SOUTHWEST CONNECTS:

Southwest Region Transportation Plan 2014 - 2035

*Connecting Places * Connecting People *

Connecting Economies * Connecting with the Past & Future * Connecting Transportation with Social, Economic & Environmental Policy *

Adopted by the Southwest Region Planning Commission Board of Directors on January 13, 2015.

ACKNOWLEDGEMENTS

SWRPC staff would like to thank all the groups and individuals that have contributed to the formation of SOUTHWEST CONNECTS: Southwest Region Transportation Plan, 2014-2035. In particular, we would like to thank the many people from the following boards, committees and focus groups that have worked hard on transportation issues in the Southwest Region and have contributed ideas that made their way into this plan.

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Corrado Parathiomotti, *Landmark College*
Charles Redfern, *Pathways for Keene**
Jen Risley, *Monadnock Food Coop*
Linda Rubin, *Healthy Monadnock 2020**
Susy Thielen, *Heading for Home*

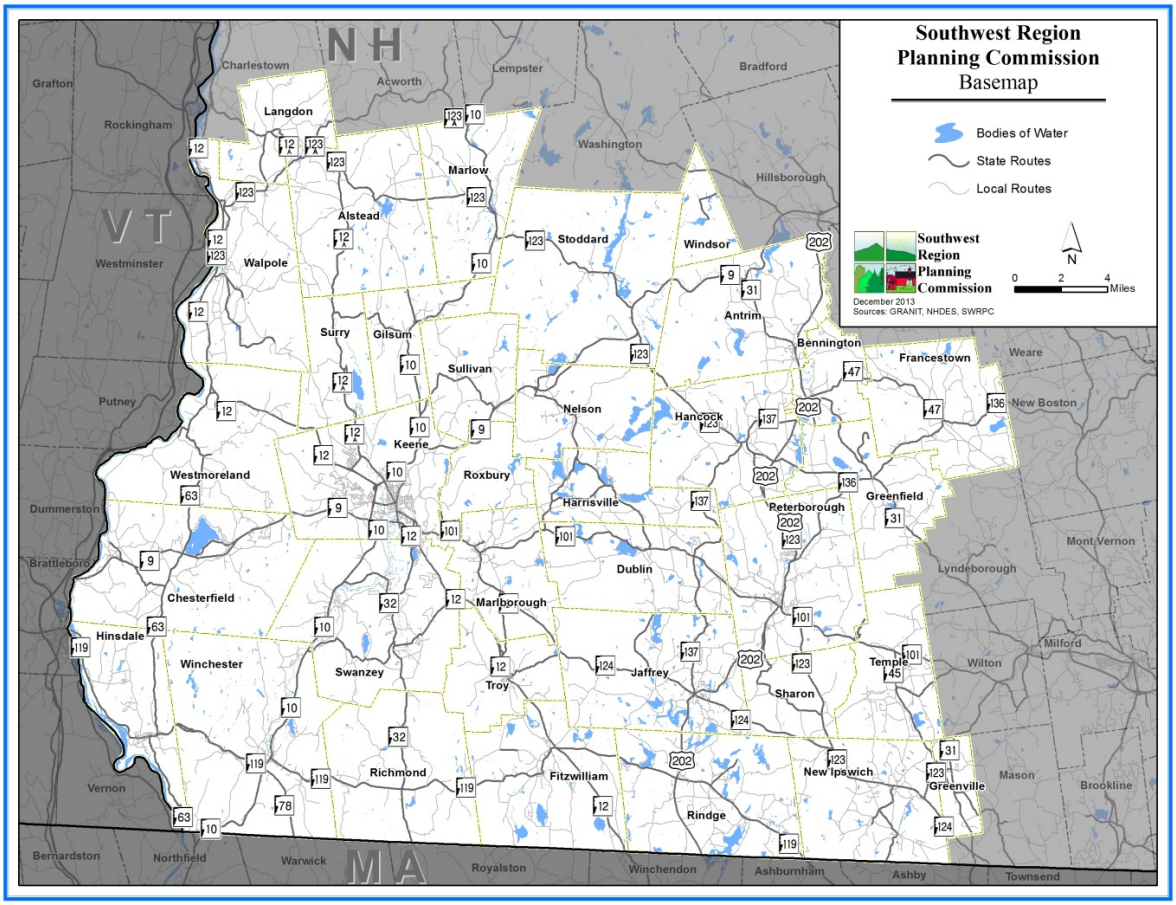
Monadnock Region Future Transportation Focus Group Members Not Affiliated with Any of the Committees Above*

Kurt Blomquist, City of Keene
Jo Ann Carr, Town of Jaffrey
Keith Thibault, Southwestern Community Services
Dave Upton, Town of Nelson
*Other Representatives on MRF Transportation Focus Group

SWRPC LIST OF MUNICIPALITIES & MAP

The Southwest Region Planning Commission District is composed of municipalities in Cheshire County and parts of Hillsborough and Sullivan County. It includes the following municipalities:

Alstead	Greenville	Nelson	Surry
Antrim	Hancock	New Ipswich	Swanzey
Bennington	Harrisville	Peterborough	Temple
Chesterfield	Hinsdale	Richmond	Troy
Dublin	Jaffrey	Rindge	Walpole
Fitzwilliam	Langdon	Roxbury	Westmoreland
Francestown	Keene	Sharon	Winchester
Gilsum	Marlborough	Stoddard	Windsor
Greenfield	Marlow	Sullivan	



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HOW TO USE THIS PLAN

SOUTHWEST CONNECTS is not intended to be read cover to cover. Readers should regard the Plan as a resource document to help advance good regional transportation policy. It is also meant to help various transportation stakeholders collaborate on regional transportation issues with the same frame of reference and similar understanding of key challenges and opportunities.

As you are reading through the Plan, note that there are *italicized words* and underlined words. When a word is italicized, that means that a definition of the word is available in the Glossary of Terms section in the back of the Plan. When a word is underlined, that term is hyperlinked to an internet resource that can provide more information about that term. There is also an acronym list at the back of the Plan for your reference.

If you are representing a community in the Southwest Region

If you are representing a municipality in the Southwest Region it is recommended that you identify the corridor system with which your town is affiliated. There are eight different corridor systems identified in SOUTHWEST CONNECTS so plan to make the **Southwest Region Corridor Systems** section one of your first stops. In some cases, your community may be part of more than one corridor system. This section also has some valuable data that is helpful for understanding transportation-related trends in your corridor area.

You are also encouraged to look at the **Regional Transportation Improvement Program**, which is updated annually in the Plan. This section contains planned capital improvement projects and planning initiatives impacting your community and its neighbors. The lists in this section will give you a sense of today's regional transportation priorities and their potential impact on your community. Ask yourself how these projects will impact your community. What other projects should the region be considering that will be mutually beneficial for other towns in your corridor? You can let SWRPC know your community's ideas for projects or planning initiatives at any time. A good time to do this is each even numbered year in the Fall when SWRPC solicits your community for project ideas for the New Hampshire Ten Year Transportation Improvement Plan (TYP).

Another important reason to consult the plan is to provide a regional perspective to your community's Master Plan. In preparing SOUTHWEST CONNECTS, SWRPC consulted each community Master Plan to build its own content. If you are updating your own Plan, such as your transportation chapter, you are strongly encouraged to examine this Plan's **Vision, Approach, Goals and Objectives** section and make an effort to consider how your community's plans fit with the regional plan. What are similarities and differences of goals and objectives and what kind of strategies are you implementing to further the regional goals and objectives? For example, are there potential partnerships with neighboring communities to establish passenger transportation services in order to improve accessibility and address Objective 3C? Does your zoning need to be updated to help preserve the regional arterial highway that

passes through your community to address Objective 3A? Does your community have a strategy for addressing increased flooding and wash-out events by addressing Objective 4D?

If you are a member of a Regional Transportation Committee

Some people that will use the plan participate in one of several active regional transportation committees in the region. The SWRPC Transportation Advisory Committee (TAC), Monadnock Region Transportation Management Association (MRTMA) and Monadnock Regional Coordinating Council (MRCC) are three transportation advisory groups currently affiliated with the Southwest Region Planning Commission. Each Committee is encouraged to advance the vision, approach, goals and objectives of SOUTHWEST CONNECTS through their own projects and other activities.

The TAC is a longstanding committee representing SWRPC's member communities. SWRPC staff and its Board of Directors consult with TAC to perform official SWRPC transportation-related business. This includes but is not limited to coordination and consultation with NHDOT and Federal Highway Administration (FHWA), regional reviews of transportation grant applications to NHDOT, evaluating SWRPC specific transportation documents such as SOUTHWEST CONNECTS and the Southwest Public Involvement Plan, and a biennial review of Ten Year Transportation Improvement Projects for the Southwest Region.

The MRTMA is an independent coalition of public and private sector groups interested in transportation sustainability in the Monadnock Region. The MRTMA has its own Action Plan, which focuses on diversifying transportation choices and improving land use/transportation coordination in the Monadnock Region in order to meet various economic, social and environmental goals. MRTMA is encouraged to ensure that its own planning initiatives are consistent and help with implementation of the SOUTHWEST CONNECTS Plan. As such, many MRTMA planning initiatives are included in the RTIP's list of Funded Corridor Related Planning Initiatives.

The MRCC is a self-governing body composed of local and regional passenger transportation service providers, funders and consumers who work on ways to improve coordination among service providers and funders in order to enhance community passenger transportation. The MRCC operates using a Coordinated Community Transportation Plan for Southwest New Hampshire, which was consulted when developing SOUTHWEST CONNECTS. Like MRTMA planning initiatives, some MRCC planning initiatives are included in SOUTHWEST CONNECTS RTIP's list of Funded Corridor Related Planning Initiatives.

Just an interested reader?

Everyone is a transportation stakeholder, even if you are not on a transportation committee, involved with your municipality or involved in a transportation related profession. That includes you. We encourage you to read through this document to learn about some of the identified challenges and opportunities for transportation in the Southwest Region. Good planning and communication is a two-way street, so you are encouraged to share feedback about transportation challenges and opportunities

written about in the Plan and share your own ideas. There are a number of ways that you can get involved in the transportation planning process, either by working with your municipality through any number of its municipal boards or committees, or attending any of the regularly scheduled meetings held by the three regional transportation advisory committees listed above. Meetings and other transportation activities are regularly updated on the SWRPC website at www.swrpc.org. If it isn't possible for you to get involved with municipal or regional committees, or attend their meetings as a member of the general public, you can also contact the SWRPC Transportation Program directly using the contact information below. We look forward to hearing from you!

Southwest Region Planning Commission
37 Ashuelot Street
Keene, NH 03431
(603) 357-0557
admin@swrpc.org

INTRODUCTION

Transportation—defined as a physical system as well as a means to move people and goods from point A to point B—is about making connections. It connects places to one another. It enables people to connect with friends, family, business associates and others. It allows economies to thrive when it is doing a good job of connecting consumers with commodities and services. As such, it has become an essential building block of human settlements and civilization.

Planning for transportation has always been about developing strategies to connect places, people and economies. This continues to be true. Strategies have evolved and adapted according to the unique challenges of history, with each historical period developing and financing a transportation solution to confront the challenges of the day—from the hand-made horse carriages built by pioneers to the tycoon funded railroad system to creation of the interstate and state highway systems paid for by public highway funds.

What are the challenges of today? According to feedback from hundreds of Southwest Region citizens, these challenges include but are not limited to: a lack of funding to maintain existing infrastructure in a cost-effective way, an aging population with changing mobility needs, increases in natural hazard events which significantly reduce the lifespan of infrastructure, limited mobility choices for non-driver populations, limited passenger transportation options to destinations within and outside the region, and the uncertainty of future transportation energy resources.

Southwest Region citizens identified opportunities as well. While there was an undercurrent in public feedback for the need to increase revenue to tackle deteriorating infrastructure and develop more passenger transportation services, this was not seen as an opportunity per se. The larger "opportunity" theme identified through the Plan's outreach process was education. And with education we return to the theme of connections and connecting—by helping people make connections in their mind about how transportation works and what resources are needed to sustain it.

For instance, despite every person having a daily experience with transportation, how much do we each understand about how transportation is paid for or maintained? Do we all know about existing transportation services or options available to us? Do we understand the social, economic and environmental costs and benefits of transportation decisions? Do we understand the investments that were made for us and have we considered the advantages of making investments for future generations? Do we as voters, and do our selectmen, committee members, and representatives have the information they need to make informed decisions relating to these transportation challenges? If we all had more information, would we be able to better tackle the challenges listed in this Plan?

