9. Transportation

9.1 Introduction

The Master Plan Update 2002 identified several critical areas of concern relative to existing congestion, transportation deficiencies, and the lack of connectivity within the Town. In addition, the need to create a long-term transportation plan that accommodates mobility within the community for its residents, businesses and visitors and promotes development consistent with the Town's vision was also identified. Key recommended actions from the 2002 report are summarized below with an update on the progress completed to date.

- Continue to work with the state and regional officials toward implementation of the Manchester Airport Access Road (MAAR) to improve access to the Manchester Airport for Merrimack residents and businesses while also improving access to northern Merrimack's commercial and industrial areas to the F.E. Everett Turnpike. The MAAR, now formally named Raymond Wieczorek Drive, was completed and opened for public travel

in the fall of 2011. The new interchange provides full north and south access between the F.E. Everett Turnpike and US Route 3 in Bedford, just north of the Merrimack town line. This interchange partially filled a gap in the regional transportation system for northern Merrimack residents and businesses where the existing F.E. Everett Turnpike Exit 12 configuration only provides ramps to/from the south. Previously motorists in the northern portion of the Town wishing to travel to/from the Turnpike north would have to travel via US Route 3 to the I-293/NH Route 101 interchange in Bedford to complete this trip or travel south to the Exit 11 interchange.

- Work with state and regional officials to achieve development of a full interchange at Exit 12 of F.E. Everett Turnpike to improve access for residents and businesses of northern Merrimack, improve access to undeveloped commercial and industrial land and to reduce traffic through the urban compact portion of Route 3.
  At this time, this project is not included in the State's Ten Year Plan.
- Continue to monitor the potential impact of the Circumferential Highway, the Manchester Airport Access Road and other planned improvements to the state and regional highway system on Merrimack's existing street and highway system. The remaining, unconstructed segments of the Circumferential Highway project are no longer currently being pursued by the New Hampshire Department of Transportation (NHDOT).
- Continue to encourage the removal of the ramp tolls at Exits 10, 11, and 12 consistent with a comprehensive strategy of toll removal that would avoid undue traffic impacts to Merrimack's existing street and highway system.

  In 2010, the NHDOT Bureau of Turnpikes conducted a study to evaluate the potential economic impact of removing one or more of the toll facilities located in Merrimack. At this time, there are no formal plans to remove the local toll facilities.
- Implement the improvements recommended in the 1999 Louis Berger study for the Route 3 Urban Compact area.
- The August 2000 final report for the corridor study focused on nine intersection locations along US Route 3 including: Bedford Road, Front Street, Wire Road, Baboosic Lake Road, Connell's Shopping Center, Merrimack Village Mall, Columbia, Circle, Shaw's Plaza, and Greeley Street. One notable improvement project was constructed along the corridor at the intersection of Bedford Road. This project occurred as a result of construction of the Walgreen's site and included widening US Route 3, traffic signal upgrades and modifications, and access management improvements.
- Support the extension of passenger rail service into New Hampshire including the provision of one passenger rail station in Merrimack and continue to work with state and regional officials toward implementation.
- In 2012, the NHDOT published its first NH State Rail Plan since 2001. This plan was prepared in accordance with the requirements of the Passenger Rail Investments and Improvements Act of 2008, making NH eligible to apply for federal funds on passenger rail projects in the future. The State maintains the opinion that passenger and freight rail is an important component to the NH and regional transportation network. A February 2011 Granite State Poll conducted by the University of New Hampshire Survey Center indicates that 87 percent of those surveyed strongly or generally favor extending rail into NH from Nashua to Manchester, including the Manchester-Boston Regional Airport.

Efforts to extend passenger rail into southern New Hampshire remain a priority and are on-going.

- Continue to expand the Town's sidewalk system per the Town Center Plan, the Subdivision Regulations and Capital Improvements Plan to create a sidewalk network on all arterial and collector roads that would eventually connect residential areas with commercial and industrial areas, schools, parks, and other private and public institutions and facilities. Encourage sidewalks to be included in all state and local road improvement projects.
- The Town of Merrimack has actively pursued the construction of sidewalk throughout the community through state and locally funded projects, as well as through private development projects. The November 2009 Merrimack Town Center Pedestrian and Trail Master Plan documents existing sidewalk and trails, as well as planned future needs, for US Route 3 and surrounding roadways in the Town Center area which generally extends from Front Street to the north, Railroad Avenue to the south, and Baboosic Lake Road and O'Gara Drive to the west. To better address sidewalk maintenance, the Capital Reserve Plan for sidewalks should be re-instituted by the Town.
- Expand the existing bicycle network along existing roadway corridors through widening and striping, paving unpaved shoulders, through the development of new off-the-road paths and through utilization of existing Class VI roads.
- Efforts on creating a bicycle network are on-going and partially documented by the November 2009 Merrimack Town Center Pedestrian and Trail Master Plan. A new pedestrian bridge was built in 2012 across from the Souhegan River as part of the Town Center Plan. In addition, the June 2005 Regional Bicycle and Pedestrian Plan prepared by the Nashua Regional Planning Commission (NRPC) identified US 3 (Daniel Webster Highway) and Continental Boulevard within the Town of Merrimack as two key routes for regional connectivity. While the Town Center Plan is a good start to providing a basis for non-vehicular planning in Merrimack, there is still a need for a comprehensive, town-wide bicycle and pedestrian plan.
- Consider implementing traffic calming techniques such as curb bump-outs, lane shifts, roundabouts, and roadway narrowing to improve bicycle and pedestrian safety, reduce traffic speed in new or existing residential neighborhoods.
- Efforts to improve neighborhood streets are on-going.

