

# FY 2017 – FY 2040 Regional Transportation Plan

For the  
Southern New Hampshire Planning Commission



*Auburn  
Bedford  
Candia  
Chester  
Derry*

*Deerfield  
Francestown  
Goffstown  
Hooksett  
Londonderry*

*Manchester  
New Boston  
Weare  
Windham*

**Adopted January 24, 2017**

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# CHAPTER I

## INTRODUCTION

### 1.1 Southern New Hampshire Planning Commission Region

The Southern New Hampshire Planning Commission (SNHPC) region includes the City of Manchester and the towns of Auburn, Bedford, Candia, Chester, Deerfield, Derry, Frankestown, Goffstown, Hooksett, Londonderry, New Boston, Raymond, Weare and Windham. Based on 2010 Census data, the population for the SNHPC region is 276,416. The region, located in the southeastern portion of the state, includes portions of Hillsborough, Merrimack and Rockingham counties. The SNHPC region covers approximately 550 square miles.

Historically, the region's many attributes including centralized location, diversity of seasons, recreational facilities, educational opportunities, educated work force, and economic incentives have enhanced the quality of life and attracted residents and businesses. The region continues to be a leader in the provision of post-secondary school education. Major institutions in the region include the University of New Hampshire at Manchester, Saint Anselm College, Southern New Hampshire University, Manchester Community College, NH Institute of Art and Massachusetts College of Pharmacy and Health Sciences. In addition to its strategic location relative to other urbanized areas, the region is within one hour of the seacoast and is located at the junction of the F.E. Everett Turnpike and Interstate 93 (I-93), which provide access to areas to the north and south. Exhibit 1 depicts the location of the fifteen SNHPC member communities.

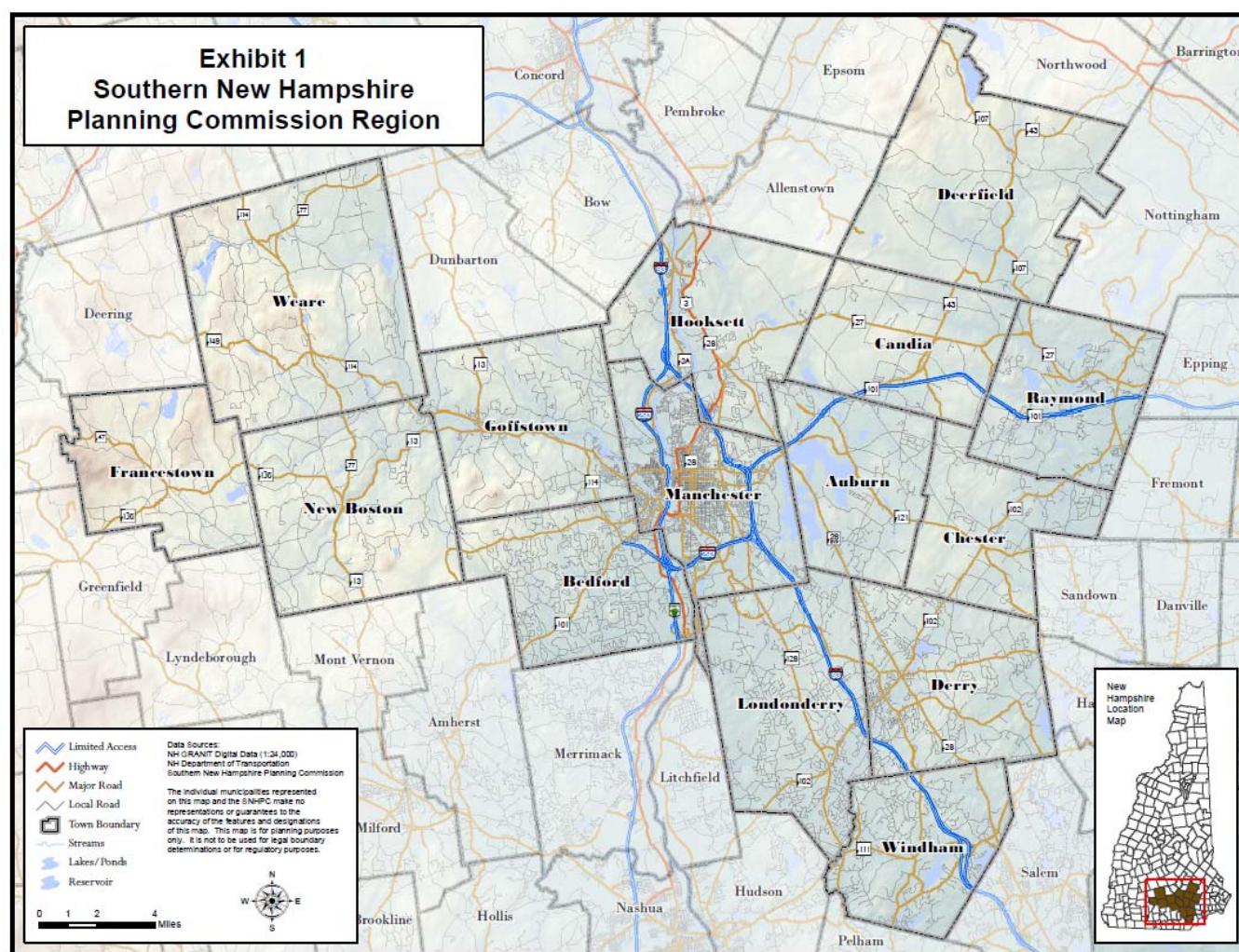
Like many northern New England areas, the region originally developed through an economy based on the manufacturing of cloth, textiles, shoes and other cotton and paper based products dependent on proximity to water resources. Because of global competition and regionalization, the local economy has seen a gradual conversion to newer types of industries and businesses and more specialized emphasis on products such as computer software and services related to the health, financial and educational industries. The central portions of the region were once the hub of a rail transportation network. More recently, ease of movement facilitated by the Interstate Highway System and arterial roadway systems along with abundant land in the outer areas of the region has resulted in a shift in residential and commercial growth from the central core. It is anticipated that this trend will continue as a result of increased mobility resulting from the completion of regional scale transportation projects such as the widening of the I-93 corridor, improvements to I-293 Exits 6 and 7 and the New Hampshire Capitol Corridor passenger rail service.

Local municipalities and organizations such as the Greater Manchester Chamber of Commerce, Access Greater Manchester and the Greater Derry-Londonderry Chamber of Commerce are involved in various activities designed to address key economic development issues and establish productive relationships between local businesses and industries. Local officials also recognize the potential for growth in the region as well as the importance of developing transportation alternatives to the single occupant automobile. Projects such as the South Manchester Rail Trail and Piscataquog Trailway bike/pedestrian projects in Manchester, improvements to the NH 101 corridor in Bedford and the New Hampshire Capitol Corridor passenger rail service are just some examples of completed and planned additions to the regional transportation infrastructure. The annual economic impact of Manchester-Boston Regional Airport (MBRA) in terms of jobs created, activity at businesses related to the airport and spending by out of state passengers using the facility has been estimated at \$1 billion (2015 data). In spite of this growth, officials within the region also recognize the physical limitations of developing environmentally sensitive land and the desirability of managed growth to protect the character of the community. Stakeholders



also increasingly recognize the need to adopt the principles of “Sustainable” growth allowing communities to grow and consume decreasing amounts of land and protect areas for open space uses. Although the region also benefits from a mix of single family and apartment dwelling units in urban, suburban and rural settings, local and regional officials are becoming increasingly aware of the importance of sustaining an adequate supply of multi-family housing. The importance of expanding and improving regional transportation choices for all modes of transportation is also being emphasized, particularly through projects such as the Moving New Hampshire Forward Regional Comprehensive Plan which was completed in 2014. Local government in Manchester consists of a Mayor and Board of fourteen Aldermen including two At-Large Aldermen. The fourteen surrounding towns have either a Town Council or Board of Selectmen form of government. The performance of statutes pertaining to planning and land use regulation for municipalities in New Hampshire, which has been established by the State General Court, is updated annually in a document entitled “New Hampshire Planning and Land Use Regulation” issued by the Office of Energy and Planning (NHOEP).

*Exhibit #1- Southern NH Planning Commission Region*



## 1.2 Transportation

The SNHPC region is served by highway, air, and rail transportation modes, with the Interstate and arterial highway systems servicing the majority of passenger and freight traffic. Rail freight services presently provide bulk material transport and State, regional and local officials are currently formulating plans to extend passenger rail service into southern New Hampshire and the SNHPC region. The mission of the New Hampshire Rail Transit Authority (NHRTA), which oversees the development of commuter rail in New Hampshire, is to “[d]evelop and implement comprehensive, coordinated and prioritized project and funding plans for passenger rail services that provide New Hampshire citizens: 1) [c]ommuter rail services to in state and out of state employment centers, 2) [t]ourist services to recreation areas, and 3) [e]asy access to regional inter-city passenger rail services and other multi-modal transportation systems.”

In December, 2014, New Hampshire Department of Transportation (NHDOT) completed the Capital Corridor Rail & Transit Alternative Analysis which evaluated a diverse set of rail and bus options for improving connectivity in the corridor by leveraging existing transportation infrastructure and integrating transportation and land use planning. The twenty-one month Alternatives Analysis, supported by the Federal Transit Administration (FTA) and Federal Railroad Administration (FRA), was completed to enable consideration of the broadest set of alternatives including bus, rail-based transit and intercity passenger rail to meet the needs of the corridor. The preferred Manchester Regional Commuter Rail alternative, which would provide eight round trips per weekday to downtown, would attract approximately 2,600 new passenger trips per year in New Hampshire and would create 5,600 jobs. With the completion of the Alternatives Analysis, the next phase of the project includes development of a detailed financial plan, preliminary engineering and environmental permitting required for funding applications from the FTA and FRA.

Major highway links within the region include I-93 and the F.E. Everett Turnpike, which are controlled access north-south highways connecting the region to other parts of the State as well as to Massachusetts to the south and the Canadian border to the north. Interstate 293 (I-293) provides an east-west connection between I-93 and the F.E. Everett Turnpike and US 3, NH 3A and NH 28 also provide north-south service within the region and southern New Hampshire. NH 101 provides east-west service from the region to the seacoast and the Connecticut River Valley and NH 111 provides east-west service from the region to the seacoast and Massachusetts border.

NHDOT, with assistance from other State agencies, numerous municipalities and regional planning commissions in the State, is currently completing the “I-93 Improvements Salem to Manchester Project” in the southeastern portion of the State. This project, which represents the most significant transportation improvement in the State, involves transportation efficiency and safety upgrades for a 19.8-mile section of the corridor between the junction of I-93 and I-293 in Manchester and the Massachusetts state line. In addition to the corridor widening, the I-93 project includes improvements to five interchanges, replacement and rehabilitation of 46 bridges, three new park and ride facilities as well as accommodation for transit improvements and expansion of bus service and commuter ride-sharing opportunities. The completed project will also include a new Exit 4A interchange designed to address traffic congestion and enhance economic development. Senate Bill 367, signed into law in April 2014, provided funding to complete the I-93 widening project through a 4.2 cent per gallon increase in the State gas tax. The current financial plan for the I-93 widening assumes completion of the construction contracts in 2020 and full repayment of principal and interest on GARVEE bonds being used to finance the work by 2029. The project is also being funded through the Transportation Infrastructure Finance and Innovation Act (TIFIA) which was designed to provide Federal credit assistance to nationally or regionally significant surface transportation projects,

In addition to private vehicles, passenger transportation is available through local and inter-city bus, taxi and air. The Manchester Transit Authority (MTA) provides fixed route transit service to approximately 90<sup>1</sup> percent of Manchester residents in addition to demand response services and express service to Nashua and Concord. The Cooperative Alliance for Regional Transportation (CART) provides curb-to-curb transportation in a five-town Greater Derry/Salem service area including Chester, Derry and Londonderry in the SNHPC region. Intercity bus travel is available through providers such as Concord Coach, Vermont Transit and Peter Pan Bus Lines and Boston Express provides commuter bus services in the I-93 and F. E. Everett Turnpike corridors in the region. The East-West Express bus service linking Portsmouth and Epping to downtown Manchester and MBRA began service in November 2013. MBRA services include regularly scheduled passenger air service provided by four major carriers as well as general aviation and cargo services. Principally because of its location at a junction of the regional interstate system, Manchester is the focus of ground transportation freight movements in the region and State. Despite the current emphasis on road-based ground transportation, local and regional officials are becoming increasingly aware that, in order to sustain general economic productivity and economic growth, funding for transportation projects promoting a multi-modal transportation system to improve traffic efficiency and safety for commercial and private vehicles must be increased.

### **1.3 Authority for the Plan**

The Fixing America's Surface Transportation Act (FAST) Act is a five year (FY 2016 – FY 2020) \$300 billion highway, transit, highway safety and rail bill providing approximately \$225 billion in contract authority over that period. The FAST Act, which increases funding from \$41 billion in FY 2015 to \$47 billion in FY 2020, continues to distribute nearly 93 percent of all Federal-aid Highway program contract authority to State DOTs through formula programs. Additionally, it creates a new National Highway Freight program worth approximately \$1.2 billion a year and a new discretionary program for Nationally Significant Freight and Highway Projects valued at approximately \$900 million a year. Under the legislation, approximately \$61 billion over five years is provided for Federal transit programs including \$48.9 billion in Highway Trust Fund contract authority and roughly \$12 billion in funding from the General Fund. Approximately \$10 billion over five years is also authorized for the FRA and Amtrak.

The intermodal Regional Transportation Plan for the SNHPC Region (RTP) is required by Federal law to establish funding priorities for regional transportation projects. In order to maintain eligibility for transportation funds allocated by the NHDOT, the members of the SNHPC have authorized the completion of this RTP for the fifteen-member communities.

### **1.4 Scope of the Plan**

The long-range RTP for the SNHPC region addresses the following existing and planned transportation modes in the fifteen municipalities:

- Highways (passenger and freight);
- Public Transit (bus and rail);
- Bicycling and Walking;
- Air (passenger and freight); and
- Inter-City Rail (passenger and freight).

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<sup>1</sup> Transit service within one-fourth mile of a residence is generally accepted as a definition of a service corridor. Upon visual inspection of the MTA routes, it was calculated that approximately 90 percent of Manchester's population lies within one-fourth mile of MTA service.

For these transportation modes, existing conditions, future demand analysis, possible initiatives to address needs and final prioritized recommendations are presented. The plan is intended to establish a master guide for funding transportation projects. Prioritization of the plan recommendations results from a screening process that uses ten planning factors, initially identified and mandated in earlier versions of Federal transportation legislation and built upon in the FAST Act, to ensure that impacts associated with health, safety, welfare and the environment are properly weighed in the public interest. The ten planning factors are:

*Exhibit #1A- Federally-designated Metropolitan Planning Factors*

Federally-designated Metropolitan Planning Factors	
1	Support the economic vitality of the United States, the States, metropolitan areas, and nonmetropolitan areas, especially by enabling global competitiveness, productivity, and efficiency.
2	Increase the safety of the transportation system for motorized and non-motorized users.
3	Increase the security of the transportation system for motorized and non-motorized users.
4	Increase accessibility and mobility of people and freight.
5	Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
6	Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight.
7	Promote efficient system management and operation.
8	Emphasize the preservation of the existing transportation system.
9	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
10	Enhance travel and tourism.

The FAST Act will continue emphasis on performance management and will require the use of performance-based approaches in statewide, metropolitan and non-metropolitan transportation planning. Transportation agencies are increasingly utilizing performance data as a strategic approach to support decisions to help achieve desired outcomes. A performance-based approach to planning and programming applies performance management principals and includes multiple activities and products undertaken by a transportation agency with other agencies and stakeholders and the public as part of a 3C (cooperative, continuing and comprehensive) process. The activities and products included in a performance-based planning and programming (PBPP) approach can include development of long-range transportation plans, Strategic Highway Safety Plans, Congestion Management Processes as well as programming documents such as the Transportation Improvement Program (TIP) and State Transportation Improvement Program (STIP). The PBPP approach is utilized to ensure that long-term planning and short-term investment decisions in transportation are based on their ability to meet established goals. The legislation also includes the following Federal highway program national performance goals:

1. **Safety** – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

2. **Infrastructure condition** – To maintain the highway infrastructure asset system in a state of good repair.
3. **Congestion reduction** – To achieve a significant reduction in congestion on the National Highway System (NHS).
4. **System reliability** – To improve the efficiency of the surface transportation system.
5. **Freight movement and economic vitality** – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. **Environmental sustainability** – To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. **Reduced project delivery delays** – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

In response to the Metropolitan and Statewide Planning Rule, NHDOT, FHWA, FTA and the State's Regional Planning Commissions are currently developing a response to the Federal PBPP requirements. In early 2015, largely through the efforts of the Strafford Regional Planning Commission and Rockingham Planning Commission, a Working Group including these stakeholders was formed to move forward with performance-based planning in the State. Work completed by the Working Group to date has focused on the development of elective performance measures following the completion of stakeholder interviews to guide the development of those measures. The group's work on development of performance-based planning measures will continue in advance of the requirement to incorporate a System Performance Report in MPO metropolitan transportation plans.

In addition to the Federal planning factors, FHWA and FTA have also identified ten additional Planning Emphasis Areas (PEAs) such as addressing climate change mitigation and adaptation early in the planning process. The PEAs are designed to more fully meet Federal requirements and reflect newer initiatives not yet addressed as Federal requirements. Chapter VI of the RTP provides additional information on how the transportation plans, strategies, services and other activities of the SNHPC and the projects currently included in the RTP address requirements as defined in FAST ACT and the PEAs.

## **1.5 Technical Approach**

An existing travel demand forecasting model, used for the fifteen-community Southern New Hampshire Planning Commission region and Metropolitan Planning Organization (MPO) area, is maintained to prepare travel projections and analysis for the roadway system for a current 2040 horizon year. The MPO is required by law to develop twenty-year long-range plans and four-year TIPs, which act as a guide for expenditure of funds in any given year. Additional analyses are also completed to fulfill the SNHPC's role in maintaining the air quality requirements of the Clean Air Act. The current SNHPC regional travel demand forecasting model has a 2010 base year and includes additional refinements, such as the incorporation of household travel data, refinement of the model network and traffic analysis zones, updated socioeconomic data and an improved calibration process. The Towns of Windham and Franconia were added to the model in 2013 and 2015, respectively.



The CUBE software package is used for the regional travel demand forecasting model. The general steps that comprise the technical approach for assessing future transportation demand and evaluating the performance of highway systems, as presented in this RTP, are described as follows:

1. Collect and stratify base year socio-economic data by traffic zone, and project this data for the future year (2040) for the entire SNHPC region;
2. Identify and code the highway network to be evaluated; and code the distances, speed, capacity, number of lanes, and directionality features of each roadway segment in the system;
3. Define the truck and external trip tables for the base year and for the future year; and,
4. Generate traffic assignments for the base year and validate; then repeat for the future years.

Chapter IV of the RTP provides a detailed presentation of the regional travel demand forecasting model and the regional traffic forecasting procedure.

Historically, a recommended plan and listing of priority projects have been identified for inclusion in the State Ten Year Transportation Improvement Plan and RTP through a process including the following:

1. Review of previous transportation studies completed in the SNHPC region and in individual communities. An extensive list of feasible projects was developed from these studies;
2. Participation in the State of New Hampshire's Ten-Year Plan process;
3. The application of traditional transportation planning techniques using travel demand forecasting, technical evaluation and analysis and an alternative assessment. This process produced projects for further consideration;
4. Project evaluation considering the eight factors mandated by Federal transportation legislation; and
5. Public evaluation and endorsement.

Through this process, a number of transportation-related studies have been prepared, resulting in inclusion of projects in the RTP. Significant example studies to date have included the I-93 Salem to Manchester improvement project, the I-93 Exit 4A project, the Manchester Airport Access Road (Raymond Wiczorek Drive) project, the I-293 Exits 6 and 7 Transportation Planning Study, NH 101 improvements in Bedford and the Capital Corridor Rail & Transit Alternative Analysis.

The next chapter of the RTP describes overall regional transportation goals and objectives. The goals and objectives have been designed both to fulfill the specific transportation needs of the SNHPC region and to address priorities as described in Federal Transportation legislation.

## **CHAPTER II**

### **REGIONAL TRANSPORTATION GOALS**

The SNHPC is the agency responsible for establishing transportation priorities in its fifteen-municipality region. Federal transportation legislation reinforces this responsibility by requiring long-range intermodal transportation planning as a prerequisite for project consideration and funding.

This chapter presents the long-range transportation planning goals of the SNHPC, including overall transportation planning goals, as well as specific goals relative to selected modes of transportation and other regional priorities. The planning goals are based on directives from previous versions of the SNHPC RTP, Regional Comprehensive Plan, other regional priorities and Federal planning legislation. Although the current goals reflect the planning factors and other general priorities of FAST ACT, the need for re-evaluation of these goals may result from a detailed review of this new legislation.

#### **2.1 General Regional Transportation Goals**

1. Achieve safer transportation for all users.
2. Work to reduce trips made by single occupancy-vehicles.
3. Promote increased availability of pedestrian and bicycle facilities.
4. Provide increased availability of public transportation.
5. Develop passenger rail to improve access and mobility and improve the economic vitality of the region.
6. Promote smart growth land use and transportation policies.
7. Identify and promote climate change adaptation in transportation planning and infrastructure.
8. Promote increased education about the region's transportation issues and alternatives.
9. Seek sustainable funding for transportation infrastructure.

#### **2.2 Regional Highway Transportation Goals**

1. To contribute to the development of an accessible and efficient system of streets and highways that provides travel choices ensuring safe, secure and cost-effective movement of motorized and non-motorized users throughout the region and incorporates a Complete Streets approach where applicable.
2. To enhance safe and efficient access to property by encouraging and assisting member communities to establish and enforce access management strategies and policies that strive to create a balance between mobility and access needs.

3. To continue long-range highway planning and short-term project programming based on PBPP principles on an area-wide scale to provide the framework for improvement program priorities, scheduling and funding.
4. To address congestion and fully develop the capacity and efficiency of the existing and future roadway infrastructure through a Congestion Management Process including promoting, implementing and monitoring the success of congestion mitigation strategies.
5. To encourage recognition of the impacts and interrelationships of land use, public facilities and transportation activities and decisions.
6. To assist member communities in planning for an integrated highway network that encourages safe and efficient movement of people and freight by encouraging the establishment and use of functional highway classification systems.
7. To encourage/adopt land use policies to provide for transportation options and alternatives.
8. To encourage Bicycle-Friendly Communities.
9. To expand and support additional transportation funding sources for municipalities.

### **2.3 Regional Rail Transportation Goals**

1. To continue to develop and plan for the establishment of passenger rail service on the New Hampshire Capital Corridor between Boston, MA and Concord, NH and to continue participation in the New Hampshire Rail Transit Authority.
2. To facilitate and promote the expansion of passenger and freight rail transportation in the SNHPC region by maintaining a multi-modal planning approach.
3. To contribute to the development of policies and programs consistent with the New Hampshire State Rail Plan.
4. To support the growth of rail transportation as a response to the overdependence on highways and as a viable option for the movement of people and goods in the region.

### **2.4 Regional Public Transportation Goals**

1. To continue to support the MTA and CART as well as other providers in their efforts to ensure the provision of efficient and cost-effective public transit and Community Transportation in the region.
2. To promote, investigate opportunities for and participate in a planning process for the expansion of community transportation throughout the region and between regions.
3. To maintain mobility, quality of life and access to education, employment and health care for the growing transportation-dependent population in the region by identifying adequate sources of funding for public transportation services and assisting in the establishment of dedicated sources of funding for public transit in this region.

4. To increase coordination and improve the efficiency of Community Transportation resources through continued participation in Regional Coordination Councils for Regions 8 and 9 and through continued cooperation with the State Coordinating Council.
5. To assist and encourage member communities in the pursuit of opportunities for transit-oriented development and other practices encouraging transit use.

## **2.5 Regional Air Transportation Goals**

1. To improve accessibility to MBRA by pursuing opportunities to establish new and improved transportation to the facility.
2. To contribute to a planning process that takes advantage of opportunities to develop MBRA into a multi-modal transportation hub.
3. To support and participate in a planning process that will enable MBRA to expand to adequately accommodate the future demand for movement of people and goods by air.
4. To support the activities of the NHDOT Division of Aeronautics.

## **2.6 Regional Goals for Transportation and the Environment**

1. To encourage and facilitate public and private participation in ridesharing, telecommuting, Transportation Management Associations and Transportation Demand Management policies designed to reduce congestion, the demand for peak hour travel and dependence on the single-occupant automobile.
2. To protect and preserve the environment and ensure that the maximum practical environmental mitigation is incorporated into the planning process by consulting, as appropriate, with State and Federal agencies.
3. To encourage improvements to air quality and energy conservation through the use of alternatives to the single-occupant automobile.
4. To promote technologies for the development of alternative fuels for use in the transportation sector.
5. In association with NHDOT, NHDES, FHWA, FTA, EPA and other New Hampshire MPOs, contribute to the reduction of motor vehicle pollutant emissions by continuing to comply with standards as set forth in the Clean Air Act.
6. To consider issues of climate change in the planning process and support implementation of the New Hampshire Climate Action Plan.

## **2.7 Regional Goals for Alternative Modes of Transportation**

1. To encourage the use of alternative modes of transportation such as walking and cycling through participation in a planning process that supports the development of a multi-modal transportation system for the region.

2. To facilitate the use of alternative modes of transportation and promote livable and sustainable communities by pursuing regional opportunities to plan for higher density mixed-use developments in town centers and other appropriate locations.
3. To ensure that pedestrian and bicycle transportation components are properly incorporated into the design of transportation infrastructure improvements.
4. To support investment in and assist member communities in pursuing funding for projects involving alternative modes of transportation within the region.
5. To encourage communities to adopt a Complete Streets policy, to routinely design and operate the entire right of way to enable safe access for all users, regardless of age, ability, or mode of transportation.



## CHAPTER III

### EXISTING CONDITIONS

#### 3.1 Roadway Network

The roadway network represents the principal means of moving goods and people within and through the SNHPC region. An extensive network of roads and highways links all areas within the region and with locations in and outside of New Hampshire.

##### Roadway Segments

Major roadway segments within the SNHPC region are identified in Exhibits 2A and Exhibit 2B which present the main segments of the regional network and the network within the City of Manchester. Critical elements of the regional highway system such as I-93 and the F.E. Everett Turnpike provide through travel capability and arterial roadways such as US 3, NH 28, NH 111 and portions of NH 101 also accommodate through travel and provide access to collector streets, local roads and abutting property.

##### Base Year Traffic Volume (2010)

Traffic on the major roadways in the region is continuously monitored by SNHPC and NHDOT through long-term and short-term data collection programs. The data is used to produce Annual Average Daily Traffic (AADT) volume estimates for the roadway system which are subsequently used in various planning projects. Traffic volumes are also available from SNHPC's regional travel demand model, which is used to project future traffic levels. Exhibits 3A and 3B present AADT volumes for 2010 (base year of the regional travel demand model) for 114 selected locations in the region. Exhibits 3A and 3B indicate that the highest daily two-way traffic volumes in the region are found on I-293/NH 101 near the Manchester/Bedford line and on I-93 south of Candia Road in Manchester, with volumes of approximately 88,000 and 102,000 vehicles per day, respectively. A listing of the selected ground count locations for Exhibits 3A and 3B is included in Appendix A.

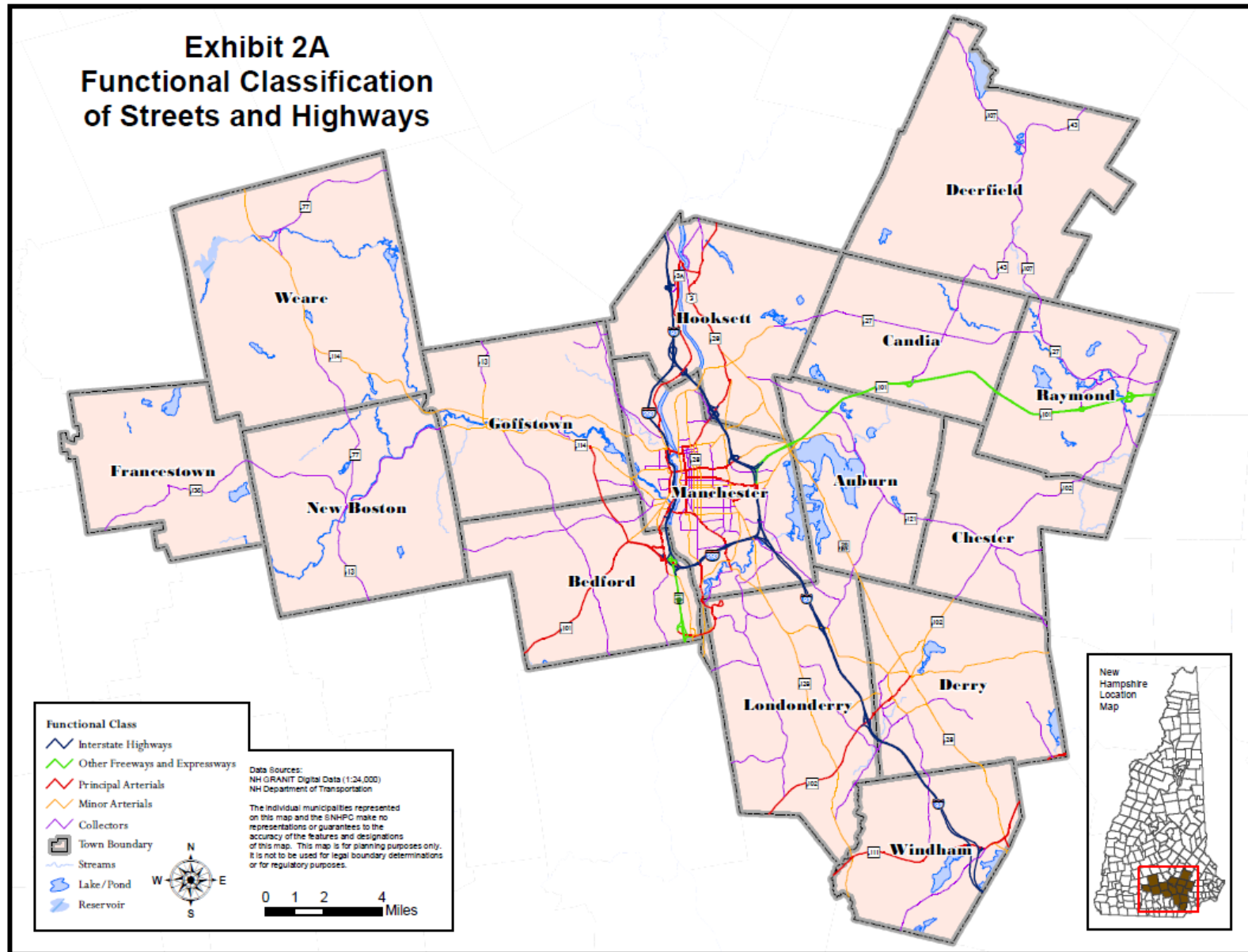
##### Major Activity Centers

Significant traffic flow volumes are found near and between the locations of major traffic generators. Generators include concentrations of facilities associated with business, commercial enterprises, industrial/manufacturing firms, airport-related functions and businesses, as well as large residential developments including apartments and condominiums. In the SNHPC region, major generators include:

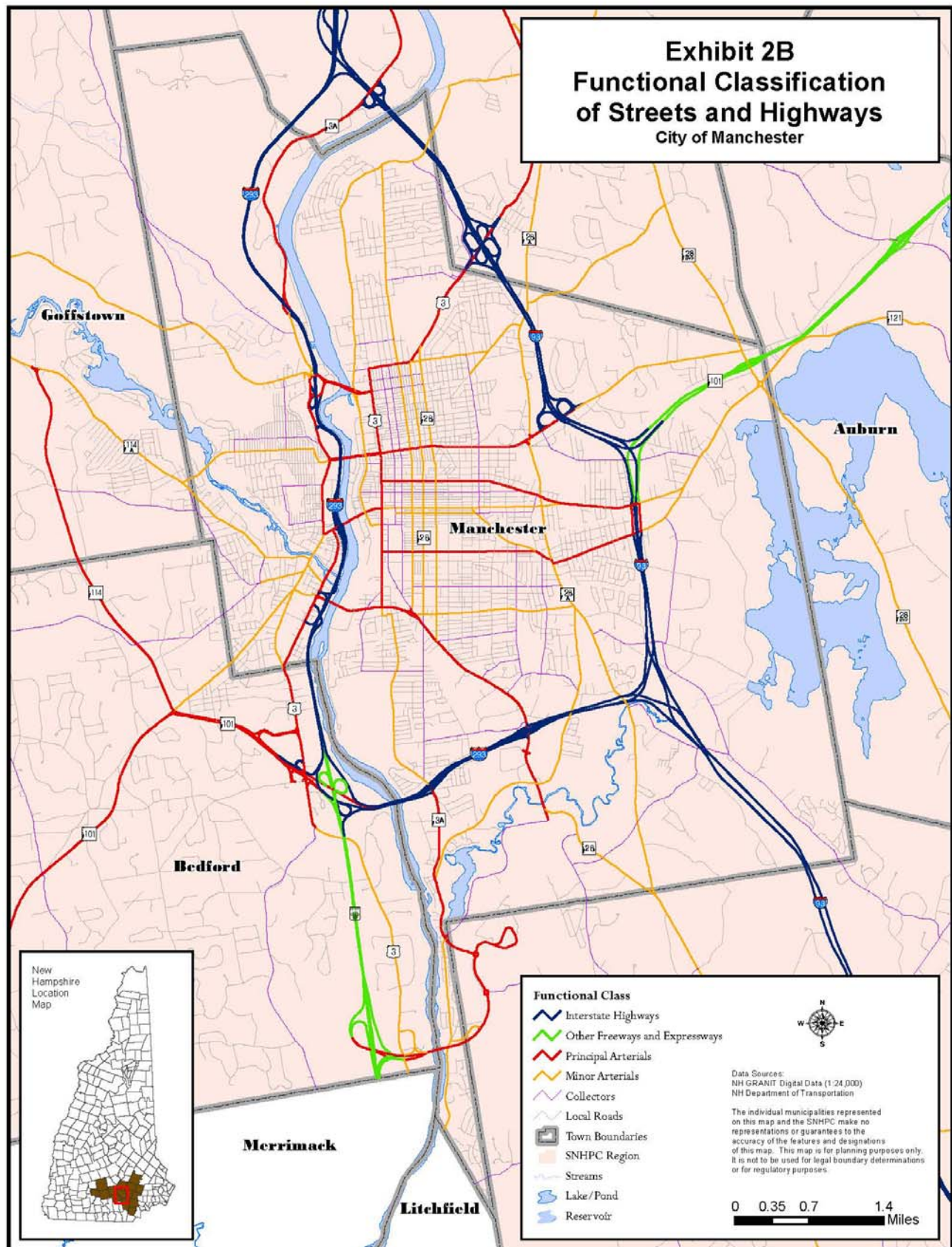
- South Willow Street area (manufacturing, wholesale distributors, retail sales and services);
- Downtown Manchester central business district (offices, retail sales, entertainment, and services);
- NH Route 102, Londonderry and Derry (retail sales);
- NH Route 28 and Crystal Avenue, Derry, (retail sales, manufacturing);
- US Route 3, Hooksett (retail sales and service companies, manufacturing);
- US Route 3, Bedford (office, retail sales) ;
- Manchester-Boston Regional Airport and Pettengill Road, Londonderry;
- NH Route 111, Windham; and
- NH Route 3A, Hooksett.

Other activity centers include the small village centers in municipalities surrounding the Manchester area.

*Exhibit #2A- Functional Classification of Streets and Highways (SNHPC Region)*

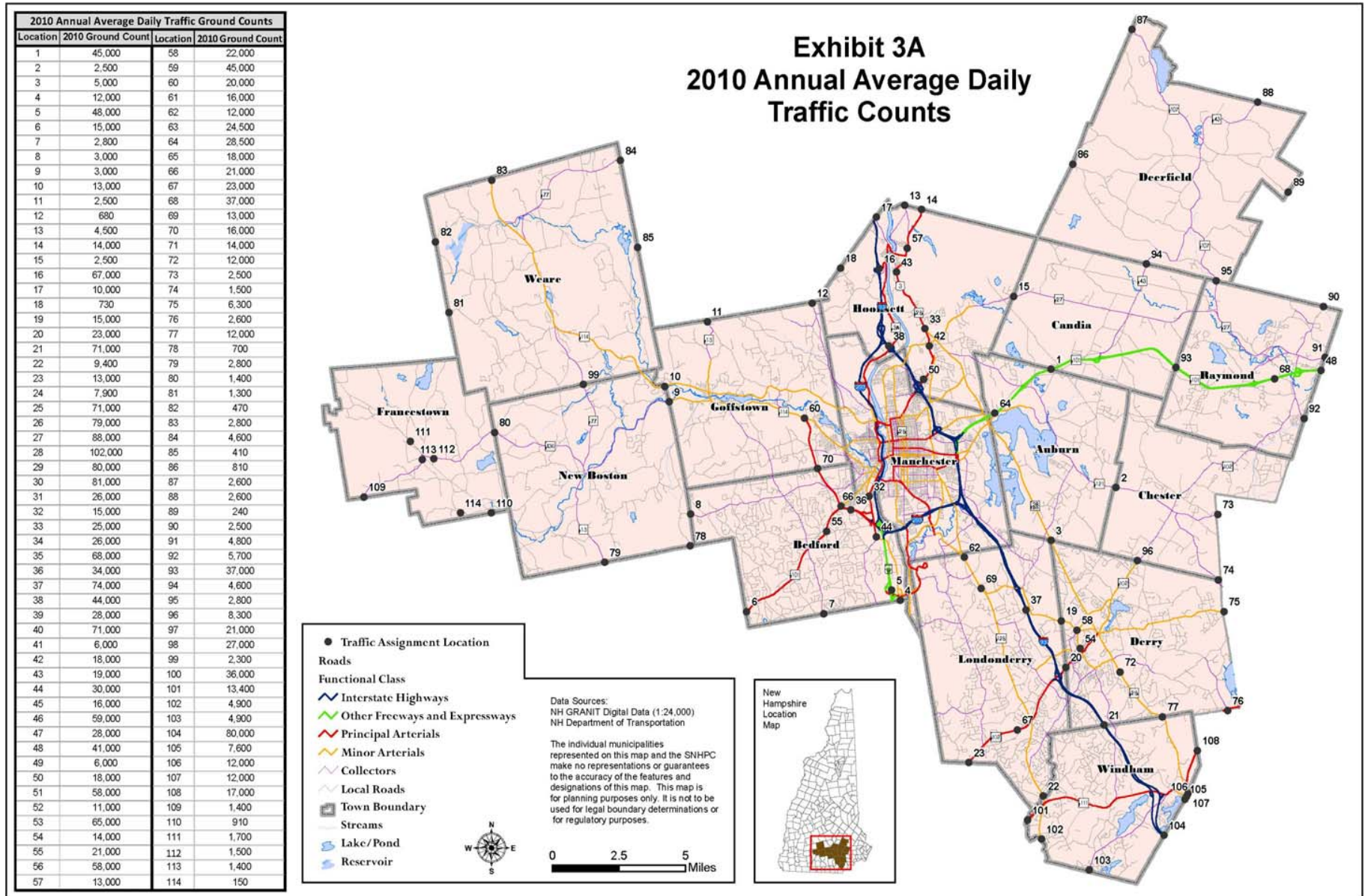


*Exhibit #2B- Functional Classification of Streets and Highways (City of Manchester)*

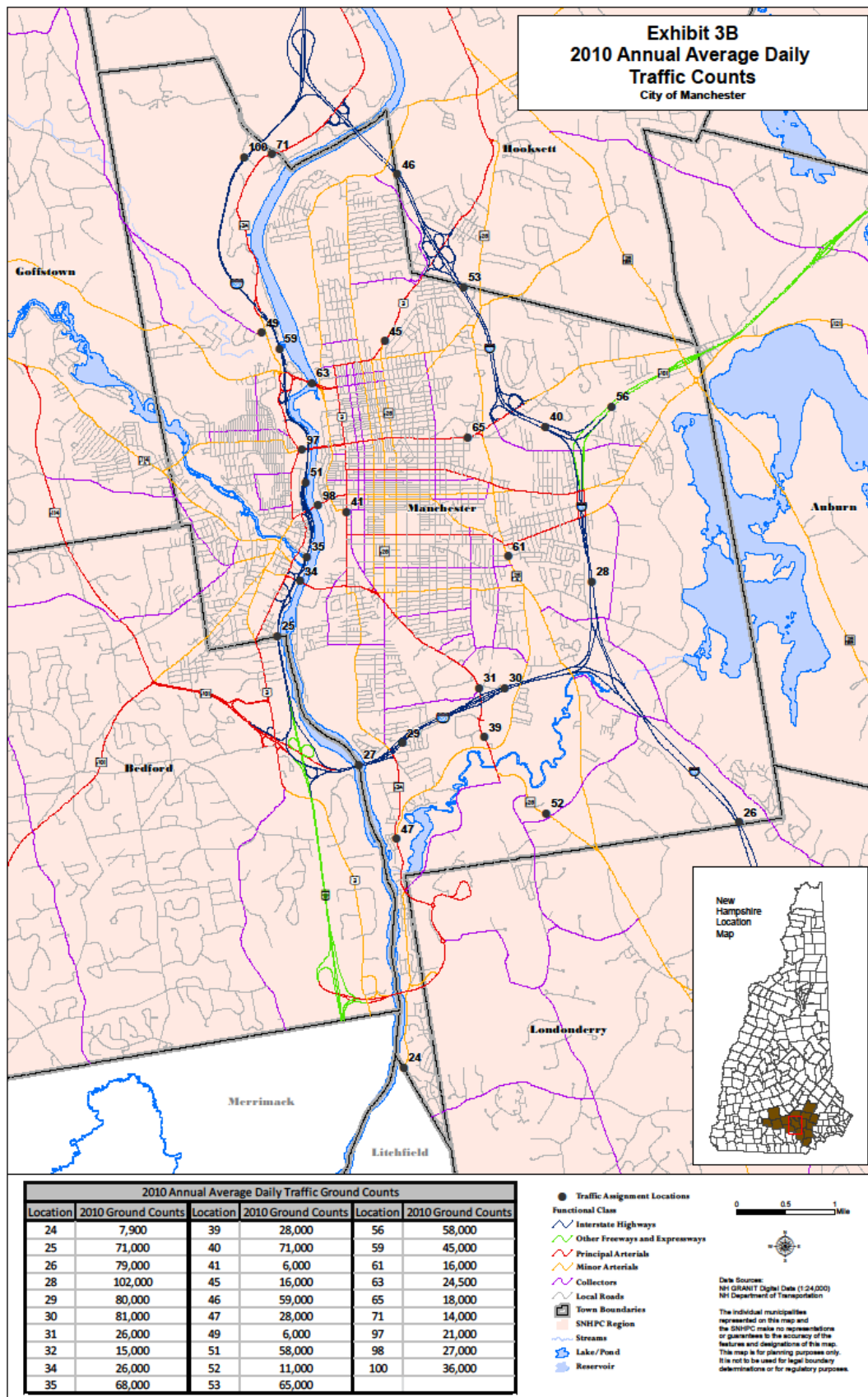




*Exhibit #3A- 2010 Average Annual Daily Traffic Counts (SNHPC Region)*



*Exhibit #3B- 2010 Average Annual Daily Traffic Counts (City of Manchester)*





## Travel Patterns

The SNHPC travel demand model is used to simulate regional travel behavior and the model is also utilized for air quality planning purposes and additional regional transportation planning activities. The model estimates that approximately 39 percent of the total travel represents "external" traffic having an origin or destination or both outside the SNHPC region. Exhibit 10 in Chapter IV graphically presents the major "external to external" (i.e. trips neither originating from/destined to a location within the region) vehicular travel movements within the SNHPC region. Exhibit 10 illustrates the importance of the F.E. Everett Turnpike and NH 101 as critical links in the SNHPC region, as well as in the overall state highway system.