Therefore, education (i.e. information sharing) is a major focus of SOUTHWEST CONNECTS. In the first section of the Plan, **Vision, Approach, Goals and Objectives**, the Vision sees the Southwest Region surmounting its challenges based on a foundation of a well-informed public that is highly participatory

and knowledgeable about arguments for and against various transportation alternatives. This is followed by the description of a transportation planning Approach that calls for making processes more educational, as well as improving communication, transparency and inclusivity to foster better decision making. The Goals and Objectives are "high level" policy recommendations thatencourage flexibility by implementers to gather additional contextual information in order to tailor solutions for future identified transportation issues. The intent here is for us to look at all sides of an issue as we plan for our future. Each part of this section is purposely connected with the State's Ten Year Transportation Improvement Plan Project Criteria to reinforce the link between transportation planning and implementation.

The next section of SOUTHWEST CONNECTS is the **Regional Transportation Improvement Program (RTIP)**. This section, and its position toward the front of the Plan, is meant to clearly profile existing transportation projects so that transportation stakeholders are well-informed about the decisions and planning initiatives that have been designed to meet regional transportation challenges. In order to keep this section relevant, it is scheduled to be updated annually to reflect any changes in projects or planning initiatives.

Following the RTIP is the **Transportation Context and Concepts** section, which is educational in nature. It introduces the reader to transportation basics, how the transportation system is operated and funded in the Southwest Region and New Hampshire, and offers "best practices" perspectives on how to assess transportation challenges, transportation impacts and transportation-related trends.

The next section, **Southwest Region Corridor Systems,** provides a summary profile of all eight corridors in the Southwest Region. Summary data and information is provided for each corridor. Information and data include an identification of each Corridor's geographical area, their transportation infrastructure attributes, population information, travel and vehicle trends, commuting and economic data, housing and land use data and performance measure data. Each corridor profile also comes with a corridor map, a map showing multimodal assets, a map showing geographical aspects of major challenges that the corridor faces or will face, and a map showing the corridor's use as a regional travel corridor, including how it connects to neighboring regions. People looking for help interpreting this data can go back to the Transportation Context and Concepts section for assistance.

Finally, this Plan offers a **Glossary of Terms** and a **List of Acronyms**. The transportation planning world is littered with technical vocabulary and an alphabet soup of programs, organizations, and governmental agencies. These sections are here to improve your reading experience.

From SWRPC staff, it is our sincere hope that the content of SOUTHWEST CONNECTS will help you "make connections" and learn something new about transportation in the Southwest Region which will enable the best transportation decision making possible. In addition, we hope you can help us identify which places need better connections, which segments of the population need better ways of connecting with the community, and how we can sustain and enhance our local and regional economies by improving connectivity with the outside world.

VISION, APPROACH, GOALS & OBJECTIVES

Transportation Vision for Southwest Region

In the future, the Southwest Region's network of major highways, rail rights of way, airports and other transportation features will look much the same as they do today. New infrastructure will not displace or disturb the special places, cultural resources, and natural features that comprise our rural landscape. Changes will happen in the context of our existing infrastructure and rights of way. New modes of transport will utilize the regional transportation network and public rights of way to make room for passenger transportation services, broadband fiber-optic cable, safe bike routes and the reintroduction of some rail. Technological and travel demand management solutions will use our existing infrastructure more efficiently as well as reduce energy demands, curb greenhouse gas emissions and save households and government money. All transportation will have stable and reliable revenue sources and will provide individuals of all ages and abilities affordable access to basic needs such as health care, employment, shopping and community interaction. Infrastructure will be sufficiently managed to avoid costly repairs or upgrades due to poor asset management, nearsighted land use decisions or climate-induced severe storm events. Villages and downtowns will serve as intermodal transportation hubs helping to connect and move people and goods between places both local and far away. Transportation decision making will rely on an active, participatory and well-informed public that weighs in on transportation alternatives thoughtfully and carefully by accounting for long term as well as short term costs and benefits.

Transportation Planning Approach

Southwest Region Planning Commission, as the keeper of the SOUTHWEST CONNECTS Plan, will encourage planning, policymaking and other decision making affecting the Southwest Transport System to be:

- Educational: Transport challenges are often complex and require a good grasp of data, concepts, analysis and understanding of different perspectives. Complex challenges and solutions need to be made understandable to people with varying degrees of awareness or comprehension.
- Communicative and Collaborative: Transport challenges are assessed and solutions are implemented by multiple entities that are sometimes not accustomed to communicating with each other. It is imperative that decision making entities share information to foster more informed and consensual decision making.
- Inclusive and Transparent: Transport decisions affect everyone. People of all ages and abilities should have a reasonable opportunity to be exposed to decision making processes as well as participate in transport decision making.
- Creative: "This is the way we always have done it" is not an acceptable reason on its own for rejecting new ideas or approaches to transport challenges. Thoughtful new ideas and experimentation are encouraged in cases where there is reasonable support behind new ideas.

- Holistic and Integrative: Transport decisions more often than not have economic, social and environmental ramifications. It is important to understand and evaluate all costs and benefits of decisions, based on the best assessment tools available.
- Adaptive and Malleable: Transport solutions are hardly ever one size fits all. Flexibility in transportation solution design can help transportation adapt to potential future challenges or opportunities.
- Strategic and Proactive: Transportation decision making is limited by scarce resources and should be calculated and implemented to obtain the best outcome based on guiding goals and objectives.

Goals and Objectives

Goal 1: **The transport system will be managed to support and enhance the regional economy.**

Objective 1A: It will be managed to foster a reliable business climate for existing and new businesses.

Objective 1B: It will be managed to leverage, attract and stimulate new investment.

Objective 1C: It will be managed to nurture and support regional economic diversity.

Objective 1D: It will provide transportation efficiency solutions for households, businesses, and taxpayers and free up scarce resources for personal, business and community investments.

Goal 2: **The transport system will be managed to help preserve and enhance natural, cultural and historic resources.**

Objective 2A: It will be managed to ensure high quality water, soil and air.

Objective 2B: It will be managed to reduce greenhouse gases from transportation emissions.

Objective 2C: It will be managed to support existing flora and fauna and their habitat.

Objective 2D: It will be managed to preserve the sense of place of its villages, downtowns, parks and other unique cultural and historic destinations.

Objective 2E: It will work to preserve elements of the Region's transportation history including its historic bridges, trestle bridges, railroad depots, rail rights of way and other resources.

Goal 3: **The transport system will provide people of all ages and abilities timely access to goods, services, recreation, entertainment and companionship.**

Objective 3A: It will preserve mobility on all backbone arterial highways identified in all 8 corridors of the *SOUTHWEST CONNECTS* Plan.

Objective 3B: It will maintain public access of existing public infrastructure that currently causes or is expected to cause unreasonable detours.

Objective 3C: It will improve mode of transport choices as well as the quality of existing alternative choices inside the region and with outside destinations.

Objective 3D: It will support and encourage local efforts to improve street, sidewalk, bicycle path and virtual connectivity as well as land use practices that reduce overreliance on building transportation capacity or requirements for long-distance transportation solutions.

Goal 4: **The transport system will be designed and managed to eliminate fatalities and injuries as well as provide reassurance to the traveling public that they are safe.**

Objective 4A: It will be designed and managed to address the unique safety challenges of special populations including but not limited to senior citizens, the disabled and the youth.

Objective 4B: It will eliminate safety risks associated with poor transportation asset conditions.

Objective 4C: It will address safety concerns of “incomplete streets” and its effect on the traveling public’s comfort level while walking, biking or using transit.

Objective 4D: It will proactively mitigate potential dangers associated from severe storm events and other causes of potential hazards.

REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM

The Regional Transportation Improvement Program (RTIP) documents regional projects and initiatives that advance the SOUTHWEST CONNECTS Vision and are guided by the SOUTHWEST CONNECTS Approach, Goals and Objectives. Projects and initiatives are described with information where available on costs, implementation schedule, and their location. Each project and initiative is coded according to the Corridor System where the project exists, allowing the reader to more easily understand where strategic investments are taking place to enhance regional transportation in the Southwest Region. This chapter of the Plan is updated every year.

The section entitled **PROGRAMMED REGIONAL SURFACE TRANSPORTION CAPITAL PROJECTS** lists regional-oriented "brick and mortar" capital projects in the Southwest Region. Capital projects are updated based on the recommendations of SWRPC and the resultant list of projects adopted as law by the Governor and Legislature as the biennial New Hampshire's Ten Year Transportation Improvement Plan (TYP). SWRPC recommendations are based on town project nominations and project assessments performed by the SWRPC Transportation Advisory Committee. Cost, schedule and other project description information is based on the Ten Year Plan (TYP) and the State Transportation Improvement Program (STIP).

This list is not an exhaustive list of all projects occurring in the region, but it does include all of the projects in which the Regional Planning Commission is asked to weigh in by NHDOT. Certain categories of projects that are not included in this list include maintenance projects (e.g. repaving projects, guardrail replacement, bridge inspection, etc.), locally administered municipal projects using state or federal monies, transit, aeronautic and rail projects. The list of projects are financially constrained according to the projected amount of funds that the State of New Hampshire has available to invest in the transportation system. The Southwest Region, along with the other eight regional planning districts in the State work with a budget that is based on the Region's proportion of the State's population as well as its proportion of road lane miles eligible through various funding sources.

Whereas PROGRAMMED REGIONAL SURFACE TRANSPORTATION CAPITAL PROJECTS lists projects that SWRPC is asked to weigh in on, **OTHER PROGRAMMED REGIONAL PROJECTS** lists projects that, because of their funding source, are not expressly evaluated by SWRPC as part of its biennial evaluation of TYP projects. However, they are included in list form because they are expected to have substantial regional impact as well as promote the SOUTHWEST CONNECTS Vision, Approach, Goals and Objectives.

UNFUNDED REGIONAL PROJECTS is a third list in the RTIP, which describes projects that are seen as transportation needs in the Region, but due to scarce funding resources are unfunded at this time. This list was created to help readers understand the full range of known transportation needs in the Region.

Finally, the **FUNDED CORRIDOR RELATED PLANNING INITIATIVES** list identifies planning initiatives of SWRPC, MRTMA and MRCC that are expected to help improve challenges faced by the eight corridors identified in SOUTHWEST CONNECTS. These initiatives often involve gathering data, performing analysis and working with stakeholders to establish consensus and support for corridor goals or project purpose and need statements or other planning guidance.

Programmed Regional Surface Transportation Capital Projects

Project #	Project Description	Phase	Timeframe	Cost (M)	Corridor(s)
20817	Alstead, NH 123A: Replace Single Span Bridge Over Warren Brook - 073/163 {Red List}	Preliminary Engineering	2015-2017	0.105	NH 9 East
		Right of Way Acquisition	2015-2016	0.021	
		Construction	2020-2021	2.420	
13597	Chesterfield, NH 63: Reconstruct to improve safety adjacent to Spofford Lake in the area of the "S-curves" from North Shore Road southerly to approximately .5 miles {STP-Safety}	Right of Way Acquisition	2013	0.055	NH 9 West
		Construction	2013	0.440	
12210	Hinsdale and Brattleboro, VT, NH 119: Replace 2 bridges over Connecticut River - 041/040 & 042/044, by constructing a new bridge 043/044 just downstream [Section 1602 - Designated Project; Demo Id NH018 & NH021] [Parent = 12110#]	Preliminary Engineering	2016-2018	44.184	NH 9 West
		Right of Way Acquisition	2016	1.202	
		Construction	2021-2022	0.297	
16307	Jaffrey, US 202/NH 124: Reconfigure 'dog-leg' @ intersection of NH 124	Preliminary Engineering	2015-2017	0.529	US 202 South
		Right of Way Acquisition	2018	0.312	
		Construction	2020	8.239	
16152	Keene, NH 9/10: Bridge Rehabilitation - 129/099 {Red List}	Construction	2021	2.057	NH 9 East
10309 P	Keene, NH 12/101: Construction of Multi Use Bridge & Mitigation Site	Construction	2021	2.200	NH 101 East
14465	New Ipswich, NH 123/123: Replace bridge over Souhegan River - 157/093 {Red List}	Preliminary Engineering	2013-2014	0.445	NH 101 East
		Right of Way Acquisition	2013	0.270	
		Construction	2014-2015	2.871	
14772 A	Peterborough, US 202: Reconstruction 1000' at Main Street intersection. Also reconstruct granite block wall along US 202 that connects to Main Street Bridge abutment (Town-Owned)	Construction	2016	2.130	US 202 North