As noted, the community has successfully initiated and/or completed some of the recommended actions. This chapter proposes strategies to enhance the Town's plans moving forward. The following section outlines general goals that should be considered while updating the Town's transportation plans.

9.2 Transportation Goals

The overall goal is to plan and promote the development and maintenance of a comprehensive transportation system serving the community inclusive of residents of the Town of Merrimack, as well as employees who work within the Town and visitors with destinations in the Town. Transportation planning should be carried out in a manner consistent with the Town's anticipated future needs and resources, coordinated with State and regional

plans, and inclusive of plans for highways, bikeways, sidewalks and pedestrian ways. Specific transportation goals for consideration, not in any priority order, are:

- Promote and implement a roadway system that encourages the appropriate use of the Town's street system to:
  - reduce traffic volumes and travel speeds on local roads and within residential neighborhoods
  - relieve congestion on some of the Town's major travel routes, and
  - proactively anticipate changes in the local roadway system as a result of future development or changes in the travel demand.
- Plan, develop, and maintain a system of bicycle and pedestrian ways serving the residents, including linkages among neighborhoods and local connections across the F.E.E. Turnpike to the US Route 3 corridor.
- Develop a town-wide plan to prioritize the needs for additional sidewalk and pedestrian way construction throughout the Town and to plan for funding of the plan implementation.
- Establish a separate Capital Reserve Fund for sidewalk and pedestrian way construction.
- Coordinate land use planning with transportation planning to ensure that land use does not overburden the capacity of the Town's transportation system, so that:
  - land development and related transportation improvements are coordinated as to timing,
  - individual components of the transportation system are appropriately utilized, and
  - the ability to expand the transportation system is preserved where necessary.
- Promote and provide for mixed-use, higher density development, where appropriate, that will enable less use of the automobile.
- Provide for the enhancement of aesthetics associated with any planned transportation infrastructure improvements.
- Provide for the safety of all motorists, pedestrians, bicyclists, and travelers on and within the Town's transportation system through the implementation of appropriate design standards for improvements; improve and/or upgrade traffic control devices (such as signage, pavement markings, and lighting) in specific areas where deficiencies currently contribute toward public safety concerns and/or as opportunities arise.
- Promote the management of traffic operations on the roadway system by maintaining acceptable levels of service on the arterial and collector streets, by improving the efficiency of the existing system, and by the timely implementation of traffic operational improvements.
- Continue to seek the cooperation of the NHDOT and the NRPC in monitoring and evaluating traffic flow and safety problems on State highways, and in coordinating transportation planning within the Town.
- Establish a multi-modal approach to the Town's transportation system, including pedestrian and bicycle travel as well as future consideration for bus and rail service, in order to assist in reducing the dependency on automobiles for travel, and thereby reducing the need to increase capacity on the roadway system.

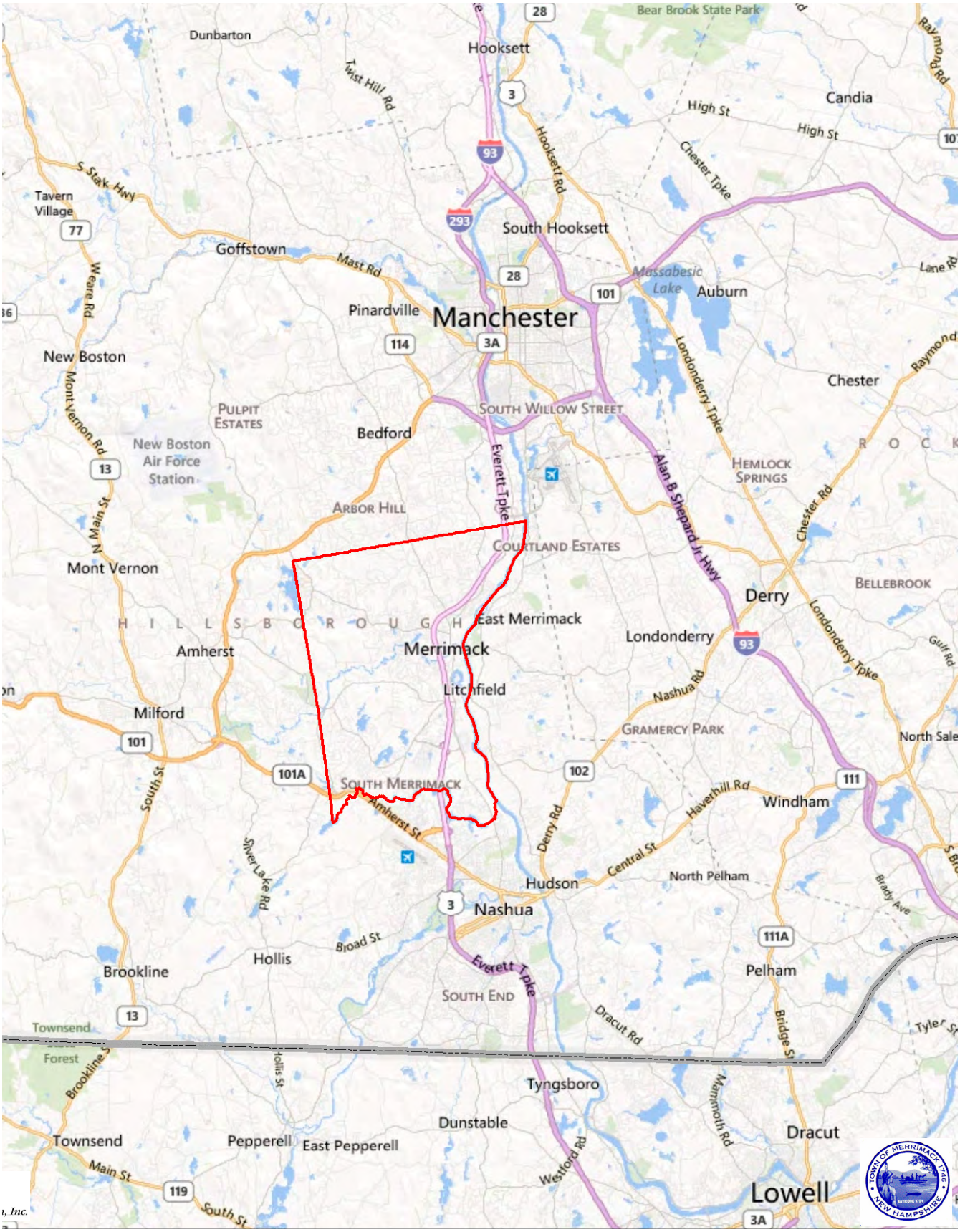
- Seek adequate funding from public and private sources including through grants, fees, and exactions to support the expansion, improvement, operation, and maintenance of the transportation system