## **3.2 Transit**

Transit service in the region is provided by the Manchester Transit Authority (MTA), established in 1973, and by CART, which initiated service in 2006. CART and MTA are both designated recipients of FTA Urbanized Area 5307 funding.

### *3.2.1 MTA Fixed-Route Service*

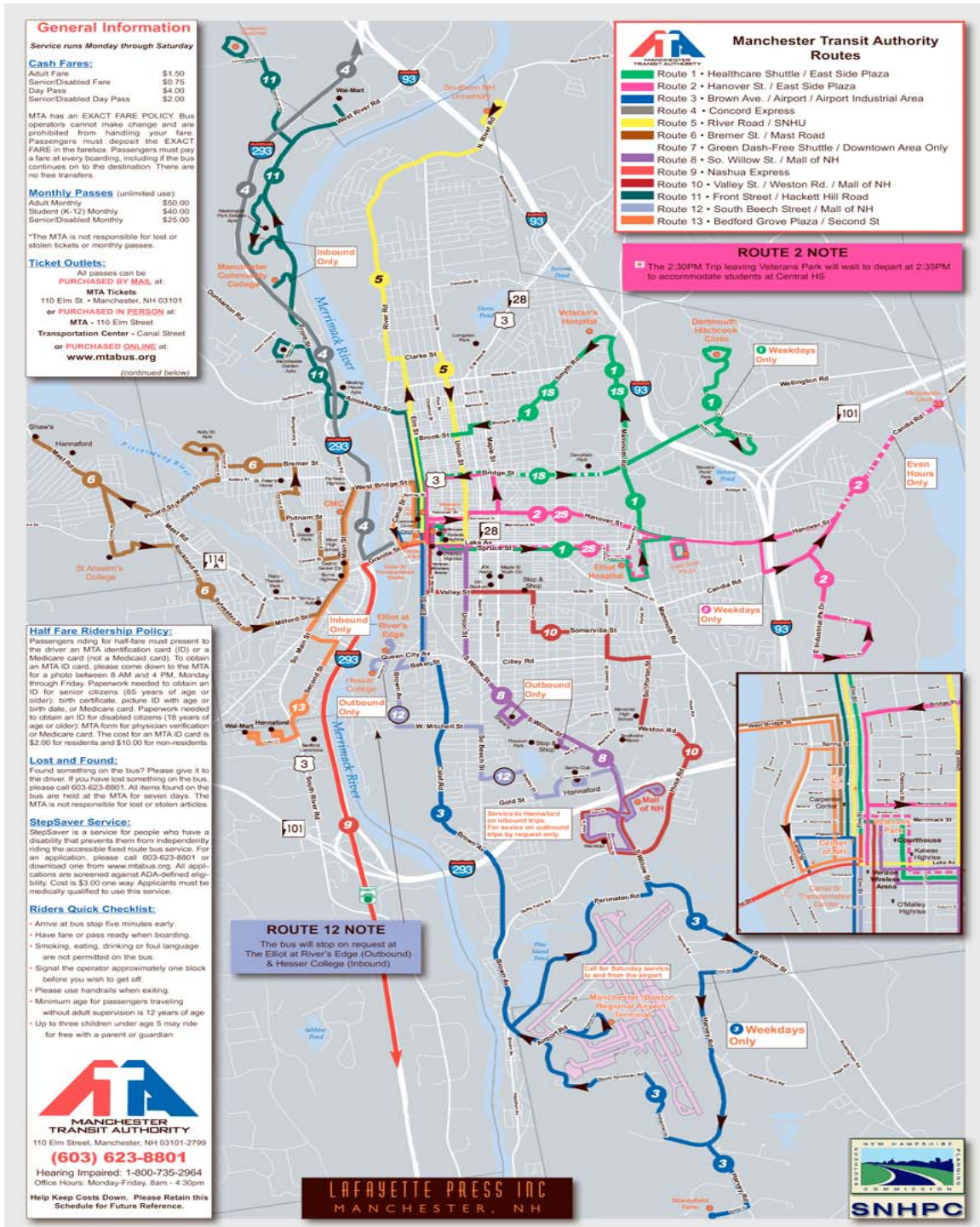
The current MTA fixed-route system, shown in Exhibit 4, consists of thirteen routes providing scheduled service Monday through Friday. Saturday service is provided on eleven of these routes. Hours of operation on weekdays are 5:25 AM to 6:25 PM while on Saturdays service is provided between 9:30 AM and 5:25 PM, including express service to Nashua and Concord. The regular fare for a one-way trip is \$2.00 with half fare discounts available for senior citizens and handicapped passengers. Weekly and monthly passes providing unlimited use of the system for seven and 31 day periods are also available. Travel between Manchester, Concord and Nashua is available on the MTA with the purchase of a \$5.00 day pass.

MTA service is provided to the central business district, and routes extend outward to serve most areas of the City and limited portions of four other communities. Route 1 (Healthcare Shuttle/East Side Plaza) provides service to many of the principal medical facilities in the City, including Elliot Hospital, Dartmouth-Hitchcock Clinic and the Veterans Administration Clinic. Route 5 (River Road/SNHU) provides service to Southern New Hampshire University near the Hooksett town line and Route 11 (Front Street/Hackett Hill Road) provides service to the northern portion of the City including Manchester Community College and the Hooksett Wal-Mart store. Route 6 (Bremer St./Mast Road) and Route 13 (Bedford Grove Plaza/Second Street) provide service to the west side of Manchester as well as to principal shopping areas in the neighboring towns of Goffstown and Bedford. The Mall of New Hampshire is served by Route 8 (South Willow St./Mall of NH), Route 10 (Valley St./Mall of NH) and Route 12 (South Beech St./Mall of NH) while service to MBRA is provided on Route 3 (Brown Ave./Airport). All MTA routes provide a connection to downtown Manchester and the Canal Street Transportation Center is directly served by Route 3. Weekday frequency of service (headway) on most routes is sixty minutes. Five weekday express round trips to Nashua (Route 9) and six weekday express round trips to Concord (Route 4) are also available.

The MTA also provides demand response service on StepSaver, a transportation program offered under the ADA Act of 1990, to individuals unable to use fixed route buses. The service is provided on an advanced reservation basis from 5:30 AM to 7:00 PM Monday through Friday and from 9:30 AM to 5:30 PM on Saturday. StepSaver service covers most of Manchester, as well as parts of Goffstown, Bedford and Hooksett. The fare for StepSaver service is \$4.00 per one-way trip.

The “Green Dash” downtown area shuttle (Route 7) provides transportation to downtown and the Millyard within an area bounded by West Brook Street to the north, Summer Street to the south, Commercial Street to the west and Elm Street to the east. The service runs continuously between 7:00 AM and 7:00 PM Monday through Friday and is free to the public. MTA also provides bus transportation to the Manchester School District.

*Exhibit #4- MTA Fixed Route Bus System*



### 3.2.2 MTA Facilities and Equipment

The MTA office, maintenance, and bus storage garage is located at 110 Elm Street in Manchester. This facility, completed in January 1976, contains separate office, storage, and maintenance spaces. The office area provides space for supervisory and clerical personnel, a conference room, and an operator's lounge with locker rooms. The bus storage section contains seven lanes with overhead doors at each end and sufficient space to park 35 full-sized transit coaches. The maintenance area contains five bays with hydraulic lifts, a ventilated booth for spray painting and bodywork, a machine shop area, and a spare parts storage room. An auxiliary building located on the premises houses an automatic gantry-type washer used to clean the exteriors of the buses. The fuel island with diesel and gasoline pumps and an overhead canopy is located outside the main building. Current MTA rolling stock includes sixteen transit coaches, four low floor cutaway transit vehicles, two lift-equipped StepSaver vehicles, two StepSaver entervans, 78 school buses, three supervisory vehicles, one pickup, one dump truck and one front-loader.

### 3.2.3 MTA Ridership

Table 1 indicates that since FY 2006, annual ridership on the MTA system has increased by approximately twelve percent. While ridership declined in 2007 and 2010 because of service cutbacks required due to a decrease in local funding, the general trend in MTA ridership for this period has been increasing ridership. Review of annual statistics indicates that ridership tends to be highest in the fall and spring months, and lowest in early winter and during summer.

<b>Table 1: MTA Yearly Fixed Route Ridership, FY 2006-2015</b>		
<b>FY Year</b>	<b>Ridership</b>	<b>% Change</b>
2006	439,625	7.43
2007	411,728	-6.35
2008	475,210	15.42
2009	531,961	11.94
2010	446,902	-15.99
2011	462,109	3.40
2012	430,404	-7.37
2013	442,233	2.67
2014	483,959	8.62
2015	491,934	1.62
Change, 2006-2015		11.90

Source: NTD, MTA

### 3.2.4 Cooperative Alliance for Regional Transportation (CART)

CART is a demand response transportation system serving a five-town Greater Derry/Salem area including Chester, Derry and Londonderry in the SNHPC region. CART, which was established by the New Hampshire legislature to meet a well-recognized need for reliable public transportation in the community, initiated service in October 2006. The service operates principally on a combination of FTA 5307 funding and local funding provided by the service area communities. As a 501(c)3 non-profit organization, CART also relies on donations to help defray the cost of operations.

CART service is open to the public for a fee of \$3 per one-way ride within one service area community. Rides between the five service area communities and to out-of-region medical destinations are provided for a fee of \$4.00 and \$5.00, respectively. Half fares are available for recipients of Medicaid and local assistance and for residents of subsidized housing. Riders can also purchase ten ride passes.

CART has also developed fixed-route services to improve system cost-effectiveness and efficiency. In 2012, CART expanded services to provide a shopping, nutrition and medical transportation shuttle/route deviation service which operates in Derry and Londonderry. The Derry/Londonderry Shuttle, which operates five days per week, is a collaborative effort of CART, Rockingham Nutrition Meals on Wheels and Easter Seals NH. In 2012, a fixed route shopping shuttle service operating on Mondays, Wednesdays and Fridays was initiated in Salem to provide transportation between residential areas and retail locations. Route deviations on this service, are available by advance reservation. CART initiated a Hampstead Shuttle service in 2014 to provide transportation to an adult day care facility in the town. The Derry/Londonderry, Salem and Hampstead shuttle services are free to the public. CART supplements its regular demand response transportation services by contracting with Green Cab of Londonderry to provide a half fare taxi voucher service for seniors and disabled individuals.

### *3.2.5 Community Transportation*

Research has indicated that New Hampshire will soon experience a rapid increase in its senior population. It is anticipated that the number of State residents aged 65 and older will double over the next twenty years. The aging of the population is anticipated to exert pressure on the financial resources of local and State governments. Additionally, an increasingly elderly population will likely present significant challenges impacting the provision of local services including transportation.

The SNHPC is responding to these changing demographics and their likely impacts on mobility through its continuing participation in the Regions 8 (Greater Manchester) and 9 (Derry/Salem) Regional Coordinating Councils (RCCs) under the direction of the State Coordinating Council for Community Transportation. The goals of this process are to improve coordination of Community Transportation by reducing duplication and increasing the availability of services. The RCCs are comprised of local transportation providers, agencies that fund transportation, consumers, and agencies in need of services.

Community Transportation refers to all transportation resources in a community that are available to help meet the mobility needs of a community, including groups such as the elderly, those with physical disabilities and others for whom operating private passenger vehicles is not feasible from a physical or economic standpoint. Community Transportation can include both public and private services, such as conventional public transit as well as public and private shuttles for seniors, vans owned/operated by churches or other community organizations and other services operated by volunteers.

Community Transportation services in the SNHPC region include services operated by organizations such as the MTA, CART, Easter Seals New Hampshire/Special Transit Services and The CareGivers, Inc. of Bedford. They include Shopping Shuttles, demand response services, transportation provided by volunteer networks and other special purpose shuttles. The Region 8 and 9 RCCs are currently working to improve coordination of services and increase the availability of Community Transportation through projects implemented through FTA 5310 Purchase of Service and Formula funds made available to the RCC regions through NHDOT. These projects are designed to address the gaps in regional services identified in the Coordinated Public Transit Human Services Transportation Plan for the Southern New Hampshire Planning Commission Region.

### *3.2.6 Intercity Bus Services*

#### Concord Coach Lines

This carrier provides regional service in New Hampshire, including stops in downtown Manchester and at I-93 Exit 5 in Londonderry. Commuter-based service between Concord, NH and Boston, including stops in downtown Manchester and at I-93 Exit 5 in Londonderry, is also offered.

#### Boston Express

This carrier provides service between Concord, New Hampshire, Boston, Massachusetts and Logan Airport including stops in downtown Manchester and in Londonderry at I-93 Exits 4 and 5. Manchester is served via both the I-93 and U.S. Route 3 services. Monday through Friday, there are seven southbound trips and ten northbound trips serving Manchester on the U.S. Route 3 service. The I-93 weekday service includes four southbound and northbound trips serving Manchester. Boston Express I-93 weekday service to Londonderry includes 21 southbound trips and 26 northbound trips serving I-93 Exit 5 and five southbound trips and ten northbound trips serving I-93 Exit 4. Weekend U.S. Route 3 service to Manchester includes seven southbound and northbound trips. The I-93 weekend service includes three southbound and northbound trips serving Manchester as well as 17 southbound trips and northbound trips serving I-93 Exit 5 in Londonderry.

#### Greyhound

This national carrier provides service connecting Manchester with destinations such as MBRA, Boston and Logan Airport.

#### Peter Pan Bus Lines

This carrier includes stops in Manchester as part of their regional bus services connecting to Connecticut and Massachusetts.

## **3.3 Freight Transportation**

The U.S. transportation system consists of nearly four million miles of public roads, approximately 139,000 miles of active railroads, about 13,000 miles of inland waterways and approximately 1.74 million miles of pipelines transporting gas and other hazardous liquids. Nearly 19.6 billion tons of goods were moved on the U.S. transportation network in 2012 and projections developed by USDOT estimate that this figure will increase to approximately 28.5 billion tons in 2040, an increase of about 45 percent.

The FAST Act includes a number of provisions designed to enhance freight movement in support of national goals and also enhances many of the concepts relating to freight transportation from earlier legislation, including the development of freight advisory groups, the development of statewide freight plans and FAST Act incentives to prioritize projects that advance freight performance targets. USDOT, in consultation with partners and stakeholders, will develop a National Freight Strategic Plan and States are being encouraged to develop individual freight plans and establish freight advisory committees. A National Freight Network has been established to focus resources on the most important highways and roadways for freight transportation. Additionally, the FAST Act will provide a dedicated source of Federal funding for freight projects, including multi-modal projects. The FAST Act emphasizes the importance of Federal coordination focusing local governments on the needs of freight transportation providers.



Table 2 below illustrates growth in freight activity in New Hampshire through a comparison of 2012 figures for total weight of shipments by transportation mode with similar forecasted data for 2020 and 2030.

**Table 2: Weight of Shipments by Transportation Mode: 2012, 2020, and 2030**

	2012						2020						2030					
	Within NH		From NH		To NH		Within NH		From NH		To NH		Within NH		From NH		To NH	
Mode	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent
Truck	22,953	96.0%	33,459	91.6%	42,231	89.2%	38,645	89.5%	56,762	86.8%	64,617	89.3%	40,367	88.4%	61,587	85.8%	67,741	88.7%
Rail	0	0.0%	5	0.0%	502	1.1%	238	0.6%	1,391	2.1%	1,110	1.5%	298	0.7%	1,861	2.6%	1,425	1.9%
Water	45	0.2%	86	0.2%	1,433	3.0%	0	0.0%	5	0.0%	177	0.2%	0	0.0%	5	0.0%	128	0.2%
Air (include truck-air)	0	0.0%	9	0.0%	7	0.0%	0	0.0%	34	0.1%	9	0.0%	0	0.0%	58	0.1%	12	0.0%
Multiple modes & mail	17	0.1%	232	0.6%	441	0.9%	542	1.3%	1,127	1.7%	948	1.3%	600	1.3%	1,436	2.0%	1,077	1.4%
Pipeline	888	3.7%	2,233	6.1%	2,700	5.7%	2,008	4.6%	4,156	6.4%	3,464	4.8%	2,528	5.5%	4,818	6.7%	3,726	4.9%
Other and unknown	0	0.0%	509	1.4%	47	0.1%	1,745	4.0%	1,915	2.9%	2,038	2.8%	1,860	4.1%	2,052	2.9%	2,256	3.0%
Total	23,902	100.00%	36,532	100.00%	47,361	100.00%	43,178	100.0%	65,391	100.0%	72,361	100.0%	45,653	100.0%	71,816	100.0%	76,365	100.0%

Data from the Freight Analysis Framework Version 4 - 2012 CFS and FHWA projections  
Unit of measure is thousand tons

Table 2 also highlights the importance that truck transportation plays in the movement of goods in the State and illustrates that it is the principal mode for freight movement in New Hampshire. Within the region, freight trucks interface with other modes principally at MBRA. Recently, the Pettengill Road area in Londonderry adjacent to MBRA has become a center for the location of support services for the freight industry. AT MBRA, air freight is carried on scheduled passenger flights as well as on scheduled and on-demand all-cargo flights. All-cargo carriers operating at MBRA include FedEx, United Parcel Service and Wiggins Airways. Trucking companies in the region include those with the capability to haul liquid or dry bulk goods, as well as those carrying general freight. The data presented in the previous paragraph illustrates that truck and highway transportation play a vital role in developing and sustaining the region's economy and are essential for maintaining the quality of life for those who live and work in this area. Because of the region's established roadway network and current limited use of other modes, commercial trucking services will likely continue to be essential to sustain the region's expanding economy. The region's continuing dependence on roadways for commerce and movement of goods suggests that maintenance and preservation of the highway network will become increasingly important.

The region's continuing dependence on roadways for freight transportation also suggests that there will be a growing need to address air quality concerns and greenhouse gas emissions associated with transporting goods. USDOT estimates that emissions from movement of freight make up almost one-third of all greenhouse gas emissions attributable to transportation and these emissions have increased by fifty percent since 1990. Diesel truck engines are a major source of pollutants and although EPA introduced restrictions on vehicle emissions for vehicles newer than 2006, many older trucks still in use lack pollution control technology. Strategies available to reduce freight emissions can include use of technological advancements, as well as other programs involving operational, regulatory and policy initiatives. Technology strategies include retrofitting existing engines with emission control improvements, energy efficiency improvements and use of alternative fuels. Regulatory and policy-related programs include anti-idling programs, congestion mitigation strategies and encouraging off-peak movement of freight.

In the long term, increased accessibility and mobility for the movement of goods and people will also depend on the development and maintenance of an efficient transportation system that utilizes other modes. The proposed expansion of rail service in the SNHPC region and the development of multimodal transportation at MBRA and downtown Manchester will improve accessibility and mobility and facilitate access to both goods and services.

Major infrastructure improvements, such as the widening of I-93, improved multi-modal access to MBRA and expansion of the region's rail network are required to enable the region to compete economically with other areas. However, the maintenance and expansion of the transportation system requires support for funding on the part of local, regional, State and Federal levels of government and the private sector.

SNHPC is committed to assisting member communities to plan for roadway networks that provide safe and efficient access and maximize accessibility and mobility. SNHPC contributes to these goals through efforts such as developing functional roadway classification systems through the master plan update process and reviewing proposed developments, site plans and traffic impact studies through local assistance provided through the SNHPC UPWP. These projects are designed to assist member communities in planning for a fully integrated highway network that will maximize accessibility and mobility for both people and goods.

### **3.4 Bicycle and Pedestrian Transportation**

The FAST ACT maintains emphasis on the importance of intermodal transportation, requiring that “the plans and programs for each metropolitan area[s] shall provide for the development and integrated management and operation of transportation systems and facilities (including pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system...”. This emphasis on the development of an integrated and intermodal system includes consideration of the importance of pedestrian and bicycle facilities in this system, in an effort to:

- Efficiently use and reduce the impact of vehicular transportation on our limited fuel supplies and land resources;
- Reduce the negative impacts of hydrocarbon combustion (fossil fuel) on air quality; and
- Reduce traffic congestion at major intersections and in densely populated areas.

Secondary benefits resulting from increasing levels of bicycle and pedestrian transportation include improved public and environmental health, safer streets, more vibrant downtown areas and increased economic activity and property values.

#### *Safe Routes to School (SRTS) Program*

The Safe Routes to School program (SRTS) is designed to 1) teach children, parents and faculty about the benefits of walking to school, 2) increase the number of children who walk to school, 3) reduce traffic congestion in and around schools and 4) increase pedestrian and vehicular safety. SRTS programs are developed through a combination of educational measures, programs, and physical improvements to the transportation infrastructure. Benefits identified through a SRTS program include improved health and physical development in children, decreased conflicts between children and motor vehicles, reduced traffic congestion and air pollution, increased independence and improved social interaction skills for children. SRTS programs involve cooperation between the school community, local residents, municipal authorities and law enforcement. The SNHPC has participated in various SRTS projects for member communities and in its capacity as a member of the State SRTS Advisory Council. SNHPC has completed SRTS projects including a demonstration project with Hallsville Elementary School and Site Evaluations with Henry Wilson and Weston Elementary schools in Manchester.

#### *Regional Trails Coordinating Council*

The SNHPC is currently participating, along with NHDOT, CNHRPC and local trail stakeholder groups in the Regional Trails Coordinating Council (RTCC). The Council, formed in 2010, is designed to build upon

the past work of the Manchester Regional Trails Alliance that also included Goffstown, Bedford, Londonderry, Auburn, Derry and Hooksett. The primary goal of the RTCC is to assist member organizations in the development and implementation of a comprehensive trail plan. The RTCC strives to connect existing and planned trail networks in the region by providing a forum for cooperation and collaboration among trail organizations. It also serves as an information clearinghouse for regional trails stakeholders. The goals of the RTCC include but are not limited to the following:

1. Assist in the development of individual trails to form a continuous network in the southern and central regional regions of the State of New Hampshire;
2. Develop maps of the region's trail network, including completed, planned and missing segments, and their conditions;
3. Identify and assist in obtaining available public funding (state, federal, etc.) for trail use;
4. Identify and assist organizations in obtaining available funding;
5. Identify and prioritize trail segment development tasks;
6. Provide forums and events to educate the public as to the importance of non-motorized multi-use trails in the health and quality of life of the regions; and
7. Combine and augment the passion of volunteer groups and the power of Regional Planning Commissions to achieve common missions and values to accomplish common goals while, as necessary, overlapping jurisdictional boundaries.

Recognizing the value of trail projects to municipalities, the RTCC is responsible for developing and implementing a comprehensive plan (adopted in January 2013) to complete north/south and east/west corridors. The plan was assembled jointly by SNHPC and the Central NH Regional Planning Commission (CNHRPC) under direction from the RTCC. It is the RTCC's intention to update the plan in 2016 and keep it current in forthcoming years. The RTCC's main mission is to develop and implement the Strategic Plan, and to develop the regional trail network as a healthy non-motorized transportation system and recreational amenity for residents and visitors.

The Strategic Plan is intended to:

1. Provide data and maps on existing trails;
2. Identify and map a planned regional trail network;
3. Catalog existing trails and active trail groups in the region;
4. Roughly outline funding opportunities for trails;
5. Recommend strategies for marketing trails and conducting outreach;
6. Recommend methods for continued coordination between trail groups;
7. Provide various recommendations to assist in implementation of the plan and the development of the regional trail network; and
8. Describe the RTCC's origin, purpose, vision, mission, and goals.

Currently, there are portions of regional trail systems that are in various stages of completion. To facilitate completion of these facilities, the RTCC is responsible for identifying and pursuing sources of funding, developing fundraising programs, bike tours, grant writing, and prioritizing trail sections to be completed. It is hoped that a prioritized program of projects with a funding plan can be developed for completing these north/south and east/west trail corridors.

Based on a review of projects summarized in this section, the SNHPC has been shown to be committed to facilitating and encouraging bicycling and walking as convenient, safe, and practical forms of transportation throughout the region. This work is generally supported by objectives emphasizing the

regional network, safety, appropriate design, education and promotion, planning and maintenance, including:

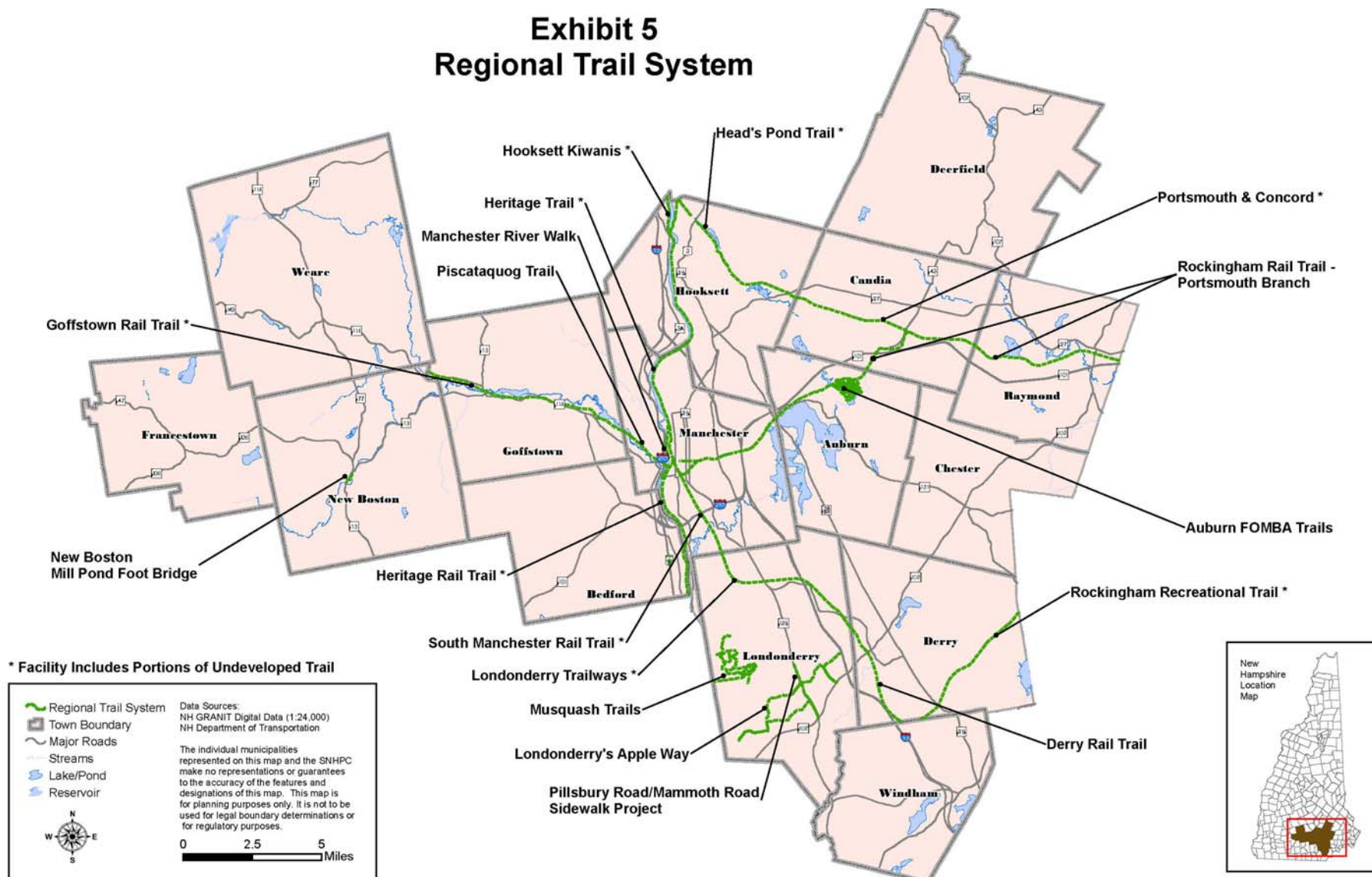
- Establishing a continuous and coordinated regional bikeway and pedestrian walkway system, ensuing that this regional system is well linked with local municipal systems and adjacent systems in adjacent towns and regions;
- Making biking and walking safer;
- Creating a traveling environment that provides an inviting, viable alternative to motorized travel;
- Promoting public awareness and acceptance of bicycling and walking as attractive, viable transportation and recreation modes;
- Participating in and promoting SRTS activities in the SNHPC region; and
- Fully and meaningfully integrating bicycling and pedestrian needs into the land use planning, transportation planning, highway design, and highway maintenance processes.

Current land use patterns in the region often do not support development of facilities and planning for pedestrian and bicycle travel. Additionally, existing facilities often do not allow for safe and comfortable travel by these modes. The extent to which planning for pedestrian and bicycle facilities can practically occur at the local level often varies greatly. As a result, SNHPC proposes that project-level actions be taken to change practices, policies and regulations pertaining to pedestrian and bicycle facilities in the following areas:

- Land use, by making development more compact and reducing distances between origin and destination points;
- Engineering practice, by supplying adequate facilities and seriously considering bicycle and pedestrian needs at every stage of the planning and development process;
- Education concerning automobile, pedestrian, and bicycle safety;
- Encouragement, by building community support and awareness, and by assisting private and public sector businesses to increase employee levels of biking and walking; and
- Enforcement, by more strictly implementing existing laws to strengthen the education element.

The establishment of a regional system of bicycle and pedestrian facilities has the potential to link communities and form a network of alternative transportation corridors. This system could connect to locally developed systems and link with sidewalks, shared-use paths, and local streets. The system of bicycle and pedestrian facilities in the region is currently growing through the efforts of stakeholder groups such as the RTCC. Exhibit 5 displays the main existing and planned system of bicycle and pedestrian facilities in the region. Further development of this infrastructure would be instrumental in the development of a transportation system where alternative modes become essential ingredients and significantly contribute to regional mobility and accessibility.

## Exhibit 5 Regional Trail System



### 3.5 Intermodal/Multimodal Facilities

#### Manchester Transportation Center

The Manchester Transportation Center, located at 119 Canal Street is a multi-modal bus facility located in the central portion of the city. Boston Express and Concord Coach offer inter-city bus services to destinations such as South Station and Logan International Airport in Boston from the facility, which is also served by Greyhound and Peter Pan Bus Lines. MTA also serves the facility via Route 3 (Brown Avenue/Airport). Renovations completed in 2009 included improvements to the heating system, bathrooms, flooring and ticket counter. The facility is currently operated by Boston Express.

#### Manchester-Boston Regional Airport (MBRA)

Manchester-Boston Regional Airport (MBRA) is the largest commercial airport in New Hampshire and a major economic engine for the region. The annual economic impact of the facility in terms of jobs created, activity at businesses related to the airport and spending by out of state passengers using the facility was estimated in 2008 at approximately \$1.24 billion. MBRA accounts for 3,820 jobs and the average visitor disembarking from a flight at the facility spends an average of \$450 in the area.

MBRA (Exhibit 6 on Page 26), which evolved from a small town airfield built in the 1920's, became a major training and transport base during World War II. After significant expansion and construction, the U.S. Air Force began to transfer control of the airport to the City of Manchester in 1962. The airport is owned by the City of Manchester and is operated by the City's Department of Aviation which oversees the daily operations, maintenance, planning, design and construction. Currently, MBRA is served by four major passenger carriers, three cargo carriers and a fixed-base operator.

MBRA has experienced periods of rapid growth. Between 1998 and 2008, MBRA achieved the most rapid growth in domestic origin and destination passengers of any airport in New England. Four major runway improvement and expansion projects were completed at MBRA between 2002 and 2007. However, since mid-2005, domestic airlines, experiencing weakened demand because of economic recession, have responded by reducing flights. This trend is reflected in Table 3 which summarizes enplaned and deplaned passenger data and forecasts at MBRA. Declines in passenger traffic since 2005 reflect not only economic factors but also increasingly competitive flights and improved ground access at Logan Airport in Boston, which is located just 55 miles from MBRA. In fact, the two facilities share a large common base of air travelers and as a result, the competing flights offered at both MBRA and Logan play a key role in their decision-making process concerning which airport to use.

**TOTAL, ENPLANED, AND DEPLANED PASSENGERS**  
**MANCHESTER-BOSTON REGIONAL AIRPORT**  
(calendar years)

	2004	2005	2006	2007	2008	2009*	2010^	2015	2020	2025	2030
Total Passengers	4,003,307	4,332,707	3,896,532	3,892,630	3,716,393	3,140,000	2,988,000	3,336,000	3,702,000	4,108,000	4,556,000
Enplaned Passengers	2,004,122	2,168,258	1,952,277	1,948,313	1,861,695	1,570,000	1,494,000	1,668,000	1,851,000	2,054,000	2,278,000
Deplaned Passengers	1,999,185	2,164,449	1,944,255	1,944,317	1,854,698	1,570,000	1,494,000	1,668,000	1,851,000	2,054,000	2,278,000

Notes:                   \* = Estimate  
                             ^ = Forecast

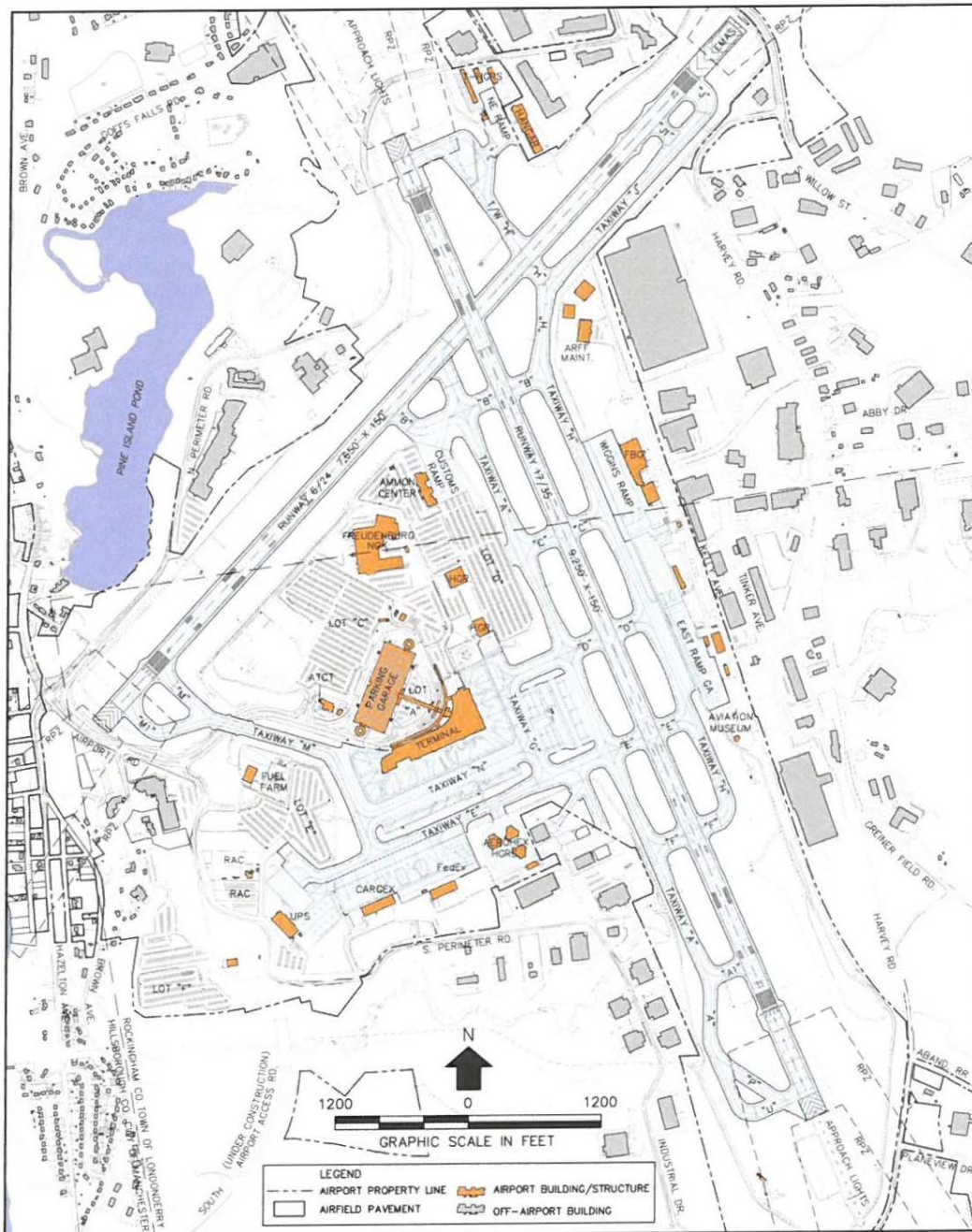
Sources:               Historical - City of Manchester Department of Aviation; Official Airline Guide  
                             Forecast - Jacobs Consultancy (2009)



The 2011 Airport Master Plan is used by MBRA to plan growth and guide development to meet the existing and future needs of those using the facility. The Master Plan includes a \$71,470,000 long-term capital improvement plan consisting of airfield and roadway improvements and terminal improvements including upgraded enhanced ticketing and baggage claim areas and enhanced pedestrian connections.

Regional and local access to MBRA has been enhanced through the completion of Raymond Wieczorek Drive, including direct connections between the F.E. Everett Turnpike, U.S. Route 3 and NH 3A. Hourly bus service between the Portsmouth Transportation Center and downtown Manchester, with a stop at MBRA, began in November 2013.

*Exhibit #6- Manchester-Boston Regional Airport*



Source: URS Corporation, 2010.



The Capital Corridor Rail & Transit Alternative Analysis included development of a service development plan and related documents for intercity passenger rail between Boston, MA and Concord, NH. The conceptual build alternatives evaluated included an extension of the existing passenger rail service from Lowell, MA and this extension would include stations in downtown Manchester and a station serving MBRA, near the interchange of the F.E. Everett Turnpike and Ray Wieczorek Drive. It is anticipated that both of these station locations would be developed as multi-modal facilities with connections to local public transit.

### 3.6 New Hampshire Rail System

The rail network in the State of New Hampshire consists of approximately 443 miles of active track currently being utilized by twelve different carriers. Of the total mileage, about twenty-seven percent or approximately 121 miles is currently being utilized by Pan Am Railways of North Billerica, MA. Exhibit 7 on Page 29 shows active, inactive and abandoned rail lines in the state (2012 data).

The following table provides a summary of the mileage of railway owned and operated by various entities within the state. Rail passenger service is currently offered in New Hampshire by Amtrak on the Vermonter, which provides service between St. Albans, Vermont and Washington, D.C. including a stop in Claremont, New Hampshire. The Amtrak Downeaster service, which provides service between Boston and Brunswick, Maine, includes New Hampshire station stops in Dover, Durham and Exeter.

Miles of Railroad by Carrier		
	Miles of Railroad	Percent
<b>Class 1</b>	N/A	
<b>Regional Railroads</b>		
Pan Am Railways	121.0	27.1%
New England Central	24	5.4%
<b>Local Railroads</b>		
Claremont Concord	5	1.1%
Green Mountain	1	0.2%
Milford-Bennington	18	4.0%
New England Southern	18	4.0%
New Hampshire Central	44	9.9%
New Hampshire Northcoast	42	9.4%
St. Lawrence & Atlantic	58	13.0%
Twin State	6	1.3%
<b>Tourist Railroads</b>		
Conway Scenic	51	11.4%
Plymouth & Lincoln	55	12.3%
<b>Total</b>	<b>443</b>	<b>100%</b>

Source: New Hampshire State Rail Plan - 2012

The principal rail line in the SNHPC region is the New Hampshire Main Line running north-south along the Merrimack River through Bedford, Manchester and Hooksett. This line is owned by Pan Am Railways, which operates freight service on the line between the Massachusetts State line and Bow, NH,

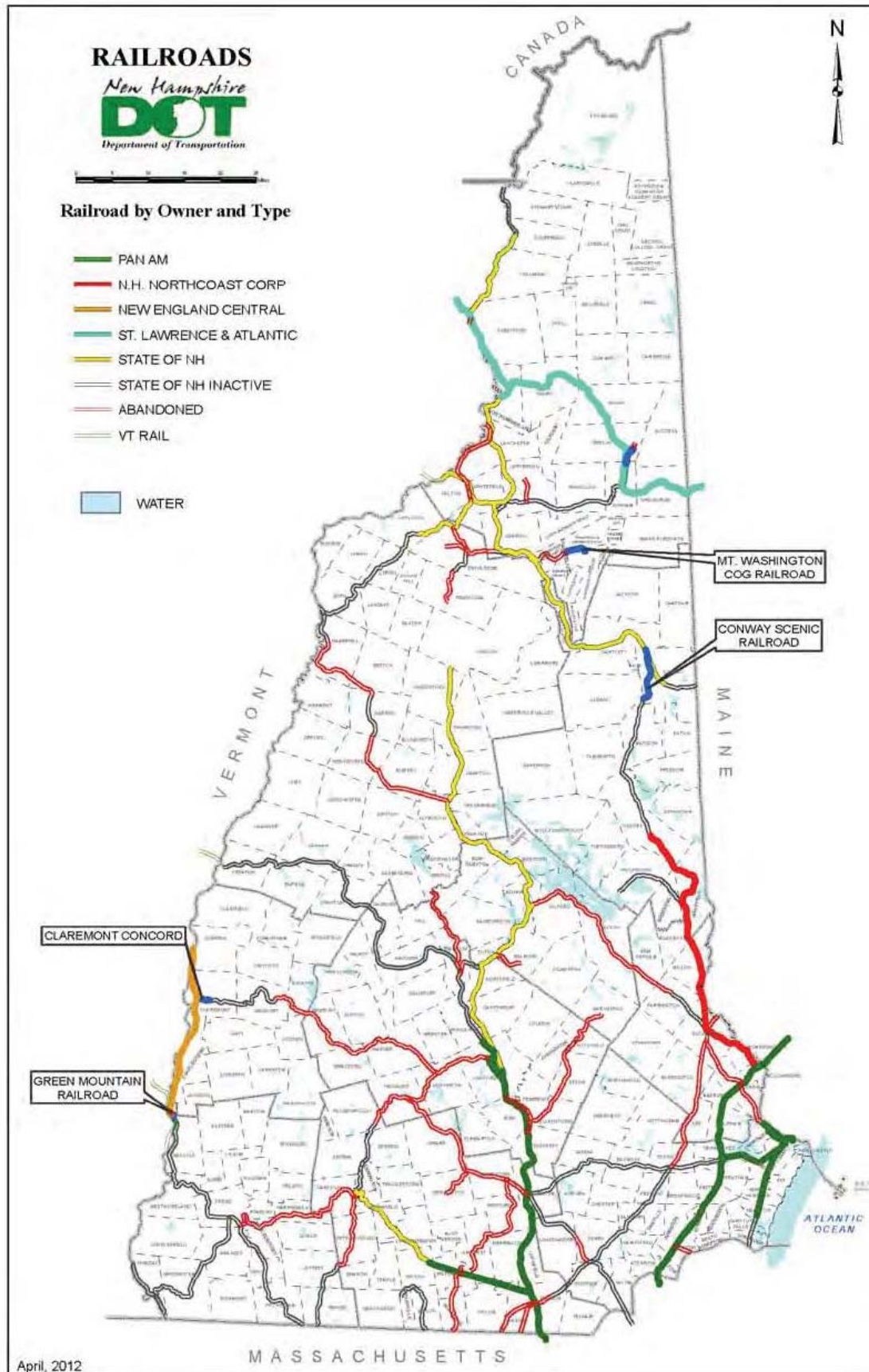
delivering unit coal trains and local freight to Nashua, Merrimack, Manchester and Concord. This line has also been designated as a portion of the route for a future Boston to Montreal High Speed Rail service.