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PROGRAMMED REGIONAL SURFACE TRANSPORTION CAPITAL PROJECTS (continued)

Project #	Project Description	Phase	Timeframe	Cost ($M)	Corridor(s)
24500	Peterborough, NH 136: Bridge replacement - 110/115 {Red list Bridge}	Construction	2020	1.329	US 202 North
10439	Roxbury and Sullivan, NH 9: Reconstruct shoulders & widen from East Sullivan, South 2.04 mi, including bridge replacement - 093/061 (Red List)	Preliminary Engineering	2015-2017	0.747	NH 9 East
		Right of Way Acquisition	2015	0.284	
		Construction	2017	6.045	
27692	Swanzey, NH 32: Bridge replacement, over Martin Brook Br #149/072. (Red List)	Construction	2023	1.726	NH 12 South
14747	Walpole and Charlestown, NH 12: Reconstruction from Main Street in Walpole to NH 12A in Charlestown, remove concrete base, add shoulders and improve drainage.	Construction	2016-2017	13.981	NH 12 North
12906	Winchester, NH 10: Bridge replacement over Ashuelot River - 152/181 {Red List}	Construction	2013-2014	5.947	NH 10 South
20819	Winchester, NH 10: Rehabilitation or replacement of 12' concrete box over Forest Lake outlet - 137/121 (Red List)	Preliminary Engineering	2015-2016	0.063	NH 10 South
		Right of Way Acquisition	2015-2021	0.018	
		Construction	2021	1.158	
				11.679	NH 9 East
				46.178	NH 9 West
				7.186	NH 10 South
				13.981	NH 12 North
				1.726	NH 12 South
				5.781	NH 101 East
				3.459	US 202 North
				9.080	US 202 South
				99.070	All Corridors

Other Programmed Transportation Capital Projects

Project #	Project Description	Phase	Timeframe	Cost ($M)	Corridor(s)
16030	Bennington, Village Area: Pedestrian Improvements in Village Area [09-02TE]	Preliminary Engineering	2013	0.076	US 202 North
		Right of Way Acquisition	2014	0.021	
		Construction	2014	0.516	
16047	Dublin, NH 101: Pedestrian Improvements in Village Area [09-12TE]	Preliminary Engineering	2013	0.029	NH 101 East
		Right of Way Acquisition	2013	0.01	
		Construction	2014	0.666	
10309 B	Keene, Winchester Street: Reconstruction from NH 101 roundabout north to Pearl Street/Island Street including intersection at Key Road [MUPCA*450] {Municipal Urban Projects}	Construction	2021	2.743	NH 10 South
27790	Keene, Gilbo Ave: Multiuse Path Along Gilbo Ave and Colony Mill Marketplace [TE]	Preliminary Engineering	2014	0.700	NH 9 West
		Right of Way Acquisition	2014	0.005	
		Construction	2015	0.701	
16034	Winchester, NH 10 (Main Street and Warwick Road: Pedestrian Improvements in Village Area	Preliminary Engineering	2013	0.021	NH 10 South
		Construction	2013	0.300	
				0.000	NH 9 East
				1.406	NH 9 West
				3.064	NH 10 South
				0.000	NH 12 North
				0.000	NH 12 South
				0.705	NH 101 East
				0.613	US 202 North
				0.000	US 202 South
				5.788	All Corridors

Unfunded Regional Transportation Projects

Project #	Project Description	Timeframe	Cost ($M)	Corridor(s)
11999A	Chesterfield, off road: Bridge rehabilitation, deck replacement and superstructure repairs recommended by Bridge Design -	N/A	3.000	NH 9 West
N/A	Dublin, NH 101: Reconstruct NH 101 from Marlborough TL to Dublin Lake, Remove concrete and reconstruct, 3.851 Miles	N/A	11.550	NH 101 East
N/A	Gilsum, NH 10: Rehab/reconstruction to address pavement transverse/tent cracking and heaving in the winter, from northerly intersection of Riverside Rd to the northerly intersection of Old Marlow Road, 2.4 miles.	N/A	7.200	NH 9 East
10309 J	Keene, NH 9/10/12/101 intersection: Add additional turning lanes and adjust medians.	N/A	2.200	NH 9 West; NH 12 North; NH 101 East
10309 L	Keene, NH 12/101: Widen existing two lane segment of highway between intersection with Main Street and Winchester Street to four lanes.	N/A	5.260	NH 101 East
N/A	Peterborough, US 202/NH 123: Bridge Replacement - 108/116 {Red List}	NHDOT Recommendation 2019	5.000	US 202 North
16073	Stoddard, Antrim and Hillsborough, Capacity, safety improvements and acquire controlled access ROW	N/A	2.050	NH 9 East
N/A	Temple, NH 101: Remove concrete pavement and reconstruct from Peterborough TL easterly to Wilton TL, 3.411 MI.	N/A	10.230	NH 101 East
12905	Walpole and Rockingham, VT, Bridge Street: Historic bridge rehabilitation - replace deck & floor system, rehab abutments & pier - 062/052 {Red List}	NHDOT Recommendation 2024	6.500	NH 12 North

Continued on next page…

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UNFUNDED REGIONAL TRANSPORTATION PROJECTS (continued)

Project #	Project Description	Timeframe	Cost ($M)	Corridor(s)
N/A	Westmoreland, NH 12: Bridge Replacement or Rehabilitation (heavy spalling and exposed rebar in invert) - 113/163 {Red List}	NHDOT Recommendation 2022	0.800	NH 12 North
N/A	Westmoreland, NH 63: Repair erosion at SW wing and northern abutment - 109/124 {Red List}	NH DOT Recommendation 2022	0.200	NH 12 North
8070	Keene-Swanzey, Dillant-Hopkins Airport: Expansion - apron & hangar improvements	NHDOT Recommendation 2020-2024	2.020	NH 12 South
8071	Keene-Swanzey, Dillant-Hopkins Airport: Modernization - taxiway improvements	NHDOT Recommendation 2022-2024	4.234	NH 12 South
8072	Keene-Swanzey, Dillant-Hopkins Airport: Preservation - runway reconstruction and hazard beacon rehabilitation, master planning, SRE purchase.	NHDOT Recommendation 2015-2018	2.881	NH 12 South
			7.200	NH 9 East
			3.733	NH 9 West
			0.000	NH 10 South
			8.233	NH 12 North
			9.135	NH 12 South
			27.773	NH 101 East
			5.000	US 202 North
			0.000	US 202 South
			63.125	All Corridors

Funded Corridor Related Planning Initiatives

ID #	Project Description	Time-line	Corridor(s)		
UPWP Task 211	Livability Charrettes - Project will implement plans for transportation assets and enhancements in 3 town centers based on the inventory, data analysis, and community visioning workshops.	2013-2015	NH 101 West	Other Target Corridor To Be Decided	Other Target Corridor To Be Decided
UPWP Task 212	SW Region Preliminary Rail Asset Feasibility Study - Project gathers data, community and local business input and freight expert input to assess the feasibility of reviving three rail facilities in the Southwest Region that have benefited by rail improvement projects. This includes two underutilized sections and one temporarily defunct section of rail in the Southwest Region: 1) the Hinsdale Fort Hill Branch railroad line; 2) the North Walpole portion of the New England Central Railroad; and 3) the Greenfield, Bennington and Antrim sections of the Hillsboro branch. This project will provide important decision making information for the state, communities and businesses to better understand the potential role of the assets to promote rail freight as part of the State's larger freight planning process.	2013-2015	NH 9 West	NH 12 North	US 202 North
UPWP Task 213	Hinsdale Island and Surroundings Planning - Project develops a vision and preliminary land use and transportation plan for the use of Hinsdale Island based on the anticipated implementation of Project #12210, which will keep existing bridges to the island in place for pedestrian, bicycle and emergency vehicle use.	2013-2015	NH 9 West		
UPWP Task 214	NH 12 Corridor Study - The project will work with the State, the communities of Keene, Swanzey, Marlborough, Troy and Fitzwilliam to develop a consensual vision for the NH 12 South Corridor that is compatible with regional mobility and each community's vision.	2013-2015	NH 12 South		
UPWP Task 215	Regional Rail Trail Planning - This project will gather baseline data to enable the State, region and communities to appropriately manage rail trail assets present in each Corridor and examine opportunities for improving community livability or bolstering the Monadnock tourism economy.	2013-2015	All Corridors Have Regional Rail Trails That Will Benefit From this Project		

TRANSPORTATION CONTEXT & CONCEPTS

This section of the Plan defines major transportation concepts and affirms some of the current thinking that led to the formation of the preceding section on Vision, Approach, Goals, Objectives, the section on Regional Transportation Improvement Program and Initiatives and the following section on Southwest Region's Corridors.

What Transportation Is

Figure a: Transportation is invisible, yet everywhere we look.

If you look at this picture and are asked to describe it, you might call it a "downtown". But notice the bikes, bus, cars, and pedestrian. Transportation is everywhere yet it is invisible.

Photo credit: SWRPC

Transportation is almost invisible, yet it is everywhere we look. It tends to blend in with the scenery and is connected to almost everything we do as a society. We often take for granted the pervasive impact it has on all of us. The core purpose of transportation has always been to overcome space (across land, water, air) by taking on human and physical constraints such as distance, time, topography and administrative jurisdiction policies.[1] It always involves helping people, freight and information move through space. Two key goals of transportation are *mobility* and *accessibility* where mobility describes the efficiency of physical movement and accessibility describes the ability to reach desired services and activities.[2] The context of how it maneuvers through these constraints depends on four key transportation ingredients which can differ from place to place and over time. The four key ingredients include 1) infrastructure (railroads, bridges, highways, airports, utility lines, pipelines), 2) the technology that provides mobility (steam engine, internal combustion engine, internet), 3) the energy sources that move people, freight and information over the infrastructure (petroleum, electricity) and 4) the variable demands that cause people, freight and information to move in the first place.

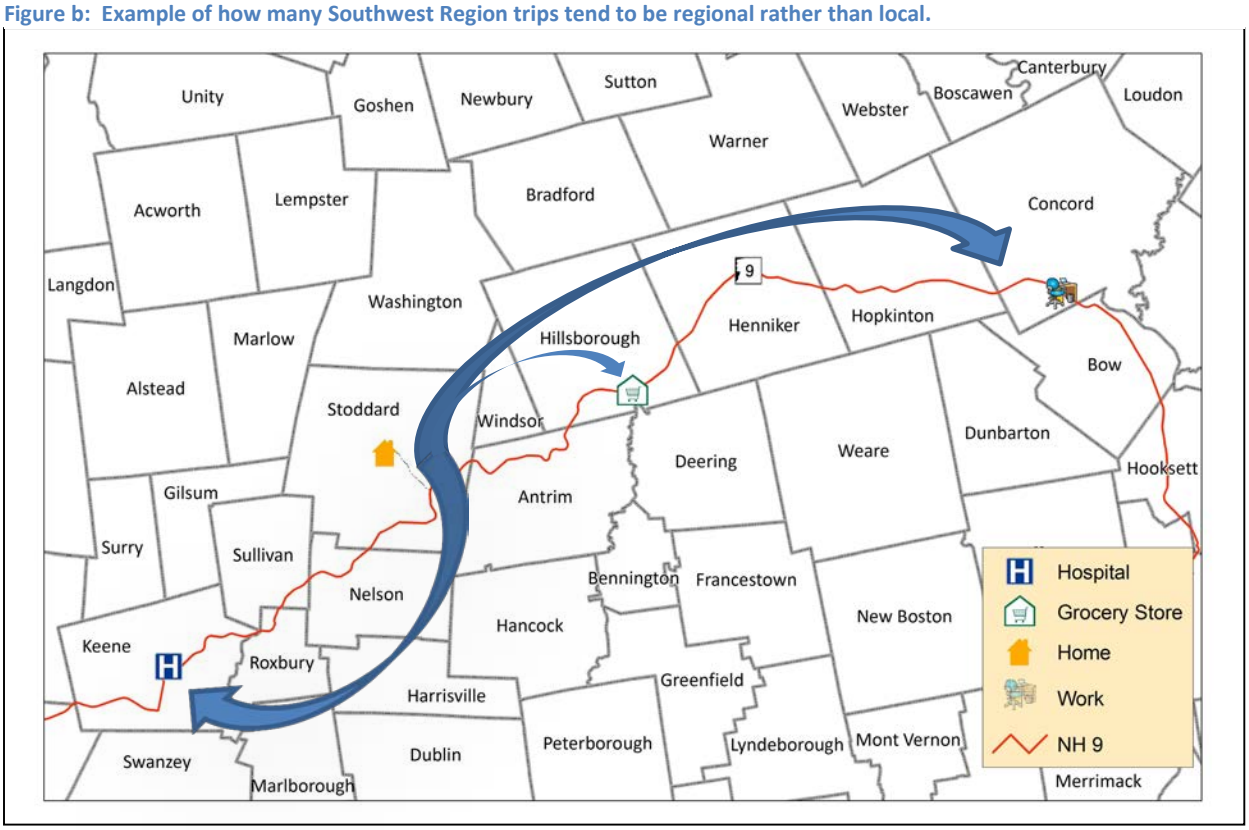
While transportation effectively moves people, freight or information, it physically moves only people or things. The movement of people, in this Plan, is categorized into *personal transportation* and *passenger transportation* where "personal" represents user-based transportation and "passenger" represents services provided by an outside party. The movement of things can involve the movement of commodities, documents, or in the case of telecommunications, electrons and electromagnetic waves. *Freight transportation* includes moving commodities over distance such as television sets or tomatoes, or moving information or other forms of communication represented in physical form such as postal mail or document deliveries by companies such as Fed Ex or UPS. *Virtual transportation* refers to the idea of transporting people and their ideas virtually, through telecommunications technologies.