9.3 Regional Context

Centrally located in southern NH, Merrimack is ideally situated near one of the State's three major north/south transportation routes - the F.E. Everett Turnpike. This highway borders the Town to the east, paralleling the Merrimack River, and provides convenient travel to/from Massachusetts to the south and NH points of interest to the north. Using the interstate and turnpike systems, the Town of Merrimack is within driving distance to several major cities including: Manchester, NH (11 miles north); Concord, NH (27 miles north); Nashua, NH (8 miles south); Lowell, MA (25 miles south); and Boston, MA (43 miles south). Locally, F.E. Everett Turnpike provides a direct link to I-293 in downtown Manchester and to Route 101 in Bedford, which directly abuts Merrimack to the north (see **Figure 9-1**).

Beyond the F.E. Everett Turnpike, regional and local travel in Merrimack is primarily served by US Route 3 (commonly referred to as the Daniel Webster Highway) and NH Route 101A, with a majority of the local roadways classified as Class IV Compact or Class V Rural/Local. NH Route 101A is a major east-west roadway in southern NH extending from the F.E. Everett Turnpike in Nashua, west to NH Route 101 in Milford. NH Route 101A only accounts for 0.8 miles of roadway within the town limits, but is significant due to its intersection with Continental Boulevard which serves both residential neighborhoods and commuters to/from industries and businesses within central Merrimack. US Route 3 (Daniel Webster Highway) runs north-south through Merrimack, paralleling both the Merrimack River to the east and F.E.E. Turnpike to the west. US Route 3 extends the entire length of the State of NH from Massachusetts to Canada. Locally, US Route 3 connects Merrimack to the City of Nashua to the south and the Town of Bedford and the City of Manchester to the north. Both NH Route 101A and US Route 3 provide accessibility to the turnpike system which creates a situation where a significant volume of commuter traffic relies on these roadways resulting in peak hour congestion.

Figure 9-1: Regional Context Map



9.4 Other Planning Documents and Studies

9.4.1 Capital Improvement Plan (CIP)

In 1984, the Merrimack Town Planning Board was required via a Town meeting to prepare and maintain a six-year capital improvements plan ("CIP") to aid the Budget Committee in its consideration of annual budgets. For CIP purposes, the Planning Board defines "capital expenditure" as the purchase, construction, or improvement of land, buildings, infrastructure, or equipment having an associated cost of $100,000 or more and an estimated useful life of at least seven years.

The transportation improvements planned within the most current CIP (2011-2018) include one signalized and two unsignalized intersection projects. Signal improvements are planned for the Front Street and Baboosic Lake Road intersections at US Route 3 for 2014 - 2015. Unsignalized improvements, and possibly the installation of roundabouts, are planned for the intersections of Wire Road at US Route 3 (2014 - 2015) and Turkey Hill Road at Baboosic Lake Road (2015 – 2016).

9.4.2 Town Center Pedestrian and Trails Master Plan

In 1999 and heavily pursued in 2009, Merrimack defined a Town Center Pedestrian and Trails Master Plan to promote a closer knit community and increase safety efforts along US Route 3 and expand accessibility for neighboring homes and businesses. This sector of Merrimack (historically Souhegan Village) contains all of the municipal and public buildings, as well as many businesses and parks that service the area of the Town where the Souhegan River empties onto the Merrimack River. The plan includes developing new sidewalks, as well as connecting existing sidewalk, to promote foot traffic between residents and the Town center. Other aspects of the plan include enhancing pathways and hiking trails within the Town Center neighborhood with future consideration to expand upon these trails for connectivity to the rest of the Town.

To promote non-motorized travel within the Town Center for visitors, the Town of Merrimack understands that centralized parking is crucial for the success of this program. While there is ample parking located at both public and private entities, there is a need to better communicate the location and duration of available parking to visitors.

9.4.3 State's Ten Year Transportation Improvement Plan 2013-2022

The only project in the State's Ten Year Transportation Improvement Plan that could influence the transportation system in the Town of Merrimack is the relocation/expansion of the Bedford Mainline Toll Plaza on the F.E. Everett Turnpike for open road tolling. This project is currently estimated to begin in 2015 through 2016; however, funding is dependent on a system-wide toll increase. The Town of Merrimack should work closely with the state and regional officials involved in the expansion of the mainline tolls and their effect on access to the northern portions of Merrimack, as well as potential development in this region.

