

# 6

# Transportation

**““If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places”**

**- Fred Kent, Founder, Project for Public Spaces**

## Introduction

**An integrated transportation system that provides safe opportunities to commute by car, bike, foot, and bus is a critical component of any successful community. This chapter provides guidance, recommendations and context on current transportation issues and needs facing the community.**

The goal of this section is to ensure that the town's transportation infrastructure is planned and designed to serve local and regional needs and is compatible with land use patterns and community

character. 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.

## EXISTING INFRASTRUCTURE


### 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.




~94 miles of roads in  
Littleton  
~62 miles of municipal  
roads

Littleton's downtown streets include roads such as Main Street, West Main Street, Cottage Street, Union Street, Industrial Park, and Eustis Hill. Main Street is a bustling roadway, as it is a major east-west thoroughfare. These roads are used by pedestrians and bicyclists, as well as significant truck, car, and other vehicle traffic. Downtown streets typically have a higher density of surrounding land uses and have other infrastructure, such as sidewalks, crosswalks, and narrower travel lanes. Most of these are state-maintained routes as they radiate from the Downtown area.



**32 miles of road** are composed of the Interstate and State of New Hampshire roadways.



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.

### Traffic Volumes and Trends

**Traffic circulation** in and through Littleton is one of the most important transportation issues facing the community. Congestion during peak time 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. 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.

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.

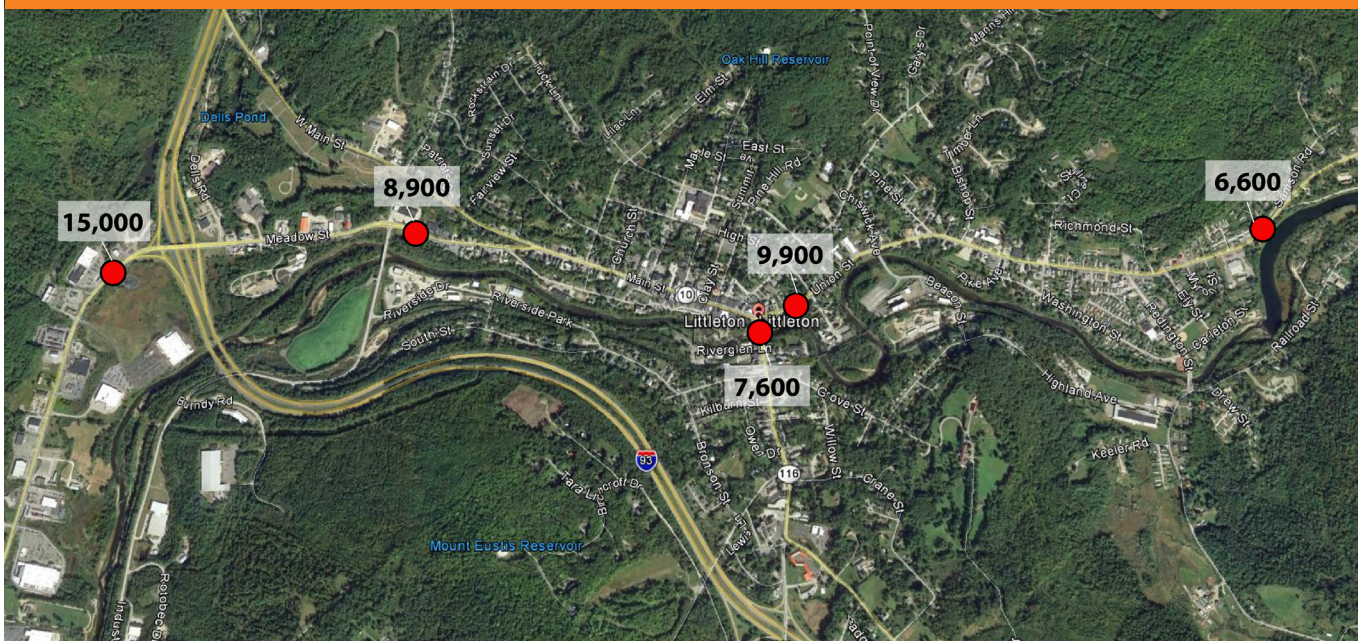
Overall, traffic in Littleton has increased over the past thirty years due to it being a regional hub for services and employment, though traffic volume increases have stagnated recently. This is most likely due to the leveling off of population growth in the region. In Littleton, traffic volumes vary greatly over the course of a year due to the town’s role in the tourism industry. There are several peaks in average annual daily traffic volumes, 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.