[1] Rodrigue, Dr. Jean-Paul, The Geography of Transport Systems, Chapter 1.
[2] Litman, Todd, TDM Encyclopedia, "Measuring Transport," Victoria Transport Policy Institute.

Definition & Role of Regional Transportation

Transportation can be local, regional or even global in scope. Somewhere in the middle, between local and global, is regional transportation. Regional transportation itself can encompass many different scales of territory depending on the context. It can range from entire hemispheres to groups of states or provinces to groups of municipalities. ***For the purposes of planning for the Southwest NH Region area, the definition of regional transportation used in this plan is transportation between two or more municipalities in the Southwest Region as well as transportation linking the Southwest Region to neighboring regions (as defined by regional planning districts) in New Hampshire, Massachusetts and Vermont***. This definition allows the scope of the plan to examine *intra* and *inter-regional transportation* issues, without extending its focus to territories that are less connected and codependent with the Southwest Region.

Figure b: Example of how many Southwest Region trips tend to be regional rather than local.



Most transportation tends to be regional as described in the definition above. Consider NH Route 9 which connects eight municipalities in the Southwest Region to each other as well as to Interstate Route 91 and Interstate Route 89 and beyond. Although NH Route 9 hosts local and interstate traffic, work commuting, shopping trips, service related trips, and freight movements demonstrate that traffic on the facility is overwhelmingly regional. So even though communities on NH Route 9 are a string of unique places in their own right, and the State of New Hampshire is responsible for maintaining the facility and ensuring connectivity with the national highway system, paying attention to the regional value of the facility is

extremely important. Not all regional travel patterns are within the Southwest Region, however. Preserving inter-regional transportation connections with neighboring regions in New Hampshire, Vermont and Massachusetts are particularly important to the Southwest Region economy. People living and doing business from inside the region rely on long distance mobility transportation assets located in neighboring regions such as interstate highways I-89, I-91 and I-93, railroads like the New England Central Railroad and major airports in Manchester, Boston, MA and Hartford, CT.

Transportation Modes

The principal *modes of transportation* that are in use today have their own basic requirements for infrastructure, the technology they use for propulsion/movement, their fuel source, and how they are used (nature of demand). Modes are not limited to transportation on wheels or with wings. The modern definition now includes everything from walking to pipelines to telecommunications.

Table 1: Basic Characteristics of Common Modes of Transportation in Use Today

Transportation mode	Basic infrastructure requirements	Predominant technology	Energy/ fuel source	Nature of Demand
Pedestrian	Sometimes sidewalks or multi-use paths	No technology required	Human power	Personal travel
Bicycle	Sometimes highway shoulders, bike lanes or multi-use paths	Bicycle	Human power	Personal travel
Motor Vehicles and Trucks	Highways; parking; fueling stations	Internal combustion engine, electric motor	Petroleum, electricity, natural gas	Personal travel and freight for trucks designed for cargo
Bus Transit	Highways; parking; fueling stations	Internal combustion engine	Petroleum	Passenger travel and light freight
Locomotive	Railroads with fueling stations or electric rail; depots; sidings;	Internal combustion engine, induction motor	Petroleum, electric	Freight and passenger travel
Ships	Ports with fueling	Internal combustion engine	Petroleum	Freight
Airplane	Airports with fueling	Internal (continuous) combustion engine	Petroleum	Passenger travel and freight
Pipeline	Pipeline	Pumping systems	Petroleum	Freight
Telecommunications	Satellites; utility line infrastructure with broadband	Internet based technologies	Electricity	Personal (virtual) travel

Source: SWRPC

Table 2: Transportation Infrastructure in SW Region, 2014

Infrastructure	*Quantity*
Sidewalks	103 miles
Hardpack or Paved Multiuse Paths	45.4 miles
4 foot shoulders for Biking*	193.6
Bike Lanes	1.1 miles
Highways (Class I – V)*	1,862 miles
Bridges	487
Fuel Stations	73
Local Bus Transit Routes*	17.6 miles
Intercity Bus Transit Routes	37 miles
Active Rail Line	11 miles
Rail Sidings	3.6 miles
Abandoned Rail ROW	36 miles
Marine Ports	0
Airports	2
Pipeline	0

Source: SWRPC & NHDOT

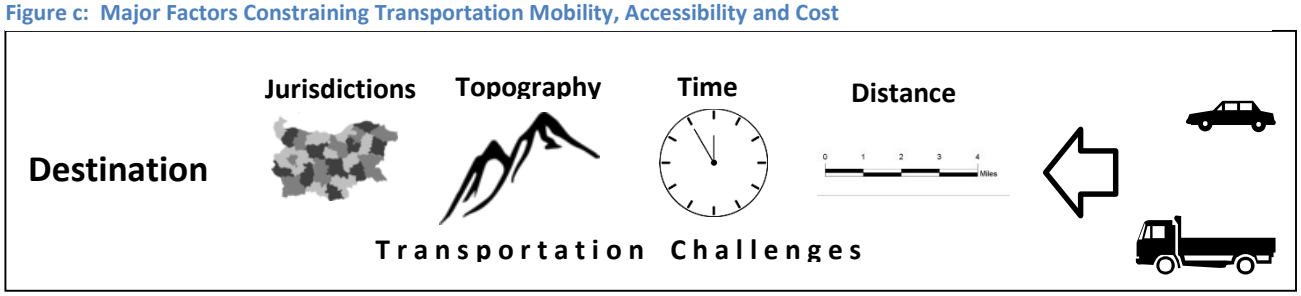
*Based on road distance not road lane distance. All information are estimates based on best available data.

If either the transportation mode's infrastructure, technology, energy source or demand are not in place or are impractical to develop, that mode can fail. Consider Southwest New Hampshire as an example. The Region's infrastructure is strong in highways, spotty in pedestrian, bicycle, rail, airports and broadband infrastructure and marine infrastructure and pipelines are non-existent. Consequently, modes that depend on highways are in a stronger position to accommodate demand than the other modes of transportation. However, buses, which are supported by highway infrastructure are not strong in the Southwest Region. In the case of bus transit, demand (passengers and political will to subsidize transit) for passenger travel has been relatively insignificant for several decades. At present, there are no technology or energy challenges facing the Southwest Region, but for future planning purposes, technological efficiency and energy sources may become more important factors for determining mode development in the Region.

Transportation Challenges

In an ideal world, transportation would provide access to everywhere, instantaneously, for free. However, there are several basic factors that constrain what our transportation system provides in terms of accessibility and mobility. As mentioned earlier, some of these major factors include distance, time, topography, and administrative jurisdiction policies. Although these are fairly mundane concepts, their impact on transportation is very significant.

Figure c: Major Factors Constraining Transportation Mobility, Accessibility and Cost



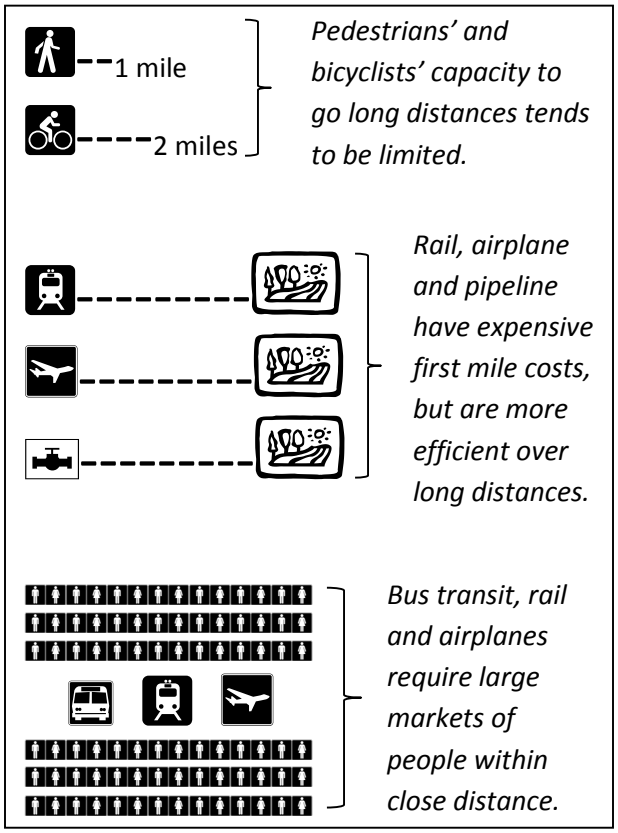
Source: *The Geography of Transport Systems*, Third Edition by Jean-Paul Rodrigue, Claude Comtois & Brian Slack, 2013.

Distance and Time

Distance and time are key factors when we think about transportation. How far away is the destination? How much time will it take? Increasingly, the distinction between distance and time has blurred due to advances in transportation infrastructure, technology and affordable energy such that the questions "how far" and "how much time" can mean the same thing.

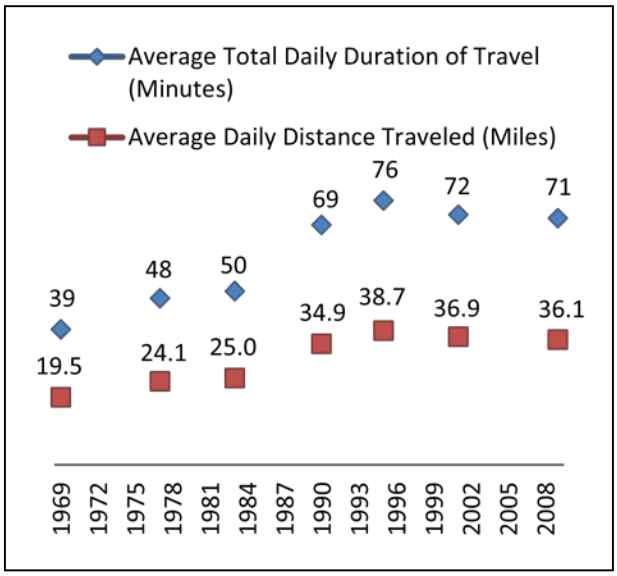
Still, distance remains an important factor for shaping transportation and determining what modes best meet transportation needs. Some modes of transportation, for all practical purposes, are limited by distance such as pedestrian and bicycle modes. Some modes are more efficient (less costly) moving people, freight or information over long distances instead of short distances such as rail, airplanes or pipeline. Other modes rely on market density, which is the same as the number of people or goods within a specific distance from each other and the transportation mode (bus transit, rail, airplanes).