Other projects that could affect the transportation system in Merrimack have been determined to be unfunded or deferred under the 2013-2022 Transportation Improvement Plan. The projects deferred or unfunded from the plan include widening NH Route 101A into Merrimack by one lane (deferred) and widening F.E. Everett Turnpike consistently from Nashua through Merrimack into Bedford (unfunded).

9.5 Transportation Network

Mobility in and around Merrimack is the central theme of the Transportation Element of the Master Plan. The following sections describe the components that comprise the transportation network in Merrimack.

9.5.1 Functional Classification and Roadway Jurisdiction

The functional classification of a roadway is an indicator of the type, volume, and speed of traffic it is intended to accommodate. The NHDOT sets the functional classification of roads throughout the State in cooperation with the Federal Highway Administration (FHWA). These functional classes were set according to the criteria defined in by the American Association of State and Highway Transportation Officials (AASHTO). The functional classifications were developed to define eligibility for funds under federal programs.

The Town of Merrimack has also developed its own functional classification system using the criteria for functional class set by AASHTO guidelines. However the Town's functional class system is different from the NHDOT's system because the State is limited in the amount of mileage it can dedicate to each class due to federal rules. The Town's functional classification system is defined in its subdivision regulations. The State and Town functional classification systems for Merrimack roads are shown in **Table 9-1**. The roadway jurisdiction is presented in **Table 9-2**.

Source: NHDOT, State-Aid Classification System

Source: Town of Merrimack Subdivision Regulations

Table 9-1: Roadway Functional Classification

NHDOT Functional Classification	Town of Merrimack Classification
Freeway / Expressway:	**Major Arterials:**
F.E. Everett Turnpike	Continental Boulevard
	US Route 3
Principal Arterial:	
NH Route 101A	**F.E. Everett Turnpike**
US Route 3 (Nashua to Industrial Dr.)	Greeley Street
	Industrial Drive
Minor Arterials:	NH Route 101A
Continental Boulevard	
Industrial Drive	**Minor Arterials:**
Tinker Road (Continental Blvd. to Nashua)	Amherst Road
US 3 (Industrial Dr. to Bedford)	Baboosic Lake Road
	Bedford Road (east of Wire Road)
Collector:	Boston Post Road
Peaslee Road	Camp Sargent Road
Boston Post Road	McQuestion Road
Bedford Road	Naticook Road
Joppa Road	
Amherst Road	**Collector:**
Baboosic Lake Road	Back River Road
South Baboosic Lake Road	Bean Road
McQuestion Road	Bedford Road (west of Wire Road)
Turkey Hill Road	Joppa Road
Stuart Road	Manchester Street
Naticook Road (Continental Blvd. to	Meetinghouse Road
Amherst Rd.)	Patten Road
	Pearson Road
All other roads are local roads.	Seaverns Bridge Road
	Tinker Road
	Turkey Hill Road
	Wilson Hill Road
	Wire Road
	All other roads are local roads.

Table 9-2: Roadway Jurisdiction

Roadway	Responsible Party
F.E. Everett Turnpike	State
NH Route 101A	State
US Route 3 from Bedford Town Line to Bedford Road & from Greeley Street to Nashua Town Line	State
US Route 3 from Bedford Road to Greeley Street	State Road/Local Maintained (Urban Compact)
Bedford Road from US Route 3 through Exit 12	Local Road/State Maintained
Greeley Street from US Route 3 to Amherst Road	Local Road/State Maintained
Continental Boulevard from Industrial Drive to NH Route 101A	Local Road/State Maintained
Industrial Drive from US Route 3 to Exit 10 NB	Local Road/State Maintained
Industrial Drive west of Exit 10 SB to Continental Boulevard	Local Road/State Maintained
All Other Roadways	Local

Source: Nashua Regional Planning Commission, May 2007

9.5.2 Commuting

According to 2011 statistics published by the Economic and Labor Market Information Bureau[1], 27.4 percent of Merrimack residents are also employed within Merrimack. The majority of Merrimack residents, 54.4 percent commute to another community within NH, while the remaining 18.2 percent of the residents commute out-of-state. The 2010 Census reported the total number of commuters in the Town to be 13,931. Commuting times for Merrimack residents vary from less than 5 minutes to more than 45 minutes, with the majority of commuters (35.4 percent) traveling an average of 15 to 24 minutes. **Table 9-3** summarizes the commute times for Merrimack residents resulting from the 2010 Census.

Table 9-3: Commuting to Work

Commuting Time	Percent of Commuters
< 5 minutes	1.2%
5 to 9 minutes	10.0%
10 to 14 minutes	11.4%
15 to 19 minutes	17.7%
20 to 24 minutes	17.7%
25 to 29 minutes	7.1%
30 to 34 minutes	11.1%
35 to 44 minutes	7.6%
45 minutes or more	16.2%

Source: 2010 Census, www.census.gov

1 Economic and Labor Market Information Bureau, NH Employment Security, 2011.

9.5.3 Mode Share

According to the American Community Survey data from the NH Employment Security, approximately 94 percent of Merrimack residents (age 16 years or older) reported they drove to work; 87 percent reported that they drove alone and almost 7 percent carpooled. Approximately 5 percent of Merrimack residents reported that they work from home. Transit, walking, bicycling, and other modes accounted for approximately 1 percent. **Table 9-4** summarizes these findings.