As population and traffic congestion levels in southern New Hampshire increase, interest in passenger rail as a transportation alternative has grown. Through the efforts of a wide range of stakeholders, including SNHPC, initiatives to bring passenger rail service into southern New Hampshire are currently underway. A Rail Alternatives Evaluation Report was completed as part of Draft Environmental Impact Statement for the Salem to Manchester I-93 widening project. The report, which was a first step in considering the merits of passenger rail service in conjunction with the I-93 improvements, resulted in planning for the design of highway improvements that would facilitate a future service option. The 2008 I-93 Transit Investment Study was completed through a cooperative agreement between the NHDOT, the Massachusetts Executive Office of Transportation, FHWA and FTA. The overall objective of the study was to identify what transit investments are needed and feasible to accommodate future travel demand within the I-93 corridor and determine when and how those investments should be implemented. The study concluded that service along the New Hampshire Main Line should be maintained as the primary focus for implementation of commuter rail service in New Hampshire. Additionally, in order to address mobility issues in the I-93 corridor, New Hampshire and Massachusetts should begin phased implementation of bus services using a “Bus-on-Shoulder” strategy between Manchester and Boston.

In continuing pursuit of extending passenger rail service in New Hampshire, SNHPC is participating as a member of the New Hampshire Rail Transit Authority (NHRTA) created by the State Legislature in 2007. The mission of the Authority is to “[d]evelop and provide commuter and passenger rail and related public rail transportation services in New Hampshire”. The NHRTA is pursuing the implementation of passenger rail service on the New Hampshire Main Line (NH Capitol Corridor) extending from North Station in Boston to Concord including station stops in downtown Manchester and at MBRA. Rail liability legislation introduced and passed by the Legislature during the 2008 session was signed by the Governor in June 2008 and a study assessing the economic impacts of restoring intercity passenger rail service between Boston, MA and Concord, NH via the Capitol Corridor was completed in March 2010. In the Spring of 2011, an agreement reached between the MBTA and Pan Am Railways to enable track rights to provide future passenger service to New Hampshire was approved by the MassDOT Board of Directors.

The Capitol Corridor Rail Alternatives Analysis and Development Plan, discussed earlier in this chapter, has taken a multimodal and systems-wide approach for the development of transportation improvement alternatives. In addition to the existing rail lines, the F.E. Everett Turnpike/U.S. Route 3 and I-93 highway corridors were both considered for investments in commuter service. The Preferred Manchester Regional Commuter Rail alternative would include service to South Nashua, downtown Nashua, downtown Manchester and a station serving MBRA near the interchange of the F.E. Everett Turnpike and Ray Wiczorek Drive. Future steps in the development of passenger rail service include preliminary engineering, finalizing required operating agreements, securing capital and operating funding and pursuing public-private partnerships for station development. The NHRTA is also committed to continuing to work with State and Federal legislators and local businesses and residents to discuss the economic and quality of life benefits of passenger rail.

Exhibit #7- New Hampshire Rail Lines



## CHAPTER IV

### TRAVEL DEMAND FORECASTS – NO BUILD

#### 4.1 Highway

Assessing the adequacy of the existing highway network in the region with respect to factors such as current traffic levels, future land use changes, planned changes to the highway system, and background regional growth requires reliable future year travel estimates. As a result, SNHPC maintains and updates a regional transportation model which utilizes the Cube/Voyager travel demand modeling software package and the Commission's socio-economic database compiled at the "Traffic Analysis Zone" (TAZ) level. The traffic forecasting procedure generally follows the standard four-step process described below:

- **Trip Generation:** Determines the quantity of trips generated at each traffic zone.
- **Trip Distribution:** Determines the origin and destination patterns of trips generated at each TAZ.
- **Modal Split:** Determines what modes the trips are going to use to travel to their destination.
- **Traffic Assignment:** Determines which routes the trips are going to take to their destination.

##### 4.1.1 Traffic Zone System

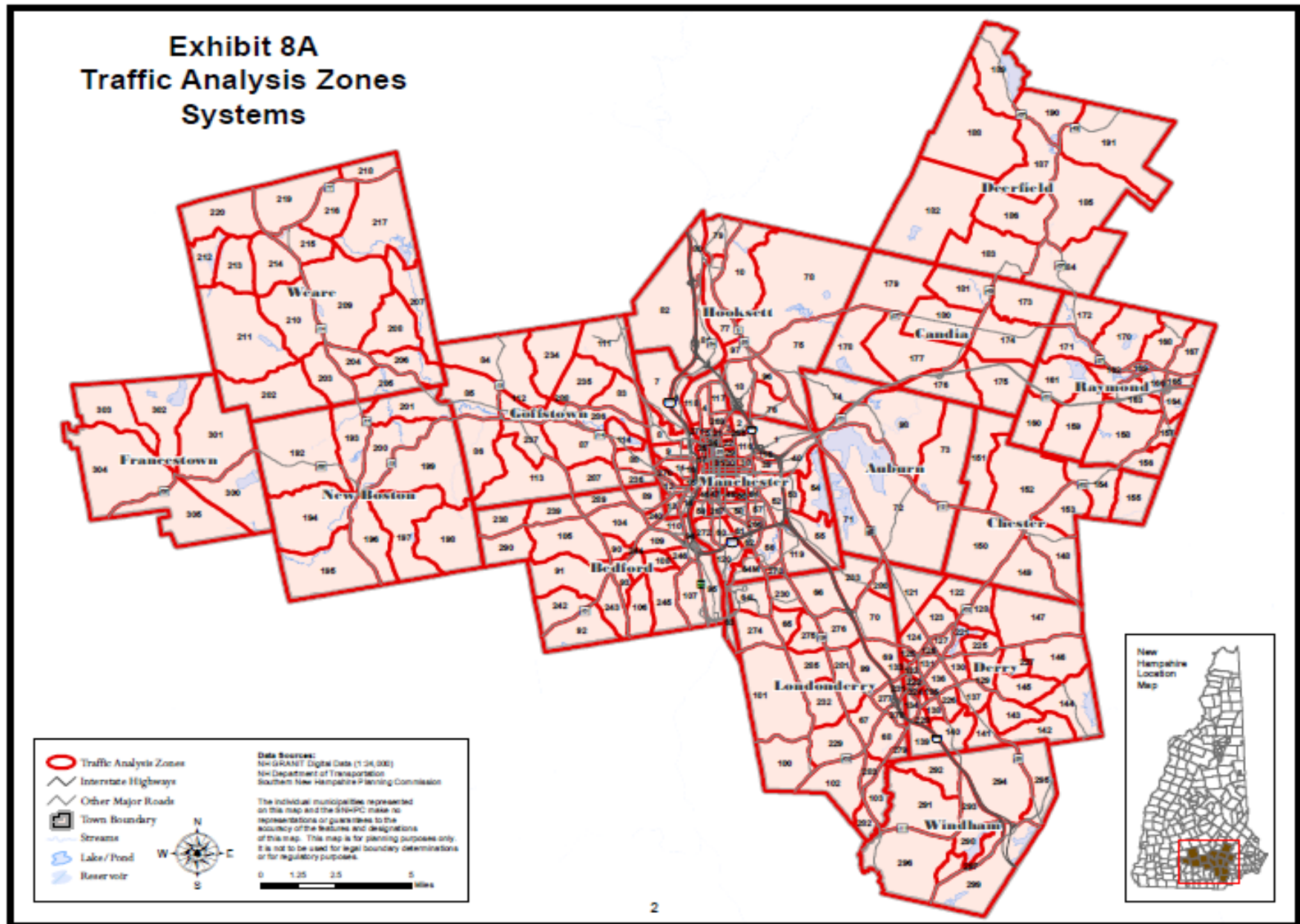
The 15 communities are disaggregated into 306 internal TAZs and 69 "external stations" on the boundary of the SNHPC region. Exhibit 8A and Exhibit 8B summarizes the layout of the region's internal TAZ system and Table 3 shows the number of internal zones in each of the SNHPC member communities.

*Table 3- Number of Internal TAZ zones in SNHPC Communities*

COMMUNITY	# OF ZONES	COMMUNITY	# OF ZONES
Auburn	5	Hooksett	12
Bedford	25	Londonderry	28
Candia	9	Manchester	96
Chester	8	New Boston	10
Deerfield	10	Raymond	17
Derry	35	Weare	19
Francestown	6	Windham	9
Goffstown	17		
<b>TOTAL</b>		<b>306</b>	

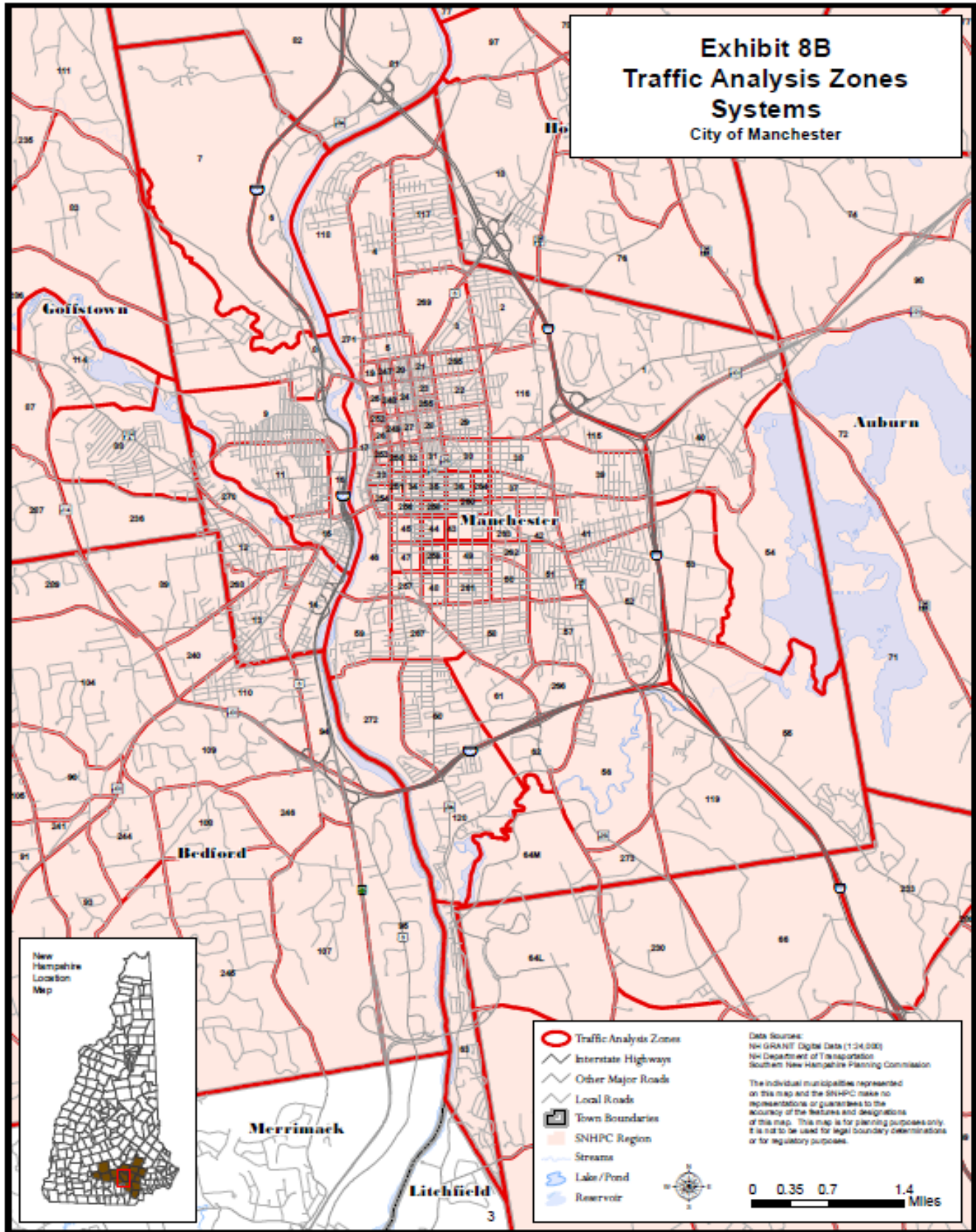
Source: The Southern New Hampshire Planning Commission Travel Demand Model.







*Exhibit #8B- Traffic Analysis Zones in the City of Manchester*



#### 4.1.2 Base Year (2010) Conditions

There are many variables that contribute to the model for forecasting travel demand, among which are seven socio-economic variables acting as the basic elements. These variables include population, households, retail employment, service employment, government employment, industrial employment, and agriculture employment. Each of these variables is determined at the TAZ level. Block level population, household, dwelling unit data from the 2010 U.S. Census were aggregated to provide this information at the TAZ level. Employment data obtained from the New Hampshire Employment Security through New Hampshire Department of Transportation included, in addition to other data, a North American Industry Classification System (NAICS) code and address for each business in the SNHPC region. The NASIC code was used to separate the above-mentioned categories of employment records. Using a proprietary address matching database, the employment data was aggregated into individual TAZs. Table 4 summarizes the base year socio-economic data for each SNHPC member community.

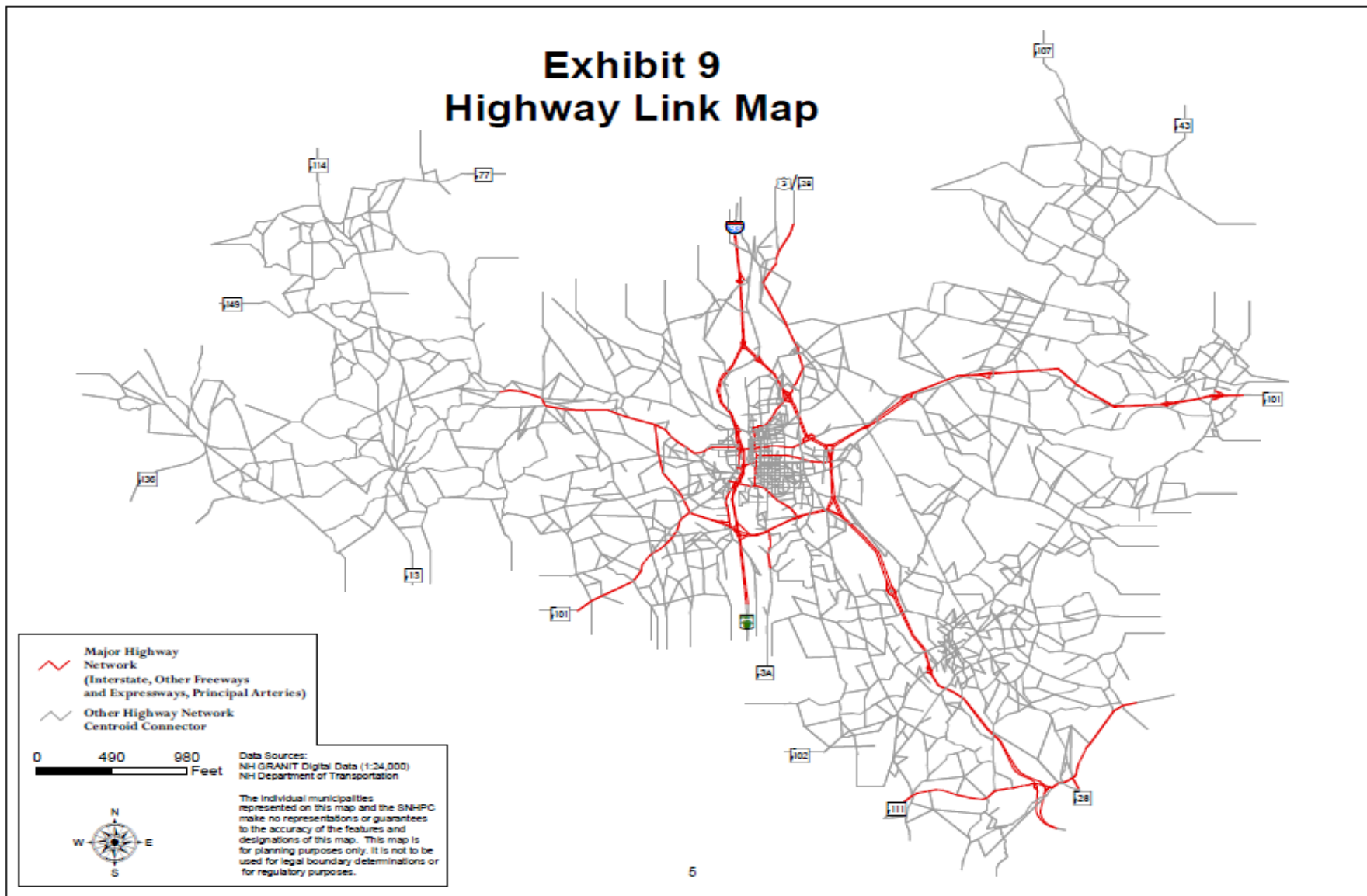
*Table 4- Base Year (2010) Socio-economic Data for the SNHPC Region*

<b>Town</b>	<b>Retail (Job)</b>	<b>Service (Job)</b>	<b>Industry (Job)</b>	<b>Government (Job)</b>	<b>Agriculture (Job)</b>	<b>Household</b>	<b>Population</b>
Auburn	42	908	650	51	0	1,765	4,953
Bedford	2,130	10,310	1,793	321	n	7,364	21,203
Candia	49	383	295	28	0	1,450	3,909
Chester	13	384	101	29	n	1,534	4,768
Deerfield	n	307	79	44	n	1,537	4,280
Derry	1,203	5,314	957	336	n	12,537	33,109
Francestown	n	78	33	20	0	611	1562
Goffstown	645	3,061	427	405	n	6,068	17,651
Hooksett	1,692	4,657	2,634	151	n	4,926	13,451
Londonderry	1,824	6,223	5,266	238	73	8,438	24,129
Manchester	7,527	41,873	10,191	2,904	0	45,766	109,565
New Boston	48	531	100	93	n	1,883	5,321
Raymond	488	1,803	340	130	0	3,925	10,138
Weare	87	1,086	340	60	0	3,128	8,785
Windham	397	2,143	530	120	n	4,724	13,592
<b>TOTAL</b>	<b>16,161</b>	<b>79,061</b>	<b>23,736</b>	<b>4,930</b>	<b>166</b>	<b>105,655</b>	<b>276,416</b>

**Source:** The Southern New Hampshire Planning Commission, U.S. Census and New Hampshire Department of Employment Security.

For the development of a regional travel demand model, it is neither practical nor necessary to include all the streets and highways in the region. The network of the SNHPC travel demand model is generally representative of the principal street system, as defined by the NHDOT. Within the model, a road segment is called a “link” and the intersection of two or more streets is called a “node”. The SNHPC travel demand model network contains approximately 3,780 nodes and 9,100 links. Each network link is defined by specific characteristics, such as length, average free-flow speed, number of lanes, capacity and one-way or two-way traffic flow. Exhibit 9 is a computer generated diagram showing the highway links in the model.

Exhibit #9- Highway Link Map



The trip generation process establishes the relationships between the trip “productions” and “attractions” related to land use and the socio-economic characteristics of the region. The purpose of trip generation is to estimate trip-ends produced by and attracted to each TAZ.

Trip generation and trip distribution data within the model is classified into six trip purposes: 1) Home-Based Work (HBW); 2) Home-Based Shopping (HBSH); 3) Home-Based Social (HBSO); 4) Home-Based School (HBSCH); 5) Home-Based Other (HBO) and 6) Non-Home Based (NHB). The model utilizes trip generation rates developed from a 2007 household travel survey of households in the region conducted by University of New Hampshire Survey Center. The data is summarized in the cross-classification table (Table 5) below.

*Table 5- Cross-Classification Table of Trip Rates*

<b>Vehicles (equal to or greater than)</b>	<b>Vehicle (less than)</b>	<b>Home base work</b>	<b>Home base shop</b>	<b>Home base social</b>	<b>Home base School</b>	<b>Home base other</b>	<b>Non- home base</b>
<b>Greater than 1 persons per household but less than 2</b>							
0	1	0.25	0.56	0.23	0.24	1.27	0.79
1	2	0.86	1.12	0.38	0.24	1.58	1.32
2	3	1.12	0.84	0.43	0.24	1.58	0.78
3	4	1.13	0.85	0.40	0.24	1.58	0.92
4	99	1.88	0.85	0.40	0.24	1.58	0.92
<b>Greater than 2 persons per household but less than 3</b>							
0	1	0.63	0.56	0.23	0.16	1.27	0.79
1	2	0.85	0.83	0.51	0.37	1.72	1.39
2	3	1.39	1.04	0.52	0.37	1.83	2.20
3	4	1.59	0.96	0.58	0.37	1.83	1.47
4	99	2.40	0.96	0.58	0.37	2.03	1.47
<b>Greater than 3 persons per household but less than 4</b>							
0	1	1.26	0.56	0.23	0.41	1.53	1.57
1	2	1.62	0.90	0.47	0.50	1.78	1.82
2	3	1.63	0.87	0.51	0.43	2.32	2.55
3	4	1.75	0.96	0.58	0.39	1.40	2.49
4	99	1.73	0.99	0.63	0.51	1.59	3.61
<b>Greater than 4 persons</b>							
0	1	1.26	0.56	0.47	0.65	1.53	1.84
1	2	1.47	0.56	0.58	0.81	2.12	2.10
2	3	1.50	0.87	0.60	0.88	1.65	2.99
3	4	1.49	0.69	0.40	1.01	1.68	2.77
4	99	2.04	1.00	0.65	0.58	1.91	3.33

Source: Southern NH Planning Commission Household Travel Survey.

Initially, trip attraction rates by type were based on data from National Cooperative High Research Program (NCHRP) 365 and from data gathered for the I-93 Transit Investment Study. Subsequent adjustments were made to better reflect number of trips by trip type as estimated from the 2007 household travel survey. The final set of attraction rates utilized in the model is shown in Table 6 below.

Table 6- Trip Attraction Rates

Trip Type	Total Employment	Retail	Service	Government	Industrial	Agriculture	Households
Home Based Work	1.35	N/A	N/A	N/A	N/A	N/A	N/A
Home Based Shop	N/A	5.8	N/A	N/A	N/A	N/A	N/A
Home Based Social	N/A	N/A	0.8	0.22	N/A	N/A	0.28
Home Based Other	N/A	3.0	0.9	0.25	0.25	0.25	0.70
Non-Home Based	N/A	4.49	1.13	1.13	0.38	0.38	0.59

Source: The Southern NH Planning Commission Travel Demand Model.

Data from the household travel survey was used to determine the portion of total trips traveling outside the region, which is utilized as an input to the model. Data from Tables 5 and 6 was used to develop 2010 estimates of vehicular trip productions and attractions for each internal TAZ. These trip generation computations represent an estimate of the number of vehicle trips generated by the 15 SNHPC communities, approximately 1,444,554 on an annual average daily basis. Truck and external through trips are not included in this total.

The “Trip Distribution” phase of the model determines origin and destination of the trips generated in each TAZ. The “Gravity Model” technique was used to determine the distribution of internal auto trip ends. The “Gravity Model” assumes that the number of trips between a traffic zone and all other zones is directly proportional to the relative attractiveness of the zone, as measured by the number of attractions, and inversely proportional to the travel time between them. This relationship is mathematically expressed as:

$$T_{ij} = P_i * \frac{A_j * F_{ij}}{\sum_{j=1}^n (A_j * F_{ij})}$$

T<sub>ij</sub>= Trips from zone i to zone j

P<sub>i</sub> = Total trips produced at zone i

A<sub>j</sub> = Total trips attracted at zone j

F<sub>ij</sub> = Travel impedance factor between zone i and zone j

n = total number of zones

Using this methodology, three types of trips are distributed:

- Internal zone to internal zone trips;
- Internal to external zone trips; and
- External zone to internal zone trips.

These distributed trip values are then combined with truck trips and external to external trips (trips without an origin or destination in the region). The SNHPC travel demand model does not include a conventional “Mode Split” phase because transit ridership, estimated to account for less than 0.5 percent of total trips in the region, has proven to be an insignificant percentage of total travel activity in the region. Similarly, taxi trips are also excluded from the model.



Through the trip generation and trip distribution processes, the number of vehicle trips occurring between TAZs on an average day was determined. The resulting 2010 and 2040 trip tables provide information on those areas within the region with significant attractions between them (high traffic volumes). Exhibit 10 shows the major through travel patterns in the SNHPC region, such as north-south travel on I-93 and the F.E. Everett Turnpike.

The traffic assignment procedure in the model involves an equilibrium technique method using a volume-delay function that assumes travelers use the shortest time path and have “perfect” information about the available routes. Trips for each origin-destination pair are assigned to the minimum path and trips are totaled for each link. The assigned trip volume is then compared to the link capacity to determine congestion. If a link is congested, the travel time is adjusted to result in a longer travel time. Changes in travel time means that the shortest path may change. This process is repeated (iterated) until equilibrium between travel demand and travel supply is achieved. Trips on congested links will be shifted to uncongested links until this equilibrium condition occurs.

Another feature included in the travel demand model is the delay modeling concept, which assumes that vehicle delay at signalized intersections or turning prohibitions exist in the network. To incorporate this feature into the model, vehicle delays calculated using turning movement counts and timing data collected in the SNHPC region and prohibited turning movements were coded into the network. Vehicle delays and prohibited turning movements were introduced in the assignment stage of the modeling process. The results of the base year (2010) traffic assignment at 114 selected network locations is presented in Exhibit 11A and Exhibit 11B.

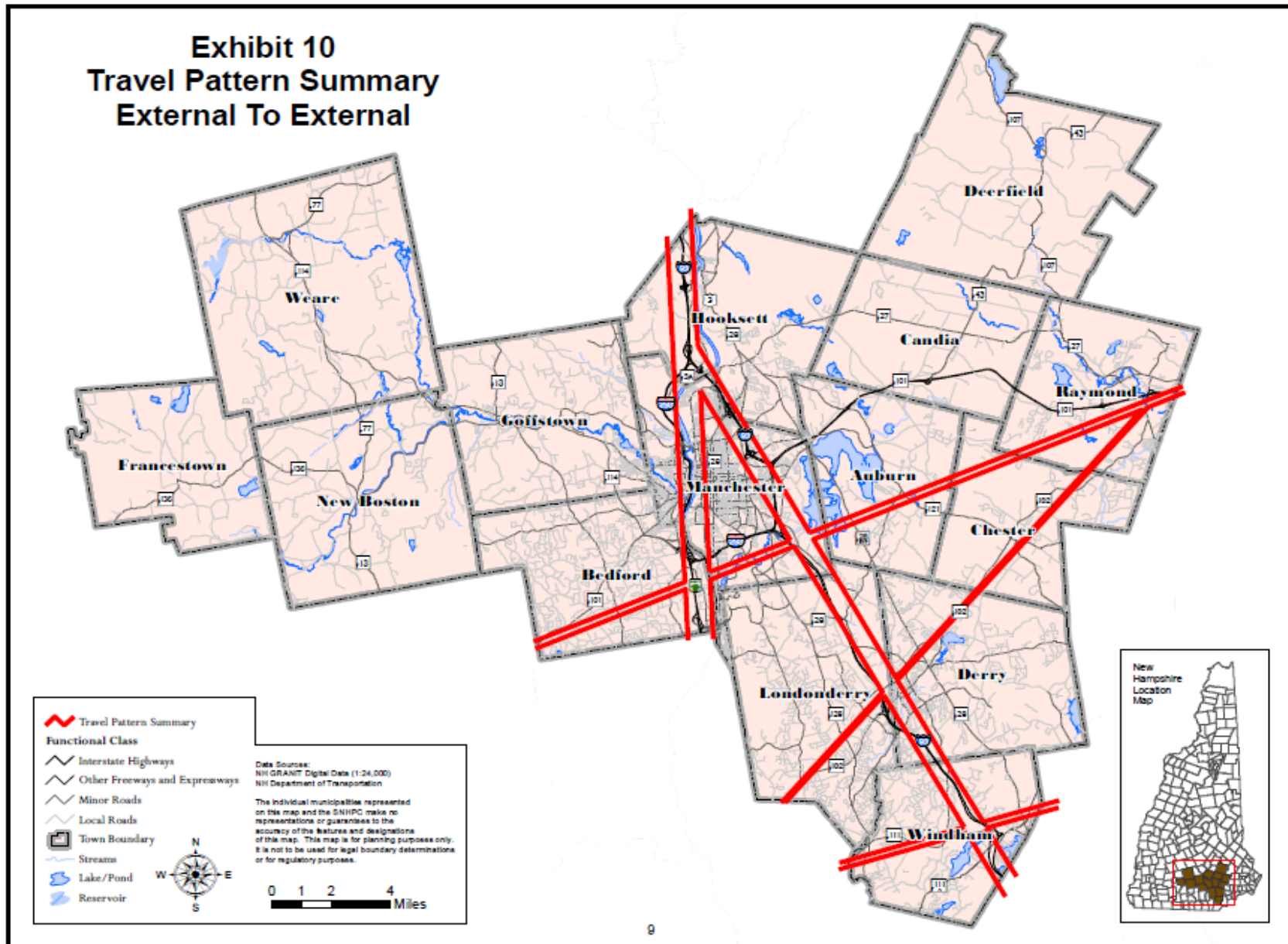
Before a travel demand model is utilized to forecast traffic for a horizon year, it must first be able to reasonably represent base year travel activity in the region. This involves modifying the model parameters until actual base year traffic is replicated. This process is referred to as model validation. During the validation of the SNHPC travel demand model, the computer generated assignment base year traffic volumes were compared with the actual ground counts at numerous locations in the region. Table 7 summarizes the results of that comparison.

*Table 7- Model Validation Summary*

Criterion	2010 Ground Count Data	2010 Model Results	Difference
Daily Traffic Volume at all External Stations	476,850	502,001	5.27%
Sum of Daily Volume at 114 Spot Locations	2,485,400	2,523,397	1.5%
Merrimack River Screenline Crossing	259,500	263,833	1.67%

Source: Southern NH Planning Commission Travel Demand Model Calibration.

Exhibit #10- External to External Travel Pattern Summary





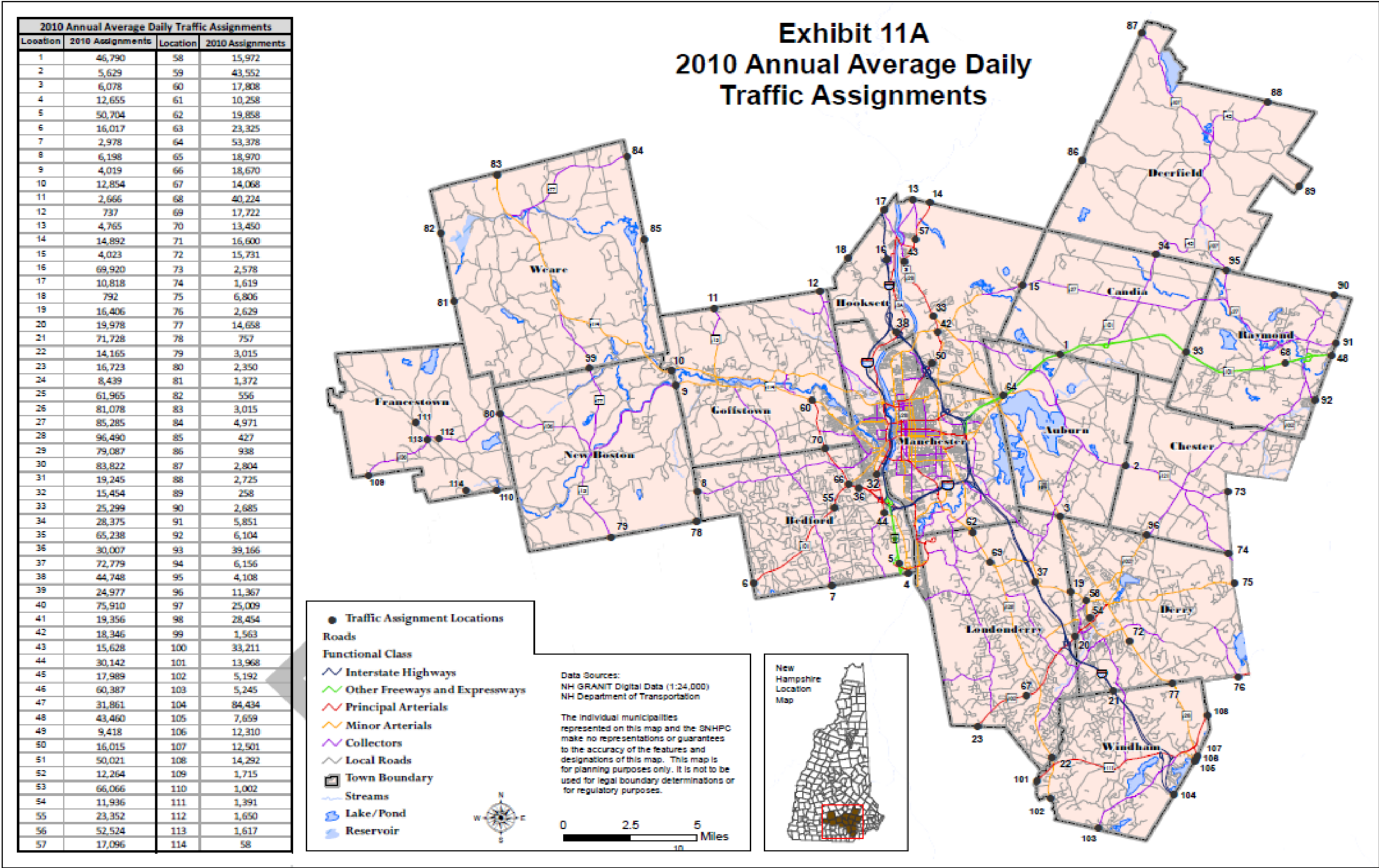
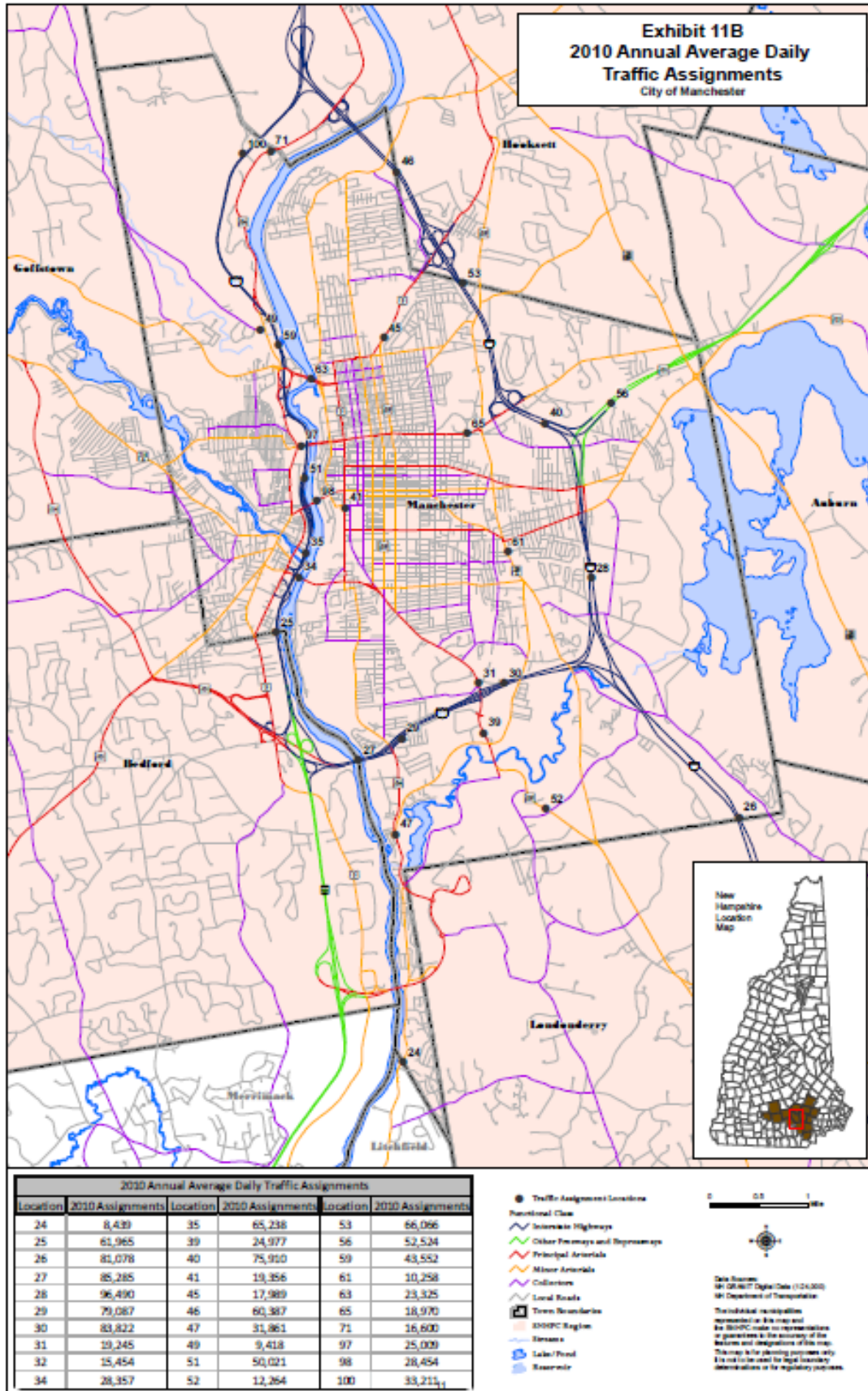


Exhibit #11B- 2010 Average Annual Daily Traffic Assignments (City of Manchester)





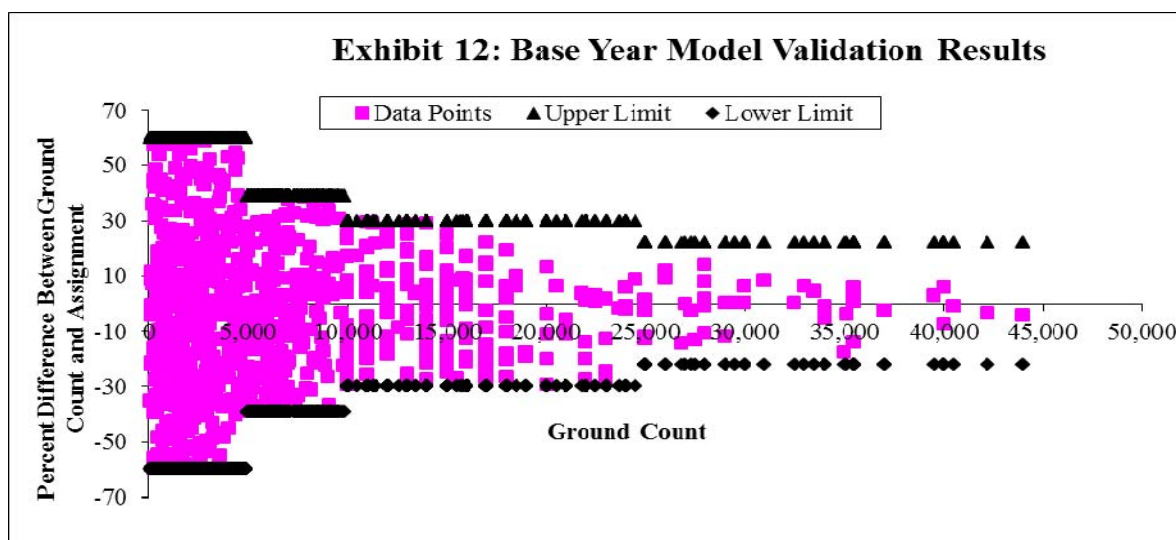
A comparison of the actual ground counts to model volumes on a link-by-link basis is one of the more severe tests for a regional model. It is important to recognize that the target value sought from the forecasting process is an Annual Average Daily Traffic (AADT) statistic for every link in the system. By definition, a completely accurate number can be determined only by physically counting the volume on each roadway on a continuous basis for the 2010 calendar year and dividing the total by 365 (days/year). Therefore, both the ground count data and the traffic assignment are approximations having a certain degree of built-in error. In practice, there are published guidelines for determining an acceptable amount of deviation between ground count and traffic assignment. Exhibit 12 illustrates that the majority of locations in the region with an appreciable amount of traffic volume exhibit an acceptable correlation between traffic assignment and actual ground count. As the base year model results have been compared with available data, the results of this process indicate that the model is capable of reasonably replicating base year travel conditions. As a result, it is reasonable to assume that this same model will produce reasonable travel estimations given reasonable future year input as well.

#### 4.1.3 Future Year (2040) No-Build Conditions

Forecasting future traffic on the regional road network involved projection of socio-economic data for the 2040 horizon year. Population projections for each community in the SNHPC region were originally conducted using the Cohort Component method. The New Hampshire Department of Health and Human Services provided data for births and deaths. The regional survival rates were calculated using the life table obtained from New Hampshire Office of Energy and Planning (OEP). The SNHPC generated unique net migration rates for each town. The past 35 years of net migration were analyzed and projected as four possible net migration outcomes: high, middle, low and historic average. The most probable outcome was selected for each community.

Dwelling units were projected based on the annual average of the past 40 years (1970 – 2009) of issued Building Permits. OEP figures from “Current Estimates and Trends in New Hampshire’s Housing Supply, Updates 1989, 1999, and 2009” were used along with data from “1970-1979 Estimates of Housing Supply for Towns and Counties in New Hampshire” to develop projected dwelling units. The building permit data was analyzed and any years with atypical net dwelling unit increases were excluded from the calculation of the annual average. The net increase for 2010-2014 was adjusted to reflect economic downturn.

*Exhibit #12- Base Year Model Validation Results*





Using the community level projection totals, the net increase of population and dwelling units was distributed to the 306 TAZs in the region. General assumptions were made that 1) growth rates would remain constant in each TAZ and 2) community zoning ordinances would not change significantly over the projected time span. More specific assumptions were to determine the amount of growth each traffic zone would receive based on the existing zoning of vacant land, quantity of vacant land, location of steep slopes, water bodies or other natural development constraints, existing land use coverage and known proposed developments for each town.

Historic employment for the period 1990-2010 for each community and each NAICS code downloaded from [http://www.nh.gov/nhes/elmi/covempwag\\_arch.htm](http://www.nh.gov/nhes/elmi/covempwag_arch.htm) (New Hampshire Economic and Labor Market Information Bureau) (NHELMIB) was used for the projections. Growth rates were estimated based on historic employment data and the ten-year (2008-2018) projection completed by NHELMIB for the SNHPC region. Using the community totals from each category employment projections, the net anticipated increase for each projected five year increment was distributed to the various TAZs. Adjustments were made to ensure that the sum total of all the TAZ employment in a community reflected the actual community employment levels. Table 8 summarizes the 2040 no-build socio-economic data for each SNHPC member community.

*Table 8- Projected (2040) Socio-economic Data for the SNHPC Region*

Town	Retail (Job)	Service (Job)	Industry (Job)	Government (Job)	Agriculture (Job)	Household	Population
Auburn	121	1,467	904	77	0	2,336	6,226
Bedford	2,399	12,709	1,758	609	n	8,959	25,886
Candia	65	553	347	51	0	1,846	4,855
Chester	29	704	118	104	n	2,029	6,437
Deerfield	n	470	87	102	n	2,077	5,740
Derry	1,201	7,523	652	500	n	13,712	35,215
Francestown	n	105	40	23	0	715	1,713
Goffstown	608	3,630	299	1746	n	7,917	20,142
Hooksett	2,919	7,524	2,531	501	n	6,314	16,790
Londonderry	2,170	7,774	7,912	314	70	11,465	31,477
Manchester	8,549	57,335	6,952	2,769	0	52,901	121,235
New Boston	64	805	118	184	n	2,628	7,201
Raymond	614	2,337	500	188	0	5,460	13,000
Weare	67	1,825	471	152	0	4,314	12,472
Windham	490	3,152	664	143	n	6,384	18,375
<b>TOTAL</b>	<b>19,312</b>	<b>107,913</b>	<b>23,353</b>	<b>7,463</b>	<b>151</b>	<b>129,057</b>	<b>326,764</b>

Source: Southern NH Planning Commission Projections.