Figure d: Transportation and Distance Concepts



Source: SWRPC

Figure e: American Travel Distance and Time, 1969-2009



Source: National Household Transportation Survey, 2009

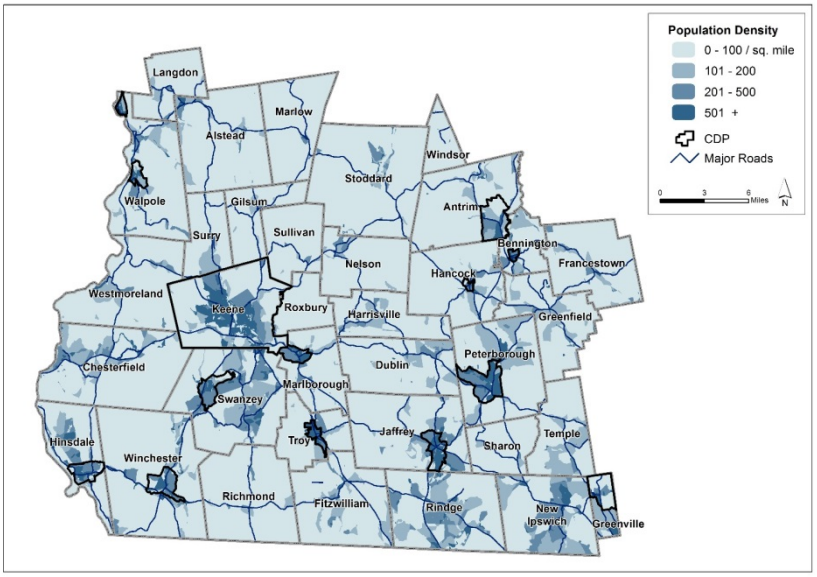
Transportation technological advances and affordable energy have enabled people to increase their access to places where they want to live, work and play, making distance less of a factor in their daily lives. In New Hampshire, individual demand for land ownership combined with population growth has resulted in more dispersed settlement patterns. Decreased land use density translates into longer trip distances for Granite Staters. In context of the global economy, as transportation technology and affordable energy has made distance less relevant, the world economy continues to expand. Businesses are taking advantage of economic advantages in once distant geographical locations in order to access raw materials or more affordable labor.

Since 1969, the distance that Americans travel daily has increased about 85%. Interestingly, time spent traveling has increased at roughly the same rate, meaning that the average American's mobility has kept pace with growth. In 1969, American's average distance traveled was 19.5 miles and took up to 39 minutes of their day on average. Distances and travel time increased steadily through 1980s, grew sharply in the 1990s and plateaued around the early 2000s. Today, the average American is estimated to travel about 36 miles daily, spending 71 minutes per day traveling to various destinations whether the trip purpose is to get to work, shopping, or for leisure purposes.

Despite the fact that transportation demands more time out of an average American's day, many changes to technology and management strategies have evolved to address time constraints. Improvements in intelligent transportation systems (ITS), such as geographic positioning systems and smart message board signs, allow modes of transportation to navigate through time constraints such as congested roads by providing information on alternative routes or less congested times of day. Other ITS technologies save people time by tracking real time movements of modes of transportation such as bus, transit or airplanes through global positioning systems connected to smart phones. New generations of workplaces are increasingly replacing the former 9 to 5 schedule with schedules that allow them to use transportation less frequently through flextime arrangements or eliminate transportation completely through work at home arrangements. In the world of freight transportation, time is also relevant. The term "just in time" describes a contemporary production management strategy designed to eliminate costs associated with time, in particular warehousing, so that commodities are transported directly from a supplier to a consumer on demand. Delivery companies such as UPS and Fed Ex provide consumers access to distance and time logs which track package deliveries and estimated delivery times for parcels traveling global distances.

The Southwest Region has its own unique relationship with distance and time constraints. The Region itself is a contiguous block of 35 towns in Southwest New Hampshire covering 1,007 square miles. At its widest points, the region is approximately 36 miles from east to west and 33 miles from north to south. With the exception of the City of Keene, and several other small downtowns and village centers, the population is mostly dispersed. The Region has a mostly dispersed population with concentrated pockets of high population density, which correspond roughly with the the *Census Designated Place* (CDP) boundaries outlined in black on

Figure f: Population density in the SW Region



Source: U.S. Census Bureau; SWRPC GIS

Figure f. The region is located approximately 80 miles from Boston, which is the largest transportation hub in New England and close to other important destinations, making the region rural, but not remote.

As a whole, 65% of the working population (23,267 people) lives and works in the Region. Almost half of all commuters travel less than 10 miles from home to work, but there are approximately 4,000 workers that travel greater than 50 miles on a regular basis.

Table 3: SWRPC Resident Commute Distance, 2011

	Count	Share
Total Primary Jobs	48,075	100.0%
Less than 10 miles	17,816	37.0%
10 to 24 miles	11,342	23.6%
25 to 50 miles	6,763	14.1%
Greater than 50 miles	5,507	11.5%
To Massachusetts (distance unknown)	6,647	13.9%

Source: US Bureau of Census Longitudinal Employer-Household Dynamics, 2011

The majority of trips that Southwest Region residents make for shopping, services or medical appointments are local or regional in nature depending on the town of residence. Major supermarkets are distributed around the Region in Walpole, Keene, Swanzey, Hinsdale, Peterborough and Rindge, and just outside of the Region in places like Hillsborough and Brattleboro, VT, although there are several smaller business food stores distributed throughout the Region. Small clothing stores are distributed throughout the Region, with the only larger stores located in Keene, Rindge and Hinsdale. In the Southwest Region there are two medical hospitals in Keene and Peterborough, as well as a hospital in Brattleboro, VT, all of which provide medical services including some medical specialization services. Access to basic services depends on each town's geographical location, but most services are within a 20 mile drive.

Table 4: Road Mileage Distances and Times from Center of SW Region

Interstate 91 (Brattleboro, VT)	32 miles (50 minutes)
Interstate 89 (Hopkinton, NH)	38 miles (58 minutes)
Interstate 93 (Bow, NH)	48 miles (60 minutes)
Manchester Boston Regional Airport	47 miles (1 hour, 12 minutes)
Dartmouth-Hitchcock Medical Center, Lebanon, NH	77 miles (1 hour, 34 minutes)
Boston, MA	82 miles (1 hour, 46 minutes)
Bradley Airport, CT	102 miles (1 hour, 59 minutes)

Source: Google Maps from Origin Point of Harrisville, NH which is positioned in the Center of the SW Region

Distance to significant personal transportation destinations outside of the Region can range to about 100 miles (or 2 hours), but most important personal travel destinations (for niche shopping needs or specialized services) are within a much shorter distance.

Freight transportation distances tend to be longer than personal or passenger transportation distances. Approximately 60% of all trips are over 250 miles. Unfortunately, there is no freight data specifically for the Southwest Region. However, for New Hampshire we know that by ton per mile, only about 15% of freight traffic is probably occurring in a range of 50 miles. For some virtual transportation trips, telecommunications has made distance and time largely irrelevant. Though not traditionally considered the nuts and bolts of transportation, telecommunications has become increasingly relevant to transportation planning. Just as we have an interstate highway, we have an information highway, both of which can connect people and services. Telecommunications technologies make it possible to replace

trips to work or to stores. However, recent broadband mapping and planning efforts by Southwest Region Planning Commission suggest that the Southwest Region's telecommunication infrastructure (broadband) remains spotty, therefore making distance an ongoing challenge.

Table 5: NH Distance of Freight Originating in NH by Ton-Mile, 2007

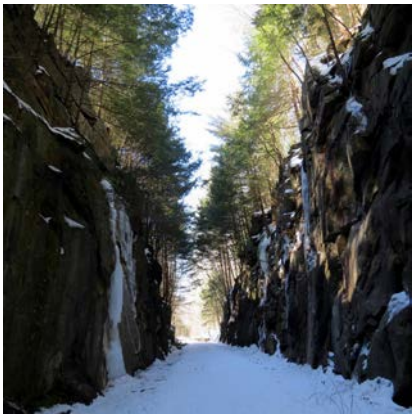
Distance from Southwest NH Region	Ton-Miles	Mileage is as close as…	and as far as…	Notable Destinations within range include…
Less than 50 miles	15.5%	Local Trip	Worcester, MA	Nashua, NH; Northampton, MA
50-99 miles	10.8%	Northampton, MA	Hartford, CT	Boston, MA
100-249 miles	14.5%	Hartford, CT	New Brunswick, NJ	New York, NY; Montreal, QB
250-999 miles	25.2%	Syracuse, NY	Chicago, IL	Charlotte, NC; Detroit, MI;
1,000 or more miles	34.1%	Chicago, IL	Shanghai, China	Singapore, Malaysia, Rotterdam, Netherlands

Source: US Department of Transportation, Bureau of Transportation Statistics

Topography

Topography, the natural and physical features shaping our Region, has had and will continue to have a strong impact on transportation. Steep slopes, wetlands, rivers and other characteristics of the natural physical environment place constraints on where we can build and expand transportation infrastructure, but also limits new development and expansions of homes, commercial buildings and parking lots that are connected with each other by our transportation system. Topography's influence can be seen at the local level, imposing restrictions today on where we build new roads or add additional lanes to highways because of wetlands or steep slopes, and it impacts us at a larger regional level. For example, some policy makers in northern New England States aspire to one day have an east-west limited access highway to promote trade and travel with the American Midwest and Canada, but the Appalachian Mountains are a massive obstacle to that dream. Traversing complicated topography is difficult due to environmental protections in place for resources such as wetlands, streams and rivers, but also because it is expensive.

Figure d: Granite in the Granite State



Hillsides of granite along the Cheshire Rail Trail are one of the SW Region's special challenges with topography.

Photo credit: nhgardensolutions.wordpress.com

In the Southwest Region's recent past, many topographical features were overcome when, relative to today, there was more capital to build infrastructure, and few or no environmental regulations were in

place. The highways and rail right of ways that traverse through the Region were engineered to be as close as possible to no more than 3% slope and as close to a straight line between important origins and destinations. To accomplish this feat, planners and engineers had to traverse through mountains, hills, and chasms by conducting major dynamite blasting operations and relocating rock and soil to develop massive causeways between valleys with teams of men, horses and later machines. Today, there are 275 municipal bridges, 221 state bridges, 3 bridges belonging to the Army Corps of Engineers, and 2 that are considered Railroad bridges. There are also countless culverts crossing the many rivers, wetlands and streams that snake through all parts of the Southwest Region. Although the Region's topography has made it such that there are times when it is more convenient to travel south to go longer distances east or west, this infrastructure has made it possible to access almost every corner of the Region with relative ease if you are able to drive a vehicle.

Figure e: Washout at Belvedere Rd in Keene, NH (2012)

Photo credit: Keene Sentinel

Despite overcoming many topographical challenges in the past, topography challenges remain today. With infrastructure placed over or near riparian areas, hills and mountains, maintenance can be challenging. Bridges are expensive to maintain, and even more expensive to rebuild. Today there are 94 bridges on the State Department of Transportation's *red list* in the Southwest Region, a state watch list that has bridge inspections at least twice a year instead of the normal inspection schedule of one time every two years.[3] Nearly 20% of the 487 bridges in the Region are red listed. Since 2008, the number of bridges have remained consistently high partly due to limited financial resources at the state level. A more recent topographical related phenomenon impacting the region has been a spate of extreme weather events in which unprecedented heavy rainfalls have washed out highways and blocked culverts. The strongest impact has been felt in parts of the Region where water is less likely to get absorbed and thus washes down hills. Since the December 2008 Ice Storm, over 280 roads and highways have been closed in the Southwest Region due to natural disasters.[4] The SWRPC Natural Resource Plan suggests that more heavy precipitation events are likely to come our way, potentially with more frequency.

Topography will remain a challenge to maintaining infrastructure, but also in regards to building new infrastructure. Most of the land that is easiest to build on has already been built on. As the Region grows, and if trip distances remain largely irrelevant, more capacity and mobility preservation techniques will be required for our transportation infrastructure. One way of ensuring that regional mobility remains strong is the creation of a network of streets to connect to local destinations, providing relief to our regional

[3] The red list identifies bridges for which at least one of its main components--the bridge deck, superstructure or substructure, is rated as "poor."

[4] Road closure incidents reported by New Hampshire Department of Safety, Homeland Security and Emergency Management from December 2008 Ice Storm to July 2013 Floods.