Table 9-4: Mode Split

Mode of Transportation	Percent of Commuters
Drove Alone	87.0%
Carpooled	6.8%
Public Transportation	0.5%
Walked	0.2%
Other Means	0.5%
Worked from Home	5.0%

Source: NH Employment Services, American Community Survey, 2011

9.5.4 Vehicular Traffic Volumes

Collector roads in Merrimack carry a considerable amount of commuter through traffic from adjacent towns such as Bedford, Amherst, etc. Mainly this is traffic seeking access to the F.E. Everett Turnpike at Exits 10, 11 and 12. Amherst Road, Wire Road, Bedford Road, Back River Road, and Continental Boulevard are especially impacted by this traffic.

Historical traffic data provides an indication to the rate of traffic growth in and through Merrimack. **Table 9-5** in Appendix C summarizes the growth on various roadways throughout Merrimack over the past 10 years (2001 – 2011) based on information available from the NHDOT. As shown in the table, volumes on US Route 3 appear to have declined slightly since 2001, while volumes on the F.E. Everett Turnpike have experienced very little growth. The local roadways have experienced low to moderate growth rates generally ranging from approximately 0.5 percent to 2 percent per year, with the exception of Tinker Road which reported a growth rate of approximately 4 percent per year. On average the overall growth throughout Merrimack was approximately 1 percent per year.

9.6 Public Transportation

Public transportation in Merrimack is very limited. There are no bus lines that service the Town of Merrimack from either the Manchester Transit Authority (MTA) or Nashua Transit-system (NTS).

9.7 Pedestrian and Bicycle Facilities

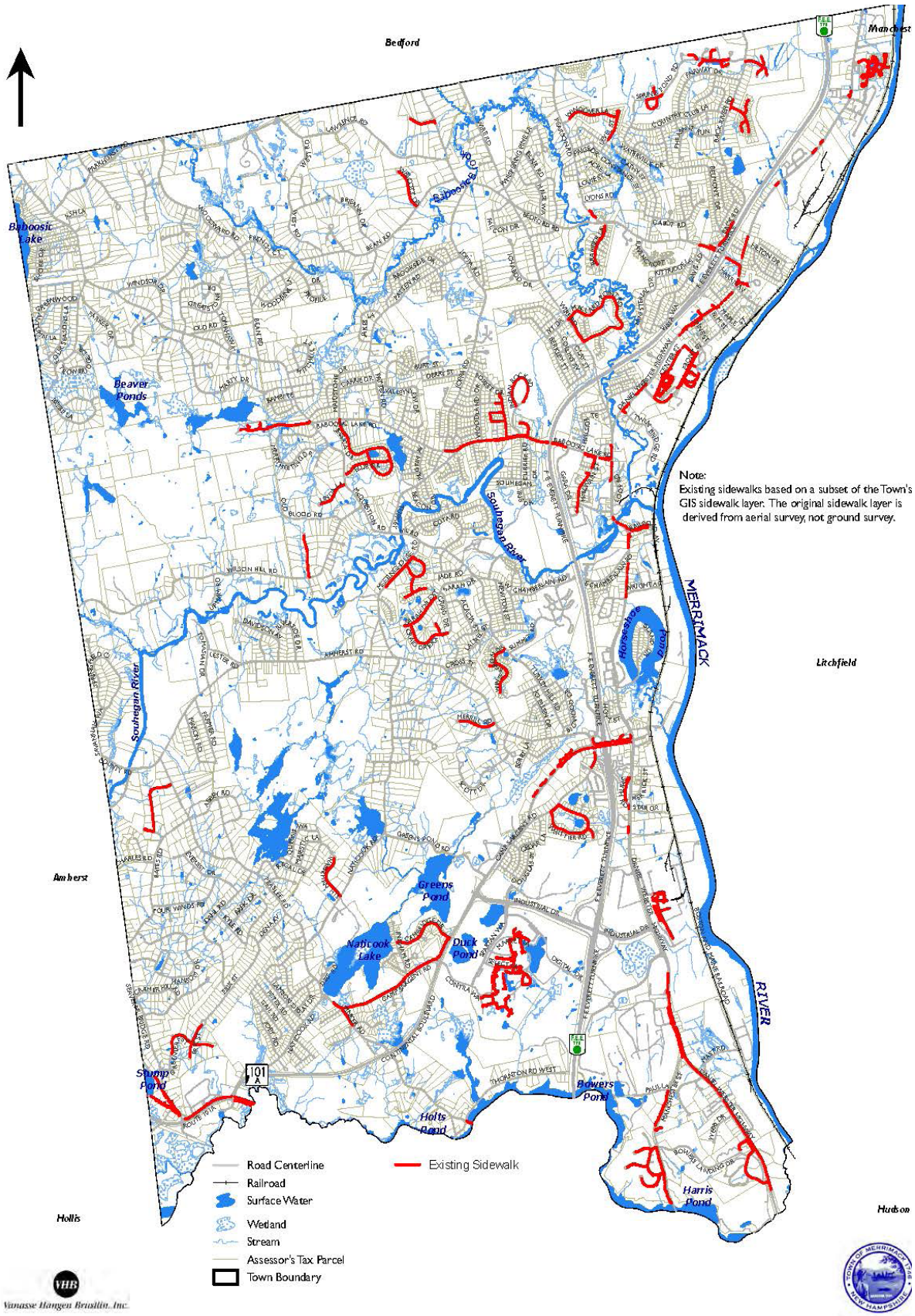
Past studies conducted by the Town have concluded that the lack of continuous, safe, and accessible pedestrian and bicycle facilities are a contributing factor in the Town's dependence upon motorized transportation. Through the Town Center Master Plan (1999, Updated November 2009) and the Nashua Regional Planning Commission's (NRPC) Merrimack iTRaC Project (2008), it became apparent that incomplete sidewalks, pathways, trails, and parks within the Merrimack Town Center (formerly Souhegan Village) creates an unfinished look and feel to the community. The following sections describe the existing non-motorized transportation facilities within the Town.