For each SNHPC community, the change in the population and employment over the model's 30-year planning period is shown in Table 9 below.

*Table 9- Percentage Change in Socio-economic Data over the Planning Horizon (2010-2040)*

<b>Town</b>	<b>Retail</b>	<b>Service</b>	<b>Industry</b>	<b>Government</b>	<b>Agriculture</b>	<b>Household</b>	<b>Population</b>
Auburn	188%	62%	39%	51%	0%	32%	26%
Bedford	13%	23%	-2%	90%	0%	22%	22%
Candia	33%	44%	18%	82%	0%	27%	24%
Chester	123%	83%	17%	259%	0%	32%	35%
Deerfield	-10%	53%	10%	132%	0%	35%	34%
Derry	0%	42%	-32%	49%	-47%	9%	6%
Francestown	17%	35%	21%	15%	0%	17%	10%
Goffstown	-6%	19%	-30%	331%	-14%	30%	14%
Hooksett	73%	62%	-4%	232%	0%	28%	25%
Londonderry	19%	25%	50%	32%	-4%	36%	30%
Manchester	14%	37%	-32%	-5%	0%	16%	11%
New Boston	33%	52%	18%	98%	-33%	40%	35%
Raymond	26%	30%	47%	45%	0%	39%	28%
Weare	-23%	68%	39%	153%	0%	38%	42%
Windham	23%	47%	25%	19%	0%	35%	35%
<b>TOTAL</b>	<b>19%</b>	<b>36%</b>	<b>-2%</b>	<b>55%</b>	<b>-9%</b>	<b>22%</b>	<b>18%</b>

Source: Southern New Hampshire Planning Commission.

Regionally, total daily vehicle trips are expected to increase from 1,822,776 trips per day in 2010 to 2,217,022 in 2040. This increase is a result of 1) projected socio-economic growth in the 15 SNHPC communities and 2) overall background growth in statewide travel. This increase in generated trips is equivalent to an average increase of 0.7 percent annually. It should be noted that, as economic conditions change over the 30-year planning period, some years will experience accelerated growth in trips while other years will show slower growth. Predominant travel patterns will remain essentially unchanged throughout the 30-year planning period. In general, trips to/from Manchester will increase at a slower rate compared with elsewhere in the region because many Manchester TAZs have already or will soon reach their built-out capacity. As a result, additional growth will occur in other less built out portions of the region.

The 2040 average daily traffic volume assignments for 114 selected spot locations of the region's roadways are summarized on Exhibit 13A and Exhibit 13B. Projected growth at the 114 selected spot locations varies between -2.42 and 2.08 percent per year; assuming growth between 2010 and 2040 is uniform. On an overall basis, growth in terms of daily link volumes averages out to an annual rate of 0.60 percent.

A commonly used measure of the overall use of a region's highway system is the daily vehicle miles traveled (VMT) statistic. The 2040 projections using the No-Build highway network reveal that, overall, regional VMT will total 8,949,884 as compare to 7,377,860 in the base year. This growth in VMT translates into an average annual increase of 0.65 percent over the 30-year planning horizon.

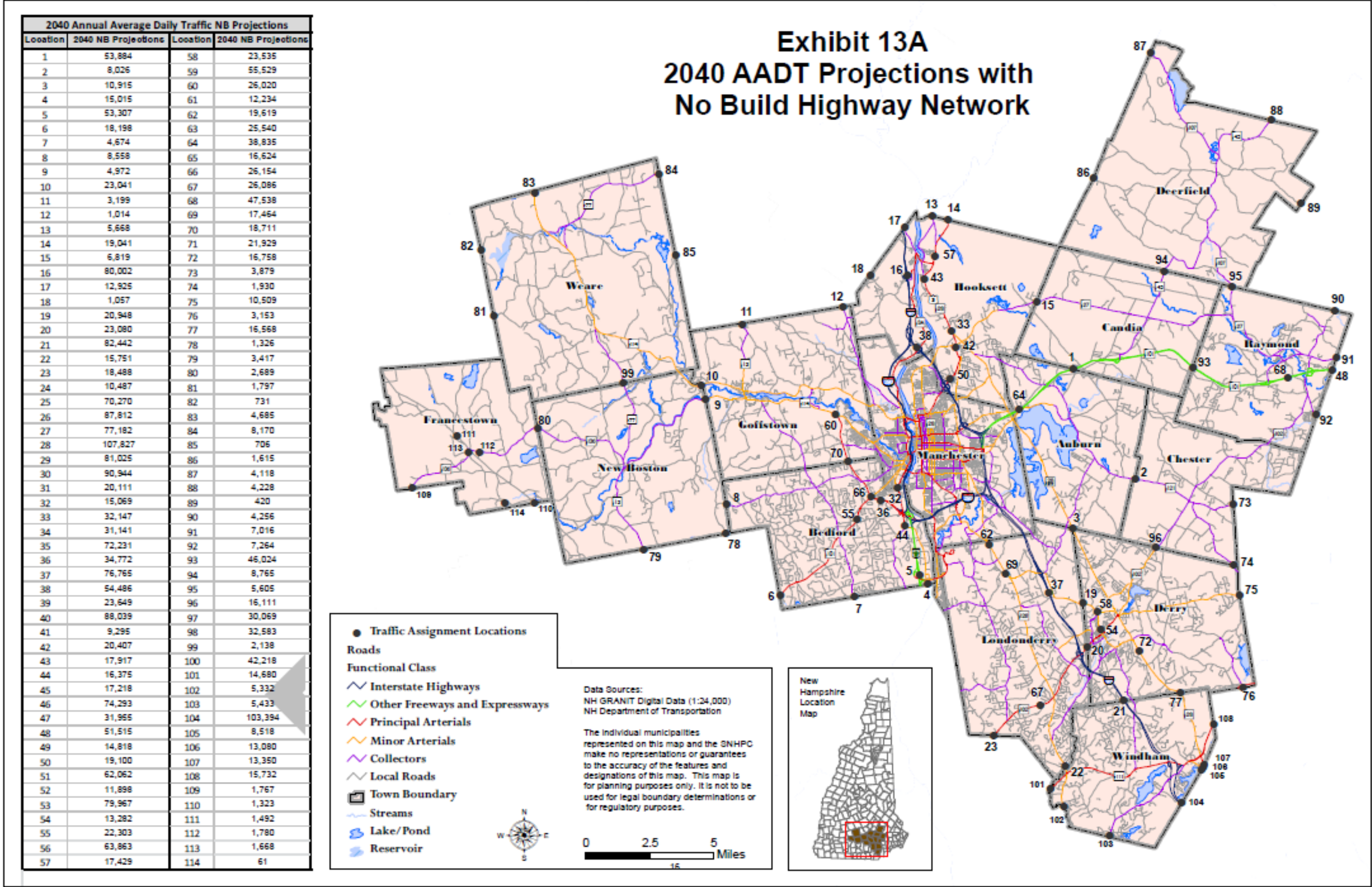
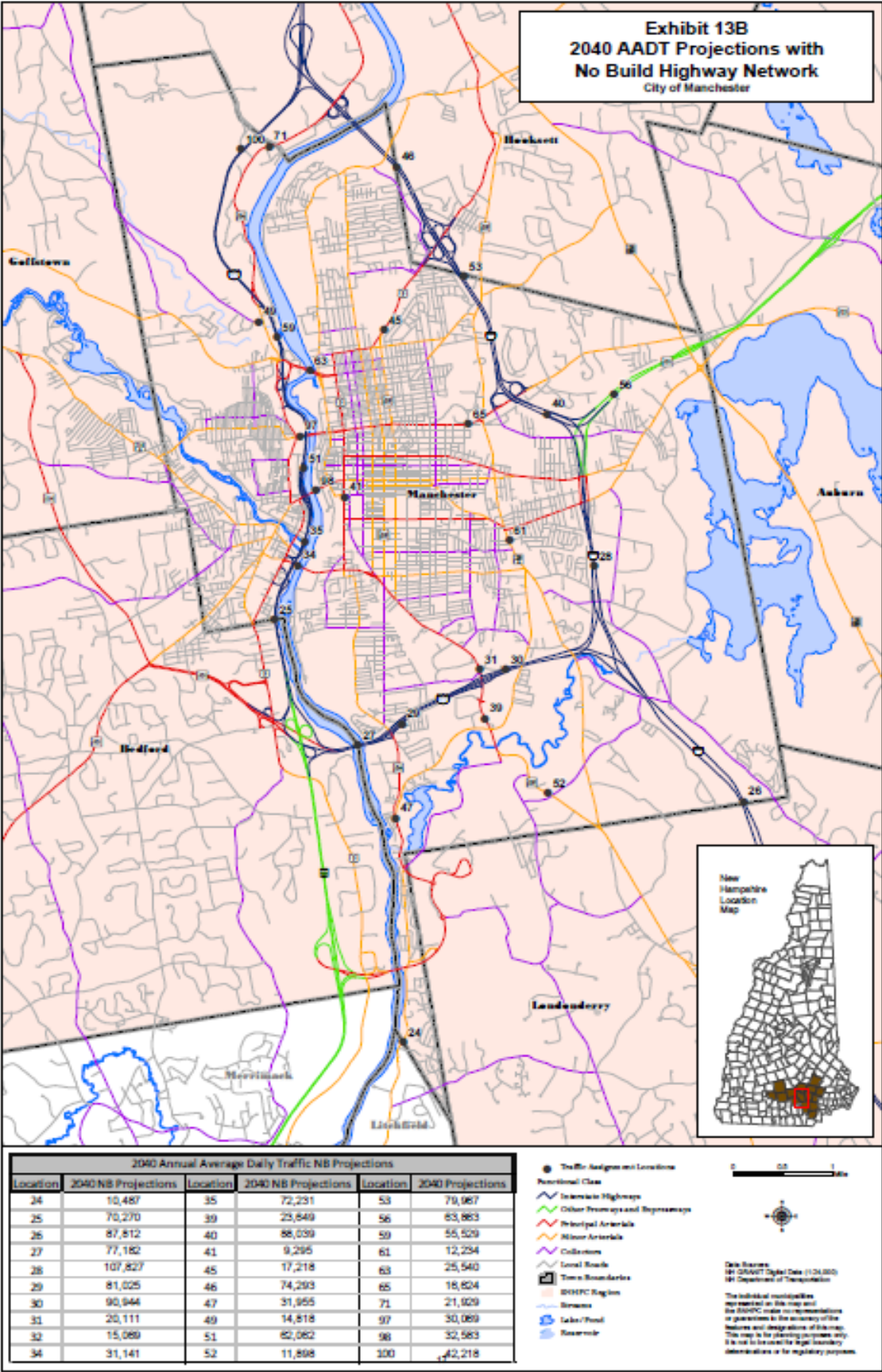




Exhibit #13A- 2040 AADT Projections with No Build Highway Network (City of Manchester)



#### 4.1.4 Evaluation/Deficiencies

The term “highway capacity” refers to the maximum number of vehicles that can be expected to traverse a section of roadway under certain prevailing traffic, roadway and control conditions. This term, usually expressed in vehicles per hour, refers to a rate of flow and not a total daily volume. Based upon the link capacities that are input into the model, roadway sections that are or will become capacity deficient were identified for the 2010 Base Year and 2040 No-Build (existing highway network assuming that no projects are completed) scenario.

The results of the 2010 Base Year assignment indicate that sections of highway currently operating at or over capacity during peak hour periods include:

- NH 101 between Wallace Road and NH 114 in Bedford;
- I-93 from I-293 in Manchester to the Salem town line in Derry;
- I-293 east and west of the F.E. Everett Turnpike in Bedford;
- U.S. 3 between the F.E. Everett Turnpike and Hawthorne Drive South in Bedford;
- I-293/F.E. Everett Turnpike between Exit 5 and I-293 in Manchester;
- South Willow Street from Weston Road to Harvey Road in Manchester;
- I-93 between Exit 7 (Hanover Street) and I-293 in Manchester;
- NH 101 from I-93 to Exit 1 (Londonderry Turnpike) in Manchester;
- Bridge Street between Beech Street and Mammoth Road in Manchester;
- NH 102 between Gilcreast Road in Londonderry and High Street in Derry;
- NH 3A (West River Road) from Hackett Hill Road (I-93 Exit 11) to Main Street in Hooksett;
- NH 111 between I-93 Exit 3 northbound ramps and southbound ramps; and
- NH 111 between North Lowell Street and Wall Street.

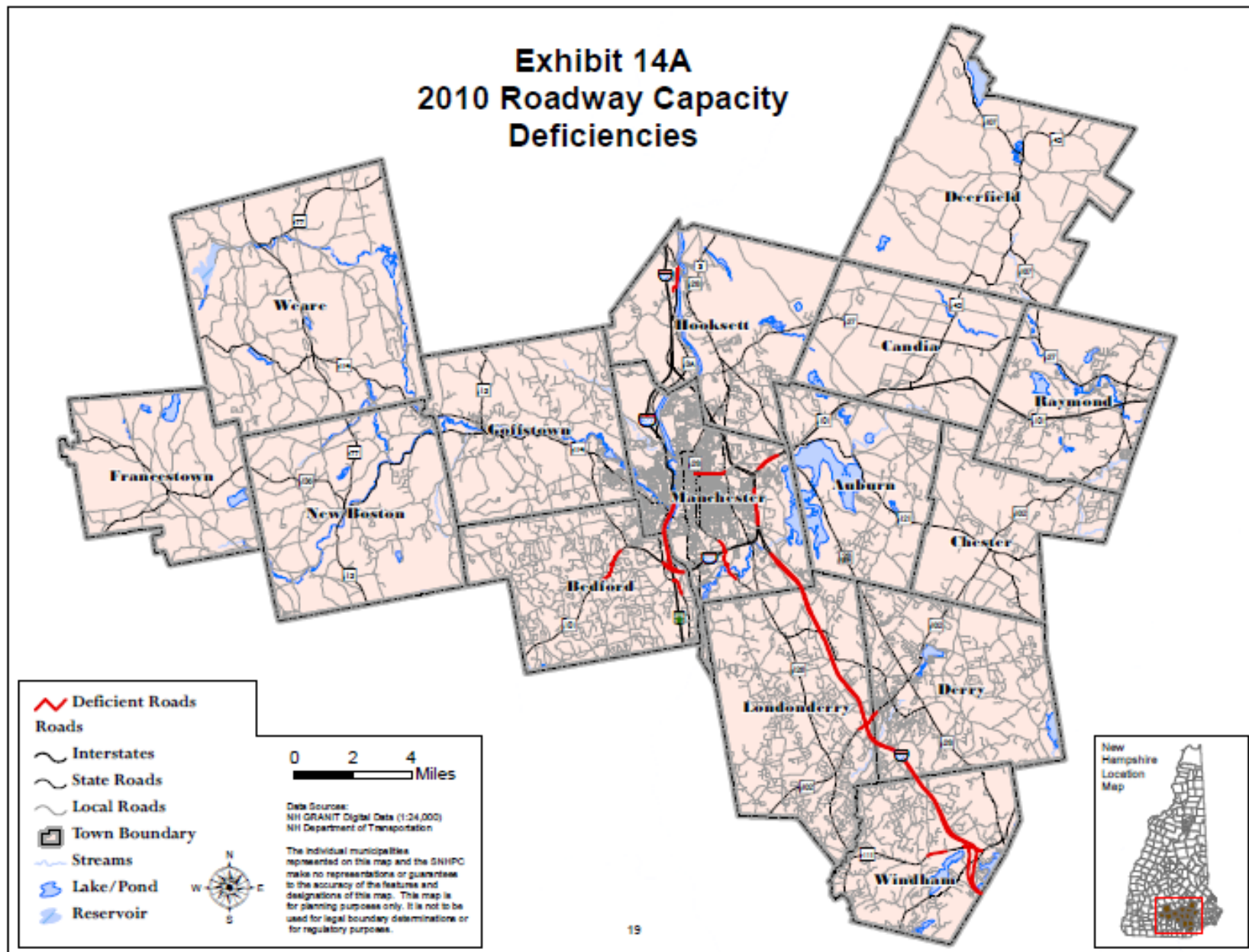
The results of the future No-Build assignment indicate that by 2040, the sections of highway currently operating at or over capacity during peak hour periods would expand to include:

- NH 101 between Wallace Road and Kahliko Lane in Bedford;
- NH 114 between NH 101 and New Boston Road in Bedford;
- NH 114/NH 114A between East Union Street and Daniel Plummer Road in Goffstown;
- NH 28/U.S. 3 between College Park Drive and the Allentown town line in Hooksett;
- NH 28/U.S. 3 between Morse Drive and Dartmouth Street in Hooksett;
- NH 28/U.S. 3 between Whitehall Drive and West Alice Avenue in Hooksett;
- I-293 between South Willow Street and I-93 in Manchester;
- NH 101 between Exit 1 in Manchester and Exit 2 in Auburn;
- Harvey Road between Pettengill Road and Litchfield Road in Londonderry;
- Litchfield Road east of NH 128 Mammoth Road in Londonderry;
- NH 28 between Stonehenge Road and the Derry town line in Londonderry; and
- NH 102/107 between NH 102 and NH 101 Exit 5 in Raymond.

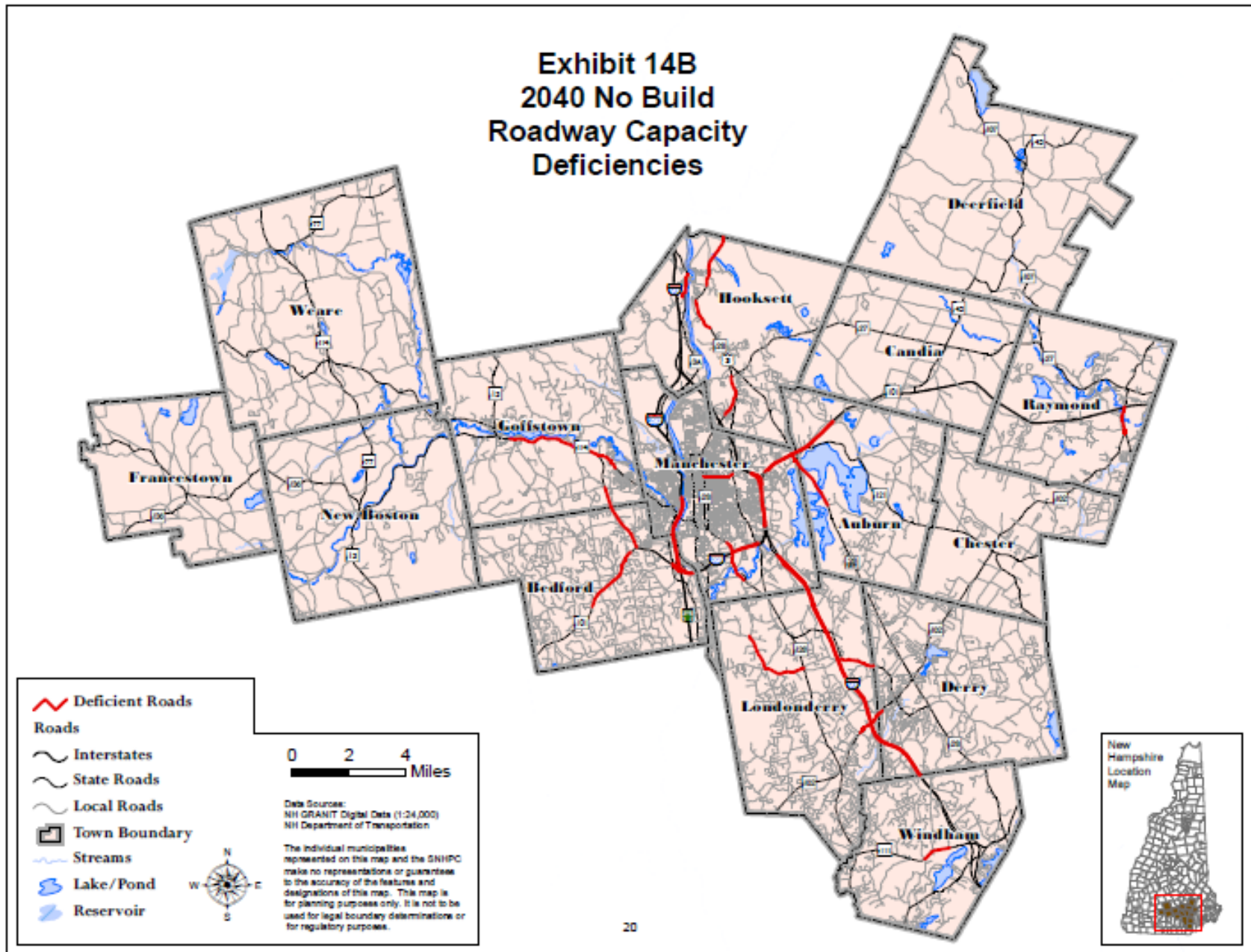
Exhibit 13A and B present the 2040 No-Build assignment. Exhibits 14A and 14B summarize the roadway capacity deficiencies identified from the Base Year and 2040 No-Build model results. A comparison of the congested roadway corridors in Exhibits 14A and 14B depicts the impacts of the incremental growth of traffic under a scenario where no improvements to the regional transportation infrastructure are implemented. The impacts of this growth in traffic, quantified in Section 3 of this chapter, represent an approximately 22 percent growth in trips and a 21 percent increase in daily vehicle-miles traveled over



this period. Under these conditions, without improvements to expand the capacity of the roadway network, travelers will experience increasing amounts of peak hour traffic congestion resulting in increased travel times, increased fuel consumption and increased vehicle emissions. Additionally, businesses operating commercial vehicles under these conditions will experience reduced productivity through increases in travel times and fuel costs.



*Exhibit #14B- 2040 No Build Roadway Capacity Deficiencies*



## 4.2 Transit and Other Modes of Transportation

Based on the current growth in ridership on the MTA and CART transit services in the SNHPC region, demand for transit appears to be increasing. Between 2006 and 2015, ridership on the MTA increased by approximately 11.9 percent from 439,625 rides in 2006 to 491,934 rides in 2015. Ridership on the MTA's StepSaver paratransit service decreased by 13.2 percent from 10,224 rides in 2004 to 8,876 rides in 2015. The reduction in ridership likely reflects MTA efforts to transition as many riders as possible from StepSaver to regular fixed-route service. Ridership on the CART system, which provides service to Chester, Derry and Londonderry in the SNHPC region, has increased steadily since the service was introduced in the Fall of 2006. During Fiscal Year 2015, ridership increased approximately 24.2 percent from 10,959 rides to 13,606 rides.

The demand for transit in the SNHPC region is likely to continue to increase due to several factors, among them 1) the growth of transportation-dependent groups lacking either the physical or economic resources to operate a private vehicle 2) the increasing cost of personal vehicular travel including vehicle costs, insurance, maintenance and parking and 3) increased focus on higher density, mixed-use "Smart Growth" developments.

In order to supply the growing demand for transit in the SNHPC region, additional funding is required for growth and expansion of transit services. The FTA Section 5307 funds that the MTA receives for operating and capital costs require a local match provided from an annual General Fund appropriation from the City of Manchester. For Fiscal Year 2015, this appropriation totaled \$1,108,560. The MTA currently relies on receipt of FTA 5307 operating funding in order to sustain its services. For Fiscal Year 2015, FTA funding and contributions from communities in the service area comprised approximately 86 percent of CART's annual revenues. CART has recently experienced the loss of a service area community and reduced funding from another town currently in the service area and growth of the system is currently being constrained by a lack of funding. Since 2010, ridership growth has been impacted through a limit on monthly service hours necessitated by funding limitations. CART and MTA currently receive no operating funding from the State. Additional dedicated sources of funding will be required in the future to enable the MTA and CART to continue to grow and meet the demand for transit services in the SNHPC region. Chapter VIII (Financial Plan) of this document contains estimates of funding required for transit services in the SNHPC region.

For many of the same reasons discussed in the previous section, other modes of transportation will receive greater attention in the future. Truck freight carriers and railroads will continue to share the movement of heavy, bulk cargos. Road and highway improvements and scheduled maintenance will be required to maintain the efficiency of these modes. The SNHPC will continue to promote vehicles, bicycles, and pedestrians sharing the roads, and trails planning to serve transportation, recreation, and health purpose and the provisions of FAST Act will continue to stress the importance of bikeway and pedestrian. Intermodal facilities are expected to be improved during future years as the popularity of alternative modes of transportation increases. Expansion and improvements at Manchester-Boston Regional Airport will continue to promote the attractiveness of this facility and increased passenger activity at the facility is expected to continue. Finally, major metropolitan areas will need railroads to carry passengers and freight in the future as population and business activity in the region increases and more efficient and interconnected forms of transportation are required to sustain the quality of life for those who live and work in the region. The New Hampshire Department of Transportation sponsored the New Hampshire Capitol Corridor Rail and Transit Alternatives Analysis and the study completed in December, 2014. The detailed report can be found on the website: <https://www.nh.gov/dot/org/aerorailtransit/railandtransit/corridor-rail-transit.htm>. The study estimates 3130 daily ridership on the Manchester Regional Commuter Rail, which translates about 16,651 VMT reduction within the SNHPC region.

### 4.3 Summary

The SNHPC maintains and updates a regional transportation model to assess the adequacy of the existing highway network in the region with respect to current traffic levels, future land use changes and planned changes to the highway system. The model utilizes the standard four-step process which includes: 1) Trip Generation; 2) Trip Distribution; 3) Modal Split and 4) Traffic Assignment. The modeling process involves development of a base year (i.e. 2010) traffic assignment that reasonably represents travel activity in the region. The accuracy of the model is determined through a validation process recommended by Federal Highway Administration (FHWA).

Once the travel demand model has been determined to reasonably represent base year travel activity, it is then used to forecast traffic for a future horizon (i.e. 2040) year. Forecasting future traffic on the regional road network involves utilizing projections for socio-economic variables such as population, dwelling units, employment. The results of the horizon year trip distribution are used to predict increases in total daily vehicle trips during the period from 2010 to 2040. Total daily vehicle trips in the region are expected to increase from 1,822,776 trips per day in 2010 to 2,217,022 in 2040. This increase is a result of projected socio-economic growth in the SNHPC communities and overall background growth in statewide travel. The results of the 2040 traffic assignment reveal that overall, daily vehicle miles (VMT) travelled in the region will increase to 8,984,884 from 7,377,680 in the base year.

In this chapter, the 2040 horizon year traffic assignment has been used to demonstrate the impacts of the incremental growth of traffic for a scenario where no improvements to the regional transportation infrastructure are implemented (i.e. 2040 no-build). A comparison of highway traffic volume for the 2010 base year and 2040 no-build scenarios has indicated that the growth in traffic is anticipated to increase the sections of highway within the region that would operate at or over capacity. Under the 2040 no-build scenario conditions, without improvements to expand the capacity of the roadway network, travelers would experience increasing amounts of traffic congestion resulting in increased travel times, fuel consumption and vehicle emissions. The results of the 2040 no-build scenario demonstrate the need for improvements to the transportation infrastructure in the future.

Transportation projects involving transit, bicycle and pedestrian modes will also play an important role in addressing the growth in traffic in the region. Demand for transit in the region appears to be increasing and is likely to continue to increase due to the growth of transportation-dependent groups, increases in the cost of owning and operating a private vehicle and increased focus on higher density, mixed use developments. Development of projects involving bikeway and pedestrian multi-use paths, and trails are expected to continue and the provisions of FAST Act will continue to stress the importance of these modes. Finally, consideration must be given to the fact that, as population and business activity increases, more efficient and interconnected forms of transportation will be required to sustain quality of life for those who live and work in the region.



## CHAPTER V

### TRAVEL DEMAND FORECASTS - BUILD NETWORK

#### 5.1 Background

Exhibit 16 in Chapter VII provides an extensive list of transportation projects derived from previous studies, the Regional Transportation Plan/Ten-Year Plan process and numerous other sources. Approximately 20 of these federally funded and regionally significant projects are included in the regional travel demand model. To evaluate the impact that each project will have on the region, roadway (AADT) volumes, vehicle-miles and vehicle-hours traveled and emissions for future year traffic assignment were determined using the regional transportation model.

A traffic assignment, prepared for the year 2040 build-out scenario is evaluated in detail in this chapter. Table 5-1 summarizes projects included in the regional travel demand model the year 2040 build-out scenario.

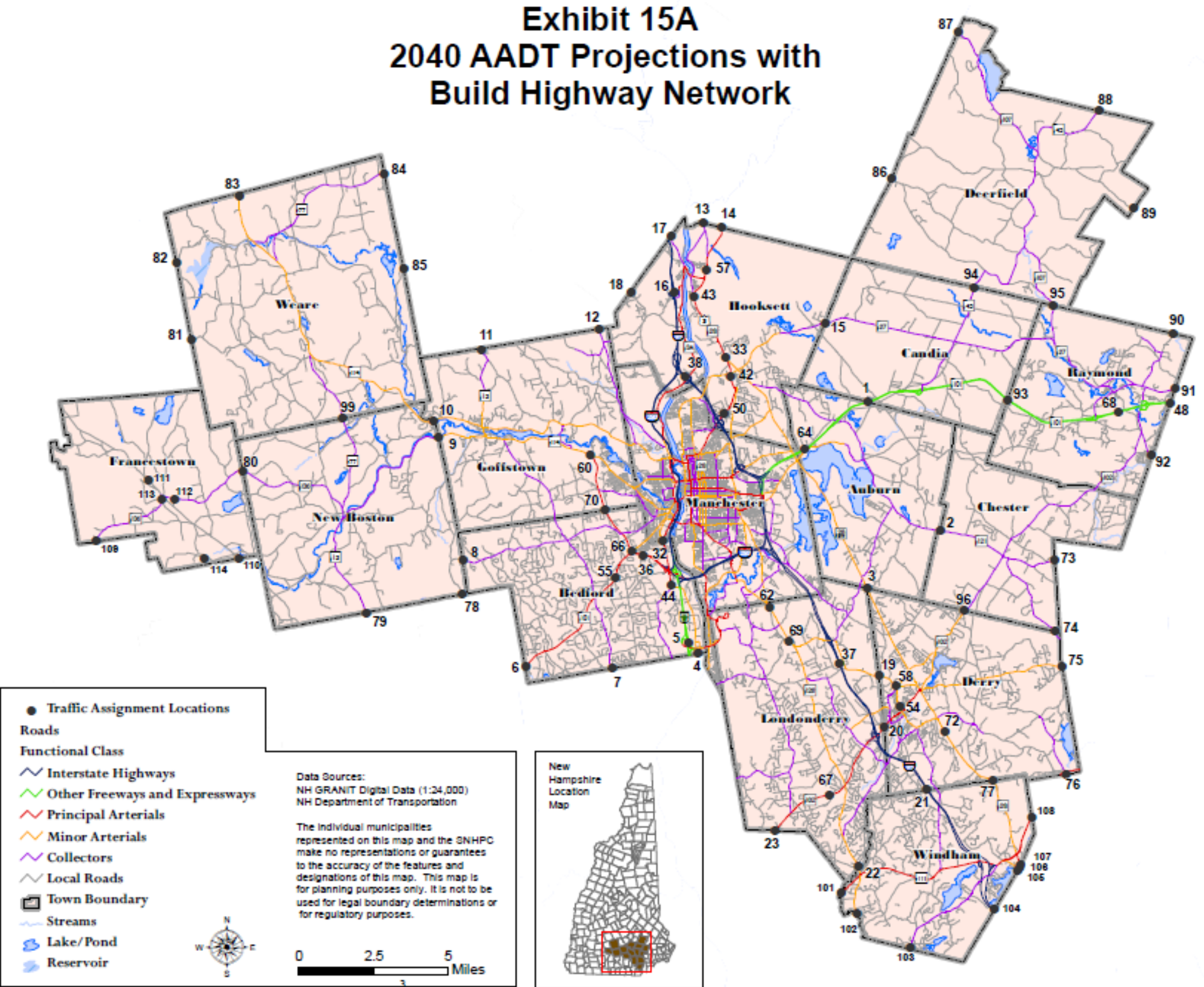
#### 5.2 Traffic Assignments

The average daily traffic volume assignments for year 2040 No-Build and Build future scenarios are summarized in Exhibits 13A and 13B (Chapter IV), and 15A and 15B. Examples of regionally significant highway projects that will impact future travel behavior traffic patterns include:

<u>Regionally Significant Project</u>	<u>Completion Year</u>
1. US 3/NH 28 (Hooksett)	2036
2. Re-Construct Exit 6/7 on F.E.E.T. (Manchester)	2028
3. I-93 Exit 4A (Derry and Londonderry)	2022
4. I-93 Widening (Manchester, Londonderry, Derry, Windham)	2020
5. Re-construct Exit 4 on F.E.E.T. (Manchester)	2040

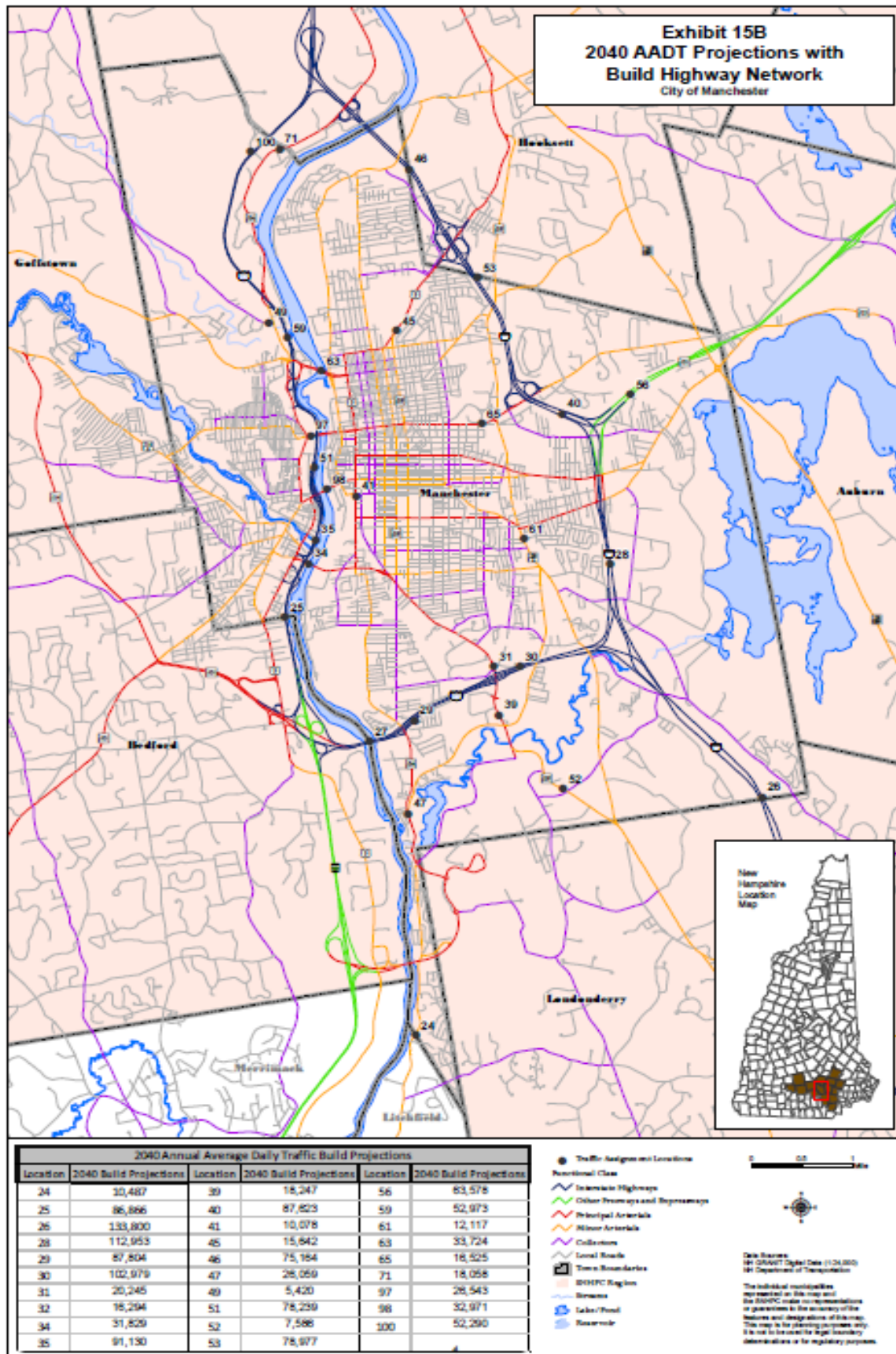
The year 2040 No-Build and Build traffic assignments summarized in Exhibits 13A, 13B, 15A and 15B are based upon reasonable projections for long-term regional growth, as described in detail in Chapter IV. Although site specific development proposals are generally not considered directly in the assignment process, the future impacts of regionally significant projects such as the widening of the I-93 corridor are included. Several of the alternative highway network proposals, when constructed, will service not only existing travel demand and normal growth, but will also increase capacity and the potential for new development. This is a function of the cyclical process of land use and transportation where a direct relationship exists between transportation improvements and new development construction. SNHPC is committed to assisting in the development of an efficient and coordinated multi-modal transportation system that contributes to the consistency between transportation improvements and State and local planned growth and economic development patterns.

2040 Annual Average Daily Traffic NB Projections			
Location	2040 Build Projections	Location	2040 Build Projections
1	54,602	58	14,199
2	7,572	59	52,973
3	5,574	60	24,655
4	15,015	61	12,117
5	54,298	62	12,251
6	18,198	63	33,724
7	4,675	64	36,889
8	8,278	65	16,525
9	5,073	66	23,611
10	23,057	67	21,915
11	3,199	68	47,880
12	1,014	69	15,549
13	5,668	70	16,522
14	19,041	71	18,058
15	6,896	72	13,218
16	80,001	73	3,879
17	12,925	74	1,930
18	1,057	75	10,508
19	15,055	76	3,153
20	19,075	77	11,121
21	102,436	78	1,326
22	12,589	79	3,471
23	25,326	80	2,708
24	10,487	81	1,797
25	86,866	82	732
26	133,800	83	4,686
27	83,607	84	8,171
28	112,953	85	706
29	87,804	86	1,612
30	102,979	87	4,118
31	20,245	88	4,228
32	16,294	89	420
33	17,588	90	4,256
34	31,829	91	7,019
35	91,130	92	7,264
36	34,705	93	46,447
37	118,050	94	9,481
38	59,235	95	4,887
39	18,247	96	14,218
40	87,623	97	26,543
41	10,078	98	32,971
42	14,751	99	2,072
43	18,504	100	52,290
44	17,567	101	14,686
45	15,642	102	5,332
46	75,164	103	5,433
47	26,059	104	103,393
48	51,514	105	8,518
49	5,420	106	13,080
50	14,350	107	13,349
51	78,239	108	16,607
52	7,586	109	1,767
53	78,977	110	1,313
54	11,759	111	1,498
55	24,767	112	1,805
56	63,578	113	1,667
57	16,542	114	61





*Exhibit #15B- 2040 AADT Projections with Build Highway Network (City of Manchester)*



### **5.3 Overall Transportation Impacts – 2040 Horizon Year**

#### *5.3.1 Regional Traffic Volumes*

Travel patterns and volumes on the region's highway system will change as a result of the new highway alignments and capacity improvement projects specified in the composite highway network. A comparison of year 2040 No-Build and Build traffic assignments shows that, as a result of the Build projects, traffic decreases such as on portions of South Willow Street in Manchester, on Crystal Avenue in Derry, on portions of NH 102 east of I-93 in Derry, on NH 28/US 3 and NH 28 By-Pass in Hooksett, will occur. Other areas, such as those in the vicinity of the I-93 widening project, will experience increases in traffic as a result of the projects included in the Build scenario. Traffic volumes produced by the regional travel demand model are expressed in Annual Average Daily Traffic (AADT).

#### *5.3.2 Regional Vehicle-Miles Traveled (VMT)*

A comparison of overall regional VMT for year 2040 indicates that the 8,957,759 No-Build region-wide VMT figure will be increased to 9,175,490 as a result of the Build scenario projects. This represents an increase of about two percent with the Build network in place. Regional VMT increases as a result of new highway facilities that increase trip lengths for some origin-destination paths by providing a longer but safer and more efficient route.

#### *5.3.3 Regional Vehicle-Hours-Traveled (VHT)*

In the regional travel demand model, vehicle-hours traveled (VHT) accounts both for travel speed and traffic volumes on a region-wide basis. The results of the regional travel demand modeling process indicates that as a result of the Build network, total year 2040 VHT will decrease by 17.8 percent compared with the year 2040 No-Build scenario.

#### *5.3.4 Regional Vehicle Emissions and Conformity Determination*

The Clean Air Act requires a conformity demonstration of the RTP and TIP in any area designated as “non-attainment” for a pollutant for which National Ambient Air Quality Standard (NAAQS) exists. On January 31, 2013, EPA approved the State of New Hampshire’s request to redesignate the Boston-Manchester-Portsmouth (SE) New Hampshire, including of all SNHPC communities except Deerfield, Francestown, New Boston and Weare, moderate 8-hour ozone nonattainment area to attainment for 1997 8-hour ozone NAAQS taking effect on March 4, 2013. As a result, the RTP and TIP do not require a conformity demonstration for ground level ozone. In addition, EPA approved a State Implementation Plan (SIP) revision submitted by the State of New Hampshire, which establishes carbon monoxide (CO) limited maintenance plans for the City of Manchester. As part of the limited maintenance plan, New Hampshire will continue year-round CO monitoring at the Londonderry Moose Hill station in Londonderry, New Hampshire with triggers to reestablish CO monitoring sites in Manchester if elevated CO levels are recorded in Londonderry. In accordance with the Clean Air Act, future carbon monoxide transportation conformity evaluations for Manchester will, for the length its limited maintenance plans, be considered to satisfy the regional emissions analysis and “budget test” requirements. This rule is effective on April 9, 2014.