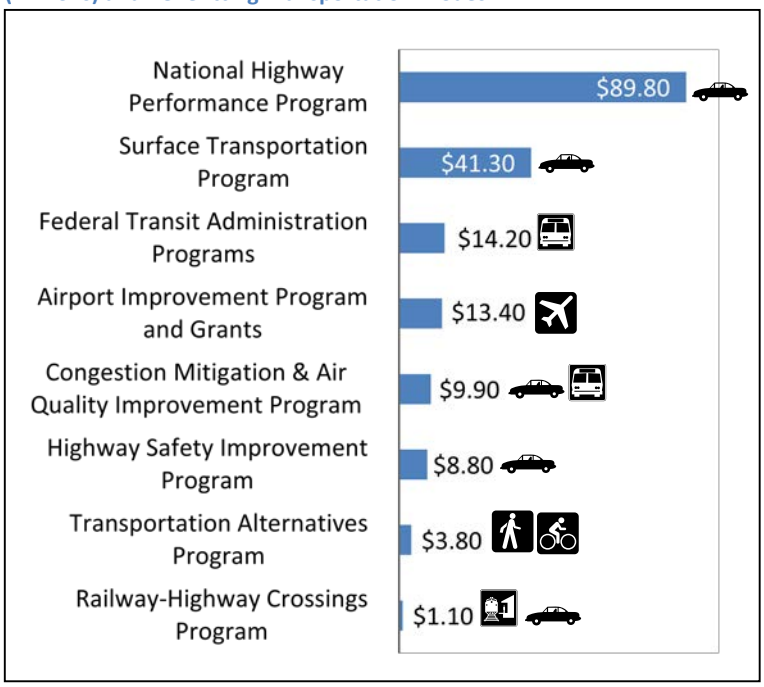
highways by separating local from regional traffic. Topography will continue to challenge us in constructing new streets. Furthermore, environmental regulations designed to protect special environmental resources will require that we maintain and protect what we have for regional infrastructure, before building new.

Administrative Jurisdiction Challenges

Another factor shaping transportation mobility and accessibility are the administrative jurisdictions that manage or regulate the transportation system. Different levels of government make policy decisions whether it is financing transportation improvements or services, regulating transportation in context of land use and environmental resources, or other policies shaping how our transportation system should be used or designed. In addition to the 35 towns that make up the Southwest Region transportation system, several other administrative jurisdictions including neighboring towns, the State of New Hampshire, Vermont and Massachusetts and the federal government can and do impact the Region's mobility and accessibility. Private sector entities, such as railroads, also affect transportation mobility and accessibility.

Funding policies are one of the most obvious ways that administrative jurisdictions impact transportation. General examples of fiscal policies include taxes, fees, subsidies or revenue apportionment (how money is invested) policies. Fiscal policies will dictate how much revenue is available to sustain or develop the transport system, and shape decisions about investments in *asset management*, *maintenance*, *operations*, *modernization*, *capacity expansion*, *multimodal development* and other transport management themes. Other kinds of policies affecting transportation can have impact on transportation such as design standards, policies to serve marginalized user groups, management policies designed to protect transportation investments or policies to protect historical, cultural or environmental resources.

Figure g: Federal Transportation Funding in New Hampshire in FY 2013 (Millions) and Benefitting Transportation Modes



Source: FHWA, FTA, FAA

The federal government continues to have a major role in funding and thus shaping the transportation system in New Hampshire. In the State's draft *10 Year Transportation Improvement Plan* for FY2015-2024, 71% of the entire funding of that Plan is paid with federal transportation dollars, with 29% of the cost paid for with state or other dollars.[5] These funds are eligible for everything from highways and bridges, to aviation improvements, to bicycle and pedestrian improvements.

Local funding match is required more often than not. Some categories of this funding can be used flexibly across modes or for different categories of infrastructure, but most of the funding is for a specific type of transportation. With such an enormous contribution to the State's transportation system, the federal government's fiscal policies on what transportation assets to spend money on have a major impact on the state and regional transportation systems. These funds provide great opportunities to maintain and upgrade the transportation system, but provide some restrictions on how money can be spent.

Although the federal government's influence on the transportation system is largely fiscal in nature, there are a number of design and land use related policies attached to federal funding. Some notable policies include the restriction of access points (exits, driveways or entrances) on interstate highways, the limitation of heavy trucks on interstate highways, the design related access requirements for people with disabilities stemming from the Americans with Disabilities Act of 1990 (ADA), and the National Environmental Policy Act of 1970 (NEPA), which regulates use of federal money that may impact environmental, cultural or historical resources.

Figure f: Noteworthy Federal Transportation Policies

ADA – The Americans with Disabilities Act (ADA) is a law that prohibits the discrimination of people based on disability. In the realm of transportation, it ensures public transportation and other transportation facilities such as sidewalks, walkways, bike paths, etc accommodate people with disabilities.

NEPA – The National Environmental Policy Act (NEPA) requires transportation projects to integrate environmental values into the decision making processes by considering environmental, historical, archaeological and other impacts. The policy is designed to prevent or mitigate any harmful impacts resulting from transportation projects.

Interstate Weight – Title 23 of the U.S. Code states that vehicles are not allowed to travel on interstate highways that carry more than 20,000 lbs on any one axle, or with a tandem axle weight of 34,000 lbs, or a gross weight of 60,000 lbs for a vehicle with five or more axles. This policy requires heavier loads to use state and local road highways, which can impact highway maintenance costs.

Clean Air Act – The Clean Air Act is a federal policy aimed at having the Environmental Protection Agency (EPA) protect the public from air pollution that can harm human health. It requires air quality mitigation for areas of the country that are not attaining federally set air quality standards. This policy is meant to shift investments in transportation that reduce air pollution such as public transit, park and ride lots, etc.

Title VI – Part of the Civil Rights Act of 1964, which prohibits the discrimination of people on the basis of race, color, national origin in programs receiving federal financial assistance. The policy prohibits discriminatory transportation decision making or projects.

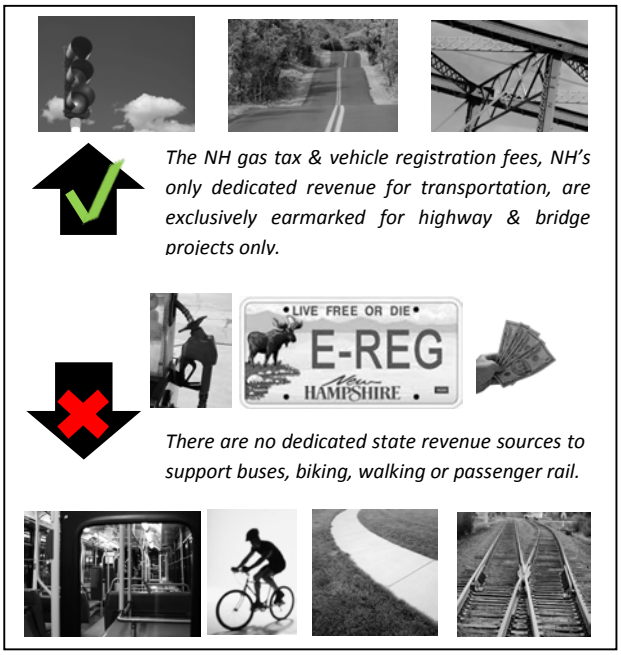
Rail deregulation – Term referring to policies including the Railroad Revitalization and Regulatory Reform Act of 1976 and the Staggers Act of 1980 which eased federal regulation of railroads and allowed private enterprises to pursue ownership of rails and encourage freight business and shift freight to rail away from highway.

Sources: See weblinks above.

[5] NH Department of Transportation, 2015-2024 Ten Year Transportation Plan Governor's Advisory Commission on Intermodal Transportation Public Hearing Presentation, September-October 2013.

The State of New Hampshire also has fiscal policies and other policies that shape the regional transportation system. State funding is restricted by statute to four highway and bridge programs: *State Aid Highway Block Grant Aid*, *State Aid Highway Program*, *State Aid Bridge Program* and the *Betterment Program*.[6] These programs are derived from Article 6A in the Constitution of New Hampshire, which stipulates taxes and fees relating to motor vehicles (the sole dedicated revenue source for transportation of any kind in New Hampshire today) are restricted to the purpose of funding construction, reconstruction and maintenance of public highways in the State. Therefore, motor vehicle taxes and fees cannot be used to finance other modes of transportation. For example, transit in New Hampshire relies primarily on federal and local funding with minimal contribution from the State. Any state funding that is available has come from bonding or general fund financing to pay for capital expenses associated with transit (buses, equipment). In 2011, a study showed that NH was tied for fourth place among the States with the lowest state funding for transit in the nation at $.32 per capita.[7] State funding for walking, biking and rail does not exist and these are traditionally paid for with federal and local funding. The state does contribute to aeronautics development through airplane registration fees and general fund revenue grant and loan programs.

Figure h: State Transportation Funding in New Hampshire



Source: SWRPC

Other significant state policies that impact transportation mobility and accessibility include the state's road classification system law, which determines ownership and maintenance responsibilities as well as design standards for different types of roads within the State including municipal roads. It also has authority to regulate access to and from state highways which can affect the overall mobility and accessibility of those roads.[8] The State exercises this authority by issuing permits for driveways and entrances, and planning signalization, medians and other design considerations for new developments that are expected to have high traffic generation. This is the extent of the State's involvement in land use and transportation connection issues. There are other state policies relating to transportation, such as those in the State Transportation Long Range Plan or the NH Climate Action Plan. These plans are

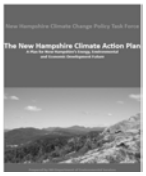
[6] State Highway Block Grant Aid, State Aid Highway, State Aid Bridge and Betterment Programs can be found under the following statutes respectively: RSA 235:23 & 25; RSA 235:10-:21; RSA 234; and RSA Section 235:23a.
[7] Survey of State Funding for Public Transportation: Final Report 2013. American Association of State Transportation Officials and the American Public Transit Association.
[8] The State Road Classification law is under NH RSA 229 and State Access Management law is under NH RSA 230 and NH RSA 236:13.

important guidance documents, and they are advisory rather than regulatory in nature. More information on these state transportation policies are available in Figure i.

Figure i: Noteworthy State Transportation Policies

NH Law splits maintenance responsibilities for roads (NH RSA 229) and bridges (NH RSA 234) between the State and municipalities. The road system is set up in a hierarchy of seven classes of road from Class 1 (high mobility) roads to Class VI (abandoned) roads. NH has a policy for the permitting of driveways and other accesses to state highways derived from NH RSA 236:13. For some portions of roads, the state has purchased the right-of-way to control access points or limit access points to interchanges only.

The NH Long Range Transportation Plan is a policy advisory document for NHDOT that identifies transportation issues and trends influencing the performance of the system, future opportunities, and articulates the State's transportation vision and goals. Goals in the document include transportation-land use integration, mobility and modal choice, safety, security, environment and public health, system preservation and maintenance, collaboration and coordination, and stewardship of the transportation system.



The NH Climate Action Plan recommends NH achieve a long-term reduction in greenhouse gas (GHG) emissions of 80 % below 1990 levels by 2050. The Plan contains a number of objectives and strategies to reduce GHG emissions by reducing vehicle miles traveled (VMT). This includes encouraging appropriate land use patterns as well as creating an integrated multimodal transportation system.

Sources: See weblinks; Photo credit of State Capitol building: www.gencourt.state.nh.us/

In the same way that federal and state investments affect transportation mobility and accessibility, so do local investments. Decisions on transportation financing at the local level typically come through a local highway department budget on maintenance-related items and through capital improvement plans or warrant articles for larger or discrete transportation improvement projects. Unlike federal or state investments, however, local transportation investments tend to be less the result of an ongoing policy, and more based on case by case comparative assessment of town needs by the town legislative body's (city council or town meeting voters) on an annual basis.

Figure j: State & Local Road Mileage & Bridges in the SW Region

	Miles of Road	% Miles of Road	Bridges	% of Bridges
State	513	28%	221	45%
Local	1,349	72%	275	55%

Source: NHDOT

Compared with the federal and state government, local government in New Hampshire has the responsibility for the most road and bridge miles. Moreover, it is local government's responsibility to maintain other transportation modes in its community including sidewalks, bike paths, local bus transit or airports. While the federal government and state government do contribute capital funding to other modes, the presence of different modes of transportation depends mostly on local communities in New Hampshire by virtue of local ongoing maintenance responsibilities and federal and state local match policies. The financing tools that local government has to fund transportation may come through property taxes (general, central business

service district, tax increment financing district, village district), bonding, or special revenue funding through user fees such as vehicle registration fees, parking fees, airport fees or solid waste fees.[9]

In addition to transportation financing, local governments have the authority to create other policies that can have a tremendous impact on transportation mobility and accessibility. Noteworthy examples include local road layout powers and local land use authority such as zoning, subdivision and site plan review. Road layout powers under NH RSA 231:8 provide a community the authority to create a new road, or to make a public highway out of a private road. With that power, the town may enact design standards or determine that road's level of connectivity with the surrounding street network. Zoning powers under NH RSA 674:16 allow local government to regulate and restrict building dimensions, sizes and heights, lot sizes, the density of population, and the location and use of buildings, structures and land used for

Figure k: Local Policies that Impact Walking, Biking, Transit

There are numerous ways that municipalities can improve walking, biking and transit conditions in their community:

- Planning Boards can ensure that land use and transportation goals and objectives are integrated in their **Master Plans**. The Master Plan can identify areas where more walking, biking or transit are envisioned for certain sections of a community.
- **Zoning, site plan and subdivision regulations** are policy documents that can aid a Planning Board in helping new development or *changes in use* be more accessible to walkers, bikers and transit riders. Some planning board strategies that can be used to advance this goal include maximum parking requirements, shared parking, street connectivity requirements, sidewalk connectivity requirements, and bike rack, bus stop or turning radius requirements for buses.
- A municipality's governing body can improve walking, biking and transit conditions by purposefully and methodically tying its **Capital Improvement Program** to its Master Plan.
- More communities are adopting **"*Complete Streets*" policies** to improve walking, biking and transit conditions as part of new capital improvement projects or even road maintenance activities such as applying road paint. A Complete Streets policy can be a document ratified by the municipality's governing body, that provides the framework for ensuring planners and engineers consistently design and operate the entire roadway with all users in mind – including bicyclists, public transportation vehicles, riders, and pedestrians of all ages and abilities.
- Although there are some federal grant programs that provide assistance for supporting walking, biking and transit, it is mostly a local responsibility. While the general fund can be a source for these investments, the danger is that support for walking, biking and transit competes each year with other needs. If these kinds of investments are viewed by the community as basic infrastructure, then there are tax district tools at a community's disposal. Many NH communities are using **NH RSA 261:153 VI,** a $5 vehicle registration fee, as a revenue source for supporting transit in their communities.