9.7.1 Pedestrians

As discussed previously, the Town Center Pedestrian and Trail Master Plan has established an inventory of existing sidewalks and trails, as well as established priorities for future connectivity in the Town Center area. Town-wide mapping of existing sidewalks beyond the Town Center area is shown in **Figure 9-2**. A review of the existing sidewalks across the community clearly show the lack of connectivity between neighborhoods, municipal buildings, schools, businesses and parks, as well as an inconsistent network for major crossings along busy roadways.

As part of the Town Center Pedestrian and Trail Master Plan, a new pedestrian bridge was built in 2012 across from the Souhegan River.

Figure 9-2: Town of Merrimack Sidewalks



9.7.2 Bicyclists

There are no official bike routes through Merrimack. New Hampshire has a series of seven state-wide bicycle maps and Merrimack is covered under the Merrimack Valley Region Map. The recommended bicycle routes in Merrimack are paved roads including Joppa Road, Wire Road (North of Joppa Road), US Route 3 (from Baboosic Lake Road south to Nashua), Continental Boulevard, and Tinker Road for north-south bicycle routes within the Town. Baboosic Lake Road and Amherst Road are identified as the east-west recommended bicycle routes.

9.8 Freight Rail – New Hampshire Main Line

The New Hampshire Main Line provides freight rail service within the Town of Merrimack, running parallel to the Merrimack River. The line is owned and operated by Pan Am Railways and runs for 39 miles through Nashua, Manchester, and Concord. The line is maintained to Federal Railroad Administration (FRA) Class 3 (40 miles per hour for freight) from Nashua to Manchester, Class 2 (25 miles per hour) between Manchester and Bow, and Class 1 (10 miles per hour) between Bow and Concord. Pam Am Railways operates the line from the Massachusetts state line to Bow and delivers unit coal trains and local freight to Nashua, Merrimack, and Manchester, and Concord.

9.9 Identification of Congested Transportation Facilities

The major transportation corridors in Merrimack experience heavy traffic demands during the commuter weekday morning and evening peak hour periods. Corridors such as US Route 3, Continental Boulevard at Exit 11, and Industrial Drive at Exit 10 not only accommodate the residential travel throughout the community, but also provide direct access to most of the Town's major businesses/employers including Fidelity Investments (6,000± employees along Industrial Drive), BAE Systems (800± employees along US Route 3), Anheuser-Busch, Inc. (530± employees along US Route 3), and Kollsman/ Elbit Systems of America (500± employees along US Route 3). In addition to the major commuting routes, other local roadways and intersections also experience the routine congestion during peak hour conditions.

Congestion along US Route 3 is notable along the northern segment extending from the Bedford town line to Greeley Street (Exit 11) due to the existing cross section, which only accommodates one through travel lane in each direction. Travel speeds tend to be slow during peak hour conditions and vehicle queues resulting from signalized intersections along this segment of roadway can be extensive. In the northern portion of Town, US Route 3 carries approximately 13,500 vehicles per day with an hourly traffic flow exceeding 1,200 vehicles per hour during commuter peaks. US Route 3 widens to generally a five lane cross section south of Greeley Street to Bowers Landing Drive, carrying two through travel lanes in each direction with a center left-turn lane. South of Bowers Landing Drive, US Route 3 transitions back to a two-lane roadway. At the Nashua/Merrimack line, US Route 3 carries slightly lower volumes than the northern portion with 12,000 vehicles per day and peak hour volumes approximating 1,100 vehicles per hour. Little to no access management exists along the US Route 3 corridor with numerous unsignalized side-streets and driveways.

Traffic congestion in the vicinity of the Greeley Street and Continental Boulevard at the F.E. Everett Turnpike 11 interchange also experiences peak hour congestion. Most notably, during the weekday evening peak hour, the heavy traffic flow from the interchange area to Amherst Road (which approximates 1,000 vehicles per hour) is restricted by capacity available at the signalized intersection of Amherst Road with Executive Park Drive and Burger King and the intersection's immediate proximity to the Amherst Road signal at Continental Boulevard and Greeley Street.

Further north on Amherst Road, the local unsignalized intersection at Turkey Hill Road also experiences long delays and congestion during peak hour conditions. A traffic control officer is currently assigned and necessary to control traffic at this intersection on weekdays from 7:00 AM to 9:00 AM. Turkey Hill Road, which operates under stop control, carries higher commuter hour traffic volumes than the Amherst Road mainline. Historical data collected at the intersection shows that Turkey Hill Road accommodates more than 1,000 vehicles per hour at Amherst Road during the weekday evening peak hour. Although through volumes on Amherst Road are unlikely to satisfy the standard criteria for signal installation, the volumes indicate that installation of formal turning lanes or possibly a roundabout may improve traffic flow. However, it is anticipated that right-of-way acquisition would be necessary to improve the intersection.

