T
Technical Appendix

The Strafford Metropolitan Planning Organization 2015-2040 Metropolitan Transportation Plan

Local Solutions for the Strafford Region

Adopted January 2015

Authors:
Marc Ambrosi
Colin Lentz

Strafford
REGIONAL PLANNING
COMMISSION

THE STRAFFORD METROPOLITAN PLANNING ORGANIZATION

2015-2040 METROPOLITAN TRANSPORTATION PLAN

-Including-

FY 2015-2018 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

Prepared By:

Strafford Metropolitan Planning Organization
Strafford Regional Planning Commission

150 Wakefield Street, Suite 12
Rochester, NH 03867
(603) 994-3500
E-mail: srpc@strafford.org
Website: www.strafford.org

This Plan has been prepared by the Strafford Regional Planning Commission in cooperation with the U.S. Department of Transportation - Federal Highway Administration; the New Hampshire Department of Transportation; and the Federal Transit Administration. The contents of the report reflect the views of the authors who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration, the New Hampshire Department of Transportation, or the Federal Transit Administration. This report does not constitute a standard, specification, or regulation.

LIST OF ABBREVIATIONS

AADT……...……Average Annual Daily Traffic

AASHTO……American Association of State Highway and Transportation Officials

ACT……Alliance for Community Transportation

ADA……..Americans with Disabilities Act

ADT……..……Average Daily Traffic

BOS……..Board of Selectmen

BWANH……..……Bike-Walk Alliance of New Hampshire

CAAA……Clean Air Act Amendments of 1990

CFR……..Code of Federal Regulations

CMAQ……Congestion Mitigation & Air Quality

CMS…….Congestion Management System

CNHPC…….Central New Hampshire Planning Commission

COAST…….……..Cooperative Alliance for Seacoast Transportation

CSS……Context Sensitive Solutions

FHWA……Federal Highway Administration

FRA……..Federal Rail Administration

FTA…….Federal Transit Administration

FY……...Fiscal Year

GACIT……Governor's Advisory Commission on Intermodal Transportation

GIS……...……Geographic Information Systems

GPS…….Global Positioning System

GSCCC……...……Granite State Clean Cities Coalition

GSW……..…….Granite State Wheelman

HOV……..High Occupancy Vehicle

HSIP……Highway Safety Improvement Program

ISTEA…..……..Intermodal Surface Transportation Efficiency Act of 1991

IT'S……Intelligent Transportation Systems

JARC…….Job Access and Reverse Commute

LEP……..Limited English Proficiency

LGC…….Local Government Center

LRPC……..Lakes Regional Planning Commission

MOU……...Memorandum of Understanding

MPO……...……..Metropolitan Planning Organization

NAQS……...……..National Air Quality Standards

NCC……...North Country Council

NHDES……..….New Hampshire Department of Environmental Services

NHDES-ARD..…….New Hampshire Department of Environmental Services – Air Resources Division

NHDOT……..……..……New Hampshire Department of Transportation

NNEPRA……..…….Northern New England Passenger Rail Authority

NHOEP……New Hampshire Office of Energy & Planning

NHRRA….……..New Hampshire Railroad Revitalization Association

NNEPRA……...Northern New England Passenger Rail Authority

NRPC…….…….Nashua Regional Planning Commission

NHS……National Highway System

PDA…….Pease Development Authority

PL……..Metropolitan Planning Funds

REGGI……...……Regional Greenhouse Gas Initiative

RPC…….....Regional Planning Commission

RPC……..……..….Rockingham Planning Commission

RTDM……...Regional Travel Demand Model

SABR…….…….Seacoast Area Bicycle Routes

SAFETEA-LU…….…….Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users

SEDC……..Southeast Economic Development Corporation

SIP…….……..State Implementation Plan

SMPO……...Strafford Metropolitan Transportation Planning

SMRPC……Southern Maine Regional Planning Commission

SNHPC……...Southern New Hampshire Planning Commission

SPR……Special Planning And Research Grants

SRPC……..……...Strafford Regional Planning Commission

SRTS……Safe Routes to School

STIP..……..Statewide Transportation Improvement Program

STP……...Surface Transportation Program

SOV……Single Occupant Vehicle

SWRPC…….Southwest Region Planning Commission

TAC……Technical Advisory Committee

TEA-21……..Transportation Equity Act of the 21st Century

TCM…….Traffic Congestion Management

TDM……..……..Transportation Demand Management

TE……...Transportation Enhancement

TIP…….……Transportation Improvement Program

UNH……..……..University of New Hampshire

UPWP……..Unified Planning Work Program

US DOT……...United States Department of Transportation

US EPA……United States Environmental Protection Agency

TAZ……...…….….Transportation Analysis Zones

UVLSRPC……...Upper Valley Lake Sunapee Regional Planning Commission

UZA……..Urbanized Area

3 C's……Comprehensive, Coordinated, Continual Planning

TABLE OF CONTENTS

CHAPTER 1: BACKGROUND INFORMATION

INTRODUCTION

The 2015–2040 Metropolitan Transportation Plan serves as the comprehensive transportation-planning document for the Strafford Metropolitan Planning Organization (SMPO) region. The region, located in southeastern New Hampshire, covers eighteen communities within Rockingham, Strafford, and Carroll Counties.

Transportation planning in metropolitan areas is intended to be a collaborative process, led by the SMPO, to include stakeholders in the regional transportation system. Involvement from the public and businesses, community groups, and environmental organizations is a key component to the planning process. The goal of the SMPO's 2015-2040 Metropolitan Transportation Plan is to review existing regional transportation infrastructure, goals, and strategies to determine where the region will be in the year 2040.

Chapter One provides a description of the rules, regulations, and documents that are required as part of the Metropolitan Planning Organization process. Chapter one will also provide a description of the committees and organizations that play an important role in transportation planning process at SMPO.

BACKGROUND INFORMATION

1962 FEDERAL AID HIGHWAY ACT

From the 1962 Federal Aid Highway Act and subsequent amendments, the *3Cs* transportation planning process was developed. According to the 1962 Federal Aid Highway Act, the *3Cs* process is intended to:

- **Comprehensively** consider social, economic, land use and environmental effects on all modes of transportation.
- Assure **Coordination** among the states and all affected local governments, and provide for participation in the planning process by citizens and all other entities affecting and affected by transportation improvements.
- **Continually** update the resulting regional transportation plans considering growth of the metropolitan area and corridors, changes in land use, impacts of transportation projects on air quality, and other factors that affect transportation needs and performance of transportation facilities. The continuing program also

includes working with transportation implementing agencies to facilitate project development.

METROPOLITAN PLANNING ORGANIZATIONS

Metropolitan Planning Organizations (MPOs) are required in regions with populations greater than 50,000 and are determined by the U.S. Census Bureau. The 1962 Federal Aid Highway Act first recognized the need for a specialized transportation planning process in the nation's urban centers and set the conditions for spending federal highway or transit funds in urbanized areas. According to the 2000 U.S. Census Bureau 132,457 people reside within the communities of SMPO. The New Hampshire Office of Energy and Planning (NH OEP) has estimated that 148,560 (11 percent increase) people reside within the communities of SMPO in 2010.

Table 1: Office of Energy and Planning Population Data

MUNICIPALITY	U.S. Census		OEP Estimate	% Change
	1990	2000	2010	2010-2000
Barrington	6,164	7,475	8,510	12%
Brookfield	518	604	730	17%
Dover	25,042	26,884	29,310	8%
Durham	11,818	12,664	13,840	8%
Farmington	5,739	5,774	6,930	17%
Lee	3,729	4,145	4,580	9%
Madbury	1,404	1,509	1,800	16%
Middleton	1,183	1,440	1,770	19%
Milton	3,691	3,910	4,530	14%
New Durham	1,974	2,220	2,640	16%
Newmarket	7,157	8,027	9,530	16%
Northwood	3,124	3,640	4,120	12%
Nottingham	2,939	3,701	4,560	19%
Rochester	26,630	28,461	31,560	10%
Rollinsford	2,645	2,648	2,740	3%
Somersworth	11,249	11,477	12,080	5%
Strafford	2,965	3,626	4,180	13%
Wakefield	3,057	4,252	5,150	17%
TOTAL	**121,028**	**132,457**	**148,560**	**11%**

NEW HAMPSHIRE METROPOLITAN PLANNING ORGANIZATIONS

There are nearly 400 Metropolitan Planning Organizations active in the United States, including four in New Hampshire:

- Nashua Metropolitan Planning Organization
- Rockingham Metropolitan Planning Organization
- Southern New Hampshire Metropolitan Planning Organization
- Strafford Metropolitan Planning Organization

Though the structure of each MPO varies slightly, New Hampshire Metropolitan Planning Organizations are most commonly made up of a Policy Committee, a Technical Advisory Committee, an Executive Committee, and the staff of the Regional Planning Commissions. These MPOs also regularly cooperate with various local and state agencies, non-profits, community, business or environmental organizations.

STRAFFORD METROPOLITAN PLANNING ORGANIZATIONS

HISTORY: SEACOAST METROPOLITAN PLANNING ORGANIZATION

Prior to July 21, 2007, the Seacoast Metropolitan Planning Organization consisted of the Strafford Regional Planning Commission and a portion Rockingham Planning Commission with 38 communities. The Rockingham Planning Commission was responsible for the Salem-Windham-Plaistow MPO. Staff members from the two Regional Planning Commissions were responsible for completing all requirements for the Seacoast MPO.

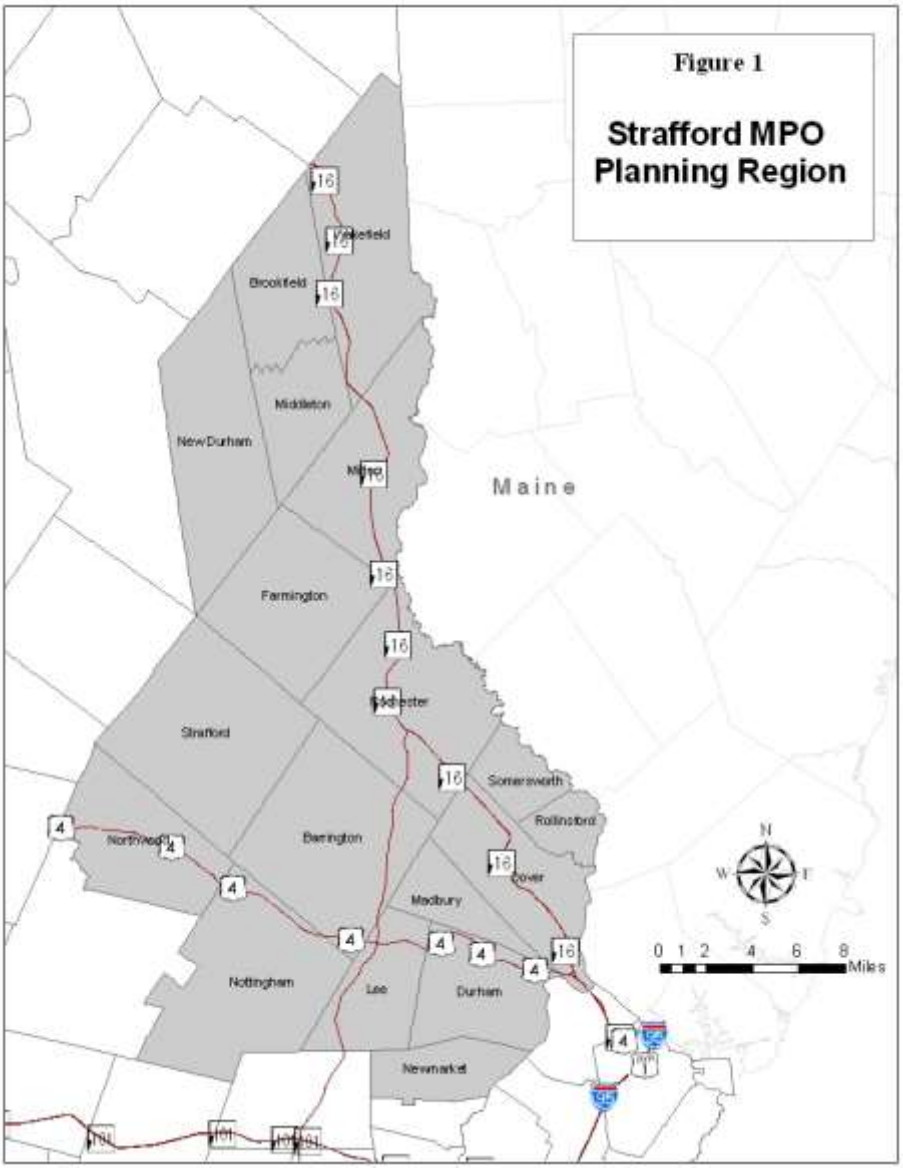
OVERVIEW

The new Rockingham MPO and Strafford Metropolitan Planning Organization were re-designated to be coterminous with the boundaries of the Rockingham Planning Commission and SRPC. The goal of dividing the MPOs based on the Regional Planning Commission boundaries was to allow the Strafford Regional Planning Commission and the Rockingham Planning Commission to focus on transportation planning within their own municipalities and to consolidate transportation planning with other regional planning functions of the Commission. Together the two Commissions share Intelligent Transportation Systems Architecture and Plan, Coordinated Plan for Human Service Transportation, transit and the Traffic Model for air quality monitoring.

MUNICIPALITIES

Eighteen communities fall within the boundaries of the SRPC. Through the federal process, eight communities are classified as being urban while the other ten are considered non-urban communities. The region is located in the southeast corner of New Hampshire along the coast of the Atlantic Ocean and a shared border with Berwick and Lebanon, Maine. Communities within the Strafford Metropolitan Planning Organization are located approximately a one-hour drive from Nashua and Concord, New Hampshire; Portland, Maine; and Boston, Massachusetts.

Figure 1: Communities in the Strafford Metropolitan Planning Organization



TECHNICAL ADVISORY COMMITTEE

The purpose of the Technical Advisory Committee (TAC) is to provide the SMPO with technical assistance and recommendations concerning transportation issues that have a bearing on the SMPO's continued, comprehensive, and coordinated transportation planning process (3 Cs). The TAC is a standing committee of the SMPO.

Each municipality and four agencies, consisting of the New Hampshire Department of Transportation (NHDOT), the New Hampshire Department of Environmental Service's Air Resources Division (NHDES-ARD), the University of New Hampshire (UNH), and the Cooperative Alliance for Seacoast Transportation (COAST), may appoint one member and one alternate to TAC, with one vote for each municipality and agency. Several additional agencies are encouraged to appoint one member and one alternate to TAC; however, they are non-voting members. See 2009 SMPO By-Laws for additional information.

The TAC will review and make recommendations to the SMPO Policy Committee on transportation planning efforts in the SMPO area as follows:

- Updates, revisions and amendments to the Metropolitan Transportation Plan to assure that recommended activities identified in the Metropolitan Transportation Plan are considered in the development of the annual work plan, TIP, air conformity determination, and other required documents of the SMPO.
- Development of a comprehensive public transportation system in the region by understanding the necessary components as well as developing funding models and indicators of success.
- Policy recommendations related to the public transportation systems.
- Contents of the biennial TIP update.
- Technical planning/engineering studies to be considered in the UPWP.
- Scoping reports and planning studies.
- Development and implementation of the Public Participation Plan.
- Guidance to UPWP and TIP related to issues or projects that arise from long term planning.
- Development of and coordination of project and issues that are of regional significance and or require the perspective that spans communities.
- Any other activities as requested by the SMPO Policy Committee.

The TAC, without SMPO Policy Committee approval, may:

- Evaluate and prioritize technical assistance for the SMPO members.

- Review and suggest revisions to staff and consultant technical assistance work.
- Establish subcommittee(s) to address significant areas of interest.

Figure 2: Members of the SMPO Technical Advisory Committee

VOTING		NON-VOTING
Municipalities	**Agencies**	**Agencies**
Barrington	NHDOT	FHWA
Brookfield	NHDES-ARD	FTA
Dover	UNH	NHDOT –District 6
Durham	COAST	NHDOT District 3
Farmington		NHDOT – ARD
Lee		NHDOT – BRT
Madbury		RPC
Middleton		SMRPC
Milton		Maine DOT
New Durham		PDA/NH Port Authority
Newmarket		Guilford Railroad
Northwood		FRA
Nottingham		NH Transit Association
Rochester		Park And Ride Terminal Operator
Rollinsford		ACT
Somersworth		SABR
Strafford		BWA-NH
Wakefield		NH Motor Transport Association
		Seacoast Commuter Options
		C&J Trailways

POLICY COMMITTEE

The purpose of the Policy Committee shall be to provide a forum for the development of regional transportation policies for the SMPO and to act as a vehicle to coordinate the implementation of these policies.

The Policy Committee is responsible for carrying out the metropolitan transportation planning process as required by SAFTEA-LU and related federal implementing regulations. This responsibility is carried out through oversight of the UPWP and through the development, review and approval of the Prospectus, the Metropolitan

Transportation Plan, the TIP, and the Air Quality Conformity Determination. SMPO activities related to these responsibilities include, but are not limited to the following:

- Establish the policy directions of the SMPO through its adopted plans and policy statements.
- Establish procedures and requirements whereby federal transportation funds will be allocated and made available in cooperation with the NHDOT.
- Adopt, review and/or revise the UPWP, Prospectus, Metropolitan Transportation Plan, TIP and Conformity Determination.
- Review and comment on individual projects, programs, plans and reports relative to the adopted transportation policies and positions.
- Request, review and endorse technical reports and studies prepared by the SMPO staff or consultants.
- Ensure compliance with the provisions of the Clean Air Act Amendments (CAAA) of 1990 through periodic conformity evaluation and a determination.
- Adopt, review and/or revise policies relative to the findings of the TAC, including technical reports and memoranda.
- Provide a mechanism to facilitate and broaden public involvement in transportation planning and decision-making processes.
- Coordinate and prioritize transportation projects to be implemented with Federal and/or State assistance.
- Monitor and participate in transportation policy-making activities with the NHDOT and the transportation or other relevant committees of the New Hampshire General Court.
- Collaborate in the development of public transit and multi-modal plans.

Their appointed regional planning commissioners will represent each municipality within the SMPO boundaries. Each commissioner shall have one vote. Communities are entitled to appoint as many voting representatives as permitted per RSA 36:46, III.

Figure 3: Members of the SMPO Policy Committee

VOTING		NON-VOTING
Municipalities	**Agencies**	**Agencies**
Barrington (2)	NHDOT (1)	FHWA
Brookfield (2)	UNH (1)	FTA
Dover (1)*	COAST (1)	NHDOT – ARD
Durham (3)	NHDES-ARD (1)	NHDOT – BRT
Farmington (2)		NN OEP
Lee (2)		RPC
Madbury (2)		SMRPC
Middleton (2)		Maine DOT
Milton (2)		NH Transit Association
New Durham (2)		FRA
Newmarket (2)		PDA/NH Port Authority
Northwood (2)		
Nottingham (2)		
Rochester (4)		
Rollinsford (2)		
Somersworth (3)		
Strafford (2)		
Wakefield (2)		

*NOTE - Communities that are not paying annual dues to SRPC shall have one representative, and one alternate, equal to one vote.

FEDERAL ORGANIZATIONS

THE FEDERAL HIGHWAYS ADMINISTRATION (FHWA)

Each state has a field office for the Federal Highways Administration. Responsibilities of this office include:

- Providing funds (PL and Section 8 funds), through the NHDOT, to support of the *3Cs* transportation planning process.
- Providing guidance and advice to the SMPO staff, SMPO's TAC, and Policy Committees through attendance at Metropolitan Planning Organization meetings and through the review and comment on work products.
- Making the joint air quality conformity finding of the Transportation Plan and the Transportation Improvement Program; and providing guidance regarding interpretation and fulfillment of federal metropolitan transportation planning rules and requirements. The Federal Highways Administration actively participates in the Interagency Consultation Group.

FEDERAL TRANSIT ADMINISTRATION (FTA)

The Region One Office of the FTA is located in Boston. Like the FHWA, the FTA has non-voting representation on both the SMPO's TAC and Policy Committee. The FTA works closely with the regional public transportation providers to ensure that they are meeting all federal requirements. The FTA actively participates in the New Hampshire Interagency Consultation.

US ENVIRONMENTAL PROTECTION AGENCY

The US EPA has the responsibility to comment on the technical merits of the air quality conformity determination made for the Regional Transportation Plan and the TIP and to review the CMAQ projects recommended for implementation in the region. The US EPA actively participates in coordinating meetings of the New Hampshire Interagency Consultation Group.

STATE ORGANIZATIONS

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

The NHDOT has statutory authority under New Hampshire law to plan, design, build, and maintain state highways and public transportation facilities of the state. The NHDOT maintains administrative oversight and funding of the responsibilities for the MPO planning process, and the authority in non-Transportation Management Areas to select eligible transportation projects for implementation through the STIP. In addition, the NHDOT is represented on the SMPO's Policy Committee and Technical Advisory Committee and has a wide range of responsibilities with respect to the MPO transportation planning program including: infrastructure construction; data collection; air quality analysis support; preparation of special studies and providing advice and technical assistance to the SMPO. The NHDOT also has specific responsibilities with respect to the MPO transportation planning process. These responsibilities are defined in the Memorandum of Understanding between the SMPO and the NHDOT (listed as Appendix A). NHDOT takes the lead in coordinating meetings of the Interagency Consultation Group.

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES)

Through its representation on the SMPO's TAC and Policy Committee, the Air Resources Division of the NHDES will apprise the MPO of the status of the SIP and State regulations pertaining to air quality compliance. Additional responsibilities of the NHDES - ARD include reviewing air quality conformity determinations prior to FHWA approval and providing comments on CMAQ projects. In addition, the NHDES - ARD will work cooperatively with the MPO in identifying and developing transportation projects, which improve air quality, including Traffic Congestion Management projects, which may be considered in future SIP revisions. Traffic Congestion Management projects that are incorporated in the State Implementation Plan will be given a high priority for implementation by the Metropolitan Planning Organization.

NEW HAMPSHIRE OFFICE OF ENERGY AND PLANNING (OEP)

The OEP is responsible for the Energy Programs and Planning Programs for the state of New Hampshire. They are responsible for compiling population estimates and projections for each municipality in New Hampshire each year, as well as being an official Census site.

THE STATE OF NEW HAMPSHIRE EXECUTIVE COUNCIL

The Executive Council has five members that represent five regions of New Hampshire. The Strafford Metropolitan Planning Organization is part of three regions:

District One: Wakefield
District Two: Brookfield, Farmington, Middleton, Milton, New Durham, Northwood, Rollinsford, Rochester, Somersworth, Strafford
District Three: Barrington, Dover, Durham, Lee, Madbury, Newmarket, Nottingham

The Executive Council members, Governor, and the Commissioner of the NHDOT function as the Governor's Advisory Commission on Intermodal Transportation, also known as GACIT, which is responsible for creating the list of transportation projects for the Ten-Year Transportation Improvement Plan that, the New Hampshire legislature approves.

LOCAL ORGANIZATIONS

STRAFFORD REGIONAL PLANNING COMMISSION (SRPC)

SRPC provides staffing in the form of planning and administrative functions to the MPO, in accordance with federal regulations administered by the NHDOT. The Commission is reimbursed for 80 percent to 90 percent of the total services from federal and state funds as determined by the UPWP contract agreement with NHDOT. The remaining costs of transportation services are paid by local funds.

ROCKINGHAM PLANNING COMMISSION (RPC)

RPC serves as non-voting members of the SMPO's Policy Committee and TAC. This facilitates on-going coordination across and within regional and state boundaries in both highway and transit planning.

SOUTHERN MAINE REGIONAL PLANNING COMMISSION (SMRPC)

SMRPC serves as non-voting members of the SMPO's Policy Committee and TAC. This facilitates on-going coordination across and within regional and state boundaries in both highway and transit planning.

COOPERATIVE ALLIANCE FOR SEACOAST TRANSPORTATION (COAST)

COAST is the principal public transit operator in the MPO region, as established under special purpose legislation that provides both fixed route and demand responsive transit service in the Seacoast area. The COAST service area consists of the urbanized areas of Stafford County as well as Portsmouth Urbanized area in Rockingham County.

COAST is represented on the SMPO's TAC and Policy Committees, and SRPC and RPC have a designated seat on the COAST Board of Directors. In addition, Maine municipalities serviced by the COAST transportation system are represented on the COAST Board of Directors to ensure good communications across state boundaries.

COAST is responsible for providing input, including the identification of transit needs and objectives, into the development of the Metropolitan Transportation Plan including its Transit Plan component and other relevant documents, as well as identification of shorter term project need for inclusion in the TIP. COAST also assists with the development and implementation of a Coordinated Human Services Transportation Plan for its service area.

COAST is responsible for providing operational and financial data for the MPO to use in developing its required certifications. The MPO provides COAST with requested planning services that is identified and funded through the UPWP.

The MPO is required to certify each year that COAST has the financial capacity to continue to operate at its planned level of service and that it is planning for capital replacement needs. The MPO must also annually certify that the Americans with Disabilities Act (ADA) Plan adopted by COAST is consistent with the SMPO Transportation Plan.

UNIVERSITY OF NEW HAMPSHIRE (UNH)

The UNH refers to the Durham campus of the University System of New Hampshire. With a central academic and residence campus in Durham and land holdings in Madbury and Lee, UNH is home to approximately 11,000 on-campus students. It is also the largest employer in the region and daytime population during a typical school year can reach greater than 20,000. The UNH campus serves as the center of the Wildcat Transit hub, which provides services on Routes 3-4-5. It also has daily intercity rail and bus service from the UNH/Durham transit center on campus.

In 1997, the Seacoast MPO voted to welcome the UNH as a full voting member on both the TAC and Policy Committees. As a non-municipality, UNH plays a role similar to other agencies listed in this section. Representation on the SMPO acknowledges the University's effect on land use and transportation patterns within the SMPO region and enables the University of New Hampshire to have a voice in the regional transportation planning process.

LOCAL COMMUNITIES

Each community within the SMPO Study Area is provided the opportunity to participate in the SMPO transportation planning process through direct representation on the TAC and Policy Committees. The community's role on the TAC is to represent and bring forward local project level transportation needs and priorities and to provide technical guidance to the MPO staff. Their role on the Policy Committee is to review, evaluate and approve or disapprove the major SMPO policy documents, principally the Metropolitan Transportation Plan and TIP, and in so doing, represent the short and long-range needs of both their community and the region overall. In addition, both TAC and Policy Committee members have the critical responsibility to ensure ongoing communication between the SMPO and the local officials in the community.

In exchange for these services and benefits provided through the UPWP scope of work, communities are assessed membership dues and are expected to provide a share of the local match of 10 percent to 20 percent of the total UPWP contract, thus maintaining a viable MPO process. Communities that do not contribute their share of local match are still afforded a single voting representative on the TAC and a single voting representative on the Policy Committee.

STATE DOCUMENTS

NEW HAMPSHIRE LONG RANGE TRANSPORTATION PLAN: A FRAMEWORK FOR TRANSFORMING TRANSPORTATION IN NEW HAMPSHIRE

The New Hampshire Charitable Foundations and the New Hampshire Department of Transportation collaborated to organize and facilitate the Community Advisory Committee in 2004 that guided the development of the New Hampshire Long Range Transportation Plan. This document, *The New Hampshire Long Range Transportation Plan: A Framework for Transforming Transportation in New Hampshire* was completed on June 9, 2006. With input from citizens, obtained through meetings hosted by the regional planning commissions, core issues were identified that further guided the development of trends, potential implications, and opportunities. The core issues were identified as:

1. Land Use And Transportation Connection
2. Mobility And Mode Choice
3. Safety And Public Health
4. Environment And Public Health
5. System Maintenance And Preservation
6. Governance/Institutional Arrangements
7. Funding And Fiscal Constraint – Priorities And Choices

TEN YEAR TRANSPORTATION IMPROVEMENT PLAN

This plan is commonly referred to as the Ten-Year Plan and contains transportation projects for a ten-year time frame. The plan is revised every two years with input from the RPCs, the NHDOT, the Governor's Advisory Commission on Intermodal Transportation (GACIT), and the Governor and the New Hampshire Legislature. Every step of the review process contains public participation processes. The Governor submitted the current Ten-Year Plan to the New Hampshire Legislature in December 2009. It was approved by the House and Senate, and signed by the Governor on June 29, 2010.

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM

All TIPs from the four MPOs and rural RPCs are added to the Statewide Transportation Improvement Program along with statewide projects.

STRAFFORD METROPOLITAN PLANNING ORGANIZATION DOCUMENTS

METROPOLITAN TRANSPORTATION PLAN

The purpose of the Metropolitan Transportation Plan is to guide the decision making process for the selection and implementation of transportation projects. Metropolitan Transportation Plans vary widely in style and content from one region to another but federal regulations (23 CFR 450.322 Subpart C) state, "the Metropolitan Planning Process shall include the development of a transportation plan addressing at least a twenty year horizon".

Federal regulations also state that the plan shall include long-range and short-range actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods. The Metropolitan Transportation Plan must be reviewed and updated at least every four years in non-attainment and maintenance areas and at least every five years in attainment areas to confirm its validity and its consistency with current and forecasted transportation and land use conditions and trends to extend the forecast period. Given the region's air-quality non-attainment status, the SMPO Metropolitan Transportation Plan is updated on a four-year cycle. The Metropolitan Planning Organization must approve the plan. In addition, the plan shall:

- Identify the projected transportation demand of persons and goods in the metropolitan planning area over the period of the plan.
- Identify adopted congestion management strategies.
- Identify pedestrian walkway and bicycle transportation facilities.
- Reflect the consideration given to the results of the management systems.
- Assess capital investment and other measures necessary to preserve the existing transportation system and make the most efficient use of existing transportation facilities to relieve vehicular congestion and enhance mobility of people and goods.
- Reflect a multi-modal evaluation of the transportation, socio-economic, environmental, and financial impact of the overall plan, including all major transportation investments.
- For major transportation investments for which analyses are not complete, indicate that the design concept and scope have not been fully determined and will require further analysis.

- Reflect, to the extent that they exist, consideration of the area's comprehensive long range land use plan and metropolitan development objectives; state and local housing goals and strategies; community development and employment plans and strategies; environmental resource plans; local, state and national goals and objectives such as linking low income housing with employment opportunities; and the area's overall social, economic, environmental and energy conservation goals and objectives.
- Indicate, as appropriate, proposed transportation enhancement activities.
- Include a financial plan that demonstrates the consistency of proposed transportation with already available projected sources of revenue. The financial plan shall compare the estimated revenue from existing and proposed funding sources that can reasonably be expected to be available for transportation uses, and the estimated cost of constructing, maintaining and operating the total transportation system over the period of the plan."

PUBLIC PARTICIPATION PLAN

This report documents the actions to be carried out by the Strafford Metropolitan Planning Organization to ensure that opportunities exist for the public to be involved in transportation planning activities, pursuant to Title 23 CFR 450.316 of Statewide Planning; Metropolitan Planning and Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects; and Statewide Transportation Planning Rules.

The report also serves as the statement of transportation public participation policies adopted by the Strafford Metropolitan Planning Organization. Participation of the public in transportation planning activities is vitally important to the Metropolitan Planning Organization. The emphasis of the adopted policies in this report is on regional system planning products regularly produced in the transportation planning process. Specific project-level public participation procedures and practices are defined by implementing agencies. Only the relationship of regional participation processes to project planning is included here.

UNIFIED PLANNING WORK PROGRAM (UPWP)

The UPWP identifies the specific planning priorities and work tasks that the MPO will address during a particular program period (often two years). The development of the UPWP is required as part of the 3Cs metropolitan planning process and specifically the Metropolitan Planning Rules (23CFR 450:314).

COORDINATED PUBLIC TRANSIT-HUMAN SERVICES PLAN

The purpose of the Coordinated Public Transit-Human Services Transportation Plan is to create for the Seacoast New Hampshire region, a comprehensive strategic approach to improving coordination between existing transportation systems and providers in order to strengthen services for those target populations having special transportation needs such as those with disabilities, older adults and those of limited income. The Plan seeks to identify ways to enhance transportation access, minimize duplication of services, and encourage the most cost-effective transportation possible. In addition to being a planning tool, this Plan will be used as an implementation document. It will serve as the framework for the prioritization, selection and implementation of coordinated project seeking to utilize federal funding assistance through applicable Federal Transit Administration Programs (New Freedoms grant program, and the Job Access And Reverse Commute grant program are two examples).

TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

The TIP is a financially constrained four-year program covering the most immediate implementation priorities for transportation projects and strategies from the Metropolitan Transportation Plan. It is the state's way of allocating its limited transportation resources among the various capital and operating needs of a region based on a clear set of short-term transportation priorities. Under federal law, the TIP:

- Covers a minimum four-year period of investment.
- Updated at least every four years.
- Is realistic in terms of available funding (known as a fiscally constrained Transportation Improvement Program.
- Conforms to the State Implementation Plan for Air Quality if the region is designated a non-attainment or maintenance area.
- Approved by the MPO and the Governor for air quality.
- Incorporated into the statewide transportation improvement program.

STRAFFORD MPO BYLAWS

The SMPO Bylaws define the purpose, responsibilities, membership, officers, and meetings of the SMPO's TAC and the Policy Committee, the SRPC's Executive Committee, and staff of the SRPC.

SMPO PROSPECTUS

The Prospectus serves three important functions in the Strafford Metropolitan Planning Organization regional transportation planning process. First, it provides an overview of the federally mandated *3Cs* transportation planning process as defined by the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (*SAFETEA-LU*). Second, it defines the roles and responsibilities of the various federal, state and local agencies and entities involved in the MPO transportation planning process. Third, it documents the interagency agreements that have been or will be entered into between the MPO, the NHDOT, COAST, and the NHDES – Air Resources Division. These agreements further define the specific responsibilities and obligations of each agency.

The Prospectus is designed to serve as a common reference for all parties interested and involved in the regional transportation planning process in the Strafford Region of New Hampshire and it spells out how that process will be implemented by the SMPO.

ANNUAL LISTING OF OBLIGATED PROJECTS

The Annual Listing of Objected Projects is a requirement from the federal government's current transportation laws and regulations document, *SAFTEA-LU*. The federal government defines obligated projects as the federal government's legal commitment (promise) to pay or reimburse the states or entities for the federal share of a project's eligible costs. Projects include federal highway, public transportation, pedestrian walkways, and bicycle facilities projects. Eligible projects receiving obligated federal transportation funds in one fiscal year, may not begin or even be completed within the same fiscal year and the obligated funds may not cover the total costs of the project. The first Annual Listing of Obligated Projects completed for the Strafford Metropolitan Planning Organization was for the Federal Fiscal Year October 1, 2006 to September 30, 2007.

FEDERAL REGULATIONS

Federal regulations structure the contents of the Strafford Metropolitan Planning Organization 2015–2040 Metropolitan Transportation Plan. The following regulations are requirements for all Metropolitan Transportation Plans.

SAFE, ACCOUNTABLE, FLEXIBLE, EFFICIENT, TRANSPORTATION EQUITY ACT: A LEGACY FOR USERS (SAFETEA-LU)

The President signed *SAFETEA-LU* into law in 2005. *SAFETEA-LU*, which is the largest surface transportation investment in the history of the U.S., builds on the foundation of earlier transportation legislation designed to maintain and expand our essential transportation infrastructure. The legislation continues funding for core programs and increases flexibility to address investment areas such as:

- Safety – SAFETEA-LU establishes a Highway Safety Improvement Program and targets other related areas of concern such as older drivers, pedestrians, Safe Routes to School and work zones.
- Equity – Each state is guaranteed a specific rate of growth in funding over previous legislation. An Equity Bonus program ensures that each state's return on its share of contributions to the Highway Trust Fund is at least 90.5 percent (FY 2005).
- Innovative Finance – The legislation encourages private sector participation in highway infrastructure projects by providing flexibility to stimulate private investment.
- Congestion Relief – SAFETEA-LU allows states more flexibility to implement congestion pricing and real-time traffic management policies.
- Mobility and Productivity – The legislation includes programs to improve interregional, national, and international transportation.
- Efficiency – *SAFETEA-LU* promotes the use of innovative technologies to improve the efficiency of highway and bridge construction.
- Environmental Stewardship – Funding for environmental programs is increased.
- Environmental Streamlining – SAFETEA-LU provides streamlined review process that increases agency authority and responsibility.

SAFETEA-LU includes key statutory requirements, many of which have direct impacts on Metropolitan Planning Organization, including:

- New Planning Factors – Security and safety of the transportation system are identified in the legislation as individual planning factors.
- Expanded Planning Factors – Environmental concerns has been expanded to "promote consistency between transportation improvements and state and local planned growth and economic development patterns."
- Metropolitan Transportation Plans – The cycle for updating transportation plans has been revised from three to four years.
- Environmental Mitigation Activities – Transportation plans must include a discussion of potential environmental mitigation activities developed in consultation with appropriate agencies.
- Public Participation – Transportation plans must include the development and use of a public participation plan.
- Operational and Management Strategies – Transportation plans must include operational and management strategies that would improve the performance of transportation facilities, relieve congestion, and maximize safety and mobility of people and goods.
- Visualization Techniques – MPOs must utilize visualization techniques in the development of plans and TIPs.
- Annual Listing of Obligated Projects – The development of this project listing, which is now a cooperative effort of the state, transit operators and the MPO, includes investments in pedestrian and bicycle facilities, but does not emphasize bicycle and pedestrian facilities projects over others.
- Coordinated Public Transit-Human Services Transportation Plan – The plan is required for eligibility for funding under three FTA programs: Special Needs of Elderly Individuals and Individuals with Disabilities, Job Access and Reverse Commute and New Freedoms.

The following is a list of required planning factors:

1. Support the economic viability of the metropolitan area, and enable global competitiveness, productivity, and efficiency.
2. Increase the security of the transportation system for motorized and non-motorized users.
3. Increase accessibility of/for people and freight.
4. Protect and enhance the environment; promote energy conservation and improve the quality of life; and promote consistency between transportation improvements and planned growth and economic development patterns.
5. Enhance the integration and connectivity of the transportation system, across and between modes for people and freight.
6. Promote efficient system management and operation.
7. Emphasize the preservation of the existing transportation system.

MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY (MAP-21)

MAP-21, the Moving Ahead for Progress in the 21st Century Act was signed into law on July 6, 2012. Funding surface transportation programs at over $105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005.

MAP-21 is a milestone for the U.S. economy and the Nation's surface transportation program. By transforming the policy and programmatic framework for investments to guide the system's growth and development, MAP-21 creates a streamlined and performance-based surface transportation program and builds on many of the highway, transit, bike, and pedestrian programs and policies established in 1991.

THE CLEAN AIR ACT (CAA)

In 1970, the United States Congress created the US EPA and passed the CAA. The CAA gave the federal government the authority to regulate pollution in the air caused by factories, automobiles, and chemicals. In 1990, the US Congress gave the EPA increased responsibilities to improve air quality. Congress expanded the scope of the CAA to allow the federal government more power in regulating air pollution and to find cost-effective approaches in reducing air pollution. Each state must write a State Implementation Plans defining implementation of the CAA Guidelines.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The NEPA was signed into law on January 1, 1970 and established federal environmental policies and goals for the protection, maintenance, and enhancement of the environment. Additionally, it provides a process for implementing these policy goals within the federal agencies.

TITLE VI OF THE 1964 CIVIL RIGHTS ACT

Title VI of the 1964 Civil Rights Act prohibits discrimination on the basis of race, color, or ethnic origin in the provision of transportation benefits and in the imposition of adverse impacts. Building on Title VI, Executive Order 12898, dated February 11, 1994, requires each federal agency to achieve environmental justice by identifying and addressing any disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, of its programs, policies, and activities on minority or low income population.

ENVIRONMENTAL JUSTICE

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. On April 15, 1997, US DOT issued its Final Order to Address Environmental Justice in Minority Populations and Low Income Populations. Among other provisions, the Order requires programming and planning activities to:

- Include explicit consideration of the effects of transportation decisions on minority and low-income populations.
- Provide meaningful opportunities for public involvement by members of minority and low-income populations.
- Gather, where relevant, appropriate and practical, demographic information (race, color, national origin, and income level) on the populations served or affected by transportation decisions.
- Minimize or mitigate any adverse impact on minority or low-income populations.

PUBLIC OUTREACH

As required by *SAFETEA-LU*, the Strafford Metropolitan Planning Organization has adopted and incorporated a process for soliciting public involvement for all MPO transportation-planning efforts. This process will be expanded and improved as appropriate to obtain input from a broader spectrum of individuals and organizations.

FOCUS INTERVIEWS

Individual focus interviews were held with various individuals and organizations involved with transportation-related issues in the Seacoast and the State of New Hampshire. The goal of having one-on-one interviews was to give individuals and organizations a chance to discuss their views of the strengths and weaknesses of transportation-related issues within the SRPC region and to give updates to their organization since the last Metropolitan Transportation Plan. As an example, in the Freight Chapter, trucking companies were interviewed in determining if new goals, objectives, and strategies should be adopted in identifying their needs in the future. Each chapter will include resources that were gathered while writing the 2009-2035 Metropolitan Transportation Plan. SRPC finds focus interviews an effective means to access public and key stakeholders.

ALLIANCE FOR COMMUNITY TRANSPORTATION (ACT)

The ACT is a group that consists of representatives from the SRPC, RPC, COAST, The United Way of Greater Seacoast, Community Partners, Strafford Network and other non-profit organizations that provide health and human services programs in the Greater Seacoast region. Each non-profit organization has unique transportation needs and demands and it is the responsibility of the ACT to create a regional transportation brokerage system that will allow non-profit organizations the ability to share transportation resources. In addition, the Alliance for Community Transportation was involved with the creating of the Coordinated Public Transit-Human Services Transportation Plan, as required by *SAFETEA-LU*.

PUBLIC PARTICIPATION PLAN

Required as a stand-alone plan by *SAFETEA-LU*, the SMPO Public Participation Plan was revised and approved at the September 27, 2007 SMPO Policy Committee Meeting. The Public Participation Plan outlines the steps taken for involving the public in transportation-related projects within the SRPC.

ENVIRONMENTAL JUSTICE

In writing the Coordinated Public Transit-Human Services Transportation Plan for the Southeast New Hampshire Region, transportation and economic statistics were updated to determine the greatest need for additional transit services in the future. Maps were created from this data survey and included in the final Coordinated Public Transit-Human Services Transportation Plan that was adopted by the SMPO's Policy Committee on March, 16, 2012. ACT's full committee reviewed this plan in 2012 during the public comment period.

LONG-RANGE TRANSPORTATION PROJECT SOLICITATION

Long-Range Transportation Projects included in the 2015-2040 Metropolitan Transportation Plan are solicited from the public and each Board of Selectmen/Town Council in the eighteen communities of the SMPO. From the start, projects have their own unique portfolio, where information related to that particular project will be located, included zoning, environmental, and financial information. The goal of this approach is to have information readily available for future planners and officials who may not have originated the project and to provide a holistic context of the project.

METROPOLITAN TRANSPORTATION PLAN AND APPROVAL

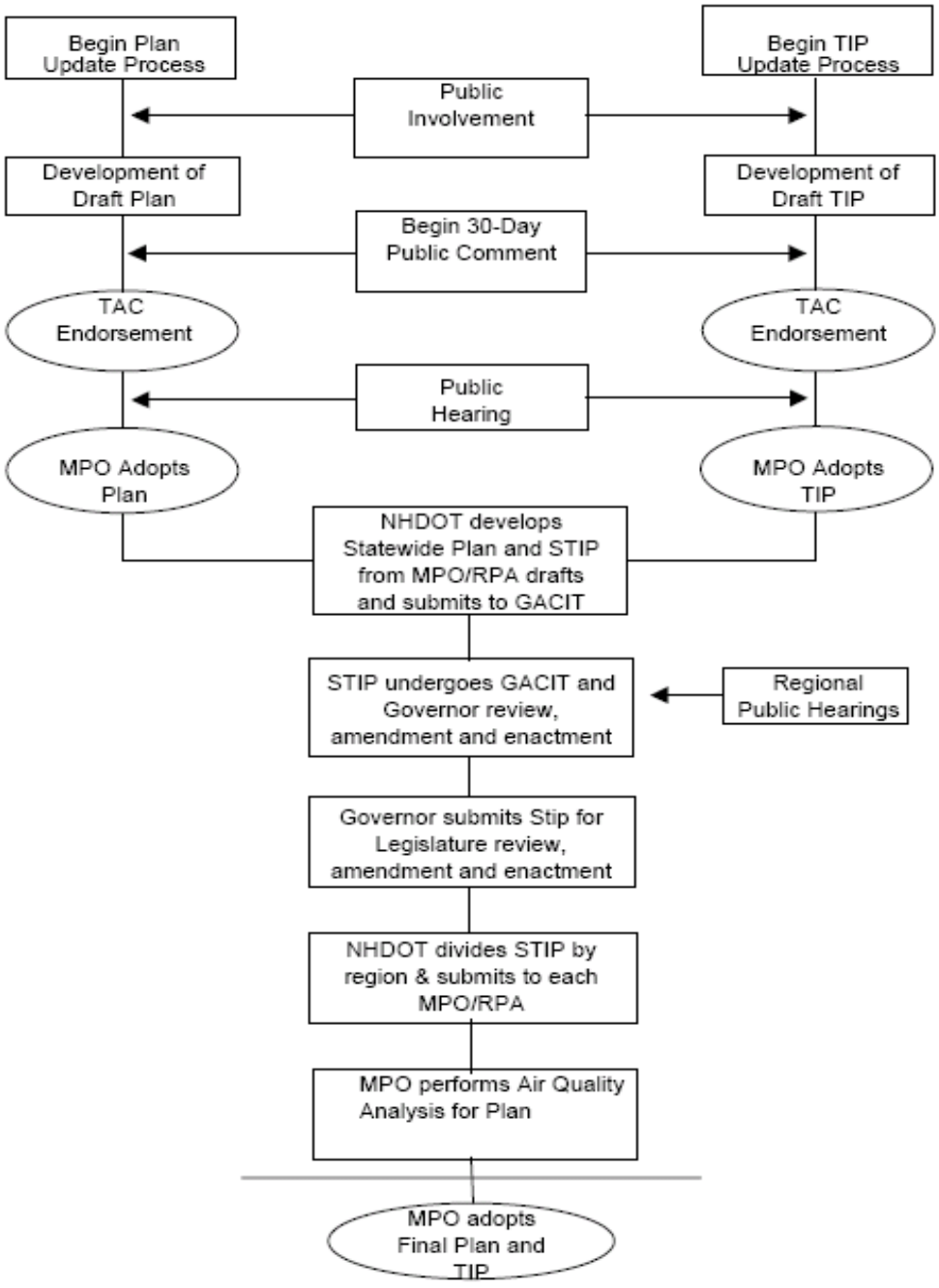
TECHNICAL ADVISORY COMMITTEE

The SMPO's TAC will act as the Metropolitan Transportation Plan Steering Committee. The TAC meets monthly and will discuss updates to the Metropolitan Transportation Plan when it is on the agenda. The TAC will guide the structure, format, and content of the Metropolitan Transportation Plan. While the SMPO's Policy Committee will approve the final document, the TAC will make recommendations to the Policy Committee for their consideration.

POLICY COMMITTEE

The SMPO's Policy Committee approves the 2015-2040 Metropolitan Transportation Plan after a 30-day public review period, public hearing, and consideration of all comments received verbally or in writing.

Figure 4: Development of the Metropolitan Transportation Plan and TIP



CHAPTER 2: LAND USE & DEMOGRAPHICS

INTRODUCTION

The SMPO's regional pattern of land uses that exist in each community has a direct effect on decisions concerning future development. The location and extent of residences, open space, forests, commercial businesses and industries, and their relationship to each other are important community features which serve as the context for future development.

In order to effectively plan the future transportation system for the SMPO region, it is imperative that each interested party understands that transportation and land use are inherently linked. The purpose of the transportation system is to provide mobility and accessibility for all users, regardless of physical limitations or economic status, to employment, housing, services and recreation. This system should be safe, attractive, environmentally compatible, efficient, and balanced with sustainable land use policies.

An efficient transportation system is vital to a region's economic and environmental health, allowing the movement of people and goods to meet local and regional transportation needs and ensuring that the benefits and burdens of the system are shared equitably. Most importantly, the transportation system should support the economic vitality of the entire SMPO region through timely and appropriate transportation investments.

This chapter will include a description of the SMPO region in terms of population, traffic, land use patterns and future forecasts to help identify existing patterns in the region and provide valuable information for planning future transportation.

PURPOSE

The purpose of this chapter is to support growth planning. Planning for orderly growth reduces haphazard, unplanned developments that result in dispersed, inefficient land use patterns and a loss of traditional community structure. An analysis of land use within the SMPO region provides our community's decision-makers with objective information that can be used to address community design, financial, land use and transportation issues.

Regional transportation solutions should be considered, where possible, through incentives in development regulations. Traffic congestion impacts the ability to deliver goods and services as well as the quality of the air we breathe. However, the expansion of state and local roads spurs housing, employment growth and land development. The subsequent increase in population or employment can overwhelm existing road systems, leading to major infrastructure investments. The development of pragmatic

approaches to integrating transportation and land use planning is critical. Therefore, all parties should participate in development practices that are consistent with Smart Growth Principles in New Hampshire. They are as follows:

- Maintain traditional compact settlement patterns to efficiently use land, resources, and investments in infrastructure.
- Foster the traditional character of New Hampshire downtowns, villages, and neighborhoods by encouraging a human scale of development that is comfortable for pedestrians and conducive to community life.
- Incorporate a mix of uses to provide a variety of housing, employment, shopping, services, and social opportunities for all members of the community.
- Provide choices and safety in transportation to create livable, walkable communities that increase accessibility for people of all ages, whether on foot, bicycle, or in motor vehicles.
- Preserve New Hampshire's working landscape by sustaining farm and forestland and other rural resource lands to maintain contiguous tracts of open land and to minimize land use conflicts.
- Protect environmental quality by minimizing impacts from human activities and planning for and maintaining natural areas that contribute to the health and quality of life of communities and people in New Hampshire.
- Involve the community in planning and implementation to ensure that development retains and enhances the sense of place, traditions, goals, and values of the local community.
- Manage growth locally in the New Hampshire tradition, but work with neighboring towns to achieve common goals and address common problems more effectively.

All components of the transportation system should be user friendly. Transportation alternatives should be actively promoted to expand awareness and use, and new technologies should be used to reduce congestions and improve traffic flow. Coordination of land use and transportation planning should be encouraged to ensure that existing and future industrial, commercial and residential development is adequately connected by the SMPO region's transportation system and appropriately located to preserve the quality of life in surrounding areas.

REGIONAL LAND USE & TRANSPORTATION GOALS AND OBJECTIVES

REGIONAL LAND USE & TRANSPORTATION GOALS

- Strengthen the connection between Land Use Policies with current and future transportation projects.

REGIONAL LAND USE & TRANSPORTATION OBJECTIVES

- Work with municipalities to review existing Land Use Policies and Master Plans to ensure that they provide options for developers, businesses, and individuals to build and grow in ways that will not weaken the current transportation infrastructure.
- Work with municipalities to review existing zoning practices to ensure that they are not encouraging developers to build commercial and residential developments outside of or beyond the capacity of the current transportation infrastructure.
- Encourage new residential and commercial development to locate within walking distance of existing public transportation routes.
- Encourage the use of Memorandums of Understanding (MOUs) for Access Management to more effectively utilize roadway capacity, promote safety and reduce traffic congestion.
- Encourage communities to work cooperatively in planning and prioritizing transportation projects, emphasizing coordinated corridor planning.
- Partner with the NHDOT to purchase right-of-way land along highway corridors to preserve land for future infrastructure development and to protect natural resources, such as wetlands and wildlife habitat, scenic vistas.

LAND USE PATTERNS

The combined land area of communities within the SMPO region totals approximately 145,604 square miles[1]. These communities range from densely populated urban centers like Dover and Rochester, the University town of Durham, agricultural communities like Lee, and scenic Lakes region communities like Wakefield and Middleton.

COMMERCIAL/INDUSTRIAL/MIXED USE

Historically, the region's commercial establishments were primarily located in the urban centers of mill towns and in the village centers or crossroads of the smaller communities. During the past quarter century, commercial development has located outside of the traditional town center in two ways: first, in large-scale shopping malls with their own interior road systems with access to major transportation corridors, and secondly, small to medium scale highway commercial uses located along the frontage of major transportation corridors.

For the most part, the region's industrial development has located in concentrated, defined areas in close proximity to the major transportation corridors and railways. Examples of concentrated industrial development include portions of the coastline through Newington and Portsmouth associated with access to the Piscataqua River. Another trend is the establishment of industrial parks. Such parks locate a number of light industrial uses in close proximity to each other, served by an interior road with access to a major transportation corridor. There are examples of such parks in Dover, Farmington, Milton, Newmarket, Rochester, and Somersworth. Scattered industrial development can also be found along the state road system throughout the study area.

This category also includes downtown areas where mixed, concentrated land uses exist. In such areas, dwelling units may be located above commercial enterprises; apartment buildings are located next to public and semi-public uses, etc. Urban centers in the region include the downtown areas of Dover, Durham, Farmington, Newmarket, Rochester, and Somersworth.

[1] 2010 U.S. Census data from New Hampshire Office of Energy and Planning http://www.nh.gov/oep/data-center/census/index.htm

RESIDENTIAL

The study area's various village and urban centers contain concentrations of single family and multi-family housing units. However, the majority of single-family homes are located in the more rural areas of the study area, as shown in Table 2: Housing Type Per Municipality. The Town of Brookfield has only single-family housing, while the City of Dover and the Town of Newmarket have approximately 50 percent of their housing stock in single-family units and 50 percent of their housing stock in multi-family units.

Table 2: Housing Type Per Municipality

MUNICIPALITY	Single-Unit	Mobile Home	Multi-Unit
Barrington	75%	18%	7%
Brookfield	**100%**	0%	0%
Dover	49%	3%	**47%**
Durham	64%	0%	36%
Farmington	61%	18%	21%
Lee	72%	11%	17%
Madbury	73%	13%	14%
Middleton	90%	9%	0%
Milton	71%	19%	10%
New Durham	91%	8%	1%
Newmarket	48%	6%	**46%**
Northwood	78%	13%	8%
Nottingham	93%	5%	2%
Rochester	52%	19%	29%
Rollinsford	67%	2%	31%
Somersworth	47%	10%	42%
Strafford	90%	6%	4%
Wakefield	89%	6%	5%
TOTAL	**62%**	**10%**	**28%**

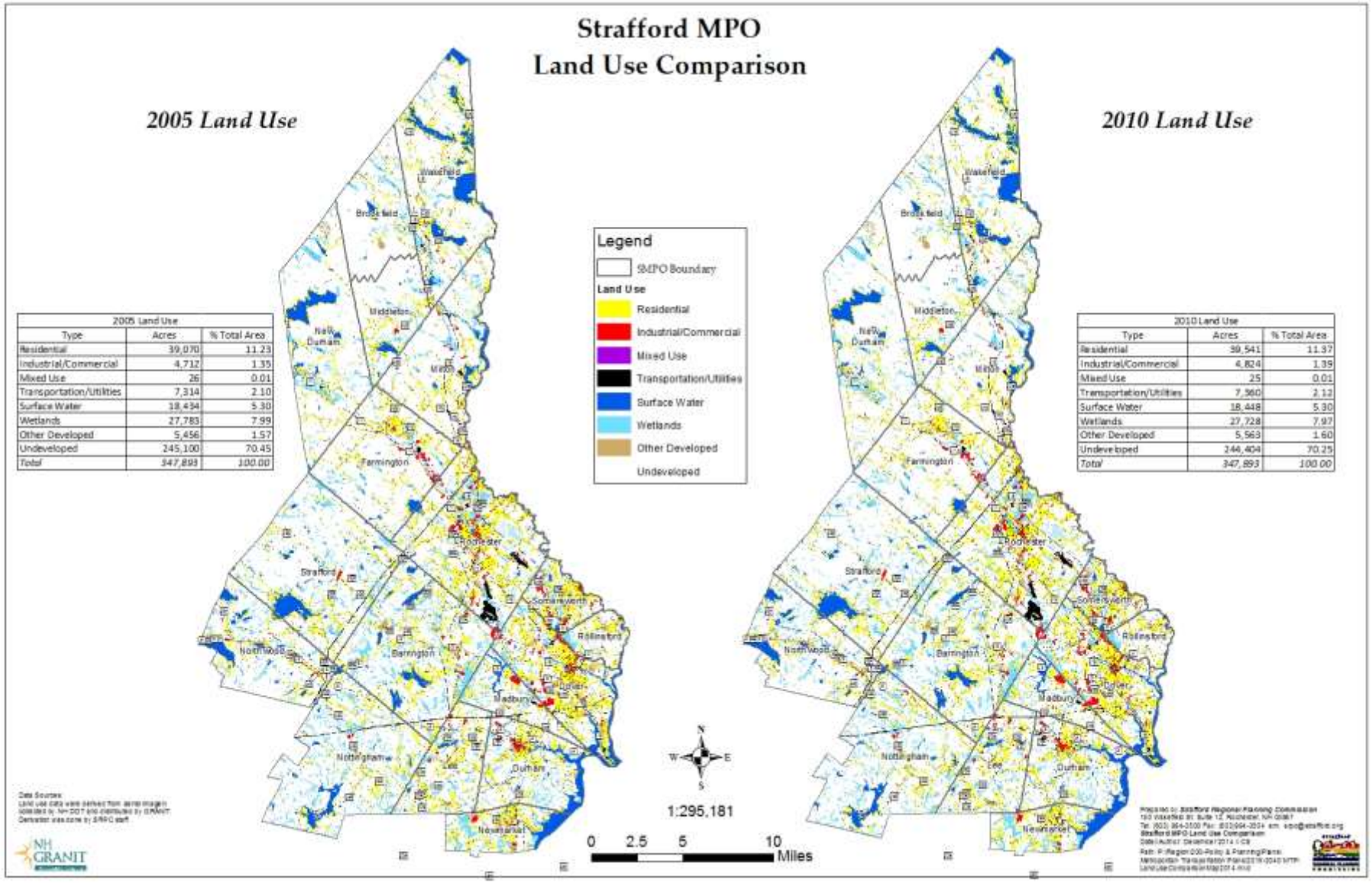
2000 Census: H30-Units in Structure

OTHER DEVELOPED LAND

This category includes land developed for government or institutional use, such as schools, libraries, post offices, town halls, utilities, and parks. Many of these uses are located within the study area's urbanized areas and village centers. Such uses are traditionally located centrally in the municipality, so that many residents can still walk to the post office, town library, town hall, etc. Some of the study area's schools are located within walking distance of significant population clusters, although the trend over the past decade has been to locate schools on the outskirts of town where larger tracts of land are available to accommodate playing fields.