Source: SWRPC

business, industrial, residential or other purposes. In effect, zoning can determine the types of transportation modes used in a community by virtue of its community design and density requirements. Likewise, zoning can determine where low or high traffic generation land uses are positioned in a community. Subdivision and site plan authority, under NH RSA 674:36 and 674:44 respectively, provide town planning boards the authority to determine site connectivity with neighboring land uses, decide

[9] Slack, Susan. A Hard Road to Travel: New Hampshire Law of Local Highways, Streets and Trails, Local Government Center, p. 187-188.

whether land accommodates multiple modes of transportation on site, and control the location and design of how the land interfaces with the transportation system.

Understanding and Addressing Transportation Impacts

The preceding section of this chapter demonstrated that distance, time, topography and administrative jurisdiction policies can all impact transportation. But transportation also has its own impacts. These impacts can be positive or negative, *direct* or *indirect*, *internal* or *external*, short or long-term, affecting individuals, society, the economy or environment. Traditionally, transportation impact has been measured by its ability to provide mobility and has been often measured in terms of vehicles. Mobility concepts such as *congestion, capacity* and *speed* continue to be used to understand how efficiently vehicles are moving on a stretch of highway. While this is a good way to understand the impact of making design changes to the highway system, it can give the impression that these are the only impacts worth paying attention to. Yet our nation's experience with transportation suggests that transportation impacts are much broader than on mobility alone.

Sustainability and Livability

There are volumes of literature that describe the broader impact of transportation, based on *sustainability* principles. These impacts are often categorized as social impact, economic impact or environmental impact. When transportation impact is understood and accepted as wide ranging, diverse, and interrelated with other aspects of our world, it is easier to understand how transportation planning affects broader community goals. An important message from sustainability is that the transportation decisions we make should therefore create impacts that support, not detract from the larger goal to improve the quality of life. Sustainable planning is about accruing *win-wins* and minimizing tradeoffs.

Table 6: Social, Economic and Environmental Transportation Impacts

Social Impacts	Economic Impacts	Environmental Impacts
Level of Equity	Level of Congestion	Air Quality
Mobility	Mobility for Economic Purposes	Climate
Human Health	Costs Associated with Safety Performance	Habitat Quality
Community Cohesion	Transportation Facility Costs	Water Quality
Community Livability	Consumer Transportation Costs	Hydrologic Impacts
Aesthetics	Supply of Non-Renewable Energy Resources	Noise Levels

Source: Adapted from Victoria Transport Policy Institute: Sustainable Transportation and Travel Demand Management: Planning that Balances Economic, Social and Ecological Objectives, 2013.

Using examples of impacts in the table above, transportation system changes should ordinarily strive to allow individuals of various ages, abilities and income in our community to have the ability and choice to reach desired goods, services, activities and destinations (level of equity and mobility). They should also be affordable (transportation facility costs and consumer transportation costs), and should not pollute our environment (air quality, water quality). Alternatively, whenever possible transportation system changes should avoid enabling a sedentary lifestyle (human health), limiting modes of transportation that connect to workplaces (mobility for economic purposes) or building roads that fragment significant wildlife habitat (habitat quality). With the idea that informed decisions are better decisions, this way of thinking is designed to optimize decision making using the best information available.

Along with its recognition of transportation's diverse impacts, sustainability recognizes that impacts can change or build up over time. Therefore, sustainability involves implementing transportation solutions that meet the needs of today's generations without compromising the needs of future generations. It also may involve heeding decisions made by earlier generations. The rail trails in Southwest New Hampshire are a good example of the State looking forward and backward by purchasing former railroad rights of way for future potential rail use. Today, the rail trails are meeting the needs of today's generation by serving as recreational trails, but they are being reserved for future generation use, possibly for rail again. At the same time they are recognizing the hard work and planning that went into the development of these facilities in the late 1800s.

Related to sustainability is *livability*. Livability is a subset of sustainability in that it comprises sustainability themes that directly affect people in a community. The US Department of Transportation (US DOT), along with the Department of Housing

Figure I: Livability Principles & Transportation

- **Provide more transportation choices:** Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.
- **Promote equitable, affordable housing:** Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.
- **Enhance economic competitiveness:** Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services, and other basic needs by workers, as well as expanded business access to markets.
- **Support existing communities:** Target funding toward existing communities—through strategies like transit oriented, mixed-use development, and land recycling—to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.
- **Coordinate policies and leverage investment:** Align policies and funding to remove barriers to collaboration, leverage funding, and increase accountability and effectiveness of all levels of government to plan for future growth.
- **Value communities and neighborhoods:** Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.

Source: Adapted from the *Livability in Transportation Guidebook*, US DOT.

and Urban Development and the Environmental Protection Agency introduced six livability principles, which they are using as a foundation for their own interagency coordination. While these principles apply to those federal agencies, the policy framework also has real impact on regional transportation planning by providing new guidelines around how federal transportation funding can be used.

Performance Measures & Trends

In the following **Southwest Region Corridor Systems** section, SOUTHWEST CONNECTS dissects the Southwest Region into eight corridor systems. Profiles are provided on each of these corridor systems based on performance measure and trend data. This section is designed to explain some of the key performance measures and trends used in that Section and is intended to help users of the Plan to interpret data to foster additional questions, draw conclusions or develop solutions to address corridor challenges and opportunities.

Transportation impacts are easier to understand when there is data and information available to show how those impacts stand today and how they change over time. Performance measures are meant to help paint a picture of what is happening. Measurement data also helps a plan set goals by aiming for the metric showing a positive outcome. Although more guidance is coming out all the time on how to measure transportation sustainability and livability, some data resources are still hard to find. Often performance indicators require primary data collection, particularly at a local or regional level.

Performance measures have grown as a popular way to monitor the transportation system. Moving Ahead for Progress in the 21st Century (MAP-21), the current federal transportation law, requires USDOT and States to develop performance measures tied to federal transportation funding. NHDOT, by its own volition, has also taken an interest in performance measures and has adopted what it calls a "Balanced Scorecard." The Balanced Scorecard measures and tracks customer satisfaction, transportation system performance, resource management, and employee development over time. An important component of the program is that it is measured against metric goals that it sets for itself. Although the document is designed to be a scorecard for NHDOT as an agency, there are a number of

Table 7: NHDOT Balanced Scorecard Performance Measures Applicable to Regional Transportation System

Objective	Measure	Units
Improve Asset Conditions	State Highway Pavement in Good or Fair Condition	Miles
	Red listed bridges	Number
	Rail lines capable of speeds of 40 mph	Miles
	Airport runway surface conditions	Average condition
	Remaining useful life of transit buses	% of vehicle life remaining
Increase Mobility	Transit ridership	# of total riders
	Average level of service on selected highway segments	Level of service
	Population with Access to Multimodal Transportation	Percent
Improve System Safety and Security	Highway Fatalities - Five Year Moving Avg.	Number

Source: NHDOT

Figure m: Performance-based Criteria for Projects Evaluated in the Ten Year Transportation Improvment Plan

Mobility & Accessibility	Potential for Success	Safety	Economic Development	Network Significance	Environment	State of Repair	Support
Reduce Congestion	Feasibility	Improve Safety	Enhance Access to Businesses	Traffic Volume	Natural Environment	Extend Service Life	Local Support
Freight Mobility	Progress to Date	Crash Rate	Conditions	Facility Importance	Historical/ Cultural Environment	Current Asset Condition	Regional Support
Alternative Modes				Availability of Alternative Routes	Greenhouse Gases		State Support

Source: NH DOT

performance measures that are useful for measuring the regional performance of the transportation system. The NHDOT Balanced Scorecard performance measures applicable to regional transportation system are shown above in Table 7.In a partnership effort with the nine New Hampshire Regional Planning Commissions, NHDOT has set the stage for additional performance measurement at the transportation project level for projects being considered for the New Hampshire State Transportation Improvement Plan. In 2012, NHDOT and the nine Regional Planning Commissions agreed on a set of eight criteria and twenty sub criteria to evaluate transportation projects. Though the performance measurements are a work in progress, they are designed to objectively measure the projects and compare projects to each other using the same criteria.

Figure k: MRTMA Action Plan Goals and Objectives

Goal and Objectives	
Goal	Increase use and availability of local and regional transportation options in the Monadnock Region.
1	Expand use and availability of sidewalks and walkways
2	Increase use and availability of bicycle infrastructure
3	Increase use and availability of public transportation
4	Increase use and availability of ridesharing and car sharing
5	Increase use and availability of intercity bus services
6	Implement non-modal strategies to replace vehicle trips
7	Increase location efficient siting of housing, workplaces & shopping

Source: MRTMA Action Plan, 2012.

A third set of more regional-specific performance measures are being tracked by the Monadnock Region Transportation Management Association, a coalition of public and private sector institutions, as well as organizations and interest groups with the goal of increasing the use and availability of local and regional transportation options in the Southwest Region. The MRTMA 2012-2020 Action Plan has outcome measures aligned to seven objectives that focus on the development of various transportation modes and land use planning. Like the Balanced Scorecard, the Plan has targets using census travel trend data and primary data collected by SWRPC to assess the impact of MRTMA strategies aimed at promoting the MRTMA Plan's goal and objectives. Since the plan

represents the collective thinking of a diverse group of stakeholders in the regional community, the objectives and performance measurements are well aligned with other region-specific plans such as the plan monitored by the Healthy Monadnock 2020 initiative. All of the performance measures from the Balanced Scorecard, Ten Year Plan and MRTMA discussed in this section are considered in the next section of SOUTHWEST CONNECTS.

SOUTHWEST REGION CORRIDOR SYSTEMS

Introduction

In the past, the SWRPC Regional Transportation Plan examined transportation needs based on a system-wide transportation analysis. This involved looking at transportation through a lens of 35 communities in Southwest New Hampshire. While there are some similarities between Windsor and Walpole, Hinsdale and Greenville, it is difficult to provide strategic transportation planning guidance at that scale. This Plan examines the Region from a corridor perspective. A corridor analysis approach has a number of benefits over system-wide transportation analyses, which are described below in Figure I.

Figure I: Benefits of Corridor Planning Approach Versus System-Wide Planning Approach

- Corridors provide a more direct connection between the movement of people, goods and information and regionally significant economic activity.
- Corridors provide regional stakeholders an ability to more closely examine the trade-offs among different modes of transportation for people and goods movement.
- Corridors provide an opportunity for higher precision in monitoring the performance of transportation facilities and services.
- Corridor-level analysis encourages a more complete investigation of non-transportation strategies, such as land use planning and zoning, for addressing transportation challenges.
- Corridors, especially trade corridors, handle significant amounts of through trips in many states and thereby provide a better focus for multi-state efforts at improving transportation capabilities across state boundaries.
- Corridor planning is already familiar to SWRPC towns, NHDOT and neighboring regional planning commissions in New Hampshire and Vermont. SWRPC has a body of corridor analysis to draw from including the NH 9, NH 101 and US 202 studies as well as the NH 10 Job Access Reverse Commute, NH 119 Transit Feasibility, NH 12 North Transit Feasibility and the East-West Corridor Study. These studies included the participation and involvement of municipal, state, regional planning commission and other stakeholders.
- Because corridor studies provide more focus on localized problems, a corridor-level analysis can better promote the active engagement of local officials and stakeholders and a greater opportunity for addressing local issues, needs, plans, actions, and impacts.