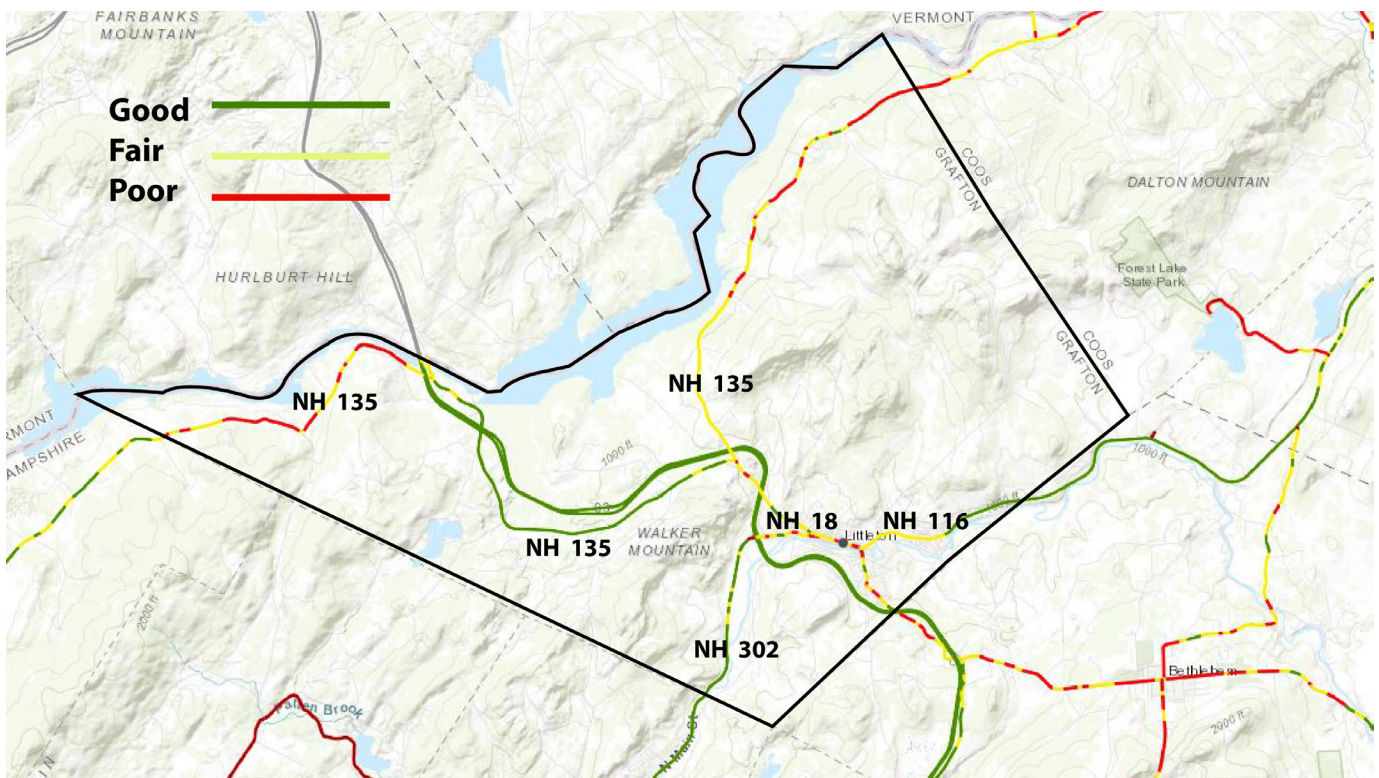
New Hampshire Department of Transportation (NHDOT) Traffic Reports display traffic volume data at key locations along major roadways to help towns better anticipate and prepare for changing transportation needs. Additionally, North Country Council also collected more recent traffic counts for certain street segments for the development

2017 TRAFFIC COUNTS	
Traffic Count Locations	Vehicles/Day
Meadow St. (US 302) west of I-93 Exit 42	15,000
Meadow St. (US 302) east of Industrial Park Drive	8,900
Cottage St. (US 302) over Ammonoosuc River	7,600
Union St. (NH 116) west of Cross St.	9,900
Union St. (NH 116) west of Samson Rd.	6,600

of Littleton’s Bicycle and Pedestrian Plan. The table to the right illustrates Annual Average Daily Traffic (AADT) counts for key locations in Littleton in greater detail. Since the 2004 Master Plan update, there have been slight increases in or the same level of traffic on major roadways in Littleton including US 302 and NH 18/Main Street, but no significant changes.

MAP OF 2017 TRAFFIC COUNT LOCATIONS





Above: NHDOT Pavement Conditions in Littleton

### 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, near the Downtown and in the western portion of Town, 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 2010. Pictured above is a map showing pavement condition data using a good, fair, poor scale by NHDOT.