The land use patterns in the SMPO region have a significant effect on its transportation system, and vice-versa. Unlike many regions of its size in the United States, the SMPO region is fortunate to have a number of traditional, viable downtown and village centers. Nonetheless, much of the residential, commercial, and industrial development is dispersed, encouraging and sometimes necessitating a large amount of travel for individuals to work, shop, and fulfill their other daily needs.

This type of development makes it difficult for any mode other than the automobile to meet these needs. As a result, a large majority of the population uses private automobiles exclusively to meet their transportation needs. This increases traffic volumes, and places a greater demand on road infrastructure as the region's population grows. This pattern also means that individuals without access to an automobile encounter serious mobility problems. In turn, new road infrastructure needed to accommodate growth in traffic encourages development and a continuation of dispersed land use patterns.



2005 Land Use		
Type	Acres	% Total Area
Residential	39,070	11.23
Industrial/Commercial	4,712	1.35
Mixed Use	26	0.01
Transportation/Utilities	7,314	2.10
Surface Water	18,434	5.30
Wetlands	27,783	7.99
Other Developed	5,456	1.57
Undeveloped	245,100	70.45
Total	*347,893*	*100.00*

2010 Land Use		
Type	Acres	% Total Area
Residential	39,541	11.37
Industrial/Commercial	4,824	1.39
Mixed Use	25	0.01
Transportation/Utilities	7,360	2.12
Surface Water	18,448	5.30
Wetlands	27,728	7.97
Other Developed	5,563	1.60
Undeveloped	244,404	70.25
Total	*347,893*	*100.00*

POPULATION

POPULATION GROWTH

During the past two decades, the SMPO region has been one of the fastest growing areas in New Hampshire. Much of this growth can be credited to the area's proximity to the Boston Metropolitan Area and to the substantial growth in employment within the Dover/Rochester labor market. NHOEP projects an increase of 38,523 residents in the region by the year 2030. It is expected that population, housing and employment in the **SMPO** region will continue to grow during the next twenty years, but at a slower pace than the past twenty years.

Table 3: Projected Population Growth

Municipality	Census Data			10-Year Change	% Change	NH OEP Projections		30-Year Projected Growth	% Change
	1990	2000	2010	2000-2010		2020	2030	2000-2030	
Barrington	6,164	7,475	8,576	1,101	14.7%	9,450	10,270	2,795	37.4%
Brookfield	518	604	712	108	17.90%	860	950	346	57.3%
Dover	25,042	26,884	29,987	3,103	11.50%	30,450	31,250	4,366	16.2%
Durham	11,616	12,664	14,638	1,974	15.60%	15,070	16,100	3,436	27.1%
Farmington	5,739	5,774	6,786	1,012	17.50%	7,610	8,190	2,416	41.8%
Lee	3,729	4,145	4,330	185	4.50%	5,080	5,510	1,365	32.9%
Madbury	1,404	1,509	1,771	262	17.40%	1,950	2,080	571	37.8%
Middleton	1,183	1,440	1,783	343	23.80%	1,990	2,170	730	50.7%
Milton	3,691	3,910	4,598	688	17.60%	5,040	5,460	1,550	39.6%
New Durham	1,974	2,220	2,638	418	18.80%	3,180	3,650	1,430	64.4%
Newmarket	7,157	8,027	8,936	909	11.30%	10,050	10,500	2,473	30.8%
Northwood	3,124	3,640	4,241	601	16.50%	4,450	4,740	1,100	30.2%
Nottingham	2,939	3,701	4,785	1,084	29.30%	5,010	5,420	1,719	46.4%
Rochester	26,630	28,461	29,752	1,291	4.50%	34,290	36,650	8,189	28.8%
Rollinsford	2,645	2,648	2,527	-121	-4.60%	2,990	3,190	542	20.5%
Somersworth	11,249	11,477	11,766	289	2.50%	12,480	13,350	1,873	16.3%
Strafford	2,965	3,626	3,991	365	10.10%	4,620	5,010	1,384	38.2%
Wakefield	3,057	4,252	5,078	826	19.40%	5,930	6,490	2,238	52.6%
Total	**120,826**	**132,457**	**145,604**	**13,147**	**Average - 14%**	**160,500**	**170,980**	**38,523**	**29.1%**

POPULATION DENSITY

Population densities of the SMPO communities vary widely. A key difference between the more recent 2007 population projections released by NHOEP and those used in the 1999 Seacoast MPO Long Range Plan is a shift in expected growth from the urbanized areas of the region to outlying rural areas; especially areas with lower real estate values in northern Strafford County (see shaded communities in Table 3).

The largest population increase between 2000 and 2010 for a community within the SMPO region was Dover with 3,102 additional residents. According to U.S. Census estimates, Rollinsford lost residents by the year in the same period. Somersworth is estimated to have the highest density (1,177 people per square mile), while Brookfield has the lowest density (31 people per square mile).

Table 4: Density Per Community

	2000 Census	2010 Census	Estimated Increase	Persons per Square Mile (2010)
Barrington	7,475	8,576	1,101	176
Brookfield	604	712	108	**31**
Dover	26,884	29,987	3,103	1,034
Durham	12,664	14,638	1,974	586
Farmington	5,774	6,786	1,012	189
Lee	4,145	4,330	185	217
Madbury	1,509	1,771	262	148
Middleton	1,440	1,783	343	96
Milton	3,910	4,598	688	135
New Durham	2,220	2,638	418	60
Newmarket	8,027	8,936	909	638
Northwood	3,640	4,241	601	141
Nottingham	3,701	4,785	1,084	100
Rochester	28,461	29,752	1,291	661
Rollinsford	2,648	2,527	-121	316
Somersworth	11,477	11,766	289	1,177
Strafford	3,626	3,991	365	78
Wakefield	4,252	5,078	826	113
TOTAL	**132,457**	**145,604**	**8,895**	5,866

Source: NHOEP 2013

COMMUTING TRAVEL PATTERNS

TRAVEL PATTERNS

Travel patterns provide information regarding where residents from each municipality in the SMPO region are traveling to reach their work destination. Approximately 8 percent of the SMPO regional population commutes outside the State of New Hampshire for work, with the remaining 59 percent commuting within the county where they reside and 33 percent commuting outside the county where they reside. Nottingham has the highest percentage of residents commuting outside of the State of New Hampshire for work (11 percent). Milton has the highest percentage of residents commuting within the county for work (70 percent) and Northwood has the highest percentage residents commuting outside of the county for work (50 percent).

Table 5: Travel Patterns

MUNICIPALITY	Worked Outside State	Worked in County of Residence	Worked Outside County of Residence
Barrington	10%	56%	34%
Brookfield	15%	54%	31%
Dover	3%	55%	42%
Durham	7%	65%	29%
Farmington	10%	67%	23%
Lee	15%	49%	37%
Madbury	8%	59%	33%
Middleton	8%	62%	30%
Milton	8%	**70%**	22%
New Durham	8%	56%	37%
Newmarket	11%	67%	22%
Northwood	7%	43%	**50%**
Nottingham	**18%**	54%	28%
Rochester	7%	67%	26%
Rollinsford	14%	58%	27%
Somersworth	11%	55%	33%
Strafford	7%	48%	45%
Wakefield	11%	**41%**	48%
TOTAL	**8%**	**59%**	**33%**

MODE OF TRANSPORTATION

The interrelationship between population growth, employment commute and land use ultimately affects transportation patterns. Vehicle miles traveled and total vehicle trips have increased faster than either population or housing growth.

Table 6: indicates how residents in each SMPO community reached their work destination. In 2000, approximately 80 percent of the residents within the SMPO region drove alone to work. The Town of Farmington had the highest percentage of residents' carpooling (15.2 percent of the population) and the Town of Brookfield had the highest percentage of residents working from home (10.2 percent of the population). As the host to the UNH, the Town of Durham had the highest percentage of people using public transportation (3.6 percent of the population), walking (27.1 percent of the population), and by other means (2.1 percent of the population).

Table 6: Mode of Transportation Per Community

MUNICIPALITY	Drove Alone	Carpool	Public Transportation	Walked	Other Means	Worked From Home
Barrington	82.7%	10.6%	1.0%	0.7%	0.4%	4.6%
Brookfield	72.7%	14.3%	1.4%	0.0%	1.1%	**10.2%**
Dover	82.8%	10.2%	1.0%	2.5%	0.8%	2.8%
Durham	56.6%	6.5%	**3.6%**	**27.1%**	**2.1%**	4.1%
Farmington	79.5%	**15.2%**	0.3%	1.6%	1.4%	2.0%
Lee	82.8%	7.1%	0.0%	1.9%	0.3%	8.0%
Madbury	81.2%	9.5%	0.2%	0.9%	0.9%	7.3%
Middleton	78.7%	13.5%	1.5%	1.7%	1.2%	3.5%
Milton	82.2%	13.1%	0.0%	2.3%	0.3%	2.1%
New Durham	82.8%	10.7%	0.0%	1.5%	1.2%	3.8%
Newmarket	84.3%	9.7%	0.3%	1.3%	0.9%	3.5%
Northwood	85.3%	6.5%	0.0%	1.1%	0.4%	6.8%
Nottingham	83.3%	8.6%	0.5%	2.0%	1.0%	4.7%
Rochester	82.5%	12.0%	0.6%	1.2%	1.4%	2.3%
Rollinsford	85.8%	9.1%	0.3%	1.4%	0.0%	3.4%
Somersworth	85.2%	9.3%	0.8%	2.1%	1.2%	1.4%
Strafford	86.4%	10.8%	0.0%	0.0%	0.0%	2.8%
Wakefield	78.8%	13.5%	0.4%	2.1%	0.7%	4.5%
AVERAGE	**80.8%**	**10.6%**	**0.7%**	**2.9%**	**0.9%**	**4.3%**

CHAPTER 3: NATURAL RESOURCES

INTRODUCTION

As populations in the Strafford Metropolitan Planning Organization (SMPO) region grow, competition for developable land and essential resources increases, escalating the impacts of development. There is a growing understanding of how infrastructure development – transportation networks, transit projects and multimodal projects- can impact natural ecosystems and influence public health and services. Therefore, there is a growing need to integrate transportation infrastructure development with ecosystem conservation and protection to meet the economic, environmental, and social needs of the region. Communities in the region are more aware of the potential consequences of poor transportation development and resource planning, and are taking the initial steps to address these issues through adoption of innovative ordinances and regulations that protect locally significant natural resources while providing for the public welfare.

For these reasons, Strafford Metropolitan Planning Organization strives to develop strategies that encourage collaboration across municipal, regulatory and social boundaries to achieve regional and local transportation and natural resource goals. The SMPO strategies will focus on problem solving to expedite solutions, minimize the costs of conflict and competing interests, and increase public participation and awareness. The primary goal of the SMPO strategy is to strengthen the link between transportation planning and natural resource protection, management and planning in the region.

This Chapter outlines a conceptual framework for complying with the new requirements of the federal law *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) regarding consistency between transportation improvements and local planned growth and economic development and environmental and natural resource protection. Specifically, changes relating to mitigation of environmental impacts and collaboration among federal, state and local interests are addressed.

The Chapter includes an overview discussion and statistical information about natural resources in the SMPO region. A map depicting the geographic distribution of these natural resources is included.

AIR QUALITY AND CLIMATE

The transportation sector impacts the natural environment in a number of ways, most prominently through greenhouse gas emissions associated with motorized transport, the loss of open space as a direct and in-direct consequence of transportation investments, and stormwater impairments due to impervious surface cover. The transportation sector is the most significant source of carbon emissions in New Hampshire, accounting for 43 percent of all such emissions in 2010. A significant source of transportation emissions is associated with personal automobile use.

NATIONAL AMBIENT AIR QUALITY STANDARDS

The United States Clean Air Act, last amended in 1990, requires the Environmental Protection Agency to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health. The EPA currently sets standards for six different pollutants including carbon monoxide, lead, nitrogen dioxide, ozone, particle pollution, and sulfur dioxide. Currently, the Strafford Regional Planning Commission region and all of New Hampshire meet EPA standards for all transportation-related emissions regulated under the NAAQS. Once in compliance with NAAQS, former non-attainment areas become maintenance areas. Maintenance areas are still subject to State Implementation Plan (SIP) requirements for air quality improvement, but transportation projects and plans no longer require air quality analyses as part of the amendment and approval process.

NEW HAMPSHIRE OZONE STANDARDS

For nearly 20 years, New Hampshire has been working to improve the quality of the air with the focus being to reduce the amount of ozone that forms during the summer months. The Nashua Regional Planning Commission in its role as the Metropolitan Planning Organization has partnered with NHDOT and NHDES to reduce mobile source emissions and meet the Ozone standards set by the Environmental Protection Agency (EPA). Over the last two decades two Ozone standards have been in effect in New Hampshire; the 1997 standard of 80 parts per billion (ppb) and the more stringent 2008 standard of 75 ppb. Both are based on measurements over an 8 hour period.

Portions of New Hampshire did not meet the 1997 80 ppb standard when it was issued so they were designated as "non-attainment". As required by the Clean Air Act (CAA), NRPC worked to identify transportation projects that would reduce congestion and support non-motorized mode of transportation. These efforts, combined with federal programs such as federal vehicle emission standards and fuel standards, were successful in reducing emissions in NH. By 2008, New Hampshire's ozone levels were below both the 1997 standard and the 2008 standard of 75 ppb.

In May 2012, EPA took three actions concerning New Hampshire's status under both ozone standards. First, EPA declared New Hampshire to be "unclassifiable/attainment" with respect to the 2008, 75 ppb standard. Second, EPA revoked the 1997 standard for transportation conformity purposes only. Third, EPA proposed approval of New Hampshire's re-designation request to attainment under the 1997 standard which became effective March 4, 2015. As a result of these actions, Strafford Regional Planning Commission transportation plans and projects are no longer subject to conformity requirements including air quality analysis for ozone only.

LOOKING AHEAD

Although transportation conformity no longer exists and air quality analyses are no longer required for transportation plans and projects, provisions are in place prevent degradation of the improved air quality. Federal anti-backsliding provisions of the Clean Air Act require that that New Hampshire continue vehicle inspection maintenance (I/M) programs, reasonably available control technology (RACT), clean fuels programs and any other approved emissions reductions activities. Anti-backsliding provisions of particular importance to MPOs include transportation control measures strategies to reduce vehicle emissions through transit use, park and ride lot construction, transit support, bike/pedestrian projects and Intelligent Transportation System (ITS) applications and technologies to offset growth in emissions from increased vehicle miles travelled. Therefore the MPO must continue to implement strategies and projects that will continue to reduce transportation-related emissions.

It is expected EPA will announce new ozone standards in late 2014 to early 2015. Presently, advice from President Obama's Science Advisory Committee has been to reduce the present 75 ppb ozone NAAQS to a limit within a range of 60 ppb to 70 ppb. Even under the higher figure, southern New Hampshire will revert to non-attainment status requiring the reimplementation of the conformity process including air quality analyses, public comment, fiscal constraint and Interagency Consultation.

Carbon dioxide (CO2) emissions are not currently regulated by the EPA under the NAAQS. Carbon dioxide is a naturally occurring chemical compound and atmospheric carbon dioxide is the primary source of carbon life on Earth. However, carbon dioxide is also emitted through the combustion of fossil fuels and its concentration in the atmosphere has increased rapidly since the Industrial Revolution. There is wide agreement in the scientific community that the emission of carbon dioxide and other greenhouse gases contribute to Global Climate Change (EPA, 2014).

Carbon dioxide is the primary greenhouse gas emitted through human activities. In 2012, CO2 accounted for 82 percent of all U.S. greenhouse gas emissions from human activities. In 2012, Hillsborough County accounted for approximately 23 percent of all CO2 emissions in New Hampshire under a MOVES model simulation. The EPA's Office of Transportation and Air Quality (OTAQ) developed the Motor Vehicle Emission Simulator (MOVES) to estimate emissions for mobile sources covering a broad range of pollutants. The model currently estimates emissions from cars, trucks and motorcycles.

STORMWATER

Stormwater is water precipitation and snowmelt which does not infiltrate the ground but instead is discharged into water bodies. As stormwater flows toward storm drains or water bodies, it encounters surface pollutants like motor oil and fertilizer which contaminate the water before it deposits into water bodies. In New Hampshire, stormwater is the single greatest contributor to surface water pollution, accounting for 83 percent of all surface water quality impairments in the state.

The transportation sector is a significant contributor of stormwater pollution. Impervious surfaces like asphalt roadways and parking lots contribute to stormwater because they seal ground cover, preventing water infiltration. Stormwater encounters a host of pollutants as it flows over asphalt toward water bodies.

The EPA is currently finalizing new stormwater requirements for New Hampshire municipalities which will impact several communities in the Strafford MPO Region. The EPA requirements will apply to municipalities in which a minimum of 1,000 residents reside within a designated U.S. urbanized area, requiring them to obtain a federal Municipal Separate Storm Sewer System (MS4) permit in order to discharge stormwater into water bodies. The permit will require municipal action in addressing six areas related to stormwater: Public Education; public involvement; illicit discharge detection and elimination; construction runoff; post-construction stormwater management; and pollution prevention.

NEW REQUIREMENTS OF SAFETEA-LU

The revised SAFETEA-LU includes certain important changes to the Metropolitan Planning Organization (MPO) planning process as required by law. Per SAFETEA-LU, these changes must be reflected in new Metropolitan Transportation Plans adopted after July 1, 2007. As stated in SAFETEA-LU:

> *"A primary goal of the MPO process is to promote consistency between transportation improvements and State and local planned growth and economic development and environmental and natural resource protection."*

To accomplish this goal, MPOs are encouraged to consult or coordinate with planning officials responsible for other types of planning activities affected by transportation, including land use management, environmental protection, natural resource protection, conservation, historic preservation, and growth and economic development.

Following are descriptions of the two environmental and resource based requirements added to SAFETEA-LU.

ENVIRONMENTAL MITIGATION

The Metropolitan Transportation Plan includes a discussion of the types of potential environmental mitigation activities, and potential locations for these activities, to restore and maintain environmental functions that could be affected by the Metropolitan Transportation Plan.

MPO CONSULTATION WITH STATE AND LOCAL AGENCIES

The Metropolitan Transportation Plan includes a textual provision for consulting with state and Federal environmental and natural resource protection, tribal government, wildlife management, land management, and historic preservation agencies. It includes a comparison of maps and inventory lists. The process for consultation can be in a separate, stand-alone document. The Metropolitan Transportation Plan utilizes multiples levels of participation with state and local agencies:

General Advisory – Includes the SMPO's TAC and Policy Committee, and extensive participation of public officials in all parts of the planning process.

Special Projects – offers the general public (public and private organizations, citizens, special interest groups, elected officials, media), protected populations, and governmental agencies an opportunity to work together to provide more

detailed input into developing evaluations, analysis, solutions, recommendations, and alternatives.

General Outreach and Dissemination of Information – notifications, press releases, media coverage, website access, direct mailing to interested parties and stakeholders.

COMPLIANCE WITH NEW REQUIREMENTS OF SAFETEA-LU

This section discusses how the SMPO MTP complies with the new environmental and resource based requirements of SAFETEA-LU.

ENVIRONMENTAL MITIGATION

Goal Statement - Develop a comprehensive environmental mitigation plan and strategies to achieve protection of natural resources in the planning and implementation of transportation improvement projects in the region.

The SMPO environmental mitigation strategy for transportation improvement projects includes a multi-tiered approach focused on identifying existing environmental issues and protection and conservation of resources. The strategy includes, but is not limited to, development of transportation networks, transit projects and multimodal projects. Although competing interests should be balanced, loss of natural resources should be considered when no feasible development alternatives exist. Any impacts resulting from development should be avoided, minimized and/or mitigated to the full extent possible.

Following is the framework within which the SMPO structured a comprehensive mitigation strategy.

1. Develop a map set identifying natural resources in the region (based on resource statistics in Table 3 Natural Resources Inventory).

2. Encourage development of Master Plan-Natural Resource Chapters and Natural Resource Inventories by communities, land trusts, and other nonprofits in the SMPO region. Seek funding to assist these entities in developing resource planning tools.

3. Identify the common environmental issues in the region, which may be depicted on maps and/or described in a technical document.

4. Identify methods to mitigate for environment impacts. Mitigation methods may include but are not limited to:

- Wetland restoration and replication
- Stream restoration (instream and riparian habitat, instream passage, water quality)
- Riparian and shoreland restoration (land stabilization, revegetation)
- Reforestation (natural regeneration, afforestation)
- Forest preservation (easements, land acquisition)
- Preservation of rural landscapes and view sheds
- Preservation of open space for recreation
- Preservation of historic and cultural resources (sites, structures, landscapes)
- Preservation of wildlife corridors, exemplary ecosystems, significant habitats, and rare and threatened and endangered species
- Water quality protection (stormwater management, nonpoint source pollution controls, land protection and conservation)
- Infrastructure Improvements (retrofitting for resource and habitat protection, removal of obstructions and other impediments to wildlife)

5. Use existing statewide, regional, watershed and local technical studies to identify impaired resources for identifying mitigation opportunities. Identify locations to implement mitigation such as establishing a *mitigation bank* that can be utilized on a community or regional basis. Mitigation activities may target existing environmental issues in the region including, but not limited to:

   - Impaired waters
   - Surface water and groundwater quality
   - Drinking water sources
   - Habitat degradation and fragmentation
   - Past natural hazard events
   - Air quality

6. Identify and analyze future proposed transportation projects (as listed in the statewide 10-Year, the 2015-2018 TIP, and the Long Range Project Listing for the region) to identify potential and actual environmental and natural resource impacts.

7. Discuss environmental mitigation strategies with communities and stakeholders in the region to address direct, indirect and potential impacts on a per project basis. Strategies may include:

   - Implementing protection, conservation and restoration opportunities that benefit multiple resources
   - Identifying watershed and regionally based natural resource protection, conservation and restoration goals
   - Identifying both locally and regionally significant public benefits

SMPO CONSULTATION WITH FEDERAL/STATE/LOCAL AGENCIES

GOAL STATEMENTS

Incorporate existing collaborative mechanisms at state, regional and local levels to achieve protection of natural resources.

Develop new coordination strategies that address competing interests and encourage innovative solutions for the region.

The SMPO has developed and formalized a process and procedures for consulting with local, state and Federal environmental and natural resource protection agencies, tribal governments, and wildlife management, land management, and historic preservation agencies. The process includes coordination of transportation improvement projects including transportation networks, transit projects and multi-modal projects.

As part of this strategy, the SMPO is using existing collaborative mechanisms at state, regional and local levels to achieve protection of natural resources and to develop new coordination strategies that address competing interests and encourage innovative solutions that benefit the region.

The SMPO will collaborate with our partners, agencies and public to develop a vision of desired future conditions that incorporate ecological, economic and social factors of the region into the development and planning of transportation improvement projects.

FRAMEWORK FOR A REGIONAL COORDINATION STRATEGY

The SMPO is implementing a coordination strategy modeled after the *Enlibra Doctrine*, developed in 1998-1999 by the Western Governor's Association, which is a set of principles outlining an approach based on the dual concepts of environmental balance and stewardship. The *Enlibra* principles for environmental management prescribe greater participation and collaboration in decision making, focus on outcomes rather than policy or programs, and recognize the need for innovative tools and solutions beyond regulation to achieve better results. [2] The SMPO coordination strategy is based on the following general principles.

State and Local Standards and Community Solutions - State government enables environmental protection and establishes standards. In most instances, local

[2] Western Governor's Association website at http://www.westgov.org/ and U.S. Environmental Protection Agency website at http://www.epa.gov/administrator/emlibra.htm

governments have the flexibility to develop their own standards and plans to achieve or exceed state standards, and to provide local accountability. Resource based standards and plans that consider local environmental, economic, social and political factors often receive stronger public support and involvement, which can lead to efficient and effective implementation.

Collaboration, Not Polarization - Collaborative approaches serve to remove barriers, identify solutions, invite broad participation, and gain long-term stakeholder support and involvement. Because environmental issues tend to be highly polarizing – often weighing property rights and public benefit – serious impediments to reaching environmental goals often arise. Goals are best accomplished through a balanced, open and inclusive process where regulators, policy makers and stakeholders work together to identify critical issues and develop solutions.

Results Through Innovation - Achieve a clean and safe environment by focusing on achieving desired outcomes through creative approaches. Solving problems and overcoming obstacles can be more effective than simply complying with programmatic requirements.

Science For Facts, Process for Priorities - Develop consensus on the underlying base of regional scientific data and natural resource inventory including a discussion of the limitations of this information to inform policy and planning decisions. On a project basis, open a dialog to identify the range of uncertainty surrounding an issue involving natural resources before developing choices or solutions.

Incentives Before Regulation - Consider incentives to achieve environmental outcomes rather than relying solely on the minimum regulatory requirements. Sometimes market-based approaches and economic incentives – that reward environmental performance and increase stakeholder benefits - can provide flexibility needed to exceed requirements.

Understanding Stewardship – The success of policies, programs and procedures that protect natural resources largely depends on the actions and choices of individuals. Understanding the importance of sustaining, conserving and protecting natural resources now and for the future is critical to the environmental, social and economic health of a community. Understanding stewardship is the key to recognizing how choices influence the natural environment.

Recognition of Benefits and Costs - Natural resource based decisions should be guided by an assessment of the true costs, consequences and benefits of different options. These assessments can reveal advantages and disadvantages of various methods of achieving common goals and benefits.

Solutions Transcend Political Boundaries - Many natural resources occur across multiple regulatory and municipal boundaries. Considering natural resources in a context beyond these boundaries helps to identify critical issues, appropriate science and policy, and the full range of affected interests and stakeholders that should participate in framing solutions. Examples of this cross-boundary context include watershed management, wildlife corridors and habitats, water quality (habitat, regulatory standards), water resources (aquifers, public drinking water sources, water use and consumption), flood management, land conservation, farmland preservation, and recreation.

STRATEGIES FOR COORDINATION AND CONSULTATION ON ALL LEVELS

The following are descriptions of existing state agency collaborative processes and local resource protection measures that are being incorporated into the regional coordination strategy.

CONTEXT SENSITIVE SOLUTIONS (CSS)

The NHDOT has formally adopted and is incorporating the context sensitive solutions process into defining problems and their solutions on NH's transportation system and to guide development of short-term or long-term improvements. The SMPO actively participates in and encourages participation by communities in the CSS process for the development and planning of transportation improvement projects in the SMPO region.

CSS is an approach that considers the total context within which a transportation improvement project will exist. CSS is a collaborative, interdisciplinary approach that involves all stakeholders in the development of a transportation project. CSS processes are meant to ensure that a project complements its physical setting and preserves scenic, aesthetic, historic and environmental resources, while providing efficiency and safety for all users. Working with the communities to understand their goals for future land use and the relationship to the transportation system is critical to achieving success within this process.

Figure 5: CSS Project Development Process

1. Statement of Problem/Need	Project satisfies the purpose and needs as agreed to by a full range of stakeholders. Project is seen as having added lasting value to the community
2. Project Planning	Identify the project context and circumstances. Establish a multi-disciplinary team including resource agencies. Discuss and develop consensus on a decision-making process, including plans for public involvement. Develop and create consensus around the problem statement that includes community and environmental components. Develop consensus on a project vision and agree on project limits. Clearly define the purpose of the project and forge consensus on the scope before proceeding.
3. Project Scoping	Use the problem and vision statement to establish criteria for evaluating alternatives. Establish a range of reasonable alternatives and document environmental effects. Apply evaluation criteria to alternatives and select preferred alternative. Identify related community development projects.
4. Project Design	Seek to understand the landscape, the community, and valued resources before beginning design. Create conceptual designs and select preferred alternative. Develop final design of selected solution. Include all agreements made during Planning, Scoping and Design.
5. Project Construction	Minimize disruption to residents, businesses and community. Complete project that addressed the problem and fulfills the vision.
6. Maintenance and Operation	Maintain community partnerships. Evaluate the project for how well it solves and achieves the vision. Capture lessons learned to improve the process.

ACCESS MANAGEMENT MEMORANDUM OF UNDERSTANDING

The NHDOT has authorized adoption by municipalities of a Memorandum of Understanding (MOU) to guide and implement effective access management consistent with the goals and regulations of the state and the community. In the SMPO region, the Towns of Barrington (2006) and Northwood (2007) have executed the NHDOT Memorandum of Understanding. The SMPO continues to encourage execution of the MOU by communities as a tool to coordinate transportation, land use and natural resource protection and management in the region.

The two purposes of the NHDOT's MOU are: 1) for a community to improve access management on state highways within its boundaries, and 2) for a community to coordinate with the NHDOT regarding development of access management plans for these highways and issuance of local and state driveway permits. The MOU is a formal agreement between the NHDOT District Office and the community. It coordinates review and approval of driveway permits for state roads, provides a framework for development of access management plans for both local roads and state highways in the community, and assigns specific responsibilities to the NHDOT and the community to accomplish these tasks. Following is a summary of the action items and responsibilities of the MOU.

Responsibilities – The MOU assigns specific responsibilities for the community and the DOT aimed at increasing the level of local participation with respect to the issuance of driveway permits on state highways and facilitating coordination between the community and NHDOT. This includes transmittal of information, establishing comment periods and submittal procedures and consideration of local access management plans in issuance of permits.

Access Management Plan – The community shall coordinate with the NHDOT and the Regional Planning Commission to develop an access management plan(s) that includes planning measures, design standards, and determination of the number, location and design of access points to facilities, sites or parcels to guide the issuance of driveway permits on specified state highways or segments and key intersections of state highways.

Coordination – The community shall establish procedures for the transmittal of information to/from the NHDOT and the community regarding driveway permit applications (including who to send to the information to, points of contact, time frames for responses, etc.).

LOCAL REGULATORY AND PLANNING STRATEGIES

Local regulatory and planning initiatives should strive to be harmonious in their vision and goals to provide a unified approach to long-term transportation, land use and natural resource protection and conservation for the benefit of a community. The SMPO actively encourages and seeks funding for development of planning studies and tools to advance coordination between transportation planning and natural resource protection and management on the local level. Examples of such activities may include development of Master Plan Natural Resource Chapters, Natural Resource Inventories, and state-defined Innovative Land Use (resource based protection) ordinances, and

adoption and implementation of the NHDOT MOU. The SMPO recognizes local regulatory and planning initiatives as an integral component of the transportation planning process and in the development of transportation improvement projects and studies.

The table below describes common regulatory and planning tools that can provide the information necessary to make informed decisions at the local level that can also benefit the region.

Table 7: Local Regulatory and Planning Tools that Promote Natural Resources Protection

Local Mechanism	Implemented By	Description	Adoption by Community
Natural Resource Inventory	Planning Board Conservation Commission	Communities in the region are realizing the importance of developing these technical inventories for adoption as part of the local master plans and to guide planning in the areas of natural resource protection, land use, economic development, and capital improvements	Barrington, Milton, Rollinsford, Wakefield Brookfield
Conservation/Open Space Subdivision	Planning Board	Design of new roads, associated infrastructure, and stormwater management can help achieve land conservation and natural resource protection goals	Most communities offer as a voluntary option for subdivision of land
Innovative Resource Protection Ordinances	Planning Board Zoning Board	Overlay districts are an effective mechanism for protecting natural resources of local significance including: aquifers, drinking water sources, surface water quality, sensitive habitats and natural communities, open space, forests and wetlands	New Durham (steep slopes, Conservation Focus Areas)
Site Plan Review	Planning Board	Innovative site design and performance standards can provide multiple levels of resource protection through access management standards (driveways, parking, controlled access to local roads and state highways), stormwater management, and careful placement and scaling of infrastructure	Northwood (parking regulations, stormwater management regulations) Rochester (stormwater management ordinance)
Water Supply Plan	Municipality	Municipal water supply planning should be an integral part of transportation planning in order to protect existing and future sources and provide for the needs of the community	

Local Mechanism	Implemented By	Description	Adoption by Community
Open Space Plan	Municipality	Identifies opportunities to conserve and protect open space to meet multiple resource based objectives and serves as a guide for design and planning of transportation systems	Dover, Newmarket
Master Plan – Natural Resource Chapter	Planning Board	Provides a framework based on goals identified by the community for design and planning of transportation systems and protection of vital community and regional natural resources	Milton, Rochester,
Land Conservation	Municipality Stakeholders Land Owners	Identifies land conservation strategies and priorities throughout the community, and on a parcel specific basis, to help guide placement and planning of transportation systems	Regional plans have been adopted by Moose Mountains Regional Greenways, Bear Paw Regional Greenways, Strafford River Conservancy, Great Bay Protection Partnership, Southeast Land Trust
Access Management	Planning Board	Provides guidelines and standards for construction and planning of efficient vehicular and pedestrian based transportation elements that minimize environmental impacts; incorporating multi-modal options to reduce traffic congestion, improve connectivity, and address safety issues serves to reduce impacts from point and nonpoint source pollution, land disturbance and sprawl	Barrington, Northwood (adopted NHDOT MOU)

GENERAL OUTREACH AND DISSEMINATION OF INFORMATIOIN

The SMPO uses the following database and resources tools to disseminate information to municipalities, partners and stakeholders in the region regarding transportation project development and the transportation planning process. The SMPO updates databases and contact information on an annual and ongoing basis to maintain the effectiveness of this outreach tool.

Table 8: General Outreach and Dissemination of Information

SRPC	SRPC Website – postings of meeting announcements, technical documents, planning documents, data and maps SRPC Commissioners (contacts to communities in the region) Electronic contact/mailing list database
Local News Media Outlets	Fosters Daily Democrat The Rochester Times
State, County Federal Agencies - Coastal Watershed Partners	Piscataqua Region Estuaries Partnership NH Coastal Program NH Department of Environmental Services NH Fish & Game NH Department of Resources and Economic Development Great Bay National Estuarine Research Reserve Strafford, Rockingham, Carroll County Conservation Districts Natural Resource Conservation Service USGS – NH and VT EPA – Region 1
Coastal Watershed Stakeholders-Non-Governmental Organizations	The Nature Conservancy Cochecho River Watershed Coalition Lamprey River Advisory Committee Lamprey River Watershed Association Oyster River Watershed Association Bellamy & Oyster River Watershed Partnership Isinglass River Local Advisory Committee Moose Mountains Regional Greenways Strafford Rivers Conservancy Bear Paw Regional Greenways Great Bay Resources Protection Partnership Society for Protection of New Hampshire Forests NH Rivers and Lakes Association Milton Three Ponds Association Bow Lake Association

SUMMARY OF NATURAL RESOURCES IN THE SMPO REGION

NATURAL RESOURCES INVENTORY FOR THE SMPO

The Natural Resources Inventory (NRI), prepared in 2008 for the Strafford Metropolitan Planning Organization (SMPO), is a statistical analysis of the natural resources and land cover types within the SMPO boundary. The NRI contains information such as surface water bodies, wetlands, conservation land, important farmland soils and other environmental assets that are vital to the region. This inventory is intended to advance the knowledge and awareness of the current extent and availability of these resources by providing a brief summary and statistics table for each community within SMPO.

The inventory was accomplished using a geographic information system (GIS) utilizing the most recently available natural resources data (refer to a list of sources is provided at the end of the document). Land cover and land use data is limited to the extent of the 2005 high-resolution digital ortho-photography provided by the New Hampshire Department of Transportation and does not cover every community within the SMPO boundary. Those communities not in the extent of the imagery are Brookfield, Farmington, Middleton, Milton, New Durham and Wakefield. [*Since this document was published for public review, the SMPO has received the imagery for the communities listed above. Land cover and land use data will be done over the next fiscal year*.]

The NRI serves as a tool to our communities by documenting their current ecological status in order to help monitor their environmental standing and assist in planning for a smarter, more sustainable future. A community's natural resources and ecological wellbeing largely depend on intelligent, thoughtful development of the landscape. The first step toward protecting natural resources and practicing sustainable development is being able to assess the setting that is unique to each community. In other words, knowing what resources you have and which areas are more ecologically valuable. The goal of the NRI was to provide a concise statistical summary of these resources and to serve as a planning tool for each community within the SMPO.

Each of these resources plays a vital role in the environmental health of a community and if properly managed can potentially help save a great deal of money. It is only through developing the land with these vital resources in mind that communities can start planning for a smarter, more sustainable future.

REGIONAL SUMMARY OF NATURAL RESOURCES

The Strafford Regional Planning Commission's region (the region) includes all of Strafford County, two towns in southern Carroll County and three towns in northern Rockingham County, a total of eighteen communities covering 347,893.2 acres of land

and water. Roughly 31,011 acres or 8.9 percent of the region are permanently protected conservation lands.

The SMPO region contains portions of several transportation corridors of statewide importance including Interstate 95, Route 16, Route 125 and Route 4.

Table 9: SRPC Regional Natural Resources Statistics

Resource	Acres	% Of Region
Rivers/Streams	> 850 miles	---
Lakes/Ponds	15,143.2	4.4
Wetlands	27,277.0	7.9
Prime Farmland	23,628.7	6.8
Stratified Drift Aquifer	58,882.0	16.9
Forests	130,754.3	37.6
Protected Lands	31,011.0	8.9

Below are more detailed descriptions of the region's most extensive and significant natural resources.

SURFACE WATERS AND WETLANDS

Surface waters comprise 449 linear miles of perennial streams and 18,290 acres or 5.3 percent of the total area. The Region contains two state designated rivers - the Isinglass River and the Lamprey River – and one federally designated Wild and Scenic River – the Lamprey River. Wetlands occupy 58,613 acres or 16.9 percent of the total area of the region. Both surface waters and wetlands are susceptible to impacts from nonpoint sources of pollution, primarily in the forms of stormwater and atmospheric deposition.

Non-point source pollution occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, mobilizes pollutants, and deposits them into rivers, lakes, and coastal waters or introduces them into the groundwater. These pollutants can include oil and sand from roadways, sediments from construction sites, eroding stream banks, and nutrients and toxic materials from urban and suburban areas. The effects of nonpoint source pollutants on specific waters vary and may not always be fully assessed. However, it is well documented in scientific literature that these pollutants have harmful effects on drinking water supplies, recreation, fisheries, and wildlife.

Reduction and prevention of nonpoint source pollution requires a collective effort on federal, state and local levels. Some activities are federal responsibilities, such as ensuring that federal permits are implemented properly, and that water quality standards for Waters of the U.S. are protected. Some are state responsibilities, for

example, developing legislation to govern mining and logging, and to protect groundwater and public drinking water supplies. Others are addressed locally through zoning ordinances and regulatory review of development projects, including land use, standards for erosion and sedimentation control, and stormwater management.[3]

STRATIFIED DRIFT AQUIFIRS

The Region contains 58,882 acres of stratified drift aquifers, representing 16.9 percent of the total area. Many communities in the region utilize these aquifers as primary sources for public drinking water systems. These aquifers also contribute groundwater to maintain base flow of the major rivers and tributaries in the coastal watershed.

FORESTS

The Region contains 269,752 acres of aggregated forest, representing 77.5 percent of the total area. Due to increased population and development, forested lands are decreasing in the region. It is estimated that by 2020, forest cover is predicted to decline to 80% of the state's land area, with a total loss between 1993 and 2020 of 144,000 acres in the state. The greatest loss of forested land is expected to occur in southeastern New Hampshire, with about 60,000 acres lost in Rockingham, Hillsborough, and Strafford Counties, where 85 percent of the growth from 1998 to 2020 is expected to occur.[4]

Forests provide many social, health, ecological, and economic benefits on local, regional and national levels. Forests process rainwater through absorption and evapotranspiration, reduce carbon dioxide in the atmosphere, increase groundwater infiltration, and improve surface water quality by removing pollutants and nutrients from runoff, and serve as buffers to protect wetlands from sedimentation and contamination. Near surface water bodies, homes, roads and urban areas, trees cool summer temperatures, break winter winds, and filter dust and pollutants from the air. Contiguous forest blocks function as prime habitat for all local species and connections between them provide species access to important breeding, hunting and foraging. As urban areas expand and populations move outward to suburban areas, there is ecological and economic value to evaluating the important conservation issue of forest conservation.

ECOSYSTEMS

The region contains 137, 937 acres (39.7 percent) in Conservation Focus Areas identified in *The Land Conservation Plan for New Hampshire's Coastal Watersheds* and 61,761 acres (17.8 percent) containing exemplary communities and conservation focus areas

[3] New Hampshire Department of Environmental Services, Water Management Bureau

[4] *New Hampshire's Changing Landscape Population Growth, Land Use Conversion, and Resource Fragmentation in the Granite State* (October 1999), Prepared by: Dan Sundquist, The Society for the Protection of New Hampshire Forests and Michael Stevens, The New Hampshire Chapter of The Nature Conservancy

identified in *The New Hampshire Wildlife Action Plan*. Many of these sensitive resources remain largely unprotected by conservation easements and state and local resource and land use regulations. At their 2008 Town Meeting, New Durham was the first community in the state to adopt an ordinance that protects the Conservation Focus Areas identified in *The Land Conservation Plan for New Hampshire's Coastal Watersheds* in the town by requiring specific standards for development, including density limits, percent limits on developable area, and requirements to avoid fragment of habitat and forests. This ordinance will be an effective tool in guiding the development and siting of new roads and transportation facilities in these areas.

RECREATION AND TOURISM RESOURCES

A study prepared for The New Hampshire Lakes, Rivers, Streams and Ponds Partnership, *The Economic Impact of Potential Decline in New Hampshire Water Quality: The Link Between Visitor Perceptions, Usage and Spending (May 2007)*, found that a perceived decline in the quality of natural resources and scenery by recreationalists would have a significant economic impact on New Hampshire revenues generated from tourism and recreation. This study indicates that the loss represented by those who would decrease their visits as a result of this perceived decline (56 percent of current visitors) translates to a decrease of more than $27 million in total sales, nearly $10 million in lost income, and more than 400 jobs.

Table 10: Summary of Resources by Municipality

Community	Total Community Acres	NWI Wetlands	Surface Waters	Perennial Stream (miles)	Farmland Soils	Hydric A & B Soils	Slopes >25%	Aggregate Forest
Barrington	31,117	4,752	1,374	56	4,392	5,290	2,432	28,985
Brookfield	14,880	1,055	287	13	7,788	1,265	5,277	14,225
Dover	18,592	2,809	1,549	26	12,597	4,192	9,211	5,360
Durham	15,852	2,681	1,600	29	6,727	3,204	294	5,919
Farmington	23,640	1,500	394	23	2,399	3,621	2,717	22,900
Lee	12,929	1,393	241	21	6,207	2,994	951	4,382
Madbury	7,779	1,252	400	19	4,234	2,259	365	5,353
Middleton	11,843	924	284	17	233	2,200	1,698	11,836
Milton	21,936	2,170	847	25	2,391	3,138	2,136	17,602
New Durham	28,054	3,623	1,708	20	1,385	3,671	3.907	27,680
Newmarket	9,080	2,070	1,046	20	3,831	2,339	399	5,881
Northwood	19,357	2,763	1,383	23	2,167	2,842	3,506	17,281
Nottingham	30,997	4,331	1,117	49	2,924	5,601	5,414	29,801
Rochester	29,081	3,307	639	21	10,869	6,709	1,426	15,350
Rollinsford	4,843	684	162	13	3,805	979	265	0
Somersworth	6,398	1,078	179	11	2,660	1,523	196	30
Strafford	32,779	4,054	1,627	36	4,630	4,625	4,510	32,042
Wakefield	28,717	4,656	3,453	27	18,366	2,161	5,450	25,125
Total Region*	**347,894**	**45,102**	**18,290**	**449**	**97,605**	**58,613**	**50,154**	**269,752**
% Total Region*	**--**	**13.0**	**5.3**	**0.13**	**28.1**	**16.9**	**14.4**	**77.5**

* Total acres and percent total acres are not mutually exclusive statistics as some resources occur simultaneously.

Table 9: Summary of resources by municipality (continued)

Community	Total Community Acres	Land Permanently Protected	Water Supply	Stratified Drift Aquifers	Coastal Land Conservation Plan Core Focus Areas	NH Wildlife Action Plan
Barrington	31,117	2,197	207	5,421	11,045	257
Brookfield	14,880	1,817	0	0	10,429	414
Dover	18,592	1,123	398	12,876	2,750	1,461
Durham	15,852	2,682	0	738	6,793	9,864
Farmington	23,640	1,147	95	2,560	9,420	4,390
Lee	12,929	1,827	0	2,377	4,244	7,038
Madbury	7,779	413	545	2,807	2,169	36
Middleton	11,843	344	0	96	7,780	0
Milton	21,936	2,204	0	2,268	10,883	0
New Durham	28,054	1,698	51	1,475	12,771	869
Newmarket	9,080	1,331	0	658	2,301	4,944
Northwood	19,357	1,878	154	12	8,636	1,948
Nottingham	30,997	5,860	0	2,106	17,118	16,382
Rochester	29,081	283	105	11.285	2,415	202
Rollinsford	4,843	394	15	3,617	429	29
Somersworth	6,398	171	25	4,216	0	0
Strafford	32,779	5,256	3	666	22,771	13,826
Wakefield	28,717	386	0	5,710	5,983	101
Total Region*	**347,894**	**31,011**	**1,598**	**58,888**	**137,937**	**61,761**
% Total Region*	**--**	**8.9**	**0.46**	**16.9**	**39.7**	**17.8**

* Total acres and percent total acres are not mutually exclusive statistics as some resources occur simultaneously.
LCP = The Land Conservation Plan for New Hampshire's Coastal Watershed

NATURAL RESOURCE BASED PLANNING AND STUDIES

TRANSPORTATION AND ACCESS MANAGEMENT

Phase I and Phase II: NH Route 125 Corridor Study - The study comprised the NH Route 125 Corridor in the Towns of Epping, Lee and Barrington, and City of Rochester. The study corridor included lands within 1,000 feet of the Route 125 travel way. Phase I focused on gathering traffic count data along Route 125, including major intersections, and environmental information within the corridor. Phase II focused on analysis of traffic count data and projections for future traffic demand and levels of service, as well as collection and evaluation of land use, zoning and environmental information within the corridor. For the Phase II study, environmentally constrained and protected lands were subtracted from the build-out analysis as it was assumed these lands would not be developed in the future based on existing state and local regulatory requirements.

The purpose of the study was to produce a plan for the NH 125 corridor that better integrates transportation and land use using smart growth strategies and access management techniques to enhance safety and preserve corridor capacity. More importantly the study provided the corridor communities with the guidance and tools to ensure that as development occurs along the corridor, it will occur in a manner that is consistent with the vision and projected growth of each corridor community. The corridor communities should view this report as a living document from which data and strategies may be used to address transportation and access management needs associated with future growth as well as future land use and environmental planning initiatives. The report presents both general and specific recommendations for physical improvements and adaptive strategies for the corridor. It is important to recognize that this is a planning document and that none of the recommendations are set in stone.

The communities, with the assistance of the SRPC, have the opportunity to work with the NHDOT in the implementation of the recommendations in the corridor improvement plan. It is important for the corridor communities to work together on establishing and maintaining a consistent long-term vision for the corridor. NH Route 125 is a transportation corridor of statewide importance but it is also an important local connector through and across each corridor community. For this reason, the corridor communities recognize that each have a great influence on how development will occur along the corridor. To plan for the projected future growth in each community, it is important that the local land use boards and developers consider the strategies, techniques and vision presented in this report. Decisions relating to site access, traffic control, connectivity, land use and environmental resources, building setbacks, pedestrian needs, and multi-modal strategies need to be considered within the context of the long-term vision for the corridor.

ACCESS MANAGEMENT - MEMORANDUM OF UNDERSTANDING (MOU)

Refer to page 45 for a description of the New Hampshire Department of Transportation MOU.

STATEWIDE & REGIONAL SCIENCE-BASED NATURAL RESOURCE STUDIES

The SMPO incorporates science-based information from studies and technical documents in coordinating transportation improvement planning with land use and natural resource planning and management.

THE LAND CONSERVATION PLAN FOR NEW HAMPSHIRE'S COASTAL WATERSHEDS

Spanning 990 square miles and 46 towns, New Hampshire's coastal watersheds contain exceptional and irreplaceable natural, cultural, recreational and scenic resources. To advance the long-term protection of these resources, the State of New Hampshire, acting through the NH Coastal Program and the Piscataqua Region Estuaries Partnership, developed a comprehensive, science-based land conservation plan for the state's coastal watersheds. The State also engaged a partnership of The Nature Conservancy, Society for the Protection of New Hampshire Forests, Rockingham Planning Commission, and SRPC to develop the plan. The New Hampshire Charitable Foundation's Piscataqua Region supported this effort as a regional approach to setting land conservation priorities and strategies, and provided funding for the project. The overarching goal of this land conservation plan is to focus conservation on those lands and waters that are most important for conserving living resources - native plants, animals, and natural communities - and water quality in the coastal watersheds**.** *The Plan* is available on The Nature Conservancy website at:

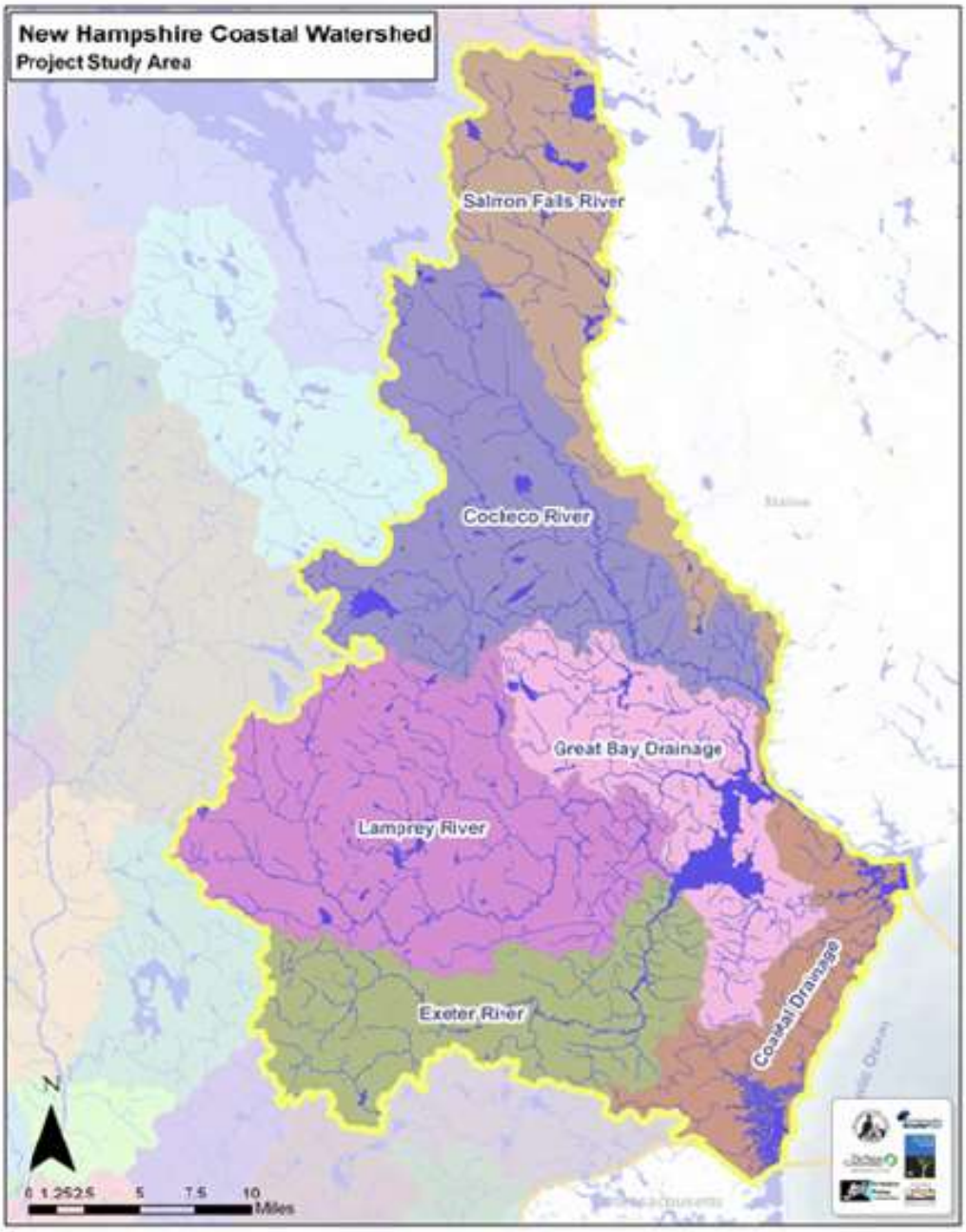
http://www.nature.org/wherewework/northamerica/states/newhampshire/projects/art19061.html

The Land Conservation Plan for New Hampshire's Coastal Watersheds (The Plan) prioritizes coastal watershed areas and offers regional strategies for maintaining diverse wildlife habitat, abundant wetlands, clean water, productive forests, and outstanding recreational opportunities into the future. *The Plan* identifies *Conservation Focus Areas and Supporting Landscapes* - areas considered to be of exceptional significance for the protection of living resources and water quality in the coastal watersheds including *(1) Forest Ecosystems, (2) Freshwater Systems, (3) Irreplaceable Coastal and Estuarine Resources, and (4) Critical Plant and Wildlife Habitat*. Each Conservation Focus Area is comprised of a Core Area that contains the essential natural resources for which the focus area was identified, with the boundary fitted to the real world of roads, forest edges, rivers and

wetlands. The Supporting Landscapes are lands adjacent to and which provide support functions to the Core Focus Areas.

The Conservation Focus Areas identified in *The Plan* comprise 137,937 acres or 39.7 percent of the total area of the SRPC region.

Figure 6: New Hampshire Coastal Watershed Project Study Area



NEW HAMPSHIRE *WILDLIFE ACTION PLAN*

The New Hampshire Fish and Game Department collaborated with partners in the conservation community to create the state's first non-game *Wildlife Action Plan*. The plan, which was mandated and funded by the federal government through the State Wildlife Grants program, provides New Hampshire decision-makers with important tools for restoring and maintaining critical habitats and populations of the state's species of conservation and management concern - those species identified by the Northeast Wildlife Diversity Technical Committee as a regional concern because of reduced populations or loss of habitat. It is a pro-active effort to define and implement a strategy that will help keep species off of rare species lists, in the process saving taxpayers millions of dollars. The New Hampshire plan is a comprehensive wildlife conservation strategy that examines the health of wildlife. The plan prescribes specific actions to conserve wildlife and vital habitat before they become rarer and more costly to protect. The *New Hampshire Wildlife Action Plan* by the U.S. Fish & Wildlife Service (2006) is available at:
http://www.wildlife.state.nh.us/Wildlife/wildlife_plan.htm

The Core Focus Areas and exemplary natural communities identified by the Wildlife Action Plan comprise 61,761 acres or 17.8 percent of the total area of the SRPC region.

PISCATAQUA REGION ESTUARIES PARTNERSHIP (PREP)

The Piscataqua Region Estuaries Partnership is part of the U.S. Environmental Protection Agency's National Estuary Program, which is a joint local/state/federal program established under the Clean Water Act with the goal of protecting and enhancing nationally significant estuarine resources. PREP receives its funding from the EPA and is administered by the University of New Hampshire. Beginning in 1995, the organization has worked to develop and systematically address the 98 Action Items outlined in the program's guiding document, the *Comprehensive Conservation and Management Plan,* to achieve the goal of improved water quality in New Hampshire's estuaries and within New Hampshire's coastal watershed. All 18 communities in the SMPO are located partially or completely within the coastal watersheds.

PREP's *Comprehensive Conservation and Management Plan for NH Estuaries* went through a complete update in 2010 and implementation has been ongoing. The *Management Plan* outlines key issues related to management of New Hampshire's estuaries and proposes strategies (Action Plans) that are expected to preserve, protect, and enhance the State's estuarine resources. PREP's priorities were established by local stakeholders and include water quality improvements, shellfish resources, land protection, and habitat restoration. The PREP strives to:

- Improve the water quality and overall health of New Hampshire's estuaries.
- Support regional development patterns that protect water quality, maintain open spaces and important habitat, and preserve estuarine resources.
- Track environmental trends through the implementation of a long term monitoring program to assess indicators of estuarine health.

Develop broad-based popular support for the implementation of the *Management Plan* by encouraging involvement of the public, local government, and other interested parties in its implementation. PREP addresses Action Items by either completing them directly or funding other organizations to complete the work.

Recent technical studies completed by PREP that contain valuable natural resource information for the SMPO region include:

- 2013 State of the Estuaries Report. The report is intended to assist natural resource managers, local officials, conservation organizations, and the public to make informed management decisions and actions. Prior to developing the State of the Estuaries report, PREP published four technical data reports that describe all environmental indicators tracked by scientific organizations in the region. They are the Water Quality, Shellfish, Critical Habitats and Species, and Land Use and Development environmental indicator reports.

- Identify and Report Water Pollution (2nd Edition) Be Part of the Solution: Identify and Report Water Pollution: an Interpretive Guide to Surface Water Conditions of the New Hampshire Coastal Watershed, 2nd edition (2007). The guide suggests actions that communities can take to prevent water pollution and protect vital water resources.