### 5.3.5 Impacts of RTP Projects on Regional Travel

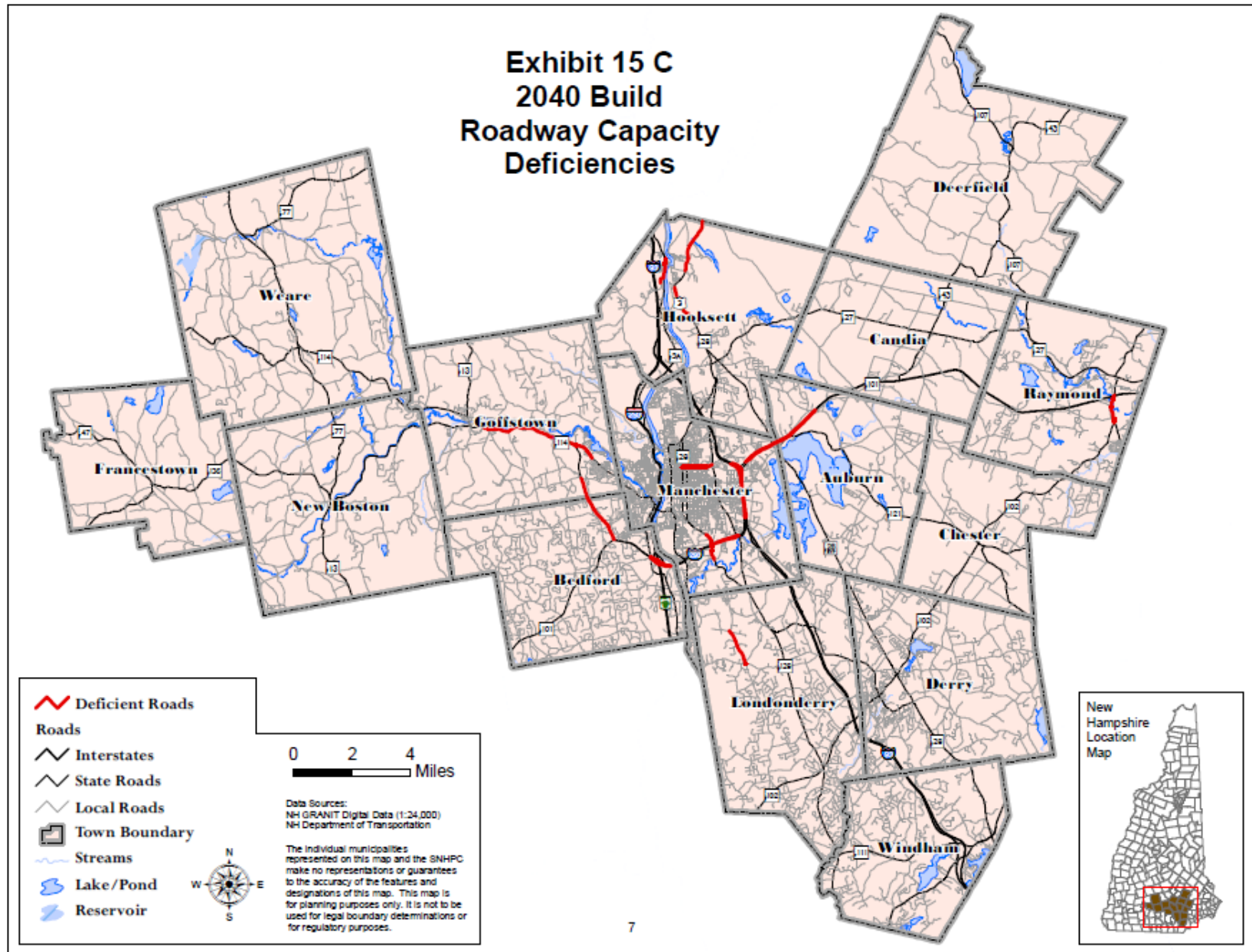
Exhibits 14A and 14B in Chapter IV (Travel Demand Forecasts - No-Build) of the RTP included information describing those portions of the SNHPC roadway network estimated by the regional travel demand model as currently (2010 base year) operating at or over capacity. The results of the base year assignment indicated that sections of highway currently estimated to be operating at or over capacity included segments such as portions of NH 101 in Bedford, I-93 and I-293 in Londonderry and Manchester, NH 102 in Londonderry, and NH 3A in Hooksett. These “at-capacity” highway segments were also estimated in Chapter IV for a year 2040 future “No-Build” scenario assuming that no regional highway improvement projects are constructed. Assuming this scenario, the list of “congested” highway links increased to include additional segments of NH 101 in Auburn, NH 102 in Raymond, segments of NH 111 in Windham, NH 114A in Goffstown, and additional segments of NH 114 in Goffstown.

Exhibit 15C presents the results of a scenario designed to illustrate the impacts of transportation projects currently included in the RTP (including the FY 2017 – FY 2020 TIP and FY 2017 – FY 2040 Regional Transportation Plan). The estimated impacts of the various transportation projects included in the RTP, combined in a “year 2040 Build” regional travel demand model assignment, are presented in this exhibit. Through a comparison of Exhibits 15C with similar figures for the 2010 base year and year 2040 No-Build scenarios, the impact of the implementation of the RTP projects on regional travel can be estimated. It should be noted that 1) Figures 15A, 15B, and 15C represent computer simulated estimates of regional travel conditions and 2) the 2040 Build scenario includes RTP projects that have not been approved for funding at the Federal, State or local levels. Rather, the results of the year 2040 Build scenario are designed to illustrate the impacts of a comprehensive and committed regional approach to transportation planning. Table 10 below summarizes some of the benefits of implementation of the RTP projects as illustrated in the year 2040 Build scenario.

*Table 9- Regional Congestion Mitigation*

2040 No-Build Congested Location		2040 Build Mitigation
Location	Facility	Project
Manchester	NH 28 (South Willow Street)	I-93 Widening
Derry, Londonderry	NH 102, NH 28	NH 102 Improvements, I-93 Exit 4A, I-93 Widening
Bedford	NH 101	NH 101 Widening, Safety Improvements
Manchester, Londonderry, Derry, Windham	I-93	I-93 Widening, I-93 Exit 4A
Hooksett	US 3/NH 28	US 3/NH 28 Bypass, Widening
Auburn	NH 28 Bypass	I-93 Widening
Londonderry	Harvey Road, Industrial Drive	Pettengill Road Construction, I-93 Widening
Windham	NH 111	NH 111 Improvements
Manchester	I-293	I-293 Exit 6 and 7





### 5.3.6 *Congestion Management Process*

Previous sections of this chapter have illustrated the potential regional travel benefits of implementing transportation projects currently included in the RTP. The implementation of these projects would benefit regional travel through 1) reductions in regional vehicle-hours traveled and 2) a continuance of regional air quality conformity to the State Implementation Plan.

The previously described process utilizes regional travel demand estimation techniques to model a future 2040 scenario. Through the cooperation of FHWA, NHDOT and other New Hampshire MPOs, SNHPC is also implementing strategies to integrate measures of the performance of the current transportation system to assist in the development of planning and programming processes for future transportation projects evaluated in the RTP.

A Congestion Management Process (CMP) is a set of actions linked to planning and environmental review processes providing for effective transportation system management and operation. The CMP is based on pre-determined travel demand reduction and operational management strategies and additional measures designed to increase capacity. When integrated into the RTP, it can be used to identify congested locations, determine the causes of congestion, develop alternative strategies to mitigate congestion, evaluate the potential of different strategies and track and evaluate the impact of previously implemented strategies.

The development of the Congestion Management Process for the SNHPC Region (SNHPC CMP) provides an opportunity to integrate system performance measures in planning and programming by incorporating monitoring and evaluating performance of the multi-modal regional transportation system. This process will lead to better coordination between the long-range RTP and short-range TIP through setting strategic goals, increasing public accountability and improved communication between regional stakeholders. The SNHPC CMP will serve as an integrated process to augment overall metropolitan planning. This will be accomplished by providing a systematic, transparent way for transportation planning agencies to identify and manage congestion and utilize performance measures to direct funding toward those projects and strategies that will most effectively address congestion.

Federal transportation law requires that MPOs serving the same Transportation Management Area (urbanized area with a population over 200,000, as defined by the U.S. Census Bureau) must develop a CMP to address congestion. At the time of the development of the CMP, the Census Boston Urbanized Area included portions of the RPC, NRPC and SNHPC regions and as a result, these organizations collaborated on the development of CMPs with the assistance of the FHWA. The New Hampshire MPOs established CMPs in 2010.

The starting point for the SNHPC CMP was the development of regional objectives for congestion management. The objectives chosen reflected the need to address regional visions and goals from the SNHPC RTP, such as, "[T]o ensure that the long-range transportation needs of the region are addressed while continuing to emphasize the importance of maintaining and preserving the existing transportation system...", "[T]o contribute to the development of an accessible and efficient system of streets and highways that provides for the safe, secure and cost-effective movement of motorized and non-motorized users throughout the region..." and "[T]o continue long-range highway planning on an area-wide scale to provide the framework for improvement program priorities, scheduling and funding." Additionally, congestion reduction is also included as a national performance highway goal in FAST Act.

SNHPC is developing its CMP to 1) in the short-term, coordinate with and assist other regions in its efforts to monitor and manage congestion in the portion of the Boston Urbanized Area and 2) in the

long-term, develop the methodology for a CMP for the Region more fully in anticipation of possible expansions or modifications to Census Urbanized Areas in the southeastern portion of the State. Based on the long-term goal of the SNHPC CMP, the entire SNHPC region was chosen as the network for the CMP. With the release of the 2010 Census Urbanized Areas, the Boston urbanized area has been expanded and now contains portions of Candia, Chester, Derry and Raymond in the SNHPC region.

The next step in the SNHPC CMP was the development of multi-modal performance measures. The performance measures chosen are being used to measure congestion on a regional basis and on a more local scale to identify locations with congestion problems and to measure the performance of individual segments or system elements.

The SNHPC Unified Planning Work Program has, for over ten years, contained work elements designed to monitor and evaluate the characteristics and operations of the existing regional transportation infrastructure. This work element was used to develop performance measures and a data collection/system performance monitoring methodology for the SNHPC CMP. The Congestion Quantification Study was originally designed to measure vehicle congestion on the regional roadway network by measuring travel times during peak and off-peak periods. The results of the Congestion Quantification Study have been used to 1) quantify travel times on the regional roadway network; 2) provide information for input to the regional travel demand model; 3) provide inputs for air quality analyses and regional air quality planning and 4) estimate fuel consumption rates and costs related to traffic delays and regional congestion.

Congestion, as originally developed for the Congestion Quantification Study, is defined as “...travel time or delay in excess of that normally incurred under light or free-flow travel conditions...”. Highway congestion is caused when traffic demand approaches or exceeds the available capacity of the highway system. Traffic demands vary significantly depending on the season of the year, the day of the week, and the time of day. A significant portion of traffic congestion consists of recurring congestion where levels of demand exist such that road use normally exceeds existing capacity. The remaining portion of traffic congestion is nonrecurring congestion caused by temporary disruptions such as unanticipated traffic incidents such as accidents, planned traffic incidents such as roadway construction and public events and weather related delays. As measurement of recurring congestion is the focus of this work, for the Congestion Quantification Study and subsequently for the SNHPC CMP, traffic congestion is defined as “the measured difference in travel time between off-peak and peak travel periods.”

SNHPC has undertaken cooperative travel time data collection efforts with other New Hampshire MPOs in an effort to compile additional data for the CMP. SNHPC has collaborated with Rockingham Planning Commission on development of a travel time data collection methodology for the I-93 corridor. Additionally, SNHPC collaborated with the Nashua Regional Planning Commission on a joint travel time data collection effort on the NH 101 corridor in the NRPC towns of Amherst, Milford and Wilton, as well as the Town of Bedford in 2014, on the NH 102 corridor in the NRPC town of Hudson, and SNHPC towns of Londonderry, Derry, Chester and Raymond in 2016, on the NH 111 corridor in the NRPC town of Hudson, and SNHPC town of Windham in 2016.

An additional multi-modal performance measures has also been incorporated into the SNHPC CMP. This performance measure was established cooperatively in consultation with the MTA, which operates fixed-route buses in the CMP network. On the current MTA system, as in many areas in the State, passenger overcrowding on transit vehicles is not a major operational issue. This is generally due to the fact that transit ridership, estimated to account for less than 0.5 percent of total trips in the region, represents an insignificant percentage of total travel activity in the region. However, in a continuing effort to maintain and improve the quality of service, MTA currently tracks performance of its fixed-route

buses. Transit schedule adherence is also included as a performance measure for the SNHPC CMP, and with the assistance of MTA, SNHPC has begun to regularly monitor fixed-route bus performance and include this information as a performance measure input to the CMP.

## **5.4 Regional Need for Alternatives to Highway Transportation**

Based on the information included in the previous section, it is evident that improvements in travel and air quality can be obtained through a comprehensive and committed regional approach to transportation planning. However, based on the existing nature of transportation in the SNHPC region, the benefits outlined described earlier include those obtained primarily through the implementation of highway projects. Future population growth and related increases in business activity and residential development will have a direct impact on travel involving all transportation modes. New highways improve access and, in turn, provide a better business climate that encourages economic development. Assuming continuing regional growth and the current emphasis on road-based ground transportation, it is becoming increasingly evident that, in order to sustain general economic productivity and economic growth, the development of a multi-modal transportation system to improve traffic efficiency and safety for commercial and private vehicles must be emphasized. It is also likely that, by the year 2040, in order to sustain this growth, alternative modes will be relied upon to supply an increasing share of the demand for transportation. Previous sections of this document have outlined the numerous plans, projects, programs and other activities of SNHPC that contribute to the development of a multi-modal transportation system in the region. The following sections provide a discussion of these activities and how they will contribute to the development of this more efficient and safer multi-modal transportation system.

### *5.4.1 Bikeway/Pedestrian Facilities*

SNHPC will continue to emphasize the need for multi-modal transportation which includes consideration of the importance of pedestrian and bicycle facilities in this system. Encouraging efficient use of the transportation infrastructure through the development of a multi-modal system focused on modes such as walking and cycling will result in 1) reducing the impact of vehicular transportation on our limited fuel supplies and land resources; 2) reducing the negative impacts of hydrocarbon combustion (fossil fuel) on air quality; and 3) reducing traffic congestion at major intersections and in densely populated areas. These priorities suggest the need for increasing use of bikeway and pedestrian facilities to not only expand capacity and improve travel efficiency, but also to provide other benefits such as improved health, safer streets, more vibrant downtown areas and increased economic activity and property values. Many of these benefits can be realized through focus on Pedestrian-Oriented Development and a “Complete Streets” approach to roadway network design at the local level. Developments and improvements emphasizing alternative modes of transportation will provide the infrastructure required for individuals to take the opportunity to modify their travel behavior.

In addition to specific completed projects such as assisting the NHDOT in an update of State Bicycle Maps, completion of the Manchester Downtown Pedestrian Study and Safe Routes to School Travel Plans for Wilson and Weston Elementary Schools, SNHPC is also involved in numerous other activities promoting and advancing biking and walking as alternative modes of transportation in the region. The update of the Livable, Walkable Community (LWC) Toolkit was developed as a resource to 1) improve the livability of New Hampshire communities and 2) increase rates of physical activity among residents throughout the state. The Toolkit is a resource to bring together citizens and stakeholder groups to develop local action plans for becoming more livable, walkable communities. The updated Toolkit serves

as an educational and community planning resource to inform and educate communities, planning professionals and policy makers on how they can reshape the built environment to encourage and implement safe places for walking and biking.

SNHPC is currently participating, along with NHDOT, RPC and local trail stakeholder groups in the Regional Trails Coordinating Council (RTCC). The RTCC was designed to build upon the past work of the Manchester Regional Trails Alliance to assist member organizations in the development and implementation of a comprehensive trail plan. The RTCC strives to facilitate biking and walking through the connection of existing and planned trail networks in the region by providing a forum for cooperation and collaboration among trail organizations. It also serves as an information clearinghouse for regional trails stakeholders. The RTCC is currently developing and implementing a comprehensive plan to complete regional north/south and east/west corridors by identifying and pursuing sources of funding, fundraising and prioritizing trail sections.

SNHPC will also continue to promote the development of and pedestrian and bicycle facilities through its participation in the Transportation Enhancement (TE) and Congestion Mitigation and Air Quality Improvement Program (CMAQ) programs. The CMAQ program provides assistance for air quality improvement and congestion mitigation projects in urbanized areas which have been identified as non-attainment. Projects eligible for CMAQ funding include construction of bicycle and pedestrian facilities that are not exclusively recreational and establishing and funding State bicycle/pedestrian coordinator positions for promotion and facilitation of non-motorized transportation modes. The TE program is designed to fund activities such as provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists and preservation of abandoned railway corridors designed to develop and reinforce “livable communities”.

In an effort to develop a multi-modal transportation network that emphasizes cycling and walking, SNHPC will continue to facilitate and encourage these modes as convenient, safe, and practical forms of transportation. Goals related to this effort include establishing continuous and coordinated regional bikeway and pedestrian walkway systems and link this system with others in adjacent towns and regions. Previous sections of this plan emphasized project level actions required facilitate this goal such as promoting more compact development to reduce distances between origin and destination points, actively considering bicycle and pedestrian needs at every stage of the planning and development process and building community support and awareness of biking and walking.

#### *5.4.2 Transit*

SNHPC is actively involved in the development of public transit in the region, from assisting the MTA in the provision of fixed-route and demand-response services in the region and participating in the planning and management of services offered by the CART in the greater Derry-Salem area. SNHPC is also participating with NHDOT and the New Hampshire Department of Health and Human Services in a project to coordinate community transportation services on a statewide basis. With its participation in these projects, SNHPC is actively engaged in the fulfillment of many of the goals of the RTP such as support for efforts to provide efficient and cost-effective bus services and investigating opportunities promote the expansion of public transportation services on a regional scale.

Much of SNHPC’s recent transit work has been designed to provide improvements in service both to transit-dependent populations in the region as well as to choice riders who may not regularly use transit. The success of transit in the region depends heavily on attracting both types of riders. SNHPC is currently assisting CART in the development of fixed-route services in the greater Derry-Salem area. These fixed routes will enable CART to provide more cost-effective services for riders taking multiple



trips per week to common destinations. In August 2010, MTA began operation of its Green DASH service which provides free transportation in downtown Manchester. The Green DASH, which provides ten-minute headway service between 7:00AM and 7:00PM, is designed as an alternative to using single-occupant automobiles for short trips within the downtown. The Green DASH is funded through a CMAQ grant and a local match provided by the Manchester Parking Department.

Chapter III of the RTP outlined many of SNHPC's current transit initiatives. Many of the Commission's current transit activities deal with continuing support and assistance for existing transit services and other initiatives, such as the pursuit of a fully regional transit system and expansion of passenger rail services into southern New Hampshire, that involve new services. One element that all existing transit services and proposals for future services have in common is the need for funding for operations and capital replacement. Because of competing economic priorities at the local level, communities in the region are challenged to provide local matching funds sufficient to sustain transit at current operating levels. Providing funding to expand transit services above their current levels will be even more challenging. Chapter VIII (Financial Plan) identifies revenues from various Federal, State and local sources available for funding transit projects. However, because the funding projections identified in Chapter VIII are assumed to be sufficient only for maintaining the current service levels and replacement of capital, additional funding will be required for growth and expansion of transit in the region. It appears evident that, in order to expand transit in the SNHPC region, sources of dedicated transit revenue must be identified.

#### *5.4.3 Multi-Modal Transportation Facilities*

The development of transportation facilities where passengers and freight can transfer seamlessly between various modes is essential to the development of effective transportation in the region. Chapter II of the RTP refers to a related goal of "...assisting in the development of a safe, secure, efficient, accessible, and coordinated multi-modal transportation system that provides for cost-effective movement of people and goods within and through the region". SNHPC is committed to the development of these facilities in the region. Manchester-Boston Regional Airport (MBRA), which serves as the region's largest multi-modal transportation facility, is not only the largest commercial air traffic facility in the State but also a major economic engine for the region. In addition to expanding MBRA's capability to serve existing and future demand for passenger and freight air services, SNHPC is currently working on projects designed to improve accessibility to MBRA through improved links with bus and rail public transportation modes. Regularly scheduled bus service between the Portsmouth Transportation Center and MBRA began in Fall 2012. The service is being funded through a CMAQ grant based on a feasibility study completed by SNHPC and Rockingham Planning Commission.

The FY 2011 – FY 2020 New Hampshire Ten-Year Transportation Improvement Plan contained approximately \$9.4 million for the construction of a Manchester Multi-Modal Transportation Center including a 600-space parking garage and park and ride facility. The City, which has investigated alternative sites for the facility in Manchester's downtown core, anticipates that this facility would also serve as the downtown Manchester station for a proposed extension of passenger rail services into the SNHPC region. Due to funding constraints, the project is currently not included in the FY 2015 – FY 2024 Ten-Year Transportation Plan. In an effort to address this situation, SNHPC will continue to work with local and regional stakeholders to address the barriers to extending passenger rail services into the region. SNHPC will continue to participate as a member of the NHRTA which is working to develop commuter, passenger rail and related public rail transportation services in the State.

#### 5.4.4 *Freight Transportation*

Chapter III emphasizes the importance that truck transportation plays in the movement of goods within the region. The data presented in Chapter III shows that truck and highway transportation play a vital role in developing and sustaining the region's economy and therefore are essential for maintaining the quality of life for residents and businesses. At the present time, because commercial trucking services based on regional roadways will continue to be essential to sustain the region's economy, maintenance and preservation of the highway network will become increasingly important. It is also important to note that the region's continuing dependence on roadways for freight transportation may require strategies to address air quality concerns and greenhouse gas emissions associated with transporting goods. In the longer term, increased accessibility and mobility for the movement of goods will depend on the development and maintenance of an efficient transportation system that utilizes other modes.

## CHAPTER VI

### PLAN EVALUATION

#### 6.1 Introduction

The Regional Transportation Plan has been developed to establish funding priorities for transportation improvements in the SNHPC region, as required by the MPO planning process and Federal transportation legislation. It includes the development of long range strategies and actions which address at least a twenty year planning horizon, leading to the development of an integrated intermodal transportation system facilitating efficient movement of people and goods.



The Fixing America's Surface Transportation (FAST) Act is a five year (FY 2016 – FY 2020) \$300 billion highway, transit, highway safety and rail bill providing approximately \$225 billion in contract authority. The FAST Act, which increases funding from \$41 billion in FY 2015 to \$47 billion in FY 2020, continues to distribute nearly 93 percent of all Federal-aid Highway program contract authority to State DOTs through formula programs. Additionally, it creates a new National Highway

Freight program and a Nationally Significant Freight and Highway Projects program. Under the legislation, approximately \$61 billion over five years is provided for Federal transit programs including \$48.9 billion in Highway Trust Fund contract authority and roughly \$12 billion in funding from the General Fund. Approximately \$10 billion over five years is also authorized for the Federal Railroad Administration and Amtrak.

The MPO transportation planning process, including prioritization of the plans and projects in the Regional Transportation Plan, results from a screening process that uses eight factors to ensure that impacts associated with health, safety, welfare and the environment are properly weighed in the public interest. These eight factors, first described in earlier versions of Federal transportation legislation, are carried forward in the FAST Act. The planning factors are:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, and improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation; and
- Emphasize the preservation of the existing transportation system.

The FAST Act continues the transition of the Federal highway program to a performance and outcome-based program reflecting emphasis on the following FHWA national performance highway goals:

1. Safety - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

2. Infrastructure Condition - To maintain the highway infrastructure asset system in a state of good repair.
3. Congestion Reduction - To achieve a significant reduction in congestion on the National Highway System.
4. System Reliability - To improve the efficiency of the surface transportation system.
5. Freight Movement and Economic Vitality - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. Environmental Sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. Reduced Project Delivery Delays - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

In November 2010, the New Hampshire Division Office of FHWA and FTA Region 1 identified ten additional Planning Emphasis Areas (PEAs) for New Hampshire. The PEAs were designed to more fully meet Federal requirements and reflect newer initiatives. The November 2010 PEAs are:

1. MAP-21 Compliance - ensure that the State and each MPO remains in compliance with statewide and metropolitan planning and programming requirements.
2. Fiscal Constraint and Financial Planning - ensure that metropolitan long-range transportation plans, TIPs, and the STIP reflect realistic assumptions about future revenues.
3. Project Monitoring - Allows for project readiness to be assessed so that project listings by phase in the TIP accurately reflect the year of obligation for funds associated with those programmed activities.
4. Travel Demand Model Maintenance - Ensure that the regional travel demand model is being utilized to provide technical support to New Hampshire's Metropolitan and statewide planning processes.
5. Data Collection - HPMS and CMP - Provide for complete traffic counting and other data for maintaining New Hampshire's statewide HPMS data.
6. Integrating 2010 Decennial Census - Support the transition to new requirements that may come with the new planning designations resulting from the 2010 Census.
7. Planning and Environmental Linkages - Shorten project delivery and protect the environment by considering and incorporating planning documents and decisions from the earliest stages of project planning into the environmental review process.
8. Planning Performance Measures - consider opportunities to integrate system performance measures into their planning and programming processes.
9. Climate Change - Facilitate decision-making, improve efficiency and inform the analysis and stewardship needs of project level decision-making.
10. Livability - ensure that their planning processes and long-range transportation plans address livability and support public transit, bicycle and pedestrian transportation planning activities.

Finally, in April, 2014, FHWA and FTA identified three additional PEAs for FY 2015. They are:

1. MAP-21 Implementation - Transition to Performance-based Planning and Programming.

2. Models of Regional Planning Cooperation - Ensure a regional approach to transportation planning by promoting cooperation and coordination across transit agency, MPO and state boundaries.
3. Ladders of Opportunity - As part of the transportation planning process, identify transportation connectivity gaps in access to essential services.

The purpose of this chapter is to demonstrate how the transportation plans, strategies, services and other activities of the SNHPC and the projects currently included in the Regional Transportation Plan address the Federal planning factors, FHWA national performance goals and PEAs, as defined in Federal regulations. The plans, strategies, services and other activities of the SNHPC described in this chapter also address specific goals of this Regional Transportation Plan, as outlined in Chapter II. Chapter II describes the overall transportation planning goals of SNHPC, as well as more specific goals relative to selected modes of transportation such as highway, rail and pedestrian and bicycle modes.

The projects described in this chapter are arranged into three groups for the purpose of demonstrating how the transportation plans, strategies, services and other activities of the SNHPC and the projects currently included in the Regional Transportation Plan address the Federal planning factors, FHWA national performance goals and PEAs as defined in Federal regulations. The three groups are: 1) Special Projects; 2) Unified Planning work Program projects and 3) Alternative Modes of Transportation projects. Each of the sections provides a description of the individual projects followed by a table summarizing the planning factors, performance goals and PEAs addressed. Each of the projects described addresses at least one of the Regional Transportation Plan goals outlined in Chapter II.

## **6.2 Special Projects**

### *6.2.1 Piscataquog Watershed Culvert Prioritization Model*

As part of the FY 2016 – FY 2017 UPWP, SNHP is proceeding with the Piscataquog Watershed Culvert Prioritization Model, which is designed to help municipalities prioritize future culvert replacement and stream crossings utilizing a community-driven and user friendly prioritization planning model. It will be designed to guide local decision-making and transportation infrastructure planning upgrades prior to emergency repairs due to severe weather events and storms. The model will be an Excel based tool with built in flexibility to utilize existing stream crossing infrastructure and vulnerability assessment data collected through New Hampshire's Aquatic Organism Passage, geomorphic and hydraulic methodologies and protocols. The model will also allow and provide municipalities the ability to input a variety of decision-making variables, which reflect their specific community interests and needs and proactively strategize their infrastructure restoration projects based on specific town criteria and goals, as well as current state regulations.

The primary goals of the culvert prioritization model are to:

1. Reduce risk associated with residents being impacted by failed infrastructure;
2. Eliminate the “emergency” replacements associated with high repair costs; and
3. Significantly increase the safety factor for residents and eco-system services.

It is envisioned that the culvert prioritization model will be field tested and implemented by working with the eleven communities within the Piscataquog River Watershed and utilizing the culvert assessment and vulnerability data collected and obtained through the Piscataquog Watershed Stream Crossing Vulnerability Assessment Project, which was developed by SNHPC and Trout Unlimited for the NH DOT in 2014.



The Piscataquog Watershed Culvert Prioritization Model will have the following benefits:

- ✓ The project will complement and utilize the stream crossing data and modeling results previously collected and developed under the Piscataquog River Stream Crossing Assessment and Vulnerability Model Projects;
- ✓ Many municipalities within the Piscataquog Watershed and other regions of the state have limited capacity on how to comprehensively assess and prioritize their current infrastructure and how to best approach vulnerability threats associated with non-action. The recent impacts of Tropical Storm Irene in 2013 across the northeast demonstrated just how many communities in the SNHPC Region and other parts of NH were underprepared for dealing with severe storms and vulnerable infrastructure. This prioritization model will provide municipal public works staff and town road agents, as well as community officials, with the data and resources they need in prioritizing and restoring inadequate crossings and reducing the chance of stream crossing wash-outs during extreme storm events;
- ✓ The culvert prioritization model will address a number of key concerns many communities have in dealing with vulnerable infrastructure including; disruption of emergency services; disruption of commerce; residential isolation; culvert and bridge failure; long term road closures; emergency repair expenses; and FEMA limitations/requirements; and
- ✓ The Final Report of this project will also be shared among all the Regional Planning Commissions and MPOs in the state so that they can consider utilizing the prioritization tool in working with municipalities in preparing and planning for potential and future, transportation infrastructure risk from flooding.

#### 6.2.2 *State of New Hampshire Broadband Data and Development Grant Program Project*



Increasing the security of the transportation system in the region depends heavily on the dissemination of public knowledge. Much of the information about projects that enhance the safety and security of the transportation system is available to the public through the internet. Because of the importance of the internet and access to it in delivering

information to the public, the University of New Hampshire, nine regional planning commissions and the NH Department of Resources and Economic Development/Division of Economic Development are currently collaborating on the State of New Hampshire Broadband Data and Development Grant Program Project.

The State of New Hampshire Broadband Data and Development Grant Program Project is a multi-year, multi-agency effort to map areas in the state that are currently served by the state's 70+ broadband providers. The efforts of these organizations, other partners, and input from the public will yield a mapped inventory of existing and planned broadband assets and a view of locations in New Hampshire where there is either no coverage or inadequate coverage. In addition to the mapping activities, the project also includes a four year component to incorporate the information collected into a regional broadband plan. Related activities include the creation of broadband stakeholder groups, conducting regional broadband forums, collaboration with service providers, and information sharing between the public and private sectors regarding the use of and demand for broadband services. The results of the study will be utilized in a national broadband availability map to provide a solid foundation for future broadband deployment efforts at the state and national level. In addition to the work on this project, SNHPC is also assisting its member communities in the development of a Broadband chapter for local master plans and in March 2014 completed a Broadband Plan for the SNHPC Region.

### 6.2.3 Highway Safety Improvement Program/Road Safety Audits

As recently as 2016, SNHPC continues to be active in assisting member communities in applying for and obtaining Highway Safety Improvement Program (HSIP) funding for hazardous roadway and intersection improvements in the region. The HSIP program was established to provide funding for safety improvements that achieve significant reductions in traffic fatalities and serious injury crashes. The HSIP funding process is dependent on data, as locations for improvements are identified through crash information demonstrating that there is a safety problem. HSIP provides the following strategic goals for safety on New Hampshire roads:

- Reduce the number of traffic fatalities and serious injuries;
- Reduce the number and severity of crashes;
- Decrease the potential for incapacitating and fatal injuries; and
- Maximize the benefit of the limited resources: time and money.



The Road Safety Audit (RSA) represents a proactive approach to improving transportation safety. An RSA is an examination of a future or existing roadway to report on safety issues. The RSA represents a strategy to improve safety and communicate to the public how local, regional and State stakeholders can proactively work toward crash reduction at hazardous locations. The RSA can be performed during the planning, preliminary design and final design stages of a planned facility or on existing roads. The RSA concept has proven to be highly effective in identifying and reducing the roadway crash potential. In 2012, SNHPC staff assisted in the development of RSA training materials utilizing data gathered for hazardous intersection locations in the City of Manchester and participated in the training. Staff have also participated in RSAs for problem intersections in the Towns of Candia and Chester and have also provided additional assistance to member communities to complete RSA applications. As a result of this work, two intersections in Bedford and three intersections in Manchester will be audited by an RSA team led by NHDOT.

### 6.2.4 Complete Streets Toolkit

The SNHPC Complete Streets Toolkit project is developing materials for municipal officials and planning boards on how to implement complete streets principles and policies for communities within the SNHPC Region. The approach in preparing this toolkit will include both planning and policy guidance and design/engineering/land use needs and guidance. While the primary beneficiary of the project will be SNHPC's cities and towns and the toolkit will also benefit other cities and towns across the state. A Complete Street Steering Committee will be created made up of relevant NGOs, state and federal agencies, including NH DOT Bicycle and Pedestrian Coordinator, NH Department of Resources and Economic Development, NH Department of Environmental Services, local municipal officials, interested citizens, transportation coalitions, and other stakeholders involved in complete streets development and implementation. The toolkit will be divided into two parts: a planning/policy guidance section and a design/engineering guidance section. The planning/policy section will include an introduction, definition and background history on complete streets; the basic elements, common features and characteristics of complete streets; costs and benefits of complete streets and why they are important from safety, environmental, health, transportation, mobility and economic standpoints. The design/engineering section will include a review of current design elements and engineering standards. The completed Complete Street Toolkit will have the following benefits:

- ✓ This will be the first time a complete and comprehensive toolkit and resource guide on complete streets is prepared and published for cities and towns within the SNHPC Region. As such the toolkit will be transferable across the state and will build upon previous generalized complete streets work recently included as part of the Livable Walkable Toolkit, last updated in 2012 and 2014 by the SNHPC;
- ✓ The toolkit will directly benefit municipal officials, planning boards, planning and public works staff, road agents and governing boards by providing a comprehensive and user-friendly resource guide, case studies and model policies/templates, including specific design standards for designing and implementing complete streets in urban, suburban and rural contexts. This information has never been compiled in one comprehensive guidebook before for municipal officials in NH; and
- ✓ Finally, as part of the development of this toolkit, there will be an opportunity for three (3) municipalities within the SNHPC Region to participate in a pilot program to develop and implement a complete street policy for their community. The results of this pilot program will be included in the final Complete Street Toolkit.

#### 6.2.5 *Congestion Management Process*

SNHPC is collaborating with other State MPOs to address congestion in the urbanized portion of New Hampshire. Federal transportation law requires that MPOs serving the same Transportation Management Area (urbanized area with a population over 200,000, as defined by the Bureau of Census) must address congestion management via a Congestion Management Process (CMP). Because portions of the Rockingham Planning Commission (RPC), Nashua Regional Planning Commission (NRPC) and SNHPC are included in the census Boston Urbanized Area, these organizations completed development of CMPs.

A CMP is defined as a set of actions linked to the planning and environmental review processes that provide for effective management and operation of a transportation system. It is based on agreed to travel demand reduction and operational management strategies and additional measures designed to increase capacity. The CMP, which can be integrated into the Regional Transportation Plan, is used to identify congested locations, determine the causes of congestion, develop alternative strategies to mitigate congestion, evaluate the potential of different strategies and track and evaluate the impact of previously implemented congestion management strategies.

The SNHPC CMP will lead to the development of a series of goals pertaining to managing or minimizing the impacts of congestion in the region. SNHPC is currently collaborating with RPC and NRPC on development of the annual CMP programs to initiate the process of managing congestion in regional corridors. Each MPO will also individually implement its own strategies to address congestion issues. The final step in the development of the CMP will involve the evaluation and monitoring of the implemented strategies.

An earlier section of this chapter discussed the negative impacts of congestion on the regional roadway network. Congestion impacts not only safety but also the efficiency of the network. Because of the importance of recognizing and formulating timely responses to network congestion, the regional Congestion Management Process plays an important role in the promotion of efficient management and operation of the regional transportation system.

The SNHPC Congestion Management Process has incorporated the methodology originally developed for the Congestion Quantification Study designed to measure vehicle congestion on the regional roadway network by measuring travel times during peak and off-peak periods. The results of this work are useful

beyond quantification of congestion as they are also used to provide information (i.e. free flow speeds, congested speeds, travel delays) for input to the regional travel demand model. Traffic congestion information also provides valuable inputs for air quality analyses and regional air quality planning. The methodology includes 1) selection of the roadway samples for inclusion in the study; 2) performing field survey; 3) performing data entry, data reduction, and analysis, and 4) documentation of results observations and conclusions. The results of this methodology will be used along with other portions of the Congestion Management Process to promote effective management and operation of the transportation system.

#### *6.2.6 Gossler Park Neighborhood Health Impact Assessment*

The Gossler Park Neighborhood Health Impact Assessment (HIA) will assist the Manchester Health Department to implement the City of Manchester's 2014 Manchester Neighborhood Health Improvement Strategy. The Manchester Neighborhood Health Improvement Strategy is an action program designed to promote public health by focusing on distressed neighborhoods within the City. The Gossler Park neighborhood, including the Gossler Park Elementary School and the Parkside Middle School, are included in the HIA study area. The HIA aims to transform the city's public schools into neighborhood hubs as a means to expand community resources and programming for improved public health and social connectedness.

The primary goal of the HIA is to help implement the Manchester Neighborhood Health Improvement Strategy is to (1) develop an improvement project that will directly benefit the Gossler Park neighborhood and the Gossler Park Elementary and Parkside Middle Schools; and (2) present this project to appropriate decision-makers and funders so that it can be funded and built. The Recommendations for Action in the Manchester Neighborhood Health Improvement Strategy that directly relate to this HIA include 1) improved neighborhood Walkability and 2) enhanced places for physical activity. There is strong evidence that improvements to streetscape design increase physical activity, particularly when implemented as part of a multi-component intervention. Living in neighborhoods with greater street connectivity, more streetlights and bikeways, and related environmental characteristics is associated with higher levels of walking and lower rates of overweight and obesity. Moreover, connected sidewalks, street crossing safety features, and bicycle lanes can reduce injury risk for pedestrians and cyclists. The following chart illustrates how special projects address the Federal planning factors, FHWA national performance goals and PEAs, as defined in Federal regulations.

### **6.3 Unified Planning Work Program Projects**

#### *6.3.1 Major Planned/Proposed Transportation Improvements*

Many of the current projects contained in the Regional Transportation Plan are essential for sustaining the economic vitality of the metropolitan area and improving the region's ability to compete in a global economy. Major planned/proposed transportation improvements such as the widening of the I-93 corridor, I-93 Exit 4A and improvements to I-293 Exits 6 and 7 are essential to enabling this region to remain economically competitive with other areas nationally and internationally. These major planned/proposed improvement projects are also necessary to sustain and improve the safety of the transportation system, which continues as a stand-alone planning factor in the FAST Act.



SNHPC staff play an integral role in planning major planned and proposed improvement projects in the region. SNHPC is participating in a Technical Advisory Committee overseeing the I-293 Exits 6 and 7 Environmental Assessment. The study is evaluating interchange configurations and system connectivity at I-293 Exit 6, as well as the potential for a new full-access interchange for Exit 7. The study also considered widening and alignment refinements for

mainline I-293, as well as Transportation Demand Management and Transportation System Management measures including an assessment of alternate modes of travel. It is anticipated that SNHPC will be involved in monitoring the subsequent phases of the study, which will involve preparing preliminary engineering plans and environmental documentation suitable for a design public hearing, formal project approval and preparation of final design plans.

### 6.3.2 *New Hampshire Ten-Year Plan Process*

Many of the region's transportation priorities are pursued and discussed at length during the public process for the New Hampshire Ten Year Plan that is conducted on a semi-annual basis. SNHPC's responsibilities regarding this process include soliciting projects from member communities, ranking the projects and transmitting results of the process to NHDOT, participating in public hearings and advising and assisting member communities on issues related to Ten Year Plan projects.

The initial phase for the development of the FY 2017 – FY 2026 Ten Year Plan was a public process that began in early 2015 when SNHPC requested projects from its members to be considered for inclusion in the Ten Year Plan. SNHPC also requested feedback on projects currently included in the Ten Year Plan. These requests were also a means to establish and document local priorities for transportation improvements and to communicate this information to the State. As a result of the project solicitation process, a total of four new projects from two member communities were received for consideration in the draft Plan.

The second phase of the regional process was project evaluation. NHDOT continued the design of a Ten Year Plan development process that was transparent and which also reflected input from the Regional Planning Commissions (RPC) and the public. The RPCs collaborated with NHDOT on the development of a mutually-agreed upon ranking methodology including six criteria (mobility, alternative modes, network significance, safety, state of repair and support) representing a common set of regional and State priorities. A mutually agreed-upon weighting system to use with these criteria was also completed, as well as a Project Application Form designed to provide NHDOT with the project information necessary to complete their own evaluation.



An initial evaluation of the projects submitted was completed by SNHPC staff in April 2015. This work was reviewed by the SNHPC Technical Advisory Committee and following this review, the TAC voted to make a motion to recommend MPO approval of the Ten-Year Plan project ranking. The results of the project ranking were reviewed by the MPO and were subsequently approved. The project ranking results were submitted to NHDOT along with completed Projects Forms. NHDOT evaluated the Ten Year Plan submissions from the State's regional planning commissions using Decision Lens, a software package that facilitates asset planning and supports the implementation and improvement of asset management programs. The draft FY 2017 – FY 2026 Ten Year Plan includes three of the projects submitted by SNHPC.

### *6.3.3 ITS Architecture*

The Intelligent Transportation System (ITS) Architecture for the SNHPC Region developed and maintained by the Commission and updated in April 2016, provides a shared vision of how ITS systems will work together in the future, sharing information and resources to provide a safer, more efficient transportation for travelers in the region. Specifically, the ITS Architecture defines, describes and provides the basis for the interrelation of the various systems that work together to provide transportation services. It serves to provide a definition of the systems and the various types of information that is exchanged between them, as well as the interconnections used in the information exchange.

ITS improvements, such as those included in the plans to widen the I-93 corridor and in planned transit improvements in the region, will increase the security of the transportation infrastructure. The use of ITS technology on the I-93 corridor is facilitating efficient response to emergency incidents. Incident notification procedures, incident severity classifications, development of incident response protocols, and monitoring of I-93 service patrols are included in the list of issues discussed at TSC meetings. The implementation of Open Road Tolling on I-93 in Hooksett is promoting security for motorists through the use of highway speed toll collection for E-Z Pass patrons.

Many ITS technologies have the monitoring and surveillance capabilities to address safety and security concerns for the general public, transit properties and freight operators relating to unanticipated events impacting safety and network efficiency. These capabilities enable the private and public sectors to address concerns relating to individual vehicles and facilities, as well as other infrastructure (i.e. bridges, tunnels, work zones, transit stops) susceptible to planned and unplanned incidents and events. ITS technology enables real-time information to be provided in response to maintaining safety. ITS technology, particularly used through the integrated approach formulated through the architecture, is a powerful tool available to the public and private sectors to address the safety needs of the transportation infrastructure.

Public transit can also benefit from use of ITS technology to facilitate efficient operations through improvements in vehicle tracking, routing, scheduling and coordination with other modes. ITS technology enables local transit services, such as the MTA and CART, to more efficiently manage operations, maintenance and finance through the use of ITS market packages, such as Transit Maintenance, Transit Passenger and Fare Management and Transit Vehicle Tracking. ITS technology will also play an increasingly important role in public transit by improving efficiencies through improved emergency dispatch and routing.

ITS technology for transit projects is also instrumental in increasing the security of the transportation system in the region. MTA vehicles and facilities are monitored through the use of security cameras and video equipment and future plans include enabling police to have access to this technology to further improve transit security. MTA is utilizing global positioning system technology on its transit vehicles to

improve vehicle tracking and emergency dispatching. Security on its vehicles has been further enhanced improved through a transition to electronic fare payment.

Other ITS technology innovations include the Manchester Parking Department's online parking program. Manchester currently participates along with Dover and Portsmouth in EasyPark, which enables drivers to pay for parking through the use of a device attached to the vehicle window. The device tracks parking fees accumulated and pays the fees through an on-line account set up by the user.

The ITS Architecture for the SNHPC Region is an important tool in the development and maintenance of a more efficient and environmentally sound transportation system for travelers and freight. ITS technologies offer many opportunities to increase the efficiency and cost-effectiveness of various components of the transportation infrastructure through improved system management. These benefits can be realized in both the public (i.e. government/public transit vehicle fleets and facilities) and private sector (i.e. freight vehicle fleets and facilities). ITS technology enables the freight industry to more efficiently monitor shipment and streamline completion of required administration, such as vehicle licensing, customs arrangements and vehicle and cargo insurance.