2018 BRIDGE DATA	
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
Pedestrian Bridge at Bridge Street Bridge over the Ammonoosuc River	Town of Littleton

## Bridge Data

All four of the major bridges in Littleton are in good to excellent condition. Three pedestrian bridges also exist in Littleton across the Ammonoosuc River, providing increased pedestrian access to the Downtown.

## Crash Data

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 the 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.

Figure 6.1 shows the total number of traffic accidents in Littleton from 2011 to 2018. This data was collected from the Littleton Police Department. These accidents include all types of accidents ranging from a fender bender to a vehicle hitting a pedestrian. From 2011 to 2018, there were 4 fatalities that resulted from the reported accidents. During this time, most of the accidents occurred on Main Street and Meadow Street. According to the Littleton Bicycle and Pedestrian Plan, between 2007 and 2017, 8 crashes involving pedestrians and one crash involving a bicyclist were recorded along Main St. An additional four crashes involving pedestrians and four crashes involving bicyclists were recorded in the Downtown area; however,

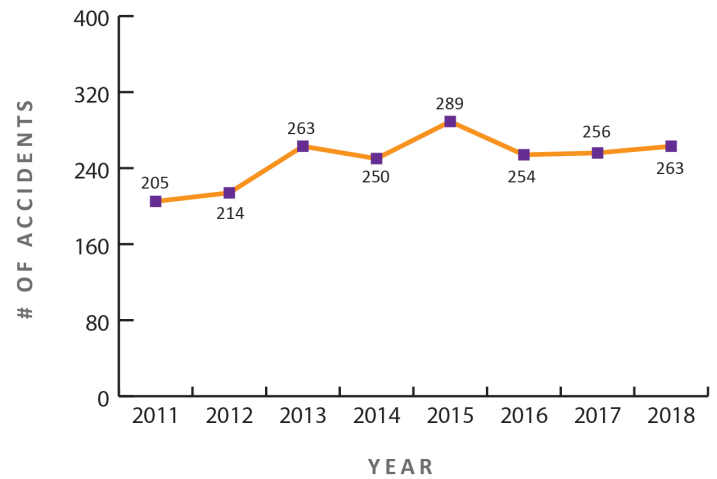


Figure 6.1: Traffic Accidents

these crashes were generally not clustered at a particular location. No fatalities involving bicyclists or pedestrians were recorded between 2007 and 2017.

## Workforce Commuting

According to the 2017 American Community Survey, 3,194 residents over the age of 16 are commuting to work. 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. 80.5% are commuting alone by car, truck, or van, while about 9% are carpooling. 7.6% of residents walk to work. 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 later in this chapter.

## Traffic Calming

Traffic calming refers to a system of design and management strategies that work to increase

pedestrian, bicyclist, and driver safety by slowing traffic speeds. Traffic calming techniques would provide an option to the community for protecting the safety and congeniality of Littleton's neighborhoods, without excluding traffic. Traffic calming techniques 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, and traffic circles that require motorists to deviate from a straight line.

### **RE-ALIGNING AND RE-DESIGNING INTERSECTIONS**

- 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.

## **PARKING**

Parking is often one of the highest priority issues that community members mention when transportation issues are discussed. Adequate parking capacity is important for accommodating visitors and employees and 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.

In the Downtown, parking is quite different and



*Above: A bump out serves as a traffic calming measure on Main Street in Littleton. Source: Google Maps*

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.

The most recent Downtown public parking study was completed in 2019 by North Country Council. The study found that the total parking capacity on Main Street is estimated to be 2,225 vehicles. Formal public parking in Downtown Littleton was never more than 78% full during the study; however, some public parking lots (Pleasant Street, River District) were frequently at capacity during peak times (mid-day hours, weekend evenings)

Another transportation issue that has emerged since the last Master Plan update is the increase of electric vehicles on the road. Electric vehicles require access to electric charging stations for power. There may be opportunities for installation of charging station infrastructure at certain locations in Town.

## BICYCLE AND PEDESTRIAN FACILITIES

Littleton's sidewalk network is most extensive in its Town core. Pedestrian infrastructure is known to contribute to the economic development of a Downtown, improve quality of life, and positively influence the physical health of a community. To support this, all of Littleton's streets and intersections should be designed to provide for safe and convenient pedestrian access.

In 2018, North Country Council worked with the Town of Littleton to develop a Bicycle and Pedestrian Plan for the community. For this project, input was collected from residents, bicycle advocates, and public officials on the Town's pedestrian infrastructure. Stakeholders noted that many sidewalks in town are in poor conditions and there are high vehicle speeds in residential areas presenting risks to pedestrians. Other notable safety issues included minimal separation from travel lanes in certain areas of Town, 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.