- Outreach Campaign to Facilitate Water Pollution Reporting (2007). Describes PREP's efforts to develop outreach materials to address ***Action Plan WQ-6: Promote collaboration of state and local officials to locate and eliminate illegal discharges into surface waters***. A set of these materials were sent to DPWs and libraries in each of the coastal watershed communities.

- PREP 2007 Progress Report. This report summarizes progress made toward implementing the Piscataqua Region Estuaries Partnership Comprehensive Conservation and Management Plan (CCMP) and evaluates the status of environmental and administrative indicators based upon management goals and objectives. The report is divided into two primary sections: (I) Status of Environmental and Administrative Indicators and (II) Action Plan Completion.

- Buffers: Protecting Water Resources (2006). PREP describes the assistance available to communities to protect buffers, including customized educational presentations and facilitated discussions aimed at giving a town information and buffer protection tools, such as model ordinances.

UNIVERSITY OF NEW HAMPSHIRE – COMPLEX SYSTEMS RESEARCH CENTER (CSRC)

The Complex Systems Research Center (CSRC) at the UNH conducted a characterization of the buffers around second order and higher streams within the Piscataqua/Coastal Basin of New Hampshire. GIS and remote sensing data archived in the NH GRANIT database were used to map land use, impervious surface coverage, and transportation infrastructure within standard buffers around each stream segment. These factors were then analyzed to produce a categorical indicator representing the status of each stream. The results are presented on community-based maps displaying stream characterizations and the corresponding acreage tables. In addition, the data have been made available as digital data layers archived in the GRANIT database.

RECOMMENDATIONS

The SMPO uses existing collaborative mechanisms at state, regional and local levels to achieve protection of natural resources, and develops new coordination strategies to address competing interests and encourage innovative solutions benefiting the region.

The SMPO actively participates in and encourages participation by communities in the CSS process for the development and planning of transportation improvement projects in the region.

The SMPO encourages execution of the access management MOU by communities with NHDOT as a tool to coordinate transportation, land use and natural resource protection and management in the region.

The SMPO recognizes local regulatory and planning initiatives as an integral component of the transportation planning process and in the development of transportation improvement projects and studies.

The SMPO updates databases and contact information on an annual and ongoing basis to maintain the effectiveness of this outreach tool.

The SMPO incorporates science-based information from studies and technical documents in coordinating transportation improvement planning with land use and natural resource planning and management.

CHAPTER 4: ROAD NETWORK

INTRODUCTION

An extensive highway network serves the eighteen communities in the SMPO area. The purpose of this chapter is to provide detailed information about the roadways and the issues that challenge the SMPO region.

By providing access to land, the transportation system has a tremendous impact on the physical settlement patterns of a region and state. Traditionally, the region has placed the greatest emphasis on expansion and improvements to the highway system. This is reflected in the well-developed system of state and local roads that provide access to a significant portion of the land in the region. There are, however, some deficiencies in that network that have become more apparent as population growth has pushed development further and further from the traditional town centers, placing larger traffic burdens on secondary state highways and local roads.

REGIONAL ROAD NETWORK GOALS AND OBJECTIVES

REGIONAL ROAD NETWORK GOAL

- Encourage projects, designs and initiatives that promote a shared, safe transportation system for bicyclists, motorists, transit users and pedestrians.

REGIONAL ROAD NETWORK OBJECTIVES

- Utilize the Regional Traffic Model to help identify future deficiencies in the regional highway network.
- Use the state Highway Accidents Database and other resources to develop highway projects that address safety concerns.
- Implement an Incident Management System at the Little Bay Bridges on the Spaulding Turnpike to reduce the negative impacts of congestion and accidents on that facility.
- Promote the use of Traveler Information Systems to better aid tourist and commuters in reaching their destinations.
- Fully participate in the environmental documentation of highway projects to minimize the impacts on wildlife and natural resources.
- Advocate the documentation, preservation and enhancement of cultural, historic and recreational resources in developing the transportation system.

EXISTING CONDITIONS

This section will detail the existing roadway network and its attributes, including traffic volumes, recent improvements, and future improvements in the planning or design stages.

ROADWAY NETWORK

The study area's principal transportation routes include NH Routes 11, 16, 108, 125, 155, US Route 202, serving north-south traffic, and US Route 4 which serve east-west traffic. See ***Figure 5*** for the locations of these principal transportation routes in the region.

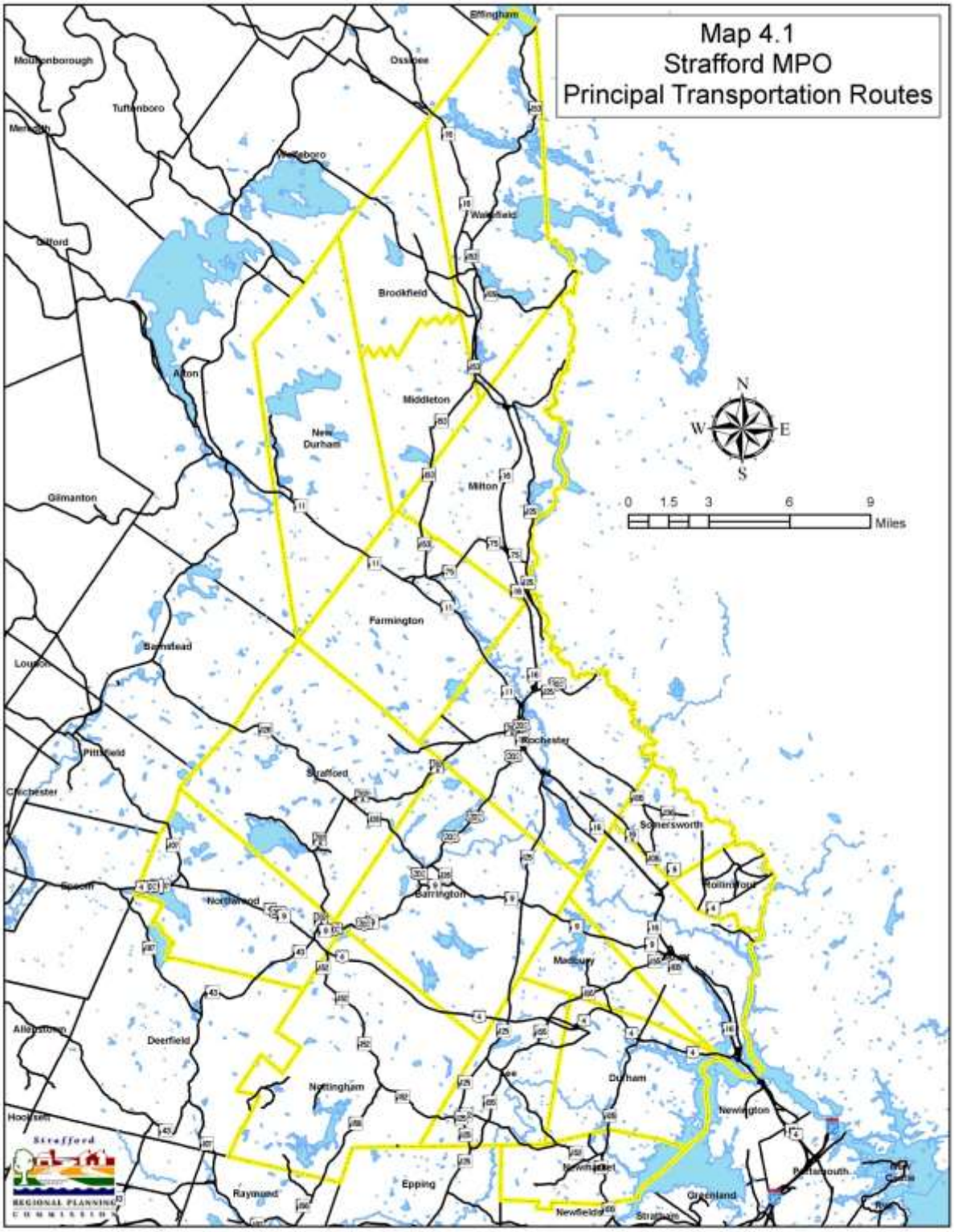
The US 4 corridor is the region's major east-west system. The highway runs the width of the state and has experienced high congestion and accident rates. In recent years, the highway system has undergone upgrades. US Route 4 is generally a two-lane highway with Average Daily Traffic (**ADT**)[5] over 17,342 (2007) east of NH 108 and 9247 (2007) at the Nottingham/Northwood Town Line.

Other important north-south corridors include NH 125, which runs from the Massachusetts border to the northern tip of Strafford County, and NH 16, also known as the Spaulding Turnpike from the Portsmouth Traffic Circle to Milton Exit 17. NH 16/Spaulding Turnpike is a limited access toll roadway that carries heavy commuter and tourist traffic and serves as a gateway from the Seacoast to the Lakes Region. ADT on NH 16 ranges from 56,000 (2003) just north of the Gosling Road interchange (Exit 1) to only 9,100 (2004) at the northern end of the study area in Wakefield.

Additionally, NH 125 and NH 108 serve an increasing volume of traffic from the Massachusetts line to the northern region of the MPO and beyond. NH 125, with its connections to the Spaulding Turnpike, US 4, NH 101 and Interstate 495 is quickly becoming a popular route for tourists and commuters. ADT stays at a fairly constant 14,000 from Brentwood to Rochester. NH 108 serves as an alternate commuter route to the Spaulding Turnpike for those moving between coastal communities and the northern part of the region. This route has its greatest volume of traffic near the Exeter/Stratham border (15,000), and remains a very busy route from that area north to Newmarket, Durham and Dover.

[5] All ADTs listed in this section are based upon NHDOT counts and use Average Weekday numbers.

Figure 7: Principle Transportation Routes



CLASSIFICATION OF ROADS AND HIGHWAYS

Every ten years, NHDOT, works with the regional planning commissions to update the State's functional classification maps for roads. Functional classification is a grouping of streets and highways into classes or systems, according to the nature of service they provide. These groupings may be used as a basis for determining jurisdiction, design standards, and allocation of transportation funds. In general, there are four functional classes to be considered:

1) Principal arterial
2) Minor arterial
3) Collector
4) Local street

A brief description of each is contained in **Appendix E** to assist in the understanding of the basic hierarchy of roadway function by classification. **Appendix E** also includes a table classifying some of our region's roads.

In addition to the Federal Functional Classification system, New Hampshire has its own highway classification system that is based on who is responsible for the maintenance of the roadway. Known as the "Legislative" classification, this structure includes six categories, and was developed in the 1940's. This Legislative classification roughly corresponds to a third scheme, known as the "System" classification which further details the Legislative class into 18 subcategories regarding who owns the facility as well as who maintains it. All of this is detailed further in **Appendix E**.

TRAFFIC VOLUMES

The NHDOT's Bureau of Traffic monitors traffic growth throughout New Hampshire and publishes monthly Automatic Traffic Recorder Reports for 79 locations throughout the state. In addition, NHDOT conducts traffic counts during the summer months at additional locations and will respond to local community requests. There are eight permanent recorder locations in the SMPO study area. Table 11 provides a historical look at some of the SMPO's permanent recorder traffic volumes for selected years from 1980 to 2007. At most of the recording stations, traffic in the region has been steadily increasing over the last twenty-five years.

Table 11: Permanent NHDOT Traffic Counters

Location	Dover Spaulding Turnpike Toll (Exits 6 & 7)	Durham US 4 - East of NH 108	Lee NH 125 North of US 4	Northwood US 4 at Nottingham Town Line	Rochester Spaulding Turnpike Toll (South of Exit 11)	Total
2008	36,174	16,535	13,113	8,838	23,320	97,980
2009	35,687	16,830	13,372	9,100	22,276	97,265
2010	36,127	16,682	13,686	9,458	22,348	98,301
2011	35,623	16,170	13,437	9,056	22,409	96,695
2012	36,136	16,256	13,612	9,077	22,923	98,004
2013	36,930	15,989	13,838	9,021	23,965	99,743
Percent Change	2.05%	-3.41%	5.24%	2.03%	2.69%	

The data represent only a small sample of traffic volume trends but still provide some insight into regional traffic growth on the primary roadways in the region. Table 11 shows significant growth in traffic volumes at all locations between 1980 and 2000. This growth was especially rapid during the 1980's, with many locations experiencing a near doubling of traffic volumes. From 1990 to 1995 growth generally continued, but at a much slower pace, which coincided with slower population growth and economic activities.

NHDOT and both planning commissions also conduct non-permanent automatic traffic counts throughout the region. NHDOT Traffic Bureau selects the count locations on a prescribed rotating basis, with due consideration of regional significance. The planning commissions add community requests to the annual count as requested and as time and resources are available. These locations are mapped at both RPCs and count data is contained in traffic volume reports published by each agency every two years. This information is organized by municipality and can be seen in the annual Traffic Volume Reports published by NHDOT which are available at the Planning Commission Offices, as well as through the NHDOT website [http://webster.state.nh.us/dot/].

The Seacoast Regional Traffic Model can be used to make projections regarding the Vehicle Miles of Travel (VMT) within the region on a daily level and is calibrated specifically for this purpose. Table 12 illustrates these growth rates based on analysis years for the 2008 Air Quality Conformity Model Runs. These figures represent the Strafford MPO region only. Generally, these projections are based on current assumptions about growth and development in the area and about future construction of transportation projects. Growth rates for model analysis years range from 4.35% to 5.57%. Overall, the model is predicting an approximate growth of 15.12% in VMT from

2009 to 2035.

Tourism plays a large role in the Seacoast's traffic volumes. Between 1994 & 2000, the difference between the month with the lowest traffic volumes (January) and the largest volumes (August) on the Spaulding Turnpike averaged about 8,700 vehicles per day. During that same period on Interstate 95, the difference between the lowest (January) and highest month (August) averaged about 37,000 cars per day. This illustrates the large increases in volume during the Seacoast's prime tourist season, as well as the influence of traffic bound for Maine and the Canadian Maritime Provinces via I-95.

Table 12: VMT Per Analysis Year

Analysis Year	VMT	Growth Rate
2009	2,244,719	
2017	2,345,823	4.50%
2026	2,476,420	5.57%
2035	2,584,204	4.35%
Change from 2009-2035	**339,485**	**15.12%**

Source: 2008 Air Quality Conformity Model Runs

ROADWAY ISSUES

The SMPO region is faced with many important issues involving its highways and roads. Some of the major issues of the region are addressed in this section.

ACCESS, ACCESS MANAGEMENT, AND CORRIDOR PRESERVATION

The location, density and site design of land use all have a large influence on the transportation system, as does the transportation system on the development of land. Simply stated, development and land use determine where highways (or highway improvements) are needed, and highways to a large extent determine what land is improved, and the use patterns that growth takes. A major outcome of this pattern has been the proliferation of linear development along transportation corridors with large numbers of closely spaced driveways and intersections along highways that, when combined with the large volumes of destination and through traffic, create significant operational and safety problems. As traffic volumes increase, making turns become more difficult and dangerous, congestion increases travel times and delay, traffic begins to spill onto parallel streets. In the past, this has led to calls from the community to widen the road or build a "bypass" to relieve traffic congestion, but these solutions are costly and can create an entirely new set of problems, such as loss of community character, increased speed, accidents and congestion on widened roadways, and loss of economic activity as traffic shifts to a bypass. Access Management has developed in response to these issues as an effort to develop solutions to congestion that makes more efficient use of the existing roadway system, and attempts to be sensitive to the context in which the improvements are be needed.

Access management seeks to balance the need for people to access property (residences and businesses) with the need to move traffic through an area safely and efficiently. There are several different approaches that can be taken to do this and they are often utilized together to develop area or corridor wide improvements. This often takes the physical form of roadway changes that control the movement of vehicles, but also entails the establishment of appropriate standards and policies for fair implementation. The standards and policies establish the conditions for many of the physical improvements by setting site distance minimums, driveway and intersection spacing standards, as well as laying out a general Access Management Plan for an area or corridor. The physical changes are typically related to managing how vehicles enter and exit driveways through appropriate numbers and locations of curb cuts, encouraging shared driveways, restricting turning movements, providing access roads connected to traffic signals, and turning lanes. When Access Management policies and techniques are combined, significant gains can be made in terms of improved traffic flow and reduced accident potential.

There are six basic Access Management techniques that can be applied to roadways (From: *Access Management, Location and Design*, FHWA Course No. 13378, S/K Transportation Consultants):

1. **Limit the number of conflict points** – This type of change reduces the complexity of driving by limiting the information that drivers must process at any given time. Limiting the interaction between vehicles & between vehicles & pedestrians/bicyclists that are moving in different directions simplifies the driver's task, which in turn reduces the potential for accidents and improves traffic flow.

2. **Separate conflict areas –** This type of improvement increases the time or distance between decision points for drivers, allowing them to face potential conflicts one at a time, or at least in reduced numbers. This would include, for example, not allowing left turns from a driveway. In this case, the driver only has to focus on approaching traffic from one direction rather than two. As with #1, the intent is to simplify driving to reduce numbers of accidents and better flowing traffic.

3. **Remove turning vehicles from through traffic lanes –** The addition of turning lanes reduces the impact that vehicles slowing to make a turn have on traffic that is continuing in the same direction. In congested areas without turning lanes, all traffic stops behind vehicles waiting to make a turn. This leads to increased congestion and accident potential.

4. **Reduce the number of turning movements –** This technique focuses on the elimination of short distance, slow movement travel on the primary roadways. By interconnecting parking lots, providing access roads, and connections to side streets, vehicles can move between businesses without having to re-enter the roadway only to exit again shortly after. This results in less congestion and reduced accident potential.

5. **Improve roadway operations** – This technique uses a variety of methods to manage traffic operations on a corridor. This includes implementing long, uniform signal and intersection spacing,

6. **Improve driveway operations** – This type of improvement looks to improve the operation and safety of the roadway by making improvements to driveway intersections. Well defined driveways of appropriate width and adequate curve radii reduce the impact on through traffic by making the entering or exiting movement less difficult, and provision of adequate sight distance reduces accident potential.

BALANCING THE NEED FOR MAINTENANCE & IMPROVEMENTS

As traffic volumes have steadily increased nationwide, it has become clear to many in recent years that it is not affordable or practical to continue to expand the roadways to offset congestion. In much of the Seacoast region, this holds true as well – expanded roadways in many cases are either infeasible or unwanted by the communities. Those major improvements that are necessary and feasible are becoming a bigger drain on resources as they take more time and funds to complete. There are still some significant improvements that can and should be made to make the system safer and more efficient but these projects need to be balanced with smaller scale improvements and maintenance needs.

In addition, maintenance needs are an ongoing issue for the region as many roads are carrying additional, faster, and heavier traffic than they were designed for. This leads to unsafe road conditions, such as structurally deficient bridges, inadequate intersections, and crumbling pavement, which creates problems for motorists as well as pedestrians and cyclists. With limited funding available for the maintenance and minor improvements to the roadway system, choices need to be made about what takes priority. The fact that all necessary improvements and repairs cannot be made given existing resources may have several negative impacts, such as increased accidents, further deterioration of the roadways leading to more expensive repairs, and public disapproval. Many of our region's roads and bridges have reached or exceeded their intended life span and are in need of repair or replacement.

PROJECTS DESIGNED TO ADDRESS SYSTEM PRESERVATION

The majority of the highway projects in the Metropolitan plan are designed to improve the existing roadways as opposed to the development of new roadways. All of the rehabilitation projects listed for bridges and roadways, intersection improvements, and expansions of existing facilities will be built with this concept in mind.

CAPACITY AND CONGESTION ON REGIONAL HIGHWAYS

There are a number of existing roadway capacity deficiencies within the SMPO region. Some of the most problematic areas, such as the Little Bay Bridges area of the Spaulding Turnpike, are in the midst of construction that will alleviate the problem. However, there are also deficiencies that exist now that are not being addressed in existing plans or construction. NHDOT, as part of its development of the 2009-2018 Ten-Year Plan, performed an analysis of Level of Service and congestion statewide, identifying those areas that were not congested (LOS A or B), moderately congested (LOS C or D) and congested (LOS E or F). The following areas in the SMPO were identified as being congested:

- NH 125 from the intersection with NH 111A in Brentwood north to the intersection with NH 9 in Barrington
- Newington/Dover Bridge
- US 4 in Barrington, Lee, Durham, and Dover
- NH 11 in Farmington
- NH 108 from the NH 101 intersection in Stratham/Exeter to the intersection with US 4 in Durham
- Segments of the Spaulding Turnpike (NH 4 & NH 16) Newington, Dover, and Rochester

The analysis did not make any determination as to the nature of the capacity deficiencies or what would be necessary to correct them; however this type of analysis will be necessary before projects can be developed to address the congestion.

In addition to the known deficiencies discussed above, the regional traffic model was used to determine where future growth would create roadway capacity problems. The model projects current traffic and development patterns out to the horizon year of this plan (2040) and loads them on the roadway network that includes all known improvements out to 2040. In addition, the model takes into account all known large commercial, industrial or residential developments. The results of that analysis show a few areas in the region that are predicted to experience significant peak hour congestion. This is based on estimates of volume to capacity during the PM peak hour. Additional data should be collected prior to the development of projects to address the congestion. The locations identified by the Regional Traffic Model are:

- US 4 East of the Lee Traffic Circle
- Newington/Dover Bridge

There are a number of projects in the Metropolitan Plan that are designed to address capacity issues. Foremost among these is the Newington-Dover Spaulding Turnpike improvement project that will address capacity constraints in that corridor. In addition, there will be improvements along the northern section of the Spaulding turnpike to address congestion issues in Rochester. Many of the intersection improvement projects in the region will address capacity constraints through the addition of turning lanes, traffic signals, or other improvements. Some of the primary facilities in the region that are facing congestion problems are discussed below in greater detail.

NH ROUTE 125

One example of a section of roadway that has received a great deal of attention from the municipalities that lie along it is NH 125. NH 125 is an important north-south corridor in the Seacoast region that extends from the New Hampshire/ Massachusetts border at Plaistow to Milton. This route has two lanes with almost unlimited access to the road. This unplanned access to the road has been a center of much concern. Many residents and communities on the corridor as well as those who travel the route have expressed perceived high accident rates along NH 125. The problems of NH 125 are a result of poorly planned intersections, lack of signage for side roads, high speeds, and uncontrolled driveway and commercial access.

This road has seen a significant increase in ADTs over the last decade. Two Phases of a Route 125 Corridor Study were completed for the sections from Route 101 north to the Spaulding Turnpike, with the second phase being completed in March 2008. An additional corridor study will be completed by 2009 for the last two towns on the corridor. Focus now in the SMPO region turns to access management within the corridor.

SPAULDING TURNPIKE (NH 16)

NH 16, also referred to the Spaulding Turnpike from Portsmouth through Rochester, is a major transportation corridor in New Hampshire. NH 16 extends from New Hampshire's historic Seacoast in Portsmouth through the Lakes Region to the White Mountains and onto the Great Northern Forest. Along the way, it offers commerce, employment, recreation, and the scenic beauty typical of New Hampshire. In the Seacoast region, NH 16 stretches from Portsmouth to Wakefield. Along this section of the corridor, the communities, the MPO, and the State are actively addressing many transportation issues.

One project that is currently under construction is the widening of the Spaulding Turnpike in Rochester. The project includes expansion at Exit 11/12 (NH 125) north about 5 miles to Exit 16 (Chestnut Hill Road Connector). The project will widen the Turnpike from its current two lanes to four lanes and include interchange reconfiguration for capacity and safety. This widening project is faced with many environmental issues including wetlands, historic properties, local access, air quality, ledge, noise pollution, and floodplains.

A second project on NH 16 is a reconstruction of the Spaulding Turnpike in the Newington-Dover area including the Little Bay Bridges. This improvement area runs from just south of the Dover tolls to just north of the Newington-Portsmouth Town Line, approximately 3.5 miles. The project is intended to improve safety and relieve congestion in this section. This is a problematic area due to the large population and

employment centers in the area. The project includes short-term improvements involving frontage roads and alterations in access to the Spaulding Turnpike.

A third project under consideration in the region is a new interchange labeled Exit 10. This interchange is to be located between Exits 9 and 11/12. The interchange would require new roadways to be constructed or current roadways to be improved. The main purpose of Exit 10 is to provide improved access from the Spaulding Turnpike east to the City of Somersworth. Alternatives and the need of this exit have been extensively studied and debated. There is public opposition to the exit as well as municipal support. The public opposition revolves around the potential impact on homes, land, and the environment. Other public opposition concerns the purpose and need for the legislation, and how much will Somersworth's economy directly benefit versus the cost of the project. Municipal support derives from economic benefits to the region and access to new lands. This project was dropped from the 2009-2018 Ten-Year Plan, but will still be included in the SMPO Long Range Transportation Project Listing.

TOLL FACILITY CONGESTION

Congestion at the region's toll facilities is another issue facing both the NH 16/Spaulding Turnpike and Interstate 95 corridors. Currently these facilities face significant congestion at times due to commuter and tourist traffic. The placement of Electronic Tolls (E-Z Pass) at the facilities in the region has been implemented as a method of mitigating some of the impacts of this congestion. Electronic tolls are a form of Intelligent Transportation Systems (ITS) technology. Electronic tolls are a great tool for easing congestion on New Hampshire's turnpikes. The tolls allow for vehicles to travel through the tolls and pay electronically therefore not having to come to a complete stop, as they did previously. This helps to decrease congestion and harmful pollutants created by idling vehicles.

SAFETY

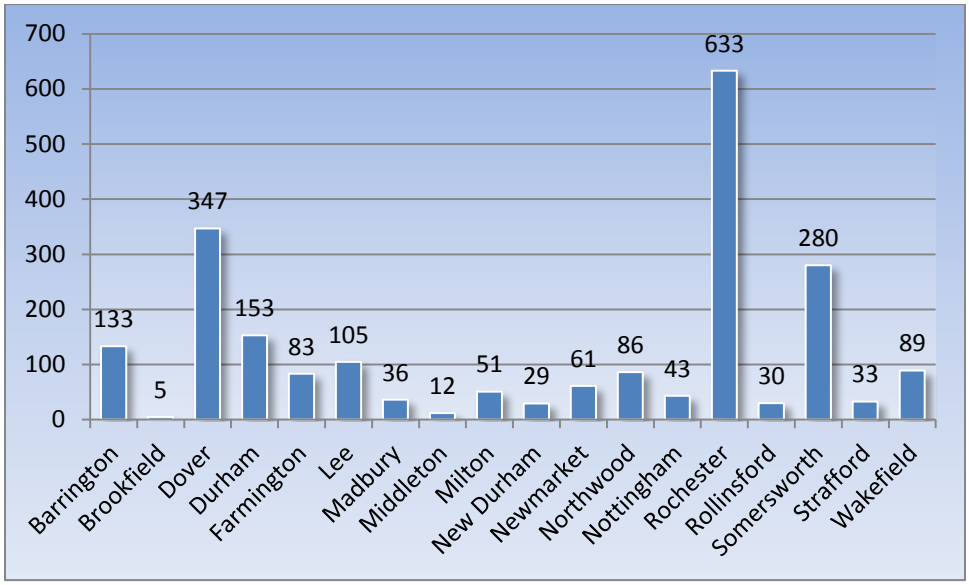
Over the period between 2004 and 2013, there were 31,179 total incidents involving motor vehicles in the eighteen SMPO municipalities. A listing of accidents by municipality taken from the State Traffic Accidents Database is shown in Figure 8. This table is for 2009 only. The most common types of accidents in 2009 were:

- Collisions with other motor vehicles (34.8% percent)
- Collisions with fixed objects (32.6% percent)

There are eighteen other accident types detailed in the standard Motor Vehicle Accident Report [DSMV 400] that make up the remaining 32.6% of incidents. This includes animal collisions (14.6 percent) and other (7.9 percent) accidents. While many people

believe that there are more accidents in bad weather and with bad road conditions, the vast majority of collisions occurred under dry conditions (96 percent). The remaining accidents in the region occurred during some precipitation (rain/snow/sleet) or slippery road conditions (wet/snow/slush/ice). Compared to the previous edition of this plan, there has been a significant increase in the total number of crashes in Rochester (from 227 in 2005 to 633 in 2009).

Figure 8 - 2009 Vehicle Crashes Per Community



Given this information, as well as NHDOT analysis of accident rates (crashes/million VMT), a number of road segments warrant further investigation into the causes and potential solutions to accidents. In the SMPO region (based on 2009 Accident data), portions of the following roadways have been identified as high accident areas in need of further investigation:

- NH 202A in Rochester
- NH 125 in Rochester
- NH 9 at Dover/Somersworth Town Line

These areas should receive priority from the MPO for improvements based on safety conditions, although additional analysis should be performed to determine specific accident locations as well as the identification of specific causes that can be rectified by roadway improvements.

PROJECTS DESIGNED TO ADDRESS SAFETY ISSUES

There are a number of highway projects in the region that are at least partially designed to address safety issues. The Newington-Dover Turnpike Expansion project will initially address safety through some interim improvements to the roadway network as well as through an Incident Management System. This IMS is designed to reduce the number of accidents on the turnpike in that area, as well as to reduce the congestion and delay impacts of any accidents that occur through rapid and coordinated response from all necessary resources. The primary project will also address safety through improved interchanges, roadways, and removing local traffic from the facility where possible. The Town of Wakefield has seen intersection improvements made to several areas along NH 16. The US Route 4 Corridor Safety study in the Town of Durham has also defined a number of safety related projects that are being implemented within the plan. Other types of projects in this plan that address safety concerns are:

- Bicycle shoulder projects
- Sidewalk and other pedestrian projects
- Railroad crossing improvements
- Intersection upgrades

Descriptions of all projects in the Strafford Metropolitan Transportation Plan are included in Short and Long Range Transportation Projects Chapter.

Additional SAFETEA-LU regulations require that each state participate in the Highway Safety Improvement Program (HSIP).

SECURITY

Under federal *SAFETEA-LU* regulations, security is an additional requirement and is separated from safety. Projects should be designed to sustain and improve the security of the transportation system for motorized and non-motorized users. The ITS Architecture Plan provides safety and security to the regional transportation system. The use of ITS technology on the I-95 Spaulding Turnpike corridor has helped to facilitate efficient response to emergency incidents through the use of emergency vehicle tracking systems that are linked to dispatch staff.

Additional regional plans are also essential to increase and support the security of the transportation system. All eighteen communities of the SMPO have Hazard Mitigation Plans prepared by the regional planning commission. Updates to these municipal plans begin in 2008, and municipal Emergency Operation Plans are currently being updated by consultants or the communities. The Northern Stafford County and Southern

Strafford County All-Health Hazard Plans are also in place to focus security of health-related issues during an emergency situation.

SYSTEMS MANAGEMENT AND OPERATIONS

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

The SMPO is currently involved in the effort to promote efficiency in transportation system management and operation as seen in the regional ITS Architecture Plan. 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 fleets and facilities) and private sector (i.e. freight vehicles and facilities). ITS technology enables the freight industry to more efficiently monitor shipment and streamline completion of required administration: vehicle licensing, customs arrangements and vehicle and cargo insurance. Public transit can also benefit from the use of ITS technology to facilitate efficient operations through improvements in vehicle tracking, routing, scheduling and coordination with other modes.

CONCLUSION

It is recognized that the private automobile will continue to be the dominant transportation mode in the near future. As such, our region's highways and local roads must be properly maintained and improved as necessary and appropriate. At the same time however, the natural environment and scenic beauty of the region must be taken into consideration. A balance must be struck between growing transportation demands and ensuring environmental quality.

CHAPTER 5: FREIGHT

BACKGROUND

The SMPO region is rich in economic potential, and a key component is the region's broad mix of inter-modal freight transportation resources. Freight transportation moves goods and raw materials inside the state of New Hampshire, across state boundaries, and internationally. Freight providers include trucks, rail, aviation, ocean, and pipelines and are a valuable resource to the New Hampshire and US economy.

Unfortunately, the high cost of fuel and congestion along the highways are barriers in efficient freight movement. With six out of the eighteen communities within the SRPC in the air quality non-attainment region, it is important that freight move as efficiently as possible to reduce the amount of air pollution in the region.

With the change in the Seacoast MPO into two organizations, some of these freight resources are not located within the SMPO region. They will still be included for planning purposes, as they are still valuable resources for the SMPO.

REGIONAL FREIGHT GOALS AND OBJECTIVES

REGIONAL FREIGHT GOALS

- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

REGIONAL FREIGHT OBJECTIVES

- Encourage projects that aim to decrease through traffic on local roads and in residential neighborhoods by maximizing the use of primary transportation corridors.
- Work with local communities and NHDOT to identify existing and projected transportation system deficiencies and to develop improvement options.
- Support the coordination of land use and transportation planning to ensure that existing and future industrial, commercial, service centers and housing concentrations are adequately connected by the region's transportation system; and appropriately located to preserve the quality of life in surrounding areas.
- Identify current and potential deficiencies and threats to the economic vitality of the region that relate to transportation and work to mitigate those threats.

EXISTING FREIGHT CONDITIONS

For current freight volumes, services are generally adequate within the SMPO region. Service from a freight carrier is available in all of the key modes of freight movement within the region. Companies in the SMPO region have access to an array of freight transportation services that permit access to markets throughout North America and the world. Nevertheless, it is likely that the freight infrastructure is not sufficient to manage the full potential of continued growth in the volume of freight that originates, is destined for, or simply passes through the region.

Shippers want and need expanded freight transportation services. Focus interviews with some of the major Seacoast shippers have provided indications of the types of improvements in freight services that are needed. At the top of the list of needs is expanded air cargo service from Pease Airport. Shippers indicate that due to the large number of airfreight services available at Logan Airport, most Seacoast airfreight continues to move through that facility. Moving New Hampshire freight through Logan means that daily cutoff times are early and that New Hampshire companies are less competitive than companies located closer to Logan in being able to meet customer requirements for express shipments. More airfreight service at Pease would entail a better competitive position for New Hampshire companies looking to compete in the national and global marketplace.

Most freight moving long distance must leave the Greater Seacoast area by truck to gain access to the best range of transportation services. The Port of New Hampshire is also expanding to except containerized shipments. Currently shipments move by highway to and from ports in Boston, Montreal and New York. Containerized shipments to and from the Far East generally move to rail facilities in Massachusetts for rail shipment via "Mini Land Bridge" to the West Coast for ship movement across the Pacific. Increasing volumes of airfreight move though Pease, but most airfreight continues to move through Logan. Carriers provide most truck services through freight terminals located elsewhere in New Hampshire or in Massachusetts.

A considerable quantity of freight movement in the Greater Seacoast area is "overhead" freight. Overhead freight is freight that moves through the Seacoast, but neither originates nor terminates in the Seacoast. Overhead rail freight moves on the main line of Guilford Rail System. Freight on this line includes daily trains operated by the New Hampshire Northcoast Corporation between Ossipee and Boston. Overhead motor freight moves heavily on highways such as I-95, 101, and 125. The implications of overhead freight for the Seacoast include inconvenience, congestion, and cost without economic benefit.

Continuing economic development in the Seacoast area may require future enhancement of freight transportation facilities. Business development at Pease may require improved rail access. Business development at both the Port of New Hampshire and at Pease may require improved highway access between the two facilities. Regional growth may increase the volume of truck traffic on I-95 and call for investments in Intelligent Transport Systems (ITS), such as automated toll collection devices to permit greater volumes of both cars and trucks to use I-95 without costly investment to widen the highway.

FREIGHT TRANSPORTATION INVENTORY

A broad range of domestic and international transportation carriers provide some level of service in the Greater Seacoast area, and all modes of transportation are available.

WATER RESOURCES

Water resources include opportunities for recreational travel (ferries, cruise ships), opportunities for fishing, and opportunities to ship goods via large containers. While New Hampshire has only eighteen miles of coastline on the Atlantic Ocean, it still plays a valuable role in the communities of the SMPO.

While it may not be the largest port in the world, the Port of New Hampshire plays a key role in the New Hampshire economy. With advances in technology it may be a promising location for the development of tidal energy. As the third fastest navigable river in the world, the Piscataqua River has potential to generate alternative power for the Greater Seacoast region.

PORT OF NEW HAMPSHIRE

The Rockingham Metropolitan Planning Organization is the site of the Port of New Hampshire in Portsmouth, an active port handling almost 5 million tons of cargo each year. In addition, the Port of New Hampshire is within 50 miles of the Port of Boston, one of America's major port facilities, and has convenient access by highway and rail to other major and regional ports including New York, Portland, and Montreal.

AIR RESOURCES

The Seacoast region provides residents and businesses with ample flight opportunities. The region has two public airports and several privately owned airstrips. Airstrips, regardless of size or level of service should be included in evacuation planning during natural events, such as floods.

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S BUREAU OF AERONAUTICS

This bureau is responsible for working with Federal, State, and local aviation agencies to preserve and promote airports to ensure the future of air transportation in New Hampshire.

PEASE INTERNATIONAL TRADEPORT

The Greater Seacoast has direct airfreight service at Pease International Tradeport. The airbase handles periodic shipments from the U.S. Postal Service and is willing to expand further if the opportunity presents itself. In addition, the SMPO region has convenient access to a wide range of air cargo services through airports in Boston, Manchester, and Portland.

SKYHAVEN AIRPORT

In 2007, NHDOT's Bureau of Aeronautics gave up ownership of the Skyhaven Airport, located in Rochester, New Hampshire. The City of Rochester had until the spring of 2008 to decide if they wanted ownership of Skyhaven Airport. The City declined ownership and Skyhaven Airport was turned over to The Pease Tradeport. Ossipee Valley Aviation is the Fixed Base Operator at Skyhaven Airport and is hired to run the day-to-day operations of the airport. Additionally, Ossipee Valley Aviation provides services such as flight instruction, aircraft maintenance and tie-downs.

RAIL RESOURCES

THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S BUREAU OF RAIL & TRANSIT

The railroad programs include track inspection and safety investigation in cooperation with the Federal Railroad Administration, a revolving loan program for railroads, and a dedicated railroad fund for improvements to state-owned rail lines, and acquisition and preservation of railroad corridors for future use. Current projects include replacement of ties and drainage improvements on the state-owned rail lines.

PAN-AM RAILWAYS

Pan-Am's main line traverses the rail line between East Kingston and Rollinsford. The Guilford branch lines serve Portsmouth and the area between Portsmouth and Seabrook. Intermodal (rail-truck) facilities operated both by Guilford and Conrail in the Boston area and by the St. Lawrence and Atlantic Railway in Auburn, Maine are within easy reach of the Seacoast region. Through these connections, shippers have access by rail to points throughout North America and, using Rail Land Bridge services, throughout the world.

In 2008, Pan-Am Railways and another rail company, Norfolk Southern Railway joined forces to create the Patriot Corridor that will improve rail service points from Albany, New York to Boston, Massachusetts. A portion of the Patriot Corridor is included in New Hampshire. Capital Improvement Projects include: terminal expansions, track and signal upgrades.

NEW HAMPSHIRE NORTHCOAST RAILROAD

The New Hampshire Northcoast operates part of the former Boston & Maine Conway Branch between Rollinsford and Ossipee, New Hampshire. The railroad's primary traffic is quarried sand. It interchanges cars with Guildford Rail System in Dover where they are then taken to Boston Sand & Gravel in Massachusetts.

Other than the Boston gravel train, New Hampshire Northcoast also serves its own satellite gravel facility in Rochester, New Hampshire as well as Eastern Propane at the same location. New Hampshire Northcoast runs an average of 2 trains approximately 5 days a week, one southbound, and one northbound.

TRUCK RESOURCES

While the trucking industry is privately owned, it depends upon state and local government to provide and maintain the highway network that it operates on. The majority of freight shipments, both long distance movement to distribution centers and local delivery services, to factories, wholesale and retail facilities and households within the United States occur via truck. The following companies located in and outside of the SMPO region have made a positive contribution on trucking operations.

- S&J Transportation – Lee, NH
- Simply Green – Stratham, NH
- Stoneyfield Farm – Londonderry, NH
- Hannaford Trucking Company – Portland, Maine

NEW HAMPSHIRE MOTOR TRANSPORT ASSOCIATION

The New Hampshire Motor Transport Association serves as a liaison between the trucking industry, communities, and the government. Freight companies located in New Hampshire can become members of the New Hampshire Motor Transport Association and receive legislative support, insurance, forms, supplies, newsletters, and educational services i.e. seminars on safety.

PIPELINE RESOURCES

There are currently several natural gas pipelines operating in the Greater Seacoast. Granite State Pipeline operates 8 and 10 inch diameter pipelines between Haverhill and Exeter and also an 8 inch line that goes from Exeter to Wells, Maine. Portland Natural Gas Transmission System and Maritimes & Northeast Pipeline have completed a 650 mile 30 inch diameter pipeline that begins on Sable Island off the coast of Nova Scotia and runs through that Province, south through Maine and coastal New Hampshire and terminates near Boston. The pipeline has approximately 31 miles within New Hampshire passing through the Towns of Plaistow, Newton, East Kingston, Exeter, Stratham, Greenland, Portsmouth and Newington. The pipeline also includes lateral lines in Plaistow (connecting to Haverhill) and in Newington. A project is currently underway in Massachusetts to connect the Maritimes & Northeast Pipeline with the Algonquin and Texas Eastern pipelines that bring natural gas into New England from the Southeast States.

FREIGHT ISSUES

ADEQUACY OF FREIGHT TRANSPORTATION RESOURCES

While freight transportation resources in the region are generally adequate for today's traffic, there are still many needs that remain unmet. Future growth in the Greater Seacoast may result in shipper demand for enhanced freight services in all modes of freight. It is conceivable that the Greater Seacoast's excellent location with respect to Halifax harbor and the Boston, Manchester and Portland markets, may result in expanded use of the region around Pease as a center of distribution. The Greater Seacoast area offers a prime location for a major producer of goods who needs access to ships, railroads, trucks and air services for distribution of manufactured goods and/or receipt of raw materials. Similarly, the Seacoast area also provides an opportunity for a broad based provider of transportation and distribution services for domestic and international markets. Given this, there are a number of deficiencies in the freight transportation system of the seacoast, such as:

- Limited airfreight services at Pease Airport. As stated in the section discussing the existing freight transport system in the Seacoast, one primary deficiency in the region is the limited airfreight services that are available at Pease. Expansion of these services is needed to allow later cutoff times so that Seacoast companies can be more competitive in meeting the needs of their customers worldwide.

- Single-track rail lines on the New Hampshire Mainline that limits freight (and passenger) volumes and speeds.

- Low bridges over rail lines that prohibit the use of double stack rail cars. There are many bridges in the Seacoast area (over 20) that have inadequate vertical clearance over the rail lines, and this limits the ability of freight carriers to use double stack cars on their trains.

- Tollbooths on highway mainlines that produce delays and congestion. The toll facilities on Interstate 95 and the Spaulding Turnpike provide a valuable service in collecting revenues that help to maintain the highways. However, they also create congestion and delay that affect freight movement within the region.

- Limited intermodal freight connections. While airfreight service at Pease does allow for transfer between air and truck, and the recent announcement of the resumption of container service at the Port of New Hampshire creates a ship-truck transfer point, services at these two facilities is limited, and there is no intermodal connection with rail service through the region.

One freight related resource that has seldom been discussed, is the availability and adequacy of parking and service facilities for commercial vehicles and the impact that this can have on the highway network. A Federal Highway Administration Report released in 2002, entitled *Study of Adequacy of Commercial Truck Parking Facilities – Technical Report* (FHWA-RD-01-158), determined that while nationally there appears to be an adequate supply of public and private parking available at rest areas and travel centers, due to the distribution of these spaces and how they are utilized (frequency and duration) there is a perceived shortage in many areas. The study inventoried public and private facilities, surveyed drivers, and estimated demand for each type of facility. Some of the conclusions from the study are the following:

- Inadequate parking supply for rest facilities can cause two problems: 1) tired drivers continuing to drive because they don't believe that they will be able to find a place to park to rest, and 2) drivers finding places to park that are unsafe such as the shoulder of the road, or entrance/exit ramps.

- The problem of truck parking is a localized issue due to the uneven distribution of service facilities.

- Factors that influence truck parking must include some flexibility to address the uneven distribution of facilities. For example, fatigue regulations limit the time drivers spend behind the wheel and so they need some flexibility in where they park.

- Government should play a role in addressing the issue of adequate commercial vehicle parking. This can be done through the implementation of ITS strategies that provide information on parking location and availability and through improving or expanding public parking areas.

- The utilization of public and private parking along interstates and other National Highway System routes carrying more than 1000 trucks per day in New Hampshire is approximately 40 percent of capacity. Public facilities were used at approximately 84 percent of the capacity, while private facilities were 35 percent of capacity. There is no information in the report that breaks this data down to a more localized area for the SMPO region.

Preservation of Transportation Resources to Accommodate Future Growth

SAFETEA-LU is specific in requiring that Metropolitan Planning Organizations, while developing transportation plans and programs, consider factors such as *preservation of rights-of-way for construction of future transportation projects, including identification of unused rights-of-way, which may be needed for future transportation corridors for which action is most needed to prevent destruction or loss.* The likelihood of an increase in demand for freight transportation services in the Greater Seacoast means that plans need to be made to protect land, rights of way, facilities and resources. Examples include the following:

- Preservation of rail rights of way through Pease.
- Preservation of land and rights of way for increased truck and rail volume between the Port of New Hampshire and Pease Tradeport.
- Preservation of land in the area of the Port of New Hampshire to accommodate major increases in business and to preserve access to the port.
- Preservation of the rail bridge between Portsmouth and the Portsmouth Naval Shipyard.
- Maintenance of channel depth at the Port of New Hampshire through regular dredging.

FUTURE CONGESTION

SAFTEA-LU requires that states and MPO's develop transportation plans which consider factors such as p*reservation of existing transportation facilities and, where practical, ways to meet transportation needs by using existing transportation facilities more efficiently, the need to relieve congestion, connectivity of roads within the metropolitan area with roads outside the metropolitan areas, methods to enhance the efficient movement of freight and the overall economic, energy, and environmental effects of transportation decisions.*

As the region grows, traffic on all roads will increase, including on the major limited access highways in the region used intensively by trucks. The completion of the NH 101 improvements has aided east-west freight movements by providing more efficient access between the Seacoast and the central region of New Hampshire. Plans are underway for widening the Spaulding Turnpike between Newington and Dover, as well as further north. The remaining hindrance to truck freight movement on the interstate highway system in the region will be the toll collection facilities on the turnpikes and the delays/congestion that they produce.

On other state and local roadways, existing congestion issues are being exacerbated by the pattern of development in the region and its related impacts upon the transportation system. Increased truck traffic places strains on intersection and roadway capacity, and congestion on primary routes brings truck and other traffic onto secondary roads that were not designed for large vehicles or have incompatible land uses. This creates safety and traffic management issues that need to be addressed.

An effort needs to be made for identifying means of preserving capacity for both trucks and automobiles as much as possible before widening these facilities. One approach to dealing with this issue is to increase the capacity of the highway network through the use of ITS.

UTILIZATION OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

There are a number of technological advances being implemented worldwide, that are having an impact on the distribution of freight as well as the information available to regulatory and statistical agencies. In the United States, the ITS initiatives of the US DOT have a component completely dedicated to Commercial Vehicle Operations (CVO). These have generally taken the form of technologies that help to improve the efficiency and safety of goods movement. Some examples of this type of improvement are:

- **Electronic Toll Collection** – ETC allows commercial vehicles to electronically charge tolls to credit accounts and allows the driver a much quicker movement through any toll booths. This reduces internal paperwork for freight companies, as they no longer need to account for cash transactions. Taken together, this system allows those vehicles that are safe and legal, to proceed with minimal delay permitting enforcement agencies to focus on high-risk individuals.
- **Cargo & Equipment Tracking Technologies –** The use of advanced communications technologies is rapidly improving the ability of shippers to identify and track cargo and transports anywhere in the world in real time. Radio Frequency (RF) technology is being used extensively to track equipment in freight yards and to track movements through gates. Cellular phones are used to maintain direct communications between dispatch and distribution. Bar codes are used to identify cargo and smart cards identify drivers and vehicles and allow for toll and gas payments. Finally, GPS and related technology allows for locating of cargo anywhere in the world within a few meters.

TRUCK ROUTING

Truck routing is an issue that occasionally arises at the local level. In many communities, this takes the form of truck movements through residential neighborhoods. There is a NH statute relative to this issue. RSA 266:11-II(c) authorizes the Commissioner of the New Hampshire Department of Safety:

> …To designate other roads or highways [in addition to the Interstate and Defense Highways, and travel within one mile of those facilities to reach various destinations] the State of New Hampshire for legal use for semi-trailers 53 feet in length or less.

Trucks with standard trailers (48 feet or less) are allowed on all state highways. This RSA requires trucks with semi-trailers greater than 48 feet in length to travel on a specific set of state highways, specifically those that are part of the national system of interstate and defense highways and those designated by the Commissioner of the Department of Safety as appropriate for larger trailers. In addition, these larger trucks can:

> …Travel within one mile adjacent to these roads in order to reach terminals, other points of pickup and delivery, for fuel, repairs, food or rest." [RSA 266:11-II(c)]

In the Greater Seacoast region, Interstate 95, US 4, NH 16 and NH 125 are on the National Highway System. In addition to the specific roadways listed as part of the National Highway System, RSA 266:11-II-(c) lists the entire lengths of NH 33 and NH 101 as allowing the 53 foot semi-trailers and the following roads that are at least partially within the Seacoast Region:

- Exit 9 off the Spaulding Turnpike to Sixth Street, to Horne Street in Dover
- Route 155 in Dover from the Spaulding Turnpike to Route 4
- Route 9 from Route 155 in Dover to Route 125 in Lee
- Route 108 from Rochester to Exit 9 on the Spaulding Turnpike in Dover
- Route 11 from Exit 15 on the Spaulding Turnpike in Rochester to Route 28 at Alton Circle
- Route 202 from the Maine border to the Massachusetts border

For the most part, trucks with trailers that are greater than 48 feet in length are limited to travel on a select set of state roadways. There are no similar regulations for local roadways.

THE NEED FOR INFORMATION

Good policy development is dependent on the availability of good information. Shipper and receiver data is important, such as:

- Identity of key shippers and receivers in the Greater Seacoast area
- Description of use of ocean, rail, truck, air, freight and pipeline services by freight shippers and receivers located in the Greater Seacoast area
- Origins and destinations of freight plus identification of key commodities
- Information about issues important to shippers and receivers in the Greater Seacoast area
- Information about shippers and receivers of key freight movements which move through the Greater Seacoast area

Also critical is carrier data, such as:

- Identity of key carriers who service the Greater Seacoast area
- Identity of key carriers, principally truckers, whose vehicles travel through the Grater Seacoast area
- Information about issues of importance to carriers who provide service to the Greater Seacoast area

Freight flow data should be obtained, such as:

- Identity of origins, destinations, commodities, and volumes of freight originating or terminating within the Seacoast area.
- Identity of origins, destinations, commodities, and volumes of freight moving through the Seacoast region.

Finally, truck flow data, such as:

- Identity of truck types, origins, destinations, truck owners, shippers, receivers and commodities for trucks carrying "overhead" freight on I-95.

Valuable information can be developed for a low cost. The number of major shippers and carriers from whom information is needed is, relatively speaking, not large. Information can be developed through personal contact or mail surveys or a combination of the two. FHWA's Freight Analysis Framework is another valuable resource that is available for National Freight Statistics and Maps.

FREIGHT SAFETY

Surface transportation safety concerns in the freight sector center around the interaction between large trucks and passenger cars on the nation's highways, but should also include safety related to ports, airports, and pipelines.

WATER SAFETY

Safety at the Port of New Hampshire follows recommendations from appropriate federal agencies. The US Coast Guard works closely with the Port of New Hampshire to ensure the safety of the Piscataqua River and Atlantic Ocean. The Port of New Hampshire and the Coast Guard are responsible for the safety of commercial fishing vessels.

In addition, the SMPO region has experienced significant flood events that have washed out many roads and required extensive repairs to the roads, culverts, and bridges.

AIR SAFETY

As required, Pease International Airport follows all required safety elements from each appropriate agency. At this time, no domestic or international airlines arrive or depart from the Pease International Airport as the two available have gone out of business in 2007; however, the New Hampshire Air National Guard is located here.

TRUCK SAFETY

The SMPO region participates in various methods of incident management; the first is the Traffic Incident Management Group with SMRPC in Maine, and the second is an Incident Management Group related to I-95 and the Spaulding Turnpike. This trend is the result of improvements in the safety equipment in vehicles (both trucks and passenger vehicles), improved training and licensing, limitations on driving time, and enforcement of vehicle weight and length limits.

RAIL SAFETY

The SMPO region participates in the New Hampshire portion of the national Operation Lifesaver program. Operation Lifesaver began in Idaho during 19x2 to help reduce the number of rail-related fatalities. Today, each state has their own chapter and they provide information to the general public regarding safety around railroads. The SMO region has three rail lines: one passenger rail line (The Downeaster) and two freight rail lines: Pan Am Railways and the New Hampshire Northcoast. SMPO staff has collaborated with the New Hampshire Coordinator of Operation Lifesaver to bring

presentations to elementary and middle schools within the region to remind children not to play on or around railroad tracks. Private rail operators have their own police force to handle safety issues and property surrounding rail lines is private.

PIPELINE SAFETY

The responsibility of pipeline safety is conducted through the Safety Division of the New Hampshire Public Utilities Commission. The Safety Department is responsible for inspecting pipelines in the State of New Hampshire and places importance on training and education. Each year, the USDOT and the Office of Pipeline Safety audits the Safety Program of the Safety Division to ensure that they are completing the task necessary to keep pipelines safe.

FREIGHT SECURITY

Separating security from safety is a new requirement from *SAFETEA-LU.*

WATER SECURITY

The Port of New Hampshire is located between the states of New Hampshire and Maine and adjacent to three significant transportation bridges that connect the two states. The Department of Defense and Department of Homeland Security chose the Port of New Hampshire as a test site to develop an underwater surveillance system because of its location and the currents. The underwater camera is known as the Sea Otter that utilizes sonar technology to monitor the Piscataqua River for potential terrorist attacks on the bridges, ships, and other potential targets. Information gathered is available for the Port of New Hampshire, the New Hampshire State Police, the New Hampshire Marine Patrol and Coast Guard. A 30-foot, high-speed boat is available to law enforcement officials if a threat is detected.

AIR SECURITY

As required, The Pease International Airport follows all required security elements from each appropriate agency. At this time, no domestic or international airlines arrive or depart from the Pease International Airport as the two available have gone out of business in 2007; however, the New Hampshire Air National Guard is located here.

TRUCK SECURITY

Trucks that move hazardous materials or transfer goods onto rail, water, and air resources go through rigorous security measures to ensure that no illegal or harmful

materials are being moved. Many communities within the SMPO region are completing Emergency Operation Plans that establishes procedures for dealing with hazardous spills or other events involving hazardous materials.

RAIL SECURITY

The Federal Rail Administration has increased security on all Amtrak operations, including the Downeaster. Passengers are subject to random searches to ensure that nothing dangerous is being transported in the rail cars.

PIPELINE SECURITY

In recent years, with the assistance of the Department of Safety and Bureau of Emergency Management, the New Hampshire Public Utilities Commission created a Security Team to review security plans for all major utilities in the state. The New Hampshire Public Utilities Commission also plays in an important role in reviewing the New Hampshire's Emergency Operations Plan and department and agency standard operating guidelines.

SENSE OF COMMUNITY

An issue for the Seacoast may be the reported absence of a sense of community among those who use and provide freight transportation services. One major company interviewed indicated that there is no opportunity in the Seacoast for shippers and carriers to meet with each other to share views and to discuss transportation issues.

The creation of a regional freight transportation advisory committee (FTAC) is a possible way of filling this need. In addition to providing a convenient "vehicle" for the identification of issues of importance for the economic health of the Seacoast, the FTAC could be a means for the gathering of input for a freight transportation database.

RESOURCES

- New Hampshire Port Authority: www.portofnh.org
- Pease Development Authority: www.peasedev.org
- S&J Transportation: www.sjtrans.com
- Ossipee Valley Aviation: www.ossipeeaviation.com
- NHDOT's Bureau of Aeronautics: www.nh.gov/dot/bureaus/aeronautics
- NHDOT's Rail & Transit Bureau: www.nh.gov/dot/bureaus/railandtransit
- Northeast Gas Association: www.northeastgas.org
- Northern Utilities: www.northernutilities.com
- Portland Natural Gas Transmission System: www.pngts.com
- Maritime & Northeast Pipeline: www.mnpp.com
- USDOT/Freight Analysis Network: www.dot.gov/freight

CHAPTER 6: BICYCLE FACILITIES/PROGRAMS

BACKGROUND

NOTE: Work related to alternative (non-motorized) transportation was consolidated under the *TRANSPORTATION ALTERNATIVES PROGRAM* – part of MAP-21

The SMPO encourages safe sharing of the region's roadways through education efforts and proper marking of bicycle routes. Bicycle routes are segments of a system of bikeways that are designated by the jurisdictional authority. Designation may include appropriate directional and informational markers, with or without a specific bicycle route number and/or markers. SMPO promotes continuous bicycle routing systems, including a combination of any and all types of bikeways. SMPO believes that context sensitivity is an issue in bicycle route design just as in roadway design, and should be considered early in the development process in collaboration with abutters and other stakeholders.

This chapter reviews existing bicycle facilities and issues associated with bicycling in the region. It presents the regional bicycle route system as proposed by the NHDOT. The state bicycle route system is a network of existing roads and other special facilities that serves the needs of inter-regional bicycle trips. Regional improvements to the routes, supporting facilities, and education and outreach needs are addressed through the proposed actions listed at the conclusion of the chapter. Safe, convenient, attractive, and well-designed bicycle facilities are essential if these modes are to be properly accommodated and encouraged.