#### *6.3.4 Manchester Emergency Operations Plan/Southern New Hampshire Community Preparedness Plan/Hazard Mitigation Plans*

The City of Manchester and SNHPC collaborated in 2014 on an update to their Emergency Operations Plan (EOP). The EOP is designed to address the response to consequences of any disaster or emergency situation that would affect the population and/or property within the City of Manchester, NH, including natural disasters, manmade incidents and technological situations such as power failures. The preparation of the EOP is authorized under New Hampshire RSA 21-P:34, which allows municipalities to create local organizations for emergency management. The EOP is in accordance with Manchester City ordinances §92.80 through §92.83 providing for the appointment of an Office of Emergency Management and Director of Emergency Management and New Hampshire RSA 21-P:37 that mandates "the preparation of plans and programs for emergency management by the political subdivisions."

The Emergency Operations Plan describes the basic mechanisms and structures by which the City of Manchester would respond to potential and/or actual emergency situations. To facilitate effective response operations, the Emergency Operations Plan incorporates a functional approach that groups the types of assistance to be provided into Emergency Support Functions including a primary or co-primary agency. The primary agency is responsible for developing and maintaining the Emergency Support Function documents and for coordinating related tasks during emergency operations.

Transportation is included in the EOP as an emergency support function with Manchester Transit Authority as the primary agency. The purpose of this emergency support function is to provide a coordinated response in the management of transportation needs by establishing procedures for the orderly movement of people and goods from endangered or stricken areas to facilities in areas generally unaffected by the disaster or potentially safer from an impending emergency situation.

In 2012, SNHPC, in association with the City of Manchester and a Community Preparedness Committee, completed an update to the Southern New Hampshire Community Preparedness Plan. The Plan, which was created to develop a regional framework to enable planning for increasing levels of community preparedness, provides an overview of emergency services in the SNHPC region and contact information for emergency management personnel in each community. Mitigation strategies and actions, including evacuation procedures, are outlined and the Plan also identifies community readiness stages for each community and strategies for implementation. The plan outlines an outreach process developed and

implemented in the region. It is intended as a model for other regions in the State to develop their own community preparedness programs and to increase levels of community preparedness throughout the State. By addressing the need for community preparedness and planning on a regional level, communities will all benefit from increased coordination and efficiency of resources.

SNHPC is also continuing with its member communities in the development of local Hazard Mitigation Plans. Hazard mitigation is defined as "activities designed to alleviate the effects of a major disaster or emergency or long-term activities to minimize the potentially adverse effects of future disaster in affected areas". This includes structural interventions, such as flood control devices, and nonstructural measures such as avoiding construction in flood-prone areas. Mitigation includes not only avoiding the development of vulnerable sections of the community but also making existing development in hazard-prone areas safer.

The Federal Emergency Management Agency has mandated that all communities within the State of New Hampshire establish local hazard mitigation plans as a means to reduce future losses from natural or man-made hazard events before they occur. The mitigation plans include critical facilities at risk including medical facilities, public utilities and schools and also consider primary and alternate evacuation routes in each community. Hazard mitigation also includes consideration of culverts and the assessment of potential road hazard risks that could impact travel conditions and accessibility. Most recently, SNHPC has completed updated Hazard Mitigation Plans for Bedford, Derry, Hooksett, Goffstown, Londonderry and Raymond.

#### *6.3.5 Access Management Plans*

A functional roadway classification system identifies segments of a network according to the functions that they perform. The functions performed by higher hierarchy roadways such as those included in the Interstate Highway System and major arterial roadways are principally intended to provide regional and inter-city mobility. Where the primary function of a highway is to provide mobility, relatively high sustained speeds are desirable. In contrast, lower hierarchy roadways (i.e. minor arterials and local roads) are designed to provide access to local areas and individual properties. In these areas, low speeds are necessary to provide safe access. Efficiently functioning roadway networks providing safe and efficient access are generally designed through utilization of the principles contained in a functional classification system.

SNHPC has completed Access Management Plans for major roadway corridors in the region including the Brown Avenue and NH 28/South Willow Street corridors in Manchester, the NH 102 corridor in Derry and the NH 3A corridor in Hooksett and Manchester. The Access Management Plans recommend strategies to improve network safety and efficiency by balancing the mobility and access needs of the roadway to improve through traffic and enhance safe and efficient access to properties. Businesses and residences along the corridor as well as the community at-large, will derive economic benefit from improved access and connectivity resulting from the implementation of such a plan. Balancing mobility and access needs requires coordination of land use planning and planning of the adjacent transportation infrastructure.

Access management principals are also being incorporated into the Second Street Corridor Access and Mixed Use Overlay Zoning project currently being completed in conjunction with the City of Manchester. This project seeks to develop and adopt a new mixed use overlay zoning district and associated access management strategies for the Second Street corridor. The project provides an opportunity for the City to work directly with the existing businesses and residents living and working along the corridor to improve the accessibility of the Second Street corridor.. Through this project, the Second Street corridor

is envisioned as a “Complete Street” that better serves the needs and protects the safety of all users – automobiles, bicyclists and pedestrians.

Many projects and programs included in the Safety for non-motorized modes is considered in the Regional Trails Coordinating Council Strategic Plan, which includes recommendations for trail maintenance and vehicle enforcement that will lead to enhanced safety on the regional trail network. Additionally, the access management strategies included in the mixed use overlay zoning district created for Second Street in Manchester will improve both the attractiveness and safety of that corridor. Increased safety will also result from implementation of other access management plans created for corridors in the region such as NH 28 (South Willow Street) and Brown Avenue in Manchester and NH 102 in Derry and Londonderry.

Efficiency in the operation and management of transportation systems is increasingly essential because of the trend towards fiscal constraint and decreasing levels of funding for new infrastructure and maintenance of existing systems. Efficient operations and management ensure that available funding is properly utilized.

### *6.3.6 SNHPC Local Assistance*

Through its work with member communities, the SNHPC is involved in the development of safe and efficient roadway networks designed to maximize accessibility and mobility. The SNHPC advises and assists member communities in developing roadway classification systems through its Local Assistance Program. The importance of developing local roadway classification systems is also stressed during Master Plan updates for member communities. Local assistance also includes review of site plans and traffic impact studies for member communities, as well as assistance with grant applications. SNHPC regularly advises and assists member communities on grant applications in its role as administrator of grant programs such as CMAQ and the Transportation Alternatives Program.

Monitoring of the transportation infrastructure is an essential step in efficient system management and operations and represents the first step in recognizing where inefficiencies exist. Many of the current transportation plans and programs of the SNHPC Unified Planning Work Program have been designed to provide monitoring capabilities.

Traffic congestion represents a significant threat to economic prosperity and quality of life in many areas of the U.S. The 2012 Texas Transportation Institute Urban Mobility Report noted that in 2007, congestion caused urban Americans to travel 5.5 billion hours more and to purchase an extra 2.9 billion gallons of fuel for a congestion cost of \$121 billion. This cost represented an increase of more than 50 percent over the previous decade. Identifying and addressing congestion on the roadway network is essential to maintaining and improving the accessibility and mobility of people and freight in the region. The annual Regional Traffic Counting Program, which includes approximately 500 traffic count locations, is conducted in association with the NHDOT on behalf of SNHPC member communities. The program is an essential part of SNHPC’s monitoring efforts to maintain and increase regional mobility. To readily identify the composition of traffic in the region, SNHPC’s traffic counting efforts also include an annual Vehicle Classification Study. Additional locations are regularly added to the traffic counting program to respond to special requests from local and State agencies.

SNHPC staff members are actively involved in environmental mitigation through participation in monthly Interagency Consultation meetings. These meetings, attended by representatives of the EPA, FHWA, NHDOT, NH DES and the State MPOs, are held to discuss issues such as regional air quality

conformity and the MPO planning processes. Regularly scheduled meetings of the SNHPC MPO Technical Advisory Committee provide a useful forum for discussion of other relevant environmental topics, such as the use of alternative modes of transportation, air quality planning and the environmental impacts of various transportation projects. SNHPC staff also plays a leadership role in efforts designed to reduce greenhouse gas emissions and implement NH's Climate Change Action Plan strategies. These efforts include the Joint Sustainability Committee for the City of Manchester, the Piscataquog Watershed Culvert Prioritization Model project, the Greater Manchester Chamber of Commerce's Green Committee, and Commute Green Week.

Energy conservation in the transportation sector is currently being promoted through SNHPC's participation in the CMAQ and Transportation Alternatives Program grant programs. Many of the projects eligible for funding under the CMAQ program, such as improvements to public transit, bicycle and pedestrian facilities and establishment of Transportation Management Associations can also make significant contributions to reductions in energy use. Eligible projects under the Transportation Alternatives Program include construction, planning, design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation and environmental mitigation activities. SNHPC staff are assisting member communities to prepare master plan energy chapters containing transportation-related recommendations that incorporate "Complete Streets" principles into roadway design, encourage compact and mixed-use developments in village centers and develop facilities for cyclists and pedestrians.

Promotion of consistency between transportation improvements and State and local planned growth and economic development, which will continue under the FAST Act, is the basis for the collaborative planning process between SNHPC and FHWA, FTA, NHDOT, EPA, NHDES and the other State MPOs. This process, designed to ensure that MPOs are meeting planning and programming requirements, also fulfills the "MAP-21 Compliance" and "MAP-21 Implementation" PEAs. Monthly Interagency Consultation meetings, mentioned earlier in this section, are essential in this continuing cooperation.

SNHPC and the other New Hampshire MPOs also participate in FHWA/FTA sponsored MPO Planning reviews to highlight good planning practices, share information among stakeholders, and ensure that Federal regulatory requirements for transportation planning are being met. In November 2015, SNHPC staff participated in a TMA Certification Review for the Nashua Regional Planning Commission. The review included discussions pertaining to the SNHPC towns of Auburn, Derry, Londonderry and Windham located in the Nashua Urbanized area.

The regional Signal Warrant Study is designed to identify unsignalized intersections in the region where traffic efficiency and safety can be increased through the installation of traffic signals. Locations for the study are determined by staff, utilizing input from member communities. Those locations selected are analyzed and evaluated through the study of features, such as intersection delay, geometrics and ability to satisfy individual signal warrants. If, as a result of the analyses, it is determined that signals are warranted, preliminary signal timing plans, including consideration of signal progression, may be developed.

The regional High Accident Locations Study is designed to identify intersections in the region where significant numbers of traffic accidents are occurring and formulate strategies to improve vehicle efficiency and safety. As part of this study, input from member communities plays a large role in determining locations to be included in the study. Other sources of information serving as inputs include local master plans, corridor studies, the NHDOT crash database and detailed accident reports from local police department. The selected locations are studied in detail and recommendations for possible mitigation strategies are developed. The regional High Accident Locations Study has recently been



augmented through the results a project completed through the State Planning & Research grant program and through additional information gathered for the FHWA Highway Safety Improvement Program.

Traffic Impact Studies are often required as part of the local and State approvals process for proposed land development to anticipate the traffic impacts of proposed developments prior to approval and construction. Traffic Impact Studies define a study or impact area and include traffic projections and estimates of the trip generation, trip distribution, and traffic assignment characteristics of the proposed development on the study area street network. Operational analyses of the study area roadways and intersections are then completed to determine measures such as delay, Level of Service, queue lengths and sight distances for selected locations. If, as a result of the analyses, projected operating conditions are unacceptable, then mitigation strategies are proposed and conditions with mitigation may also be evaluated in the study. Staff are involved in the evaluation of developments of regional impact, as defined in New Hampshire planning and land use regulations. Upon determination that a proposed development has a potential regional impact, the local land use board having jurisdiction gives the regional planning commission status of abutter for the limited purpose of providing notice and giving testimony.

SNHPC is regularly involved in the scoping design and review of traffic impact studies for proposed developments in the region. The commission also monitors the effectiveness of the traffic impact study process in the region through the UPWP Post-Development Traffic Impact Review and Analysis Study. This study compares data collected in submitted traffic impact studies with actual operating conditions measured in the field following the opening of the development. Through this comparison, general observations can be made on the quality of the studies and how accurately the impacts of proposed developments in the region are being modeled. It is hoped that, through the Post-Development Traffic Impact Review and Analysis Study, recommendations can be made to improve the quality of traffic impact studies being submitted in the region to more accurately estimate the impact of proposed developments.

SNHPC's Data Collection Program, as described in the UPWP, is an essential part of the Commission's efforts to analyze travel conditions and assist in the preservation of the existing transportation system. The program enables the Commission to update and maintain a data base for municipalities in the region to provide a better understanding of growth and maintain the regional travel demand model. The Data Collection Program includes maintaining current and projected estimates of socioeconomic conditions in the region and gathering land use data through reviews of building and occupancy permits and review of site and subdivision plans. Estimates of population, dwelling units and employment are also coordinated with external sources of data to ensure accuracy and additional coordination is maintained in consultation with local various planning boards and planning directors. The Data Collection program also includes the annual Regional Traffic Counting Program and a Roadway Inventory Program that is coordinated with the NHDOT and member communities to maintain the accuracy of data related to the regional roadway network.

#### *6.3.7 Public Involvement*

In order to develop a fully integrated and connected transportation network, the SNHPC is committed to promoting opportunities for informed public input to be used in the decision making process by providing timely access to needed information and reasonable opportunities for interested parties to comment. SNHPC utilizes numerous methods to inform the public about transportation plans, programs and projects, thereby providing this access to information and opportunity for comment.

The Public Involvement Process for the SNHPC Region was designed to satisfy specific purposes and objectives pertaining to public involvement, incorporate current practices, and technological innovations to satisfy the requirements of Federal transportation legislation. Current legislation includes increased emphasis on public participation, including a need for extensive stakeholder participation above and beyond “public involvement”. Developed in the spirit of improving citizen participation and providing multiple opportunities for public officials, special interest group, and citizen input, the Public Involvement Process for the SNHPC Region represents the current practices of the Commission for engaging the public in the planning process. The Process is included as Appendix B of the Regional Transportation Plan.

Information available on the SNHPC website makes use of reproductions of plans, maps, graphics and other visualization techniques designed to more effectively communicate information to the public. SNHPC also directly distributes the latest news and information from the Commission through a monthly “Media Blast” and quarterly newsletters. It is hoped that the ability of SNHPC to effectively communicate information to the public will be further enhanced through the development of new links between the Commission’s transportation database and its GIS capabilities. Staff is currently focusing on 1) linking traffic count data from the annual regional traffic counting program to the network of the SNHPC travel demand model, 2) linking the traffic count database with the GIS database and 3) linking various transportation features, such as traffic flows, accident history, level of service, level of congestion, transportation hubs, transit routes and major activity centers with regional maps in GIS format. As a result of this effort, GIS-based traffic counting data is now available to the public on the SNHPC website.

The SNHPC regularly participates in public forums and community surveys to more effectively gauge local attitudes. SNHPC also facilitates access to information on transportation planning plans, programs and projects through additional activities such as the Planners Roundtable series, which have been held on a continuing basis since 2005. A 2016 Planners Roundtable discussed the use of rain gardens to mitigate the impacts of stormwater runoff from streets and parking areas.

SNHPC is currently involved in directly developing the integration and connectivity of the transportation system through support for projects involving existing and planned multi-modal transportation facilities in the region. Chapter III of this Plan describes the efforts to improve surface transportation at MBRA.

Current transportation legislation includes provisions requiring Metropolitan Regional Transportation Plans to include “operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods.” Many of the projects currently included in the SNHPC UPWP have been designed to closely monitor and evaluate the characteristics and operations of the existing regional transportation infrastructure. Monitoring and evaluation is also important for system preservation because it provides early indications of compromises to efficiency and safety. Examples include locations where congestion repeatedly occurs during certain times of the day, high accident locations and underutilized transit services.

Regional monitoring and evaluation activities are valuable because they can provide information to other agencies within the region on priorities for preservation of the existing transportation system. Programs of this type are designed to address goals of the Regional Transportation Plan, such as “... [t]o ensure that the long-range transportation needs of the region are addressed while continuing to emphasize the importance of maintaining and preserving the existing transportation system...” and “... [t]o maximize the efficiency of the roadway infrastructure by encouraging member communities to establish and enforce access management strategies and policies.” These programs also address the Federal highway program national performance goal of “Infrastructure Condition”.

#### *6.3.8 Statewide Asset Data Exchange System (SADES) Road Surface System Project*

Beginning in 2015, the Town of Candia and the Southern New Hampshire Planning Commission participated along with NHDOT and the other state regional planning commissions (RPC) the Statewide Asset Data Exchange System (SADES) Road Surface System Project. The project involved developing a roadway conditions inventory database and road surface management strategies utilizing software developed by the University of New Hampshire Technology Transfer Center.

In the Fall of 2015, SNHPC staff met with the town to discuss the scope of work, schedule and general objectives of the project. SNHPC staff then conducted a field survey of the roads to gather roadway surface data utilizing an iPad and roadway surface management software. Following town input into the data collection, roadway condition/location maps were produced for municipal review. In May 2016, SNHPC staff received training in pavement management scenario planning and in the use of the RSMS software to customize pavement management/capital planning strategies. The next steps in the project involve meeting with the town to discuss local desired road surface management strategies, beginning the development of detailed pavement management strategies and discussing the benefits of the strategies. It is anticipated that by the Fall of 2016 SNHPC will deliver final reports, maps and recommended strategies to the town and present the findings of the project.

### **6.4 Alternative Modes of Transportation Projects**

#### *6.4.1 Capital Corridor Passenger Rail Project/New Hampshire Rail Transit Authority*

SNHPC continues to support expansion of the region's rail network to include passenger rail services which will also enable the SNHPC region to compete economically with other areas. Regional and local officials are currently formulating plans to extend passenger rail service into southern New Hampshire and the SNHPC region. In December, 2014, NHDOT completed the Capital Corridor Rail & Transit Alternative Analysis, which evaluated a diverse set of rail and bus options for improving connectivity in the corridor by leveraging existing transportation infrastructure and integrating transportation and land use planning. The Capitol Corridor Rail Alternatives Analysis and Development Plan includes the creation of a service development plan and related documents for intercity passenger rail between Boston, MA and Concord, NH. It is anticipated that this extension would include a station in downtown Manchester and an additional station serving MBRA near the interchange of the F.E. Everett Turnpike and Ray Wieczorek Drive. It is anticipated that both of these station locations would be developed as multi-modal facilities with connections to local public transit. NHRTA is pursuing the implementation of passenger rail service on the New Hampshire Main Line Capitol Corridor as the first phase of a Boston to Montreal rail service. With the completion of the Alternatives Analysis, the next phase of the project includes development of a detailed financial plan, preliminary engineering and environmental permitting required for funding applications from the Federal Transit Administration and Federal Rail Administration.

Plans to expand passenger rail service in the region and proposals to develop multimodal transportation hubs at locations in downtown Manchester and MBRA have the potential to improve accessibility and mobility for individuals and freight and facilitate access to goods and services. SNHPC continues to contribute to the efforts of the New Hampshire Rail Transit Authority (NHRTA) in developing commuter and passenger rail and related public rail transportation services in the State. The track improvements included as part of the Capitol Corridor project will also provide economic benefit by improving movement of freight by rail in the region.

#### 6.4.2 Scenic Byways

The General John Stark Scenic Byway was designated a New Hampshire State Scenic and Cultural Byway on June 5, 2008, by the State Scenic and Cultural Byways Council and NHDOT. The byway is a closed-loop route through Goffstown, New Boston, Weare, and Dunbarton; as the name suggests, the historical focus is on the life of General Stark, his family, and his contributions to New Hampshire and United States history. The Byway showcases many cultural and historical features of regional, State and National significance. Economic development is an important strategy of the General John Stark Scenic Byway as well as other regional byway projects such as the Apple Way Scenic Byway in Londonderry, the Robert Frost/Old Stagecoach Scenic Byway in Auburn, Chester and Derry and the Upper Lamprey Scenic Byway in Candia and Deerfield.



The General John Stark Scenic Byway promotes local economic development by: 1) expanding existing local businesses' involvement with the byway; this includes local artists, agriculture, and tourist-related businesses; 2) encouraging businesses and communities to market the Byway in their advertising; and 3) promoting new tourist-related businesses. The Byway Council has designed a number of strategies to implement these goals, including working with member communities to encourage incorporating the Byway into their economic development strategy. Support for small businesses applying for Tourist Oriented Directional Signs to help attract visitors to their business will also be provided and the Council will work with business owners to participate in the Byway planning process. After considerable work by SNHPC staff and the Byway's marketing subcommittee, a brochure was finalized in late 2013 that actively promotes the historical character of the byway to prospective visitors. In November 2015, after a lengthy design process, Byway signage was installed in all four towns (photo above).

#### 6.4.3 Manchester Multi-Modal Land Use Project

Since 2013, a Manchester-based community group of business owners, community leaders and other interested parties, including SNHPC, has led a public/private collaborative effort to improve multi-modal transportation system in the City. This effort has resulted in the Manchester Multi-Modal Land Use Project, which designed to plan for transit-oriented development around a commuter rail station and make Manchester's downtown and the adjacent Merrimack River corridor area a desirable place to live, work and play.



Attracting and retaining young professionals is crucial to the economic future of Manchester and to the SNHPC region and state. Ensuring that downtown Manchester and the Merrimack River Corridor areas have the desirable attributes (walkability, multi-modal transportation) that young professionals seek in a community will empower employers to locate in and around the city and recruit young professionals. Some of the components of a more livable Manchester are passenger rail, access to and better usage of green space and riverfront, improved interconnectivity between downtown, the Millyard and the West Side, and improved access to residential areas, shopping, restaurants, and entertainment.

The Manchester Multi-Modal Land Use Project will: 1) address the issues and concerns of pedestrians and cyclists, and transit riders; 2) address the interconnectedness of land use and transportation; 3) develop integrated, multi-modal plans, policies and programs for transit, pedestrians, bicycles, parking and roadways and 4) develop a long-range capital plan with funding strategies that will serve as a blueprint for future investments into Manchester downtown transportation and land use system. The primary goals of the project are to:

1. Identify and assess the multi-modal transportation and land use for the Manchester's mill yard and downtown area;
2. Develop a plan that will most effectively and efficiency meet the transportation and land use needs of the businesses and residents of the area, explicitly those of younger professionals.



#### 6.4.4 *Bicycle and Pedestrian Planning*

Enhancing the integration and connectivity of the transportation system is an essential step to develop an efficient network fully utilizing various modes for movement of travelers and for goods and services. A fully integrated and connected network facilitates seamless transfers between systems and modes and encourages multi-modal trip-making. A fully integrated and connected transportation system is vital for maintaining the quality of life for those living and working in the region and is also essential for maintaining a vibrant regional economy.

SNHPC is continuing its participation in the New Hampshire Bicycle and Pedestrian Technical Advisory Committee and in 2014 developed a Counting Program Master Plan. The purpose of this plan is to address the need for a comprehensive statewide strategy for gathering data about bicycle and pedestrian travel in New Hampshire. The strategy will include 1) a standardized methodology and instructions for conducting manual and automatic bicycle and pedestrian counts; 2) a centralized bicycle and pedestrian count database, and 3) evaluation and recommendations of automated bicycle and pedestrian counting devices.

The Counting Program Master Plan will outline a path for the establishment of a coordinated, on-going statewide bicycle and pedestrian counting program in New Hampshire. This includes collecting some initial useful data and applying it to land use and transportation plans. This also includes establishing standard practices and parameters, familiarization with equipment and how to use it, centralization of data, overall coordination of all parties, and building a foundation for more sophisticated data and analysis as more data becomes available.

SNHPC is currently participating, along with NHDOT, CNHRPC and local trail stakeholder groups in the Regional Trails Coordinating Council (RTCC). The primary goal of the RTCC is to assist member organizations in the development and implementation of a comprehensive trail plan. The goals of the RTCC include: 1) assist in the development of individual trails to form a continuous network in the southern and central regional regions of the State of New Hampshire; 2) develop maps of the region's trail network, including completed, planned and missing segments, and their conditions; 3) identify and assist in obtaining available public funding (state, federal, etc.) for trail use; 4) identify and assist organizations in obtaining available funding; 5) identify and prioritize trail segment development tasks; 6) provide forums and events to educate the public as to the importance of non-motorized multi-use trails in the health and quality of life of the regions and 7) combine and augment the passion of volunteer groups and the power of Regional Planning Commissions to achieve common missions and values to accomplish common goals while, as necessary, overlapping jurisdictional boundaries.

#### 6.4.5 *Community Transportation*



SNHPC's efforts to emphasize the preservation of the existing transportation system also extend to the provision of public transit and community transportation services in the region. In an effort to improve cost efficiency, reduce service duplication and provide more mobility options for transportation-dependent populations in the region, SNHPC is continuing its participation in the Statewide Coordination of Community Transportation Services project. This project is designed to address many of the current shortcomings related to community transportation in the State including limited choices, low frequency services, scarce local funding and a growing need for mobility among older non-drivers, youth under 16, and people with disabilities.

The Statewide Coordination of Community Transportation Services project, which is being coordinated in part through the efforts of the SCC and RCCs statewide, develops, implements and guides coordination of shared ride transportation options in the State. SNHPC is currently involved in efforts to provide improved transportation coordination in Regions 8 (Greater Manchester) and Region 9 (Derry-Salem). Current SNHPC efforts related to this project include administering and acting as Lead Agency for FTA Section 5310 Purchase of Service Funding to support coordinated transportation services for elderly persons and persons with disabilities. The intent of this initiative is to expand the availability of community transportation services in New Hampshire and support the goals of the 2006 “Statewide Coordination of Community Transportation Services” plan. By identifying transportation connectivity gaps in access to essential services, this program addresses the “Ladders of Opportunity” PEA.

Increasing accessibility and mobility of people and freight is essential to sustain the economy of the region. The ability of people and goods to move throughout the region has a direct impact on quality of life for residents and employees in the area. Increased accessibility and mobility, in turn, depend on the development and maintenance of an efficient transportation system that utilizes various modes. SNHPC currently participates in the planning process for existing transportation services in the region, such as those offered by MTA and CART. Staff are also involved in plans to develop new transit services, such as a service connection between the MTA and CART systems.

## **6.5 Summary and Conclusions**

This chapter has illustrated how the transportation plans, strategies, services and other activities of the SNHPC and the projects currently included in the Regional Transportation Plan address these requirements, as defined in the FAST Act, the PEAs as well as the Federal highway program national performance goals. Many of the plans, strategies, services and other activities of the SNHPC described in this chapter also address the specific goals of this Regional Transportation Plan, as outlined in Chapter II.

## CHAPTER VII

### FINANCIAL PLAN

#### 7.1 Introduction

The Fixing America's Surface Transportation Act (FAST), provides more than \$225 billion in total funding for surface transportation programs for fiscal years 2016 through 2020. The FAST Act provides longer-term (five-year) funding stability and continues the policy and programmatic changes initiated in the Moving Ahead for Progress in the 21st Century Act (MAP-21). The FAST Act continues the implementation of performance-based multi-modal planning to improve safety, maintain infrastructure condition, reduce traffic congestion, improve the efficiency of the system and freight movement, protect the environment, and reduce delays in project delivery.

Fiscal constraint requirements have remained a key component for transportation plan and program development in the FAST Act. Fiscal constraint requires that revenues in transportation planning and programming are identified and "are reasonably expected to be available" to implement the metropolitan long range transportation plan and the TIP while providing for the operation and maintenance of the existing highway and transit systems. Metropolitan planning statutes state that the long-range transportation plan and TIP must include a financial plan that "indicates resources from public and private sources that are reasonably expected to be available to carry out the program" [23 CFR §450.104]. Additionally, revenues must be "available and committed" for the first two years of a TIP in air quality non-attainment and maintenance areas [23 CFR 450.324(e) and 23 CFR 450.216(a)(5)].

The purpose of this section is to demonstrate that the SNHPC FY 2017 – FY 2040 RTP is fiscally constrained and that this plan has been developed to comply with the regulations of the FAST Act. A number of assumptions were considered in the development of the data used to demonstrate fiscal constraint in this section. A significant portion of the financial data in this section is based on funding projections utilizing recent data. It should be noted that there is no guarantee that the levels of funding for transportation available to the State of New Hampshire and to the SNHPC MPO area will remain constant or increase as suggested in this chapter. More realistically, the assumptions inherent in the fiscal constraint analysis will be reevaluated when the Plan is updated roughly every two years to correspond to the Statewide Ten Year Plan update process. The next portion of this section presents data on financial resources and projections for highway and transit projects in the region.

#### 7.2 Fiscally Constrained Transportation Plan

##### 7.2.1 Fiscal Constraint Summary

The Table 10 below presents a fiscal constraint summary for the SNHPC FY 2017 – FY 2040 RTP.

<b>Fiscal Constraint Summary - FY 2017 - FY 2040 - SNHPC Regional Transportation Plan</b>			
<b>Year</b>	<b>Source Document</b>	<b>Total Estimated Costs</b>	<b>Total Estimated Revenues</b>
2017-2020	Transportation Improvement Program	\$219,365,000	\$220,979,027
2021-2026	Ten-Year Plan	\$345,542,638	\$448,597,080
2027-2040	Regional Transportation Plan	\$620,128,152	\$848,547,921
<b>Total</b>		<b>\$1,185,035,790</b>	<b>\$1,518,124,028</b>

The table presents figures for three periods comprising the twenty-four years from 2017 (first TIP year) to 2040 (the final year of the planning horizon) of the RTP. A summary of total estimated project costs and total estimated project revenues are shown in Table 10 for the following periods: 1) FY 2017 to FY 2020 (TIP), 2) FY 2021 to FY 2026 (the remaining six years of the NHDOT Ten-Year Transportation Improvement Plan) and 3) FY 2027 to FY 2040 (the remaining fourteen years of the RTP planning horizon). Projects included in the fiscally constrained FY 2017 – FY 2040 RTP are included as Exhibit 16 of this document. Future project costs in Exhibit 16 are generally expressed in “Year of Expenditure” dollar figures that account for the effects of inflation. Future project costs in Exhibit 16 were inflated at a rate of 3.2 percent compounded annually, as agreed through New Hampshire’s Interagency Consultation process.

Fiscal constraint for the SNHPC FY 2017 – FY 2020 TIP is shown in the upper portion of Table 10. Table 10 shows revenues totaling approximately \$220,979,027 available to pay for a total of approximately \$219,365,000 in projects. It should be noted that: 1) The fiscal constraint of the FY 2017 – FY 2020 SNHPC TIP is based on assumptions of availability of Federal and local match funding for certain projects programmed in these years; and 2) The SNHPC MPO does not possess the resources and information required to independently verify this fiscal constraint.

The center portion of Table 10.1 provides a fiscal constraint summary for FY 2021 to FY 2026 representing the remaining years six years of the NHDOT FY 2017 – FY 2026 Ten-Year Plan. As shown in Table 10, the FY 2021 – FY 2026 portion of the Ten-Year Highway Plan includes approximately \$448,597,080 in revenues to finance projects in the SNHPC region valued at approximately \$345,542,638. Based on information received from the NHDOT, the fiscal constraint summary assumes that the funds for these Ten-Year Plan projects are reasonably expected to be available for implementation.

The bottom portion of the Table 10 fiscal constraint summary includes estimated project costs and revenues for the FY 2027 to FY 2040 period representing the fourteen year period from the completion of the Ten Year Plan to the end of the planning horizon of the RTP. As shown in Table 10, the FY 2027 – FY 2040 period includes approximately \$848,547,921 in revenues to finance projects in the SNHPC region valued at approximately \$620,128,152.

### *7.2.2 Fiscal Constraint Assumptions – Project Revenues*

Table 11 below provides a year-by-year fiscal constraint summary for the FY 2017 to FY 2040 period, includes a more detailed presentation of the costs and revenues assumed to be available to finance projects in the SNHPC region. The availability of FHWA and local match funding for highway projects for the period FY 2017 – FY 2020 was derived from the NHDOT FY 2017 – FY 2020 STIP. It consists of FHWA regular apportioned funds and any congressionally “earmarked” project funding. Table 11 assumes that, following FY 2026, FHWA and Local/Other funding increases in accordance with historic trends, which results in regular growth of Federal funding apportionment for the FY 2027 to FY 2040 period. However, it should be noted that there is no guarantee that this level of funding will continue or be sustained during this period. Table 11 also assumes that, based on an analysis of the region’s population and federal-aid eligible lane mileage, the SNHPC region will receive a maximum of 17 percent of the FHWA funding allocated to the State as well as a proportional share of Local/Other funding.

Availability of FTA funding and local match for transit projects was estimated based on current apportionments for the Manchester Transit Authority and a portion (50%) of the FTA 5307 funding apportionment for CART. Following FY 2026, estimates of FTA and Local/Other funding assume an increase in available funding of 3.2 percent per year. The FTA 5307 program represents the principal source of funding for MTA and CART in the SNHPC region. This program makes Federal resources

available to urbanized areas for transit capital and operating assistance. Eligible uses include operating subsidies, capital investments in bus and bus-related facilities such as replacement of buses, overhaul of buses and rebuilding of buses as well as planning, engineering design and evaluation of transit projects and other technical transportation-related studies. Under this program, all preventive maintenance and some ADA complementary paratransit service costs are considered capital costs.

The MTA and CART receives Section 5307 funding directly from the FTA for operating subsidies and for capital costs. Local match is a requirement for these funds, and the providers receive local share funding for 5307 funds and other programs through appropriations from the municipalities served.



*Table 11- Regional Fiscal Constraint Year-by-Year Analysis (FY 2017-2040)*

Fiscal Constraint Analysis - FY 2017 - FY 2040 - SNHPC Regional Transportation Plan													
	Year	Statewide FHWA Funding <sup>1</sup>	Statewide Local/Other Funds <sup>2</sup>	SNHPC FHWA Allocation <sup>3</sup>	Transit <sup>4</sup>	Transit Local/Other <sup>5</sup>	TPK Capital Improvement <sup>6</sup>	I-93 Improvement Project	Total Region Revenues	SNHPC Region Highway Projects	SNHPC Region Transit Projects	Total Costs	Balance
TIP	2017	\$179,329,106	\$3,912,463	\$35,417,498	\$3,264,988	\$954,058	\$5,827,144	\$13,867,432	\$59,331,119	\$51,770,000	\$7,002,000	\$58,772,000	\$559,119
	2018	\$177,924,132	\$2,838,876	\$27,133,430	\$4,611,172	\$1,290,604	\$8,733,197	\$10,744,068	\$52,512,471	\$44,690,000	\$7,451,000	\$52,141,000	\$371,471
	2019	\$178,595,458	\$3,736,029	\$24,556,876	\$3,369,467	\$984,587	\$2,198,209	\$21,160,502	\$52,269,641	\$49,658,000	\$2,247,000	\$51,905,000	\$364,641
	2020	\$182,867,443	\$2,458,314	\$19,658,250	\$3,477,290	\$1,016,094	\$5,104,242	\$27,609,920	\$56,865,796	\$54,229,000	\$2,318,000	\$56,547,000	\$318,796
Ten-Year Plan	2021	\$184,340,000	\$3,354,988	\$27,651,000	\$4,259,250	\$1,210,710	\$4,000,000	\$13,401,000	\$50,521,960	\$39,759,000	\$6,424,018	\$46,183,018	\$4,338,943
	2022	\$183,580,000	\$3,341,156	\$27,537,000	\$4,395,330	\$1,250,790	\$20,000,000	\$13,296,000	\$66,479,120	\$56,359,000	\$5,646,120	\$62,005,120	\$4,474,000
	2023	\$183,820,000	\$3,345,524	\$27,573,000	\$4,536,470	\$1,291,160	\$24,000,000	\$13,128,000	\$70,528,630	\$39,141,000	\$5,827,630	\$44,968,630	\$25,560,000
	2024	\$183,840,000	\$3,345,888	\$27,576,000	\$4,682,300	\$1,331,200	\$42,500,000	\$12,949,000	\$89,038,500	\$57,462,000	\$6,013,500	\$63,475,500	\$25,563,000
Regional Transportation Plan	2025	\$190,370,000	\$3,464,734	\$28,555,500	\$4,831,180	\$1,374,880	\$23,900,000	\$12,748,000	\$71,409,560	\$45,098,000	\$6,206,060	\$51,304,060	\$20,105,500
	2026	\$187,420,000	\$3,411,044	\$28,113,000	\$4,986,380	\$1,417,930	\$42,500,000	\$23,602,000	\$100,619,310	\$71,202,000	\$6,404,310	\$77,606,310	\$23,013,000
	2027	\$188,881,876	\$3,437,650	\$28,332,281	\$5,145,944	\$1,461,448	\$42,500,000	\$16,564,000	\$94,003,674	\$87,214,000	\$5,336,928	\$92,550,928	\$1,452,746
	2028	\$190,355,155	\$3,464,464	\$28,553,273	\$5,310,614	\$1,508,214	\$18,600,000	\$16,560,000	\$70,532,102	\$29,335,000	\$7,884,415	\$37,219,415	\$33,312,687
	2029	\$191,839,925	\$3,491,487	\$28,775,989	\$5,480,554	\$1,556,477	\$5,172,558	\$16,560,000	\$57,545,578	\$51,678,000	\$5,679,293	\$57,357,293	\$188,285
	2030	\$193,336,276	\$3,518,720	\$29,000,441	\$5,655,932	\$1,606,285	\$5,338,080	\$41,400,000	\$83,000,738	\$45,950,000	\$5,858,736	\$51,808,736	\$31,192,002
	2031	\$194,844,299	\$3,546,166	\$29,226,645	\$5,836,922	\$1,657,686	\$5,508,898	\$0	\$42,230,151	\$27,650,000	\$6,043,921	\$33,693,921	\$8,536,230
	2032	\$196,364,085	\$3,573,826	\$29,454,613	\$6,023,703	\$1,710,732	\$5,685,183	\$0	\$42,874,231	\$26,625,000	\$6,235,032	\$32,860,032	\$10,014,199
	2033	\$197,895,725	\$3,601,702	\$29,684,359	\$6,216,462	\$1,765,475	\$5,867,109	\$0	\$43,533,404	\$30,092,000	\$6,432,258	\$36,524,258	\$7,009,146
	2034	\$199,439,311	\$3,629,795	\$29,915,897	\$6,415,388	\$1,821,970	\$6,054,857	\$0	\$44,208,112	\$20,800,000	\$6,635,796	\$27,435,796	\$16,772,316
	2035	\$200,994,938	\$3,658,108	\$30,149,241	\$6,620,681	\$1,880,273	\$6,248,612	\$0	\$44,898,807	\$34,700,000	\$9,771,847	\$44,471,847	\$426,960
	2036	\$202,562,698	\$3,686,641	\$30,384,405	\$6,832,543	\$1,940,442	\$11,000,000	\$0	\$50,157,389	\$27,800,000	\$7,062,619	\$34,862,619	\$15,294,770
	2037	\$204,142,687	\$3,715,397	\$30,621,403	\$7,051,184	\$2,002,536	\$19,000,000	\$0	\$58,675,123	\$19,750,000	\$7,286,328	\$27,036,328	\$31,638,795
	2038	\$205,735,000	\$3,744,377	\$30,860,250	\$7,276,822	\$2,066,617	\$30,647,000	\$0	\$70,850,689	\$48,792,000	\$7,517,196	\$56,309,196	\$14,541,493
	2039	\$207,339,733	\$3,773,583	\$31,100,960	\$7,509,680	\$2,132,749	\$15,000,000	\$0	\$55,743,389	\$18,600,000	\$7,755,452	\$26,355,452	\$29,387,937
	2040	\$208,956,983	\$3,803,017	\$31,343,547	\$7,749,990	\$2,200,997	\$49,000,000	\$0	\$90,294,534	\$50,250,000	\$11,392,331	\$61,642,331	\$28,652,203
	<b>Totals</b>	<b>\$4,614,774,831</b>	<b>\$83,853,950</b>	<b>\$691,174,858</b>	<b>\$131,540,244</b>	<b>\$37,433,916</b>	<b>\$404,385,089</b>	<b>\$253,589,922</b>	<b>\$1,518,124,028</b>	<b>\$1,028,604,000</b>	<b>\$156,431,790</b>	<b>\$1,185,035,790</b>	<b>\$333,088,239</b>
<sup>1</sup> Total FHWA and State/Local funding for FY 2017-2026 from NHDOT STIP and Ten-Year Plan, FY 2027-2040 derived from extending FY 2017-2026 funding trend.													
<sup>2</sup> Local/Other funding from NHDOT STIP and assumes annual increase beyond FY 2020 based on continuation of historical trend.													
<sup>3</sup> Assumes that SNHPC region receives a maximum of 17% of total funding for State over the four-year TIP Period.													
<sup>4</sup> Transit funding based on estimated apportionments for MTA and CART (50% in SNHPC Region) and continuation of FY 2017-2026 funding trend for the period of FY 2027-2040.													
<sup>5</sup> Local match based assumption that MTA and CART match all available FTA funds.													
<sup>6</sup> Figures assume Turnpike projects in TYP financed through toll revenues and Capital Improvement Plan.													

The City of Manchester currently provides a local match for capital maintenance funds and for operation of the MTA's StepSaver ADA complimentary paratransit service. The City also provides the required fifty percent match for operating funds. The MTA currently relies on receipt of FTA 5307 operating funding in order to sustain its services. Additionally, the City of Manchester contributes the twenty percent local match for the system's bus-related capital costs. Transit revenue figures in Table 10.2 assume that the City of Manchester will continue to provide adequate local matching funds for MTA services. CART receives its FTA 5307 allocation from funds available from the Boston and Nashua urbanized areas. Local match funding for CART operations and capital is currently received from five service area communities and other sources. The CART service area includes Chester, Derry and Londonderry in the SNHPC region. This fiscal constraint analysis assumes that CART will continue to receive the majority of its local match funding from communities in the service area.

A separate column in the revenue portion of Table 11 shows Capital Improvement funds for the New Hampshire Turnpike System. The fiscal constraint summary assumes that, based on information received from NHDOT, adequate Turnpike toll revenue and additional funding from the Turnpike Capital Improvements Program will be available to complete Turnpike projects in the SNHPC region during the planning horizon.

#### *7.2.3 Fiscal Constraint Assumptions – Project Revenues – I-93 Widening*

A separate column in the revenue portion of Table 10.2 shows revenues from GARVEE Bonds and other sources used to finance the Interstate (I-93) Salem to Manchester expansion project. A significant portion of the funding allocated to the SNHPC region during the planning horizon of this RTP will be expended on the widening of the I-93 corridor. The I-93 Salem to Manchester project involves widening the mainline highway and reconstructing the interchanges on a 19.8 mile section of Interstate 93 between Manchester and Salem. The purpose of the proposed action is to improve transportation efficiency and reduce safety deficiencies associated with this portion of the highway. The Selected Alternative for the project provides additional lanes in each direction northbound and southbound and improvements to five existing interchanges. The project also includes transit improvements designed to reduce vehicle trips on the highway.

Financing of the I-93 project through the use of Grant Anticipation Revenue Vehicle (GARVEE) bonds allows NHDOT to minimize impacts to the rest of the State Federal Aid Construction program while the project is being completed. The "I-93 Improvements Salem to Manchester Financial Plan", approved by FHWA, provides details of the financing of the project utilizing GARVEE bonding. The project has been financed through the proceeds of a 2011 bond issue of \$80,000,000 and a 2012 bond issue of \$115,000,000. In May 2015, the NHDOT secured a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan in the amount of \$200,000,000 to complete the widening of I-93. The I-93 Financial Plan anticipates that repayment of the debt service of the bonds will be completed in 2030. Based on information provided by NHDOT and on information included in the I-93 Financial Plan, Table 11 includes estimates of revenues available to fund the cost of I-93 construction projects.

#### *7.2.4 Fiscal Constraint Assumptions – Project Costs*

The right side of the Table 11 fiscal constraint analysis includes a breakdown of annual costs for highway and transit projects in the SNHPC region for the period FY 2017 – FY 2040. Projects costs are broken down by: 1) Highway projects (including I-93); and 2) Transit projects. Project costs for the period FY 2017 – FY 2020, which comprise the SNHPC TIP, have been estimated principally from information from the NHDOT. Project costs for the period FY 2021 – FY 2026 have been estimated from the Ten-Year

Transportation Improvement Plan. Project costs for this period include debt service costs for the I-93 widening project as shown in Table 11.