Continental Boulevard intersects NH Route 101A at a major, multi-lane signalized intersection in southern Merrimack. In the vicinity of NH Route 101A, Continental Boulevard carries more than 1,000 vehicles per hour for most hours throughout a normal work day with volumes in excess of 1,500 vehicles per hour during the weekday evening peak hour. Heading north into Merrimack, the roadway quickly narrows to carry a single through travel lane in each through the unsignalized intersection of Naticook Road and the signalized intersection of Tinker Road. It is noted that this section of roadway carries traffic flow of approximately 1,000 vehicles per hour during peak conditions, which h can create congested conditions. Further north, Continental Boulevard widens to accommodate additional travel lanes, including individual turn lanes, at the signalized intersections of Contra Way and Industrial Drive. Peak hour traffic flow tends to ease and be more balanced through the northern, multi-lane section. However, similar to the US Route 3 corridor, the northern segment of Continental Boulevard has numerous curb cuts with little or no access management.

As previously discussed herein, the Department of Public Works has also identified specific intersections in need of improvement, including the two unsignalized intersections of Wire Road at US Route 3 and Turkey Hill Road at Baboosic Lake Road. Both projects are included in the Town's CIP.

9.9.1 Traffic Safety

A review of Town-wide crash data obtained from the NHDOT revealed that crash frequency has remained fairly consistent for the most recent three-year period available (January 1, 2009 through December 31, 2011). In 2009, 355 crashes occurred on roadways within the municipality, including the F.E. Everett Turnpike. The total number of crashes increased

slightly with 363 crashes reported in 2010 and 371 crashes reported in 2011. On average, approximately 26 percent of the crashes reported occurred in the F.E. Everett Turnpike or associated ramps. Local roadways that tend to experience the higher number of crashes include those most heavily traveled in the Town, such as US Route 3, Continental Boulevard, Amherst Road, Greeley Street, Bedford Road, and Baboosic Lake Road. No unusual or unexpected crash trends were observed from the data review. However, it was noted that the NHDOT database indicates that there were no reported motorist or pedestrian fatalities during the 2009 to 2011 three-year period.

9.10 Future Conditions

Once the existing condition snapshot has been described, the next step in the planning process is to identify growth trends and changes in the area. These trends are often based on previous traffic volume patterns, past and forecasted population growth, the increase in older drivers, and major development projects. The following sections discuss ongoing planned future developments within Merrimack, as well as other potential development projects associated with the completion of the MAAR in Bedford and the Merrimack Premium Outlets (MPO).

9.10.1 Planned Development

The MPO project located off Industrial Drive opened Phase 1 of the retail component in June 2012. Phase II, which brings an additional 150,000 square feet of retail space, is planned for the near future. In addition to Phase II, an outparcel property located in the northwest corner of the intersection of Industrial Drive with Premium Outlets Boulevard presents a prime development opportunity for a supporting commercial site with complimentary land uses such as hotel, restaurant, or general services. Access to the MPO site was granted via an NHDOT Driveway Permit. For transportation permitting purposes, the MPO project was permitted for both phases of retail development and an assumption of full build out for the entire property.

9.10.2 Development Potential

Development potential within the Town will be largely driven by the land use decisions made by the community, perhaps with the greatest opportunities along the US Route 3 corridor. Recommendations within this Master Plan for the US Route 3 corridor include: allowing for mixed use as an infill style of development; allowing higher density development in the northern and southern portions of the US Route 3 corridor; and developing village nodes with traffic calming measures, pedestrian amenities, and streetscaping. The completion of the MAAR creates convenient access and opens the doors for development opportunities along the northern segment of US Route 3. The MAAR, combined with potential future transit and/or rail opportunities near the airport, creates an attractive environment for mixed use projects. Long-term transportation solutions for the US Route 3 corridor should be developed in concert with future land use and development, be multi-modal in nature, and balance traffic mobility with the needs of promoting an attractive community.

9.11 Transportation Recommendations

To meet the needs of the changing Merrimack population and related transportation demand, the Town should establish strategies toward addressing existing and future issues, problems, and opportunities. Below are suggestions based upon the data collection and findings of the planning process. These strategies aim to provide guidance in planning for the transportation needs in the Town.

T-1 Consider establishing an exaction fee system[2]. Several communities in NH have developed and successfully implemented town-wide or corridor-specific exaction fee systems that assist in funding the growing transportation needs of the community. Establishing a fee system based upon a capital improvement planning process will enable the community to develop an attractive long term vision with a funding mechanism that is fair and equitable for developers.

With an exaction system in place, the Town could actively promote development opportunities along the corridor to developers and/or tenants that bring land uses to the area consistent with the Town's vision and enhance the Town's tax base. A balance must be struck between meeting the Town's fiscal obligations and creating incentives for responsible growth. Promoting a long-term vision with an established funding mechanism may help developers see potential opportunities that may not otherwise exist.

T-2 Coordinate with Town of Bedford. The completion of the MAAR and potential for future commuter rail expansion to the area opens the potential for transformation along US Route 3 in Bedford and Merrimack. Land development and transportation infrastructure doesn't necessarily have to be divided at the municipal boundaries. Working in conjunction with the Town of Bedford could be beneficial and present more opportunity for both communities in the creation of a cohesive, attractive plan for the northern segment of US Route 3.

T-3 Continue to develop a town-wide pedestrian and bicycle plan. The success of the Town Center Master Plan should be used as momentum to continue to expand the bicycle trail and pedestrian facilities to other neighborhoods with the community. Challenges to expanding pathways and trails throughout the rest of the Town come from F.E. Everett Turnpike crossings, one of which the Town has already come across with the Merrill Maurader's Bridge within the Town Center Plan. Breaking the non-motorized barrier of transportation across the F.E. Everett Turnpike is the most important aspect of developing a more accessible community for residents living outside of these population centers.