EXISTING CONDITIONS

Supporting bicycling as a viable means of transportation in the region involves providing adequate infrastructure for safe and convenient cycling, and raising awareness among cyclists and drivers.

For the purposes of this report, bicycle facilities consist of shoulders with a width of four feet or greater on the region's roads and off-road paved bicycle or multi-use paths. Bicyclists may legally and appropriately use many roads without such provisions. The New Hampshire Bureau of Trails maintains a number of trails in the region that are unpaved or paved with gravel. There currently exist few paved off road bicycle paths in the region.

According the US Census Bureau, the following Table identifies the number of people that commute to work via bicycles. These figures are only estimates and are not considered to be the official number of people that commute to work via bicycle. Durham has the largest percentage of residents commuting to work via bicycle (43 percent of the total number of people within the SMPO region), as the town is host to the University of New Hampshire. In recent years, the Town of Durham and the UNH have completed several major projects where they have added bike shoulders and bike facilities to encourage students, faculty, and staff of the University to ride bicycles on campus and discourage the use of automobiles when necessary.

Table 13: Bicycle Commuters by Community

Community	TOTAL	%
Barrington	0	0%
Brookfield	0	0%
Dover	28	15%
Durham	**83**	**43%**
Farmington	7	4%
Lee	0	0%
Madbury	0	0%
Middleton	0	0%
Milton	0	0%
New Durham	0	0%
Newmarket	30	16%
Northwood	4	2%
Nottingham	7	4%
Rochester	34	18%
Rollinsford	0	0%
Somersworth	0	0%
Strafford	0	0%
Wakefield	0	0%
SRPC Total	**193**	**100%**

REGIONAL BICYCLE GOALS AND OBJECTIVES

REGIONAL BICYCLE GOAL

- Improve the safety and accessibility for bicyclists within the existing and future transportation systems and to transit options.

REGIONAL BICYCLE OBJECTIVES

- Promote bicycling as a viable non-motorized mode of transportation.
- Encourage a safe and efficient means of bicycle travel.
- Assist in integrating recreational trails with other bicycle facilities.
- Assist municipalities in ensuring community destinations, transit services, and recreation facilities are easily accessible for all levels of bicyclists, as well as identifying and developing appropriate bicycle facilities and recommending corrections for deficiencies.
- Encourage and support bicycle facility improvement to all season conditions.
- Cooperate with other interested parties in initiating; developing and implementing programs that encourage bicycling and that enhance bicyclist safety.
- Encourage and assist municipalities to reformat land-use planning policies, ordinances, and procedures to maximize opportunities for bicycling.
- Promote integrated transportation and land use decisions that protect and enhance municipalities and involve local citizen's advisory committees in the planning process.
- Promote public educational, promotional, and safety programs for using bicycle facilities.
- Ensure a healthy environment and ecosystem supported by extensive bicycle facilities.

BENEFITS

Many people choose to bicycle for the health, environmental, economic and social benefits. Bicycling may contribute to improved health, recreation and mobility for individuals, a sense of neighborhood, and increased tourism for communities. Increased biking can help reduce roadway congestion, lessen air pollution, and contribute to livable communities.

ENVIRONMENTAL BENEFITS

According to the EPA, transportation is responsible for nearly 80 percent of carbon monoxide and 55 percent of nitrogen oxide emission in the United States. Many metropolitan areas do not meet the air quality standards specified in the 1990 Clean Air Act Amendments. If the total traffic continues to grow, air quality will deteriorate and noise pollution will increase.

HEALTH BENEFITS

Activity that builds muscular strength, endurance, balance, and flexibility has been shown to protect against injury, disability. Light to moderate activity will result in measurable benefits. Bicycling improves self-image, greater self-reliance, improved social relationships, allows for an enhanced sense of independence and freedom and can improve the quality of life. Health benefits for senior adults include a stronger heart, a positive mental outlook, and an increased chance of remaining indefinitely independent.

ECONOMIC BENEFITS

The transportation-disadvantaged population depends on safe bikeways. This population includes but is not limited to the poor, the young, the elderly, the disabled and others who do not use motor vehicles for a variety of reasons. These facilities would help reduce the dependency on auto ownership and resulting insurance and maintenance costs. By developing these facilities regionally, general improvements in the bicycle systems will result in greater social equity and increased economic vitality as well as reducing health care costs.

SOCIAL BENEFITS

The social impacts that may be associated with the development of bikeway projects, such as neighborhood opposition, residential security, privacy, should be considered. Bikeable communities can create a more equitable society by providing transportation choice for all citizens. The number of people bicycling can be a good indicator of a

community's livability, a factor that has a significant impact on attracting businesses and workers as well as tourism. Comfortable and connected bicycle facilities offer alternatives to personal vehicles and increase opportunities for social contact with others. By providing bicycle facilities and amenities, communities enable the interaction between neighbors and other citizens that can strengthen relationships and contribute to a healthy sense of identity and place.

TRANSPORTATION BENEFITS

Providing bicycle facilities reduces traffic congestion, parking area demands, and traffic congestion. Roadway improvements to accommodate bicyclists can also enhance safety for motorists. Building paved shoulders on two-lane roads has been shown to reduce the frequency of run-off-road, head-on, and sideswipe motor vehicle crashes. Widening improvements can result in a decrease in the rate of normal roadway edge degradation, thus increasing road longevity and saving money in maintenance costs.

BICYCLE FACILITIES

Bicycle facilities is a general term denoting improvements and provisions made by public and private agencies to accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically designated for bicycle use. The New Hampshire Trails Bureau maintains a number of trails in the region that are unpaved or paved with gravel. Currently few paved off road bicycle paths exist in the region. The remainder of what may be termed as bicycle facilities in the SMPO region consists of paved shoulders on roads. Shoulders are the portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface courses.

Over the past decade, the NHDOT has facilitated a process of identifying statewide and regional bicycle routes. The process seeks to identify the best, safest routes currently available on the existing road network. The new revised 2008 New Hampshire (NH) bicycle maps are available at NHDOT. (www.nh.gov/dot/nhbikeped)

SUPPORTING BICYCLE FACILITIES

Providing adequate bicycle support facilities is another key component in making cycling a truly viable transportation alternative. Bicycle parking, in the form of racks or lockers can be provided at sites such as schools, post offices, work-sites, recreational areas, etc. Also important at employee sites is the provision of locker rooms, allowing bicycle commuters to shower and change before work.

Parking devices need to be provided at both trip origins (i.e. large apartment complexes) and destinations (i.e. colleges, employment centers, shopping centers, recreation facilities). Schools, libraries, stores and other attractions often provide bicycle racks on a voluntary basis. Bicycle parking ordinances may be used to mandate the provision of bicycle parking. In the SMPO region, some larger employers have bicycle amenities. Many employers allow bicycle commuters to bring their bicycles indoors, which may be the preferred option. Many larger employers in the region have shower facilities.

Another important role of supporting facilities is to allow for inter-modalism, or better connections between bikes and other modes of transportation. In order to allow the bicycle system to operate as a fully functional component of the overall transportation system, these linkages must be in place. COAST, the regional transit system, and Wildcat Transit, the UNH transit provider, have installed bicycle racks on buses and at selected stops. Similarly, NHDOT has installed bicycle racks or lockers at many of the state's Park & Ride lots.

BICYCLE EDUCATION

NH BIKESMART PROGRAM

The New Hampshire BikeSmart Program started in 2006 and sends safety program instructors into public schools to talk to students about the importance of bicycle safety, wearing helmets and brightly colored clothes, and the basic rules of the road. In 2008, instructors came to seven schools in the SMPO region:

- Dover Middle School – Dover
- Garrison Elementary School – Dover
- Milton Elementary School – Milton
- Moharimet Elementary School – Madbury
- Oyster River Middle School – Durham
- Paul School – Sanbornville/Wakefield
- Portsmouth Christian Academy – Dover

"DON'T BE A ROAD WARRIOR"

The NHDOT's "Don't be a Road Warrior" brochure outlines rules of the road for both cyclists and drivers. Excellent model outreach programs targeting junior high and high school students are in place in Maine, Massachusetts and other parts of the country.

BICYCLE OUTREACH

BIKE/WALK TO WORK DAY, BIKE/WALK TO WORK WEEK, AND THE SEACOAST COMMUTER CHALLENGE

Each year, the SMPO participates in a regional Bike/Walk to Work Day with Rockingham Planning Commission, Seacoast Area Bicycle Routes, Seacoast Commuter Options and NHDOT. Generally, Bike/Walk to Work Day is held during the spring and communities are invited to join by holding free breakfasts for people that walk or bike to work that day. Each year has seen increasing participation in the event.

NHDOT BICYCLE/PEDESTRIAN INFORMATION CENTER

The NHDOT Bicycle/Pedestrian Information Center is responsible for ensuring the bicycle and pedestrian needs are met in future transportation projects.

SEACOAST AREA BICYCLE ROUTES (SABR)

The mission of SABR is *to enhance the transportation system of the Seacoast-Great Bay region of New Hampshire and southern Maine through the development of an effective and safe network of bicycle routes connecting the towns in the region*. SABR has advocated for many bike projects in the Seacoast region and helps organize the annual Bike/Walk to Work Day events in the spring for the Seacoast region.

BIKE/WALK ALLIANCE OF NEW HAMPSHIRE

The Bike/Walk Alliance of New Hampshire is a statewide organization dedicated to bicycle safety, education, and outreach. The goal of the Bike/Walk Alliance of New Hampshire is to be the voice for bicyclists and pedestrians in New Hampshire. This year, they worked with the New Hampshire Legislature to pass House Bill 1203. This bill directs the NHDOT to develop and implement standards for the design and placement of rumble strips, drain grates, and road surface treatments that eliminate foreseen hazards for bicyclists by following federal guidelines.

GRANITE STATE WHEELMAN

Founded in 1971, the Granite State Wheelman is an organization for bicyclists of all ages and abilities. They organize a variety of bicycle trips for all abilities and promote bicycle safety and outreach by working with state and local advocacy organizations.

BICYCLE SAFETY

The programs and activities listed for outreach and education form the basis for a bicycle safety program.

BICYCLE ENFORCEMENT

Greater effort is necessary to enforce traffic laws related to bicycles. A lack of enforcement results in many cyclists putting themselves and others at risk by running through intersections or riding the wrong way on one-way streets. Likewise, traffic enforcement to protect the rights of cyclists is needed. The use of bicycle-mounted police can be an effective approach.

In addition to providing adequate infrastructure for safe and convenient cycling, the key element to integrating bicycles into the transportation system is raising awareness among both cyclists and drivers of how to safely share the road. Although most drivers acknowledge the presence of bicyclists on the road and drive accordingly, some retain the perception that bicyclists do not belong on the road. Bicyclists also have a responsibility to ride in a safe and legal manner. Many accidents occur when bicyclists are driving against traffic or at night without proper lights on their vehicles. There are also steps bicyclists can take to increase their protection, such as wearing a helmet, and keeping their bicycle in adequate condition. Public education is needed to convey this message to both drivers and bicyclists

"THREE –FOOT BICYCLE RULE"

In 2008, the New Hampshire Legislature passed House bill HB-1203, which establishes additional rules of the road relating to bicycles. This bill also requires that Department of Transportation to minimize bicycle hazards relating to rumble strips, drain gates, and road surface treatment on highways. The bill will become law on January 01, 2009 and a public outreach campaign will take place in the fall 2008 so that motorists and bicyclists are aware of the new rules.

The bill requires that motorists give bicyclists at least three feet to travel when being passed. The bill also requires that bicyclists wear at least one item of reflective outwear apparel, such as a reflective vest, jacket, or helmet strip, during the period from ½ hour after sunset to ½ hour before sunrise.

RESOURCES

- NHDOT: www.nh.gov/dot/nhbikeped
- Seacoast Area Bicycle Routes: http://www.seacoastbikes.com
- Granite State Wheelmen: www.granitestatewheelmen.org
- Bike-Walk Alliance of New Hampshire: www.bwanh.org
- League of American Bicyclists: www.bikeleague.org

CHAPTER 7: PEDESTRIAN FACILITIES/PROGRAMS

INTRODUCTION

NOTE: Work related to pedestrian access and safety was consolidated under the *TRANSPORTATION ALTERNATIVES PROGRAM* – part of MAP-21

Walking is the oldest and most basic form of human transportation. It is the most affordable and accessible mode of transportation since it does not require fare, fuel, a license or registration. Walking is clean, easy on the infrastructure, and integral to community livability.

The purpose of this chapter is to present some of the existing characteristics of pedestrian travel and pedestrian facilities in the region. It should offer a broad range of useful tools as options for municipalities to draw upon in their efforts to promote the development of safe pedestrian access in their community and region. It should assist communities to create a sense of place, fosters socialization among residents, provide alternative modes of transportation that minimizes automobile dependency, and provide diversity among land uses and housing types.

BACKGROUND

Like bicycling, walking is an important element that needs to be incorporated within a comprehensive transportation system. Walking is a popular means of travel in many of the region's communities. The downtowns of Dover, Durham, Rochester, and Newmarket retain a traditional urban scale, which favors the pedestrian and thus encourages people to walk. The many SMPO recreational and historical areas enjoyed by residents and tourists are also best experienced on foot. The Town of Durham contains a large percentage of pedestrians due to college students from the University of New Hampshire.

In this country, we have long recognized the consequences of increased traffic volumes and have attempted to accommodate motorized vehicles, but have not always considered the convenience and safety of those walking in urban, suburban and rural areas. Recently, however, the fields of transportation and community planning have begun to acknowledge the importance of pedestrian rights and accommodating those who wish to walk to fulfill basic transportation needs, for recreation, or for leisure. *SAFETEA-LU* takes all modes of transportation seriously, including walking. Federal funds are available for pedestrian amenities through the Transportation Enhancements program, which the State of New Hampshire has used for implementing sidewalks and pedestrian infrastructure in communities.

EXISTING CONDITIONS

In the SMPO region, pedestrian facilities vary considerably from community to community. Many of the rural communities have few if any sidewalks. In those communities, residents are compelled to use the roadway for foot travel. This is made somewhat safer when the shoulder is available for use as bicycle and foot travel lanes.

Many communities readily acknowledge that particular roadway segments are used frequently by pedestrians, and that pedestrian facilities will play an important role in future growth.

Construction of sidewalks is expensive, and many communities lack sidewalks because they have limited local funding to build and maintain sidewalks, particularly snow removal. Since 1991, TE Funds have been used to construct sidewalks and other pedestrian facilities in many communities in the region.

Table 14: Walking Statistics by Community

Community	Walked	% Walked
Barrington	29	1%
Brookfield	0	0%
Dover	371	14%
Durham	**1,587**	**60%**
Farmington	43	2%
Lee	45	2%
Madbury	7	0%
Middleton	13	0%
Milton	45	2%
New Durham	17	1%
Newmarket	66	2%
Northwood	21	1%
Nottingham	41	2%
Rochester	178	7%
Rollinsford	21	1%
Somersworth	119	5%
Strafford	**0**	**0%**
Wakefield	41	2%
Total	**2,644**	**100%**

BENEFITS OF WALKING

A transportation system that is conducive to walking can reap many benefits in terms of reduced traffic congestion and improved quality of life. Economic rewards are realized by individuals and to the society through reduced health care costs and reduced dependency on auto ownership. Walkable communities create equity by providing transportation choice for all citizens.

Many of the trips that Americans make every day are short enough to be accomplished on foot or wheelchair. Walking can reduce roadway congestion in urbanized areas. Many streets and highways carry more traffic than they were designed to handle, resulting in gridlock, wasted time and energy, pollution, and driver frustration. Walking requires significantly less space per traveler than driving. Roadway improvements to accommodate pedestrians can also enhance safety for motorists.

The level of walking within a community is considered an indicator of a community's livability, which can be a factor for attracting businesses and workers as well as tourism. It creates a sense of security and portrays the community as a friendly place to live and visit.

Comfortable and accessible pedestrian environments offer alternatives to personal vehicles, which may limit opportunities for social contact with others. By providing appropriate pedestrian facilities and amenities, communities enable the interaction between neighbors and citizens that can strengthen relationships and contribute to a healthy sense of identity and place.

PEDESTRIAN FACILITIES

SIDEWALKS

Sidewalks and walkways are pedestrian lanes that provide pedestrians with space to travel within the public right-of-way that is separated from roadway vehicles.

Most sidewalks are constructed of concrete; however asphalt, crushed stone, or other materials may be used if they are properly maintained and accessible. Both FHWA and the Institute of Transportation Engineers (ITE) recommend a minimum width of 5 feet for a sidewalk or walkway, which allows 2 people to pass comfortably or walk side-by-side. Wider sidewalks should be installed near schools, at transit stops, in downtown areas, or anywhere high concentrations of pedestrians exist. Sidewalks should be continuous along both sides of a street and sidewalks should be fully accessible to all pedestrians, including those in wheelchairs.

A buffer zone of 4 to 6 feet is desirable and should be provided to separate pedestrians from the street. The buffer zone will vary according to the street type. In downtown or commercial districts, a street furniture zone is usually appropriate as long as it does not restrict pedestrian flow. Parked cars and/or bicycle lanes can provide an acceptable buffer zone. In more suburban or rural areas, a landscape strip is generally most suitable. Careful planning of sidewalks and walkways is important in a neighborhood or area in order to provide adequate safety and mobility. Walkways should be part of every new and renovated facility. In retrofitting streets that do not have a continuous or accessible system, locations near transit stops, schools, parks, public buildings, and other areas with high concentrations of pedestrians should be the highest priority.

The Americans with Disabilities Act mandates a minimum width of 3 feet of unobstructed sidewalk passageway. Public sidewalks less than 5 feet wide are required to include a 5-by-5 foot passing space every 200 feet. The ADA states that *surfaces of public sidewalks shall be stable, firm, and slip-resistant, and shall lie generally in a continuous plane with a minimum of surface warping.* Wheelchair ramps must be made of concrete unless concrete is determined to be an *adverse effec*t based on historical preservation regulations. The ADA requires curb ramps at all crosswalks.

CROSSWALKS

To create an effective transportation network, communities need to ensure that pedestrians can cross streets safely and conveniently to access destinations. This includes people who are getting off a bus or people accessing a parking area. Signals, stop signs and crosswalk markings assist pedestrians in reaching their destinations.
Crosswalks are a critical element of the pedestrian network. It is of little use to have a complete sidewalk system if pedestrians cannot safely and conveniently cross the street to reach their destination. Safe crosswalks support other transportation modes as well. Transit riders, motorists, and bicyclists all may need to cross the street as pedestrians at some point in their trip.

Crosswalks should indicate where to cross and possible conflict points with traffic. The location and illumination of the crosswalk allows pedestrians to see and be seen by approaching traffic while crossing. The time available for crossing should accommodate users of all abilities. The crosswalk should be free of barriers, obstacles and hazards. Curb extensions are one way to reduce the crossing distance for pedestrians. They allow pedestrians to move safely beyond a lane of parked cars to a position where they can see and be seen as they begin their crossing. Curb extensions can also provide an area for accessible transit stops and other pedestrian amenities and street furnishings. Marked crosswalks indicate to pedestrians the appropriate route across traffic, facilitate crossing by the visually impaired, and remind turning drivers of potential conflicts with pedestrians.

TRAFFIC SIGNALS

Traffic control signals are one way that both motorists and pedestrians can be given clear direction regarding the use of the roadway. One commonly voiced complaint about pedestrian signal indicators is that they do not give pedestrians enough time to cross. In some cases, pedestrians perceive this to be the case because they do not understand the operation of the pedestrian signals. In other cases, pedestrians with disabilities truly may require more time to cross the street.

The operation of pedestrian signal indicators includes 3 phases: WALK, flashing DO NOT WALK, and steady DO NOT WALK. Pedestrians are supposed to enter the crosswalk only on the WALK phase, but there likely will not be enough time to cross within this phase. Crossing continues during the flashing DO NOT WALK phase. However, pedestrians should not enter the crosswalk during this phase. During the steady DO NOT WALK phase, pedestrians should not be in the crosswalk.

Fixed-Time Signals have a regular cycle of phases with a fixed amount of green time for each movement.
Fully-Actuated Signals use detection of vehicles and pedestrians to actuate all movements through the intersection.
Semi-Actuated Signals have vehicle and pedestrian detection only on the side or local street movements (and sometimes for left turns from the arterial street).

In both actuated signal situations, the pedestrian waiting to cross must be detected, either through pedestrian activation or passive detection. Pedestrian activation occurs when the pedestrian pushes the button. Passive detection occurs when the waiting pedestrian is sensed through infrared or other types of detectors.

Audible signals corresponding to visual traffic cycles have been developed and used for people who are visually impaired.

Some generators of pedestrian activity warrant special attention to enhance pedestrian safety and ease of crossing:

- Schools, before and after school programs, or centers serving children under 12 with 20 or more children in the program
- Intersections where school crossing guards are assigned
- Elderly housing complexes and senior centers
- Transit stations and major bus stops
- Business districts with heavy motor vehicle and pedestrian traffic
- Complex intersections such as rotaries and intersections with more than 4 legs need special consideration.

TRAILS

NOTE: Recreation and rail-trails work was consolidated under the *TRANSPORTATION ALTERNATIVES PROGRAM* – part of MAP-21

There are a variety of different types of trails, uses of trails and trail designs. Rail corridors may be converted into places for people to walk and bicycle (or reserved for future freight movement).

Placing trails alongside active rail lines can be difficult and usually not allowed by railroad companies. Careful planning to address the location of the trail, separation of the trail from the rail line with fencing or vegetation, posting of no trespassing signs, providing educational material, corridor maintenance and corridor ownership should be taken into consideration. There are several examples of Rails to Trails in New Hampshire, financed by the Transportation Enhancement Program.

INFRASTRUCTURE AND MAINTENANCE

The installation and maintenance of sidewalks and walking paths is often viewed as an additional cost. However, if communities can provide a quality pedestrian environment, trips can be shifted out of autos and into a much lower impact mode. Fewer cars on the road means less money spent on road maintenance and repair, less time wasted in traffic, and lower demand for costly parking spaces and road widening. Eventually, urbanized areas that were not initially built with appropriate pedestrian accommodations end up being retrofitted, and costs can be greater in the long run.

SAFETY

As more and more people walk in the SMPO region, it is important that pedestrians, bicyclists, and drivers remember the appropriate rules, laws, and regulations.

FARMINGTON PEDESTRIAN SAFETY ACTION PLAN

During the fiscal year 2008 Special Planning and Research Grants round, SMPO received a grant to complete a Pedestrian Safety Action Plan for the Town of Farmington. Our goal is to create an inventory of sidewalks in Farmington, analyze the sidewalk and roadway attributes (based on a points system) to create a prioritized list for future projects and make recommendations on how to fund future sidewalk projects. Similar to the Safe Routes to School approach, this would identify areas that have the highest need for improvements based upon current infrastructure and use.

PEDESTRIAN ENFORCEMENT

Enforcing traffic laws and regulating pedestrians, motorists, and other roadway users is a key element for ensuring a safe and healthy walking environment. Enforcement activities can be carried out by community groups, neighborhood associations to law enforcement agencies. Developing partnerships for law enforcement is a key component of a successful and lasting enforcement program.

CITY OF DOVER

In 2007, the Police Department of the City of Dover has initiated a campaign to ensure that both motorists and pedestrians are following laws related to crosswalks in New Hampshire: motorists need to stop for pedestrians in crosswalks and pedestrians need to cross the street via the crosswalk. Police Officers on bicycles will issue violations for motorists and pedestrians that fail to follow the law.

PEDESTRIAN OUTREACH

The NHDOT provides outreach materials through its Bicycle Pedestrian Center activities. Additionally, local running and walking clubs provide outreach to their members and interested people. Two active clubs in the SMPO region include the Rochester Runners and the Seacoast Striders of Durham.

WALK NH

Walk NH was created by the Foundation for Healthy Communities, a statewide non-profit organization, which works to improve health and health care delivery in New Hampshire. During the 2008 *Walk NH Week*, a reported 14,235 walkers from around the state laced up their sneakers and put their best feet forward for health. Schools, businesses, clubs and other groups took part in 1 to 3 mile community walks. Altogether they participated in 102 events, and collectively walked a total of 21,182 miles. Their website and other media encourage New Hampshire residents to participate in walking activities with goals, programs, and events for everyone.

PEDESTRIAN EDUCATION

Education can be a powerful tool for changing behavior and improving safety skills. There are major differences in the walking abilities, behavioral patterns, and learning capacities of different groups of pedestrians and other road users. Children have different physical and psychological abilities than adult pedestrians. Because of this, educational programs need to be tailored to the specific audiences they intend to address and to the behaviors they seek to modify.

BARRIERS

Most rural communities in the SMPO region lack sidewalks and other pedestrian facilities. This not only discourages walking, but it also makes it unsafe for those who do choose to walk.

Beyond the lack of infrastructure, many barriers exist which discourage walking or create unsafe conditions for pedestrians. Land use influences pedestrian travel greatly. New residential development is typically far removed from commercial centers where retail shops, schools, or other community services are located. Even where residential development is adjacent to town centers, the use of cul-de-sacs often means residents need to walk a long distance to reach a destination that might be quite close.

PHYSICAL BARRIERS

Physical barriers consist of partial or nonexistent walking paths, poor quality walking surfaces, nonexistent or inappropriate crossing treatments, high speed traffic, etc. Each barrier presents another level of difficulty for pedestrians.

Auto-oriented strip development that exists on many roads creates an unsafe environment for pedestrians. New commercial developments are typically designed with large parking lots that offer no marked pedestrian access from the street to the building entrance. This requires pedestrians to dodge cars pulling into and out of parking spaces.

PERSONAL BARRIERS

According to the 2002 National Survey of Pedestrian and Bicyclist Attitudes and Behaviors, 1 in 5 adults age 16 or older had not taken a trip by foot during a 30-day period in the summer of 2002. The number one reason by those surveyed was that they were either too busy or did not have the opportunity to walk. The goal of *Walk NH* is to remove these personal barriers and encourage New Hampshire residents to get out and walk for fun and health.

INSTITUTIONAL AND ORGANIZATIONAL BARRIERS

Land use patterns that result in long trip distances influence the ease of walking. Recognizing the benefits of supporting walking improvements and initiatives will help overcome institutional barriers. Communities should educate the public, decision-makers and officials about pedestrian needs. Decision makers and officials should have

plans, polices and engineering guidelines in place to support a safe, accessible and convenient walking environment for their communities.

ENGINEERING BARRIERS

Designing, engineering, operating, and maintaining quality roadways and pedestrian facilities is a critical element in producing a pedestrian-friendly environment. The citizens and businesses should be included in the planning and design of roadway and pedestrian facility plans. Roadway width, number of lanes, traffic speed, traffic volumes, sidewalks, and crosswalks all impact the overall functionality of a road and how it meets its goals of providing access and mobility to all users.

RESOURCES

- NHDOT: www.nh.gov/dot/nhbikeped
- Safe Routes to School: www.nh.gov/dot/bureaus/planning/SRTS_home.htm
- Walk NH: www.walknh.org
- Pedestrian and Bicycle Information Center: www.walkinginfo.org

CHAPTER 8: PUBLIC TRANSPORTATION

INTRODUCTION

In the SMPO region, public and private entities provide a variety of public transportation options. These options include one passenger rail operator, two public bus operators, and one private bus operator. In addition, SMPO is involved with the Alliance for Community Transportation (ACT), a group that is responsible for creating a regional transportation brokerage system for health and human service agencies in the Seacoast region. This chapter describes public transportation services in the region along with SMPO objectives and recommended actions for improving public transit. For the purpose of the 2015 – 2040 Metropolitan Transportation Plan, public transportation is defined as any transportation service provided by either the public or private sector that is available to the general public.

NEED FOR PUBLIC TRANSPORTATION

Public transportation plays an important role in addressing the mobility, traffic, and air quality issues that the SMPO region is facing. Public transportation represents a more efficient use of the existing roadway network, by carrying passengers that might otherwise be driving their own vehicles. A successful public transportation system can remove a significant number of vehicles from the roadways, thus reducing the amount of harmful emissions. Public transportation also plays a key role in the regional economy, providing access to employment for those who do not drive themselves, due to personal choice, age, income, or disability. However, many factors challenge public transportation. Land use patterns, which have emerged in our auto-dominated society, relatively low residential density and separation of land uses, are often incompatible with traditional public transportation, which operates best in an area with high population and development densities and mixed land uses.

REGIONAL PUBLIC TRANSPORTATION GOALS AND OBJECTIVES

REGIONAL PUBLIC TRANSPORTATION GOAL

- Provide public transportation access to employment, housing, services, and recreation for all people regardless of physical limitations or economic status.

REGIONAL PUBLIC TRANSPORTATION OBJECTIVES

- Encourage the coordination and integration of existing modes of transportation and promote the development of new intermodal transportation connections, facilities and services.

- Develop and maintain transportation facilities and services meeting the special needs of the elderly, low-income families, individuals with physical and/or emotional disabilities, and those without access to private automobiles.

- Ensure that all components of the region's transportation system are easy to understand and user friendly.

- Actively promote the expansion, awareness, and use of public transportation instead of single occupancy vehicles.

- Continue to collaborate with the Alliance for Community Transportation to ensure that discussions between non-profit organizations, public transportation providers and residence of the region to encourage coordination of transportation services for the elderly, low-income families, and individuals with physical and/or emotional disabilities.

- Encourage the state and municipalities to provide continuous, dedicated funding assistance for the development of non-highway projects such as public transit, and bicycle and pedestrian facilities.

PUBLIC BUS RESOURCES

COOPERATIVE ALLIANCE FOR SEACOAST TRANSPORTATION (COAST)

The Cooperative Alliance for Seacoast Transportation (COAST) is a public non-profit transit system charged with the task of providing and promoting public transportation in the Seacoast region of New Hampshire and Berwick, Maine. COAST currently provides fixed route service in the region with a mixed fleet of vehicles. COAST is a publicly funded public bus provider for a portion of the study area. Public transportation in the Seacoast/Strafford region has grown significantly in the recent decade (Table 15), but it contributes more than just reducing congestion and providing transportation for. COAST's contribution to economic growth in the region far outweighs its operating expenses. Every

Table 15 - Coast Ridership

Fiscal Year	Ridership
2000	199,976
2001	211,920
2002	212,502
2003	242,235
2004	293,917
2005	316,867
2006	354,433
2007	375,535
2008	398,853
2009	370,068
2010	416,942
2011	461,866
2012	506,514
2013	506,173
Source: COAST	

dollar invested in public transportation like COAST, generates 4 dollars in economic returns[6].

COAST also provides complementary demand response service in accordance with the Americans with Disabilities Act (ADA).

WILDCAT TRANSIT

Wildcat Transit provides three fixed routes for the use of their students, staff, faculty, and general public. Routes 3-5 connect the UNH campus in Durham to Newmarket, Dover, and Portsmouth. Extensive shuttle bus service is also provided on campus and from satellite parking lots to campus. All services are open to the public for a market-based fare. UNH provides a free shuttle for students to connect from the UNH Campus to the Manchester Airport.

INTERCITY BUS RESOURCES

C&J TRAILWAYS

C&J Trailways is an inter-city bus line operating between the NH Seacoast and Boston, serving several points including Dover, Durham, Portsmouth/Pease, Newburyport, Logan Airport, and Boston South Station. The C&J schedule includes up to 23 round trips daily between locations which provide rides for an average of 2000 passengers every day[7]. In downtown Boston, C&J utilizes the South Station Transportation Center, where passengers can connect with other bus lines and passenger rail, serving the entire continental United States. Additional service in Boston is at North Station, complementary to the Downeaster Service. Service at Logan Airport is provided to all passenger concourses.

During August 2008, C&J Trailways opened the operation of a new Transportation Center and Park 'n' Ride facility off Exit 9 of the Spaulding Turnpike, developed by NHDOT. This location will connect with the Portsmouth Transportation Center and Park 'n' Ride facility. These facilities are also serviced by COAST.

[6] COAST data, combined with a study by The American Public Transportation Association (http://www.apta.com/resources/reportsandpublications/Documents/economic_impact_of_public_transportation_investment.pdf)
[7] Data from C&J Trailways

OTHER PUBLIC TRANSPORTATION RESOURCES

In addition to the transportation providers listed above, there are a number of other transportation services available to residents of the Strafford MPO communities. These can most easily be differentiated by type of service provided.

SHUTTLE & TAXI SERVICES

At least twenty companies offer shuttle services between the Seacoast and Logan and Manchester Airports. Both door-to-door service and scheduled pickups at central locations are available. Ten companies also offer local taxi service. A listing of services is available in the *Seacoast Regional Alternative Transportation Guide* online at: http://www.rpc-nh.org/mpos.htm.

SPECIAL POPULATION SERVICES

In Strafford and Rockingham Counties, there are approximately 97 health and human service agencies that provide transportation services. Each program provides transportation to their specific clientele; some provide services directly while others contract for services with other agencies. Specific information about the kinds of services available through human resource agencies in the study area is available in the *Seacoast Regional Transportation Guide* online at: http://www.rpc-nh.org/mpos.htm.

PASSENGER RAIL RESOURCES

THE NORTHERN NEW ENGLAND PASSENGER RAIL ASSOCIATION (NNEPRA)

NNEPRA is a public transportation authority created in 1995 by the Maine State Legislature to develop and provide passenger rail service between Maine and Boston and within Maine. NNEPRA is the steward and manager of the Downeaster Amtrak service, which operates seven days a week all 365 days of the year. Its mission is to develop and manage a quality passenger rail system that meets the transportation needs of our customers, delivers value and enhances economic development within the region we serve.

TRAINRIDERS/NORTHEAST

Prior to the establishment of NNEPRA, a non-profit/volunteer organization, TrainRiders/Northeast formed in 1989 to start the process of bringing passenger rail to Maine. Without these two organizations, passenger rail service at New Hampshire stops via the Downeaster would not be possible. TrainRiders/Northeast offers a unique program for passengers of the Downeaster. On most trips, a volunteer from the

Train Host Program is on board to answer any questions that passengers may have regarding public transportation at their arrival destination.

NEW HAMPSHIRE RAIL TRANSIT AUTHORITY

In July 2007, the New Hampshire Rail Transit Authority was established under RSA 238A. Section 238-A:2 Authority Established states,

> *There is hereby established the New Hampshire rail transit authority which shall be a body both corporate and politic in the state established for the general purpose of developing and providing commuter rail or other similar forms of passenger rail service. It is declared that the purposes of this chapter are public and that the authority shall be regarded as performing an essential governmental function in carrying out this chapter.*

Three representatives are allowed for the SMPO region: one representative each from Dover and Durham (rail station communities), and one from SRPC. Without the New Hampshire Rail Transit Authority, no passenger rail service would be able to operate in New Hampshire.

THE DOWNEASTER

The Downeaster passenger rail service began in December 2001 with four round trips each day from Portland, Maine to Boston. New Hampshire rail stations include Dover, Durham, and Exeter. Today, the Downeaster operates five round trips between Portland, Maine and Boston. 219,805 passengers were served just at the stops in New Hampshire in 2013 (Dover, Durham-UNH, and Exeter)[8]. To supplement service, C&J Trailways operates one round trip bus between Downeaster Stations in Dover, Durham, Exeter, and Boston's North Station.

THE NEW HAMPSHIRE RAILROAD REVITALIZATION ASSOCIATION (NHRA)

While not directly related to the SMPO region, this is an important rail resource for the State of New Hampshire. The NHRA is a non-profit organization formed to bring commuter rail service from the Boston region to the Cities of Nashua, Merrimack, Manchester, Hooksett, and Concord that will be known as the Capital Corridor. Additional plans for the future include passenger rail service:

Boston-Montreal High Speed Rail - Designated as a High Speed Rail Corridor, this major international project would connect the two metropolitan regions along with

[8] Data from NHDOT, 2014

New Hampshire's central cities of Concord, Manchester, and Nashua. The NHRRA aims to jump-start the project regarding this corridor, getting Phase II of the study going.

Manchester & Lawrence Corridor - Aim to restore passenger and freight service along this line in preparation of the widening construction of Interstate 93.

Conway Branch Restoration - Bringing back freight and passenger opportunities along Route 16 in the Conway area, with a possible connection to Portland, Maine north of North Conway.

Newburyport-Kittery Commuter Rail - An extension of commuter train service from Newburyport, Mass. up through Hampton and Portsmouth to Kittery, Maine.

Haverhill-Plaistow Commuter Rail – An extension of commuter train service from Haverhill, Mass. up into Plaistow, New Hampshire and beyond; possibly to Rochester.

PUBLIC TRANSPORTATION ISSUES

Several major issues affect the quantity and quality of transit service in the Seacoast. The most significant of these are funding related. Efforts continue to find creative solutions to transit challenges. Increasingly, we are seeing private niche transit services spring up in response to demand. The MPO works with private transit providers and strongly encourages public-private partnerships in transit.

FUNDING

Limited federal, state and local funding has been and will continue to be a major limiting factor in the implementation of public transportation projects in the region. COAST and other transit systems in New Hampshire have difficulty in securing adequate nonfederal matching funding to allow them to access FTA funding allocated to the region.

Most states in the U. S. have designated funding sources for financing transit within their boundaries (e.g. gas tax, vehicle registration tax, tire tax, lottery tax, turnpike tolls, sales tax, license plate fees, cigarette tax, motor vehicle excise tax, air emissions fee and others.) In New Hampshire, state courts have interpreted the Constitution to limit use of state gas tax and vehicle registration funds to roads. To date, the state provides only limited direct grant assistance to transit. Past attempts to create a state transit fund from a set-aside of the Highway Fund have been unsuccessful.

Historically, COAST has relied on voluntary contributions from the local municipalities it serves. COAST calculates and requests a dollar amount from each community, but does not have the authority to require that communities supply the funds. In order for the region to access any increased federal or state funding for public transportation, future local matching funds must be secured.
There are two basic funding options that could be implemented to secure local funding of public transportation in the region: creation of a regional transit authority or implementation of a local or regional transit tax. These options, and all other creative financing methods, should be considered for the long-term financial strength of public transportation both in the Strafford MPO region and statewide.

A **local option fee** for transit could be used to replace the need for general fund appropriations for transit support. Amended RSA 261:153 (HB 648 of 1997) is an example of a local option fee. This law allows municipalities to raise $1 to $5 per vehicle registration. The money would be retained within the community and could be used for a variety of transportation needs. The municipality may choose to spend the money on a local match for transportation infrastructure improvements or to fund transit, bicycle lanes, sidewalks, or road repair. While a limited number of communities have adopted this fee, the 2002 Regional Transportation Survey showed a majority of respondents supporting a $5/vehicle fee if the funding is used for bicycle/pedestrian facilities (81%), and expanded local and regional transit service (57%). Dover and Newmarket have adopted this fee, and uses the proceeds as matching funds for Transportation Enhancement and CMAQ grant applications or for sidewalk improvements. Other communities are considering adoption.

Congestion or transit impact fees, also considered local option taxes, are monetary assessments imposed upon developers to mitigate the impact of their new projects on transit services. In 1991, the New Hampshire Legislature passed legislation formally enabling the use of impact fees in New Hampshire. Impact fees must be limited to capital improvements. Congestion and transit impact fees are justified on grounds that development will exacerbate peak-hour congestion problems and create the need for more public transportation. Therefore, developers pay a fair share of the cost to increase the capacity of the transit (and highway) system.

LAND USE

The SMPO land use patterns range from dense, traditional urban centers to rural towns. Although less dispersed than many developing areas in the United States, our area is becoming increasingly spread out with land uses increasingly segregated. This creates a need for more travel.

Unfortunately, this increasingly dispersed development is not efficiently served by traditional fixed route transit. Increasingly, the regional planning commissions are promoting mixed use and pedestrian friendly development, which is more amenable to transit. Another major issue in the Seacoast area is a growing spatial mismatch of jobs and housing. Job growth has increased in the Portsmouth/Pease vicinity. Population growth, driven by lower cost housing, has occurred in the communities to the north, like Rochester.

MARKETING AND EDUCATION

Marketing and education activities targeted at promoting public transportation can help increase ridership, and thus should be viewed as integral parts of creating a viable and successful public transportation system. Public and private transit operators need to actively promote and advertise their services just as other businesses do with their products. Marketing and education of transit is now playing a larger role in the SMPO region. Effective marketing of transit can influence the future of the service. Transit should be marketed just like any other product.

INTRA-CITY TRANSIT NEEDS

In recent years, there has been a call for increased intra-city transit service, i.e. within the city boundaries. COAST provides a connection between large municipalities in the region like Dover, Rochester, Portsmouth, and Durham but there has been limited ability to get around the city once in it. This has been a problem for transit dependent riders who need to get to locations other than those along the fixed routes. But substantial progress has been made in the past several years. Wildcat Transit's campus shuttle provides these connections in Durham. COAST's Dover Community Routes have initiated such service in Dover, while the city has secured CMAQ federal funding for an expanded downtown transit loop.

COORDINATION OF SERVICES

Coordination of transit services improves the performance of individual transportation providers as well as overall mobility within a region. Coordination strategies range from simple sharing of information to shared route planning, to brokerage systems, to consolidated systems where one agency provides all public transit services in a region. In a brokerage system, one agency serves as a central contact point for trip reservations, scheduling trips on vans run by other agencies. These agencies provide the trips, and then bill the brokerage for the service provided. The brokerage in turn bills funding agencies or funding pools, such as Medicaid, Temporary Assistance for Needy Families (TANF or welfare), FTA funds, etc.

Agencies providing transit services are often reluctant to participate in coordination efforts initially, as they require a change in operations and a reorganization of funding. The tendency is for coordination efforts to start small with a few participating agencies and to grow as other agencies see the system work.

RESOURCES

- NHDOT: www.nh.gov/dot/bureaus/railandtransit/index.htm
- COAST: www.coastbus.org
- Wildcat Transit: www.wildcattransit.com
- C&J Trailways: www.ridecj.com
- NNEPRA/Downeaster: www.amtrakdowneaster.com
- TrainRiders/Northeast: www.trainridersne.org
- NHRRA: http://www.nhrra.org

CHAPTER 9: TRANSPORTATION DEMAND MANAGEMENT

INTRODUCTION

Transportation Demand Management (TDM) is a term for a variety of strategies that increase transportation system efficiency especially during peak travel hours (early morning and afternoon). TDM emphasizes movement of people and gives priority to the use of more efficient modes of travel such as walking, cycling, sharing of personal automobiles, and public transit. TDM is geared toward addressing some of the following problems: increasing energy costs, environmental concerns, and a change in the SMPO's regional demographics.

Transportation systems provide important services to communities. The primary focus of TDM is to affect as many travelers as possible within an area-wide travel system. The goal of Transportation Demand Management is get people out of single occupancy vehicles and using alternatives that provide benefits to the community and the consumer. The following chapter will discuss various techniques and benefits associated with TDM that can be implemented in all aspects of the SMPO region.

The use of alternative modes for commuting travel can be encouraged through the implementation of TDM programs. TDM is a transportation-planning tool aimed at traffic congestion relief and air quality management implemented through the reduction of single occupant vehicle use.

NEED FOR TRANSPORTATION DEMAND MANAGEMENT

Current trends show that growth and sprawl is accelerating demand on the transportation system. Road capacity and connectivity is not keeping pace with growth in travel demands and the necessity for multi-modal transportation options is growing.

The benefits of TDM include reduced congestion, road and parking facility cost savings and more efficient land use patterns. TDM can provide significant savings to consumers by reducing and deferring roadway capacity expansion costs.

REGIONAL TRANSPORTATION DEMAND MANAGEMENT GOALS AND OBJECTIVES

REGIONAL TRANSPORTATION DEMAND MANAGEMENT GOAL

- Encourage the expansion of transportation demand management measures in the region.

REGIONAL TRANSPORTATION DEMAND MANAGEMENT OBJECTIVES

- Work with the Seacoast Commuter Options program to promote membership among employers in the region and secure funding for TDM programs.
- Work with the Seacoast Commuter Options to promote the new regional guaranteed ride home program.
- Work with NHDOT to improve the effectiveness of its rideshare program and identify opportunities for improvements.
- Work to improve transit access from park and ride locations to support greater use of existing facilities.
- Work with the NH Rideshare program and the Seacoast Commuter Options to increase employer competitiveness through participation in the new EPA/FTA Commuter Choice employee benefits program, and ensure that COAST is positioned to participate in the program.

TRANSPORTATION DEMAND STRATEGIES

PARK AND RIDE FACILITIES

The NHDOT is constructing Park & Ride facilities throughout the state, and upgrading facilities that lack amenities such as shelters, telephones, and bicycle racks. People meet at Park & Ride lots to take one car or van to work or meetings. Many Park & Rides also serve as inter-city bus stop locations. The following communities in the Strafford MPO region have Park & Ride lots: Barrington, Dover, Lee.

FLEXIBLE HOURS/COMPRESSED WORK WEEK

Employers can allow their employees to vary the times that they work. This may allow someone to avoid peak traffic times or commute with another co-worker that may live close-by, but with different hours. Compressed workweeks allow employees to work four ten-hour days instead of five eight-hour days to help save time and money commuting to work.

TELECOMMUTING

Telecommuting, offers employees the benefit of staying at or close to home for some of the workweek, thereby eliminating commute trips. Access to high-speed Internet

service can be a key factor in making telecommuting feasible for many employers and employees. High-speed telecommunications infrastructure in the region that will support telecommuting has improved in recent years. Management and supervision concerns related to a dispersed workforce can be a barrier to establishing telecommuting policies for many companies.

TRANSPORTATION DEMAND MANAGEMENT RESOURCES

As people look to cut back in driving due to increased gas prices, there are some alternatives in NH for commuters and employers to consider:

THE NEW HAMPSHIRE RIDE SHARE PROGRAM

The New Hampshire Ride Share Program is a free commuter matching service provided by the New Hampshire Department of Transportation dedicated to finding alternative methods for commuters to travel to and from work. New Hampshire Rideshare uses a computerized matching system to provide commuters with information and assistance about ridesharing and alternatives such as carpools, vanpools, buses and trains.

SEACOAST COMMUTER OPTIONS

Seacoast Commuter Options is non-profit member based organization that works on transportation related issues impacting the greater seacoast New Hampshire area. The goal of the organization is to reduce traffic congestion, improve air quality and facilitate economic development. It offers a number of direct commuter services to employees of their member companies and by working on larger regional issues with the cities and towns in their area.

THE UNIVERSITY OF NEW HAMPSHIRE

The UNH Transportation Policy Committee adopted Transportation Demand Management in June 2001. The rural setting of UNH and the wide geographic dispersion of its faculty, staff and students, means that automobile travel will continue to be the primary method of access to and from campus. At the same time, there is not adequate ways to meet the needs of members of the community whose transportation needs (especially intra-campus) could be more thoroughly served by improved alternative modes of transportation. Many of these alternatives are ultimately less costly, and more effective, than private vehicles and the infrastructure they require.

CHALLENGES FOR TDM EFFORTS IN THE REGION

Many aspects of the American lifestyle and approach to personal mobility contribute to the perception that alternative commute options are inconvenient. Among these is the phenomenon of trip chaining, whereby people typically fulfill several different aims during a single trip (e.g. drive from work to home with stops in between at the grocery store, daycare center, etc.). Nationally, 30 percent of trips leaving work between 4:00PM and 7:00PM are not made directly to home[9]. Also increasingly common are flexible work hours of some kind, including staggered shifts, flextime, and compressed workweeks.

All these trends affect ridesharing and other TDM measures. Trip chaining can be substantially more difficult using carpools, vanpools or transit, particularly if the bus has infrequent service. Flexible work hours help to spread out the demand for peak hour travel, but they can also create challenges for efforts to match individuals for carpools or vanpools. Working parents with children who are used to having access to a car for potential emergencies are often reluctant to give that up, though regional guaranteed ride home programs address this concern effectively.

In the SMPO region, additional factors make alternative commute options more difficult than in larger urban areas. One reality is that there are few disincentives to single occupancy vehicle commuting. Most major employers have enough free parking to accommodate their employees. The SMPO region lacks the transit infrastructure of a mature, densely populated urban area, making that option available to a limited number of workers, and attractive to an even smaller number, given the limited transit schedules. Finally, the dispersed nature of the region's population and employment sites means that ride matching is not easily accomplished.

Despite these obstacles, recently secured funding for express commuter bus service on the Spaulding Turnpike, and establishment of a regional TMA offer hope that TDM can become a more attractive option for some companies and some individuals. Companies that provide flexible work hours can give their employees an advantage as employees can tailor their work schedules to the alternative commute options that are available to them. Flexible schedules in and of themselves are a TDM strategy, to the extent that they include elements like compressed work weeks and telecommuting. Over 68 percent of respondents to the 2002 Regional Transportation survey indicated that they would make use of such programs if they had access to them. Seventy five percent of respondents indicated that expanded transit service would be somewhat or very likely to lead them to try an alternative commute. Many respondents (65 percent) were also very positive about the concept of a guaranteed ride home program, which gives all

[9] 1995 Nationwide Personal Transportation Survey, FHWA

participating alternative commuters quick access to a ride or vehicle in an emergency situation.

TDM efforts should be concentrated on companies and areas that have reasons for pursuing alternative commute programs, such as a parking shortage or lowering commute expenses. In addition, incentives like guaranteed ride home programs are probably necessary to overcome the concerns and reluctance associated with alternative commuting.

NEED FOR INCREASED MARKETING OF TDM

Marketing existing alternative commute options can be a cost effective way of encouraging greater use of alternative modes and Park & Rides. The loss of commuter bus service in the NH Route 125 corridor can in large part be attributed to a lack of marketing to make residents aware of the option. In the SMPO region, the MPO and the State Rideshare Coordinator can and should increase marketing efforts related to TDM. Past efforts have included the dissemination of New Hampshire Rideshare material to town halls and libraries, SMPO employer outreach effort, and the state rideshare program's Commuter Choice Leadership Initiative outreach efforts.

At the heart of the SMPO transportation planning process is the dilemma of providing adequate infrastructure to meet demand while at the same time making wise environmental and fiscal decisions. TDM measures offer the hope of partly resolving this dilemma by reducing the number of vehicles on our highways and roads through more efficient use of them.

The widespread use of TDM measures has not taken place. However, a relatively small investment in making people aware of these options and providing some incentives for their use offers commuters the opportunity to try TDM measures and may play a role in maintaining the viability of our transportation system.

REDUCED TRAFFIC TRIPS AND CONGESTION

The most fundamental benefits of TDM is the ability to discourage single-occupancy vehicles for options that provide multiple people transportation options that are not centered around private vehicle ownership.

Table 16: Scenario A Car Trips

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	TOTAL
PERSON 1	X	X	X	X	X	5
PERSON 2	X	X	X	X	X	5
PERSON 3	X	X	X	X	X	5
PERSON 4	X	X	X	X	X	5
PERSON 5	X	X	X	X	X	5
TOTAL	5	5	5	5	5	25

In Table 10: Scenario A, five people live near each other and work for the same organization. To travel to and from work each day, they travel separately in their own automobiles. The five people make five separate round trips, (home-to-work and then from work-to-home) to the same organization each workday. This results in a total of twenty-five separate round trips per week.

In Table 11: Scenario B, the same five employees that live near each other take turns driving to and from work. Since there are five workdays and five employees, they will each drive one day per week. Unlike the twenty-five trips that were produced from Scenario A, only five trips were required for Scenario B.

Table 17: Scenario B Car Trips

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	TOTAL
PERSON 1	X					1
PERSON 2		X				1
PERSON 3			X			1
PERSON 4				X		1
PERSON 5					X	1
TOTAL	1	1	1	1	1	5

Instead of driving personal automobiles, like Scenario A and Scenario B, Scenario C provides a van that the five employees will use to travel to and from work. One person stores the van at their home and will pick up the other people on their way to work. In this scenario, an additional three people can become involved, since the van holds seven people plus the driver. For the eight people to drive on their own to and from work during a five-day workweek, forty trips are needed. In this scenario, five van trips will move the eight employees for the five-day workweek, saving thirty-five trips.

EMISSIONS REDUCTION

Emissions from automobiles vary by model and year of the vehicle and the amount of gasoline needed to operate the automobile. Fewer vehicles on the road generally mean less emissions being sent into the air.

IMPROVED HEALTH/FITNESS

Bicycling or walking to work versus driving to work gives people the opportunity to stay in shape while keeping their costs down and reducing pollution. However, there needs to be the opportunity to bicycle or walk to work. Many people within the SMPO region do not have the ability to bicycle or walk to work as their commute to work involves driving on highways or roads without sidewalks or bicycle shoulders.

PARKING SOLUTIONS

Businesses have the opportunity to reduce their parking costs when employees carpool and use alternative methods to reach the office. In the larger cities of the SMPO region, employers may have to pay for the employees parking or the employee pays for their own parking. However, there will not be cost-savings for those businesses that already have parking lots that they own or lease along with the building.

RESOURCES

- Seacoast Commuter Options: www.seacoastcommuteroptions.org
- NH Rideshare Program: www.nh.gov/dot/nhrideshare
- The University of New Hampshire: www.unh.edu/transportation/programs

CHAPTER 10: INTELLIGENT TRANSPORTATION SYSTEMS

INTRODUCTION

Intelligent Transportation Systems (ITS) began with the federal establishment of the Intermodal Surface Transportation Efficiency Act (*ISTEA*) of 1991. *ISTEA* jumpstarted the first program geared toward the research and development of ITS technologies. In addition to research and development, the program included experimental tests and various methods of facilitating the implementation of ITS into transportation infrastructure.

NEED FOR INTELLINGENT TRANSPORTATION SYSTEMS

The need for Intelligent Transportation Systems (ITS) was first realized through the growing number of transportation related problems caused by increased mobilization, urbanization and changes in population density. These issues eventually led to increased traffic congestion that in turn led to increased fuel consumption and air pollution. In response to these concerns, the U.S. Department of Transportation (USDOT) began to establish initiatives geared toward improving transportation safety and congestion management. ITS represent a broad range of electronic technologies that when integrated into transportation infrastructure have the ability to improve safety, efficiency and overall productivity in everyday life.

According to NHDOT, in 2011 there were 90 people killed in motor vehicle accidents across the state, which represents a 21% decrease from 2006. almost 41,000 reported crashes in the State of New Hampshire. Crashes and fatalities have been stedily declining over the decades, but NHDOT continues to take a "one death is too many" approach to improving traffic safety. By integrating ITS in hazardous traffic areas, the potential to reduce the total amount of crashes becomes more possible. Knowing which technologies to use and where to integrate them can be challenging but is absolutely crucial in optimizing the way we travel from place to place.

REGIONAL ITS GOALS AND OBJECTIVES

REGIONAL ITS GOAL:

- Support, through planning and programming, the installation, operation, upgrading, and timely maintenance of system infrastructure, including regional Intelligent Transportation Systems (ITS) plan that will implement safe practices for drivers within the region.

REGIONAL ITS OBJECTIVES:

- Utilize new technologies and strategies to reduce congestion and improve traffic flow.
- Periodically revisit and revise the Strafford-Rockingham Region ITS Architecture and the IT Strategic Plan.
- Designate SRPC and RPC as the joint custodial agencies of the Seacoast Regional ITS documents.
- Appoint a staff-level ITS Coordinator within both SRPC and RPC to act as a day-to-day contact and liaison regarding regional ITS coordination issues.
- Establish a standing Regional ITS Coordination Committee to meet periodically to provide guidance on ITS Architecture revisions and other issues.
- Promote systematic ITS review within the regional transportation planning process.
- Work with regional and statewide partners in the evaluation and endorsement of regional ITS standards.
- Establish a mechanism for both interim Architecture modifications, as needed and periodic comprehensive reviews, approximately every four years.

INTELLIGENT INFRASTRUCTURE

According to the USDOT's Research and Innovative Technology Administration (RITA), ITS can be broken down into two categories: Intelligent Infrastructure Systems and Intelligent Vehicle Systems. Listed below are Intelligent Infrastructure Systems.

ARTERIAL MANAGEMENT

Arterial Management Systems assist in controlling traffic flow along arterial roadways through various methods of communicating messages to drivers. These systems utilize:

- Traffic surveillance technologies such as cameras or sensors that monitor and control traffic flow, traffic signal priority (which can be based on the surveillance systems).
- Lane management in work zone areas. These types of systems also utilize various methods of information dissemination in order to alert drivers of the road conditions ahead, such as variable message boards and speed limit signs.

FREEWAY MANAGEMENT

Freeway management systems utilize many of the same technologies that arterial management systems use except that they are integrated into a highway infrastructure rather than an arterial infrastructure. The two major components of freeway management systems are monitoring and control.

- Monitoring Freeway Management Systems utilizes sensors, detectors, and surveillance cameras in order to observe and manage real-time incidents on highways. This is crucial in minimizing congestion time in the case of an accident or emergency.

- Control Freeway Management Freeway Systems use technologies such as ramp meters, variable message boards, and traffic interchange signals which all help to manage the flow of traffic and minimize congestion. Ramp meters assist in coordinating traffic signals at on/off ramps helping to relieve congestion time during peak hours of traffic.

TRANSIT MANAGEMENT

Transit management systems are those technologies that help improve transit efficiency, which in turn can help to encourage intermodal and public transportation. Transit management systems utilize automated vehicle location (AVL), computer-aided

dispatch, and, as is the case with many of these intelligent infrastructure systems, incorporate surveillance cameras for the safety of the driver and passengers. Improving transit efficiency can play a very large role in minimizing traffic congestion across the entire transportation network. The increased use of public transit may lead to a decrease in the total number of vehicles on the road decreases.