Costs for highway and transit projects in the SNHPC region for the period FY 2027 – FY 2040 are also included in Table 11. This period comprises the final fourteen years of the planning horizon of the FY 2017 – FY 2040 SNHPC RTP. It should be noted that 1) NHDOT has not currently committed to funding projects included in the FY 2027 – FY 2040 time period (other than I-93 related debt service); and 2) It is assumed that, given the breakdown of available revenues and project costs in Table 11, as well as the assumptions discussed in this section, funding is reasonably expected to be available for these projects.

#### *7.2.5 FY 2027 to FY 2040 Project Selection Process*

The highway and transit projects included in the FY 2027 – FY 2040 portion of Exhibit 16 were selected principally through the Ten-Year Transportation Plan project selection process conducted by SNHPC during 2014 and 2015. Following completion of the project selection process completed by the Commission in the Spring of 2015, the results of the process were submitted to the NHDOT. The results of the SNHPC project selection process were considered along with similar data from other regional planning commissions in the development of the first draft of the FY 2017 – FY 2026 Ten-Year Plan. Following the release of the draft Ten-Year Plan, SNHPC staff considered those local priority projects submitted for inclusion in the draft FY 2017 – FY 2026 Ten Year Plan that were not included in the draft or subsequent final version of the Ten-Year Plan. These local priority projects were included in the SNHPC FY 2017 – FY 2040 RTP as a first step towards ensuring that they are included in subsequent versions of the Ten-Year Plan. It is hoped that inclusion of these local priority projects in the RTP will lead to more and better defined projects from the region being added to subsequent versions of the Ten-Year Plan.

As a result of the previously described regional project selection process, a total of 59 projects have been included in the FY 2027 – FY 2040 portion of Exhibit 16. The FY 2027 – FY 2040 portion of the Exhibit 16 project list includes many significant infrastructure improvements proposed for the SNHPC region. Coordination regarding individual projects included in this portion of Exhibit 16 has taken place between SNHPC, NHDOT, FHWA and member communities. Based on the results of these discussions and additional information, decisions were made to include these projects in the fiscally constrained project list of the FY 2017 – FY 2040 SNHPC RTP. The following paragraphs describe some of the more significant projects proposed for the region during this period.

#### *I-293/F.E. Everett Turnpike Exits 6 and 7*

The FY 2027 – FY 2040 portion of the Exhibit 16 fiscally constrained project list includes the I-293 Exit 6 and 7 improvement project in Manchester. The NHDOT is currently conducting a corridor study of I-293 in the vicinity of Exits 6 and 7 in the City of Manchester. The study is evaluating interchange configurations and system connectivity at Exit 6 to address the potential for a new full-access interchange for Exit 7 north of the existing interchange. The “I-293 Exits 6 and 7 Transportation Planning Study”, completed by NHDOT in November 2013, was designed to evaluate potential broad transportation system changes and establish a range of practical alternatives in the study area. Federal and State stakeholders are now evaluating those alternatives as required under the National Environmental Policy Act (NEPA). Funding for the planning, engineering, and a portion of the construction phase of this project is included in the FY 2017 – FY 2026 Ten-Year Transportation Improvement Plan. This fiscal constraint analysis assumes that adequate funding for the Turnpike capital program, including improvements at I-293 Exits 6 and 7, are included in the planning horizon. As a result, Exhibit 16 includes funding for this project.

#### 7.2.6 *Demonstration of Fiscal Constraint*

A comparison of the total revenue and total cost columns in the Table 11 fiscal constraint summary indicates that, for each year of the period FY 2017 – FY 2040, total revenues exceed total costs. As a result, Table 11 indicates that the RTP project list included in Exhibit 16 is fiscally constrained. As noted earlier in this chapter: 1) The fiscal constraint analysis for the FY 2017 – FY 2040 SNHPC RTP is based on assumptions of availability of Federal and local match funding for certain projects programmed for these years; and 2) The SNHPC MPO does not possess the resources and information required to independently verify this fiscal constraint.

### **7.3 Operations and Maintenance Needs**

The fiscal constraint summary also provides estimates of maintenance and operations needs of the State Highway System in the SNHPC region for the period FY 2017 to FY 2040. The estimates are based on 1) NHDOT STIP Fiscal Constraint Summary figures for statewide operations and maintenance activities; and 2) Estimates of local roadway maintenance and operations needs from a methodology based on the SNHPC region's proportional share of federal-aid road mileage. Table 12 presents estimates of operations and maintenance for federal-aid roadways on a statewide basis. These figures, broken down on a cost per mile basis, were then used to develop estimates of regional needs for maintenance and operations for federal-aid roadways within the SNHPC region.

*Table 12- Operations and Maintenance Year-by-Year Analysis (FY 2017-2040)*

<b>Fiscal Constraint Summary - Operations &amp; Maintenance Estimates - SNHPC Region</b>			
<b>Year</b>	<b>Statewide Operations &amp; Maintenance Needs</b>	<b>Statewide Operations &amp; Maintenance Cost/Mile<sup>1</sup></b>	<b>Regional Needs for Operations &amp; Maintenance (Federal-aid Eligible Roads)<sup>2</sup></b>
2017	\$107,968,805	\$12,785	\$15,763,829
2018	\$124,796,987	\$14,778	\$18,220,803
2019	\$133,355,608	\$15,791	\$19,470,393
2020	\$104,662,526	\$12,393	\$15,281,101
2021	\$104,660,767	\$12,393	\$15,280,844
2022	\$104,669,271	\$12,394	\$15,282,085
2023	\$93,378,048	\$11,057	\$13,633,527
2024	\$93,387,106	\$11,058	\$13,634,849
2025	\$91,361,453	\$10,818	\$13,339,097
2026	\$79,371,100	\$9,399	\$11,588,463
2027	\$103,761,167	\$12,287	\$15,149,499
2028	\$107,081,524	\$12,680	\$15,634,283
2029	\$110,508,133	\$13,086	\$16,134,580
2030	\$114,044,393	\$13,504	\$16,650,887
2031	\$117,693,814	\$13,937	\$17,183,715
2032	\$121,460,016	\$14,382	\$17,733,594
2033	\$125,346,737	\$14,843	\$18,301,069
2034	\$129,357,832	\$15,318	\$18,886,703
2035	\$133,497,283	\$15,808	\$19,491,078
2036	\$137,769,196	\$16,314	\$20,114,792
2037	\$142,177,810	\$16,836	\$20,758,465
2038	\$146,727,500	\$17,374	\$21,422,736
2039	\$151,422,780	\$17,930	\$22,108,264
2040	\$156,268,309	\$18,504	\$22,815,728
<b>Total (2017 - 2020)</b>			<b>\$166,644,489</b>

Notes:

- FY 2017 - FY 2020 Statewide Maintenance and Operations Figures based on NHDOT STIP Financial Constraint Summary.
- FY 2021-2026 Statewide Maintenance and Operations Figures based on Ten-Year Transportation Improvement Plan.
- FY 2027-2040 Statewide Maintenance and Operations Figures based on FY 2017-2026 Average and Increased at 3.2% per year.
- <sup>1</sup> Assumes a total of 8,445 miles of Federal-aid eligible roadways in New Hampshire.
- <sup>2</sup> Assumes a total of 1,233 miles of Federal-aid eligible roadways in the SNHPC Region.

## 7.4 Observations and Conclusions

Based on the information contained in this chapter, the following observations and conclusions can be made regarding the fiscal constraint of the SNHPC FY 2017 – FY 2040 RTP:



- Revenues from various Federal, State and local sources available for funding transportation projects have been identified in this chapter. These resources are reasonably expected to be available for implementation of regional projects currently contained in the SNHPC FY 2017 – FY 2040 RTP. Estimates of highway and transit funding assumed to be available for the years FY 2017 – FY 2040 have also been included. The financial information in this chapter, which reflects realistic assumptions concerning the availability of funding, has been developed through a cooperative process between the SNHPC MPO, NHDOT, MTA and CART. This financial plan demonstrates the fiscal constraint of the SNHPC FY 2017 – FY 2040 RTP.
- Additionally, it is evident that, in order to both expand the regional transportation infrastructure in the future and effectively preserve the existing system, additional revenues or funding sources may be required. Potential options for increasing available revenues include increases in the gas tax, increased tolls and pursuit of additional funding through public-private partnerships.
- It should be noted that the transit funding projections included in this section are considered to be sufficient only for maintaining the current service levels and replacement of capital. Additional funding would be required in order to allow for growth and expansion of the system. It is anticipated that local match funding for transit will continue to be available from municipalities receiving MTA and CART services. It is also evident that, in order to expand transit in the SNHPC region, additional sources of dedicated transit revenue must be identified.

**FY 2017-2040 FISCALLY-CONSTRAINED PROJECT LIST**  
**(Exhibit 16)**

# SNHPC Transportation Improvement Program FY 2017 - 2020

Name/#	Route/Street		Location/Scope of Work				CAACode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
BEDFORD 13692C 13107	NH 101		Bridge Rehab or Replacement of br no 090/065 carrying NH 101 over Pulpit Brook				ATT	2,499,782	N
	CON	2019	609,105	0	0	609,105	National Highway System, Toll Credit		
		2020	855,697	0	0	855,697			
		Total	1,464,802	0	0	1,464,802			
BEDFORD 13953 1818	NH 101		Widen NH 101 to 5 lanes from NH 114 to Wallace Road				ATT	24,872,297	N
	PE	2017	56,760	0	0	56,760	National Highway System, Toll Credit		
	CON	2017	9,081,600	0	0	9,081,600			
		2018	5,857,632	0	0	5,857,632			
		Total	14,995,992	0	0	14,995,992			
BEDFORD 16156 7730	NH 114		Culvert Slipline/Rehab for Redlist Bridge carrying NH 114 over Bowman Brook (Br No 151/151)				ATT	2,258,430	N
	PE	2017	28,380	0	0	28,380	Redistribution, Toll Credit		
	ROW	2017	56,760	0	0	56,760			
	CON	2018	1,757,290	0	0	1,757,290	STP-State Flexible, Toll Credit		
		Total	1,842,430	0	0	1,842,430			
BEDFORD - MERRIMACK 16100 7394	F.E. EVERETT TPK		Improvement to Bedford Mainline Toll Plaza to Institute Open Road Tolling (TPK Capital Program)				ATT	10,409,781	Y
	PE	2017	0	913,320	0	913,320	Turnpike Capital		
	CON	2017	0	1,960,800	0	1,960,800			
		2018	0	7,135,661	0	7,135,661			
		Total	0	10,009,781	0	10,009,781			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
BOSTON - MANCHESTER 68060 11788	Boston Express		Boston Express - FEE/NASHUA CAPITAL, CAPITAL PM, MARKETING AND OPERATING. MATCH W/TOLL CREDITS.				E-21	231,472	N
	OTHER	2017	47,472	0	0	47,472	FTA 5307 Capital and Operating Program, Toll Credit		
		Total	47,472	0	0	47,472			
BOSTON - MANCHESTER 68093C 13111	Boston Express		Boston Express - Repairs to buildings & grounds for FEE commuter service.				E-28	12,064	N
	OTHER	2017	2,064	0	0	2,064	FTA 5307 Capital and Operating Program		
		Total	2,064	0	0	2,064			
BOSTON - MANCHESTER 68093E 13109	Boston Express		Boston Express - Capital Equipment for FEE service.				E-24	18,128	N
	OTHER	2017	4,128	0	0	4,128	FTA 5307 Capital and Operating Program, Toll Credit		
		Total	4,128	0	0	4,128			
BOSTON - MANCHESTER 68093M 13108	Boston Express		Boston Express - Marketing for FEE Turnpike commuter bus service5307 Program				E-21	136,440	N
	OTHER	2017	46,440	0	0	46,440	FTA 5307 Capital and Operating Program, Toll Credit		
		Total	46,440	0	0	46,440			
BOSTON - MANCHESTER 68093O 13110	Boston Express		Boston Express - Operating expenses for FE Everett Turnpike commuter service. Annual project.				E-21	754,408	N
	OTHER	2017	219,408	0	0	219,408	FTA 5307 Capital and Operating Program, Toll Credit		
		Total	219,408	0	0	219,408			

Name/#	Route/Street		Location/Scope of Work				CAACode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$			
BOW 29641 13043	NH 3A		NH Rte 3A Corridor safety improvements				ATT	4,946,581	N
	PE	2018	351,458	0	0	351,458	National Highway System, Toll Credit		
		2020	124,770	0	0	124,770			
	ROW	2018	58,576	0	0	58,576			
		2020	561,467	0	0	561,467			
	Total		1,096,271	0	0	1,096,271			
CART 60100A 12926	Cooperative Alliance for Regional Transportation (CART)		Coop. Alliance for Reg. Transportation - Preventative Maintenance (Derry-Salem region)				E-23	1,268,453	N
	OTHER	2017	70,176	0	17,544	87,720	FTA 5307 Capital and Operating Program, Other		
		2018	72,422	0	18,105	90,527			
		2019	74,739	0	18,685	93,424			
		2020	77,131	0	19,283	96,413			
	Total		294,468	0	73,617	368,084			
CART 60100B 12927	Cooperative Alliance for Regional Transportation (CART)		Coop. Alliance for Reg. Transportation - Operating Assistance (Derry-Salem region)				E-21	10,285,946	N
	OTHER	2017	367,487	0	367,487	734,973	FTA 5307 Capital and Operating Program, Other		
		2018	379,246	0	379,246	758,492			
		2019	391,382	0	391,382	782,764			
		2020	403,906	0	403,906	807,812			
	Total		1,542,021	0	1,542,021	3,084,042			
COMMUTER/INTERCITY BUS REPLACEMENT 40284 20142	Various		Replacement of existing state-owned coaches used for commuter and intercity bus.				E-30	18,693,725	N
	OTHER	2017	3,096,000	0	0	3,096,000	Congestion Mitigation and Air Quality Program, Toll Credit		
		2018	3,195,072	0	0	3,195,072			
		2019	5,275,703	0	0	5,275,703			
		2020	2,722,263	0	0	2,722,263			
	Total		14,289,038	0	0	14,289,038			



Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
DERRY - LONDONDERRY 13065  1816	I-93		I-93 EXIT 4A - Prelim., Final Design, ROW & Construction of NEW INTERCHANGE and connecting roadway				ATT	<b>64,837,193</b>	N
	PE	2017	56,760	0	1,806,000	1,862,760	Non Participating, STP-State Flexible, Toll Credit		
		2018	0	0	2,295,127	2,295,127	Non Participating		
		2019	60,451	0	0	60,451	STP-State Flexible, Toll Credit		
	ROW	2019	2,418,030	0	0	2,418,030			
		2020	9,981,630	0	0	9,981,630			
	CON	2019	9,067,614	0	2,747,762	11,815,376	Non Participating, STP-State Flexible, Toll Credit		
	Total		21,584,485	0	6,848,889	28,433,374			
HOOKSETT 29611  13008	US 3 / NH 28		Reconstruction and widening from NH 27 / Whitehall Rd / Martin's Ferry Rd to W Alice Ave / Alice Ave				ATT	<b>17,819,431</b>	N
	PE	2018	585,763	0	0	585,763	National Highway System, Toll Credit		
		2020	842,200	0	0	842,200			
	ROW	2019	60,451	0	0	60,451			
		2020	311,926	0	0	311,926			
	Total		1,800,340	0	0	1,800,340			
MANCHESTER 16099  7692	I-293 / FEE TPK		PRELIMINARY ENGINEERING STUDY FOR RECONSTRUCTION OF THE F.E. EEVERETT TURNPIKE AT EXITS 6 AND 7				LMP	<b>12,104,730</b>	Y
	PE	2017	0	1,065,024	0	1,065,024	Turnpike Capital		
	Total		0	1,065,024	0	1,065,024			
MANCHESTER 29811  13181	South Manchester Rail Trail		Construct Multi-use path along the abandoned rail corridor from Gold St. to Perimeter Road				E-33	<b>1,650,787</b>	N
	PE	2017	74,056	0	18,514	92,570	Congestion Mitigation and Air Quality Program, Towns		
	ROW	2017	1,734	0	433	2,167			
	CON	2017	1,062,839	0	265,710	1,328,549			
	Total		1,138,630	0	284,657	1,423,287			

Name/#	Route/Street	Location/Scope of Work					CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
MANCHESTER 60200A  12870	Manchester Transit Authority (MTA)	Manchester Transit Authority (MTA) - Operating assistance for fixed route transit service.					E-21	9,460,122	N
	OTHER	2017	1,923,648	0	480,912	2,404,560	FTA 5307 Capital and Operating Program, Other		
		2018	2,025,250	0	506,312	2,531,562			
		Total	3,948,898	0	987,224	4,936,122			
MANCHESTER 60200B  12872	Manchester Transit Authority (MTA)	Manchester Transit Authority (MTA) - Operating assistance for capital maintenance of transit fleet.					E-21	2,237,175	N
	OTHER	2017	454,906	0	113,726	568,632	FTA 5307 Capital and Operating Program, Other		
		2018	478,835	0	119,709	598,543			
		Total	933,740	0	233,435	1,167,175			
MANCHESTER 60200C  12877	Manchester Transit Authority (MTA)	Manchester Transit Authority (MTA) - Replacement buses.					E-30	2,123,393	N
	OTHER	2018	1,346,184	0	336,546	1,682,729	FTA 5307 Capital and Operating Program, Other		
		Total	1,346,184	0	336,546	1,682,729			
MANCHESTER 60200D  12885	Manchester Transit Authority (MTA)	Manchester Transit Authority (MTA) - Operating Assistance for ADA Paratransit Service.					E-21	1,191,527	N
	OTHER	2017	243,677	0	60,919	304,597	FTA 5307 Capital and Operating Program, Other		
		2018	256,751	0	64,188	320,939			
		Total	500,428	0	125,107	625,535			
MANCHESTER 60200E  12879	Manchester Transit Authority (MTA)	Manchester Transit Authority (MTA) - Replacement of ADA Paratransit Vans. FTA Section 5307 funds.					E-30	628,704	N
	OTHER	2017	224,563	0	56,141	280,704	FTA 5307 Capital and Operating Program, Other		
		Total	224,563	0	56,141	280,704			
MANCHESTER 60200F  12886	Manchester Transit Authority (MTA)	Manchester Transit Authority (MTA) - Replacement of Transit Service Vehicles.					E-30	142,893	N
	OTHER	2017	90,314	0	22,579	112,893	FTA 5307 Capital and Operating Program, Other		
		Total	90,314	0	22,579	112,893			

Name/#	Route/Street	Location/Scope of Work					CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
MANCHESTER 60200G  12888	Manchester Transit Authority (MTA)	Manchester Transit Authority (MTA) - Miscellaneous Capital for public transportation.					E-25	527,104	N
	OTHER	2017	109,058	0	27,265	136,323	FTA 5307 Capital and Operating Program, Other		
		2018	112,548	0	28,137	140,685			
		Total	221,607	0	55,402	277,008			
NASHUA - CONCORD 29408  12859	F.E. Everett Turnpike	Intelligent Transportation System (ITS) deployment on F.E. Everett Turnpike					E-7	4,100,000	Y
	CON	2017	0	1,888,000	0	1,888,000	Turnpike Capital		
		Total	0	1,888,000	0	1,888,000			
NASHUA - MERRIMACK - BEDFORD 13761  12737	F. E. Everett Turnpike	F.E.E.Turnpike widening of 2-lane sections from Exit 8 in Nashua to I-293 interchange in Bedford					LMP	86,419,091	Y
	PE	2018	0	1,597,536	0	1,597,536	Turnpike Capital		
		2019	0	1,648,657	0	1,648,657			
		2020	0	2,268,552	0	2,268,552			
	ROW	2019	0	549,552	0	549,552			
		2020	0	2,835,690	0	2,835,690			
		Total	0	8,899,988	0	8,899,988			
PROGRAM ADA  20402	Various	Upgrades to side walks, curb ramps, and signals to be compliant with ADA laws.					E-33	2,710,920	N
	CON	2017	234,305	0	0	234,305	STP-Safety, Toll Credit		
		2018	241,803	0	0	241,803			
		2019	249,541	0	0	249,541			
		2020	257,526	0	0	257,526			
		Total	983,175	0	0	983,175			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM BRDG-HIB-M&P 20232	Various		Maintenance and preservation efforts for High Investment Bridges				ALL	28,700,000	N
	PE	2017	100,000	0	0	100,000	STP-State Flexible, Toll Credit		
		2018	100,000	0	0	100,000			
		2019	100,000	0	0	100,000			
		2020	100,000	0	0	100,000			
	ROW	2017	20,000	0	0	20,000			
		2018	20,000	0	0	20,000			
		2019	20,000	0	0	20,000			
		2020	20,000	0	0	20,000			
	CON	2017	2,550,000	0	0	2,550,000			
		2018	2,550,000	0	0	2,550,000			
		2019	2,800,000	0	0	2,800,000			
		2020	2,800,000	0	0	2,800,000			
	Total		11,180,000	0	0	11,180,000			
PROGRAM BRDG-T1/2-M&P 20233	Tier 1-2 Bridges		Maintenance & preservation of tier 1 & 2 bridges.				ALL	70,250,000	N
	PE	2017	100,000	0	0	100,000	STP-State Flexible, Toll Credit		
		2018	100,000	0	0	100,000			
		2019	100,000	0	0	100,000			
		2020	100,000	0	0	100,000			
	ROW	2017	25,000	0	0	25,000			
		2018	25,000	0	0	25,000			
		2019	25,000	0	0	25,000			
		2020	25,000	0	0	25,000			
	CON	2017	2,500,000	0	0	2,500,000			
		2018	2,500,000	0	0	2,500,000			
		2019	8,000,000	0	0	8,000,000			
		2020	8,000,000	0	0	8,000,000			
	Total		21,500,000	0	0	21,500,000			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM BRDG-T3/4-M&P 20236	Tier 3-4 Bridges		Maintenance and preservation of tier 3 & 4 bridges.				ALL	23,100,000	N
	PE	2017	50,000	0	0	50,000	STP-State Flexible, Toll Credit		
		2018	50,000	0	0	50,000			
		2019	50,000	0	0	50,000			
		2020	50,000	0	0	50,000			
	ROW	2017	10,000	0	0	10,000			
		2018	10,000	0	0	10,000			
		2019	10,000	0	0	10,000			
		2020	10,000	0	0	10,000			
	CON	2017	1,250,000	0	0	1,250,000			
		2018	1,250,000	0	0	1,250,000			
		2019	2,500,000	0	0	2,500,000			
		2020	2,500,000	0	0	2,500,000			
	Total		7,740,000	0	0	7,740,000			
PROGRAM CBI 7237	Various		Complex Bridge Inspection (PARENT)				E-38	5,712,276	N
	PLAN	2017	250,000	0	0	250,000	STP-State Flexible, Toll Credit		
		2018	250,000	0	0	250,000			
		2019	250,000	0	0	250,000			
		2020	250,000	0	0	250,000			
	Total		1,000,000	0	0	1,000,000			

Name/#	Route/Street		Location/Scope of Work				CAAcodes	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM CRDR 4157	Various		CULVERT REPLACEMENT/REHABILITATION & DRAINAGE REPAIRS (Annual Project)				ALL	26,639,970	N
	PE	2017	88,000	0	0	88,000	STP-State Flexible, Toll Credit		
		2018	100,000	0	0	100,000			
		2019	100,000	0	0	100,000			
		2020	100,000	0	0	100,000			
	ROW	2017	2,000	0	0	2,000			
		2018	25,000	0	0	25,000			
		2019	25,000	0	0	25,000			
		2020	25,000	0	0	25,000			
	CON	2017	1,870,000	0	0	1,870,000			
		2018	1,870,000	0	0	1,870,000			
		2019	1,870,000	0	0	1,870,000			
		2020	1,870,000	0	0	1,870,000			
	PLAN	2017	40,000	0	0	40,000			
		2018	5,000	0	0	5,000			
		2019	5,000	0	0	5,000			
		2020	5,000	0	0	5,000			
	Total		8,000,000	0	0	8,000,000			
PROGRAM DBE 45	Disadvantaged Business Enterprise		IN HOUSE ADMINISTRATION OF THE FHWA SUPPORTIVE PROGRAM: "DBE COMPLIANCE MONITORING (Annual Program)				E-0	1,440,000	N
	OTHER	2017	90,000	0	0	90,000	STP-DBE		
		2018	90,000	0	0	90,000			
		2019	90,000	0	0	90,000			
		2020	90,000	0	0	90,000			
	Total		360,000	0	0	360,000			



Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM FLAP 20049	Various		Improving transportation facilities that access Federal Lands within NH {FLAP}				ALL	4,462,000	N
	PE	2017	50,000	0	0	50,000	Forest Highways		
		2018	50,000	0	0	50,000			
		2019	50,000	0	0	50,000			
		2020	50,000	0	0	50,000			
	ROW	2017	25,000	0	0	25,000			
		2018	25,000	0	0	25,000			
		2019	25,000	0	0	25,000			
		2020	25,000	0	0	25,000			
	CON	2017	250,000	0	0	250,000			
		2018	225,000	0	0	225,000			
		2019	275,000	0	0	275,000			
		2020	275,000	0	0	275,000			
	Total		1,325,000	0	0	1,325,000			
PROGRAM FTA5307 20199	Boston Urbanized Area (UZA)		Boston Urbanized Area (UZA) FTA Section 5307 apportioned funds for NHDOT transit projects.				E-21	47,204,426	N
	OTHER	2017	2,787,128	0	696,782	3,483,910	FTA 5307 Capital and Operating Program, Other		
		2018	2,876,317	0	719,079	3,595,396			
		2019	2,968,359	0	742,090	3,710,449			
		2020	3,063,346	0	765,837	3,829,183			
	Total		11,695,150	0	2,923,788	14,618,938			
PROGRAM FTA5309 11482	Various		Capital bus and bus facilities - FTA Section 5309 Program				E-30	5,566,667	N
	OTHER	2017	800,000	0	200,000	1,000,000	FTA 5309 Capital Funding Program - Discretionary, Other		
	Total		800,000	0	200,000	1,000,000			

Name/#	Route/Street		Location/Scope of Work				CAACode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$			
PROGRAM FTA5310 10756	Various		Capital, Mobility Mgmt, and Operating for Seniors & Individuals w/ Disabilities - FTA 5310 Program				E-30	39,310,898	N
	OTHER	2017	2,004,646	0	501,161	2,505,807	FTA 5310 Capital Program, Other		
		2018	2,068,794	0	517,199	2,585,993			
		2019	2,134,996	0	533,749	2,668,745			
		2020	2,203,315	0	550,829	2,754,144			
		Total	8,411,751	0	2,102,938	10,514,689			
PROGRAM FTA5339 11481	Various		Capital bus and bus facilities - FTA 5339 Program for statewide public transportation				E-30	46,037,521	N
	OTHER	2017	2,462,957	0	615,739	3,078,696	FTA 5339 Bus and Bus Facilities, Other		
		2018	2,541,771	0	635,443	3,177,214			
		2019	2,623,108	0	655,777	3,278,885			
		2020	2,707,047	0	676,762	3,383,809			
		Total	10,334,883	0	2,583,721	12,918,604			
PROGRAM GRR 785	Various		GUARDRAIL REPLACEMENT [Federal Aid Guardrail Improvement Program] (Annual Project)				E-9	18,405,909	N
	PE	2017	150,000	0	0	150,000	STP-State Flexible, Toll Credit		
		2018	120,000	30,000	0	150,000	NH Highway Fund, STP-State Flexible		
		2019	120,000	30,000	0	150,000			
		2020	120,000	30,000	0	150,000			
	ROW	2017	5,000	0	0	5,000	STP-State Flexible, Toll Credit		
		2018	4,000	1,000	0	5,000	NH Highway Fund, STP-State Flexible		
		2019	4,000	1,000	0	5,000			
		2020	4,000	1,000	0	5,000			
	CON	2017	1,880,000	0	0	1,880,000	STP-State Flexible, Toll Credit		
		2018	1,504,000	376,000	0	1,880,000	NH Highway Fund, STP-State Flexible		
		2019	1,504,000	376,000	0	1,880,000			
		2020	1,504,000	376,000	0	1,880,000			
		Total	6,919,000	1,221,000	0	8,140,000			

Name/#	Route/Street		Location/Scope of Work				CAACode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$			
PROGRAM HAZMAT 11479	Hazard Material Review		Hazard Material review for post construction obligations.				ALL	381,800	N
	OTHER	2017	27,000	0	0	27,000	STP-State Flexible, Toll Credit		
		2018	27,000	0	0	27,000			
		2019	27,000	0	0	27,000			
		2020	27,000	0	0	27,000			
	Total		108,000	0	0	108,000			
PROGRAM HSIP 6767	Various		HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)				E-6	148,883,441	N
	PE	2017	500,000	0	0	500,000	Highway Safety Improvement Program (HSIP), Toll Credit		
		2018	500,000	0	0	500,000			
		2019	500,000	0	0	500,000			
		2020	500,000	0	0	500,000			
	ROW	2017	150,000	0	0	150,000			
		2018	150,000	0	0	150,000			
		2019	150,000	0	0	150,000			
		2020	150,000	0	0	150,000			
	CON	2017	6,002,000	0	0	6,002,000			
		2018	8,690,723	0	0	8,690,723			
		2019	8,862,151	0	0	8,862,151			
		2020	9,059,081	0	0	9,059,081			
	PLAN	2017	200,000	0	0	200,000			
		2018	200,000	0	0	200,000			
		2019	200,000	0	0	200,000			
		2020	200,000	0	0	200,000			
	Total		36,013,955	0	0	36,013,955			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM LTAP 12829	Local Techonolgy Assistance Program		Local Techonolgy Assistance Program (LTAP) administered by the Technology Transfer Center @ UNH				ALL	1,900,000	N
	PLAN	2017	150,000	0	0	150,000	Local Tech Assistance Program		
		2018	150,000	0	0	150,000			
		2019	150,000	0	0	150,000			
		2020	150,000	0	0	150,000			
		Total	600,000	0	0	600,000			
PROGRAM MOBRR 221	Various		MUNICIPAL OWNED BRIDGE REHABILITATION & REPLACEMENT PROJECTS (MOBRR PROGRAM)				ALL	57,700,000	N
	PE	2017	80,000	0	20,000	100,000	Bridge Off System, Other		
		2018	80,000	0	20,000	100,000			
		2019	80,000	0	20,000	100,000			
		2020	80,000	0	20,000	100,000			
	ROW	2017	40,000	0	10,000	50,000			
		2018	40,000	0	10,000	50,000			
		2019	20,000	0	5,000	25,000			
		2020	20,000	0	5,000	25,000			
	CON	2017	3,600,000	0	900,000	4,500,000			
		2018	3,600,000	0	900,000	4,500,000			
		2019	3,600,000	0	900,000	4,500,000			
		2020	3,600,000	0	900,000	4,500,000			
		Total	14,840,000	0	3,710,000	18,550,000			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM PAVE-T1-PRES 20203	Tier 1 Interstate		Preservation of Tier 1 pavements.				E-10	123,500,000	N
	PE	2017	150,000	0	0	150,000	STP-State Flexible, Toll Credit		
		2018	150,000	0	0	150,000			
		2019	150,000	0	0	150,000			
		2020	150,000	0	0	150,000			
	CON	2017	11,000,000	0	0	11,000,000			
		2018	11,500,000	0	0	11,500,000			
		2019	12,000,000	0	0	12,000,000			
		2020	12,500,000	0	0	12,500,000			
	Total		47,600,000	0	0	47,600,000			
PROGRAM PAVE-T2-MAINT 20208	Tier 2 Highways		Maintenance paving of the tier 2 system.				E-10	127,210,000	N
	PE	2017	200,000	0	0	200,000	STP-State Flexible, Toll Credit		
		2018	200,000	0	0	200,000			
		2019	200,000	0	0	200,000			
		2020	200,000	0	0	200,000			
	ROW	2017	5,000	0	0	5,000			
		2018	5,000	0	0	5,000			
		2019	25,000	0	0	25,000			
		2020	25,000	0	0	25,000			
	CON	2017	6,250,000	6,250,000	0	12,500,000	Betterment, STP-State Flexible, Toll Credit		
		2018	6,250,000	6,250,000	0	12,500,000			
		2019	6,250,000	6,250,000	0	12,500,000			
		2020	6,250,000	6,250,000	0	12,500,000			
	Total		25,860,000	25,000,000	0	50,860,000			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM PAVE-T2-PRES 20204	Tier 2 Highways		Preservation of Tier 2 pavements.				E-10	80,250,000	N
	PE	2017	100,000	0	0	100,000	STP-State Flexible, Toll Credit		
		2018	100,000	0	0	100,000			
		2019	100,000	0	0	100,000			
		2020	100,000	0	0	100,000			
	ROW	2017	25,000	0	0	25,000			
		2018	25,000	0	0	25,000			
		2019	25,000	0	0	25,000			
		2020	25,000	0	0	25,000			
	CON	2017	7,900,000	0	0	7,900,000			
		2018	7,900,000	0	0	7,900,000			
		2019	7,900,000	0	0	7,900,000			
		2020	7,900,000	0	0	7,900,000			
	Total		32,100,000	0	0	32,100,000			
PROGRAM PVMRK 1146	Various		Statewide Pavement Marking Annual Project				E-11	49,600,000	N
	CON	2017	3,100,000	0	0	3,100,000	STP-State Flexible, Toll Credit		
		2018	3,100,000	0	0	3,100,000			
		2019	3,100,000	0	0	3,100,000			
		2020	3,100,000	0	0	3,100,000			
	Total		12,400,000	0	0	12,400,000			
PROGRAM RCTRL 2570	Various		RECREATIONAL TRAILS FUND ACT- PROJECTS SELECTED ANNUALLY				ALL	19,778,645	N
	OTHER	2017	1,250,000	0	312,500	1,562,500	DRED, Recreational Trails		
		2018	1,250,000	0	312,500	1,562,500			
		2019	1,250,000	0	312,500	1,562,500			
		2020	1,250,000	0	312,500	1,562,500			
	Total		5,000,000	0	1,250,000	6,250,000			



Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM RRRCS 1147	Statewide Railroad Crossings		RECONSTRUCTION OF CROSSINGS, SIGNALS, & RELATED WORK (Annual Project)				E-1	19,993,438	N
	PE	2017	50,000	0	0	50,000	RL - Rail Highway, Toll Credit		
		2018	50,000	0	0	50,000			
		2019	50,000	0	0	50,000			
		2020	50,000	0	0	50,000			
	ROW	2017	5,000	0	0	5,000			
		2018	5,000	0	0	5,000			
		2019	5,000	0	0	5,000			
		2020	5,000	0	0	5,000			
	CON	2017	1,100,000	0	0	1,100,000			
		2018	1,100,000	0	0	1,100,000			
		2019	1,100,000	0	0	1,100,000			
		2020	1,100,000	0	0	1,100,000			
	PLAN	2017	5,000	0	0	5,000			
		2018	5,000	0	0	5,000			
		2019	5,000	0	0	5,000			
		2020	5,000	0	0	5,000			
	Total		4,640,000	0	0	4,640,000			
PROGRAM SRTS 6002	Various		SAFE ROUTES TO SCHOOL PROGRAM				E-6	8,561,274	N
	ROW	2017	10,000	0	0	10,000	Safe Routes to School		
		2018	5,000	0	0	5,000			
	CON	2017	831,578	0	0	831,578			
		2018	297,000	0	0	297,000			
	OTHER	2017	13,417	0	0	13,417			
	Total		1,156,995	0	0	1,156,995			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM TA 12881	Various		TRANSPORTATION ALTERNATIVES PROGRAM (TAP)				ALL	28,057,089	N
	PE	2017	29,680	0	7,420	37,100	Other, TAP - Transportation Alternatives		
		2018	252,760	0	63,190	315,950			
		2019	252,760	0	63,190	315,950			
		2020	252,760	0	63,190	315,950			
	ROW	2017	24,000	0	6,000	30,000			
		2018	102,120	0	25,530	127,650			
		2019	102,120	0	25,530	127,650			
		2020	102,120	0	25,530	127,650			
	CON	2017	2,496,000	0	624,000	3,120,000			
		2018	1,992,000	0	498,000	2,490,000			
		2019	1,992,000	0	498,000	2,490,000			
		2020	1,992,000	0	498,000	2,490,000			
	OTHER	2017	4,000	0	1,000	5,000			
		2018	206,800	0	51,700	258,500			
		2019	206,800	0	51,700	258,500			
		2020	206,800	0	51,700	258,500			
	Total		10,214,720	0	2,553,680	12,768,400			
PROGRAM TRAC 11200	TRansportation And Civil engineering program		Implement and participate in AASHTO TRAC program in local high schools.				E-0	308,000	N
	PE	2017	22,000	0	0	22,000	STP-State Flexible, Toll Credit		
		2018	17,600	4,400	0	22,000	NH Highway Fund, STP-State Flexible		
		2019	17,600	4,400	0	22,000			
		2020	17,600	4,400	0	22,000			
	Total		74,800	13,200	0	88,000			

Name/#	Route/Street		Location/Scope of Work				CAACode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$			
PROGRAM TRAIN 451	Training		ANNUAL TRAINING PROGRAM (Annual Project)				E-0	3,005,262	N
	OTHER	2017	200,000	0	0	200,000	STP-State Flexible, Toll Credit		
		2018	200,000	0	0	200,000			
		2019	200,000	0	0	200,000			
		2020	200,000	0	0	200,000			
	Total		800,000	0	0	800,000			
PROGRAM TRCK-WGHT-SFTY 20415	Various		Truck weight safety inspection & maintenance program				E-6	1,000,000	N
	OTHER	2017	100,000	0	0	100,000	STP-State Flexible, Toll Credit		
		2018	100,000	0	0	100,000			
		2019	100,000	0	0	100,000			
		2020	100,000	0	0	100,000			
	Total		400,000	0	0	400,000			
PROGRAM TSMO 4227	Transportation Systems Management and Operations		Statewide Transportation Systems Management and Operations, ITS Technologies, Traveler Info				E-7	5,275,000	N
	CON	2017	75,000	0	0	75,000	STP-State Flexible, Toll Credit		
		2018	75,000	0	0	75,000			
		2019	75,000	0	0	75,000			
		2020	75,000	0	0	75,000			
	OTHER	2017	275,000	0	0	275,000			
		2018	275,000	0	0	275,000			
		2019	275,000	0	0	275,000			
		2020	275,000	0	0	275,000			
	Total		1,400,000	0	0	1,400,000			
PROGRAM UBI 186	Various		Underwater Bridge Inspection (Annual Project)				E-38	740,500	N
	PE	2017	50,000	0	0	50,000	STP-State Flexible, Toll Credit		
	PLAN	2018	60,000	0	0	60,000			
		2019	60,000	0	0	60,000			
		2020	60,000	0	0	60,000			
	Total		230,000	0	0	230,000			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
PROGRAM USSS 2735	Various		Project to update signing on state system				E-44	7,374,000	N
	PE	2017	60,000	0	0	60,000	STP-State Flexible, Toll Credit		
		2018	30,000	0	0	30,000			
		2019	30,000	0	0	30,000			
		2020	30,000	0	0	30,000			
	CON	2017	894,000	0	0	894,000			
		2018	500,000	0	0	500,000			
		2019	500,000	0	0	500,000			
		2020	500,000	0	0	500,000			
	Total		2,544,000	0	0	2,544,000			
SALEM TO MANCHESTER 10418L 5613	I-93		Implement and provide operational support for expanded commuter bus service				E-21	19,127,243	N
	CON	2017	1,535,328	0	0	1,535,328	FTA 5307 Capital and Operating Program, National Highway System, Toll Credit		
		2018	725,000	0	0	725,000	National Highway System, Toll Credit		
		2019	725,000	0	0	725,000			
		2020	725,000	0	0	725,000			
	Total		3,710,328	0	0	3,710,328			
SALEM TO MANCHESTER 10418T 7112	I-93		CORRIDOR SERVICE PATROL (Salem to Manchester)				E-6	902,552	N
	PE	2017	103,200	0	0	103,200	National Highway System, Toll Credit		
	Total		103,200	0	0	103,200			
SALEM TO MANCHESTER 10418W 6052	I-93		Chloride Reduction Efforts				E-38	5,071,811	N
	PE	2017	1,065,024	0	0	1,065,024	FHWA Earmarks, National Highway System, Toll Credit		
	Total		1,065,024	0	0	1,065,024			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
SALEM TO MANCHESTER 10418X 12748	I-93		Final Design (PE) and ROW for I-93 Salem to Manchester corridor post September 4, 2014				LMP	7,027,658	N
	PE	2017	26,053	28,057	1,548	55,658	Non Participating, STP-Areas Over 200K, Toll Credit, Turnpike Program		
		2018	26,130	28,165	1,598	55,893			
		2019	29,877	32,033	1,649	63,559			
		Total	82,060	88,256	4,794	175,110			
SALEM TO MANCHESTER 14633 12854	I-93		Debt Service Project for I-93 Capacity Improvements - Northern Projects				E-0	230,727,856	Y
	CON	2017	0	463,357	0	463,357	SB367-4-Cents		
		2018	0	1,137,511	0	1,137,511			
		2019	0	1,804,030	0	1,804,030			
		2020	0	2,353,078	0	2,353,078			
		Total	0	5,757,976	0	5,757,976			
SALEM TO MANCHESTER 14633D 11790	I-93		Exit 4 Interchange, NB & SB Mainline & NH 102 approach work				ATT	73,386,252	N
	CON	2017	1,054,374	117,153	0	1,171,526	National Highway System, NH Highway Fund		
		2018	1,088,114	120,902	0	1,209,015			
		2019	1,122,933	124,770	0	1,247,704			
		2020	933,078	103,675	0	1,036,754			
		Total	4,198,499	466,500	0	4,664,999			
SALEM TO MANCHESTER 14633I 11793	I-93		NB & SB mainline between Exits 4 and 5 (Londonderry)				ATT	36,145,669	N
	CON	2017	1,171,526	0	0	1,171,526	National Highway System, Toll Credit		
		2018	794,469	0	0	794,469			
		Total	1,965,996	0	0	1,965,996			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$	Funding Category		
SALEM TO MANCHESTER 14633J 20289	I-93		Exit 1 to Exit 5 - Construct 4th lane northbound and southbound				ATT	12,127,258	N
	CON	2019	2,176,227	3,791,911	0	5,968,139	STP-State Flexible, TIFIA, Toll Credit		
		2020	2,245,867	3,913,253	0	6,159,119			
		<b>Total</b>	4,422,094	7,705,164	0	12,127,258			
SALEM TO MANCHESTER 14633P 20539	I-93		CTAP Phase 3; to fund eligible TOD and TDM planning projects within the CTAP RPC Regions.				E-34	1,509,816	N
	PLAN	2017	1,509,816	0	0	1,509,816	National Highway System, Toll Credit		
		<b>Total</b>	1,509,816	0	0	1,509,816			
SALEM TO MANCHESTER 14633R 20540	I-93		DES Land Grant Program				E-41	3,281,047	N
	ROW	2017	421,750	0	105,437	527,187	National Highway System, Other		
		2018	677,049	0	169,262	846,311			
		2019	708,696	0	177,174	885,870			
		<b>Total</b>	1,807,494	0	451,873	2,259,367			
SALEM TO MANCHESTER 14800B 7895	I-93		I-93 Exit 5 Interchange Reconstruction (Londonderry) - Debt Service Project				E-0	58,338,243	N
	CON	2017	1,400,857	192,265	0	1,593,122	National Highway System, NH Highway Fund, RZED Subsidy		
		2018	1,400,857	192,265	0	1,593,122	Bridge On/Off System, NH Highway Fund, RZED Subsidy		
		2019	1,400,857	192,265	0	1,593,122			
		2020	2,874,296	560,624	0	3,434,920	National Highway System, NH Highway Fund, RZED Subsidy		
		<b>Total</b>	7,076,868	1,137,418	0	8,214,287			



