- ***Parker's Marketplace***:
  -Add entrances from the ground floor stores to the sidewalk
  -Expand the existing deck so that it tiers down the hill
  -Expand sidewalk seating areas and plantings
- ***Civic Center***:
  -Install a community bulletin board in front of the Post Office
  -Add benches, shade trees, flowers, mailboxes, and a bus shelter
  -Create 15-minute parking in front of the Post Office
  -Improve the area around the Bank/Town Office for civic uses
  -Create a wide crossing zone
- ***Community House***:
  -Open up the view of the house from Main Street
  -Reduce asphalt
  -Add Victorian accents
  -Parking management
  -Move the information booth
  -Enhance the image and uses of the information booth
- ***Lower Main Street***:
  -Acquire vacant properties
  -Require landscaping buffers along all parking lots
  -Develop other ways to screen parking lots
- ***Riverwalk***:
  -Incorporate key sites in the Riverwalk concept
  -Manage and maximize short term opportunities
  -The river needs to become more accessible, usable, and navigable

West Main Street

West Main Street lacks a recognized identity. It has experienced some growth since the closing of the Hospital on Cottage Street, but its character is still more rural than Littleton's other arteries. The following are key opportunities identified by PPS for West Main Street:

- Reduce the amount of pavement and lane widths
- Roadside plantings that accentuate the rural character
- West Main Street as a pleasure walking route
- ***Beal House Intersection***:
  -This intersection could be modified in certain ways, but radical changes are difficult because of the grade changes

Cottage Street

Cottage Street is a series of informal gateways that gradually introduce the driver to Littleton. The following are key opportunities identified by PPS for Cottage Street:

- A series of gateways should be established to slow traffic and reinforce the Character of each section
- Sidewalks and bike lanes should be established
- Many curb cuts along Cottage Street are wider than necessary
- Create a "Cottage Garden District"
- ***Woodsville Guaranty Bank and Bishop's Ice Cream***:
  -Plant flowers/landscaping along the roadside and at signage
  -Install artwork indicative of the zone
  -Expand the outdoor seating area
  -Create a unified destination

- ***Railroad Crossing Area***:
  -Create a gateway that cars pass under
  -Curb cuts in this area need to be reduced in size
  -Rebuild sidewalks along both sides
  -Redevelopment at railroad crossing
  -Landscaping is needed to screen parking lots
  -Develop a pocket park near the depot

Meadow Street

Meadow Street falls into distinct zones each with its own character. The north end belongs to old Littleton with small scale businesses, and the southern part is new Littleton with big box retail and large parking lots. The following are key opportunities identified by PPS for Meadow Street:

- Create pedestrian friendliness
- Access drives should be built to make direct connections between adjacent parking lots
- A long term redesign of the street could separate through-traffic from local traffic
- A mid-day shuttle should be considered
- Some of the Cottage Street principles could be applied here
- Triangulating uses around traffic calming measures would encourage pedestrian activity between locations

- Organize interested businesses as a neighborhood association in the Meadows

Apthorp

Union Street is a fairly high-speed road, except for two short intervals in the morning and afternoon when it backs up at the elementary school. The following are key opportunities identified by PPS for Apthorp:

- The traffic calming techniques outlined for Cottage Street would work equally well on Union Street
- Protect and enhance scenic qualities
- Upgrade amenities and design features
- Create a zoning or land use plan to guide development in clusters
- Develop a bike path on each side of the road
- Remove outdated utility poles
- Promote façade improvements
- ***Lakeway Elementary School:***
  -Create a safe zone from Pine Street to the far side of the Courier building
  -Consider a turn-around for parents
  -Create a sheltered, after-school waiting area
  -Consider additional transit services for students

6.0 SUMMARY AND CONCLUSIONS

6.1 Policy Initiatives

In order for Littleton to create a transportation system whose function and safety will be improved and whose life will be extended, for all modes, the community must embrace the following town-wide: revised street design standards; access management principles; traffic calming techniques; public transportation services; and transportation demand management strategies.

Each of these items can be addressed in the Littleton Zoning and Subdivision Regulations. They can also 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.

6.2 Project Initiatives

The Littleton Places project very nicely highlighted the major problem areas in Littleton's transportation system that need attention, including:

- Beal House Intersection
- Opera House Intersection
- Main Street
- Railroad Crossing Area (Cottage Street)
- Lakeway Elementary on Union

Recommendations from this chapter also call for:

- Adopting the hierarchy of streets.
- Adopting the hierarchy of street design standards.
- Encouraging better coordination of existing public transportation services within the community.
- Evaluating the location and condition of existing bicycle and pedestrian facilities, and use this information to plan future improvements and expansions.
- Working with the New Hampshire Department of Transportation to:
    - eliminate unsafe (high crash) intersections
    - select the location of future traffic counts to create a more comprehensive set of traffic count data
    - establish a Memorandum of Understanding for access management
    - secure funding for the reconstruction of NH 135 and US 302
    - explore and post truck routes