INCIDENT MANAGEMENT

Incident management systems can assist in improving the response time of emergency vehicles to the scene of an accident or emergency. These systems will work with Arterial and Freeway Management Systems in order to allow emergency vehicles to get to the emergency scene more quickly, but also to manage the flow of normal traffic through or around the emergency scene. Incident management systems add a very dynamic, but also vital, role to ITS technologies. These systems include:

- Surveillance Cameras
- Automated Vehicle Location
- Computer Aided Dispatch
- Response Routing for Emergency Vehicles
- Portable Variable Message Boards
- Video Imaging to Record an Incident for Later Analysis

EMERGENCY MANAGEMENT

Emergency management systems are similar to incident management systems except that they can take on large-scale emergencies such as hazardous waste management or evacuation operations. In addition to those technologies used in incident management systems, emergency management systems also involve intense inter-agency planning. This is one of the categories of ITS that depends largely on the human element in order to work at its maximum efficiency level. Without the contingency efforts of each contributing agency, these systems would be less effective in the case of a large-scale emergency.

ELECTRONIC PAYMENT AND PRICING

These systems incorporate more efficient methods of paying tolls, parking fees or transit fares. The most common type of technology used as a payment method is some form of electronic device or card that will automatically bill the user depending on what he/she is paying for. EZ Pass is a popular method used today for quicker toll transactions on toll roads. The driver is sent a monthly bill with the total amount of toll fees that he/she is responsible for. This form of payment helps in minimizing toll congestion and hazardous air pollution that is created by idling vehicles. Variable pricing methods

also play a role in these systems by changing toll rates based on the number of vehicles using the road at any given time of day. These variable pricing methods help to encourage public transit and the use of other roadways. They can also help to increase toll revenues, which in turn increases the amount of money spent to improve road conditions and possibly fund other ITS applications.

TRAVELER INFORMATION

Providing drivers with up-to-date road-related information can greatly improve a person's travel time and safety. This traveler information can be found through websites, television, radio and also telephone hotlines.

New Hampshire is currently running and developing their NH 511 website which allows drivers to view road closures, road conditions, vehicle crashes, and other transportation related information across the entire state. This information can be provided through ITS technologies such as surveillance cameras and road sensors. (http://www.nh.gov/dot/511/index.htm)

INFORMATION MANAGEMENT

This category involves the archiving of ITS data. Through the collection of ITS data, analyses can be conducted to improve future ITS applications. This data can either be collected by the ITS device or by the local or state transportation operations center. In New Hampshire, ITS data is collected and analyzed at the Transportation Management Center located in Concord, NH. Being able to archive transportation data is important in monitoring trends in transportation data. Much like a meteorologist studies climate trends to predict the weather, so can a transportation analyst study and predict transportation trends.

CRASH AND PREVENTION SAFETY

Crash prevention and safety infrastructure systems help to ensure drivers are informed of any possible hazard that they may be approaching on the road ahead. These technologies typically involve signs and message boards that can disseminate warning information to drivers. Examples of information that may need to be broadcasted to drivers would include pedestrian crossings, railroad crossings, bicycle crossings and even infrared sensors that can detect if animals are near or crossing the road.

ROADWAY OPERATIONS AND MAINTENANCE

Keeping highway workers safe is the main basis for these types of ITS technologies. Making these work zones known to oncoming drivers is the first step in keeping

workers safe. This is accomplished through the use of variable message boards that can inform drivers as to which lanes are closed as well as the speed limit through the work zone. Other technologies used in this category include the use of fleet management systems. Automated vehicle location, computer-aided dispatch, and handheld computers are just some of the technologies used in these types of systems to improve fleet and asset management.

ROAD WEATHER MANAGEMENT

Managing traffic and road conditions in bad weather has always been a challenging task. However, ITS technologies have been implemented and proven useful in regards to road weather management. Applications include:

- Monitoring/forecasting of roadway and atmospheric conditions.
- Dissemination of information to drivers through variable message boards/speed limit signs.
- Anti-icing systems on bridges.
- Automated vehicle location to improve response time for plow trucks and other road management vehicles.

COMMERCIAL VEHICLE OPERATIONS

Commercial vehicle operations utilize ITS in order to improve communication and efficiency between transportation providers and regulatory agencies. Keeping commercial vehicle operations moving safely and efficiently would greatly reduce travel time while at the same time reducing the amount of air pollution emitted from these commercial vehicles. Some technologies include:

- Electronic Permitting/Registration
- Electronic Inspection/Screening of Vehicles
- Electronic Dissemination of this Information to Regulatory Agencies

INTERMODAL FREIGHT

As was the case with Commercial Vehicle Operations, Intermodal Freight is another commercial category that can benefit from ITS. Examples of technologies being used are container transponders used to track and identify containers ensuring proper delivery locations and times, surveillance cameras to improve security at large freight yards and ports, automated systems and robotics to improve container movement, and electronic tax revenue transactions to reduce delays when crossing international borders. Improving our shipping and freight movement capabilities using safer, more

efficient, and more secure methods plays an integral part in reducing fuel and other costs associated with the large amount of freight moving through the U.S. every day.

INTELLIGENT VEHICLES

Vehicle Integration Systems are those ITS technologies that can be integrated directly into vehicles to provide drivers with resourceful methods for traveling efficiently and safely.

COLLISION AVOIDANCE SYSTEMS

Collision Avoidance Systems can serve a number of different functions. Many of these systems deal with sensors that either monitor a vehicle's speed or surroundings. These include systems ranging from cruise control systems to advanced vision enhancement systems. Some of the newer types of cruise control include adaptive cruise control accounting for the vehicles that are traveling around you. Collision avoidance systems also include automated truck rollover systems. Driver drowsiness systems have also been created in order to warn drivers when they might be getting too tired to drive. These systems utilize computer visioning technology as well as sensors that detect when the vehicle is moving in and out of lanes. However, these more advanced systems can be costly due to the amount of integration involved with the road infrastructure. Some may argue that these systems may cause a sense of security that allows the driver to take his/her attention off the road, but when used properly these types of technologies can greatly improve efficiency and safety on the road.

DRIVER ASSISTANCE SYSTEMS

Numerous intelligent vehicle technologies exist to assist the driver in operating the vehicle safely. Systems are available to aid with navigation, while others, such as vision enhancement and speed control systems, are intended to facilitate safe driving during adverse conditions. Other systems assist with difficult driving tasks such as transit and commercial vehicle docking.

COLLISION NOTIFICATION SYSTEMS

Collision Notification Systems have been developed as a way of increasing the response time for emergency services to react to an accident. This equipment will notify local police and medics as soon as the vehicle has detected a problem such as an airbag being deployed or if damage has been done to the vehicle. The driver or passengers can also activate these systems manually if there is some other type of emergency where law enforcement or medics would have to be notified. These technologies are currently in

use in some cars, most notably the "OnStar" system. OnStar services range from hand-free calling and diagnostic checks to automatic and manual emergency notification.

STATEWIDE ITS PLAN AND ARCHITECTURE

In February of 2006, Edwards and Kelcey Inc. out of Manchester, NH produced the New Hampshire Statewide ITS Architecture and Strategic Plan. The projects identified in the plan were developed without considering fiscal constraint. Actual deployment of these systems will be determined after a phase-based approach is implemented to consider factors such as the needs of the stakeholder organizations, funding availability, and technology requirements.

STRAFFORD-ROCKINGHAM REGION ITS FINAL REPORT

In March 2008, the SMPO received their Strafford Regional ITS Architecture and Strategic Plan. This plan was prepared by IBI Group out of Boston, MA and assesses the ITS needs of the region. The plan was completed in conjunction with the Rockingham Planning Commission because the two planning commissions were previously a joint Metropolitan Planning Organization. Below are a list of short, medium, and long-term projects listed in the plan. These projects are only a preliminary list of developments that could help improve transportation throughout the planning region. A complete copy of the plan can be found at the Strafford Regional Planning Commission's website (www.strafford.org).

STRAFFORD-ROCKINGHAM REGION ITS STRATEGIC PLAN

The *ITS Strategic Plan* recommends specific, project-based initiatives for implementing the *Strafford-Rockingham Region ITS Architecture*, which provides an overall logical framework for ITS implementation in the region. The *ITS Strategic Plan* and the *Strafford-Rockingham Region ITS Architecture* document, taken together, provide a roadmap for coordinated ITS deployment in the region.

STRAFFORD-ROCKINGHAM REGION ITS ARCHITECTURE

Working with regional stakeholders, the following mission statement was developed to define the mission of this regional ITS architecture:

> "In order to enhance the region's transportation safety, security, mobility, and performance; stakeholders in the Strafford-Rockingham region will apply advanced technologies and systems to improve interagency coordination and create opportunities for seamless integration of transportation services, both within the region and with adjacent regions."

Consistent with the region's transportation goals, the goals for this architecture are to:

- Improve safety
- Improve security
- Increase efficiency
- Improve coordination
- Improve mobility/ accessibility
- Improve traveler information
- Improve economic prosperity/livability
- Reduce environmental impacts
- Maximize investment value

PROPOSED REGIONAL ITS PROJECTS

The following short-term, medium-term, and long-term ITS Projects were proposed at several stakeholder meetings and are based on available ITS Market Packages.

PROPOSED SHORT-TERM REGIONAL ITS PROJECTS

- AM01 – Salem Route 28 Corridor ITS Project (Phase I)
- FM01 – Rebuilding I-93: ITS Deployments
- FM02 – I-95 ITS Deployments
- **FM03 – Spaulding Turnpike Widening (Phase I)**
- **FM04 – Spaulding Turnpike Widening (Phase II)**
- IEC04 – Bridge Security Surveillance And Interagency Video Exchange
- IEC05 – Region-to-TMC Communication Backbone
- IEC06 – Interstate TMC Coordination

PROPOSED MEDIUM-TERM REGIONAL ITS PROJECTS

- AM02 – Salem Route 28 Corridor IS Project (Phase II)
- EM01 – Regional Portable VMS
- **EM03 – Route 4 Incident Reporting**
- FM05 – Open Road Tolling Study
- **IEC01 – SRPC Data Warehouse**
- IEC02 – RPC Data Warehouse
- PT01 – ITS Support Plan for Regional Health Human Services Transportation Brokerage
- PT02 – Park-And-Ride ITS Improvements

- PT03 – Regional Transit ITS Procurement Coordination

LONG-TERM REGIONAL ITS PROJECTS

- AM03 – Portsmouth Woodbury Avenue Signal Coordination
- **AM04 – Dover Central Avenue Signal Coordination**
- AM05 – Route 1 Bypass Signal Coordination
- AM06 – Route 125 Signal Coordination (Plaistow)
- AM07 – Route 125 Signal Coordination (Epping)
- EM02 – Route 1A Evacuation ITS Improvements
- IEC03 – Route 125 And Interstate 495 Interchange Cross-Border ITS
- IEC06 – Interstate TMC Coordination

RESOURCES

- U.S. Department of Transportation, Research and Innovative Technology Administration. (RITA): www.its.dot.gov/index.htm
- National Highway Traffic Safety Administration (NHTSA): www.nhtsa.dot.gov
- New Hampshire Highway Safety Agency: www.nh.gov/hsafety/hsstatrpts.html
- New Hampshire Department of Transportation: www.nh.gov/dot www.nh.gov/dot/511/index.htm

CHAPTER 11: ALTERNATIVE FUELS

INTRODUCTION

Alternative fuels identified by the United States Department of Energy, Alternative Fuels and Advanced Vehicles Data Center include: biodiesel, electricity, ethanol, hydrogen, methanol, natural gas and propane. Many of these fuels are less harmful to the environment, come from renewable sources, and originate within the United States or North America. The development of alternative fuels is important for the future as it is predicted that the United States eventually will run out of non-renewable fossil fuels.

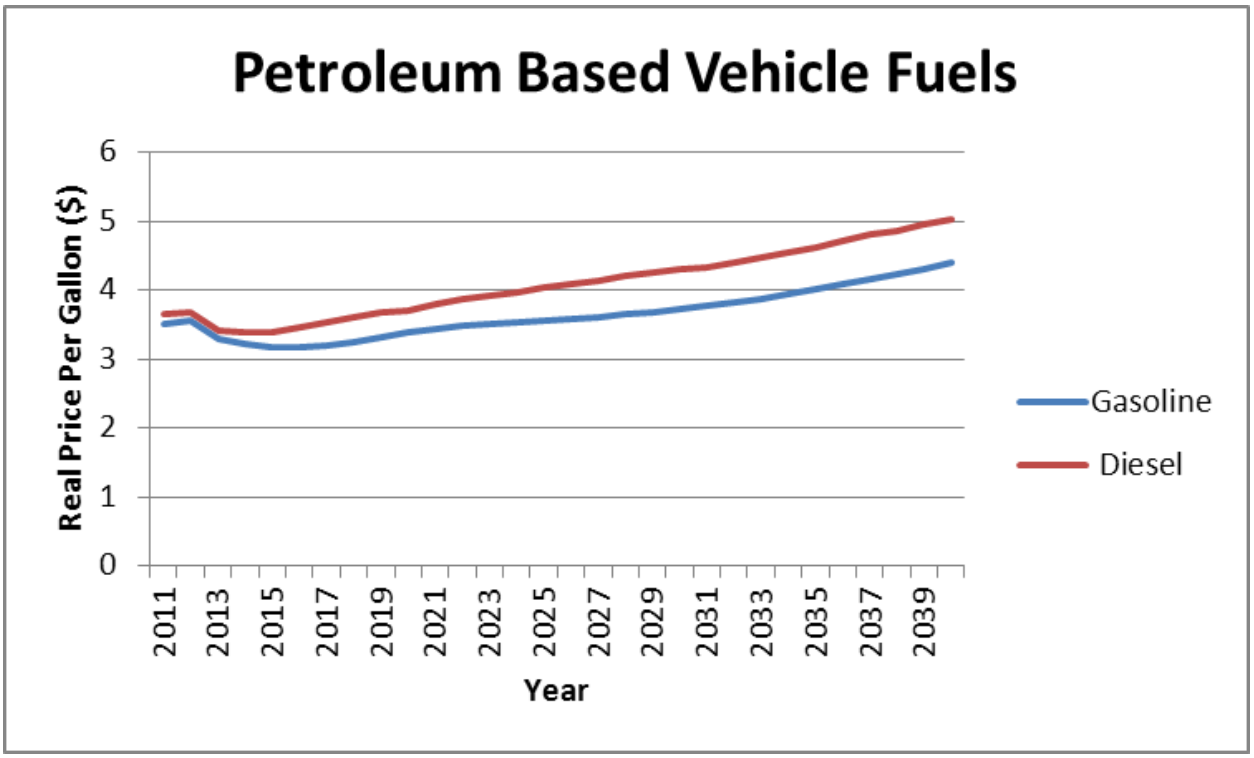
Rising fuel costs, air pollution and climate change concerns, and the regional and local economies will drive the alternative and renewable fuels industry. New and improved alternative fuel vehicle technologies are emerging and as the price of petroleum continues to rise, these new technologies will become more cost effective and cost-efficient. These fuels will not replace a substantial portion of the fossil fuel base for years to come and every effort should be made to reduce petroleum use through other forms of transportation. In the transition to alternative vehicle technology, sustainable planning strategies are needed to meet the changing infrastructure demands for alternative fuels.

The following chapter will identify the advantages, disadvantages, and infrastructure needs of known alternative fuels, including those that are presently available in New Hampshire and the Seacoast region. The Alternative Fuels chapter will identify regional and state goals and objectives that will be used to support the use of alternative fuels. In addition, new programs and funding opportunities will be identified for economic sectors of the Strafford Metropolitan Planning Organization (SMPO) to assist with implementation of alternative fuels, i.e. municipalities, schools, freight operators, rail operators, private industries, and individuals.

NEED FOR ALTERNATIVE FUELS

As a nation, our dependence on fossil fuels is at an all-time high and can be seen in the recent increasing prices of gasoline and diesel on a weekly, even daily basis. *Figure 6* is a simple and effective way of illustrating our need for alternative fuel options and the need to reduce our fossil fuels consumption. It is important to remember that the price of fuels plays an important role in the strength of the economy. One consequence of higher fuel prices is the higher costs of food prices, which ultimately affects the average consumer.

Figure 9: Petroleum-Based Vehicle Fuel Prices



Source: The U.S. Energy Information Administration, Annual Energy Outlook 2014

Six out of the eighteen communities located within the SMPO are located in an ozone non-attainment region. This essentially means that the region's air quality does not meet the nation's ozone standards. Our region is closely monitored with the goal that ozone standards will improve with mitigation and conservation practices. One way of improving air quality and ozone standards is to implement the use of alternative fuels in the region.

ALTERNATIVE FUELS GOALS AND STRATEGIES

ALTERNATIVE FUELS GOALS

- Encourage the use of alternative fuels and fuels systems in the region to reduce consumption of non-renewable energy sources.

ALTERNATIVE FUEL STRATEGIES

- Educate the public on the various federal and statewide initiatives available to purchase alternative fuels and fuel systems.

- Educate the public and freight operators about techniques and methods used for fuel conservation for automobiles and freight trucks.

- Promote the use of transit, walking, and transportation demand management strategies as one way of reducing fossil fuel consumption.

- Expand alternative fuels infrastructure so that alternative fuel vehicles can be a viable option for the public.

- Collaborate with the Granite State Clean Cities Coalition and other agencies to ensure that the region is using alternative fuels and fuels systems that are consistent with the remainder of the state.

- Work with the region's universities, public schools, hospitals, communities, and public works departments to implement strategies that encourage the use of alternative fuels and fuels systems.

- Promote the use of alternative fuels and fuels systems in public transportation, freight, aviation, and other modes of transportation.

- Encourage projects and programs that use low-polluting fuels and engine technology in transit vehicles and vehicle fleets.

- Implement anti-idling policies at public schools, municipal buildings, and public spaces to reduce fuel used and to promote healthy air and ozone quality in the region.

BIODIESEL

Biodiesel is a clean burning alternative fuel, produced from domestic and renewable resources. Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics. Biodiesel can utilize domestic renewable resources such as vegetable oil or animal fat and burns cleaner than ultra-low sulfur petroleum diesel. Biodiesel contains no petroleum, but it can be blended with varying amounts of petroleum diesel to create a biodiesel blend. The more common blends consist of 20 percent biodiesel and 80 percent diesel, or B20, as well as B5, which is only 5 percent biodiesel. It can be used in diesel engines with little or no modifications. Biodiesel is made through a chemical process called trans esterification whereby the glycerin is

separated from a variety of fats or vegetable oils. The process results in two byproducts: methyl esters (chemical name for biodiesel) and glycerin (may be sold to be used in soaps and other products).

BIODIESEL VEHICLES

Today's diesel vehicles, both light and heavy duty, are considered to be clean burning vehicles because they run on ultra-low sulfur petroleum diesel fuel. However, this diesel fuel is purchased from foreign sources, and more importantly, contributes a large amount of air pollution due to its large-scale use. In addition, diesel vehicles remain in service, sometimes as long as thirty years, so the transition to newer, lower emission technology is slow. Diesel engines can run on either fuel type with little or no engine modifications.

BIODIESEL ADVANTAGES

- Biodiesel fuel is a renewable resource and domestically available.
- Diesel engines are more efficient and more durable than gasoline engines

BIODIESEL DISADVANTAGES

- Older diesel vehicles are still emitting high amounts of particulate matter and other pollutants.
- 100 percent biodiesel use is not well suited for cold-weather climates.

BIODIESEL INFRASTRUCTURE NEEDS

Individuals in New Hampshire are increasingly using Biodiesel in fleets. Fortunately, as long as biodiesel is made to specification (ASTM D6751) and blended at the 20 percent level (B20), there are no major modifications needed to the engine. A number of fuel distributors across the state carry biodiesel at their diesel fueling stations.

Figure 10: Biodiesel Fueling Stations in the Seacoast Region

CITY/TOWN	NAME	TYPE OF ACCESS
Durham	University of New Hampshire	Private – Government Only
Newington	Pease Air National Guard Base	Private – Government Only

Figure 11: Biodiesel Fueling Stations in New Hampshire

CITY/TOWN	NAME	TYPE OF ACCESS
Antrim	Rymes Propane & Oil	Public
Greenfield	Rymes Propane & Oil	Public
Jackson	Wildcat Service Station	Public
Keene	City of Keene	Private – Government Only
Keene	Rymes Propane & Oil	Public
Loudon	Rymes Propane & Oil	Public
Peterborough	Rymes Propane & Oil	Public
West Chesterfield	Fleming's Shell Convenience Store	Public

NATURAL GAS

Natural gas is available for transportation in two forms: Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG). More than 99 percent of the natural gas used in the United States comes from domestic or other North American sources. Compressed Natural Gas is natural gas under pressure that remains clear, odorless, and non-corrosive. To store more energy onboard a vehicle in a smaller volume, natural gas can be liquefied. To produce Liquefied Natural Gas, natural gas is purified and condensed into liquid by cooling to -260°F (-162°C). Liquefied Natural Gas fuel systems typically are used with heavy-duty vehicles. The Energy Information Administration (EIA) predicts that, by 2025, more than 15 percent of our natural gas supplies will be imported from countries other than Canada and Mexico. However, new sources of natural gas have been developed including the use of landfill gas and natural gas from shale. These sources are not included in the EIA predictions.

NATURAL GAS VEHICLES

Natural Gas Vehicles are designed to run on either Compressed Natural Gas or Liquefied Natural Gas. The Natural Gas Vehicles' counterpart, the Bi-Fuel Vehicle, runs on a combination of natural gas and propane. Testing has proved that Natural Gas Vehicles are more efficient as it is designed to run on a single type of fuel rather than a mixture of fuels, which can lead to irregular engine performance. Production of Natural Gas Vehicles has declined in recent years. There are many companies willing to retrofit or convert gasoline-powered engines to natural gas-powered vehicles. Natural Gas Vehicles engines work very much like the conventional gas-powered engine in that energy is produced in combustion chambers through a spark-ignited, fuel injected gas/air mixture.

NATURAL GAS ADVANTAGES

- Produce fewer emissions than standard combustion engines.
- Longer periods between maintenance of Natural Gas Vehicles.
- Some portion of natural gas is domestically produced.

NATURAL GAS DISADVANTAGES

- Driving range is typically less than standard combustion engines due to natural gas' lower energy content than gasoline.

NATURAL GAS INFRASTRUCTURE NEEDS

In order to utilize Compressed Natural Gas or Liquefied Natural Gas vehicles, there must be a fueling infrastructure. Private fleets can make great gains reducing their impact on the environment and help abate climate change by utilizing natural gas. Fleets that return to a central fueling center are ideal for natural gas. Another consideration would be to plan for a corridor of Compressed Natural Gas fueling stations that could accommodate longer range hauling.

Figure 12: Natural Gas Fueling Stations in the Seacoast Region

CITY/TOWN	NAME	TYPE OF ACCESS
Durham	University of New Hampshire	Private – Government Only

Figure 13: Natural Gas Fueling Stations in New Hampshire

CITY/TOWN	NAME	TYPE OF ACCESS
Bow	Grappone Honda	Public
Concord	NH Department of Transportation	Private – Government Only

PROPANE

Propane, or Liquefied Petroleum Gas, is already a commonly used transportation fuel making it a prime target as an alternative transportation fuel. Besides being readily available, propane also has a high energy density and burns much cleaner than gasoline. Propane sold as vehicle fuel can be a mixture of propane with smaller amounts of other gases. According to the Gas Processors Association's, (GPA) HD-5 specifications for propane as a transportation fuel must consist of 90 percent propane, no more than 5 percent propylene, and 5 percent other gases (primarily butane and butylenes).

PROPANE VEHICLES

Propane vehicles operate much like standard gasoline-powered engines. Propane, or liquefied petroleum gas (LPG), can either be injected as vapor or as a liquid depending on the type of engine components. Both types have proven to be similar in performance but some have argued that liquid propane injection supports higher engine durability and starts better in cold-weather conditions. Propane's high octane rating (between 100 and 112 compared with gasoline at 87 to 92) allows for an overall cleaner engine, internally and externally. The aspect of a cleaner engine allows for less vehicular maintenance, an attractive characteristic to many consumers and commercial businesses involved in traveling or delivery services. Lower maintenance costs are the leading reason why propane vehicles are used as fleet vehicles for many companies such as taxi services and public transportation.

PROPANE ADVANTAGES

- Acceleration and cruising speed are similar to standard gasoline-powered engines.
- Longer periods between maintenance of propane vehicles.
- Fewer tailpipe emissions from propane than gasoline.
- Propane is a readily available resource.
- Conversions to propane are relatively cheap and easy to install.

PROPANE DISADVANTAGES

- Declining availability of newly built propane vehicles.
- Propane is less efficient in cold-weather conditions.

PROPANE INFRASTRUCTURE NEEDS

Propane is ideal for some private and government fleet use.

Figure 14: Propane Fueling Stations In The Seacoast Region

CITY/TOWN	NAME	TYPE OF ACCESS
Milton	Milton Hardware	Public
Portsmouth	U-Haul	Public

Figure 15: Propane Fueling Stations In New Hampshire

CITY/TOWN	NAME	TYPE OF ACCESS
Concord	Energy North Propane	Public
Concord	U-Haul	Public
Keene	U-Haul	Public
Lebanon	U-Haul	Public
Manchester	U-Haul	Pubic
Milford	Suburban Propane	Public
Nashua	Bottled Gas Incorporated	Public
Nashua	U-Haul	Public
West Ossipee	Main Gas	Public

ELECTRICITY

Electric vehicles were first produced in the early 1900's but were quickly surpassed when a more cost effective way to produce gasoline was established. In electric vehicles, a battery or other energy storage device is used to store the electricity that powers the motor. Electric vehicle batteries must be replenished by plugging in the vehicle to a power source. Some electric vehicles have onboard chargers; others plug into a charger located outside the vehicle. Both types, however, use electricity that comes from the power grid. Although electricity production may contribute to air pollution, electric vehicles are considered zero-emission vehicles because their motors produce no exhaust or emissions.

Plug-in electric vehicles hold enormous potential in the alternative fuel market. Plug-in hybrid electric vehicles combine the benefits of pure electric vehicles and hybrid electric vehicles. Like electric vehicles, they plug into the electric grid and can be powered by the stored electricity alone. Like hybrid electric vehicles, they have engines that enable greater driving range and battery recharging.

Like electric vehicles, fuel cell vehicles use electricity to power motors located near the vehicle's wheels. In contrast to electric vehicles, fuel cell vehicles produce their primary electricity using a fuel cell. The fuel cell is powered by filling the fuel tank with hydrogen. They produce no harmful exhaust emissions—their only emission is water.[10]

ELECTRIC VEHICLES

There are currently a number of light duty and medium duty electric vehicles on the market with several new models projected for the 2015 model year. Electric vehicles are being produced by many of the major auto companies, and range from the compact Mitsubishi MiEV to the full size Tesla Model S. The options have expanded from compact vehicles to include all electric SUVs and even all electric luxury vehicles. Neighborhood electric vehicles are another option being manufactured by a variety of companies. These small vehicles are commonly used for neighborhood commuting, light hauling, and delivery. Their use is limited to areas with 35 mph speed limits or for off-road service on college campus, airports or resort areas.

ELECTRIC VEHICLE ADVANTAGES

- Electric motors convert nearly 75 percent of their chemical energy into energy used to power the car, making them about 55 percent more efficient than gasoline-powered cars.
- Electric vehicles produce no tailpipe emissions except when the electricity is created at the local power plant. However, if these power plants are solar, wind or hydroelectric power plants then the electric vehicles has the potential to be a 100 percent zero-emission mode of transportation.
- Electric vehicle's can help reduce dependency on foreign energy.
- Electric vehicle's are quieter and require less maintenance than gasoline-powered engines.

[10] US Department of Energy, Alternative Fuels & Advanced Technology Data Center http://www.eere.energy.gov/afdc/vehicles/electric.html

ELECTRIC VEHICLE DISADVANTAGES

- Batteries may be expensive to replace and there have been issues raised about the safe handling and disposal of spent batteries.
- Most electric vehicle's can only travel 150 miles or less and require 4 to 8 hours of battery recharge time, depending on the level of charger available

ELECTRIC VEHICLE INFRASTRUCTURE NEEDS

Clean electricity made from renewable resources would make electric vehicle technology a good choice for charging vehicles while reducing emissions. Typically, plug-in vehicles would charge at off-peak times when there is more electrical power available on the grid.

PLUG-IN HYBRID ELECTRIC VEHICLES

These hybrid vehicles utilize the benefits of both standard hybrid and electric vehicles. Plug-in hybrid electric vehicles (PHEV) are similar to standard hybrids except that they contain an additional battery as well as a generator and/or power split device giving Plug-in hybrid electric vehicles the ability of running purely on electrical power. Basically, Plug-in hybrid electric vehicles are an electric vehicle with an auxiliary gasoline system. They need no outside source of electricity if used as a standard hybrid vehicle because the gasoline engine is able to recharge the internal battery. Studies have concluded that many consumers who own Plug-in hybrid electric vehicles prefer the convenience of recharging their batteries at home rather than refueling at the local gas station as it significantly reduces their energy cost.

PLUG-IN HYBRID ELECTRIC VEHICLES ADVANTAGES

- The owner has the option of using the car either as a hybrid or electric vehicle and therefore has control over energy use and the amount of emissions.
- Zero tailpipe emissions when used as an electric vehicle.
- Driving performance is similar to that of a standard gasoline-powered car when used as a hybrid vehicle.

PLUG-IN HYBRID ELECTRIC VEHICLES DISADVANTAGES

- High initial cost of purchasing a Plug-in hybrid electric vehicles.
- Plug-In Hybrid Electric Vehicles have a limited driving range (depending on the size of the battery) when used as an electric vehicle.
- The price of replacing batteries for Plug-In Hybrid Electric Vehicles is high.

PLUG-IN HYBRID ELECTRIC VEHICLES INFRASTRUCTURE NEEDS

Clean electricity made from renewable resources would make electric vehicle technology a good choice for charging vehicles while reducing emissions. Typically, plug-in vehicles would charge at off-peak times when there is plenty of electrical power on the grid.

HYBRID ELECTRIC VEHICLES

Hybrid electric vehicles utilize the benefits of both gasoline and electric engines. They can be configured to run for better fuel economy, increased power, or for additional auxiliary power for the use of any extra electronic devices onboard. Hybrids include new technologies such as automatic engine start and shutoff, regenerative braking to recycle otherwise wasted braking energy, and electric motor drive assistance that increases engine power when accelerating from cruising speeds. All of these features allow the hybrid to use the least amount of energy or recycle energy where possible, making these vehicles incredibly energy-efficient and one of the "smartest" cars on the road.

HYBRID ELECTRIC VEHICLE ADVANTAGES

- Fewer tailpipe emissions.
- Can recycle otherwise wasted energy.
- Batteries will almost never need replacing.
- Decreased combustion engine sizes allows for a smaller, lighter vehicle, which helps with better fuel economy.
- Less noise due to unnecessary idling time.

HYBRID ELECTRIC VEHICLE DISADVANTAGES

- The cost of a new hybrid is high, especially for their size.
- Hybrids are less powerful in both acceleration and top speed when compared to a standard gasoline-powered vehicle.
- Batteries are large, heavy, and take up necessary cargo space.
- Many local auto shops are unable to service hybrids.

HYBRID ELECTRIC VEHICLE INFRASTRUCTURE NEEDS

The infrastructure for hybrid vehicles is in place. Management of spent batteries has received some media attention as a potential management issue.

ETHANOL (E85)

Ethanol, or ethyl alcohol, is the same alcohol found in alcoholic beverages. Ethanol also makes an effective motor fuel. Much of the gasoline supplied to New Hampshire today contains 10 percent ethanol. Ethanol has a slightly lower energy content than gasoline. That means that about one-third more ethanol is required to travel the same distance as on gasoline. But other ethanol fuel characteristics, including a high octane rating, result in increased engine efficiency and performance. Brazil is the world's leading ethanol producer utilizing its abundant sugarcane plantations to fuel ethanol-powered vehicles in the past few decades. In Brazil, cars can be powered by 100 percent ethanol due to their warm climate. Ethanol-powered cars in colder climate countries need to blend their ethanol with gasoline to ensure a cold weather start. A blend of 15 percent gasoline (proven to be of best efficiency) gives ethanol its name of E85 (being 85 percent ethanol).

There are numerous models of vehicles that can accommodate E85 or regular gasoline. These vehicles are called Flex Fuel Vehicles. Flex Fuel Vehicles have been produced since the 1980s, and dozens of models are currently available. To determine if a vehicle is an FFV, check the inside of the car's fuel filler door for an identification sticker or consult the owner's manual.

METHANOL (M85)

Methanol (methyl alcohol), or wood alcohol, is normally produced from natural gas but also can be produced from coal or biomass crops. Much like ethanol, methanol requires a gasoline additive of 15 percent in order to perform in cold weather climates. Methanol's physical and chemical characteristics offer several advantages as an alternative transportation fuel such as relatively low production cost and a lower risk of flammability compared to gasoline. Methanol can be manufactured from a variety of carbon-based domestic resources, such as coal. Due to the extreme toxicity of methanol and the lack of vehicles able to use methanol, this is not currently a viable motor vehicle fuel, and no major automobile companies are pursuing this technology.

FLEXIBLE FUEL VEHICLES

Flexible Fuel Vehicles are designed to run on a mixture, or blend, of different fuels. Most U.S. auto companies, as well as some foreign car companies, produce flexible fuel vehicles. Typically, these vehicles can run on either 100 percent gasoline or 100 percent ethanol, but are intended to run with a blend of 85 percent ethanol and 15 percent gasoline for more efficient and less expensive travel. Other Flexible Fuel Vehicles can also utilize methanol, natural gas or propane. Unlike natural gas and propane bi-fuel vehicles, Flexible Fuel Vehicles contain a single fueling system (one fuel tank), which is

made up of corrosion-resistant components and is set to accommodate the higher oxygen content of E85.

FLEXIBLE FUEL VEHICLE ADVANTAGES

- Ethanol, methanol, and natural gas are domestically produced and would help reduce dependency on foreign energy sources.
- Produce lower tailpipe emissions and are more efficient than standard gasoline-powered vehicles.

FLEXIBLE FUEL VEHICLE DISADVANTAGES

- Slightly less powerful than normal gasoline engines.
- Utilize alternative fuels that contain less energy than gasoline and therefore require more fuel to travel the same distance as a gasoline-powered engine.

FLEXIBLE FUEL VEHICLE INFRASTRUCTURE NEEDS

Flex fuel vehicles offer an excellent avenue to developing an alternative fuel demand. As fuel prices continue to rise, and alternative fuels are offered, fleets and individuals can take advantage of the flexibility of their engines to use other fuels.

HYDROGEN (H_2)

Hydrogen is the simplest and most abundant element in the known universe. There have been many arguments that hydrogen is dangerous and unstable but there is no doubt about its potential as an important alternative fuel in the near future. In its normal gaseous state, hydrogen is colorless, odorless, tasteless, non-toxic, and burns invisibly. Most hydrogen today is produced from natural gas through a process known as reforming. Reforming separates hydrogen from hydrocarbons by adding heat. Hydrogen can also be produced from a variety of sources including water and biomass, making it one of the world's largest readily available resources. Ford, General Motors and Honda are all developing hydrogen vehicles that will be available in the future.

FUEL CELL VEHICLES

Fuel cells directly convert the chemical energy in hydrogen to electricity, with pure water and potentially useful heat as the only byproducts. Hydrogen-powered fuel cells are not only pollution-free, but also can have two to three times the efficiency of traditional combustion technologies. When hydrogen molecules pass through the membrane the negatively charged electrons are channeled through an external circuit to

produce electricity for the vehicle to run on. Fuel cell vehicles are considered to be in experimental stages and are not expected to reach production until 2010.

FUEL CELL VEHICLE ADVANTAGES

- Virtually no tailpipe emissions when fueled with 100 percent hydrogen except water and heat.
- Driving range is similar to that of a standard gasoline engine, about 300 plus miles.
- Can help reduce foreign dependence on energy.

FUEL CELL VEHICLE DISADVANTAGES

- Cost is very high.
- Limited availability of hydrogen refueling stations.
- When using fuels other than hydrogen, carbon oxides can build up on the fuel cell anode gradually decreasing fuel cell performance.

FUEL CELL VEHICLE INFRASTRUCTURE NEEDS

The fueling infrastructure for fuel cell vehicles is currently developing. Honda is testing a solar powered hydrogen fueling system; and systems using CNG are also being tested.

FEDERAL ALTERNATIVE FUELS PROGRAMS

SMARTWAY TRANSPORT PARTNERSHIP

SmartWay Transport Partnership is another program that helps to establish incentives for fuel efficiency and fewer hazardous emissions. It is a voluntary partnership between various freight sectors and the Environmental Protection Agency (EPA) that helps to provide innovative financing options for purchasing more fuel-efficient vehicles. Their primary goal is to help reduce the use of foreign petroleum and the emission of noxious gasses into the atmosphere.

The State of New Hampshire has various regulations, programs and initiatives regarding alternative fuels and improving fuel economy. Due to the expense of implementing alternative fueling infrastructure, some alternative fuels, such as natural gas, are only practical for large centrally refueled fleets. Other technologies and fuels, such as hybrid vehicles, biodiesel and ethanol, are more available for the light duty vehicles and individual users.

GRANITE STATE CLEAN CITIES COALITION

The largest State program related to alternative fuels/vehicles in New Hampshire is the Granite State Clean Cities Coalition (GSCCC). The GSCCC is part of the national Clean Cities program and was initiated to advance not only energy security but economic and environmental security as well. It is operated by the NH Dept. of Environmental Services (DES) and funded by the U.S. Dept. of Energy (DOE). Their ultimate goal is to reduce the widespread use of and dependence upon petroleum products. Members of the GSCCC include entities from the private sector, government corporations/agencies and also the academic world. Altogether more than 90 different members make up the GSCCC. Some GSCCC stakeholder accomplishments include the use of biodiesel (B20) in the City of Keene, Keene State College, the Cooperative Alliance for Seacoast Transportation (COAST transit), and the University of New Hampshire. The Cranmore Mountain Ski Resort also utilizes biodiesel in their grooming equipment. Keene State College uses 100 percent biodiesel (B100) in their summer landscaping vehicles because the warmer temperatures allow them to run on pure biodiesel. Other alternative fuel vehicles used by GSCCC stakeholders include compressed natural gas (CNG) and electric vehicles used by the State and the University of New Hampshire. In 2006 the entire GSCCC reported a 1 million gallon reduction in petroleum usage from 2005.

CLEAN AIR-COOL PLANET

According to Clean Air-Cool Planet, the organization is *in the business of solving the global warming problem, developing economically efficient and innovative climate policies and mobilizing civic engagement to implement practical climate solutions.* Clean Air-Cool Planet collaborates with universities, private companies, and other civic organizations to find creative ways of reversing the trends of climate change in the Northeast region of the United States. The Office of Sustainability at the University of New Hampshire is involved with Clean Air-Cool Planet.

UNIVERSITY OF NEW HAMPSHIRE BIODIESEL GROUP

The University of New Hampshire has raised the bar with respect to the use of alternative fuels. The UNH Biodiesel Group has been established in order to encourage not only the use of alternative fuels on campus, but also to encourage and educate the public as to the advantages of using these alternative fuels. UNH currently uses biodiesel in most of their Wildcat Transit Buses. In addition to their biodiesel usage the University utilizes small electric vehicles for maintenance around campus such as landscaping projects. These electric vehicles have the capability of producing no hazardous emissions. These electric and biodiesel vehicles are helping to reduce the large amounts of emissions that are produced everyday by large transit fleets.

ALTERNATIVE FUELS VEHICLE PROJECT

The Alternative Fuel Vehicle Project is operated by New Hampshire Department of Environmental Services and funded by Congestion Mitigation Air Quality (CMAQ) funds from the New Hampshire Department of Transportation and the United States Department of Transportation. The project provides funding to help state and municipal fleets purchase alternative fuel vehicles and infrastructure.

THE GRANITE STATE CLEAN CARS

The Granite State Clean Cars labeling program is a voluntary program that enables car dealers to help identify more fuel-efficient and less polluting vehicles. These cars are labeled with a special sticker if they have a fuel economy rating of 30 miles per gallon or more and if they are considered a low-emission vehicle, ultra-low emission vehicle, super ultra-low emission vehicle, or a partial zero emission vehicle.

NORTHEAST DIESEL COLLABORATIVE

The Northeast Diesel Collaborative works with the following sectors to ensure that air quality standards are improving:

- Municipal (school buses, garbage trucks, other public works vehicles)
- Transit (transit buses, commuter locomotives)
- Ports/Authorities (ferries, tugboats, large ocean-going vessels, port vehicles)
- Construction (vehicles and equipment, cranes, pavers, excavators, and front loaders)
- Freight (trucks, locomotives, locomotive switchers)

NH CARBON CHALLENGE

The NH Carbon Challenge is a grassroots effort to encourage individuals, municipalities, and the private sector in reducing their carbon footprint by reducing automobile miles driven and by reducing electricity consumption at home and work. The individuals that created the New Hampshire Carbon Challenge gave a presentation to the SMPO's Annual Meeting on May 29, 2008 where they encouraged the audience to reduce their carbon footprint.

NEW HAMPSHIRE STATE LAWS/REGULATIONS/INITIATIVES

State agencies and departments are required to implement a Clean Fleets Program in accordance with the recommendations of the Energy Efficiency in State Government Steering Committee, including but not limited to the following components:

- An anti-idling policy;
- A highway fuel economy rating of at least 27.5 miles per gallon (mpg) for all new passenger and light-duty vehicles and at least 20 mpg for all new light-duty trucks except for emergency and law enforcement vehicles;
- All new passenger and light-duty vehicles be certified as low emission vehicles in accordance with the recommendations of the Energy Efficiency in State Government Steering Committee;
- All vehicle purchases be in compliance with the Energy Policy Act of 1992 (EP Act) if applicable;
- A waiver procedure for requesting vehicles not on the approved Department of Administrative Services vehicle list;
- Additional measures to promote fuel conservation

IDLE REDUCTION REQUIREMENT

New Hampshire regulations help to minimize the impact from engine idling and reduce exposure to diesel exhaust emissions by establishing a limit on the amount of time that engines are permitted to idle. These regulations apply to all on road vehicles. The limit is based on outside temperature, as follows: above 32 degrees Fahrenheit, 5 minute limit; between -10 degrees and 32 degrees Fahrenheit, 15 minute limit; below -10 degrees Fahrenheit, no limit.

Certain vehicles are exempt from the regulation, including vehicles in traffic, emergency vehicles, vehicles providing power take-off for refrigeration or lift gate pumps, and vehicles supplying heat or air conditioning for passenger comfort during transportation. (Reference New Hampshire Department of Environmental Services, Administrative Rules Env-A 1101.05 and 1101.06)

DIESEL IDLE REDUCTION INITIATIVE

In an effort to reduce air pollution in New Hampshire, the Department of Environmental Services (DES) informs diesel truck and bus drivers and owners about the environmental, financial, and health consequences of engine idling while the vehicle is not in motion through information, sample idling policies, and signage. Signs are available at no charge through DES to encourage drivers to turn off engines.

MULTI- STATE AND PROVINCE INITIATIVES

REGIONAL GREENHOUSE GAS INITIATIVE

The Regional Greenhouse Gas Initiative (RGGI) is a regional effort by the Northeast region of the United States and the eastern Canadian Provinces to create a multi-state

and province cap-and-trade emission trading system that would attempt to reduce the levels of carbon dioxide emitted into the atmosphere. Ten states have signed the RGGI Memorandum of Understanding: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

FEDERAL LAWS/INCENTIVES

Many federal agencies provide funding or have regulations in regard to alternative fuels. Some of these agencies include the Internal Revenue Service (IRS), the U.S. Department of Environmental Protection Agency (EPA), the U.S. Department of Agriculture (USDA), the U.S. DOT and the U.S. Department of Energy (DOE). Each of these agencies, along with others, has multiple programs and initiatives to promote the use of alternative fuels.

THE ENERGY INDEPENDENCE AND SECURITY ACT OF 2007

The most recent federal legislation with concern to alternative fuels is the Energy Independence and Security Act of 2007. This new energy policy includes provisions such as improving vehicle fuel economy, increasing production of biofuels, energy savings through improved standards for appliance and lighting, energy savings in buildings and industry, alternative energy research and development, and an international energy program. In addition to the Energy Independence and Security Act of 2007, the Energy Policy Act (EP Act) of 2005 was the first major energy legislation passed since 1992. The EP Act of 2005, in many ways, set the standards for the future of renewable energy and alternative fuels/vehicles and set in motion the Energy Independence and Security Act of 2007. The EP Act of 2005 set a goal to reduce energy use by 2 percent every year beginning in 2006 and established a variety of research activities to encourage the market for alternative fuel usage. Both of these laws include issues related to the use of alternative fuels as well as other topics related to renewable energy and energy consumption.

The Energy Independence and Security Act of 2007 (EISA) was signed into law on December 19, 2007. The new energy legislation does not implement sweeping changes for renewable and fossil energy, but it does have far-reaching implications in other areas, including the automotive, fuels production, agribusiness, appliance manufacturing, and building design and construction sectors. Vehicle fuel economy must improve substantially by 2020 to meet prescribed standards. Biofuel production must increase nine fold by 2022 to meet the renewable fuel standard for gasoline. Numerous electric appliances and products are subject to new minimum efficiency standards. Federal agencies must reduce their energy consumption by 30 percent within

eight years, and new commercial buildings are targeted to produce as much energy as they consume by 2030.[11]

A detailed list of federal laws and incentives can be viewed at the U.S. Department of Energy's website:
http://www.eere.energy.gov/afdc/progs/fed_summary.php/afdc/US/0

CONCLUSION

Petroleum prices are rising. Climate change needs to be addressed. The use of Alternative Fuel Vehicles can provide an unprecedented opportunity to reduce the carbon footprint and other air pollution generated by businesses and individuals as we increase our energy security and provide economic opportunity. The SMPO region can begin by reducing its residents' dependence on petroleum, by encouraging the conservation of petroleum through simple changes in habits and by education about long-range solutions, like the use of alternative fuels and advanced technologies.

Implementing these new ideas and technologies can be accomplished at the local level through private actions. Alternative fuels/vehicles have proven to be useful for decades but many are still considered to be in the early stages of development and experimentation. Choosing the right alternative fuel vehicle and developing the needed infrastructure can be challenging, but it is essential when considering energy cost, vehicle maintenance, and hazardous vehicle emissions.

Alternative Fuel Vehicles have a high potential of revolutionizing the transportation sector by reducing greenhouse gas emissions, reducing energy costs, lowering our dependence on foreign petroleum and ultimately creating a more sustainable way of life.

RESOURCES

- U.S. Department of Energy: www.eere.energy.gov
- Energy Information Administration:
  www.eia.doe.gov/oil_gas/petroleum/info_glance/petroleum.html
- Granite State Clean Cities Coalition: www.granitestatecleancities.org
- NH Office of Energy and Planning: www.nh.gov/oep/index.htm

[11] Thompson Hine http://www.thompsonhine.com/publications/publication1326.html

- Clean Cars Labeling Program: www.cleancars.nh.gov
- SmartWay Transport: www.epa.gov/smartway
- Clean Air-Cool Planet: www.cleanair-coolplanet.org
- Northeast Diesel Collaborative: www.northeastdiesel.org
- New Hampshire Carbon Challenge: www.carbonchallenge.sr.unh.edu
- Alternative Fuels Station Map: www.afdcmap2.nrel.gov/locator/RoutePane.asp
- Energy Refuge: www.energyrefuge.com
- US Department of Energy, Alternative Fuels and Advanced Technology Center: http://www.afdc.energy.gov/fuels/

CHAPTER 12: PUBLIC PARTICIPATION & ENVIRONMENTAL JUSTICE

INTRODUCTION

Strafford Metropolitan Planning Organization (SMPO) encourages the public to participate in the transportation planning process through a variety of public participation techniques. The role of SMPO is to provide information to the public and to facilitate active participation in the transportation decision-making process. Through discussions with the public, planners can get a better sense of the ideal location for a transportation project or where the public would like to see public transportation, bike shoulders, and sidewalks. It is counterproductive to build a project that the public does not want. This chapter will outline the various public participation techniques available. The SMPO has an adopted Public Participation Plan per *SAFETEA-LU* requirements.

REGIONAL PUBLIC PARTICIPATION GOALS AND OBJECTIVES

REGIONAL PUBLIC PARTICIPATION GOAL

- Provide information to the public to allow active participation in the transportation decision-making process.

REGIONAL PUBLIC PARTICIPATION OBJECTIVES

- Develop and implement an outreach program to educate members of the public about transportation, land use and air quality issues and their interrelationships; and about the transportation planning process and how they can be involved in it.
- Solicit the participation of local officials, community groups, and individual citizens in the transportation planning process.
- Reach out to under-represented persons and groups, including low-income, minority populations and LEP groups through local LEP community leaders to ensure that decisions are made with their input taken into consideration and.
- Inform the general public of the federally funded transportation projects for each fiscal year.
- Provide notice to the public that the SMPO operates its programs or conducts its planning activities subject to the nondiscrimination requirement under Title VI and that members of the public can request additional information regarding the obligations of the SMPO.

PUBLIC PARTICIPATION TECHNIQUES

There a variety of public participation techniques available for transportation planning and each technique has its own unique merits and disadvantages.

PUBLIC HEARINGS

Public Hearings can provide the public with an opportunity to hear about transportation projects and the impact that they could have on lives and their communities. In New Hampshire, a seven-member group known as the Governor's Advisory Council on Intermodal Transportation (GACIT) helps shapes the future of transportation project within the entire state of New Hampshire. GACIT consists of five Executive Counselors, each representing a portion of New Hampshire, the Governor, and the Commissioner of NHDOT.

During the fall of each odd year, GACIT organizes public hearings within their respective district, to hear citizen comments on the proposed State Ten-Year Plan. There are three districts within the SMPO region.

Residents and public officials from the SMPO region are given an opportunity to provide GACIT and NHDOT officials with their opinions on the draft 2009-2018 Ten-Year Plan. For example, on Dover, many residents attended the draft 2009-2018 Ten Year Plan public hearing to encourage NHDOT to provide additional funding for public transportation, to improve bicycle and pedestrian facilities in the region, and to continue the Little Bay Bridges project. In Rochester, residents and public officials discussed the importance of the Exit 10 project and the implications of the project not being in the draft 2009-2018 Ten-Year Plan and how it relates to economic development within the City of Rochester.

Table 18: Examples of Public Hearing Schedule for Draft 2009-2018 State Ten-Year Plan

DAY	DISTRICT	TIME	LOCATION
Thursday, September 13, 2007	One	8:00AM	Sanbornville Public Safety Building (Wakefield)
Thursday, September 20, 2007	Three	7:00PM	Dover City Hall (Dover)*
Thursday, October 11, 2007	Two	3:00PM	Recreation/Old Town Hall (Farmington)
Thursday, October 11, 2007	Two	7:00PM	Community Center (Rochester)

* An Open House began at 6:00PM, hosted by SRPC.

WEBSITE AND E-MAIL

Websites and e-mail have become the most common method of delivering information to the public. SRPC's website also contains valuable documents and information related to SMPO. All staff members of SRPC have individual e-mail addresses that the public and other public officials can use to communicate with the staff. Documents and notices of meetings are also posted on the SRPC website.

MEDIA/PRESS

Based on the SMPO Public Participation process, the SMPO regularly uses local newspapers to notify the public of upcoming meetings and legal notices related to public comment periods where the public has the opportunity to comment on draft SMPO documents, including this Metropolitan Transportation Plan.

ENVIRONMENTAL JUSTICE

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. On April 15, 1997, USDOT issued its Final Order to Address Environmental Justice in Minority Populations and Low Income Populations. Among other provisions, the Order requires programming and planning activities to:

- Include explicit consideration of the effects of transportation decisions on minority and low-income populations.
- Provide meaningful opportunities for public involvement by members of minority and low-income populations.
- Gather, where relevant, appropriate and practical, demographic information (race, color, national origin, and income level) on the populations served or affected by transportation decisions.
- Minimize or mitigate any adverse impact on minority or low-income populations.

Additionally, the Strafford Regional Planning Commission subscribes to the **Code of Ethics and Professional Conduct, American Institute of Certified Planners**. This three-part Code covers the Planner's Responsibility to the Public, to Clients and Employees, and to the Profession and to Colleagues. Under Responsibility to the Public it states the following:

- A planner must strive to give citizens the opportunity to have a meaningful impact on the development of plans and programs. Participation should be broad enough to include people who lack formal organization or influence.

- A planner must strive to expand choice and opportunity for all persons, recognizing a special responsibility to plan of the needs of disadvantaged groups and persons, and must urge the alterations of policies, institutions and decisions that oppose such needs.

- A planner must strive to provide full, clear and accurate information on planning issues to citizens and governmental decision-makers.

THE COORDINATED PUBLIC TRANSIT-HUMAN SERVICES TRANSPORTATION PLAN

The Coordinated Public Transit-Human Services Transportation Plan was approved the spring of 2007 and outlines how the Seacoast region looks at transportation services for the elderly and disabled populations within the region. Both the SMPO and RPC are involved in an organization, the Alliance for Community Transportation that is responsible for organizing a regional brokerage system for non-profit organizations and health and human service agencies in the Seacoast region to help reduce costs and share resources. Information related to environmental justice can be found in the final approved version of the Coordinated Public Transit-Human Services Transportation Plan.

CHAPTER 13: FINANCIAL PLAN

INTRODUCTION

The federal Metropolitan Planning rules that govern MPO transportation planning practices require that Metropolitan Transportation Plans and Transportation Improvement Programs be financially constrained. The rules specify that a conforming Metropolitan Transportation Plan must:

> ...Include a financial plan that demonstrates the consistency of proposed transportation investments with already available and projected sources...that can reasonably be expected to be available for transportation uses... [23 CFR 450.322(b)(11)]

Projects and programs that are recommended in the Metropolitan Transportation Plan must be shown to be realistic given the financial resources that are either in hand or that are reasonably expected to be available in the future. The purpose of this Financial Plan is to demonstrate the financial viability of the Strafford MPO's 2015–2040 Metropolitan Transportation Plan and to document the key assumptions that have been made about the future availability of specific funding sources. As with all projections, the financial projections made here are based on assumptions about the future, some of which may prove to be incorrect. The Financial Plan will be reviewed periodically and updated as necessary in order to adjust or correct these assumptions and the resulting financial projections.

Moving Ahead for Progress in the 21st Century (MAP-21) creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established in 1991 and subsequent transportation authorizations. This bill charges the Federal Highway Administration and Federal Transit Administration to continue to make progress on transportation options, to ensure that local communities are able to build multimodal, sustainable projects ranging from passenger rail and transit to bicycle and pedestrian paths.

Moving Ahead for Progress in the 21st Century (MAP-21) furthers several other important goals, including safety, state of good repair, performance, and program efficiency. MAP-21 gives the Federal Transit Administration significant new authority to strengthen the safety of public transportation systems throughout the United States. The act also puts new emphasis on restoring and replacing our aging public

transportation infrastructure by establishing a needs-based formula program and asset management requirements. In addition, it establishes performance-based planning requirements that align federal funding with key goals and tracks progress towards these goals. Finally, MAP-21 improves the efficiency of administering grant programs by consolidating several programs and streamlining the major capital investment grant program known as "New Starts."

TRANSIT FUNDING SOURCES[12]

There are a number of changes to funding programs for both surface transportation and transit. One primary objective of MAP-21 was to reduce the total number of programs into fewer funding categories with more flexibility.

REPEALED TRANSIT FUNDING PROGRAMS

MAP-21 focuses on improving the efficiency of grant program operations by consolidating certain programs and repealing other programs. The following programs expired on September 30, 2012 and no new funding was authorized beyond fiscal year 2012:

- Alternatives Analysis (5339),
- Clean Fuels (5308),
- Job Access and Reverse Commute (JARC) (5316),
- New Freedom (5317),
- Transit in the Parks (5320), and
- Over the Road Bus (3038 of TEA-21).

A list of current Federal Transit Administration (FTA) funding sources is listed below with brief explanations. Please visit the FTA website (fta.dot.gov) for detailed information about these funding programs.

1. FTA: Planning Programs (Section 5304) – This funding must support work elements and activities resulting in balanced and comprehensive intermodal transportation planning for the movement of people and goods. Comprehensive transportation planning is not limited to transit planning or surface transportation planning, but also encompasses the relationships among land use and all transportation modes, without regard to the programmatic source of Federal assistance.

[12] The following information is provided to assist readers who were familiar with the SAFETEA-LU programs to transition to MAP-21 programs.

2. FTA: Urbanized Area Formula Grants (Section 5307) – The largest of FTA's grant programs, this program provides grants to urbanized areas (populations of 50,000 and more) to support public transportation. This is a formula based program where funding is distributed based on the level of transit service provision, population, and other factors.

3. FTA: Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310) - This program provides formula funding to increase the mobility of seniors and persons with disabilities. Funds are apportioned based on each State's share of the targeted populations and are now apportioned to both States (for all areas under 200,000) and large urbanized areas (over 200,000). NH uses this program to provide *Purchase of Service* funding for the purchase of vehicle hours to provide transportation to elderly and disabled members of the public.

4. FTA: Rural Area Formula Grants (Section 5311) – This program provides capital, planning, and operating assistance to support public transportation in rural areas, defined as areas with fewer than 50,000 residents. Funding is based on a formula that uses land area, population, and transit service.

5. FTA: State of Good Repair Grants (Section 5337) - MAP-21 establishes a new grant program to maintain public transportation systems in a state of good repair. This program replaces the Fixed Guideway Modernization Program (Section 5309). Funding is limited to fixed guideway systems (including rail, bus rapid transit, and passenger ferries) and high intensity bus (high intensity bus refers to buses operating in high occupancy vehicle (HOV) lanes.) Projects are limited to replacement and rehabilitation, or capital projects required to maintain public transportation systems in a state of good repair. Projects must be included in a transit asset management plan (see next section) to receive funding. The new formula comprises: (1) the former fixed guideway modernization formula; (2) a new service-based formula; and (3) a new formula for buses on HOV lanes.