Name/#	Route/Street		Location/Scope of Work				CAACode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$			
SALEM TO MANCHESTER 14800C 7952	I-93		PROJECT INITIATED TO TRACK GARVEE BOND DEBT SERVICE ATTRIBUTABLE TO THE 13933N PROJECT				E-0	18,362,236	N
	CON	2017	524,041	0	0	524,041	National Highway System, RZED Subsidy, Toll Credit		
		2018	460,798	63,244	0	524,041	National Highway System, NH Highway Fund, RZED Subsidy		
		2019	460,798	63,244	0	524,041			
		2020	945,470	184,412	0	1,129,882			
		<b>Total</b>	2,391,107	310,899	0	2,702,006			
SALEM TO MANCHESTER 14800D 11095	I-93		I-93 Exit 3 area - Reconstruct SB ML, NH111 & SB on ramp (Windham) - debt service project for 13933I				E-0	37,597,702	N
	CON	2017	3,811,077	952,769	0	4,763,846	National Highway System, NH Highway Fund		
		2018	3,810,108	952,527	0	4,762,635			
		2019	3,809,863	952,466	0	4,762,329			
		2020	2,780,850	695,213	0	3,476,063			
		<b>Total</b>	14,211,899	3,552,975	0	17,764,874			
SALEM TO MANCHESTER 14800F 11097	I-93		I-93 Exit 3 area -NB ML connections, NB Ramps & NH 111A relocation - debt service project for 13933H				E-0	38,202,496	N
	CON	2017	3,267,974	0	0	3,267,974	National Highway System, RZED Subsidy, Toll Credit		
		2018	3,267,168	0	0	3,267,168			
		2019	3,266,964	0	0	3,266,964			
		2020	2,525,448	0	0	2,525,448	National Highway System, RZED Subsidy, STP-Areas Over 200K, Toll Credit		
		<b>Total</b>	12,327,554	0	0	12,327,554			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$			
SALEM TO MANCHESTER 14800H 11336	I-93		Final Design Services for PE & ROW				E-0	11,018,183	N
	PE	2017	1,018,998	254,750	0	1,273,748	National Highway System, NH Highway Fund		
		2018	1,051,339	262,835	0	1,314,174			
		2019	1,084,912	271,228	0	1,356,140			
		2020	817,227	204,307	0	1,021,533			
	ROW	2017	171,078	42,770	0	213,848			
		2018	176,508	44,127	0	220,635			
		2019	182,144	45,536	0	227,680			
		2020	137,203	34,301	0	171,504			
	Total		4,639,409	1,159,852	0	5,799,262			
STATEWIDE 15609H 13170	VARIOUS		Statewide Bridge Maintenance, Preservation & Improvements performed by Bridge Maint.				ALL	2,200,000	N
	CON	2017	2,200,000	0	0	2,200,000	STP-State Flexible, Toll Credit		
	Total		2,200,000	0	0	2,200,000			
STATEWIDE 15609I 20864	Various		Statewide Bridge Maintenance, Preservation, & Improvements performed by Bridge Maintenance.				ALL	2,200,000	N
	CON	2018	2,200,000	0	0	2,200,000	STP-State Flexible, Toll Credit		
	Total		2,200,000	0	0	2,200,000			
TRAPEZE SOFTWARE GROUP, INC. 68069B 20331	Various		Statewide rideshare database utilizing Trapeze Ridepro software				E-0	131,933	N
	OTHER	2017	35,107	8,777	0	43,883	Congestion Mitigation and Air Quality Program, Turnpike Capital		
		2018	38,042	9,510	0	47,552			
	Total		73,149	18,287	0	91,436			

Name/#	Route/Street		Location/Scope of Work				CAAcode	Overall Project Cost\$	Regionally Significant
	Phase	Fiscal Year	Fed \$	DOT\$	Other\$	Tot \$			
WILTON - MILFORD - NH 101 AMHERST - BEDFORD 13692 2739							ATT	9,661,032	N
	PE	2018	250,707	0	0	250,707	National Highway System, Toll Credit		
	ROW	2018	53,150	0	0	53,150			
	CON	2020	3,301,241	0	0	3,301,241			
	Total		3,605,097	0	0	3,605,097			
WINDHAM 40663 20485							ATT	343,119	N
	PLAN	2020	343,119	0	0	343,119	STP-State Flexible, Toll Credit		
	Total		343,119	0	0	343,119			

# Exhibit 16

## SNHPC Regional Transportation Plan FY 2021 - 2026

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
5310 SENIORS & INDIVIDUALS WITH DISABILITIES FTA5310	VARIOUS	31.611	FTA 5310 Program - Capital, Mobility Mgmt, and Operating for Seniors & Individuals w/ Disabilities						ATT
10756			P	2021	2.479	0.000	0.620	3.099	FTA5310
				2022	2.559	0.000	0.640	3.198	
				2023	2.640	0.000	0.660	3.301	
				2024	2.725	0.000	0.681	3.406	
				2025	2.812	0.000	0.703	3.515	
				2026	2.902	0.000	0.726	3.628	
			Total		16.117	0.000	4.029	20.147	
AUBURN 29316	GRIFFIN MILL ROAD OVER MAPLE FALLS BROOK	0.351	BRIDGE REHABILITATION-GRIFFIN MILL RD OVER MAPLE FALLS BROOK-BR. #095/127						ATT
12811			P	2022	0.000	0.076	0.000	0.076	SAB *
			R	2022	0.000	0.012	0.000	0.012	
			C	2022	0.000	0.263	0.000	0.263	
			Total		0.000	0.351	0.000	0.351	
BEDFORD 13692C	NH 101	2.434	Bridge Rehab or Replacement of br no 090/065 carrying NH 101 over Pulpit Brook						ATT
13107			C	2021	0.866	0.000	0.000	0.866	Bridg-T1-2-Rehab-Rcn
				2022	0.137	0.000	0.000	0.137	
			Total		1.003	0.000	0.000	1.003	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
BEDFORD 24217  10892	BEALS RD OVER BABOOSIC BROOK	0.985	BRIDGE REPLACEMENT-BEALS RD OVER BABOOSIC BROOK-BR. #105-055							ATT
			P	2022	0.000	0.177	0.000	0.177	SAB *	
			R	2022	0.000	0.006	0.000	0.006		
			C	2022	0.000	0.802	0.000	0.802		
			Total		0.000	0.985	0.000	0.985		
BEDFORD 40664  20486	US 3	6.000	US 3 Widening from Hawthorne Drive North to Manchester Airport Access Road							ATT
			P	2023	0.480	0.120	0.000	0.600	None-Highway	
			R	2025	0.240	0.060	0.000	0.300		
			C	2026	4.080	1.020	0.000	5.100		
			Total		4.800	1.200	0.000	6.000		
BOW 29641  13043	NH 3A	5.031	NH Rte 3A Corridor safety improvements							
			C	2022	3.860	0.000	0.000	3.860	None-Highway	
			Total		3.860	0.000	0.000	3.860		
CART-1 2985  12926	TRANSIT	1.238	Preventative Maintenance							
			P	2021	0.000	0.000	0.096	0.096	FTA5307	
				2022	0.000	0.000	0.099	0.099		
				2023	0.000	0.000	0.103	0.103		
				2024	0.000	0.000	0.106	0.106		
				2025	0.000	0.000	0.109	0.109		
				2026	0.000	0.000	0.113	0.113		
			Total		0.000	0.000	0.627	0.627		

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
CART-2 7239  12927	TRANSIT	10.055	Operating Assistance for public transit (CART) in Derry-Salem region						ATT	
			P	2021	0.000	0.000	0.783	0.783	FTA5307	
				2022	0.000	0.000	0.808	0.808		
				2023	0.000	0.000	0.834	0.834		
				2024	0.000	0.000	0.860	0.860		
				2025	0.000	0.000	0.888	0.888		
				2026	0.000	0.000	0.916	0.916		
			Total		0.000	0.000	5.089	5.089		
CART-3 40449  20271	TRANSIT	1.384	Mobility Mgmt activities for FTA Section 5310 program for seniors & individuals with disabilities						ATT	
				2021	0.093	0.000	0.023	0.116	FTA5310	
				2022	0.096	0.000	0.024	0.119		
				2023	0.099	0.000	0.025	0.123		
				2024	0.102	0.000	0.025	0.127		
				2025	0.105	0.000	0.026	0.131		
				2026	0.108	0.000	0.027	0.135		
			Total		0.602	0.000	0.150	0.752		
CART-4 40452  20274	TRANSIT	1.131	Capital funding through FTA 5339 program for CART.						ATT	
				2021	0.082	0.000	0.020	0.102	FTA5339	
				2022	0.084	0.000	0.021	0.105		
				2023	0.087	0.000	0.022	0.109		
				2024	0.090	0.000	0.022	0.112		
				2025	0.093	0.000	0.023	0.116		
				2026	0.096	0.000	0.024	0.119		
			Total		0.531	0.000	0.133	0.664		



Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
CART-5 40454  20276	TRANSIT	1.452	Support CART's FTA Section 5310 purchase of service program for seniors & ind. with disabilities						ATT
				2021	0.097	0.000	0.024	0.121	FTA5310
				2022	0.100	0.000	0.025	0.125	
				2023	0.103	0.000	0.026	0.129	
				2024	0.107	0.000	0.027	0.133	
				2025	0.110	0.000	0.028	0.138	
				2026	0.114	0.000	0.028	0.142	
				Total	0.631	0.000	0.158	0.789	
COMMUTER/INTERCITY BUS REPLACEMENT 40284  20142	VARIOUS	18.694	Replacement of existing state-owned coaches used for commuter and intercity bus.						ATT
			P	2021	1.124	0.000	0.281	1.405	CMAQ *
				Total	1.124	0.000	0.281	1.405	
DEERFIELD 24477  11066	NH 107	1.608	NH 107 over Freese's Pond - Replace Bridge Number 137/116.						ATT
			C	2023	0.000	1.208	0.000	1.208	Bridg-T3-4-Rehab-Rcn
				Total	0.000	1.208	0.000	1.208	
DERRY / LONDONDERRY 13065  1816	I-93	56.855	I-93 EXIT 4A - Prelim., Final Design, ROW & Construction of NEW INTERCHANGE and connecting roadway						ATT
			C	2021	11.000	0.000	0.000	11.000	Other Fed Aid
				2022	16.500	0.000	0.000	16.500	
				Total	27.500	0.000	0.000	27.500	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments	
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
FTA 5307 BOSTON UZA FTA5307	VARIOUS	43.111	FTA SECTION 5307 apportioned funds for Boston UZA for NHDOT projects.							ATT

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
MANCHESTER 16099  7692	I-293 / FEE TPK	10.400	PRELIMINARY ENGINEERING STUDY FOR RECONSTRUCTION OF THE F.E. EEVERETT TURNPIKE AT EXITS 6 AND 7						LMP	
			P	2022	0.000	2.000	0.000	2.000	TPK *	
			R	2023	0.000	4.000	0.000	4.000		
			Total		0.000	6.000	0.000	6.000		
MANCHESTER 16099A  20411	RECONSTRUCT AND WIDENING OF EXIT 6 (AMOSKEAG)	96.200	Reconstruct and widen of Exit 6 (Amoskeag) in Manchester.						LMP	
			C	2024	0.000	24.500	0.000	24.500	TPK *	
				2025	0.000	23.900	0.000	23.900		
				2026	0.000	23.900	0.000	23.900		
			Total		0.000	72.300	0.000	72.300		
MANCHESTER 16099B  20412	EXIT 7 FEE TURNPIKE	55.800	Reconstruct Exit 7						LMP	
			C	2026	0.000	18.600	0.000	18.600	TPK *	
			Total		0.000	18.600	0.000	18.600		
MANCHESTER 24206  10888	SALMON STREET WB OVER RD, BMRR, MARRIMACK RIVER AND RAMP	0.634	BRIDGE REHAB-SALMON ST WB OVER RD, BMRR, MERRIMACK RIVER, RAMP-BR. #106/072						LMP	
			P	2023	0.000	0.109	0.000	0.109	SAB *	
			R	2023	0.000	0.006	0.000	0.006		
			C	2023	0.000	0.519	0.000	0.519		
			Total		0.000	0.634	0.000	0.634		

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
MANCHESTER 24211	RAMP E (CANAL ST) OVER BMRR	0.547	BRIDGE REHAB-RAMP E (CANAL STREET) OVER BMRR-BR #107/071						LMP
10889			P	2025	0.000	0.096	0.000	0.096	SAB *
			R	2025	0.000	0.006	0.000	0.006	
			C	2025	0.000	0.444	0.000	0.444	
			Total		0.000	0.547	0.000	0.547	
MANCHESTER 24212	SAMON ST EB OVER RD, BMRR, MERRIMACK RIVER AND RAMP	0.792	SALMON ST EB OVER RD, BMRR, MERRIMACK RIVER, RAMP-BR #107/072						LMP
10890			P	2024	0.000	0.131	0.000	0.131	SAB *
			R	2024	0.000	0.006	0.000	0.006	
			C	2024	0.000	0.655	0.000	0.655	
			Total		0.000	0.792	0.000	0.792	
MANCHESTER 28336	REHAB QUEEN CITY BRIDGE OVER I-293, BMRR & MERRIMACK RIVER	7.470	BRIDGE REHABILITATION-QUEEN CITY BR. OVER I-293, BMRR & MERRIMACK RIVER-BR. #151/065 (MOBRR)						LMP
12560			C	2021	4.991	0.000	0.000	4.991	MOBRR *
			Total		4.991	0.000	0.000	4.991	
MANCHESTER 40563	MANCHESTER- BOSTON REGIONAL AIRPORT	79.179	Preservation, modernization, and/or expansion of airport facilities; planning studies.						LMP
20385				2021	3.027	0.000	0.159	3.187	Airport Improvement
				2022	3.167	0.000	0.167	3.333	
				2023	3.167	0.000	0.167	3.333	
				2024	3.167	0.000	0.167	3.333	
				2025	3.167	0.000	0.167	3.333	
				2026	3.167	0.000	0.167	3.333	
			Total		18.861	0.000	0.993	19.853	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
MANCHESTER, MTA-1 602	VARIOUS	31.979	Operating assistance for fixed route service for the Manchester Transit Authority.						LMP	
12870			P	2021	0.000	0.000	2.696	2.696	FTA5307	
				2022	0.000	0.000	2.782	2.782		
				2023	0.000	0.000	2.871	2.871		
				2024	0.000	0.000	2.963	2.963		
				2025	0.000	0.000	3.058	3.058		
				2026	0.000	0.000	3.156	3.156		
				Total	0.000	0.000	17.528	17.528		
MANCHESTER, MTA-2 2496	TRANSIT AUTHORITY	7.561	Operating assistance for capital maintenance of Manchester Transit Authority Fleet.						LMP	
12872			P	2021	0.510	0.000	0.127	0.637	FTA5307	
				2022	0.526	0.000	0.132	0.658		
				2023	0.543	0.000	0.136	0.679		
				2024	0.561	0.000	0.140	0.701		
				2025	0.578	0.000	0.145	0.723		
				2026	0.597	0.000	0.149	0.746		
				Total	3.315	0.000	0.829	4.144		
MANCHESTER, MTA-4 5916	TRANSIT	3.929	Operating Assistance for ADA Paratransit Service.						LMP	
12885			P	2021	0.000	0.000	0.331	0.331	FTA5307	
				2022	0.000	0.000	0.342	0.342		
				2023	0.000	0.000	0.353	0.353		
				2024	0.000	0.000	0.364	0.364		
				2025	0.000	0.000	0.376	0.376		
				2026	0.000	0.000	0.388	0.388		
				Total	0.000	0.000	2.153	2.153		

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
MANCHESTER, MTA-7 6923	TRANSIT	1.727	Miscellaneous Capital						LMP
12888			P	2021	0.000	0.000	0.145	0.145	FTA5307
				2022	0.000	0.000	0.150	0.150	
				2023	0.000	0.000	0.155	0.155	
				2024	0.000	0.000	0.160	0.160	
				2025	0.000	0.000	0.165	0.165	
				2026	0.000	0.000	0.170	0.170	
			Total		0.000	0.000	0.944	0.944	
NASHUA-MERRIMACK- BEDFORD 13761	F. E. EVERETT TURNPIKE	71.000	F.E.E.Turnpike widening of 2-lane sections from Exit 8 in Nashua to I-293 interchange in Bedford						ATT
12737			R	2021	0.000	4.000	0.000	4.000	TPK *
			C	2022	0.000	18.000	0.000	18.000	
				2023	0.000	20.000	0.000	20.000	
				2024	0.000	18.000	0.000	18.000	
			Total		0.000	60.000	0.000	60.000	
NEW BOSTON 14771	GREGG MILL ROAD	1.029	Bridge Replacement Gregg Mill Rd over South Branch Piscataquog River - Br. #132/138						ATT
6343			P	2026	0.000	0.146	0.000	0.146	SAB *
			R	2026	0.000	0.007	0.000	0.007	
			C	2026	0.000	0.876	0.000	0.876	
			Total		0.000	1.029	0.000	1.029	
NEW BOSTON 15505	TUCKER MILL ROAD	0.695	Bridge Replacement-Tucker Mill Road over Mid Br. Piscataquog-Br. #087/150						ATT
6988			P	2023	0.000	0.097	0.000	0.097	SAB *
			R	2023	0.000	0.006	0.000	0.006	
			C	2023	0.000	0.592	0.000	0.592	
			Total		0.000	0.695	0.000	0.695	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
NEW BOSTON 27729  12307	NH ROUTE 13	1.717	Culvert Replacement for Redlist Bridge carrying NH 13 over Cochrane Brook (Br No 122/120)						ATT	
			P	2023	0.000	0.121	0.000	0.121	Bridg-T3-4-Rehab-Rcn	
				2024	0.000	0.249	0.000	0.249		
			R	2023	0.000	0.060	0.000	0.060		
			C	2025	0.000	1.287	0.000	1.287		
			Total		0.000	1.717	0.000	1.717		
SALEM TO MANCHESTER 14633  12854	I-93	133.267	Debt Service Project for I-93 Capacity Improvements - Northern Projects						LMP	
			C	2021	0.000	2.541	0.000	2.541	SB367-4-CENTS	
				2022	0.000	2.555	0.000	2.555		
				2023	0.000	2.555	0.000	2.555		
				2024	0.000	2.558	0.000	2.558		
				2025	0.000	2.552	0.000	2.552		
				2026	0.000	23.602	0.000	23.602		
			Total		0.000	36.363	0.000	36.363		
SALEM TO MANCHESTER 14800B  7895	I-93	58.687	I-93 Exit 5 Interchange Reconstruction (Londonderry) - Debt Service Project						LMP	
			C	2021	5.782	1.445	0.000	7.227	GARVEE Debt Service	
				2021	0.608	0.000	0.000	0.608	RZED	
				2022	5.778	1.444	0.000	7.222	GARVEE Debt Service	
				2022	0.523	0.000	0.000	0.523	RZED	
				2023	5.769	1.442	0.000	7.211	GARVEE Debt Service	
				2023	0.409	0.000	0.000	0.409	RZED	
				2024	5.745	1.436	0.000	7.181	GARVEE Debt Service	
				2024	0.303	0.000	0.000	0.303	RZED	
				2025	5.744	1.436	0.000	7.179	GARVEE Debt Service	
				2025	0.157	0.000	0.000	0.157	RZED	
			Total		30.817	7.204	0.000	38.021		



Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
SALEM TO MANCHESTER 14800C  7952	I-93	18.310	PROJECT INITIATED TO TRACK GARVEE BOND DEBT SERVICE ATTRIBUTABLE TO THE 13933N PROJECT						LMP	
			C	2021	2.377	0.000	0.000	2.377	GARVEE Debt Service	
				2021	0.000	0.000	0.200	0.200	RZED	
				2022	2.376	0.000	0.000	2.376	GARVEE Debt Service	
				2022	0.000	0.000	0.172	0.172	RZED	
				2023	2.372	0.000	0.000	2.372	GARVEE Debt Service	
				2023	0.000	0.000	0.134	0.134	RZED	
				2024	2.362	0.000	0.000	2.362	GARVEE Debt Service	
				2024	0.000	0.000	0.100	0.100	RZED	
				2025	2.362	0.000	0.000	2.362	GARVEE Debt Service	
				2025	0.000	0.000	0.052	0.052	RZED	
			Total		11.849	0.000	0.658	12.507		
SALEM TO MANCHESTER 14800F  11097	I-93	39.135	I-93 Exit 3 area -NB ML connections, NB Ramps & NH 111A relocation - debt service project for 13933H						LMP	
			C	2021	0.448	0.000	0.000	0.448	GARVEE Debt Service	
				2022	0.448	0.000	0.000	0.448		
				2023	0.447	0.000	0.000	0.447		
				2024	0.445	0.000	0.000	0.445		
				2025	0.445	0.000	0.000	0.445		
			Total		2.233	0.000	0.000	2.233		

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
STATEWIDE CMAQ	MUNICIPAL	Annual	CMAQ PROJECTS MUST BE IN NON-ATTAIN AREAS (Annual Project)						ATT
446									
			P	2021	0.841	0.000	0.000	0.841	CMAQ *
				2022	1.545	0.000	0.000	1.545	
				2023	1.329	0.000	0.000	1.329	
				2024	0.100	0.000	0.000	0.100	
				2025	0.100	0.000	0.000	0.100	
				2026	0.100	0.000	0.000	0.100	
			R	2021	0.100	0.000	0.000	0.100	
				2022	0.100	0.000	0.000	0.100	
				2023	0.100	0.000	0.000	0.100	
				2024	0.100	0.000	0.000	0.100	
				2025	0.100	0.000	0.000	0.100	
				2026	0.100	0.000	0.000	0.100	
			C	2021	9.260	0.000	0.000	9.260	
				2022	9.821	0.000	0.000	9.821	
				2023	9.994	0.000	0.000	9.994	
				2024	10.957	0.000	0.000	10.957	
				2025	10.957	0.000	0.000	10.957	
				2026	10.957	0.000	0.000	10.957	
				Total	66.561	0.000	0.000	66.561	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
STATEWIDE HSIP	PRESERVATION	Annual	HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)					ATT	
6767			P	2021	0.450	0.050	0.000	0.500	HSIP *
				2022	0.450	0.050	0.000	0.500	
				2023	0.450	0.050	0.000	0.500	
				2024	0.450	0.050	0.000	0.500	
				2025	0.450	0.050	0.000	0.500	
				2026	0.450	0.050	0.000	0.500	
			R	2021	0.225	0.025	0.000	0.250	
				2022	0.225	0.025	0.000	0.250	
				2023	0.225	0.025	0.000	0.250	
				2024	0.225	0.025	0.000	0.250	
				2025	0.225	0.025	0.000	0.250	
				2026	0.225	0.025	0.000	0.250	
			C	2021	8.243	0.916	0.000	9.159	
				2022	8.243	0.916	0.000	9.159	
				2023	8.243	0.916	0.000	9.159	
				2024	8.243	0.916	0.000	9.159	
				2025	8.243	0.916	0.000	9.159	
				2026	8.243	0.916	0.000	9.159	
			Total		53.509	5.945	0.000	59.454	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
STATEWIDE MOBRR	MUNICIPAL	Annual	MUNICIPAL OWNED BRIDGE REHABILITATION & REPLACEMENT PROJECTS (MOBRR PROGRAM)						ATT	
221										
			P	2021	0.080	0.000	0.020	0.100	MOBRR *	
				2022	0.080	0.000	0.020	0.100		
				2023	0.080	0.000	0.020	0.100		
				2024	0.080	0.000	0.020	0.100		
				2025	0.080	0.000	0.020	0.100		
				2026	0.080	0.000	0.020	0.100		
			R	2021	0.040	0.000	0.010	0.050		
				2022	0.040	0.000	0.010	0.050		
				2023	0.024	0.000	0.006	0.030		
				2024	0.024	0.000	0.006	0.030		
				2025	0.024	0.000	0.006	0.030		
				2026	0.024	0.000	0.006	0.030		
			C	2021	0.000	0.000	0.000	0.000		
				2022	3.500	0.000	0.875	4.375		
				2023	3.500	0.000	0.875	4.375		
				2024	3.500	0.000	0.875	4.375		
				2025	3.500	0.000	0.875	4.375		
				2026	2.000	0.000	0.500	2.500		
				Total	16.656	0.000	4.164	20.820		

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
STATEWIDE TA  12881	VARIOUS	Annual	TRANSPORTATION ALTERNATIVES PROGRAM (TAP)						ATT
			<b>P</b>	<b>2021</b>	0.253	0.000	0.063	0.316	<b>TA *</b>
				<b>2022</b>	0.253	0.000	0.063	0.316	
				<b>2023</b>	0.253	0.000	0.063	0.316	
				<b>2024</b>	0.253	0.000	0.063	0.316	
				<b>2025</b>	0.253	0.000	0.063	0.316	
				<b>2026</b>	0.253	0.000	0.063	0.316	
			<b>R</b>	<b>2021</b>	0.102	0.000	0.026	0.128	
				<b>2022</b>	0.102	0.000	0.026	0.128	
				<b>2023</b>	0.102	0.000	0.026	0.128	
				<b>2024</b>	0.102	0.000	0.026	0.128	
				<b>2025</b>	0.102	0.000	0.026	0.128	
				<b>2026</b>	0.102	0.000	0.026	0.128	
			<b>C</b>	<b>2021</b>	1.992	0.000	0.498	2.490	
				<b>2022</b>	1.992	0.000	0.498	2.490	
				<b>2023</b>	1.992	0.000	0.498	2.490	
				<b>2024</b>	1.992	0.000	0.498	2.490	
				<b>2025</b>	1.992	0.000	0.498	2.490	
				<b>2026</b>	1.992	0.000	0.498	2.490	
			<b>O</b>	<b>2021</b>	0.207	0.000	0.052	0.258	
				<b>2022</b>	0.207	0.000	0.052	0.258	
				<b>2023</b>	0.207	0.000	0.052	0.258	
				<b>2024</b>	0.207	0.000	0.052	0.258	
				<b>2025</b>	0.207	0.000	0.052	0.258	
				<b>2026</b>	0.207	0.000	0.052	0.258	
			<b>Total</b>		15.322	0.000	3.831	19.153	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work					CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category
STATEWIDE BRIDGE PERSERVATION BET-BMT-HQ  10586	VARIOUS BRIDGE SITE STATEWIDE	<b>Annual</b>	Statewide Betterment Program for Bridge Preservation						ATT
			<b>C</b>	<b>2021</b>	0.000	0.750	0.000	0.750	<b>BET-BMT-HQ</b>
				<b>2022</b>	0.000	0.750	0.000	0.750	
				<b>2023</b>	0.000	0.750	0.000	0.750	
				<b>2024</b>	0.000	0.750	0.000	0.750	
				<b>2025</b>	0.000	0.750	0.000	0.750	
				<b>2026</b>	0.000	0.750	0.000	0.750	
				<b>Total</b>	0.000	4.500	0.000	4.500	
STATEWIDE LTAP LTAP  12829	MUNICIPAL	<b>1.630</b>	Local Techonolgy Assistance Program (LTAP) administered by the Technology Transfer Center @ UNH						ATT
				<b>2021</b>	0.150	0.000	0.000	0.150	<b>LTAP</b>
				<b>2022</b>	0.150	0.000	0.000	0.150	
				<b>2023</b>	0.150	0.000	0.000	0.150	
				<b>2024</b>	0.150	0.000	0.000	0.150	
				<b>2025</b>	0.150	0.000	0.000	0.150	
				<b>2026</b>	0.150	0.000	0.000	0.150	
				<b>Total</b>	0.900	0.000	0.000	0.900	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
			Phase	Fiscal Year	Fed \$(M)	DOT\$(M)	Other\$(M)	Tot \$(M)	Funding Category	
STATEWIDE STATE AID HIGHWAY (SAH) SAH 20413	VARIOUS	Annual	Municipal Managed Projects on Legislative Class 1,2 or 3 Highways_x000D__x000D_						ATT	
			P	2021	0.000	0.250	0.125	0.375	SAH *	
				2022	0.000	0.250	0.125	0.375		
				2023	0.000	0.250	0.125	0.375		
				2024	0.000	0.250	0.125	0.375		
				2025	0.000	0.250	0.125	0.375		
				2026	0.000	0.250	0.125	0.375		
			R	2021	0.000	0.083	0.042	0.125		
				2022	0.000	0.083	0.042	0.125		
				2023	0.000	0.083	0.042	0.125		
				2024	0.000	0.083	0.042	0.125		
				2025	0.000	0.083	0.042	0.125		
				2026	0.000	0.083	0.042	0.125		
			C	2021	0.000	1.333	0.667	2.000		
				2022	0.000	1.333	0.667	2.000		
				2023	0.000	1.333	0.667	2.000		
				2024	0.000	1.333	0.667	2.000		
				2025	0.000	1.333	0.667	2.000		
				2026	0.000	1.333	0.667	2.000		
			Total		0.000	10.000	5.000	15.000		
TURNPIKE RENEWAL AND REPLACEMENT PROGRAM TPK-R&R 12595	FEET, BLUE STAR & SPAULDING TURNPIKE	Annual	Turnpike Renewal & Rehabilitation Program						ATT	
			C	2021	0.000	10.600	0.000	10.600	TRR *	
				2022	0.000	10.800	0.000	10.800		
				2023	0.000	11.000	0.000	11.000		
				2024	0.000	11.300	0.000	11.300		
				2025	0.000	11.500	0.000	11.500		
				2026	0.000	11.700	0.000	11.700		
			Total		0.000	66.900	0.000	66.900		



Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work						CAAcode	Comments
Phase Fiscal Year Fed \$(M) DOT\$(M) Other\$(M) Tot \$(M) Funding Category										
WILTON - MILFORD - AMHERST - BEDFORD 13692 2739	NH 101	10.306	PE and ROW for corridor improvements from NH 31 in Wilton to Wallace Rd in Bedford						ATT	
			C	2021	4.155	1.039	0.000	5.194	Other Fed Aid	
			Total		4.155	1.039	0.000	5.194		
WINDHAM 40665 20487	NH 28 AND ROULSTON ROAD	0.253	Intersection Improvements						ATT	
			P	2023	0.019	0.005	0.000	0.023	None-Highway	
			R	2025	0.010	0.002	0.000	0.012		
			C	2026	0.174	0.043	0.000	0.217		
			Total		0.202	0.051	0.000	0.253		

# Exhibit 16

## SNHPC Regional Transportation Plan FY 2027 - 2040

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work	CAACode	Comments
			<b>Phase    Fiscal Year</b>	<b>Tot \$(M)</b>	
BEDFORD	NH 101	6.825	Wallace Rd	ATT	Widen from Wallace Rd to Amherst T/L
			2028	6.825	
			<b>Total</b>	6.825	
BEDFORD	US 3	33.768	Widen Remaining Sections of U.S. Route 3 from Bridge over F.E. E TPK to Merrimack TL	ATT	Widen Remaining Sections of U.S. Route 3 from Bridge over F.E. E TPK to Merrimack TL- Potential EA/EIS
			2029	33.768	
			<b>Total</b>	33.768	
CANDIA	NH 27/NH 43	7.000	Raymond Rd	ATT	Implementation of Safety Improvements to NH 27 and NH 43 in Candia's Village Center
			2030	7.000	
			<b>Total</b>	7.000	
CART-1	Transit	1.009	CART-1 - Preventative Maintenance - Figures Assume 50% of Total cost	ATT	Annual Project
			2027	0.058	
			2028	0.060	
			2029	0.062	
			2030	0.064	
			2031	0.066	
			2032	0.068	
			2033	0.070	
			2034	0.073	
			2035	0.075	
			2036	0.077	
			2037	0.080	
			2038	0.082	
			2039	0.085	
			2040	0.088	
			<b>Total</b>	1.009	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
CART-2	Transit	8.189	CART-2 - Operating Assistance - Figures Assume 50% of Total cost		ATT	Annual Project
				2027	0.473	
				2028	0.488	
				2029	0.504	
				2030	0.520	
				2031	0.536	
				2032	0.553	
				2033	0.571	
				2034	0.589	
				2035	0.608	
				2036	0.628	
				2037	0.648	
				2038	0.669	
				2039	0.690	
				2040	0.712	
			Total		8.189	
CART-3	Transit	1.210	CART-3-Mobility Management for Elderly and Disabled Transportation Service (50% allocation to SNHPC Region)		ATT	
				2027	0.070	
				2028	0.072	
				2029	0.074	
				2030	0.077	
				2031	0.079	
				2032	0.082	
				2033	0.084	
				2034	0.087	
				2035	0.090	
				2036	0.093	
				2037	0.096	
				2038	0.099	
				2039	0.102	
				2040	0.105	
			Total		1.210	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
CART-4	Transit	1.068	CART-4-Capital Funding (50% allocation to SNHPC Region)		ATT	
				2027	0.062	
				2028	0.064	
				2029	0.066	
				2030	0.068	
				2031	0.070	
				2032	0.072	
				2033	0.074	
				2034	0.077	
				2035	0.079	
				2036	0.082	
				2037	0.084	
				2038	0.087	
				2039	0.090	
				2040	0.093	
			Total		1.068	
CART-5	Transit	1.004	CART-5-Purchase of service for Elderly and Disabled Transportation Services (50% allocation to SNHPC Region)		ATT	
				2027	0.072	
				2028	0.072	
				2029	0.072	
				2030	0.072	
				2031	0.072	
				2032	0.072	
				2033	0.072	
				2034	0.072	
				2035	0.072	
				2036	0.072	
				2037	0.072	
				2038	0.072	
				2039	0.072	
				2040	0.072	
			Total		1.004	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
CHESTER	NH 102	0.750		North Pond Rd	ATT	Intersection Improvements. RSA has been finished.
			2028		0.750	
			Total		0.750	
DEERFIELD	NH 107	0.650		Bicycle Lane	ATT	Construction of Bicycle Lane
			2030		0.650	
			Total		0.650	
DEERFIELD	NH 107	3.000		Town Center	ATT	Intersection Reconfiguration/Traffic Calming/Town Center Improvements
			2031		3.000	
			Total		3.000	
DERRY	Bike Path/Trail	0.750		B & M Rail Corridor	ATT	Extend to Londonderry T/L along Rail Corridor
			2032		0.750	
			Total		0.750	
DERRY	NH 28	0.800		Lawrence Road/South Range Road	ATT	Intersection Improvements. High accident location study has been finished.
			2034		0.800	
			Total		0.800	
DERRY-LONDONDERRY	NH 28	2.750		Shoulder/Drainage Improvements	ATT	Shoulder/Drainage Improvements
			2033		2.750	
			Total		2.750	
GOFFSTOWN	Bog Road	0.500		Over Bog Brook (067/090)	ATT	Bridge Improvements
			2031		0.500	
			Total		0.500	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
GOFFSTOWN	Bog Road	0.500	Over Bog Brook (071/095)		ATT	Bridge Improvements
			2029		0.500	
			Total		0.500	
GOFFSTOWN	NH 114	0.850	Henry Bridge Road		ATT	Intersection Improvements
			2028		0.850	
			Total		0.850	
GOFFSTOWN	NH 114	3.250	North Mast Road		ATT	Intersection Improvements
			2030		3.250	
			Total		3.250	
HOOKSETT	US 3/NH 28	18.242	Legends Dr		ATT	Widen from Legends Dr to Hunt St - Potential EA/EIS
			2033		18.242	
			Total		18.242	
HOOKSETT	US 3/NH 28	25.000	Northern Segment		ATT	Construction of Northern Portion of New Roadway Bypass - Potential EA/EIS
			2035		10.000	
			2036		15.000	
			Total		25.000	
HOOKSETT	US 3/NH 28	15.500	Southern Segment		ATT	Construction of Southern Portion of New Roadway Bypass - Potential EA/EIS
			2032		7.500	
			2033		8.000	
			Total		15.500	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
LONDONDERRY	NH 102	23.000	Central Corridor		ATT	Widen from I-93 to NH 128 - Potential EIS
				2027	15.000	
				2028	8.000	
			Total		23.000	
LONDONDERRY	NH 102	28.548	Lower Corridor		ATT	Widen from Hudson T/L to NH 128 - Potential EA/EIS
				2031	20.000	
				2032	11.000	
			Total		31.000	
LONDONDERRY	NH 102	1.500	NH 128		ATT	Intersection Improvements
				2038	1.500	
			Total		1.500	
LONDONDERRY	NH 102	6.250	Upper Corridor		ATT	Widen from I-93 to Londonderry Rd - Potential EA/EIS
				2028	6.250	
			Total		6.250	
LONDONDERRY	NH 28	42.500	NH 128 to Page Rd (Includes NH 28/NH 128)		ATT	Widen from NH 128 to Page Rd and NH 28/NH 128 Intersection Signalization/Improvements - Potential EIS
				2034	20.000	
				2035	22.500	
			Total		42.500	
MANCHESTER		0.850	South Manchester Rail Trail		E-33	Phase III - Goffs Falls Road to Londonderry T/L
				2039	0.850	
			Total		0.850	



Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
MANCHESTER	I-293	124.647	Exit 4		LMP	Interchange Reconstruction - EIS Required
			2036		11.000	
			2037		19.000	
			2038		30.647	
			2039		15.000	
			2040		50.250	
			Total		125.897	
MANCHESTER	I-293	2.000	NH 101/South Willow Street		E-51	Ramp Intersection Improvements
			2031		2.000	
			Total		2.000	
MANCHESTER	I-93	2.000	Wellington Road		E-51	Ramp Intersection Improvements
			2039		2.000	
			Total		2.000	
MANCHESTER	Transit	56.421	MTA-1 - Fixed Route Operating Assistance		E-21	Annual Project
			2027		3.257	
			2028		3.361	
			2029		3.469	
			2030		3.580	
			2031		3.694	
			2032		3.813	
			2033		3.935	
			2034		4.061	
			2035		4.190	
			2036		4.325	
			2037		4.463	
			2038		4.606	
			2039		4.753	
			2040		4.905	
			Total		56.412	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
MANCHESTER	Transit	13.338	MTA-2 - Fixed Route Operating Assistance/Capital Maintenance		E-30	Annual Project
				2027	0.770	
				2028	0.795	
				2029	0.820	
				2030	0.846	
				2031	0.873	
				2032	0.901	
				2033	0.930	
				2034	0.960	
				2035	0.991	
				2036	1.022	
				2037	1.055	
				2038	1.089	
				2039	1.124	
				2040	1.160	
			Total		13.338	
MANCHESTER	Transit	6.930	MTA-3 - ADA Paratransit Operating Assistance		E-24	Annual Project
				2027	0.400	
				2028	0.413	
				2029	0.426	
				2030	0.440	
				2031	0.454	
				2032	0.468	
				2033	0.483	
				2034	0.499	
				2035	0.515	
				2036	0.531	
				2037	0.548	
				2038	0.566	
				2039	0.584	
				2040	0.603	
			Total		6.930	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
MANCHESTER	Transit	3.038	MTA-4 - Miscellaneous Capital		E-30	Annual Project
				2027	0.175	
				2028	0.181	
				2029	0.187	
				2030	0.193	
				2031	0.199	
				2032	0.205	
				2033	0.212	
				2034	0.219	
				2035	0.226	
				2036	0.233	
				2037	0.240	
				2038	0.248	
				2039	0.256	
				2040	0.264	
			Total		3.038	
MANCHESTER	Transit	8.696	MTA-5 - Replacement Buses		E-30	Annual Project
				2028	2.379	
				2035	2.926	
				2040	3.391	
			Total		8.696	
MANCHESTER 13512	Central Business Dist.	16.645	Mulit-Modal Transportation Center		LMP	Construction of Mulit-Modal Transportation Center
				2037	16.645	
			Total		16.645	
MANCHESTER 16099A	I-293	96.200	Exit 6		LMP	Construction of new interchange - EIS - Corridor Study Underway
			C	2027	23.900	
			Total		23.900	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
MANCHESTER 16099B	I-293	55.800	Exit 7			LMP Construction of new interchange - EIS - Corridor Study Underway
			C	2027	18.600	
				2028	18.600	
			Total		37.200	
NASHUA- MANCHESTER- CONCORD 13514	Passenger Rail		Capitol Corridor			LMP Illustrative Project
			Total			
NEW BOSTON	Bog Brook Rd	1.000				ATT Bridge Replacement
				2028	1.000	
			Total		1.000	
NEW BOSTON	Depot St	1.000				ATT Bridge Replacement
				2031	1.000	
			Total		1.000	
NEW BOSTON	Dougherty Ln	1.100				ATT Bridge Replacement
				2033	1.100	
			Total		1.100	
NEW BOSTON	East Colburn Rd	0.375				ATT Culvert Replacement
				2032	0.375	
			Total		0.375	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
NEW BOSTON	Gregg Mill Road	0.800				ATT Bridge Replacement
				2027	0.800	
				Total	0.800	
NEW BOSTON	Howe Bridge Rd	1.200				ATT Bridge Replacement
				2035	1.200	
				Total	1.200	
NEW BOSTON	Lyndeborough Rd.	1.800		2nd NH Turnpike		ATT Twon Bridge Replacement
				2036	1.800	
				Total	1.800	
NEW BOSTON	Village Center	0.750		CSS Improvements		ATT Implement Alternative from 2008 CSS Project
				2029	0.750	
				Total	0.750	
RAYMOND	NH 102	0.750		Blueberry Hill Rd.		ATT Intersection Improvements
				2037	0.750	
				Total	0.750	
RAYMOND	NH 102/NH 107/Dudley Rd Bridge/NH 27/Dudley Rd	0.500		Bill Brown Rd.		ATT Intersection Improvements
				2028	0.500	
				Total	0.500	
RAYMOND	NH 156	0.750		Ham Rd./Harriman Hill Rd.		ATT Intersection Improvements
				2039	0.750	
				Total	0.750	

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
RAYMOND	NH 27	1.000	NH 156		ATT	Signalization
			2035	1.000		
			Total	1.000		
SALEM TO MANCHESTER 14633	I-93	133.267	Debt Service Project for I-93 Capacity Improvements - Northerm Projects		LMP	
			C	2027	16.564	
				2028	16.560	
				2029	16.560	
				2030	41.400	
			Total	91.084		
WINDHAM	Castle Hill Rd.	0.350	Over Beaver Brook		ATT	Culvert Replacement
			2027	0.350		
			Total	0.350		
WINDHAM	Golden Brook Rd.	0.575	Over Golden Brook (095/067)		ATT	Bridge Replacement
			2031	0.575		
			Total	0.575		
WINDHAM	Golden Brook Rd.	0.575	Over Golden Brook (096/066)		ATT	Bridge Replacement
			2031	0.575		
			Total	0.575		
WINDHAM	Moeckel Rd.	0.050	Over Rock Pond		ATT	Bridge Replacement
			2029	0.050		
			Total	0.050		

Name/#	Route/Street	Overall Project Cost \$(M)	Location/Scope of Work		CAACode	Comments
			Phase	Fiscal Year	Tot \$(M)	
WINDHAM	NH 111	11.003	Corridor Improvements		ATT	Corridor/Town Center Improvements - Second Phase of Study
			2027		10.750	
			Total		10.750	
WINDHAM	NH 28	1.503	NH Route 28/Roulson Road		ATT	Intersection Improvements ar NH Route 28/Roulson Road - Supplemental Funding
			2027		1.250	
			Total		1.250	
WINDHAM	Rock Pond Rd.	0.600	Over Golden Brook		ATT	Bridge Replacement
			2029		0.600	
			Total		0.600	