### 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.

North Country Council developed a Level of Traffic Stress for Bicyclists map in the Town's Bicycle and Pedestrian Infrastructure Improvement Plan. This is a method of analysis for quantifying the level of comfort a bicyclist will have on a given segment of road. The study area largely looked at the Downtown. While some segments of roadway were deemed as comfortable for nearly everyone, most of the road segments only catered to adult bicyclists or were deemed as "dangerous feeling" for most riders.



Above: Littleton River Walk

### 2018 Bicycle & Pedestrian Infrastructure Improvement Plan

In 2017, the Town of Littleton worked with North Country Council (NCC) to develop a Pedestrian and Bicycle Infrastructure Improvement Plan. It identifies characteristics of Littleton that are good for walking and bicycling and should be preserved and challenges to walking and biking in Town. It also provides the Town with a toolkit of strategies that can improve pedestrian and bicyclist safety and identifies roads in Littleton where these strategies would be suitable. Additional strategies for improving bicycle and pedestrian facilities, connectivity, and infrastructure are outlined in the Town's 2018 Bicycle and Pedestrian Infrastructure Improvement Plan.

Common issues that stakeholders identified during the development of the Bicycle and Pedestrian Plan include observations that many bicyclists ride on the sidewalks due to lower skill levels and poor road conditions, causing a hazard to pedestrians; the lack of separated bicyclist infrastructure, and the need for traffic calming measures to increase safety for alternative transportation modes.

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 link important destinations in Town and serve a broad population of users. 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.

The Town's municipally-maintained roads generally carry lower traffic volumes and can provide low-stress biking and walking routes. These streets generally link community spaces and neighborhoods. These roads could be a place for the Town to experiment with bike infrastructure improvements because the impacts to car traffic are lower and the need for additional approvals by the state result in a more efficient planning, design, and construction process. The Town may want to consider utilizing shared-lane markings, or "sharrows", on low-volume roads and side streets to provide a designated space for cyclists to ride in the street. Other bicycle infrastructure the Town could consider includes wide paved shoulders, bike lanes, and multi-use trails.

Additionally, the placement of bicycle racks within the Downtown area and at retail and employment locations throughout Littleton should be a priority to support bicycling as a viable transportation mode. It is reported that the Town may already own three bicycle racks that had been located at the Methodist Church, the Community House, and the Opera House at one time.



Above: Bike lane in Manchester, NH. Source: Business NH Magazine

## 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. Multi-use trails provide recreational opportunities and encourage healthy activity, while also providing additional transportation mode choices and connections between destinations.

Much of Littleton's existing trail network is informal and privately owned, with no formal agreements for continued use or signage. However, over recent years, more formalized trails have been developed, such as the trails at Parker Mountain



Above: Sharrow in Exeter, NH. Source: Town of Exeter.



and the Ammonoosuc Rail Trail. The Ammonoosuc Rail Trail is a popular year-round multi-use trail that is 19 miles long stretching from Littleton to Woodsville. Its owned by NHDOT and maintained by the DNCR. There are currently plans to construct an extension this trail and other trail improvements over the next 3-4 years. There has also been some discussion of a Health Trail connecting the downtown to the Littleton Regional Hospital located on NH Route 18.

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 7: Recreation.

## 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.

### 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.

## PUBLIC TRANSPORTATION

In general, local public transportation is very limited in the region. 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.

### Buses

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. The Grafton County

Senior Citizens Council Inc. is serving Littleton's senior community by providing two lift-equipped vans Monday through Friday for seniors to get to their appointments, grocery shopping, and other services.

Additionally, Tri-County Transit Transportation is a public transportation organization in Northern New Hampshire that operates in Coos, Carroll, and Northern Grafton Counties, providing services to seniors, disabled and low-income populations, and the general public. They offer a number of services to Littleton residents including a flex bus line and door to door pickups. They operate the Tri-Town flex bus route which connects the Towns of Littleton, Lancaster, and Whitefield. Bus stops in Littleton include Parker Village (a 55+ community), Cottage Street, Main Street, Littleton Regional Hospital, Wal-Mart, Industrial Park, and Ammonoosuc Clinic.

## Taxi and Car Services

There are multiple taxi services serving the Littleton area. Transportation is available on demand through these companies and service is provided on a 24-hour-a-day basis to any location in New England. Other on-demand car services in Littleton through providers such as Uber and Lyft are likely to emerge in the region over time.

## 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.



Above: Tri-County Transit Bus

Source: Tri-County Transit Transportation

## 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. Other nearby airports include the Manchester Airport, and the Pease International Airport.