6. FTA: Bus and Bus Facilities Program (Section 5339) - A new formula grant program is established under Section 5339, replacing the previous Section 5309 discretionary Bus and Bus Facilities program. This capital program provides funding to replace, rehabilitate, and purchase buses and related equipment, and to construct bus-related facilities. Each year, $65.5 million will be allocated with each State receiving $1.25 million and each territory (including DC and Puerto Rico) receiving $500,000. The remaining funding will be distributed by formula based on population, vehicle revenue miles and passenger miles. This program requires a 20 percent local match.

7. FTA: Growing States and High Density States Formula (Section 5040) – One-half of the funds are made available under the Growing States factors and are apportioned by a formula based on state population forecasts for 15 years beyond the most recent Census. Amounts apportioned for each state are then distributed between urbanized

areas and rural areas based on the ratio of urban/rural population within each state. The High Density States factors distribute the other half of the funds to states with population densities in excess of 370 persons per square mile. High Density funds are apportioned only to urbanized areas within those states.

8. FTA: Capital Investment Grants (Section 5309) – Funds may be used to assist State and local governmental authorities in financing capital projects; the acquisition, construction, reconstruction, and improvement of facilities and equipment for mass transportation; the capital costs of coordinating transit with other transportation; and the introduction of new technology. Funds may also help finance transit projects planned, designed, and carried out to meet the special needs of elderly individuals and individuals with disabilities; for the development of corridors to support fixed guideway systems, including protecting rights of way through acquisition, construction of dedicated bus and high occupancy vehicle lanes and park-and-ride lots, and other non-vehicular capital improvements that the Secretary may decide would result in increased transit usage in the corridor.

9. FTA: Research, Development, Demonstration, and Deployment (Section 5312) – The previous section 5312 (Research, Development, Demonstration, and Deployment Projects) and section 5314 (National Research Programs) are now consolidated into one program under section 5312. Additionally, MAP–21 divides the program into: Research; Innovation and Development; and, Demonstration, Deployment and Evaluation. The latter also includes a Low or No Emission Vehicle Deployment program to fund low or no emission vehicles, facilities, or related equipment in non-attainment or maintenance areas. Additionally, MAP– 21 establishes a structured process for applications, evaluations, and reporting for the research programs.

10. FTA: Transit Cooperative Research Program (Section 5313) – The TCRP conducts original research to investigate ongoing challenges related to public transportation at the national level. TCRP studies and projects generally fall into several categories: Operations, Service Configuration, Engineering of vehicles and equipment, Engineering of fixed facilities, Maintenance, Human Resources, Administration, Policy and Planning, and Special Projects.

11. FTA: Technical Assistance and Standards Development (Section 5314) – This program provides technical assistance to the public transportation industry and sponsors the development of voluntary and consensus-based standards to more effectively and efficiently provide transit service, as well as support the improved administration of federal transit funds.

12. FTA: Emergency Relief (Section 5324) - This new program assists States and public transportation systems with emergency-related expenses. Emergencies are defined as natural disasters affecting a wide area or a catastrophic failure from an external

cause for which the governor of a State has declared an emergency (and the Secretary of Transportation has concurred) or the President has declared a major disaster. The program funds capital projects to protect, repair, reconstruct, or replace equipment and facilities. It also funds transit agency operating costs related to evacuation, rescue operations, temporary public transportation service, or changing public transportation route service before, during, or after an emergency in an area directly affected. The grants only cover expenses not reimbursed by the Federal Emergency Management Agency (FEMA). The program will provide immediate funding, similar to the FHWA emergency program. Funding will be appropriated by Congress as needed.

13. FTA: Safety (Section 5329) – MAP-21 grants FTA the authority to establish and enforce a new comprehensive framework to oversee the safety of public transportation throughout the United States. FTA will implement the new law in consultation with the transit community and the U.S. Department of Transportation's (DOT) Transit Rail Advisory Committee for Safety (TRACS), which has been working since September of 2010 to help guide this effort.

    Safety performance criteria and standards

    Under MAP-21, FTA must develop safety performance criteria for all modes of public transportation (rail, bus, etc.). FTA must also develop minimum safety performance standards for vehicles not regulated by other Federal agencies. In addition, FTA must develop a public transportation safety certification training program for individuals involved in transit safety.

14. Transit-Oriented Development Planning Pilot (Section 20005(b)) - MAP-21 creates a new discretionary pilot program for transit-oriented development (TOD) planning grants. Eligible activities include comprehensive planning in corridors with new rail, bus rapid transit, or core capacity projects. The comprehensive plans should seek to enhance economic development, ridership, and other goals; facilitate multimodal connectivity and accessibility; increase access to transit hubs for pedestrian and bicycle traffic; enable mixed-use development; identify infrastructure needs associated with the project; and include private sector participation.

1. FHWA/FTA: CMAQ Funds – Funds are eligible for transportation related projects in ozone and carbon monoxide non-attainment and maintenance areas. Projects must contribute to meeting the attainment of national ambient air quality standards, whether through reductions in vehicle miles traveled, fuel consumption, or through other factors. Funding may be used for transit capital and operating funds.

   - Municipalities – COAST provides public transportation for 10 communities in the Seacoast region and Berwick Maine (5 communities in the SMPO region). COAST relies on "voluntary" municipal contributions to support about 11 percent of its operating budget and has no authority to mandate regional or municipal funding, except to withhold services, or levy rider fines.

   - Local Option Fee – In 1998, the New Hampshire Legislature enacted HB-648: Local Option Fee for Transportation Improvements. The law enables municipalities to raise capital funds and transit operating funds from a surcharge on motor vehicle registration of $1 to $5. Three municipalities in the SMPO region have taken advantage of the local option fee: Dover, Durham, and Newmarket.

   - Private Sources – Private companies are allowed to contribute funding for public transportation and have that funding be counted towards the local match. In the past, companies have collaborated with COAST to provide bus service for their organization. During the summer 2008, COAST operated a Beach Bus serving the communities of Epping, Exeter, and Hampton. Funding for the Beach Bus came from Exeter Hospital, Unitil, a registered public utilities company in New Hampshire and the New Hampshire Division of Parks and Recreation.

EXISTING PUBLIC TRANSPORTATION FUNDING SOURCES

The following funding sources benefit public transportation operators directly.

- Fare Box – COAST charges fares for passengers riding the bus routes, however, fares cannot be counted towards the local match for federal funds.

- Transit Advertising – Transit Advertising includes revenues generated through advertising on COAST vehicle and bus shelters. COAST will begin generating revenue with advertising placed on bus shelter on bus routes in the City of Rochester.

POTENTIAL TRANSIT FUNDING SOURCES

In addition to existing sources, other potential, but non-secured sources are considered for recommendation in the Metropolitan Transportation Plan. *SAFETEA-LU* rules prohibit basing financial constraint on presently non-existent sources unless a specific action plan is included outlining the steps that will be taken to obtain the new funding source. We have not assumed that any of the sources described will be available in this financial analysis.

At the state level, only General Funds can be used in New Hampshire to help pay for public transportation.

- State Transit Fund – Several attempts have been made in recent years to fund State support for public transportation. There is no "reasonable expectation" that a significant increase in state funding will be available from this source for at least the next several years. We have assumed a renewal of the transit assistance program.

- Regional Transit Tax – A regional transit tax is a special tax or fee applied to the service district of a transit system that supports the system. The tax can be applied in one of several ways, including sales tax, gasoline tax or vehicle registration fee. No entity with the power to assess such a tax (with the possible exception the counties) exists in the SMPO region. Implementation of a regional transit tax would require the establishment (through state enabling legislation) of a regional transit authority with the power to levy fees, as well as the consent of each participating municipality. This is an unlikely scenario for the foreseeable future and has not been assumed.

- Congestion Impact Fee – Congestion or transit impact fees are monetary assessments imposed upon developers to mitigate the impact of their new projects on transit services. In 1991, the NH Legislature passed legislation formally enabling the use of impact fees in New Hampshire. Impact fees must be limited to capital improvements. Congestion and transit impact fees have been justified on grounds that new development will exacerbate peak-hour traffic or transit problems and create the need for more public transportation. Therefore, developers should pay a fair share of the cost to increase the capacity of the transit (and highway) system.

TRANSIT FUNDING PROJECTIONS

The basic method for carrying out the financial constraints analysis is to identify all committed funding sources and those for which we have a reasonable expectation of availability in the future, and use the results to establish a general budget for the transit projects recommended in the Metropolitan Transportation Plan.

FISCAL YEARS 2015-2018

Funding for Fiscal Years 2015, 2016, 2017, and 2018 comes from the first four-years of the State Ten-Year Plan. Transit funding is assumed to be fiscally constrained per the NHDOT financial constraint analysis. Funding for the Downeaster Passenger Rail Service is omitted from this plan since this service is funded from sources external to the SMPO. Also omitted is operating funding for Wildcat Transit, since this is funded by UNH exclusively. However, public capital funding for Wildcat Transit is included. CMAQ funding is assumed for CMAQ eligible projects identified on the Long Range Project List, based on analysis of average allocations of CMAQ funding to the region over the past five funding rounds. Projected levels of CMAQ funding are well within the average levels secured in past rounds. The following table indicates federal funds available to COAST from fiscal years 2015-2018.

Table 19: COAST Funding in Fiscal Years 2015-2018

FISCAL YEAR	FUNDING
2015	$2,897,641
2016	$3,087,640
2017	$3,058,644
2018	$1,975,530
Average/Year	$2,754,864
TOTAL	**$11,019,455**

Table 20: Transit Funding Fiscal Years 2019 - 2024

FISCAL YEAR	FUNDING
2019	$2,420,250
2020	$2,420,250
2021	$2,420,250
2022	$2,420,250
2023	$2,420,250
2024	$2,420,250
Average/Year	$2,420,250
TOTAL	**$14,521,500**

FISCAL YEARS 2019-2024

Funding for Fiscal Years 2019, 2020, 2021, 2022, 2023, and 2024 come from the last six years of the State Transportation Improvement Plan. Programmed annual funding for COAST over the final six fiscal years of the ten year plan is fixed at $2,420,250 annually as shown in the table below.

Table 21: Transit Funding Fiscal Years 2025-2040

FISCAL YEAR	FUNDING
2025	$2,572,914
2026	$2,655,248
2027	$2,740,216
2028	$2,827,902
2029	$2,918,395
2030	$3,011,784
2031	$3,108,161
2032	$3,207,622
2033	$3,310,266
2034	$3,416,195
2035	$3,525,513
2036	$3,638,329
2037	$3,754,756
2038	$3,874,908
2039	$3,998,905
2040	$4,126,870
Average / Year	$3,199,830
TOTAL	**$57,596,947**

FISCAL YEARS 2025-2040

The following estimates for COAST are based on the funding levels shown in the final six years of the Transportation Improvement Plan. For years 2025-2040 the funding is inflated at a rate of 3.2% annually to account for inflation. The use of this inflation rate agreed upon through the Interagency Consultation process.

EXISTING HIGHWAY FUNDING SOURCES

The following funding sources are available for maintenance and improvements to road networks in the SMPO region. Funding is divided into two categories: federal aid and state aid.

EXISTING FEDERAL AID FUNDING SOURCES

The following is a list of federal aid programs available to the State of New Hampshire. Federal aid programs require a 20 percent non-federal match.

1. National Highway System (NHS) – This funds projects on the designated NHS (when approved); the interim NHS includes highways that are on the interstate system and selected principal arterials. Funding for this category is an 80 percent federal match and a 20 percent local match.

2. Surface Transportation Program (STP) – This funds projects chosen by states and localities for any road with a higher functional class than local or rural minor collectors. Funding for all STP categories is an 80 percent federal match and a 20 percent local match. There are several subcategories of STP funds applicable for the SMPO, for example, "STP Any Area", "STP Non-Urban", and "STP Hazard Elimination". However, the State has the ability to transfer funds within these categories; therefore, for the purposes of general financial forecasting, all but STP Transportation Enhancements have been grouped into a single category.

    - STP: Transportation Enhancement – This funds projects chosen through the statewide selection process. Transportation enhancement projects include: bike and pedestrian facilities (e.g. sidewalks, bike paths, and trails), scenic improvements (e.g. landscaping, removal of outdoor advertising, acquisition of scenic easements and sites), preservation of abandoned railroad corridors, historic preservation, rehabilitation of historic transportation facilities or structures and mitigation of water pollution from highway runoff. Funding for this category is an 80 percent federal match and a 20 percent local match.
      Note: This program has been eliminated and projects will be completed by September, 2015

3. Bridge Rehabilitation and Replacement – This category includes three subcategories, which are grouped as a single "Bridge" category in the funding forecasts. They are:

    - On-System – Bridges on roads that are functionally classified higher than local. 70 percent of all eligible funding for bridges is in this category.

- Off-System – Bridges on the Municipal Highway System (municipally owned). Priorities for this category are based on first come first served. 30 percent of all eligible bridge funding is in this category.

- On/Off-System – Bridges either on or off system; Funding for this category is an 80 percent federal and a 20 percent local match.

4. FHWA/FTA: CMAQ - CMAQ funds are eligible for transportation related projects in ozone and carbon monoxide non-attainment areas. Projects must contribute to meeting attainment of national ambient air quality standards, whether through reductions in vehicle miles traveled, fuel consumption, or through other factors. Projects may also come from the State Implementation Plan (SIP). No funds may be provided under this category that will result in the construction of new capacity available to single occupancy vehicles, unless the project consists of a high occupancy vehicle facility available to single occupant vehicles only at other than peak travel times. Funding for this category is an 80 percent federal and a 20 percent local match (90 percent federal/10 percent local match for some projects).

5. State Planning & Research (SPR) – One component of SPR grants includes funding for MPOs and RPCs to conduct planning related studies. In the past SMPO has received SPR Funding for the Phase I and Phase II of the Route 125 Corridor Study.

6. MPO Funding – Each MPO receives federal funding to carry out the necessary functions required of an MPO. Each MPO receives a specified amount of the state share of funding by population. A 20 percent local match to the federal share is required.

EXISTING STATE AID FUNDING SOURCES

- Betterment Funds – This type of funding is accrued to the state by earmarking a portion of the State gas tax receipts. The NHDOT determines the priority of potential projects around the state for utilization of these funds. There is no federal or local funds used for these projects, however, if a municipality raises matching funds, NHDOT will designate

- Turnpike Funds – Several turnpike projects within the SMPO region will be completed using Turnpike Funds: the Newington-Dover Spaulding Turnpike Project to widen the Little Bay Bridges from Gosling Road in Portsmouth to the Tolls in Dover (11238, 11238 J).

FINANCIAL CONSTRAINT

There are two methods used for calculating financial constraint for the surface transportation projects in the *Metropolitan Transportation Plan*. Both methods follow a similar overarching premise; programmed funding is compared to anticipated revenues. Differences in the methodologies arise from the level of detail available for making the projections of available revenues and project cost.

FISCAL YEARS 2019-2024

The programmed projects and anticipated revenues for the 2019-2024 period of the *2015-2040 Metropolitan Transportation Plan* are derived from the *New Hampshire Ten Year Transportation Improvement Plan, 2015 - 2024.* For these six years, financial constraint in the *Metropolitan Transportation Plan* follows planning assumptions that differ from those in the last fifteen years (2025-2040).

For the 2019-2024 timeframe, NHDOT has a solid understanding of the financial resources available to the state. For this timeframe, using the *New Hampshire Ten Year Transportation Improvement Plan,* the NHDOT develops a list of transportation projects for the state and additionally, allocates funding for "statewide" transportation programs. Examples of statewide transportation programs include statewide guardrail repair and preliminary engineering. NHDOT balances the total programmed funds for this six-year period against anticipated revenues to show fiscal constraint for the state.

FISCAL YEARS 2015-2024 FINANCIAL CONSTRAINT PLANNING ASSUMPTIONS

Agencies participating in the Interagency Consultation process collaboratively developed planning assumptions for use in their financial constraint analyses. The members of the interagency consultation process include NH MPOs, NHDOT, NH DES, EPA, FHWA, and FTA. Assumptions are from the draft *State Transportation Improvement Plan* (FYs 2015-2018), *State Ten Year transportation Improvement Plan* (FYs 2019-2024), and the draft FYs 2025+ Inflated FY2024.

Table 22 Fiscal Constraint Analysis for Transportation Projects in the Strafford Metropolitan Planning Area

Fiscal Constraint Analysis for Transportation Projects in the Strafford Metropolitan Planning Area (Millions of Dollars)

Source of Data			Fiscal Year	Statewide Resources for Federal Aid Projects (FHWA)	SRPC Share of federal funds (10.01%)	Amount Programed for Strafford region	FY Balance	Running Balance
2015-2040 SMPO Metropolitan Transportation Plan	2015-2024 State Ten Year Plan	2015-18 TIP	2015	$174.960542	$17.671015	$9.096537	$8.574478	$8.574478
			2016	$179.137090	$18.092846	$12.064951	$6.027895	$14.602373
			2017	$184.869477	$18.671817	$5.445916	$13.225901	$27.828274
			2018	$190.785301	$19.269315	$6.519418	$12.749897	$40.578171
			2019	$197.952346	$19.993187	$9.741035	$10.252152	$50.830323
			2020	$162.320929	$16.394414	$6.266669	$10.127745	$60.958068
			2021	$158.175456	$15.975721	$5.652179	$10.323542	$71.281610
			2022	$158.361532	$15.994515	$5.743532	$10.250983	$81.532593
			2023	$148.252004	$14.973452	$10.779127	$4.194325	$85.726918
			2024	$146.927648	$14.839692	$8.216565	$6.623127	$92.350046
			2025	$151.629332	$15.314563	$18.677723	-$3.363160	$88.986885
			2026	$156.481471	$15.804629	$15.802489	$0.002140	$88.989025
			2027	$161.488878	$16.310377	$25.255869	-$8.945492	$80.043533
			2028	$166.656522	$16.832309	$16.682317	$0.149992	$80.193524
			2029	$171.989531	$17.370943	$18.667700	-$1.296757	$78.896767
			2030	$177.493196	$17.926813	$21.719155	-$3.792342	$75.104425
			2031	$183.172978	$18.500471	$13.962022	$4.538449	$79.642874
			2032	$189.034514	$19.092486	$9.582756	$9.509730	$89.152603
			2033	$195.083618	$19.703445	$26.432126	-$6.728681	$82.423923
			2034	$201.326294	$20.333956	$8.249705	$12.084251	$94.508174
			2035	$207.768735	$20.984642	$16.655976	$4.328666	$98.836840
			2036	$214.417335	$21.656151	$6.815317	$14.840834	$113.677674
			2037	$221.278689	$22.349148	$15.210335	$7.138813	$120.816486
			2038	$228.359607	$23.064320	$8.957140	$14.107180	$134.923667
			2039	$235.667115	$23.802379	$8.548326	$15.254053	$150.177719
			2040	$243.208463	$24.564055	$5.889295	$18.674760	$168.852479

FINANCIAL CONSTRAINT FOR FISCAL YEARS 2025-2040

Fiscal Years 2025-2040 are considered the "out years" of the *Metropolitan Transportation Plan* because funding levels, planning assumptions, the scheduling of projects, and estimating project cost are all far from certain. Due to the limits of information for the "out years," planning assumptions for financial constraint are simplified. The resulting revenue projections are used as a standard (or gauge) for Metropolitan Planning Organizations to program projects against. The funding projections for "out years" are not meant to reflect actual funding levels for any given year.

PLANNING ASSUMPTIONS FOR YEARS 2025-2040:

1. All programmed funding numbers for fiscal years 2015-2024 were derived from the draft *State Transportation Improvement Plan* (FYs 2015-2018) provided by NHDOT. This document reflects the *New Hampshire Ten Year Plan*, *2015-2024,* including minor revisions and amendments that have occurred since its adoption.

2. In the out years (2025-2040), the following tables assume current Federal Aid funding levels from the bill *Moving Ahead for Progress in the 21st Century* (MAP-21). The funding levels are inflated at an annual rate of 3.2% to keep pace with inflation.

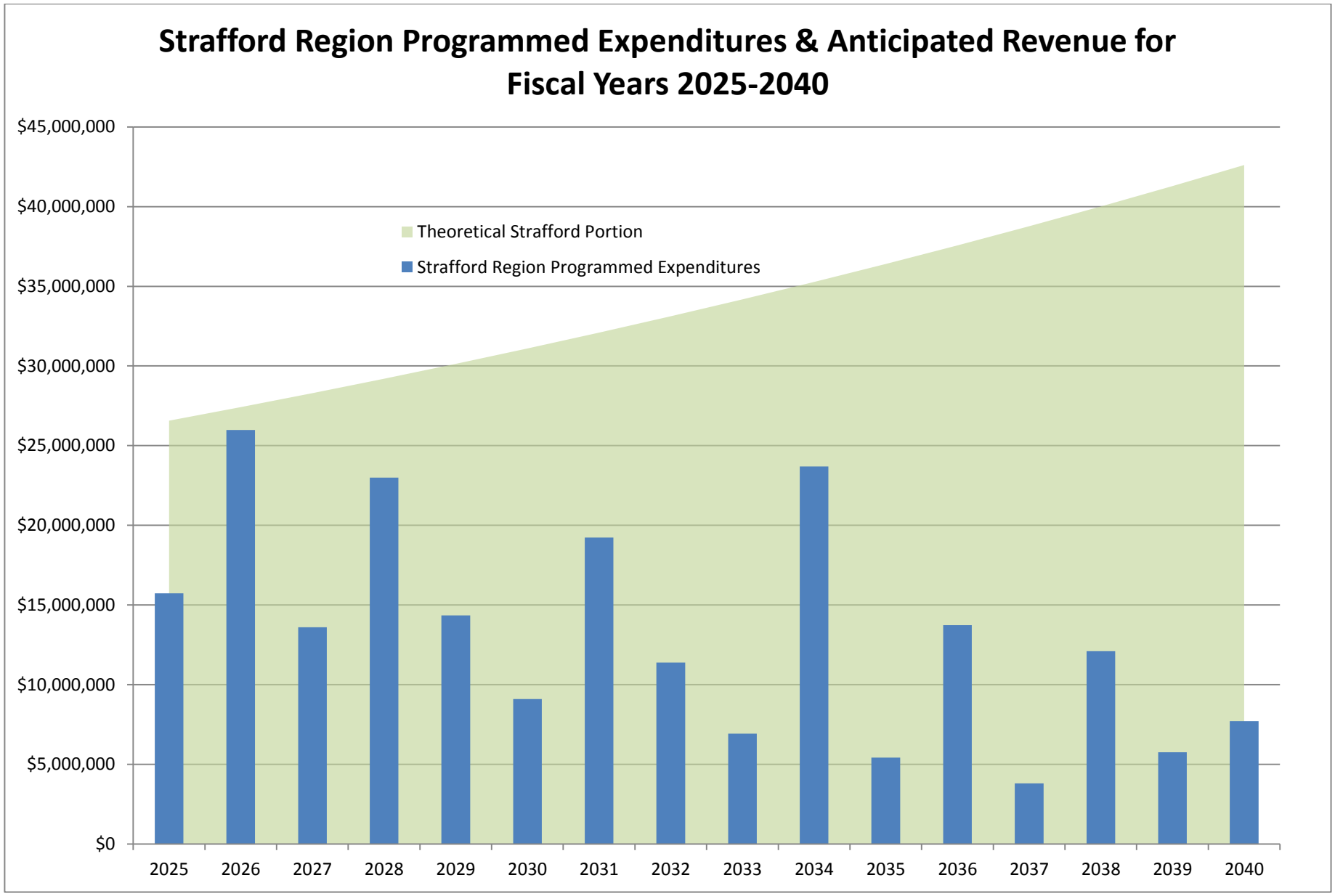
3. The 3.2% of growth was also applied to project cost estimates to ensure documents show "year of expenditure" dollars to represent project cost.

4. NHDOT instructed MPOs to use their funding allocation worksheet, provided in 2010 by NHDOT, to obtain the percentage of total federal transportation funding theoretically dedicated to the each region. NHDOT based these calculations on regional lane miles, maintained by the state, and regional population. Using this table Strafford Region is theoretically allocated 10.1% of the total federal funding. The 10.1% theoretical funding allocation has been applied to fiscal years 2023-2040.

5. For years 2025-2040, the funding table assumes local match will be available to meet matching requirements. Most federal transportation funding programs use an 80/20 split as the federal aid funding to matching dollar ratio.

Table 23 Financial Constraint for Fiscal Years 2025-2040

Federal Fiscal Year	Total NH Federal Funding		Theoretical Strafford Portion				Programmed Regional Expenditures *(not including "Statewide" projects, or Betterment Funding)*	Balance	Running Balance
	FHWA	FTA	%	FHWA	FTA	Total	Strafford Region		
2025	$239,737,993	$23,295,757	10.1%	$24,213,537	$2,352,871	$26,566,409	$15,733,571	**$10,832,838**	$10,832,838
2026	$247,409,609	$24,041,221	10.1%	$24,988,370	$2,428,163	$27,416,534	$25,983,034	**$1,433,500**	$12,266,338
2027	$255,326,716	$24,810,540	10.1%	$25,787,998	$2,505,865	$28,293,863	$13,604,280	**$14,689,583**	$26,955,920
2028	$263,497,171	$25,604,478	10.1%	$26,613,214	$2,586,052	$29,199,267	$22,987,316	**$6,211,951**	$33,167,871
2029	$271,929,080	$26,423,821	10.1%	$27,464,837	$2,668,806	$30,133,643	$14,341,171	**$15,792,472**	$48,960,343
2030	$280,630,811	$27,269,383	10.1%	$28,343,712	$2,754,208	$31,097,920	$9,089,808	**$22,008,112**	$70,968,455
2031	$289,610,997	$28,142,004	10.1%	$29,250,711	$2,842,342	$32,093,053	$19,225,779	**$12,867,274**	$83,835,729
2032	$298,878,549	$29,042,548	10.1%	$30,186,733	$2,933,297	$33,120,031	$11,388,857	**$21,731,174**	$105,566,902
2033	$308,442,662	$29,971,909	10.1%	$31,152,709	$3,027,163	$34,179,872	$6,927,250	**$27,252,622**	$132,819,524
2034	$318,312,828	$30,931,010	10.1%	$32,149,596	$3,124,032	$35,273,628	$23,691,642	**$11,581,986**	$144,401,510
2035	$328,498,838	$31,920,803	10.1%	$33,178,383	$3,224,001	$36,402,384	$5,421,528	**$30,980,856**	$175,382,366
2036	$339,010,801	$32,942,268	10.1%	$34,240,091	$3,327,169	$37,567,260	$13,737,297	**$23,829,963**	$199,212,329
2037	$349,859,147	$33,996,421	10.1%	$35,335,774	$3,433,639	$38,769,412	$3,803,241	**$34,966,171**	$234,178,500
2038	$361,054,639	$35,084,306	10.1%	$36,466,519	$3,543,515	$40,010,034	$12,101,872	**$27,908,162**	$262,086,661
2039	$372,608,388	$36,207,004	10.1%	$37,633,447	$3,656,907	$41,290,355	$5,749,206	**$35,541,149**	$297,627,810
2040	$384,531,856	$37,365,628	10.1%	$38,837,717	$3,773,928	$42,611,646	$7,710,507	**$34,901,139**	$332,528,949
Total	**$4,909,340,085**	**$477,049,103**	**Total**	**$495,843,349**	**$48,181,959**	**$544,025,308**	**$211,496,359**	**$332,528,949**	


Strafford Region Programmed Expenditures & Anticipated Revenue for Fiscal Years 2025-2040
$45,000,000
$40,000,000
$35,000,000
$30,000,000
$25,000,000
$20,000,000
$15,000,000
$10,000,000
$5,000,000
$0
Theoretical Strafford Portion
Strafford Region Programmed Expenditures
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040

OPERATIONS AND MAINTENANCE

23 CFR Part 450.322(f)(10) requires that *"[f]or purposes of transportation system operations and maintenance, the financial plan shall contain system-level estimates of costs and revenue sources that are reasonable expected to be available to adequately operate and maintain Federal-aid highways…"*.

Estimates of resources and programmed revenues shown in the Operations and Maintenance table are based on NHDOT figures from the "Base STIP Constraint 3" document provided to NH Metropolitan Planning Organizations in August, 2012. Strafford Region's percentage of total NH resources for operations and maintenance were determined using the NHDOT funding allocation worksheet that provided regional percentages of total state funding based on lane miles and population. This worksheet was provided in 2010 by NHDOT. Using the NHDOT worksheet Strafford Region is allocated 10.1% of the total funding.

Planning assumptions for operations and maintenance funding are the same as the planning assumptions used for the "out years" (2025-2040) financial constraint planning assumptions.

TABLE 24: OPERATIONS & MAINTENANCE

Fiscal Year	Total Resources for NH O&M	Total Programmed for NH O&M	SRPC's Percentage of total O&M	Strafford Region's Theoretical Portion
2015	$125,372,492	$125,372,492	10%	$12,537,249
2016	$125,000,000	$125,000,000	10%	$12,500,000
2017	$125,000,000	$125,000,000	10%	$12,500,000
2018	$125,000,000	$125,000,000	10%	$12,500,000
2019	$137,388,096	$137,388,096	10%	$13,738,810
2020	$155,836,037	$19,901,158	10%	$1,990,116
2021	$182,417,450	$20,537,995	10%	$2,053,799
2022	$218,121,147	$21,195,211	10%	$2,119,521
2023	$225,101,024	$21,873,457	10%	$2,187,346
2024	$232,304,257	$22,573,408	10%	$2,257,341
2025	$239,737,993	$23,295,757	10%	$2,329,576
2026	$247,409,609	$24,041,221	10%	$2,404,122
2027	$255,326,716	$24,810,540	10%	$2,481,054
2028	$263,497,171	$25,604,478	10%	$2,560,448
2029	$271,929,080	$26,423,821	10%	$2,642,382
2030	$280,630,811	$27,269,383	10%	$2,726,938
2031	$289,610,997	$28,142,004	10%	$2,814,200
2032	$298,878,549	$29,042,548	10%	$2,904,255
2033	$308,442,662	$29,971,909	10%	$2,997,191
2034	$318,312,828	$30,931,010	10%	$3,093,101
2035	$328,498,838	$31,920,803	10%	$3,192,080
2036	$339,010,801	$32,942,268	10%	$3,294,227
2037	$349,859,147	$33,996,421	10%	$3,399,642
2038	$361,054,639	$35,084,306	10%	$3,508,431
2039	$372,608,388	$36,207,004	10%	$3,620,700
2040	$384,531,856	$37,365,628	10%	$3,736,563

CHAPTER 14: 2015-2040 TRANSPORTATION PROJECTS

The most recent federal guidance for transportation projects lists included in the Metropolitan Transportation Plan can be found at www.ecfr.gov.

> 23 CFR 450.322 (6) Development and content of the metropolitan transportation plan states: "*Design concept and design scope descriptions of all existing and proposed transportation facilities in sufficient detail, regardless of funding source, in nonattainment and maintenance areas for conformity determinations under the EPA's transportation conformity rule (40 CFR part 93). In all areas (regardless of air quality designation), all proposed improvements shall be described in sufficient detail to develop cost estimates;*"

Similar to the financial constraint chapter of the *Metropolitan Transportation Plan,* project lists have been constructed to reflect the distinct planning assumptions for federal fiscal years 2015-2024 and the out-years, 2025-2040.

For the ten-year planning horizon (2015-2024) New Hampshire has clear information about the transportation projects planned for construction. The project lists for this period of time contain detailed project descriptions, up-to-date funding assumptions, and a better overall picture of transportation projects that are expected.

The list for the out-years (2025-2040) is developed using Strafford MPO's *Project Solicitation Process*. This process involves face to face meetings with the 18 municipalities in the Strafford Region, the University of NH, NHDOT Maintenance Districts, and regional transit operators.

There are a number of goals for project solicitation:

1. **Review the transportation project lists in current Metropolitan Transportation Plan.**
2. **Remove projects that are completed or no longer needed.**
3. **Add new projects.**
4. **Survey each group about SAFETEA-LU and MAP-21 planning factors to assess regional transportation priorities.**

From the *Project Solicitation Process* Strafford MPO created the list of "out year" (2025-2040) transportation projects. The survey is used to assist the MPO with prioritizing projects in the out years as well as prioritizing projects to put forward for the Ten-Year Transportation Improvement Plan.

Project lists for out year projects contain less project detail as there is a much higher degree of uncertainty regarding project cost and variability for project "year of construction."

The *Metropolitan Transportation Plan* also has a list of Vision projects. These are out year (2025-2040) projects that have been highlighted by a municipality, agency, or are otherwise known, but either lack a clear financial path to construction or lack consensus support from project stakeholders. An example of a vision project could be a future sidewalk project that a community would like to build, but does not have support due to uncertainty about the ongoing maintenance requirements that come along with of owning a sidewalk.

Vision projects are named because they may have future importance. They are not required to be included in financial constraint, because there is no expectation of construction currently.

The following lists of projects were developed in accordance with applicable federal guidelines.

Project List 1: Projects Included in the Transportation Improvement Program

-The list below contains regional projects and statewide programs for the first four years of the 2015-2040 Metropolitan Transportation Plan. After approval of the 2015-2018 Transportation Improvement Plan, please refer to the Strafford MPO website for the latest Amendments to the Transportation Improvement Program Project List: (http://www.strafford.org/transportation/amendList.php)

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
5310 Elderly & Disabled	FTA5310	N/A	5310 Program {Elderly and persons with disabilities transportation program}	PE	Other	$420,000	$433,440	$447,310	$461,624	$1,762,374
					FTA	$1,680,000	$1,733,760	$1,789,240	$1,846,496	$7,049,496
	FTA5310 Total					$2,100,000	$2,167,200	$2,236,550	$2,308,120	$8,811,870
5311 Rural	FTA5311	N/A	FTA 5311 Program {Rural public transit}	PE	Other	$840,000	$887,520	$937,221	$989,194	$3,653,935
					FTA	$3,360,000	$3,550,080	$3,748,884	$3,956,777	$14,615,742
	FTA5311 Total					$4,200,000	$4,437,600	$4,686,106	$4,945,971	$18,269,677
COAST	68069	varies	Capital equipment purchases and operating support for COAST bus services [CMAQ]	PE	NHDOT	$890,843	$923,124	$952,664		$2,766,631
	68069 Total					$890,843	$923,124	$952,664		$2,766,631
COAST-1	5670	TRANSIT	Operating Assistance.	PE	FTA	$490,000	$505,680	$521,862	$538,561	$2,056,103
					Nashua	$490,000	$505,680	$521,862	$538,561	$2,056,103
	5670 Total					$980,000	$1,011,360	$1,043,724	$1,077,123	$4,112,206
COAST-2	2691	TRANSIT	COAST Preventative Maintenance	PE	Other	$88,000	$90,816	$93,722	$96,721	$369,259
					FTA	$352,000	$363,264	$374,888	$386,885	$1,477,037
	2691 Total					$440,000	$454,080	$468,611	$483,606	$1,846,297

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
COAST-3	3067	TRANSIT	MISC. Bus station equipment	PE	Other	$13,440	$13,870	$14,314	$14,772	$56,396
					FTA	$53,760	$55,480	$57,256	$59,088	$225,584
	3067 Total					$67,200	$69,350	$71,570	$73,860	$281,980
COAST-4	3068	TRANSIT	Bus station equipment	PE	Other	$7,040	$7,265	$7,498	$7,738	$29,541
					FTA	$28,160	$29,061	$29,991	$30,951	$118,163
	3068 Total					$35,200	$36,326	$37,489	$38,688	$147,704
COAST-5	3069	TRANSIT	General and comprehensive planning	PE	Other	$16,000	$16,512	$17,040	$17,586	$67,138
					FTA	$64,000	$66,048	$68,162	$70,343	$268,552
	3069 Total					$80,000	$82,560	$85,202	$87,928	$335,690
COAST-6	3070	TRANSIT	ADA OPERATIONS.	PE	Other	$39,000	$40,248	$41,536	$42,865	$163,649
					FTA	$156,000	$160,992	$166,144	$171,460	$654,596
	3070 Total					$195,000	$201,240	$207,680	$214,325	$818,245
COAST-7	3503	TRANSIT	Capital program	PE	Other	$41,880	$61,920	$38,341		$142,140
					FTA	$167,518	$247,680	$153,363		$568,562
	3503 Total					$209,398	$309,600	$191,704		$710,702

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Dover-Somersworth-Rochester	29604	NH 108	Complete Streets (U-3 alternative) improvements	PE	NHDOT		$79,464	$11,715	$96,721	$187,900
					FHWA		$317,856	$46,861	$386,885	$751,602
				ROW	NHDOT		$11,352		$84,631	$95,983
					FHWA		$45,408		$338,524	$383,932
	29604 Total						$454,080	$58,576	$906,761	$1,419,418
Durham	16236	US 4	Bridge Replacement, Carrying US 4 over Bunker Creek {145/116. BRIDGE IS 40 ON THE BRIDGE PRIORITY LIST}	PE	NHDOT	$11,000	$68,112			$79,112
					FHWA	$44,000	$272,448			$316,448
				ROW	FHWA			$93,722	$193,442	$287,165
					NHDOT			$23,431	$48,361	$71,791
	16236 Total					$55,000	$340,560	$117,153	$241,803	$754,516
Durham-Newmarket	13080	NH 108	PE & ROW for project {Construct 4' Bike Shoulders from Oyster River bridge to Dame Rd and Sanborn Ave in Newmarket (3.4MI)}	PE	FHWA	$220,000				$220,000
					NHDOT	$55,000				$55,000
	13080 Total					$275,000				$275,000

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Durham-Newmarket	13080B	NH 108	Reconstruct Roadway and construct bike shoulders on NH Route 108 {Construct 4' bike shoulders from Oyster River bridge to Durham/ Newmarket T/L and Hamel Brook bridge to Sanborn Ave}	Construction	NHDOT	$440,000	$908,160			$1,348,160
					FHWA	$1,760,000	$3,632,640			$5,392,640
	13080B Total					$2,200,000	$4,540,800			$6,740,800
Durham - Rochester	20256	NH 125	Implement new public transit services between Rochester and Durham (UNH) along the NH 125 corridor.	PE	FHWA	$210,588				$210,588
					Other	$52,647				$52,647
	20256 Total					$263,235				$263,235

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Farmington	16146	NH 153	Replace Bridge carrying NH 153 over Cocheco River (Br No 096/140, Red List)	Construction	NHDOT		$681,120			$681,120
					FHWA		$2,724,480			$2,724,480
				PE	FHWA	$44,000				$44,000
					NHDOT	$11,000				$11,000
				ROW	NHDOT	$38,500	$5,676			$44,176
					FHWA	$154,000	$22,704			$176,704
	16146 Total					$247,500	$3,433,980			$3,681,480

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
FTA5309 Capital bus/facilities	FTA5309	Various	FTA 5309 Program (Capital bus and bus facilities)	PE	FTA	$1,600,000				$1,600,000
					Other	$400,000				$400,000
	FTA5309 Total					$2,000,000				$2,000,000

Hazmat	Hazmat	statewide hazmat	Programmatic project for post construction haz mat obligations	ROW	NHDOT	$6,160	$5,573	$5,751	$5,935	$23,419
					FHWA	$24,640	$22,291	$23,005	$23,741	$93,676
	Hazmat Total					$30,800	$27,864	$28,756	$29,676	$117,095

Newington	11238M	NH 16 / US 4 / SPLDG TPK	Spaulding Turnpike (NH Rt 16) Mainline Roadway Approach Reconstruction in Newington	Construction	NHDOT	$11,854,623				$11,854,623
	11238M Total					$11,854,623				$11,854,623

Newington - Dover	11238	NH 16 / US 4 / SPLDG TPK	NH 16 widen turnpike including little bay bridges from Gosling rd to Dover toll, PE and ROW only	Construction	NHDOT	$308,000	$82,560	$85,202		$475,762
				PE	NHDOT	$733,293				$733,293
				ROW	NHDOT	$25,000				$25,000
	11238 Total					$1,066,293	$82,560	$85,202		$1,234,055

Newington - Dover	11238K	NH 16 / US 4 / Spaulding Turnpike	NH 16 / US 4 / Spaulding turnpike reconfiguration and relocation of ramps and access	Construction	NHDOT	$20,000	$20,640	$21,300		$61,940
	11238K Total					$20,000	$20,640	$21,300		$61,940

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Newington - Dover	11238O	NH 16 / US 4 / Spaulding Turnpike	NH 16 / US 4 Spaulding Turnpike, Rehabilitate the existing Little Bay Bridge	Construction	NHDOT	$5,100,000	$10,165,200	$10,490,486	$4,066,688	$29,822,374
	11238O Total					$5,100,000	$10,165,200	$10,490,486	$4,066,688	$29,822,374
Newington - Dover	11238Q	NH 16, US 4 & Spaulding Turnpike	Reconstruct Spaulding Tpk from LBB to Dover Toll Booth and Exit 6 interchange, including new soundwalls	Construction	NHDOT	$9,307,333	$15,583,200	$16,081,862	$10,661,316	$51,633,711
	11238Q Total					$9,307,333	$15,583,200	$16,081,862	$10,661,316	$51,633,711
Newington - Dover	11238S	Spaulding Turnpike / Little Bay Bridges	General Sullivan Bridge Rehabilitation	Construction	NHDOT		$7,294,738	$12,780,288	$13,189,257	$33,264,284
	11238S Total						$7,294,738	$12,780,288	$13,189,257	$33,264,284
Newmarket	13878	NH 108	NH 108, Construct 4' bike shoulders from limits of project 13107 to Newfield town line. 02-25CM	Construction	FHWA	$543,776				$543,776
					NHDOT	$135,944				$135,944
				PE	FHWA	$18,858				$18,858
					NHDOT	$4,714				$4,714
				ROW	FHWA	$9,600				$9,600
					NHDOT	$2,400				$2,400
	13878 Total					$715,292				$715,292

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
NEWMARKET	16048	NH 108	Facility Improvements in Downtown Main Street(NH Rte 108) area, including Elm St & Willey Court(09-35)	Construction	FHWA	$423,960				$423,960
					Newmarket	$105,990				$105,990
				PE	FHWA	$800				$800
					Newmarket	$200				$200
				ROW	FHWA	$800				$800
					Newmarket	$200				$200
	16048 Total					$531,950				$531,950
Rochester	14350	NH 202A (Walnut St)	Intersection improvements to improve safety through Strafford Sq, North Main, and Washington St	Construction	FHWA	$560,000				$560,000
					Rochester	$140,000				$140,000
	14350 Total					$700,000				$700,000
Statewide	20226	Various Intersections	Evaluate & Optimize timing at 65 signalized intersections to improve traffic flow and reduce delays.	Construction	FHWA	$22,000				$22,000
					NHDOT	$5,500				$5,500
				PE	FHWA	$66,000				$66,000
					NHDOT	$16,500				$16,500
	20226 Total					$110,000				$110,000

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Statewide	CBI	Preservation	Complex Bridge inspection	PE	State of Maine	$100,000				$100,000
					NHDOT	$50,000	$55,625	$53,251	$54,955	$213,831
					FHWA	$200,000	$222,499	$213,005	$219,821	$855,325
				ROW	NHDOT	$1,000	$1,032	$1,065	$1,099	$4,196
					FHWA	$4,000	$4,128	$4,260	$4,396	$16,785
	CBI Total					$355,000	$283,284	$271,581	$280,272	$1,190,137
Statewide	CRDR	Various	Culvert replacement/rehabilitation & drainage repairs (Annual Project)	Construction	NHDOT	$174,000	$179,568	$185,314	$191,244	$730,126
					FHWA	$696,000	$718,272	$741,257	$764,977	$2,920,506
				PE	NHDOT	$20,000	$20,640	$21,300	$21,982	$83,923
					FHWA	$80,000	$82,560	$85,202	$87,928	$335,690
				ROW	NHDOT	$6,000	$6,192	$6,390	$6,595	$25,177
					FHWA	$24,000	$24,768	$25,561	$26,379	$100,707
	CRDR Total					$1,000,000	$1,032,000	$1,065,024	$1,099,105	$4,196,129
Statewide	FBRPI	PRESERVATION	Bridge rehabilitation, painting, preservation and improvement projects (Federal Program)	Construction	NHDOT	$1,576,000	$1,626,432	$1,678,478	$1,732,189	$6,613,099
					FHWA	$6,304,000	$6,505,728	$6,713,911	$6,928,756	$26,452,396
				PE	NHDOT	$20,000	$20,640	$21,300	$21,982	$83,923
					FHWA	$80,000	$82,560	$85,202	$87,928	$335,690
				ROW	NHDOT	$4,000	$4,128	$4,260	$4,396	$16,785
					FHWA	$16,000	$16,512	$17,040	$17,586	$67,138
	FBRPI Total					$8,000,000	$8,256,000	$8,520,192	$8,792,838	$33,569,030

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Statewide	GRR	Preservation	Guardrail replacement [Federal Aid Guardrail Improvement Program] (Annual Project)	Construction	NHDOT	$376,000	$388,032	$400,449	$413,263	$1,577,744
					FHWA	$1,504,000	$1,552,128	$1,601,796	$1,653,054	$6,310,978
				PE	NHDOT	$30,000	$30,960	$31,951	$32,973	$125,884
					FHWA	$120,000	$123,840	$127,803	$131,893	$503,535
				ROW	NHDOT	$1,000	$1,032	$1,065	$1,099	$4,196
					FHWA	$4,000	$4,128	$4,260	$4,396	$16,785
	GRR Total					$2,035,000	$2,100,120	$2,167,324	$2,236,678	$8,539,122
Statewide	HSIP	Preservation	Highway Safety Improvement Program (HSIP)	Construction	NHDOT	$750,000	$774,000	$798,768	$824,329	$3,147,097
					FHWA	$6,750,000	$6,966,000	$7,188,912	$7,418,957	$28,323,869
				PE	NHDOT	$100,000	$103,200	$117,153	$109,910	$430,263
					FHWA	$900,000	$928,800	$1,054,374	$989,194	$3,872,368
				ROW	NHDOT	$50,000	$51,600	$53,251	$54,955	$209,806
					FHWA	$450,000	$464,400	$479,261	$494,597	$1,888,258
	HSIP Total					$9,000,000	$9,288,000	$9,691,718	$9,891,943	$37,871,661

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Statewide	IMPPP	Pavement	Interstate maintenance and Interstate pavement preservation program (Annual Program)	Construction	NHDOT	$592,000	$610,944	$630,494	$715,737	$2,549,175
					FHWA	$5,328,000	$5,498,496	$5,674,448	$6,441,633	$22,942,577
				PE	NHDOT	$10,000	$10,320	$10,650	$10,991	$41,961
					FHWA	$90,000	$92,880	$95,852	$98,919	$377,652
	IMPPP Total					$6,020,000	$6,212,640	$6,411,444	$7,267,281	$25,911,365
Statewide	MOBRR	Municipal	Municipal bridge rehabilitation & replacement program (MOBRR program)	Construction	Other	$1,200,000	$825,600	$1,065,024	$1,318,926	$4,409,550
					FHWA	$4,800,000	$3,302,400	$4,260,096	$5,275,703	$17,638,199
				PE	NHDOT			$21,300	$21,982	$43,283
					Other	$20,000	$20,640			$40,640
					FHWA	$80,000	$82,560	$85,202	$87,928	$335,690
				ROW	NHDOT			$11,715	$12,090	$23,805
					Other	$10,000	$10,320			$20,320
					FHWA	$40,000	$41,280	$46,861	$48,361	$176,502
	MOBRR Total					$6,150,000	$4,282,800	$5,490,199	$6,764,990	$22,687,989

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Statewide	PRRCS	Pavement	Pavement rehabilitation, resurfacing & crackseal program & related work (Annual Fed Res Prog)	Construction	NHDOT	$3,155,000	$3,255,960	$3,360,151	$3,467,676	$13,238,786
					FHWA	$12,620,000	$13,023,840	$13,440,603	$13,870,702	$52,955,145
				PE	NHDOT	$75,000	$77,400	$79,877	$82,433	$314,710
					FHWA	$300,000	$309,600	$319,507	$329,731	$1,258,839
				ROW	NHDOT	$5,000	$5,160	$5,325	$5,496	$20,981
					FHWA	$20,000	$20,640	$21,300	$21,982	$83,923
	PRRCS Total					$16,175,000	$16,692,600	$17,226,763	$17,778,020	$67,872,383
Statewide	PVMRK	Traffic	Statewide Pavement Marking Annual Project	Construction	NHDOT	$682,000	$703,824	$726,346	$749,589	$2,861,760
					FHWA	$2,728,000	$2,815,296	$2,905,385	$2,998,358	$11,447,039
	PVMRK Total					$3,410,000	$3,519,120	$3,631,732	$3,747,947	$14,308,799
Statewide	RCTRL	Low Volume Corridors	Recreation trails fund ACT – Projects selected annually	Construction	NH DRED	$225,000	$232,200	$239,630	$247,299	$944,129
					FHWA	$900,000	$928,800	$958,522	$989,194	$3,776,516
				PE	NH DRED	$18,200	$18,782	$19,383	$20,004	$76,370
					FHWA	$72,800	$75,130	$77,534	$80,015	$305,478
				ROW	NH DRED	$5,000	$5,160	$5,325	$5,496	$20,981
					FHWA	$20,000	$20,640	$21,300	$21,982	$83,923
	RCTRL Total					$1,241,000	$1,280,712	$1,321,695	$1,363,989	$5,207,396

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Statewide	RRRCS	Rail	Reconstruction of crossings, signals, and related work (Annual Project)	Construction	NHDOT	$121,000	$124,872	$128,868	$120,902	$495,641
					FHWA	$1,089,000	$1,123,848	$1,159,811	$1,088,114	$4,460,773
				PE	NHDOT	$4,400	$4,128	$4,686	$4,396	$17,611
					FHWA	$39,600	$37,152	$42,175	$39,568	$158,495
				ROW	NHDOT	$2,000	$2,064	$2,130	$2,198	$8,392
					FHWA	$18,000	$18,576	$19,170	$19,784	$75,530
	RRRCS Total					$1,274,000	$1,310,640	$1,356,841	$1,274,962	$5,216,442
Statewide	SBCM	Low Volume Corridors	Scenic byways, corridor management, planning and development of facilities, conservation	Construction	Other	$50,000	$51,600	$53,251	$54,955	$209,806
					FHWA	$200,000	$206,400	$213,005	$219,821	$839,226
				PE	Other	$30,000	$30,960	$31,951	$32,973	$125,884
					FHWA	$120,000	$123,840	$127,803	$131,893	$503,535
				ROW	Other	$20,000	$20,640	$21,300	$21,982	$83,923
					FHWA	$80,000	$82,560	$85,202	$87,928	$335,690
	SBCM Total					$500,000	$516,000	$532,512	$549,552	$2,098,064
Statewide	SRTS	Various	Safe routes to school program	Construction	FHWA	$940,000	$949,440	$1,006,448	$1,027,663	$3,923,551
				PE	FHWA	$55,000	$56,760	$53,251	$54,955	$219,966
				ROW	FHWA	$10,000	$30,960	$5,325	$5,496	$51,781
	SRTS Total					$1,005,000	$1,037,160	$1,065,024	$1,088,114	$4,195,298

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Statewide	SSRR	Pavement	Secondary system reclamation / rehab with various pavement treatments [Parent]	Construction	NHDOT	$580,000	$598,560	$617,714	$637,481	$2,433,755
					FHWA	$2,320,000	$2,394,240	$2,470,856	$2,549,923	$9,735,019
				PE	NHDOT	$20,000	$20,640	$21,300	$21,982	$83,923
					FHWA	$80,000	$82,560	$85,202	$87,928	$335,690
				ROW	NHDOT	$1,000	$1,032	$1,065	$1,099	$4,196
					FHWA	$4,000	$4,128	$4,260	$4,396	$16,785
	SSRR Total					$3,005,000	$3,101,160	$3,200,397	$3,302,810	$12,609,367
Statewide	TSMO	Traffic	Statewide Transportation Systems Management and Operations, ITS Technologies, CARS-511 Traveler Info	PE	NHDOT	$50,000	$51,600	$53,251	$54,955	$209,806
					FHWA	$200,000	$206,400	$213,005	$219,821	$839,226
	TSMO Total					$250,000	$258,000	$266,256	$274,776	$1,049,032
Statewide	UBI	ENG & ROW	Underwater bridge inspection (Annual Project)	PE	NHDOT	$10,000	$10,320	$10,650	$10,991	$41,961
					FHWA	$40,000	$41,280	$42,601	$43,964	$167,845
	UBI Total					$50,000	$51,600	$53,251	$54,955	$209,806
statewide LTAP	LTAP	Municipal	Local Technology Assistance Program (LTAP) administered by the Technology Transfer Center @ UNH	Planning	FHWA	$150,000	$154,800	$159,754	$164,866	$629,419
	LTAP Total					$150,000	$154,800	$159,754	$164,866	$629,419

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Statewide Special	DBE	Administration	In house administration of the FHWA supportive program: "DBE compliance monitoring (Annual Program)	PE	FHWA	$90,000	$92,880	$95,852	$98,919	$377,652
	DBE Total					$90,000	$92,880	$95,852	$98,919	$377,652
Statewide-RWIS	25198	Various	To install Road and Weather systems around the State.	Construction	FHWA	$344,960				$344,960
					NHDOT	$86,240				$86,240
	25198 Total					$431,200				$431,200
TRAC	TRAC	Statewide	Implement and participate in AASHTO TRAC program in local high schools.	PE	NHDOT	$4,400	$4,541	$4,686	$4,836	$18,463
					FHWA	$17,600	$18,163	$18,744	$19,344	$73,852
	TRAC Total					$22,000	$22,704	$23,431	$24,180	$92,315
USSS	USSS	TRAFFIC	Project to update signing on state system	Construction	NHDOT	$100,000	$103,200	$106,502	$109,910	$419,613
					FHWA	$400,000	$412,800	$426,010	$439,642	$1,678,452
				PE	NHDOT	$6,600	$6,811	$7,029	$7,254	$27,694
					FHWA	$26,400	$27,245	$28,117	$29,016	$110,778
	USSS Total					$533,000	$550,056	$567,658	$585,823	$2,236,537

Project Name	State Project #	Route/Road	Scope of Work	Phase	Government Entity Code	2015	2016	2017	2018	Grand Total
Vendor Maintenance of ITS Devices	27022	Various	Vendor Maintenance of Statewide ITS devices	Construction	FHWA	$88,000				$88,000
					NHDOT	$22,000				$22,000
	27022 Total					$110,000				$110,000

Project List 2: Projects from Years 2019-2024

-The list below contains regional projects and statewide programs covering the 2019-2024 period of the 2015-2040 Metropolitan Transportation Plan.