The Town-wide pedestrian and bicycle plan must consider design and location standards so that incremental sidewalk construction projects can be integrated into a uniform network. The plan should also incorporate prioritization of sidewalk construction in various areas of town to support the potential for offsite sidewalk construction by developers in lieu of construction of sidewalks on the proposed development site.

2 Authorized by RSA 674:21,V

The Town should not expect to implement an expansive pedestrian and bicycle plan all at once. Having a formal pedestrian and bicycle plan already established will act as a reminder to implement pieces of the plan as opportunities arise. Opportunities for implementation could include state and federal grants to encourage student walking and biking, and private development projects or public works projects.

Upon completion of pedestrian and bicycle plan, implement revisions to the Subdivision and Site Plan Regulations regarding sidewalk requirements.

T-4 Support on-going and future rail and bus initiatives. Expanding passenger rail service into southern NH and the costs associated with it continues to be a large political debate. However, the Town should support this initiative as a means of reducing automobile dependency in the region and promoting alternative modes of transportation. If the State is successful in obtaining funding for a future rail project, the Town should work with the State and regional planning commissions to investigate what (if any) type of bus service should be extended into Merrimack to serve the residents and support potential new development along the northern areas of the Town.

In addition, the Town should continue to support initiatives to enhance existing freight rail services within the community and seek new opportunities associated with the development and redevelopment of land in proximity to the existing rail corridor. Freight railroads offer major advantages and public benefit over other modes of freight transport. Freight rail can significantly reduce roadway truck traffic; a single train can result in the elimination of an equivalent of 300 to 500 trucks trips. In addition, rail is environmentally friendly and offers an advantage with regard to greenhouse gas emissions. On average, railroads are three times more fuel efficient and emit significantly lower levels of nitrogen oxides and particulates than trucks.

T-5 Continue to require formal traffic impact assessments for development projects. The Town currently has a formal technical review process for private development projects, which includes the submission of a traffic impact study for moderate- and large-sized projects. The Town's Planning Board should continue to seek reasonable and clear mitigation commitments from development projects on surrounding roadways.

T-6 Implement access management strategies. The Town should pursue access management strategies along the high-traffic corridors of US Route 3 and Continental Boulevard as development and redevelopment opportunities arise. Consolidating driveways and interconnecting commercial developments will assist in reducing conflict points along these busy roadways and promote safer travel.

Transportation Policies Related to Transportation Planning

In addition to the above goals, the Town can also formally adopt policies that will serve as implementation strategies in support of the goals. The following identifies potential policies for consideration.

T-7 Maintain a continuous transportation planning program consisting of: the collection, maintenance, and dissemination of traffic information; staff and/or consulting resources to collect, analyze, and report on traffic problems; and continued coordination of transportation planning with other planning disciplines, most notably land use and environmental planning.

T-8 Continue to evaluate and adjust the operations of the highway network to promote its efficient use and safe function.

T-9 Promote a user-friendly roadway network for motorists by improving and/or upgrading traffic calming and control devices (such as roundabouts, signage, pavement markings, and lighting) in specific areas where deficiencies currently contribute toward public safety concerns and/or as opportunities arise.

T-10 Endeavor to maintain acceptable levels of service (LOS D or better) for peak hour conditions, recognizing that lower levels of service may occur at certain locations.

~~T-11 Continue to consider within the Town's land use regulations factors such as the number, design and location of access points; the provision for median islands to control access; the provision for left and right-turning lanes; internal circulation patterns; and the provision of pedestrian and bicycle facilities.~~

T-11 Preserve and/or acquire right-of-way for new or expanded streets in advance of need through purchase, official mapping, and developer dedications.

T-12 Promote education of the emergency response routes development by the NRPC[3].

T-13 Explore alternative, creative and affordable transportation services to meet the needs of an aging community.

Policies Related to Fiscal Capacity to Support Transportation Infrastructure

T-14 Continue to require that new development be responsible for site-related improvements needed to provide safe and adequate access to/from the site.

Policies Related to Connectivity, Traffic Calming, and Access Management

T-15 Establish a Capital Reserve Fund for sidewalk and pedestrian way construction.

T-16 Continue to implement traffic calming measures on local streets in residential neighborhoods to direct traffic to arterial and collector streets in order to protect residential neighborhoods from adverse impacts associated with increased traffic volumes and speeds.

~~T-18 Implement access management guidelines in order to provide safe and efficient access to abutting land uses and to maintain operational characteristics of a roadway.~~

3 See p. 24 of the Merrimack Hazard Mitigation Plan prepared by the Nashua Regional Planning Commission, 2003

Policies Related to Pedestrian and Bicycle Mobility

T-17 Continue to promote the inclusion of sidewalks in appropriate highway improvement projects, ensure the proposed provision for pedestrian access within developments, and provide for the proper integration of public and private pedestrian ways.

T-18 Ensure that pedestrian ways are designed to serve the needs of the handicapped.

T-19 Give priority to the designation and improvement of walking and bicycle routes to all schools and other recreational facilities in the Town.

T-20 Continue to incorporate provisions for bicycle lanes and/or paths in road construction and resurfacing projects where appropriate, whether publicly or privately financed.

Policies Related to Aesthetics of Transportation Infrastructure

T-21 Continue to require landscaping as part of site development projects; however, care should be taken to ensure that appropriate plantings are selected that do not hinder sight lines along the roadways and intersections as a result of growth and improper maintenance.

T-22 Promote the development of effective and aesthetically pleasing signage directing the traveling public to parks, recreational areas, and other attractions in Town.

~~T-25 Provide for visual and noise buffers along arterial and collector streets within and adjacent to residential neighborhoods.~~