PROJECTS FUNDED THOUGH THE HIGHWAY TRUST

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
BARRINGTON	Green Hill Rd	0.354		Bridge Rehab over Isinglass River - 109/162							Specific project from statewide program, local administration
26722											
[8779]			C	2022	$234,400	$0	$58,600	$293,000	State Aid Bridge	New Project	
			P	2022	$46,400	$0	$11,600	$58,000	State Aid Bridge		
Municipal Bridges			R	2022	$2,400	$0	$600	$3,000	State Aid Bridge		
Highway and bridge								$0			
				TOTAL	$283,200	$0	$70,800	$354,000			
Dover to Rochester	NH 108	10.903		NH 108 Dover to Rochester (U-alternative) complete street improvements to improve safety and congestion along corridor							
SRPC1											
[9007]			C	2023	$5,311,200	$0	$1,327,800	$6,639,000	M240-STP-Flex	New Project	
Individual projects			C	2024	$2,740,800	$0	$685,200	$3,426,000	M240-STP-Flex	New Project	
Highway and bridge			P	2020	$289,600	$0	$72,400	$362,000	M240-STP-Flex		
			R	2021	$199,200	$0	$49,800	$249,000	M240-STP-Flex		
				TOTAL	$8,540,800	$0	$2,135,200	$10,676,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Durham	US - 4	5.929		Bridge Replacement & approaches over Bunker Creek - 145/116. Bridge is #40 on the priority list							2013 Bridge priority #26 Previous programmed year - 2020
16236											
[4059]			C	2019	$4,120,800	$0	$1,030,200	5,151,000	L050 Nat. Hywy Sys		
Bridges				TOTAL	$4,120,800	$0	$1,030,200	5,151,000			
Highway and bridge											
Durham	US - 4/ NH 108	0.981		Intersection improvements at the US 4 ramp intersection with NH108							Previously programmed beyond TYP (deferred
16254											
[3286]			C	2020	$531,200	$0	$132,800	$664,000	L050 Nat. Hywy Sys		
Individual projects				TOTAL	$531,200	$0	$132,800	$664,000			
Highway and bridge											
Metro Planning	Planning & Research			Strafford Metropolitan Planning organization, Anticipated Funds for UPWPs							
MPO3		3.825									
[811]				2019	$305,600	$0	$76,400	$382,000	M450 - PL		
				2020	$305,600	$0	$76,400	$382,000	M450 - PL		
Mandated Federal				2021	$305,600	$0	$76,400	$382,000	M450 - PL		
Highway and bridge				2022	$305,600	$0	$76,400	$382,000	M450 - PL		
				2023	$305,600	$0	$76,400	$382,000	M450 - PL		
				2024	$305,600	$0	$76,400	$382,000	M450 - PL		
				TOTAL	$1,833,600	$0	$458,400	$2,292,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
SPR #1	Planning & Research			State planning & research - part #1 "planning"							
[665]		29.380									
			p	2019	$2,350,400	$0	$587,600	$2,938,000	M550 - SPR		
			p	2020	$2,350,400	$0	$587,600	$2,938,000	M550 - SPR		
			p	2021	$2,350,400	$0	$587,600	$2,938,000	M550 - SPR		
Mandated Federal			p	2022	$2,350,400	$0	$587,600	$2,938,000	M550 - SPR		
Highway and bridge			p	2023	$2,350,400	$0	$587,600	$2,938,000	M550 - SPR		
			p	2024	$2,350,400	$0	$587,600	$2,938,000	M550 - SPR		
				TOTAL	$14,102,400	$0	$3,525,600	$17,628,000			
Statewide	Administration	2.000		Annual traingin program (annuanl project)							
Training											
[451]			p	2019	$160,000	$0	$40,000	200,000	M240-STP-Flex		
			p	2020	$160,000	$0	$40,000	200,000	M240-STP-Flex		Program funding for departmental training
Individual projects			p	2021	$160,000	$0	$40,000	200,000	M240-STP-Flex		
Highway and bridge			p	2022	$160,000	$0	$40,000	200,000	M240-STP-Flex		
			p	2023	$160,000	$0	$40,000	200,000	M240-STP-Flex		
			p	2024	$160,000	$0	$40,000	200,000	M240-STP-Flex		
				TOTAL	$960,000	$0	$240,000	1,200,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide Special	Administration	0.900		In house administration of the FHWA supportive services program "DBE" compliance monitorting (Annual Program)							
DBE											
[45]			p	2019	$72,000	$0	$18,000	$90,000	H480 - DBE Support services		Federal specified funding for disadvantaged busines enterprises
			p	2020	$72,000	$0	$18,000	$90,000	H480 - DBE Support services		
Mandated Federal			p	2021	$72,000	$0	$18,000	$90,000	H480 - DBE Support services		
Highway and bridge			p	2022	$72,000	$0	$18,000	$90,000	H480 - DBE Support services		
			p	2023	$72,000	$0	$18,000	$90,000	H480 - DBE Support services		
			p	2024	$72,000	$0	$18,000	$90,000	H480 - DBE Support services		
				TOTAL	$432,000	$0	$108,000	$540,000			
Statewide	Administration	0.220		Impliment and participate in AASHTO TRAC program in local high schools to encourage students to explore opportunities in Transportation careers [parent] (annual project)							
TRAC											
[8285]				2019	$17,600	$0	$4,400	$22,000	M240-STP-Flex		
				2020	$17,600	$0	$4,400	$22,000	M240-STP-Flex		
Eng & ROW				2021	$17,600	$0	$4,400	$22,000	M240-STP-Flex		
Highway and bridge				2022	$17,600	$0	$4,400	$22,000	M240-STP-Flex		
				2023	$17,600	$0	$4,400	$22,000	M240-STP-Flex		
				2024	$17,600	$0	$4,400	$22,000	M240-STP-Flex		
				TOTAL	$105,600	$0	$26,400	$132,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Administration	15.659		Recreational Trails Fund Act - Projects selected annually							
RCTRL											
[2570]			C	2019	$1,160,000	$0	$290,000	$1,450,000	M940-RTP		
			C	2020	$1,160,000	$0	$290,000	$1,450,000	M940-RTP		
Mandated Federal			C	2021	$1,160,000	$0	$290,000	$1,450,000	M940-RTP		
Bike/Ped			C	2022	$1,160,000	$0	$290,000	$1,450,000	M940-RTP		
			C	2023	$1,160,000	$0	$290,000	$1,450,000	M940-RTP		
			C	2024	$1,160,000	$0	$290,000	$1,450,000	M940-RTP		
				TOTAL	$6,960,000	$0	$1,740,000	$8,700,000			
			p	2019	$72,800	$0	$18,200	$91,000	M940-RTP		Specified funding for Rec trails program administered by NH-DRED
			p	2020	$72,800	$0	$18,200	$91,000	M940-RTP		
			p	2021	$72,800	$0	$18,200	$91,000	M940-RTP		
			p	2022	$72,800	$0	$18,200	$91,000	M940-RTP		
			p	2023	$72,800	$0	$18,200	$91,000	M940-RTP		
			p	2024	$72,800	$0	$18,200	$91,000	M940-RTP		
				TOTAL	$436,800	$0	$109,200	$546,000			
			R	2019	$20,000	$0	$5,000	$25,000	M940-RTP		
			R	2020	$20,000	$0	$5,000	$25,000	M940-RTP		
			R	2021	$20,000	$0	$5,000	$25,000	M940-RTP		
			R	2022	$20,000	$0	$5,000	$25,000	M940-RTP		
			R	2023	$20,000	$0	$5,000	$25,000	M940-RTP		
			R	2024	$20,000	$0	$5,000	$25,000	M940-RTP		
				TOTAL	$120,000	$0	$30,000	$150,000			
			GRAND TOTALS		$7,516,800	$0	$1,879,200	$9,396,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide Districts	Betterment	12.000		Districts Force account work @ various locations [parent] (annual project)							
BFA											
[789]			C	2019	$960,000	$0	$240,000	$1,200,000	Betterment - State FY		
			C	2020	$960,000	$0	$240,000	$1,200,000	Betterment - State FY		
			C	2021	$960,000	$0	$240,000	$1,200,000	Betterment - State FY		Force account through district staff
Preservation-Maintenance			C	2022	$960,000	$0	$240,000	$1,200,000	Betterment - State FY		
Highway and bridge			C	2023	$960,000	$0	$240,000	$1,200,000	Betterment - State FY		
			C	2024	$960,000	$0	$240,000	$1,200,000	Betterment - State FY		
				TOTAL	$5,760,000	$0	$1,440,000	$7,200,000			
Statewide	Betterment			Discretionary projetcs							
BSTAL											
[2092]			C	2019	$1,360,000	$0	$340,000	$1,700,000	Betterment - State FY		
			C	2020	$1,360,000	$0	$340,000	$1,700,000	Betterment - State FY		
Preservation-Maintenance			C	2021	$1,360,000	$0	$340,000	$1,700,000	Betterment - State FY		
Highway and bridge			C	2022	$1,360,000	$0	$340,000	$1,700,000	Betterment - State FY		
			C	2023	$1,360,000	$0	$340,000	$1,700,000	Betterment - State FY		
			C	2024	$1,360,000	$0	$340,000	$1,700,000	Betterment - State FY		
				TOTAL	$8,160,000	$0	$2,040,000	$10,200,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide P.E.	Eng&ROW	35.000		Preliminary Engineering (annual Funding)							
SWPE											
[3531]			p	2019	$2,800,000	$0	$700,000	$3,500,000	M240-STP-Flex		Available Funding as required for specific projects for which the scope of work (and the depth of engineering) has yet to be defined
			p	2020	$2,800,000	$0	$700,000	$3,500,000	M240-STP-Flex		
			p	2021	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
			p	2022	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
Eng&ROW			p	2023	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
Highway and Bridge			p	2024	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
				TOTAL	$23,200,000	$0	$5,800,000	$29,000,000			
Statewide ROW	Eng&ROW	35.000		Right of way Acquisitions (annual funding)							
SWROW											
[3532]			R	2019	$2,800,000	$0	$700,000	$3,500,000	M240-STP-Flex		Available ROW funding as required for specific projects for which the scope of work (and the amount of ROW0 has yet to be determined)
			R	2020	$2,800,000	$0	$700,000	$3,500,000	M240-STP-Flex		
			R	2021	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
Eng&ROW			R	2022	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
Highway and Bridge			R	2023	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
			R	2024	$4,400,000	$0	$1,100,000	$5,500,000	M240-STP-Flex		
				TOTAL	$23,200,000	$0	$5,800,000	$29,000,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Eng & ROW	0.300		Underwater Bridge Inspection (annual program)							
UBI											
[186]			p	2019	$24,000	$0	$6,000	$30,000	L1C0 - Bridge Prog on/off system		
			p	2020	$24,000	$0	$6,000	$30,000	L1C0 - Bridge Prog on/off system		Consultant services for underwater bridge inspections
Bridges			p	2021	$24,000	$0	$6,000	$30,000	L1C0 - Bridge Prog on/off system		
Highway and Bridge			p	2022	$24,000	$0	$6,000	$30,000	L1C0 - Bridge Prog on/off system		
			p	2023	$24,000	$0	$6,000	$30,000	L1C0 - Bridge Prog on/off system		
			p	2024	$24,000	$0	$6,000	$30,000	L1C0 - Bridge Prog on/off system		
				TOTAL	$144,000	$0	$36,000	$180,000			
Statewide	Misc.	0.400		Annual statewide program for the expanded wilflower establishment program for use in planing native wildflowers (License plate program)							
WLDFL											
			C	2019	$29,600	$0	$7,400	$37,000	Other		
			C	2020	$29,600	$0	$7,400	$37,000	Other		
Individual projects			C	2021	$29,600	$0	$7,400	$37,000	Other		
Highway and Bridge			C	2022	$29,600	$0	$7,400	$37,000	Other		
			C	2023	$29,600	$0	$7,400	$37,000	Other		
			C	2024	$29,600	$0	$7,400	$37,000	Other		
				TOTAL	$177,600	$0	$44,400	$222,000	Other		
			p	2019	$2,400	$0	$600	$3,000	Other		
			p	2020	$2,400	$0	$600	$3,000	Other		
			p	2021	$2,400	$0	$600	$3,000	Other		
			p	2022	$2,400	$0	$600	$3,000	Other		
			p	2023	$2,400	$0	$600	$3,000	Other		
			p	2024	$2,400	$0	$600	$3,000	Other		
				TOTAL	$14,400	$0	$3,600	$18,000	Other		
			GRAND TOTALS		$192,000	$0	$48,000	$240,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Pavement	1.500		Maintenance and upgrades for rest areas (annual)							$.15 million annual program
14899											
[6127]			C	2019	$108,000	$0	$27,000	$135,000	M240-STP-Flex		
			C	2020	$108,000	$0	$27,000	$135,000	M240-STP-Flex		
			C	2021	$108,000	$0	$27,000	$135,000	M240-STP-Flex		
Preservation-Maintenance			C	2022	$108,000	$0	$27,000	$135,000	M240-STP-Flex		
Highway and Bridge			C	2023	$108,000	$0	$27,000	$135,000	M240-STP-Flex		
			C	2024	$108,000	$0	$27,000	$135,000	M240-STP-Flex		
				TOTAL	$648,000	$0	$162,000	$810,000			
			p	2019	$12,000	$0	$3,000	$15,000	M240-STP-Flex		
			p	2020	$12,000	$0	$3,000	$15,000	M240-STP-Flex		
			p	2021	$12,000	$0	$3,000	$15,000	M240-STP-Flex		
			p	2022	$12,000	$0	$3,000	$15,000	M240-STP-Flex		
			p	2023	$12,000	$0	$3,000	$15,000	M240-STP-Flex		
			p	2024	$12,000	$0	$3,000	$15,000	M240-STP-Flex		
				TOTAL	$72,000	$0	$18,000	$90,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Misc.	750.000		Programmatic project for post construction environmental obligations							
Hazmat											
[8671]			R	2019	$60,000	$0	$15,000	$75,000	M240-STP-Flex		
			R	2020	$60,000	$0	$15,000	$75,000	M240-STP-Flex		
			R	2021	$60,000	$0	$15,000	$75,000	M240-STP-Flex		
Individual projects			R	2022	$60,000	$0	$15,000	$75,000	M240-STP-Flex		
Highway and Bridge			R	2023	$60,000	$0	$15,000	$75,000	M240-STP-Flex		
			R	2024	$60,000	$0	$15,000	$75,000	M240-STP-Flex		
				TOTAL	$360,000	$0	$90,000	$450,000			
Statewide	Misc.	204.000		Replacement program for state-owned transit coaches							Funds for the program are deducted from CMAQ (ID 446)
CMAQ - T											
[9011]				2019	$3,840,000	$0	$960,000	$4,800,000	M400-CMAQ		
				2020	$480,000	$0	$120,000	$600,000	M400-CMAQ		
				2020	$1,440,000	$0	$360,000	$1,800,000	M400-CMAQ		
Mandated Federal				2021	$2,400,000	$0	$600,000	$3,000,000	M400-CMAQ		
Highway and Bridge				2022	$960,000	$0	$240,000	$1,200,000	M400-CMAQ		
				TOTAL	$9,120,000	$0	$2,280,000	$11,400,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Municipal	42.000		Municipal owned bridge rehab & replacement projects (Fed, State +local funds)							
MOBRR											
[221]			C	2019	$3,016,000	$0	$754,000	$3,770,000	M233-STP - Off system bridge		
			C	2020	$3,016,000	$0	$754,000	$3,770,000	M233-STP - Off system bridge		
			C	2021	$3,016,000	$0	$754,000	$3,770,000	M233-STP - Off system bridge		
			C	2022	$3,016,000	$0	$754,000	$3,770,000	M233-STP - Off system bridge		
			C	2023	$3,016,000	$0	$754,000	$3,770,000	M233-STP - Off system bridge		
			C	2024	$3,016,000	$0	$754,000	$3,770,000	M233-STP - Off system bridge		
				TOTAL	$18,096,000	$0	$4,524,000	$22,620,000			
Bridges			p	2019	$256,000	$0	$64,000	$320,000	M233-STP - Off system bridge		
Highway and Bridge			p	2020	$256,000	$0	$64,000	$320,000	M233-STP - Off system bridge		
			p	2021	$256,000	$0	$64,000	$320,000	M233-STP - Off system bridge		
			p	2022	$256,000	$0	$64,000	$320,000	M233-STP - Off system bridge		
			p	2023	$256,000	$0	$64,000	$320,000	M233-STP - Off system bridge		
			p	2024	$256,000	$0	$64,000	$320,000	M233-STP - Off system bridge		
				TOTAL	$1,536,000	$0	$384,000	$1,920,000			
			R	2019	$128,000	$0	$32,000	$160,000	M233-STP - Off system bridge		
			R	2020	$128,000	$0	$32,000	$160,000	M233-STP - Off system bridge		
			R	2021	$128,000	$0	$32,000	$160,000	M233-STP - Off system bridge		
			R	2022	$128,000	$0	$32,000	$160,000	M233-STP - Off system bridge		
			R	2023	$128,000	$0	$32,000	$160,000	M233-STP - Off system bridge		
			R	2024	$128,000	$0	$32,000	$160,000	M233-STP - Off system bridge		
				TOTAL	$768,000	$0	$192,000	$960,000			
			GRAND TOTALS		$20,400,000	$0	$5,100,000	$25,500,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Municipal	33.400		Municipal urban projects - compact areas (annual project)							
MUPCA											
[450]			C	2019	$3,280,000	$0	$820,000	$4,100,000	L230-STP urb. Areas >200K		
			C	2020	$4,000,000	$0	$1,000,000	$5,000,000	L230-STP urb. Areas >200K		
Preservation-Maintenance			C	2021	$4,000,000	$0	$1,000,000	$5,000,000	L230-STP urb. Areas >200K		Specific projects occupy vacant FY's & below normal FY funding
Highway and Bridge			C	2022	$4,000,000	$0	$1,000,000	$5,000,000	L230-STP urb. Areas >200K		
			C	2023	$4,000,000	$0	$1,000,000	$5,000,000	L230-STP urb. Areas >200K		
			C	2024	$4,000,000	$0	$1,000,000	$5,000,000	L230-STP urb. Areas >200K		
				TOTAL	$23,280,000	$0	$5,820,000	$29,100,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									
Statewide	Municipal	119.744		State aid bridge projects							
SAB											
[4216]			C	2019	$6,800,000	$0	$1,700,000	$8,500,000	Senate bill 367 road toll increase		
			C	2019	$2,497,600	$0	$624,400	$3,122,000	SAB - State Aid Bridge		
Municiapl bridges			C	2020	$6,800,000	$0	$1,700,000	$8,500,000	Senate bill 367 road toll increase		
Highway and Bridge			C	2020	$4,764,000	$0	$1,191,000	$5,955,000	SAB - State Aid Bridge		
			C	2021	$6,800,000	$0	$1,700,000	$8,500,000	Senate bill 367 road toll increase		
			C	2021	$4,764,000	$0	$1,191,000	$5,955,000	SAB - State Aid Bridge		
			C	2022	$6,800,000	$0	$1,700,000	$8,500,000	Senate bill 367 road toll increase		
			C	2022	$4,764,000	$0	$1,191,000	$5,955,000	SAB - State Aid Bridge		
			C	2023	$6,800,000	$0	$1,700,000	$8,500,000	Senate bill 367 road toll increase		
			C	2023	$4,764,000	$0	$1,191,000	$5,955,000	SAB - State Aid Bridge		
			C	2024	$6,800,000	$0	$1,700,000	$8,500,000	Senate bill 367 road toll increase		
			C	2024	$4,764,000	$0	$1,191,000	$5,955,000	SAB - State Aid Bridge		Specific Projects occupy the vacant FY's & below normal FY funding. State program mandated by RSA 234 to assist municipalities with bridge needs. Uses 20% local match/ 80% state funds. Additional 2015 program funds from SB 367 road toll increase (if passed)
				TOTAL	$67,117,600	$0	$16,779,400	$83,897,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Municipal	23.273		State and Highway projects							Specific projects occupy the vacat FY's & below normal FY funding. State program mandated by RSA 235: 10-21 for constructing class 1, 2, +3 highways when requested by municipalities. Uses 1/3 local match 2/3 state funds.
SAH											
[4217]			C	2019	$2,029,600	$0	$507,400	$2,537,000	SAH - State aid hwys		
			C	2020	$2,029,600	$0	$507,400	$2,537,000	SAH - State aid hwys		
			C	2021	$2,029,600	$0	$507,400	$2,537,000	SAH - State aid hwys		
Preservation-Maintenance			C	2022	$2,029,600	$0	$507,400	$2,537,000	SAH - State aid hwys		
Highway and Bridge			C	2023	$2,029,600	$0	$507,400	$2,537,000	SAH - State aid hwys		
			C	2024	$2,029,600	$0	$507,400	$2,537,000	SAH - State aid hwys		
				TOTAL	$12,177,600	$0	$3,044,400	$15,222,000			
Statewide Special	Municipal	0.300		Technical Assistance program to rural communities and organization throughout the state (LTAP*10344) (annual project)							Federal specified funding for providing technical assistance on transportation issues to municipalities
LTAP											
[58]			p	2019	$24,000	$0	$6,000	$30,000	438E-local tech assistance prog.		
Mandated Federal			p	2020	$24,000	$0	$6,000	$30,000	438E-local tech assistance prog.		
Highway and Bridge			p	2021	$24,000	$0	$6,000	$30,000	438E-local tech assistance prog.		
			p	2022	$24,000	$0	$6,000	$30,000	438E-local tech assistance prog.		
			p	2023	$24,000	$0	$6,000	$30,000	438E-local tech assistance prog.		
			p	2024	$24,000	$0	$6,000	$30,000	438E-local tech assistance prog.		
				TOTAL	$144,000	$0	$36,000	$180,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Municipal	31.202		Interstate maintenance & interstate pavement preservation program (annual prog)							
TA											
[3747]			C	2019	$2,496,000	$0	$624,000	$3,120,000	M300 TAP		Interstate paving program, average of $6 million annually for preservation needs.
			C	2020	$2,496,000	$0	$624,000	$3,120,000	M300 TAP		
Mandated Federal			C	2021	$2,496,000	$0	$624,000	$3,120,000	M300 TAP		
Highway and Bridge			C	2022	$2,496,000	$0	$624,000	$3,120,000	M300 TAP		
			C	2023	$2,496,000	$0	$624,000	$3,120,000	M300 TAP		
			C	2024	$2,496,000	$0	$624,000	$3,120,000	M300 TAP		
				TOTAL	$14,976,000	$0	$3,744,000	$18,720,000			
Statewide	pavement	60.200		Interstate Maintenance & Interstate pavement preservation program (annual prog)							
IMPPP											
[3927]			C	2019	$4,736,000	$0	$1,184,000	$5,920,000	M001 - NHPP		Interstate paving program, average of $6 million annually for preservation needs.
			C	2020	$4,736,000	$0	$1,184,000	$5,920,000	M001 - NHPP		
Interstate Maintenance			C	2021	$4,736,000	$0	$1,184,000	$5,920,000	M001 - NHPP		
Highway and Bridge			C	2022	$4,736,000	$0	$1,184,000	$5,920,000	M001 - NHPP		
			C	2023	$4,736,000	$0	$1,184,000	$5,920,000	M001 - NHPP		
			C	2024	$4,736,000	$0	$1,184,000	$5,920,000	M001 - NHPP		
				TOTAL	$28,416,000	$0	$7,104,000	$35,520,000			
			p	2019	$80,000	$0	$20,000	$100,000	M001 - NHPP		
			p	2020	$80,000	$0	$20,000	$100,000	M001 - NHPP		
			p	2021	$80,000	$0	$20,000	$100,000	M001 - NHPP		
			p	2022	$80,000	$0	$20,000	$100,000	M001 - NHPP		
			p	2023	$80,000	$0	$20,000	$100,000	M001 - NHPP		
			p	2024	$80,000	$0	$20,000	$100,000	M001 - NHPP		
				TOTAL	$480,000	$0	$120,000	$600,000			
			GRAND TOTALS		$28,896,000	$0	$7,224,000	$36,120,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Pavement	162.930		Pavement resurfacing, Rehab & crackseal program & related work (annual Federal resurfacing program)							
PRRCS											
[452]			C	2019	$12,620,000	$0	$3,155,000	$15,775,000	M240-STP-Flex		
			C	2020	$12,620,000	$0	$3,155,000	$15,775,000	M240-STP-Flex		
			C	2021	$12,620,000	$0	$3,155,000	$15,775,000	M240-STP-Flex		
			C	2022	$12,620,000	$0	$3,155,000	$15,775,000	M240-STP-Flex		
			C	2023	$12,620,000	$0	$3,155,000	$15,775,000	M240-STP-Flex		
			C	2024	$12,620,000	$0	$3,155,000	$15,775,000	M240-STP-Flex		
				TOTAL	$75,720,000	$0	$18,930,000	$94,650,000			
			p	2019	$300,000	$0	$75,000	$375,000	M240-STP-Flex		Federal resurfacing program. $16 million annually for preservation needs. Additional in years 15-17 from statewide exit number signing
Preservation-Maintenance			p	2020	$300,000	$0	$75,000	$375,000	M240-STP-Flex		
Highway and Bridge			p	2021	$300,000	$0	$75,000	$375,000	M240-STP-Flex		
			p	2022	$300,000	$0	$75,000	$375,000	M240-STP-Flex		
			p	2023	$300,000	$0	$75,000	$375,000	M240-STP-Flex		
			p	2024	$300,000	$0	$75,000	$375,000	M240-STP-Flex		
				TOTAL	$1,800,000	$0	$450,000	$2,250,000			
			R	2019	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			R	2020	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			R	2021	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			R	2022	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			R	2023	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			R	2024	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
				TOTAL	$120,000	$0	$30,000	$150,000			
			GRAND TOTALS		$77,640,000	$0	$19,410,000	$97,050,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	pavements	30.050		Secondary system reclamation/rehab various pavement treatments [parent]							
SSRR											
[4148]			C	2019	$2,320,000	$0	$580,000	$2,900,000	M240-STP-Flex		
			C	2020	$2,320,000	$0	$580,000	$2,900,000	M240-STP-Flex		
			C	2021	$2,320,000	$0	$580,000	$2,900,000	M240-STP-Flex		
			C	2022	$2,320,000	$0	$580,000	$2,900,000	M240-STP-Flex		
			C	2023	$2,320,000	$0	$580,000	$2,900,000	M240-STP-Flex		
			C	2024	$2,320,000	$0	$580,000	$2,900,000	M240-STP-Flex		
				TOTAL	$13,920,000	$0	$3,480,000	$17,400,000			
			p	2019	$80,000	$0	$20,000	$100,000	M240-STP-Flex		secondary road rehabilitation program, $3 million annually for preservation needs.
Preservation and Maintenance			p	2020	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
Highway and Bridge			p	2021	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2022	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2023	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2024	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
				TOTAL	$480,000	$0	$120,000	$600,000			
			R	2019	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2020	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2021	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2022	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2023	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2024	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
				TOTAL	$24,000	$0	$6,000	$30,000			
			GRAND TOTALS		$14,424,000	$0	$3,606,000	$18,030,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide Districts	Municipal	197.500		Resurface Various Location (annual advertised projects							Specific Projects occupy the vacant FY's & below normal FY funding. State program mandated by RSA 234 to assist municipalities with bridge needs. Uses 20% local match/ 80% state funds. Additional 2015 program funds from SB 367 road toll increase (if passed)
BRES											
[581]			C	2019	$9,600,000	$0	$2,400,000	$12,000,000	Betterment		
			C	2019	$4,640,000	$0	$1,160,000	$5,800,000	Senate bill 367 road toll increase		
Municipal bridges			C	2020	$9,600,000	$0	$2,400,000	$12,000,000	Betterment		
Highway and Bridge			C	2020	$4,560,000	$0	$1,140,000	$5,700,000	Senate bill 367 road toll increase		
			C	2021	$9,600,000	$0	$2,400,000	$12,000,000	Betterment		
			C	2021	$4,480,000	$0	$1,120,000	$5,600,000	Senate bill 367 road toll increase		
			C	2022	$9,600,000	$0	$2,400,000	$12,000,000	Betterment		
			C	2022	$4,400,000	$0	$1,100,000	$5,500,000	Senate bill 367 road toll increase		
			C	2023	$9,600,000	$0	$2,400,000	$12,000,000	Betterment		
			C	2023	$4,320,000	$0	$1,080,000	$5,400,000	Senate bill 367 road toll increase		
			C	2024	$9,600,000	$0	$2,400,000	$12,000,000	Betterment		
			C	2024	$4,240,000	$0	$1,060,000	$5,300,000	Senate bill 367 road toll increase		
				TOTAL	$84,240,000	$0	$21,060,000	###########			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide Districts	Pavement	24.000		Roadway leveling @ various locations for next fiscal year resurfacing (annual proj.)							
BRL											
[792]			C	2019	$1,920,000	$0	$480,000	$2,400,000	Betterment		
			C	2020	$1,920,000	$0	$480,000	$2,400,000	Betterment		
Municipal bridges			C	2021	$1,920,000	$0	$480,000	$2,400,000	Betterment		
Highway and Bridge			C	2022	$1,920,000	$0	$480,000	$2,400,000	Betterment		
			C	2023	$1,920,000	$0	$480,000	$2,400,000	Betterment		
			C	2024	$1,920,000	$0	$480,000	$2,400,000	Betterment		
				TOTAL	$11,520,000	$0	$2,880,000	$14,400,000			
State Hwy Rehab	Pavement	59.564		rehabilitation of secondary routes and other related work, treatment to vary [parent]							
BRSR											
[6730]			C	2019	$2,880,000	$0	$720,000	$3,600,000	Betterment		
			C	2020	$2,880,000	$0	$720,000	$3,600,000	Betterment		
Preservation and Maintenance			C	2021	$2,880,000	$0	$720,000	$3,600,000	Betterment		
Highway and Bridge			C	2022	$2,880,000	$0	$720,000	$3,600,000	Betterment		
			C	2023	$2,880,000	$0	$720,000	$3,600,000	Betterment		
			C	2024	$2,880,000	$0	$720,000	$3,600,000	Betterment		
				TOTAL	$17,280,000	$0	$4,320,000	$21,600,000			

Force account through district staff. Yearly pavement leveling.

specific project from statewide program. Additional program funds from SB 367, road toll increase (if passed)

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Preservation	80.000		Bridge rehab, painting, preservation & Improvement projects (federal program)							
FBRPI											
[6601]			C	2019	$6,304,000	$0	$1,576,000	$7,880,000	M240-STP-Flex		
			C	2020	$6,304,000	$0	$1,576,000	$7,880,000	M240-STP-Flex		
			C	2021	$6,304,000	$0	$1,576,000	$7,880,000	M240-STP-Flex		
			C	2022	$6,304,000	$0	$1,576,000	$7,880,000	M240-STP-Flex		
			C	2023	$6,304,000	$0	$1,576,000	$7,880,000	M240-STP-Flex		
			C	2024	$6,304,000	$0	$1,576,000	$7,880,000	M240-STP-Flex		
				TOTAL	$37,824,000	$0	$9,456,000	$47,280,000			
			p	2019	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
Bridges			p	2020	$80,000	$0	$20,000	$100,000	M240-STP-Flex		Bridge preservation program $8 million annually for preservation needs.
Highway and Bridge			p	2021	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2022	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2023	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2024	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
				TOTAL	$480,000	$0	$120,000	$600,000			
			R	2019	$16,000	$0	$4,000	$20,000	M240-STP-Flex		
			R	2020	$16,000	$0	$4,000	$20,000	M240-STP-Flex		
			R	2021	$16,000	$0	$4,000	$20,000	M240-STP-Flex		
			R	2022	$16,000	$0	$4,000	$20,000	M240-STP-Flex		
			R	2023	$16,000	$0	$4,000	$20,000	M240-STP-Flex		
			R	2024	$16,000	$0	$4,000	$20,000	M240-STP-Flex		
				TOTAL	$96,000	$0	$24,000	$120,000			
			GRAND TOTALS		$38,400,000	$0	$9,600,000	$48,000,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	preservation	10.000		culvert replacement/rehab & drainage repairs (annual project)							
CRDR											
[4157]			C	2019	$696,000	$0	$174,000	$870,000	M240-STP-Flex		
			C	2020	$696,000	$0	$174,000	$870,000	M240-STP-Flex		
Preservation and maintenance			C	2021	$696,000	$0	$174,000	$870,000	M240-STP-Flex		
Highway and Bridge			C	2022	$696,000	$0	$174,000	$870,000	M240-STP-Flex		
			C	2023	$696,000	$0	$174,000	$870,000	M240-STP-Flex		
			C	2024	$696,000	$0	$174,000	$870,000	M240-STP-Flex		
				TOTAL	$4,176,000	$0	$1,044,000	$5,220,000			
			p	2019	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2020	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2021	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2022	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2023	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
			p	2024	$80,000	$0	$20,000	$100,000	M240-STP-Flex		
				TOTAL	$480,000	$0	$120,000	$600,000			
			R	2019	$24,000	$0	$6,000	$30,000	M240-STP-Flex		
			R	2020	$24,000	$0	$6,000	$30,000	M240-STP-Flex		
			R	2021	$24,000	$0	$6,000	$30,000	M240-STP-Flex		
			R	2022	$24,000	$0	$6,000	$30,000	M240-STP-Flex		
			R	2023	$24,000	$0	$6,000	$30,000	M240-STP-Flex		
			R	2024	$24,000	$0	$6,000	$30,000	M240-STP-Flex		
				TOTAL	$144,000	$0	$36,000	$180,000			
			GRAND TOTALS		$4,800,000	$0	$1,200,000	$6,000,000			

culvert replacement program $1 million annually for preservation needs

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	preservation	0.225		Complex Bridge Inspection (parent)							
CBI											
[7237]			p	2019	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			p	2020	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
Preservation and maintenance			p	2021	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
Highway and Bridge			p	2022	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			p	2023	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
			p	2024	$20,000	$0	$5,000	$25,000	M240-STP-Flex		
				TOTAL	$120,000	$0	$30,000	$150,000			
Statewide BET drainage	preservation	5.000		Drainage improvements programmatic							
BDRG											
[8732]			C	2019	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
			C	2020	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
Preservation and maintenance			C	2021	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
Highway and Bridge			C	2022	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
			C	2023	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
			C	2024	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
				TOTAL	$2,400,000	$0	$600,000	$3,000,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Preservation	20.350		Guardrail replacement [Federal aid guardrail improvement program](annual project)							
GRR											
[785]			C	2019	$1,504,000	$0	$376,000	$1,880,000	M240-STP-Flex		
			C	2020	$1,504,000	$0	$376,000	$1,880,000	M240-STP-Flex		
Preservation and maintenance			C	2021	$1,504,000	$0	$376,000	$1,880,000	M240-STP-Flex		
Highway and Bridge			C	2022	$1,504,000	$0	$376,000	$1,880,000	M240-STP-Flex		
			C	2023	$1,504,000	$0	$376,000	$1,880,000	M240-STP-Flex		
			C	2024	$1,504,000	$0	$376,000	$1,880,000	M240-STP-Flex		
				TOTAL	$9,024,000	$0	$2,256,000	$11,280,000			
			p	2019	$120,000	$0	$30,000	$150,000	M240-STP-Flex		
			p	2020	$120,000	$0	$30,000	$150,000	M240-STP-Flex		Guardrail replace program, $2 million annually for preservation needs.
			p	2021	$120,000	$0	$30,000	$150,000	M240-STP-Flex		
			p	2022	$120,000	$0	$30,000	$150,000	M240-STP-Flex		
			p	2023	$120,000	$0	$30,000	$150,000	M240-STP-Flex		
			p	2024	$120,000	$0	$30,000	$150,000	M240-STP-Flex		
				TOTAL	$720,000	$0	$180,000	$900,000			
			R	2019	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2020	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2021	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2022	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2023	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
			R	2024	$4,000	$0	$1,000	$5,000	M240-STP-Flex		
				TOTAL	$24,000	$0	$6,000	$30,000			
			GRAND TOTALS		$9,768,000	$0	$2,442,000	$12,210,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Rail	11.596		Reconstruction of Crossings, signals, & related work (annual work)							
RRRCS			C	2019	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Hazard Elimination		
[1147]			C	2019	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Protective devices		
			C	2020	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Hazard Elimination		
Mandated federal			C	2020	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Protective devices		
Highway and Bridge			C	2021	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Hazard Elimination		
			C	2021	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Protective devices		
			C	2022	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Hazard Elimination		
			C	2022	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Protective devices		
			C	2023	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Hazard Elimination		
			C	2023	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Protective devices		
			C	2024	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Hazard Elimination		
			C	2024	$440,000	$0	$110,000	$550,000	MS40- Rail/Hwy - Protective devices		
				TOTAL	$5,280,000	$0	$1,320,000	$6,600,000			Force account with railroad to improve safety of railroad crossings
			p	2019	$32,000	$0	$8,000	$40,000	MS40- Rail/Hwy - Protective devices		
			p	2020	$32,000	$0	$8,000	$40,000	MS40- Rail/Hwy - Hazard Elimination		
			p	2021	$32,000	$0	$8,000	$40,000	MS40- Rail/Hwy - Protective devices		
			p	2022	$32,000	$0	$8,000	$40,000	MS40- Rail/Hwy - Hazard Elimination		
			p	2023	$32,000	$0	$8,000	$40,000	MS40- Rail/Hwy - Protective devices		
			p	2024	$32,000	$0	$8,000	$40,000	MS40- Rail/Hwy - Hazard Elimination		
				TOTAL	$192,000	$0	$48,000	$240,000			
			R	2019	$16,000	$0	$4,000	$20,000	MS40- Rail/Hwy - Protective devices		
			R	2020	$16,000	$0	$4,000	$20,000	MS40- Rail/Hwy - Hazard Elimination		
			R	2021	$16,000	$0	$4,000	$20,000	MS40- Rail/Hwy - Protective devices		
			R	2022	$16,000	$0	$4,000	$20,000	MS40- Rail/Hwy - Hazard Elimination		
			R	2023	$16,000	$0	$4,000	$20,000	MS40- Rail/Hwy - Protective devices		
			R	2024	$16,000	$0	$4,000	$20,000	MS40- Rail/Hwy - Hazard Elimination		
				TOTAL	$96,000	$0	$24,000	$120,000			
			GRAND TOTALS		$5,568,000	$0	$1,392,000	$6,960,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Preservation	98.015		Highway Safety Improvement Program (HSIP) [Parent]							Federally specified funding for safety projects in accordance with the Highway Safety Improvement Program
HSIP											
[6767]			C	2019	$7,636,800	$0	$1,909,200	$9,546,000	MS30 - HSIP		
			C	2020	$7,636,800	$0	$1,909,200	$9,546,000	MS30 - HSIP		
Mandated federal			C	2021	$7,636,800	$0	$1,909,200	$9,546,000	MS30 - HSIP		
Highway and Bridge			C	2022	$7,636,800	$0	$1,909,200	$9,546,000	MS30 - HSIP		
			C	2023	$7,636,800	$0	$1,909,200	$9,546,000	MS30 - HSIP		
			C	2024	$7,636,800	$0	$1,909,200	$9,546,000	MS30 - HSIP		
				TOTAL	$45,820,800	$0	$11,455,200	$57,276,000			
			p	2019	$177,600	$0	$44,400	$222,000	MS30 - HSIP		
			p	2020	$177,600	$0	$44,400	$222,000	MS30 - HSIP		
			p	2021	$177,600	$0	$44,400	$222,000	MS30 - HSIP		
			p	2022	$177,600	$0	$44,400	$222,000	MS30 - HSIP		
			p	2023	$177,600	$0	$44,400	$222,000	MS30 - HSIP		
			p	2024	$177,600	$0	$44,400	$222,000	MS30 - HSIP		
				TOTAL	$1,065,600	$0	$266,400	$1,332,000			
			R	2019	$26,400	$0	$6,600	$33,000	MS30 - HSIP		
			R	2020	$26,400	$0	$6,600	$33,000	MS30 - HSIP		
			R	2021	$26,400	$0	$6,600	$33,000	MS30 - HSIP		
			R	2022	$26,400	$0	$6,600	$33,000	MS30 - HSIP		
			R	2023	$26,400	$0	$6,600	$33,000	MS30 - HSIP		
			R	2024	$26,400	$0	$6,600	$33,000	MS30 - HSIP		
				TOTAL	$158,400	$0	$39,600	$198,000			
			GRAND TOTALS		$47,044,800	$0	$11,761,200	$58,806,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Preservation	5.000		Reconstruction and repair of State bridges. Programmatic							
BETBMT											
[8730]			C	2019	$400,000	$0	$100,000	$500,000	BET- betterment (state FY)		
			C	2020	$400,000	$0	$100,000	$500,000	BET- betterment (state FY)		
Preservation and maintenance			C	2021	$400,000	$0	$100,000	$500,000	BET- betterment (state FY)		
Highway and Bridge			C	2022	$400,000	$0	$100,000	$500,000	BET- betterment (state FY)		
			C	2023	$400,000	$0	$100,000	$500,000	BET- betterment (state FY)		
			C	2024	$400,000	$0	$100,000	$500,000	BET- betterment (state FY)		
				TOTAL	$2,400,000	$0	$600,000	$3,000,000			
Statewide	Traffic	31.000		Pavement Marking (annual project)							
PVMRK											
[1146]			C	2019	$2,480,000	$0	$620,000	$3,100,000	M240-STP-Flex		
			C	2020	$2,480,000	$0	$620,000	$3,100,000	M240-STP-Flex		
Preservation and Maintenance			C	2021	$2,480,000	$0	$620,000	$3,100,000	M240-STP-Flex		Annual Pavement striping program funding
Highway and Bridge			C	2022	$2,480,000	$0	$620,000	$3,100,000	M240-STP-Flex		
			C	2023	$2,480,000	$0	$620,000	$3,100,000	M240-STP-Flex		
			C	2024	$2,480,000	$0	$620,000	$3,100,000	M240-STP-Flex		
				TOTAL	$14,880,000	$0	$3,720,000	$18,600,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide districts	Traffic	1.000		Signal equipment upgrades @ various locations (bureau of traffic)							
BSEU											
[3833]			C	2019	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		small state system signal improvement project.
			C	2020	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
			C	2021	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
Preservation and Maintenance Highway and Bridge			C	2022	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
			C	2023	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
			C	2024	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
				TOTAL	$480,000	$0	$120,000	$600,000			
Statewide	Traffic	2.500		Transportation systems management & Operations (ITS. CARS-511)							
TSMO											
[4227]			p	2019	$200,000	$0	$50,000	$250,000	M240-STP-Flex		Programmatic operational funding support for TMC.
			p	2020	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
Individual projects Highway and Bridge			p	2021	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
			p	2022	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
			p	2023	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
			p	2024	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
				TOTAL	$1,200,000	$0	$300,000	$1,500,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide districts	Traffic	1.000		Signal equipment upgrades @ various locations (bureau of traffic)							
BSEU											
[3833]			C	2019	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		small state system signal improvement project.
			C	2020	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
			C	2021	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
Preservation and Maintenance			C	2022	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
Highway and Bridge			C	2023	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
			C	2024	$80,000	$0	$20,000	$100,000	BET- betterment (state FY)		
				TOTAL	$480,000	$0	$120,000	$600,000			
Statewide	Traffic	2.500		Transportation systems management & Operations (ITS. CARS-511)							
TSMO											
[4227]			p	2019	$200,000	$0	$50,000	$250,000	M240-STP-Flex		Programmatic operational funding support for TMC.
			p	2020	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
Individual projects			p	2021	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
Highway and Bridge			p	2022	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
			p	2023	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
			p	2024	$200,000	$0	$50,000	$250,000	M240-STP-Flex		
				TOTAL	$1,200,000	$0	$300,000	$1,500,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Traffic	5.100		Update signing on state system (annual project)							Signing replacement/upgrade program. $0.5M annually for preservation needs.
USSS											
[2735]			C	2019	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
			C	2020	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
Preservation and Maintenance			C	2021	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
Highway and Bridge			C	2022	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
			C	2023	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
			C	2024	$400,000	$0	$100,000	$500,000	M240-STP-Flex		
				TOTAL	$2,400,000	$0	$600,000	$3,000,000			
			p	2019	$8,000	$0	$2,000	$10,000	M240-STP-Flex		
			p	2020	$8,000	$0	$2,000	$10,000	M240-STP-Flex		
			p	2021	$8,000	$0	$2,000	$10,000	M240-STP-Flex		
			p	2022	$8,000	$0	$2,000	$10,000	M240-STP-Flex		
			p	2023	$8,000	$0	$2,000	$10,000	M240-STP-Flex		
			p	2024	$8,000	$0	$2,000	$10,000	M240-STP-Flex		
				TOTAL	$48,000	$0	$12,000	$60,000			
			GRAND TOTALS		$2,448,000	$0	$612,000	$3,060,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Statewide	Transit	9.600		Elderly and Disabled (point of service) (STP transfer to 5310)							
[8334]			C	2019	$640,000	$0	$160,000	$800,000	M240-STP-Flex		Supports point of service transportation activities through the region coordinating committees
			C	2020	$640,000	$0	$160,000	$800,000	M240-STP-Flex		
Individual projects			C	2021	$640,000	$0	$160,000	$800,000	M240-STP-Flex		
Highway and Bridge			C	2022	$640,000	$0	$160,000	$800,000	M240-STP-Flex		
			C	2023	$640,000	$0	$160,000	$800,000	M240-STP-Flex		
			C	2024	$640,000	$0	$160,000	$800,000	M240-STP-Flex		
				TOTAL	$3,840,000	$0	$960,000	$4,800,000			
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

PROJECTS FUNDED THROUGH TURNPIKES

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Dover & Rochester	Spaulding Tnpk	15.000		Improvements to the Dover and Rochester Toll Plazas						E-21	
[8826]											TPK - Turnpike Expansion (state FY)
				2019		$7,000,000		$7,000,000	Construction		
				2020		$7,000,000		$7,000,000	Construction		
Individual projects				2021		$500,000		$500,000	Prelim Engineer		
Highway and Bridge				2022		$500,000		$500,000	Prelim Engineer		
											Proposed Expanded Turnpike Capital Program. Existing toll revenue
				TOTAL	$0	$15,000,000	$0	$15,000,000			

PROJECTS FUNDED THROUGH RAIL, TRANSIT, AND AERONAUTICS

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
COAST	COAST	1.040		ADA OPPERATIONS						E-21	
				2019	$83,200	$0	$20,800	$104,000	FTA-5307-CP		
				2020	$83,200	$0	$20,800	$104,000	FTA-5307-CP		
				2021	$83,200	$0	$20,800	$104,000	FTA-5307-CP		
				2022	$83,200	$0	$20,800	$104,000	FTA-5307-CP		
				2023	$83,200	$0	$20,800	$104,000	FTA-5307-CP		
				2024	$83,200	$0	$20,800	$104,000	FTA-5307-CP		
				TOTAL	$499,200	$0	$124,800	$624,000			
COAST	COAST	1.573		CAPITAL PROGRAM						E-22	
				2019	$125,800	$0	$31,450	$157,250	FTA-5307-CP		
				2020	$125,800	$0	$31,450	$157,250	FTA-5307-CP		
				2021	$125,800	$0	$31,450	$157,250	FTA-5307-CP		
				2022	$125,800	$0	$31,450	$157,250	FTA-5307-CP		
				2023	$125,800	$0	$31,450	$157,250	FTA-5307-CP		
				2024	$125,800	$0	$31,450	$157,250	FTA-5307-CP		
				TOTAL	$754,800	$0	$188,700	$943,500			

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
COAST	COAST	0.540		GENERAL & COMPREHENSIVE PLANNING						E-36	
				2019	$43,200	$0	$10,800	54,000	FTA-5307-CP		
				2020	$43,200	$0	$10,800	54,000	FTA-5307-CP		
				2021	$43,200	$0	$10,800	54,000	FTA-5307-CP		
				2022	$43,200	$0	$10,800	54,000	FTA-5307-CP		
				2023	$43,200	$0	$10,800	54,000	FTA-5307-CP		
				2024	$43,200	$0	$10,800	54,000	FTA-5307-CP		
				TOTAL	$259,200	$0	$64,800	324,000			
COAST	COAST	0.340		MISC. SUPPORT EQUIPMENT						E-24	
				2019	$27,200	$0	$6,800	$34,000	FTA-5307-CP		
				2020	$27,200	$0	$6,800	$34,000	FTA-5307-CP		
				2021	$27,200	$0	$6,800	$34,000	FTA-5307-CP		
				2022	$27,200	$0	$6,800	$34,000	FTA-5307-CP		
				2023	$27,200	$0	$6,800	$34,000	FTA-5307-CP		
				2024	$27,200	$0	$6,800	$34,000	FTA-5307-CP		
				TOTAL	$163,200	$0	$40,800	$204,000			

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
COAST	COAST	0.670		MISC. BUS STATION EQUIPMENT						E-28	
				2019	$53,600	$0	$13,400	$67,000	FTA-5307-CP		
				2020	$53,600	$0	$13,400	$67,000	FTA-5307-CP		
				2021	$53,600	$0	$13,400	$67,000	FTA-5307-CP		
				2022	$53,600	$0	$13,400	$67,000	FTA-5307-CP		
				2023	$53,600	$0	$13,400	$67,000	FTA-5307-CP		
				2024	$53,600	$0	$13,400	$67,000	FTA-5307-CP		
				TOTAL	$321,600	$0	$80,400	$402,000			
COAST	COAST	16.130		OPPERATING ASSISTANCE						E-21	
				2019	$806,500	$0	$806,500	1,613,000	FTA-5307-CP		
				2020	$806,500	$0	$806,500	1,613,000	FTA-5307-CP		
				2021	$806,500	$0	$806,500	1,613,000	FTA-5307-CP		
				2022	$806,500	$0	$806,500	1,613,000	FTA-5307-CP		
				2023	$806,500	$0	$806,500	1,613,000	FTA-5307-CP		
				2024	$806,500	$0	$806,500	1,613,000	FTA-5307-CP		
				TOTAL	$4,839,000	$0	$4,839,000	9,678,000			

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
COAST	COAST	3.910		PREVENTATIVE MAINTENANCE						E-21	
				2019	$312,800	$0	$78,200	$391,000	FTA-5307-CP		
				2020	$312,800	$0	$78,200	$391,000	FTA-5307-CP		
				2021	$312,800	$0	$78,200	$391,000	FTA-5307-CP		
				2022	$312,800	$0	$78,200	$391,000	FTA-5307-CP		
				2023	$312,800	$0	$78,200	$391,000	FTA-5307-CP		
				2024	$312,800	$0	$78,200	$391,000	FTA-5307-CP		
				TOTAL	$1,876,800	$0	$469,200	$2,346,000			
ROCHESTER	Skyhaven Airport	4.477		Preservation - Apron and parking lot improvements. Master planning and wildlife hazard assessment							AIP - Airport Improvement Program
8168											
				2019	$1,560,800	$0	$390,200	$1,951,000	aeronautics		
				TOTAL	$1,560,800	$0	$390,200	$1,951,000	aeronautics		

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
STATEWIDE	Airports	1.907		Preservation - Pavement maintenance, systems planning and ARFF improvements							
8177											
				2019	$234,400	$0	$58,600	$293,000	aeronautics		
				TOTAL	$234,400	$0	$58,600	$293,000	aeronautics		
STATEWIDE	state railroad	4.000		Special Railroad Fund							Maintenance on Sate-Owned Railroads. Fund to repair state-owned railroad lines. Funded by railroad operators
3494											
				2019	$200,000	$0	$200,000	$400,000	Transit		
				2020	$200,000	$0	$200,000	$400,000	Transit		
				2021	$200,000	$0	$200,000	$400,000	Transit		
				2022	$200,000	$0	$200,000	$400,000	Transit		
				2023	$200,000	$0	$200,000	$400,000	Transit		
				2024	$200,000	$0	$200,000	$400,000	Transit		
				TOTAL	$1,200,000	$0	$1,200,000	$2,400,000			
STATEWIDE	Transit	13.364		Enhanced mobility for seniors and individuals with disabilities							Annual Program Funding. Assumes 20% match of the federal funds
3505											
				2019	$1,068,800	$0	$267,200	$1,336,000	Transit		
				2020	$1,068,800	$0	$267,200	$1,336,000	Transit		
				2021	$1,068,800	$0	$267,200	$1,336,000	Transit		FT14 - FTA section 5310 disabilities program
				2022	$1,068,800	$0	$267,200	$1,336,000	Transit		
				2023	$1,068,800	$0	$267,200	$1,336,000	Transit		
				2024	$1,068,800	$0	$267,200	$1,336,000	Transit		
				TOTAL	$6,412,800	$0	$1,603,200	$8,016,000			

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work						Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
STATEWIDE	Transit	27.297		FTA 5339 Program (Capital bus and bus facilities							
8673				2019	$2,140,800	$0	$535,200	$2,676,000			
				2020	$2,209,600	$0	$552,400	$2,762,000			
				2021	$2,280,000	$0	$570,000	$2,850,000			
				2022	$2,352,800	$0	$588,200	$2,941,000			
				2023	$2,428,000	$0	$607,000	$3,035,000			
				2024	$2,505,600	$0	$626,400	$3,132,000			
				TOTAL	$13,916,800	$0	$3,479,200	$17,396,000			
STATEWIDE	Transit	80.000		Rural Public Transit							
				2019	$4,000,000	$0	$4,000,000	$8,000,000	Transit		Annual Program Funding. Assumes 50% match of the federal funds
				2020	$4,000,000	$0	$4,000,000	$8,000,000	Transit		
				2021	$4,000,000	$0	$4,000,000	$8,000,000	Transit		
				2022	$4,000,000	$0	$4,000,000	$8,000,000	Transit		
				2023	$4,000,000	$0	$4,000,000	$8,000,000	Transit		
				2024	$4,000,000	$0	$4,000,000	$8,000,000	Transit		
				TOTAL	$24,000,000	$0	$24,000,000	$48,000,000			

UNFUNDED PROJECTS

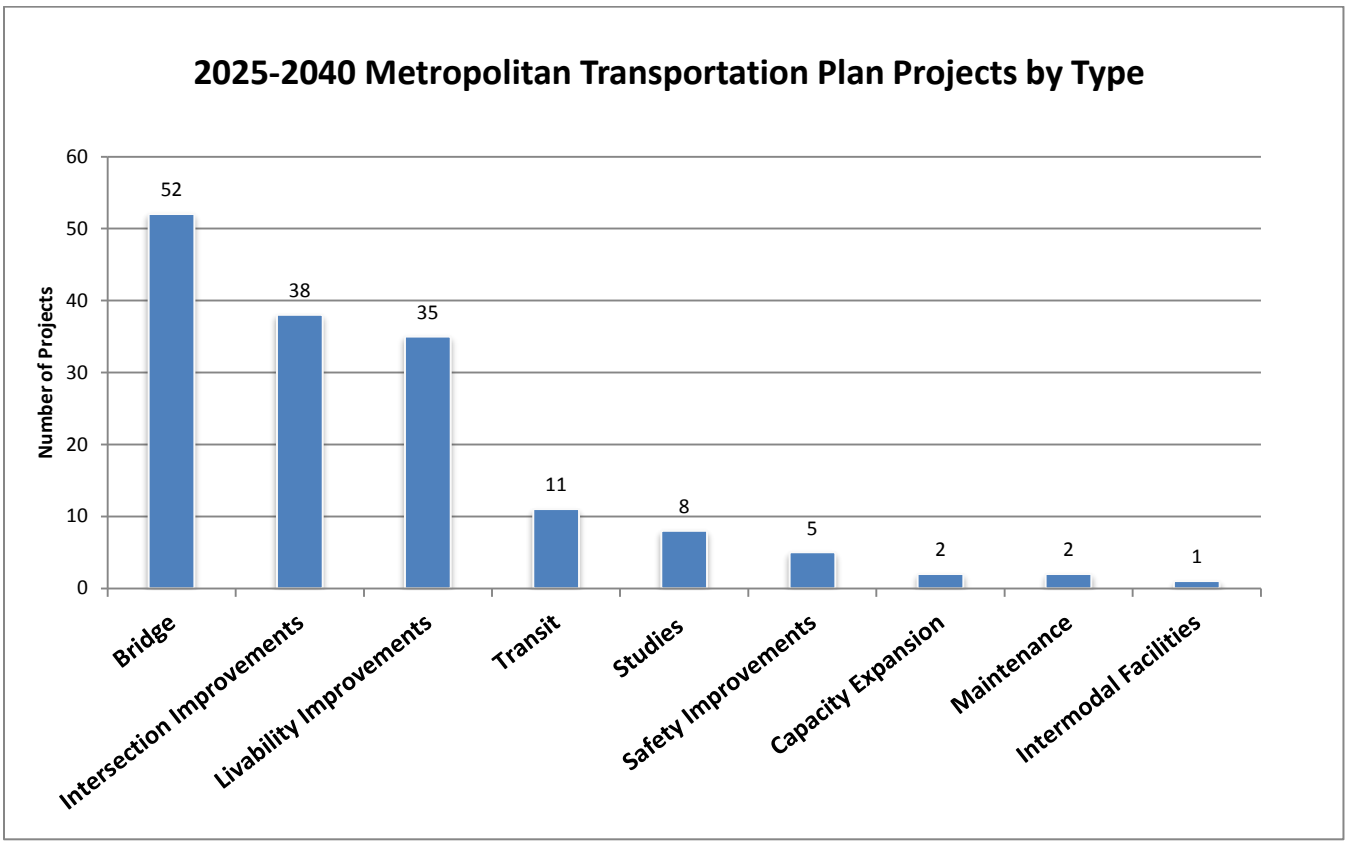
Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Dover-Rochester-Somersworth	Spaulding tnpk	2.000		Update feasibility study to better determine costs for construction of Exit 10 and easterly connection							Update feasibility study to better determine costs, permittability, funding and support. Proposed expanded turnpike capital program contingent on authorization and future toll increase or other resources.
[9018]											
			P	TBD				$2,000,000	Tnpk Expansion		
Individual projects											
Highway and Bridge											
		Phase: C= Construction P= Preliminary Engineering R= Right of Way									

Project Name	Route/Entity	Overall Project Cost $(M)	Location & Scope of Work							Clean Air Act (CAA) Code	Comments
State project #		Grouped/Parent Project #	phase	Fiscal year	Fed $	DOT $	Other $	total $	funding category	Open Analysis FY	
Rochester	Skyhaven airport	8.686		Expansion - runway and apron improvements							
[8162]											
				2022				$386,000	Airport Improvement program		
Aeronautics				2023				$3,983,000	Airport Improvement program		
Aeronautics				2024				$4,316,000	Airport Improvement program		
				TOTAL	$0	$0	$0	$8,685,000			
Rochester	Skyhaven airport	0.676		Preservation - apron and parking lot improvements. Master planning and wildlife hazard assessment							
[8168]											
				2020				$302,000	Airport Improvement program		
Aeronautics				2021				$374,000	Airport Improvement program		
Aeronautics				TOTAL	$0	$0	$0	$676,000			
Statewide	airports	1.982		Preservation - pavement maintenance, system planning, and ARFF improvements							
[8177]											
				2020				$121,000	Airport Improvement program		
Aeronautics				2021				$312,000	Airport Improvement program		
Aeronautics				2022				$322,000	Airport Improvement program		
				2023				$885,000	Airport Improvement program		
				2024				$343,000	Airport Improvement program		
				TOTAL	$0	$0	$0	$1,983,000			

Phase: C= Construction P= Preliminary Engineering R= Right of Way

2025-2040 PROJECT AND VISION PROJECT LISTS

In the spring of odd-numbered years Strafford MPO thoroughly reviews the long-range plan project list contained in our *Metropolitan Transportation Plan*. Working with the communities and agencies in Strafford Region, the updated list of out year projects is developed.



The chart above illustrates the number of projects by project type for the 2025-2040 period. The chart closely reflects the regional transportation priorities set by the Strafford communities and partner agencies from the most recent *Project Solicitation Process*.

Red List Bridges, Safety/Intersection Improvements, Livability Improvements, and Transit were all top priorities in the Strafford region.

The Strafford region out year project list reflects the political awareness and day-to-day pragmatism of the residents in the region. During project solicitation meetings the public showed a keen awareness of the limited transportation funding available in NH and filtered their transportation goals through that lens. Most of the projects that came out of the meetings were low-cost, high-value projects that emphasized enhancing the existing transportation system to make it work better, longer, and more efficiently.

PROJECT LIST 3: OUT YEARS

Projects for the 2025-2040 period are organized alphabetically by community name.
Each project phase has a corresponding completion date.

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Barrington	ATT	Intersection Improvements	Route 125/Old Green Hill Road/Scruton Pond Road	Significant numbers of turning movements both on and off Route 125 from side roads. High speeds. High traffic volumes. No designated turn lanes. Heavy Truck Traffic.	Add left only turn lane, possible future signalization at the intersection (Phase II-Route 125 Corridor & Land Use Study)	P	2026	2032	$60,000	$673,464	TM-3
						C	2027	2032	$613,464		
Barrington	ATT	Intersection Improvements	Route 125/New Road/Pierce Rd	Significant numbers of turning movements both on and off Route 125 from side roads. High speeds. High traffic volumes. No designated turn lanes. Heavy Truck Traffic. Fatality in 2012.	Add left only turn lane, possible future signalization at the intersection (Phase II-Route 125 Corridor & Land Use Study)	P	2027	2032	$150,000	$1,865,550	TM-3
						C	2028	2032	$1,715,550		
Barrington	ATT	Intersection Improvements	Route 125 / Beauty Hill Road/Winkley Pond Road	Significant numbers of turning movements both on and off Route 125 from side roads. High speeds. High traffic volumes. No designated turn lanes. Heavy Truck Traffic.	Intersection realignment, designated turning lanes, and signalize the intersection (Phase II-Route 125 Corridor & Land Use Study)	P	2027	2032	$75,000	$932,775	TM-3
						C	2028	2032	$857,775		
Brookfield	ATT	Intersection Improvements	Lyford Road & Route 109 Governor Wentworth Highway	This intersection has poor alignment, Issues with grade on approach, and sight distance.	Intersection realignment and sight distance improvements	P	2033	N/A	$35,000	$546,220	N/A
						C	2034	N/A	$511,220		
COAST	E-28	Transit	N/A	COAST headquarters and maintenance facility needs to be expanded and updated. COAST has expressed interests in building a lead certified building with possible PV solar to reduce long term energy costs	Construct and upgrade the COAST Headquarters and Maintenance facility	P	2027	N/A	$612,240	$8,696,290	N/A
						C	2028	N/A	$8,084,050		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Dover	E-19	Bridge	079/140 Whittier Road over Cochecho River	Weight restrictions apply to this bridge. Heavily used as a commuter cut-through. Narrow bridge.	Bridge Rehab- resurfacing and widening shoulders. Exempt from Air Quality (no new capacity necessary)	P	2025	N/A	$292,143	$2,921,426	N/A
						C	2025	N/A	$2,629,283		
Dover	E-33	Livability Improvements	Route 155 (Dover to Madbury Road)	Primary route for cyclists and UNH students. High speeds and high volumes of traffic are issues.	Paint in designated bike lanes.	C	2025	N/A	$75,957	$75,957	N/A
Dover	E-19	Bridge	Oak Street over BMRR (Dover-Rollinsford Boarder)	State Red list. Structurally Deficient. This bridge is a barrier for double stacking freight. The weight restrictions on this bridge restrict COAST bus use and create local transit circulation issues.	Bridge Rebuild.	P	2025	N/A	$233,714	$3,201,014	N/A
						C	2026	N/A	$2,967,300		
Dover	E-19	Bridge	182/123 Gulf Road over Salmon Falls River	State Red list. Structurally Deficient. Commuter route to access Route 236 in Maine.	Bridge rehab/rebuild. Widen shoulders to allow full width breakdown lanes. Commonly used spot for fishing and recreation. (shared cost 50/50 with Maine)	P	2025	N/A	$178,038	$2,589,138	N/A
						C	2026	N/A	$2,411,100		
Dover	E-6	Intersection Improvements	Columbus Avenue & NH 8	High traffic volumes along Route 9 and numerous turning movements to and from this cut-through road cause safety issues.	Add a left only (eastbound), increase width of the breakdown lane approaching Columbus Road (westbound), and enhance sight distance.	P	2026	2032	$50,000	$857,136	N/A
						C	2027	2032	$807,136		
Dover	E-33	Livability Improvements	Downtown Dover - Ped Link from Amtrak to Downtown Core	Enhanced "Gateway" to the Dover Downtown.	Complete Streets enhancement to First Street to mark a clear path to the Downtown.	P	2027	N/A	$100,000	$4,352,950	PM-1
						C	2028	N/A	$4,252,950		
Dover	E-19	Bridge	128/122 Chestnut St. over the Cochecho River	Functionally obsolete bridge. High traffic volumes and a lack of shoulders limit safe transportation modes on this structure in the downtown core. Future capacity expansion of this bridge may be called for.	Bridge rehab, lane reconfiguration and widening. Alternatives should be explored and include: 1) a road diet for the downtown to add bike lanes (or shared bus rapid transit lane), reduce lanes of motor vehicle travel. 2) Boulevard concept with a median island may also be appropriate. Possible Downtown livability project.	P	2028	N/A	$18,656	$596,033	N/A
						C	2030	N/A	$577,377		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Dover	E-19	Bridge	057/173 Sixth Street over Blackwater Brook	Municipal Red List. High priority commuter corridor.	Bridge Rebuild- resurfacing and widening shoulders. Exempt from Air Quality (no new capacity necessary)	P	2031	N/A	$52,128	$1,375,798	N/A
						C	2032	N/A	$1,323,670		
Dover	E-33	Livability Improvements	Route 16B	This route is one of the few routes appropriate for cyclists from Dover to Rochester. Rochester and Somersworth are interested in installing bike lanes along the portions of 16B they maintain		C	2033	N/A	$1,680,563	$1,680,563	N/A
Dover	E-33	Livability Improvements	Bike/pedestrian path under the Spaulding Tpk	Silver St./Route 155 over the Spaulding TPK is poorly suited for cyclists and pedestrians. Existing bike/pedestrian underpass should be enhanced (no lighting, very narrow, dark, hard to find) should be improved to create safe access to points west of Dover.	Underpass expansion or bike/pedestrian safety improvements on Silver St./Route 155 over the Spaulding TPK.	P	2033	N/A	$70,000	$3,072,488	N/A
						C	2034	N/A	$3,002,488		
Dover	E-19	Bridge	130/099 NH Route 108 over Bellamy	Traffic volumes, lane and interchange configuration, and traffic signals all contribute to congestion and backups on this bridge.	Bridge widening to allow more lanes or restructuring lane configuration and signal set up would help address congestion issues on this primary arterial.	P	2035	N/A	$281,754	$9,861,390	TM-6
						C	2036	N/A	$9,579,636		
Dover	E-19	Bridge	120/118 Washington St. (Arch St.) over BMRR	Bridge does not allow for double stacking freight. To make the BMRR a viable freight line, all bridges over it must be increased to allow double stacking. Formerly on the Ten Year Plan& 2011-2014 TIP, negotiated off by Municipality other bridge priorities. Historic structure?	Railroad line lowering or bridge elevation increase to allow for double stacking freight.	P	2037	N/A	$429,267	$6,533,337	N/A
						C	2038	N/A	$6,104,070		
Dover	E-33	Livability Improvements	Piscataqua Road (Dover to Route 4)	Primary route for cyclists. Narrow shoulders.	Widen Shoulders & Paint in designated bike lanes.	C	2039	N/A	$1,845,213	$1,845,213	N/A

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Durham	E-33	Livability Improvements	Coe Drive	Sidewalks and bike lanes to enhance "Safe Routes to School" near the schools.	Completes streets project to enhance sidewalks around schools, paint in bike lanes and help calm traffic.	C	2025	N/A	$292,143	$292,143	N/A
Durham	E-34	Studies	Madbury Road	Traffic Study to reduce speeds and change traffic patterns on the road.	Study into changing travel patterns in residential areas of Durham. This road is used as a primary entrance to UNH for	C	2025	N/A	$20,450	$20,450	N/A
Durham	E-33	Livability Improvements	Madbury Road (Route 155 - Durham Downtown)	Signage to signify bike route, Bike Lanes Painted. Low Cost Project.	Enhance signage, paint in bike lanes	C	2025	N/A	$11,686	$11,686	N/A
Durham	E-30	Transit	n/a	Fleet Replacement for UNH Busses (ongoing)	Ongoing fleet upgrades and replacement	C	2026	N/A	$2,531,655	$2,531,655	PT-4
Durham	E-33	Livability Improvements	Route 108 (Oyster River Bridge in Durham to Dover)	Signage to signify bike route, Bike Lanes Painted. Low Cost Project.	Enhance signage, paint in bike lanes	C	2026	N/A	$42,194	$42,194	IMC-3
Durham	E-33	Livability Improvements	Mast Road/NH 155A to Durham Downtown Bike Facilities	Signage to signify bike route, Bike Lanes Painted. Low Cost Project. Address safe bicycle access to future housing development.	Enhance signage, paint in bike lanes	C	2026	N/A	$42,194	$42,194	N/A
Durham	N/E	Intersection Improvements	Mast Road, Old Concord Road, Main St. intersection	Possible District 6 Project in TYP timeframe. Anticipated increases in traffic due to housing developments.	Possible roundabout. Pedestrian and bike safety improvements.	P	2028	2032	$60,000	$2,132,046	N/A
						C	2029	2032	$2,072,046		
Durham	E-33	Livability Improvements	Route 4 (Durham to Boston Harbor Road)	Signage to signify bike route, Bike Lanes Painted. Low Cost Project.	Enhance signage, paint in bike lanes	C	2028	N/A	$37,311	$37,311	EM-2
Durham	E-19	Bridge	150/065 Durham Point Road over Crommet Creek	Municipal Red list SAB/Local funding only.	Bridge rehab/rebuild to ensure structural safety	P	2028	N/A	$124,370	$2,650,830	N/A
						C	2029	N/A	$2,526,460		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Durham	E-56	Transit	Durham Train Station	Phase III of the Intermodal Transit Station Expansion and platform expansion. Expand infrastructure to support intercity bus service.	Construct Transit Station Expansion	P	2029	N/A	$157,904	$2,403,259	PT-4
						C	2030	N/A	$2,245,355		
Durham	N/E	Capacity Expansion	New Roadway & Multiuse path construction. Roadway to make	South Drive Project Completion to enhance campus circulation, reduce traffic conflicts on main roads, and help air quality.	Construction of a new road to connect West Main St. roundabout to Waterworks Road in the southwest quad of Campus	P	2030	2032	$100,000	$9,122,400	N/A
						C	2031	2032	$9,022,400		
Durham	E-31	Transit	n/a	Fleet Replacement for UNH Busses (ongoing)	Ongoing fleet upgrades and replacement	C	2030	N/A	$2,694,426	$2,694,426	PT-4
Durham	E-19	Bridge	092/107 Mill Road over BMRR	Somewhat heavily traveled route. Future upgrades should be made to allow for double stack freight movement on the BMRR	Bridge reconstruction to allow for double stacking of freight along BMRR	P	2030	N/A	$3,207,650	$6,465,650	N/A
						C	2031	N/A	$3,258,000		
Durham	E-19	Bridge	093/080 Bennett Road over BMRR	State Red list. Future upgrades should be made to allow for double stack freight movement on the BMRR. Weight limit 10 Tons	Bridge reconstruction to allow for double stacking of freight along BMRR	P	2031	N/A	$260,640	$4,628,751	N/A
						C	2032	N/A	$4,368,111		
Durham	E-19	Bridge	095/121 Old Route 4 (Durham Main Street) over BMRR/pedestrian	Future upgrades should be made to allow for double stack freight movement on the BMRR. This is an essential bike and pedestrian connection to campus.	Bridge Rebuild to allow for double stacking freight. This may be a situation where it costs less to lower the rail bed to allow for double stacking.	P	2033	N/A	$403,335	$7,504,195	N/A
						C	2034	N/A	$7,100,860		
Durham	E-32	Transit	n/a	Fleet Replacement for UNH Busses (ongoing)	Ongoing fleet upgrades and replacement	C	2034	N/A	$2,867,655	$2,867,655	PT-4
Durham	E-33	Livability Improvements	Various	Standardize and Install Bike Lanes and Sidewalks	Downtown Complete Streets Enhancements	P	2035	N/A	$50,000	$704,385	N/A
						C	2036	N/A	$654,385		
Durham	E-30	Transit	n/a	Fleet Replacement for UNH Busses (ongoing)	Ongoing fleet upgrades and replacement	C	2037	N/A	$3,004,869	$3,004,869	PT-4

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Farmington	ATT	Studies	Route 75, 153 Downtown corridor	Study to understand downtown transportation deficiencies and needs before investing in safety and livability improvements.	Study to identify livability improvements	C	2025	N/A	$23,371	$23,371	N/A
Farmington	ATT	Bridge	076/135 Spring St. over the Cochecho River	Municipal Red list. Structurally deficient. AADT is 920.	Bridge Rebuild- resurfacing and widening shoulders. Exempt from Air Quality (no new capacity necessary)	P	2025	N/A	$178,038	$3,191,913	N/A
						C	2026	N/A	$3,013,875		
Farmington	ATT	Safety Improvements	Route 75, 153 Downtown corridor	Farmington has expressed interest in introducing traffic calming measures and improve public safety access to Route 153, walkability, and livability in their downtown in a downtown revitalization effort	Upgrade sidewalks, lighting, and streetscaping in the downtown to enhance character of the community and provide improved mobility and accessibility to residents	P	2026	N/A	$120,000	$3,061,200	N/A
						C	2027	N/A	$2,941,200		
Farmington	ATT	Intersection Improvements	Route 11 & Spring Street	Poor intersection alignment and odd median island. High speeds, needs left only turning lanes, high traffic volumes at AM/PM Peaks and seasonally	Intersection realignment, possible addition of left only turn lane on Route 11 East approaching the intersection. Formalize median island at the intersection and provide lighting.	P	2030	2032	$50,000	$781,920	N/A
						C	2031	2032	$731,920		
Farmington	ATT	Safety Improvements	High School to North Main Street	Lack of Sidewalks or multiuse path to access the downtown	Create safe walking and biking infrastructure from downtown to Farmington Schools	P	2034	N/A	$20,000	$277,398	N/A
						C	2035	N/A	$257,398		
Farmington	ATT	Bridge	080/108 River Road over Mad River	Municipal Red list. Structurally deficient. AADT is 180.	Bridge Rebuild- resurfacing and widening shoulders. Exempt from Air Quality (no new capacity necessary)	P	2037	N/A	$114,471	$986,481	N/A
						C	2038	N/A	$872,010		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Lee	ATT	Intersection Improvements	Route 125, Kelsey Road	Kelsey is a cut through for commuters to and from Route 4. Ongoing incidents continue to occur at intersections along Route 125.	Needs left only turn lanes (NB), and potentially a designated right turn lane. (Route 125 Corridor Study recommends relocating the intersection to make Fox	C	2025	2032	$584,285	$584,285	TM-3
Lee	ATT	Intersection Improvements	Lee Route 125, George Bennett Road	Steep Approaches from George Bennett Rd. onto 125, poor shoulders on Route 125 NB at this intersection due to the addition of a right only in this location (these factors contribute to sight distance issues) Alignment is poor George Bennett/Mitchell Road. Needs	Intersection realignment and improved grade on the approach of George Bennett Road. Possible future signal (Route 125 Corridor Study)	C	2025	2032	$584,285	$584,285	TM-3
Lee	ATT	Bridge	106/126 Red List Bridge Over the Oyster River Route 4 East of the Lee Traffic Circle	Structurally Deficient. This is a primary commuter route, one of the few east west connectors in the state, and is a primary route for shipping freight. Failure of this bridge or weight restrictions placed upon it would result in unacceptable regional impacts	Bridge Replacement.	P	2025	N/A	$116,857	$6,051,457	EM-2, IMC-3
						C	2026	N/A	$5,934,600		
Lee	ATT	Intersection Improvements	Route 125, Lee Hill Road	Poor alignment and a road used frequently to bypass traffic and congestion on Main Arterials	Intersection realignment to reduce traffic issues	P	2025	N/A	$40,000	$890,190	TM-3
						C	2025	N/A	$850,190		
Lee	ATT	Intersection Improvements	George Bennett Road, Lee Hook Road, Route 155, Lee Hill Road	Intersection of 5 roads. This confluence of intersections is in the community center and is on a sharp curve . Lee Has expressed interest in a roundabout to assist with controlling traffic merging and speeds.	4 corners roundabout, possibly tied to sidewalks, bike lanes, and community center improvements	P	2027	2032	$60,000	$2,487,400	N/A
						C	2028	2032	$2,427,400		
Lee	ATT	Bridge	087/084 Cartland Road over Little River	Structurally Deficient. Local Residential Route with outlets on Lee Hill Road and Fox Garrison Road	Bridge Replacement.	P	2028	N/A	$105,715	$1,368,945	N/A
						C	2029	N/A	$1,263,230		
Lee	ATT	Intersection Improvements	Route 155, Route 152, Wadleigh Falls Road, & North River Road	Poor alignment and a road used frequently to bypass traffic and congestion on Main Arterials	Intersection realignment to reduce traffic issues	P	2038	N/A	$50,000	$3,690,425	N/A
						C	2039	N/A	$3,640,425		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Madbury	ATT	Intersection Improvements	Route 155, Madbury Road, Town Hall Road	Intersection alignment, high traffic volumes, limited sight distance, and the intersection is on both a curve and the crest of a hill making it difficult to see oncoming traffic. This intersection has significant turning movements	Intersection realignment and grade smoothing. Possible flashing light to warn through traffic, left only turn lane for Route 155 WB	C	2025	N/A	$5,842,850	$5,842,850	N/A
Madbury	ATT	Intersection Improvements	Route 9 & French Cross	Route 9 is a heavily used for freight movement and as a commuter route. French Cross is a major commuter cut-through. The intersection is located at the crest of a hill with poor sight distance. This intersection has significant turning movements.	Intersection realignment, improved lighting, and the addition of left only turning lanes or shared center turn lane on Route 9 to address intersection safety issues.	P	2025	2032	$40,000	$964,440	N/A
						C	2026	2032	$924,440		
Madbury	ATT	Bridge	056/072 Nute Road over the Bellamy River	Municipal Red list, last rebuilt in 1960.	Bridge replacement	P	2031	N/A	$117,288	$2,102,793	N/A
						C	2032	N/A	$1,985,505		
Madbury	ATT	Intersection Improvements	Route 108 and Freshet Road	Alignment causes intersection safety issues. High traffic volumes on Route 108.	Intersection Realignment	P	2040	N/A	$40,000	$913,734	TM-6
						C	2040	N/A	$873,734		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Middleton	ATT	Studies	Wakefield Road/Kings Hwy & Route 153	Heavy truck traffic at the intersection due to Middleton Building Supply, numerous driveways increase conflict points in close proximity to the intersection.		C	2025	N/A	$11,869	$11,869	N/A
Middleton	ATT	Studies	Route 153 & Route 125/16B (Wakefield TL)	Alignment, road grades, and very little setback for the house on the corner approaching the intersection reduces sight distance.		C	2027	N/A	$12,245	$12,245	N/A
Middleton	ATT	Livability Improvements	Sunrise Lake area	Recreational trails development	Investment into establishing a community trail network	C	2037	N/A	$71,545	$71,545	N/A
Middleton	ATT	Intersection Improvements	New Durham Road & Silver St.	Alignment and road grades approaching the intersection reduce sight distance. It was stated by a local planning board member that this road is used as a commuter cut-through and is often in very poor condition	Intersection Alignment	P	2039	N/A	$20,000	$599,740	N/A
						C	2040	N/A	$579,740		
Middleton	ATT	Livability Improvements	Pinkham Road & Lake Shore Drive	Pedestrian activity (seasonal) near Sunrise Lake in the summer time with no crosswalks or sidewalks. Vehicle speeds cause safety problems	Investment in traffic calming measures	C	2040	N/A	$60,916	$60,916	N/A
Milton	ATT	Bridge	168/152 Townhouse Road over Northeast Pond	Closed Bridge. A Bi-state priority for emergency response, walkability, access to services, and economic sustainability. Locally funded fix or waitlist (7-9 years) for SAB	Bridge rebuild	C	2025	N/A	$934,856	$934,856	IMC-3
Milton	ATT	Livability Improvements	Dawson Street and Silver Street	Poor sidewalk connectivity and lack of sidewalks are a barrier for safe pedestrian travel in the downtown.	Sidewalk improvements to enhance pedestrian infrastructure connectivity in neighborhood areas to the school	P	2037	N/A	$40,000	$726,675	N/A
						C	2038	N/A	$686,675		
Milton	ATT	Safety Improvements	Applebee Road off to Route 16	Sharp Curve could use improved signage and lighting	Improved signage and lighting to warn travelers of upcoming curve.	C	2040	N/A	$15,229	$15,229	N/A

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
New Durham	ATT	Livability Improvements	Town Hall on Main Street	Pedestrian improvements for the town center near the intersection of Main St. and Depot Road.	Construct sidewalks near town center connecting government buildings and school	P	2030	N/A	$40,000	$651,600	N/A
						C	2031	N/A	$611,600		
New Durham	ATT	Intersection Improvements	Route 11 & Davis Crossing Road	Intersections and turning movements on Route 11 contribute to traffic incidents on the roadway. High speeds, high traffic volumes at AM/PM Peaks and seasonally, rear end accidents are frequent at intersections on Route 10	Intersection Safety Improvements, add designated turning lanes to decrease incidence of rear collisions	P	2030	2032	$125,000	$1,964,800	N/A
						C	2031	2032	$1,839,800		
New Durham	ATT	Intersection Improvements	Route 11 & Tash Road	Intersections and turning movements on Route 11 contribute to traffic incidents on the roadway. Poor Intersection Alignment, High speeds, high traffic volumes at AM/PM Peaks and seasonally, rear end accidents are frequent at intersections on Route 10	Intersection Realignment to make approaches perpendicular to Route 11, add center turn lanes	P	2030	2032	$50,000	$781,920	N/A
						C	2031	2032	$731,920		
New Durham	ATT	Intersection Improvements	Route 11 & Berry Road / Depot Road	Intersections and turning movements on Route 11 contribute to traffic incidents on the roadway. Poor Intersection Alignment, High speeds, high traffic volumes at AM/PM Peaks and seasonally, rear end accidents are frequent at intersections on Route 10	Intersection Realignment to make approaches perpendicular to Route 11. Close one entrance to the roadside facility (3 total access points to this establishment in 300 FT)	P	2030	2032	$50,000	$977,400	N/A
						C	2031	2032	$927,400		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Newmarket	E-33	Livability Improvements	Sidewalk infrastructure near Schools (SRTS) and on Route 151	There are some gaps in pedestrian and bicycle infrastructure from the downtown to Newmarket Schools. Sidewalks and pedestrian safety improvements would address these barriers	Construct sidewalks to create safe pedestrian routes from the Newmarket downtown to the Newmarket schools.	P	2025	N/A	$60,000	$593,460	N/A
						C	2026	N/A	$533,460		
Newmarket	N/E	Intermodal Facilities	Rockingham Junction Intermodal Facility,	An intermodal facility in this location should be looked into. Heavy commuter traffic, served by fixed route transit, a trail head for the Rockingham Junction Rail Trail possible rail connection with more space than Exeter for parking.	Construct a 200-300 space park and ride (with space for future expansion) with utilities for transit station and other user amenities (restrooms). Possible future rail stop.	P	2025	2032	$100,000	$4,822,200	PM-1
						C	2026	2032	$4,722,200		
Newmarket	E-6	Intersection Improvements	The intersection of Ash Swamp and Route 151	Commuter routes with a Y intersection. Sight distance and speeds contribute to safety issues on routes	Intersection realignment & safety improvements	P	2028	N/A	$40,000	$568,454	N/A
						C	2029	N/A	$528,454		
Newmarket	E-19	Bridge	125/054 Route 108 Newmarket/Newfields TL	Functionally obsolete bridge. Future upgrades should be made to allow for double stack freight movement on the BMRR. Narrow shoulders and high traffic volumes on Route 108 make other modes of travel on this roadway dangerous	Bridge rebuild. Increase bridge elevation to allow double stacking freight, increase shoulder width to facilitate alternate modes	P	2029	N/A	$189,485	$6,604,785	TM-3, IMC-3
						C	2030	N/A	$6,415,300		
Newmarket	E-6	Studies	Newmarket downtown	Poor sight distance, high traffic volume. Traffic volumes on Route 108 create congestion and safety issues.	Newmarket downtown traffic study	C	2031	N/A	$45,612	$45,612	N/A
Newmarket	E-19	Bridge	120/089 Route 152 over the BMRR	Functionally obsolete. Future upgrades should be made to allow for double stack freight movement on the BMRR.	Bridge rebuild. Increase bridge elevation to allow double stacking freight.	P	2033	N/A	$134,445	$5,596,645	N/A
						C	2034	N/A	$5,462,200		
Newmarket	E-19	Bridge	127/097 Route 108 Over the Lamprey River	Functionally obsolete. ROW issues make this a challenging project. High traffic volumes and limited shoulder space create safety issues for alternative modes.	Increase bridge width to allow for sidewalks on both sides and shoulder space for bikes.	P	2037	N/A	$143,089	$4,503,139	N/A
						C	2038	N/A	$4,360,050		
Newmarket	E-19	Bridge	098/079 Grant Road over the Piscassic River	Functionally Obsolete. Narrow shoulder on the bridge, commuter route, and on a primary route to access the Newmarket Schools (1/2 mile).	Bridge Rebuild/Rehab. Increase Shoulder width to provide safer conditions for Bike/Ped	P	2040	N/A	$119,948	$1,642,838	N/A
						C	2040	N/A	$1,522,890		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Northwood	ATT	Intersection Improvements	Intersection of Route 4 and 152	Past issues held this project up. NH DOT has invested some money into acquiring ROW to complete the project. NH DOT has recognized the safety issues at this intersection and supports making improvements. High speeds, high traffic and sight distance contribute to safety issues at this intersection.	Intersection safety improvements. Realignment to enhance sight distance.	C	2025	N/A	$584,285	$584,285	EM-2
Northwood	ATT	Intersection Improvements	Intersection of Route 4, 202/9, 43	No designated left turn (Route 43) resulting in frequent stacking, motorists waiting >1 light cycles to turn, and dangerous/aggressive left turning movements to get onto route 4.	Intersection safety improvements. Restripe and upgrade signals.	C	2025	N/A	$58,429	$58,429	EM-2
Northwood	ATT	Bridge	095/113 Bridge on Bow Lake Road over Sherburn Brook	Municipal Red List, some commuter traffic, weight restricted	Bridge Rehab/Rebuild	P	2027	N/A	$122,448	$1,987,998	N/A
						C	2028	N/A	$1,865,550		
Northwood	ATT	Intersection Improvements	Route 107/ Main St./ Old Pittsfield Road	Intersection safety has been sited as an issue. Improvements to signage and lighting.	Intersection Safety Improvements	C	2029	N/A	$44,213	$44,213	N/A
Northwood	ATT	Bridge	045/100 Bridge on Old Canterbury Road over Narrows Brook	Municipal Red list. Weight Restricted	Bridge Rehab/Rebuild	P	2039	N/A	$118,094	$2,367,119	N/A
						C	2040	N/A	$2,249,025		
Nottingham	ATT	Bridge	141/127 NH 152 over North River	State Red list (KML file, not in NH DOT Bridge Summary)	Bridge Rebuild	P	2031	N/A	$130,320	$2,777,660	N/A
						C	2032	N/A	$2,647,340		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Regional	E-34	Studies	Route 4	Corridor Study was last completed in the early 2000 (possible late 90s). To ensure studies and plans for future improvements make sense it is essential to update the study.	Corridor Study	C	2025	N/A	$52,586	$52,586	N/A
Regional	ATT	Studies	Route 125	Update of Corridor Study	10-15 Year Update Cycle would benefit the region	C	2026	N/A	$48,222	$48,222	TM-3
Regional	E-34	Studies	Route 108-Newmarket to Rochester	Primary NH corridors should have studies updated on a rotating schedule (once every ten years)	Phase I Route 108 Corridor Study	C	2027	N/A	$73,469	$73,469	N/A
Regional	E-34	Studies	Route 108-Newmarket to Rochester	Primary NH corridors should have studies updated on a rotating schedule (once every ten years)	Phase II Route 108 Corridor Study (Analysis and Recommendations)	C	2028	N/A	$62,185	$62,185	N/A
Regional	ATT	Transit	Proposed Transit Service along Route 4 from Seacoast to Concord	High volumes of traffic on this commuter corridor. No existing public transit services. Limited ability for mobility impaired to access essential services.	Funding to support fixed route transit route along the Route 4 corridor.	C	2033	Off-Model (No Credit Taken)	$2,823,345	$2,823,345	N/A
Regional	E-34	Studies	Route 4	Corridor Study was last completed in the early 2000 (possible late 90s). To ensure studies and plans for future improvements make sense it is essential to update the study.	Corridor Study	C	2034	N/A	$61,450	$61,450	N/A
Regional	ATT	Transit	Proposed Transit Service along Route 4 from Seacoast to Concord	High volumes of traffic on this commuter corridor. No existing public transit services. Limited ability for mobility impaired to access essential services.	Funding to support fixed route transit route along the Route 4 corridor.	C	2034	Off-Model (No Credit Taken)	$2,867,655	$2,867,655	N/A
Regional	ATT	Transit	Proposed Transit Service along Route 4 from Seacoast to Concord	High volumes of traffic on this commuter corridor. No existing public transit services. Limited ability for mobility impaired to access essential services.	Funding to support fixed route transit route along the Route 4 corridor.	C	2035	Off-Model (No Credit Taken)	$2,912,679	$2,912,679	N/A
Regional	ATT	Studies	Route 125	Update of Corridor Study	10-15 Year Update Cycle would benefit the region	C	2036	N/A	$56,351	$56,351	TM-3
Regional	E-34	Studies	Route 108-Newmarket to Rochester	Primary NH corridors should have studies updated on a rotating schedule (once every ten years)	Route 108 Corridor Study Update	C	2038	N/A	$29,067	$29,067	N/A

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Rochester	E-4	Livability Improvements	Salmon Falls Road	A recent Rochester corridor study makes recommendations for improvements to this corridor. Upgrades could include sidewalks, bike lanes, etc.	Widen shoulders to make room for bike lanes to the Somersworth T/L. Create sidewalks in residential areas and south to Portland Street.	P	2025	N/A	$50,000	$1,506,938	N/A
						C	2026	N/A	$1,456,938		
Rochester	E-19	Bridge	149/113 NH 125 over Cochecho River	Structurally Deficient. Primary commuter route with high traffic volumes. ROW challenges with bridge expansion. Narrow shoulders.	Bridge Rehab and widening.	P	2026	N/A	$301,388	$5,811,548	IMC-3
						C	2027	N/A	$5,510,160		
Rochester	E-6	Intersection Improvements	NH 125 & Lowell Street	Convergence of numerous roads, poor intersection alignment, ped and bike facilities. Issues with the alignment are a major factor. This 5-way signalized intersection contributes to safety issues on Route 124	Possible roundabout, Intersection realignment and safety improvements. Signal timing and coordination with other Route 125 signals.	P	2028	N/A	$80,000	$1,894,845	TM-3
						C	2029	N/A	$1,814,845		
Rochester	E-4	Livability Improvements	Old Dover Rd between NH 125 and Tebbetts Rd	Bike lanes on 16B, 125 in Rochester to Dover Indian Brook Drive. Some shoulder widening, painting, and intersection improvements at Blackwater/16B	Widen shoulders to make room for bike lanes on 16B.	P	2030	N/A	$25,000	$1,303,200	N/A
						C	2031	N/A	$1,278,200		
Rochester	E-19	Bridge	114/046 Four Rod Road over Rickers Brook	Municipal Redlist. Moderate traffic.	Bridge Rehab	P	2032	N/A	$105,894	$1,786,457	N/A
						C	2033	N/A	$1,680,563		
Rochester	E-33	Livability Improvements	US Route 202	Route 202 east of Route 16 in Rochester. Deteriorating sidewalk infrastructure and a lack of bike lanes in this residential area is a barrier to safe pedestrian and bike travel.	Livability improvements in residential areas including sidewalk upgrades, streetscaping, bike lanes, traffic calming.	P	2033	N/A	$100,000	$1,706,938	N/A
						C	2034	N/A	$1,606,938		
Rochester	E-19	Bridge	225/139 Rochester Neck Rd Bridge Over Isinglass	Not Deficient, but bridge has narrow shoulders and would benefit from widening. Large trucks use this road frequently contributing to safety issues to alternative modes.	Bridge Rebuild/Rehab. Widen shoulders to create safe areas for pedestrians and bicyclists.	P	2035	N/A	$110,959	$2,224,114	N/A
						C	2036	N/A	$2,113,155		
Rochester	E-33	Livability Improvements	Milton Road/Route 125	Sidewalk infrastructure connecting downtown & residential areas to shopping centers on Route 125 has gaps. Route 125 has high traffic volumes and there are frequently pedestrians on the route.	Construct sidewalks on Route 125 north to the Market Basket Plaza	P	2035	N/A	$75,000	$1,408,770	N/A
						C	2036	N/A	$1,333,770		

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Somersworth	E-34	Studies	High Street	Solutions are necessary to deal with ongoing congestion and safety issues along this corridor. ITS solutions should be identified, along with strategies to make High Street more Ped/Bike, Transit Friendly	Downtown Corridor Study	C	2025	N/A	$23,738	$23,738	N/A
Somersworth	E-6	Intersection Improvements	Market and Winter Street	High traffic volumes on Market St., Traffic Congestion, bike and pedestrian safety issues. Turning movements from Winter street contribute to traffic safety issues and congestion during peak hours.	Intersection Safety improvements, possible change in downtown traffic pattern.	P	2025	N/A	$50,000	$602,775	N/A
						C	2026	N/A	$552,775		
Somersworth	E-6	Intersection Improvements	Blackwater, High St., Indigo Hill Intersection	Poor alignment, High levels of traffic, Lack of pedestrian/bike accommodations. Signal timing	Possible roundabout. Intersection alignment and Intersection safety improvements for bike and ped	P	2026	N/A	$80,000	$1,836,720	N/A
						C	2027	N/A	$1,756,720		
Somersworth	E-6	Intersection Improvements	West High St., High St., Hamilton St., and Washington St. intersection	Poor alignment, High levels of traffic, Lack of pedestrian/bike accommodations. Signal timing	Possible roundabout. Intersection alignment and Intersection safety improvements for bike and ped	P	2027	N/A	$80,000	$1,865,550	N/A
						C	2028	N/A	$1,785,550		
Somersworth	E-33	Livability Improvements	Washington Street and Constitutional Way	Gaps in pedestrian and bicycle infrastructure. Safety issues for those modes of travel. Part of Downtown Revitalization. Turning issues for large trucks.	Downtown Complete Streets project	P	2031	N/A	$50,000	$1,008,338	N/A
						C	2032	N/A	$958,338		
Strafford	ATT	Bridge	069/164 First Crown Point Road over Brook	Municipal Redlist. Structurally deficient. AADT is 400.	Bridge Rebuild/Rehab	P	2025	N/A	$93,486	$983,676	N/A
						C	2025	N/A	$890,190		
Strafford	ATT	Intersection Improvements	Route 126 & 202A (eastern intersection)	Confusing and dangerous intersection alignment .	Intersection Safety Improvements, realignment to enhance sight distance and avoid confusion	P	2025	N/A	$40,000	$415,422	N/A
						C	2025	N/A	$375,422		
Strafford	ATT	Intersection Improvements	Route 126 & 202A (west)	The western intersection of these two roads, near the elementary school, has a very steep approach creating issues with stopping in the winter. It is also difficult to see cars coming.	Intersection reconfiguration to enhance safety	P	2025	N/A	$40,000	$415,422	N/A
						C	2025	N/A	$375,422		
Strafford	ATT	Livability Improvements	Isinglass River Conservation Reserve	Underused public resource. Enhanced trail networks and parking and access would enhance the public value of the land.	Create trailhead and trail network.	C	2026	N/A	$150,694	$150,694	N/A
Strafford	ATT	Livability Improvements	Route 126 & 202A	A lack of sidewalks near the elementary school causes safety issues for children doing after school activities/going to the library.	Construct sidewalks or a multiuse path to connect school, playing fields, and other public resources	P	2030	N/A	$30,000	$198,551	N/A
						C	2031	N/A	$168,551		
Strafford	ATT	Livability Improvements	Evans Mtn, Blue Jobe, Blue Hills	Public resource. Enhanced trail networks and parking and access would enhance the public value of the land.	Enhance trail network connectivity	C	2034	N/A	$68,278	$68,278	N/A

Town	CAA Code	Type	Location	Issues	Anticipated Scope	Phase	Potential Construction Year	Air Quality Analysis Year	Year of Expenditure Cost Estimate	Cost Total	ITS Component
Wakefield	ATT	Livability Improvements	Route 109 through the downtown	Sidewalks and bike lanes throughout the Downtown area. High seasonal use for vacation and tourism. High traffic speeds on roadways and small shoulders inhibit	Sidewalk construction, Roadway restriping to include bike lanes	P	2026	N/A	$40,000	$612,240	N/A
						C	2027	N/A	$572,240		
Wakefield	ATT	Bridge	186/118 Canal Road over Great East Lake	Municipal Red List Bridges; Rural Local, 3 ton weight limit	Bridge Rehab/Rebuild	P	2027	N/A	$97,958	$1,341,658	N/A
						C	2028	N/A	$1,243,700		
Wakefield	ATT	Livability Improvements	Route 153 approaching	High seasonal use for vacation and tourism. High traffic speeds on roadways and narrow shoulders	Roadway widening/restriping	P	2027	N/A	$20,000	$186,555	N/A
						C	2028	N/A	$166,555		
Wakefield	ATT	Bridge	230/057 Spaulding Turnpike (NH16) over	State Redlist Bridge; Structurally Deficient	Bridge Rehab/Rebuild	P	2028	N/A	$60,000	$5,744,535	IMC-3
						C	2029	N/A	$5,684,535		
Wakefield	ATT	Maintenance & Preservation	Route 153	Route 153 in Union is subject to flooding during severe weather events. To prevent roadway washout and	Roadway drainage improvements	P	2029	N/A	$60,000	$701,530	N/A
						C	2030	N/A	$641,530		
Wakefield	ATT	Bridge	096/032 Old Wakefield Road over	Municipal Red List Bridges; Rural Local, 3 ton weight limit	Bridge Rehab/Rebuild	P	2034	N/A	$122,900	$1,856,638	N/A
						C	2035	N/A	$1,733,738		
Wakefield	ATT	Bridge	245/066 NH 153 over Branch River	Functionally Obsolete, NH DOT owned. Narrow Shoulders and weight limits imposed on bridge	Bridge Rehab/Rebuild	P	2039	N/A	$125,474	$2,374,499	N/A
						C	2040	N/A	$2,249,025		

VISION PROJECTS

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Barrington	ATT	Bridge	Green Hill Road 2 miles east of Route 202	Functionally obsolete (likely too narrow, possible flooding issues). Last inspected June 2009. Built in 1955 and never rebuilt. Rural Local road class.	Bridge rehab- resurfacing and widening shoulders. Exempt from Air Quality (no new capacity necessary)
Barrington	ATT	Bridge	Route 126 over the Isinglass, 1 mile north of 202	Functionally obsolete (likely has inadequate shoulder width). Last inspected in June 2010. Built in 1947 never rebuilt. Rural Minor Collector road class.	Bridge rehab- resurfacing and widening shoulders. Exempt from Air Quality (no new capacity necessary)
Brookfield	ATT	Bridge	Moose Mountain Road over Hanson Brook	Local Bridge with a weight restriction. Low average daily traffic (300/day). Possible local priority	Bridge rehab
Dover	N/E	Bridge	101/150 Indian Brook Drive Bridge over Spaulding TPK	Functionally obsolete bridge. High traffic volumes create congestion in this bridge. Future capacity expansion of this bridge may be called for.	Bridge widening and lane reconfiguration. Possible alternatives could include contra flow to address peak hour capacity needs. Exit 10 would also likely resolve this issue.
Dover	N/E	Bridge	113/111 & 113/112 NB and SB bridges on Spaulding TPK over the BMRR	Bridges do not allow for double stacking freight. To make the BMRR a viable freight line, all bridges over it must be increased to allow double stacking.	Bridge Rebuild

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Dover	N/E	Bridge	084/165 Spaulding TPK over Long Hill Road	Functionally obsolete bridge. Narrow shoulders. Likely part of a future turnpike expansion project.	Bridge rehab/rebuild. Widen shoulders to allow full width breakdown lanes.
Dover	N/E	Bridge	174/060 Spaulding TPK over New Bellamy Lane	Functionally obsolete bridge. Narrow shoulders. Likely part of a future turnpike expansion project.	Bridge rehab/rebuild. Widen shoulders to allow full width breakdown lanes.
Dover	N/E	Capacity Expansion	Turnpike Expansion on the Spaulding TPK from Dover Tolls to Rochester Tolls	Bottleneck congestion issues in this area	Expand Capacity to 3 lanes each direction, reconfigure interchanges
Regional	N/E	Capacity Expansion	Spaulding Turnpike - Exit 10	Phase I	
Regional	N/E	Capacity Expansion	Spaulding Turnpike - Exit 10	Phase II	
Regional	N/E	Capacity Expansion	Spaulding Turnpike - Exit 10	U-Alternative	
Durham	N/E	Capacity Expansion	New Roadway & Multiuse path construction. Roadway and underpass for the BMRR North of Main Street- UNH North Underpass	Vision: Part of UNH's Master Plan to enhance campus circulation.	Create new Roadway and Multi-Use path. This project includes an underpass to be built in a brownfields site under the BMRR to connect with roadways on the eastern side of the rail line. This project will require extensive safety improvements to be made along the rail near the overpass. Alternatives include an overpass.
Durham	E-56	Livability Improvements	Durham Downtown	Vision Project. Durham downtown core build out plans could include a TOD facility.	Expand local transit in the region and would be a product of increased density in the Durham.

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Durham	E-34	Studies	Northwest Southeast Transportation Linkage Study	Durham project	
Durham	E-33	Livability Improvements	Pettee Brook Lane and Jenkins Court	Vision: Investigate Possible Closure to Public Vehicles (emergency and Deliver Access allowed) Ped Mall	
Durham	E-25	Transit	UNH, Downeaster AVL coordination with NH ITS Systems	Expand statewide network and AVL capabilities	
Farmington	ATT	Intersection Improvements	Route 11 & River Road	Significant numbers of turning movements both on and off Route 11 from minor collectors. High speeds. High traffic volumes. No designated turn lanes. Heavy Truck Traffic.	Intersection Improvements to provide Left Only turn lane onto River Road or possible extension of the center turn lane to provide a safe area for tuning vehicles. Additional lighting near intersections may also improve conditions
Farmington	ATT	Intersection Improvements	Route 11 & Trotting Park Road	Multiple minor intersections on roadway contribute to traffic incidents on the roadway. Future local and District 6 consideration should be given to limiting access from minor side roads with multiple access points onto Route 11 to decrease conflict points on the route.	Selective closing of unnecessary access points should be considered as a strategy to reduce traffic incidence on Route 11

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Farmington	ATT	Intersection Improvements	Route 11 & Trotting Park Road / Ridge Road	Multiple minor intersections on roadway contribute to traffic incidents on the roadway. Future local and District 6 consideration should be given to limiting access from minor side roads with multiple access points onto Route 11 to decrease conflict points on the route.	Selective closing of unnecessary access points should be considered as a strategy to reduce traffic incidence on Route 11
Farmington	ATT	Intersection Improvements	Route 11 & Central Street & Flagstone Ave	Multiple minor intersections on roadway contribute to traffic incidents on the roadway. Future local and District 6 consideration should be given to limiting access from minor side roads with multiple access points onto Route 11 to decrease conflict points on the route.	Selective closing of unnecessary access points should be considered as a strategy to reduce traffic incidence on Route 11
Farmington	ATT	Intersection Improvements	Route 11 & High Street	Multiple minor intersections on roadway contribute to traffic incidents on the roadway. Future local and District 6 consideration should be given to limiting access from minor side roads with multiple access points onto Route 11 to decrease conflict points on the route.	Selective closing of unnecessary access points should be considered as a strategy to reduce traffic incidence on Route 11

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Lee	ATT	Intersection Improvements	Route 125 / Pinkham Road	Pinkham is used as a cut-through for commuter traffic to access Route 155. Intersection Alignment compounded by risk associated with high speeds and volumes on Route 125.	Intersection realignment, designated turning lanes (Route 125 Corridor & Land Use Study)
Middleton	ATT	Intersection Improvements	Wakefield Road/Kings Hwy & Route 153	Heavy truck traffic at the intersection due to Middleton Building Supply, numerous driveways increase conflict points in close proximity to the intersection.	
Middleton	ATT	Intersection Improvements	Route 153 & Route 125/16B (Wakefield TL)	Alignment, road grades, and very little setback for the house on the corner approaching the intersection reduces sight distance.	
Milton	ATT	Bridge	141/122 Spaulding TPK over NHNC Rail	Bridge does not allow double stacking freight on the NHN Railroad. For future freight transport by rail on this line it should be raised to allow double stacking. (Lower priority than bridges over the BMRR)	Lower rail bed or increase bridge clearance in a future bridge rebuild.
Milton	ATT	Bridge	219/124 NH 75 over NHNC Rail	Bridge does not allow double stacking freight on the NHN Railroad. For future freight transport by rail on this line it should be raised to allow double stacking. (Lower priority than bridges over the BMRR)	Lower rail bed or increase bridge clearance in a future bridge rebuild.

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Milton	ATT	Intermodal Facilities	Exit 17 on Route 16	Project from Milton Project Solicitation. Future Park and Ride with a possible Transit connection.	Construct a 30-50 space park and ride (with space for future expansion) with utilities for future transit and other user amenities (restrooms). If possible locate adjacent to Route 16 and the NHN Rail line (future seasonal passenger rail to Conway).
Milton	ATT	Intersection Improvements	Southern access point to Dawson Street on Route 125	Multiple access points to Route 125 over a short distance from Dawson St. create the additional potential for collisions. This is not a major congestion issue because low speeds are encouraged through downtown.	Identify the community preferred intersections and limit access on unnecessary intersections to reduce collision potential.
Milton	ATT	Bridge	124/116 Spaulding TPK over Jones Access Road	Functionally obsolete. Possible clearance issues for the underpass. Likely not a priority.	Rebuild to increase underpass clearance.
New Durham	ATT	Livability Improvements	Powder Mill Fish Hatchery	Locally sited pedestrian use in this area. Pedestrian improvements would make this area safer.	Pedestrian Safety Improvements, Bike lanes, crosswalks
New Durham	ATT	Intersection Improvements	Route 11 & Quaker Road / Valley Road	Intersections and turning movements on Route 11 contribute to traffic incidents on the roadway. High speeds, high traffic volumes at AM/PM Peaks and seasonally, rear end accidents are frequent at intersections on Route 11	Intersection Safety Improvements, add designated turning lanes to decrease incidence of rear collisions

Town	CAA Code	Type	Location	Issues	Anticipated Scope
New Durham	ATT	Intermodal Facilities	Park and Ride on Route 11	The community has indicated it is interested in establishing a more formal park and ride in the community. This may relieve come traffic pressure on Route 11 that is seasonally high. It may also improve safety on route 11.	Construct a 30-50 space park and ride (with space for future expansion) with utilities for future transit and other user amenities (restrooms). Locate on Route 11.
Newmarket	E-6	Intersection Improvements	Route 108 & Hersey Lane	Poor sight distance, high traffic volume and turning movements cause safety issues at these tightly spaced intersections. Multiple intersections are in close proximity serving the same residential areas. Consider ways to consolidate to the safest one to reduce conflict points on Route 108.	Safety Improvements, intersection realignment, sight distance improvements, possible signalization (closure of Lita Lane driveway)
Newmarket	E-6	Intersection Improvements	Route 108 & Lita Lane	Poor sight distance, high traffic volume and turning movements cause safety issues at these tightly spaced intersections.	Close of Lita Lane access from Route 108, consolidate access with Hersey Lane to enhance roadway safety
Newmarket	E-6	Intersection Improvements	Route 108 & Forbes	Poor sight distance, high traffic volume, and turning movements cause safety issues at these tightly spaced intersections. Forbes Road Intersection would provide better sight distance if moved south on 108.	Intersection safety improvements

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Newmarket	E-1	Rail	Route 108 Downtown Newmarket	This crossing had recent safety improvements. Traffic and congestion on Route 108 are an ongoing issue with over 17,000 AADT. Continued traffic volume growth may create the need for future grade separation of the rail and Route 108.	Upgrade rail crossing
Newmarket	N/E	Capacity Expansion	Newfields to Newmarket	High traffic volumes and future planned buildout may necessitate Route 108 roadway capacity expansion to provide room for a center turn lane.	Roadway expansion to add a center turn lane
Newmarket	E-29	Rail	Rockingham Branch Rail Line Improvements	Rail line is in poor condition and is a primary barrier to providing rail access to the Port of Portsmouth and Pease Tradeport. Improvements could spur economic development and reduce freight traffic on the highway system.	Rail Line Improvements to bring rail up to national freight standards and restore rail on the state owned rail ROW to Pease Tradeport
Newmarket	E-19	Bridge	New Road over the Rockingham Branch	The current bridge will not allow double stacked freight; this will not be an issue unless significant improvements are made to the Rockingham Branch Rail.	Bridge Rebuild. Increase bridge elevation over the rail to allow for double stacking freight.

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Northwood	ATT	Capacity Expansion	Route 4	Create center turn lane for the length of the town to create safer left turning movements. Much of this is completed. There may be ROW issues. This does not address pedestrian or bike safety issues	Capacity expansion to build a center turn lane for the length of Northwood.
Northwood	ATT	Livability Improvements	Route 4	Create sidewalks on Route 4	Capacity expansion to build a center turn lane for the length of Northwood.
Northwood	ATT	Capacity Expansion	Gulf Road emergency access	Gulf Road is the only public access to residential developments near Pleasant Lake. An alternative route for emergency vehicles would add redundancy in the emergency infrastructure. There is a private driveway in Deerfield, but Northwood emergency crews are not allowed access	MOU with Deerfield or construction of an additional access point to the communities
Nottingham	ATT	Bridge	108/020 NH 156 over Pawtuckaway River	Functionally Obsolete. Narrow Shoulders. Minor Collector Road	Future Bridge widening during rehab/reconstruction to create wider shoulders.
Rochester	E-6	Intersection Improvements	NH 125 & Charles Street	Convergence of numerous roads, intersection alignment issues, and a lack of ped and bike facilities. The number and frequency of access points to Route 125 create traffic safety issues, contribute to congestion, and create environments unfriendly to other modes of travel.	Intersection realignment and safety improvements. Signal timing and coordination with other Route 125 signals.

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Rochester	E-19	Bridge	176/133 Tebbetts Road over Spaulding TPK	Functionally Obsolete. High traffic volumes and narrow shoulders contribute to bike and ped safety issues.	Bridge Rehab and widening.
Rochester	E-6	Intersection Improvements	NH 125 & Knight Street	Intersection alignment issue and a lack of ped and bike facilities. Very close to the intersection of Route 125 & Route 108 The number and frequency of access points to Route 125 create traffic safety issues, contribute to congestion, and create environments unfriendly to other modes of travel.	Intersection realignment or limit access onto Route 125 and safety improvements. Signal timing and coordination with other Route 125 signals.
Rochester	E-6	Intersection Improvements	NH 125 & Charles Street	Intersection alignment issues, and a lack of ped and bike facilities to ensure a safe route to the nearby elementary school. The number and frequency of access points to Route 125 create traffic safety issues, contribute to congestion, and create environments unfriendly to other modes of travel.	Intersection realignment and safety improvements. Signal timing and coordination with other Route 125 signals. Pedestrian safety Improvements
Rochester	E-6	Intersection Improvements	NH 125 & Upham Street	Convergence of numerous roads, poor intersection alignment, poor ped and bike facilities	Intersection realignment or limit access onto Route 125 and safety improvements. Signal timing and coordination with other Route 125 signals. Pedestrian safety Improvements

Town	CAA Code	Type	Location	Issues	Anticipated Scope
Somersworth	E-33	Other	Blackwater to High Street, "Commercial Drive Connection"	Mobility issues for some residents and a lack of safe pedestrian and bicycle access to services. Connection would help address food desert issues.	Future road or multiuse path construction to provide safe ped and bike access to essential services
Wakefield	ATT	Bridge	104/042 NH 16 over NHNCRR	Bridge does not allow double stacking freight on the NHN Railroad. For future freight transport by rail on this line it should be raised to allow double stacking. (Lower priority than bridges over the BMRR)	Lower rail bed or increase bridge clearance in a future bridge rebuild.
Wakefield	ATT	Bridge	290/064 Maple Street over Branch River	"Should be a Closed Bridge and barricaded" DOT bridge KML File	Bridge Rehab/Rebuild
Wakefield	ATT	Intermodal Facilities	Route 16 (possibly ties to the revitalized rail station in Union)	Very high levels of seasonal tourist traffic heading north. Upgrading and reestablishing rail connectivity to the Conway Branch from the existing NH Northcoast could create viable passenger tourist rail connection. Intermodal Facility has the potential to be heavily used.	
Wakefield	ATT	Rail	Union Station to Conway Branch	Establish seasonal rail to the North country	Establish seasonal rail to the North country
Wakefield	ATT	Rail	Train set acquisition		

SAFETEA-LU MPO Checklist

Planning and Programming Requirements	Yes/No	Comments
Is the MPO publishing its annual listing of obligated projects?	Yes	Available at the website: http://www.strafford.org/transportation/annualproj2010.php
Are safety and security treated as stand-alone factors in the transportation planning process?	Yes	Safety and security are both addressed independently in the planning process, but may result in planning recommendations that address both planning factors.
Does the Transportation Plan include a discussion of environmental mitigation activities?	Yes	
Was the discussion of environmental mitigation activities developed with consultation from appropriate federal and state resource agencies?	Yes	
Does the Transportation Plan include operations and management strategies?	Yes	
Do the MPO TIP and Transportation Plan provide system-level costs and revenues for operations and maintenance of existing transportation facilities?	Yes	NHDOT provides O & M planning level estimates for regions
Are the MPO TIP and Transportation Plan fiscally constrained by year and revenue source?	Yes	NHDOT provides system-level available and project-level programmed funding summaries; based on these numbers, the TIP and Transportation Plan are fiscally constrained.
Do the MPO TIP and Transportation Plan provide the most recent available cost estimates for transportation projects?	Yes	
Are the MPO TIP and Transportation Plan consistent in their project listings and cost estimates?	Yes	
Does the MPO TIP and Transportation Plan provide year-of-expenditure projects cost and revenue estimates?	Yes	
Is the list of projects considered in the regional emissions analysis for conformity consistent with the financially constrained list of projects in the TIP and Transportation Plan?	Yes	
Has the Coordinated Public Transit-Human Services Transportation Plan for the MPO been completed?	Yes	
Are visualization techniques used in the development of TIP and Transportation Plan?	Yes	http://www.strafford.org/transportation/tip.php for Project Maps (*.KMZ file for TIP/MTP projects)
Does the MPO have a documented public participation plan that defines the process for providing citizens and other affected and interested parties with reasonable opportunities to be involved in the transportation planning process?	Yes	

SELF-CERTIFICATION RESOLUTION Strafford MPO

WHEREAS the USDOT Moving Ahead for Progress- in the 21st Century (MAP-21) & Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation requires the Metropolitan Planning Organization (MPO) to certify that its transportation planning process is in conformance with regulations; and,

WHEREAS the Federal regulations specify that the transportation planning process be in conformance with Title 23 U.S.C. Section 134, 49 U.S.C. Section 5303 and 23 CFR part 450.306 which require that a continuing, cooperative and comprehensive planning process be carried out by the state and local officials; and,

WHEREAS the requirements of Sections 174 and 176(c) and (d) of the Clean Air Act, as amended (42 U.S.C. 7504, 7506(c) and (d)) and 40 CFR part 93 have been met for nonattainment and maintenance areas; and,

WHEREAS the requirements of Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-l) and 49 CFR part 21 have been met, and 23 CFR part 450.316 which requires the needs of those traditionally underserved by existing transportation systems, such as low-income and minority households be sought out and considered, and Indian Tribal government(s) be appropriately involved; and,

WHEREAS the requirements of 49 U.S.C. 5332, the Older Americans Act (42 U.S.C. 6101), as amended and Section 324 of title 23 U.S.C., prohibiting discrimination in programs or activities receiving Federal financial assistance on the basis of race, color, creed, national origin, sex, gender, or age in employment or business opportunity have been met; and,

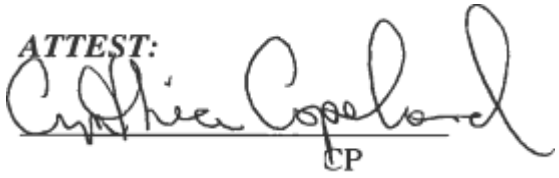
WHEREAS the requirements of Section II 0 I (b) of SAFETEA-LU (Public Law I 09-59) regarding the involvement of disadvantaged or minority business enterprises in FHWA and FTA funded planning projects (49 CFR Part 26), and the requirements of 23 CFR part 230 regarding the implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contract have been met; and,

WHEREAS the provisions of the Americans with Disabilities Act of 1990 (4U.S.C. 12101 *et seq.)* and 49 CFR, parts 27, 37 and 38, and Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities have been met; and,

WHEREAS the Transportation Improvement Program (TIP) continues to be financially constrained as required by Section 450.324 of 23 CFR, and the Federal Transit Administration (FTA) policy on the documentation of financial capacity, published in FTA Circulars; and, WHEREAS the provisions of 49 CFR part 20 regarding restrictions on influencing certain Federal activities have been met.

NOW, THEREFORE, BE IT RESOLVED THAT the Strafford Regional Planning Commission, the Metropolitan Planning Organization (MPO) for cities of Rochester, Somersworth, and Dover and the Towns of Barrington, Brookfield, Durham, Farmington, Lee, Madbury, Middleton, Milton, New Durham, Newmarket, Northwood, Nottingham, Rollinsford, Strafford, and Wakefield New Hampshire certifies that the planning process is being carried out in conformance with all of the applicable federal requirements and certifies that the local process to enhance the participation of the general public, including the transportation disadvantaged, has been followed in developing all plans and programs.

I hereby certify that this resolution was adopted by the Strafford MPO Policy Committee at its meeting on Friday, October 19, 2012.



Cynthia Copeland, AICP
Executive Director
Strafford Regional Planning Commission

Commissioner Christopher Clement
Commissioner of NHDOT