Source: Adapted from *A Guidebook for Corridor-Based Statewide Planning*, National Cooperative Highway Research Program, 2010.

The Plan's corridor analysis approach is based on an examination of former, existing, future anticipated, and strategic planned travel patterns that are expected to benefit the Southwest Region and its neighbors. The corridors are based on their north, south, east or west orientation. Travel patterns are identified based on trip purposes, major trip origins and destinations. The analysis is multimodal and intermodal, meaning that various modes of transportation and their existing or potential connections are considered in the corridor analysis. This includes highways, rail trails, transit routes, intercity bus routes, rail, intermodal stations, park and ride lots and other transportation facilities aligned with corridors. Since motor vehicle travel is the dominant mode of transportation today, corridors in SOUTHWEST CONNECTS tend to be identified by the major highways that provide its backbone infrastructure. The Federal Highway

Administration functional highway classification system is used to describe how different parts of corridors are connected to each other by the road system. This hierarchy identifies roads as arterials, collectors and local roads with arterials designed and used for high mobility purposes with a low degree of access, local roads designed less for mobility and more for access, and collector roads balancing mobility and accessibility.

Figure m: Highway Functional Classification (Urban/Rural combined and simplified)

- Principal Arterial-Interstate: high volume roadway serving statewide and interstate travel
- Principal Arterial: travel between cities and towns
- Minor Arterial: alternative links between cities and towns
- Major Collector: access between local centers, serving as traffic generators to institutional commercial and residential uses
- Minor Collector: alternative routes to major collectors and access to individual properties
- Local: access to individual residential and commercial uses

Source: US DOT

Transportation is about connecting places where people live—where they sleep, relax, eat, shop, work and play. It does not exist without trip origins and destinations, which can be major like a job center or minor like a country store at a crossroads. The places between origins and destinations are also worth paying attention to since land uses along the way often bring challenges or opportunities to the transportation system or vice versa. Project for Public Spaces, Inc., a national leader on land use and transportation issues, recognizes several attributes that describe a successful corridor. First, the corridor should promote the long-term goals and vision of each community in the corridor. Second, the corridor should host diverse land uses which are helpful in meeting each other's community goals and needs such as access to housing, employment, shopping or other destinations. Third, the corridor should be as multimodal as possible so as to provide transportation choice and so as not to overtax any single part of the transportation system. All of the communities in the Southwest Region are identified with one or more corridor(s) in the Plan. In addition, there are fourteen nodes within the Southwest Region that are examined as part of the corridor analysis. These nodes are defined as Census Designated Places by the US Bureau of Census and include the village or downtown areas of Antrim, Bennington, Greenville, Hancock, Hinsdale, Jaffrey, Keene, Marlborough, North Walpole, Peterborough, Troy, Walpole, West Swanzey and Winchester.

Figure n: Corridor and Place as described by Project for Public Spaces

"A corridor is a multi-modal transportation network, knit together around a major transportation facility, such as a road or rail line. It encompasses all the surrounding land uses. A corridor links places together like pearls on a necklace. These places, or "nodes," are comprised of existing destinations in the community…. In successful corridors, the transportation system unites adjacent communities. It fits into the context of each community and is accessible to drivers and non-drivers alike. In a failing corridor, transportation facilities divide communities, spawn debilitating congestion and create visual blight."

Source: Great Corridors, Great Communities, Project for Public Spaces, Inc., 2008, p.6.

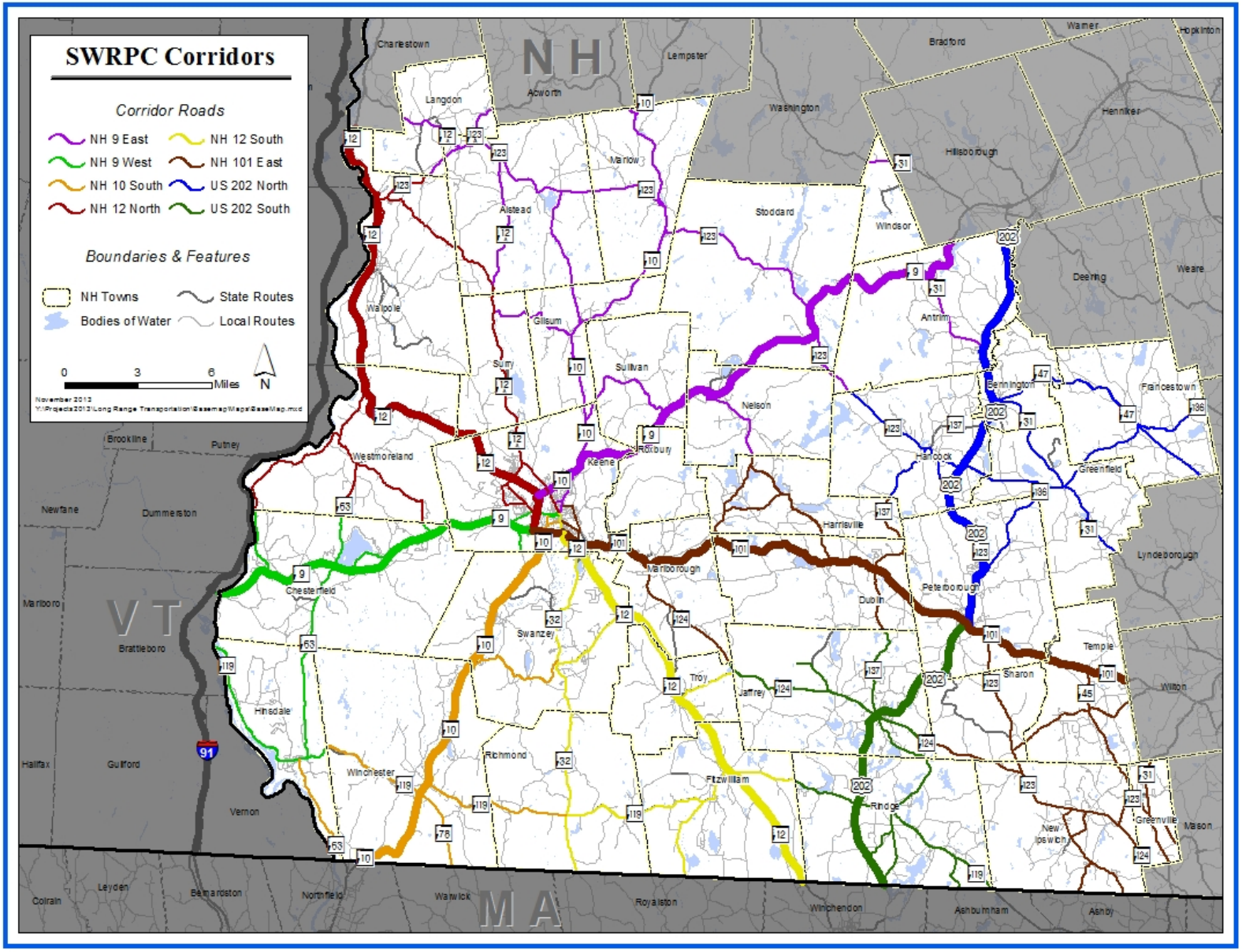
For each corridor system, an arterial highway was identified as the main regional thoroughfare, or "backbone," driving travel trends in that system. The Plan

also identifies supporting minor or urban arterials and collectors. In cases where there is other transportation infrastructure that exists on the Corridor, those modes of transportation are identified as part of the corridor system as well. For example, the Cheshire Rail Trail, the New England Central Railroad, and the sidewalk systems in Alstead, Keene, the Village of Walpole and the Village of North Walpole are all considered part of the NH 12 North Corridor's infrastructure. Transportation services such as the Greyhound Intercity bus service and transit services in Keene and Walpole are also identified services playing an important role on the NH 12 North Corridor System.

In total there are eight corridors identified in the Plan. On the map on the facing page, it is clear that many of the corridors converge at certain towns. Keene, for example, is a part of 6 of the 8 corridor systems identified. Peterborough is a part of three corridor systems. The remaining 33 towns in the Southwest Region are identified with one or two corridor systems. These corridors include:

- The NH 9 East Corridor (Alstead, Antrim, Gilsum, Keene, Langdon, Marlow, Nelson, Roxbury, Stoddard, Surry and Windsor);
- The NH 9 West Corridor (Chesterfield, Hinsdale and Keene);
- The NH 10 South Corridor (Hinsdale, Keene, Richmond, Swanzey and Winchester);
- The NH 12 North Corridor (includes Alstead, Keene, Surry, Walpole and Westmoreland);
- The NH 12 South Corridor (Fitzwilliam, Keene, Richmond, Swanzey and Troy);
- The NH 101 East Corridor (Dublin, Greenville, Harrisville, Keene, Marlborough, New Ipswich, Sharon and Temple);
- The US 202 North Corridor (Antrim, Bennington, Francestown, Greenfield, Hancock and Peterborough); and
- The US 202 South Corridor (Jaffrey, Peterborough and Rindge).

A map of the arterials and collectors forming the skeletal structure of each corridor system is shown on the opposite page.


SWRPC Corridors
Corridor Roads
NH 9 East
NH 9 West
NH 10 South
NH 12 North
NH 12 South
NH 101 East
US 202 North
US 202 South
Boundaries & Features
NH Towns
Bodies of Water
State Routes
Local Routes
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Francestown
Westmoreland
Keene
Roxbury
Hancock
Greenfield
Brookline
Putney
Newfane
Dummerston
Harrisville
Lyndeborough
Marlborough
Chesterfield
Peterborough
Dublin
Marlboro
Brattleboro
Swanzey
Temple
Sharon
Wilton
Troy
Jaffrey
Hinsdale
Richmond
Winchester
Fitzwilliam
Rindge
New Ipswich
Greenville
Mason
Halifax
Guilford
Vernon
Colrain
Leyden
Bernardston
Northfield
Warwick
Royalston
Winchendon
Ashburnham
Ashby

Using and Interpreting Information in the Corridor System Profiles

Each corridor profile in this section of SOUTHWEST CONNECTS was designed to contain similar sets of information. This allows the reader to look up data quickly and compare corridor systems with each other if desired. This section walks through the contents of each corridor system profile. Background information and helpful hints on how to use and interpret information are provided, along with some discussion about the limitations of some of the data.

Corridor Summary

Each corridor system profile begins with a summary that describes important characteristics of each corridor. These descriptions pull observations from data sources referenced later in the corridor's profile. In an effort to paint a fuller picture of the corridor system, information is often pulled about housing, jobs and land use in addition to transportation. After each corridor description, each corridor summary contains a list of bullet points containing some of the corridor system's priority challenges and opportunities.

Maps

Following each summary is a set of four maps depicting the corridor system. The first map is a base map showing the corridor system and its relationships to other corridor systems. Each corridor system is represented by a color. Note the "nodes" depicted in the map. These are somewhat defined places where there is recognized denser population, often with a mix of residential, civic and commercial buildings. One can think of these nodes as logical places to have intermodal connectivity as well as a place where regional travel on the corridor system tends to transition to a more localized travel and vice versa.

A second map expands beyond the identification of challenges and opportunities noted in the corridor summary with additional detail and geographical information about where these challenges or opportunities exist on the corridor system. This map can be useful in explaining the current understanding of issues and opportunities facing the corridor system. These items may compel the implementation of studies or projects in the Regional Transportation Improvement Program of SOUTHWEST CONNECTS.

The third map for each corridor system depicts how traffic tends to move in the corridor system. Towns identified in the map constitute community origins or destinations that are likely to use the corridor system heavily for regional travel needs. These maps also show relationships with towns in adjoining regional planning districts. All of this information is based on an analysis of commuter trends, travel time analysis, and analysis of likely travel routes to major destinations outside of the Southwest Region.

The final map depicts transportation infrastructure and services as it relates to the corridor. Here you will find information about existing sidewalks, rail, airports, bus service, bike paths, park and ride lots and intermodal centers.

Features and Location

The "Features and Location" page contains basic information about the corridor system's geography and its transportation system. Here you will learn which towns are associated with the corridor system, the nodal centers identified on the corridor and a description of the main backbone of the corridor system. A table documents the functional classification of each member road of the corridor system along with the town in which the road is located. Finally, information about where other transportation systems exist are listed, along with whether they are present in towns or nodal centers.

Population

When evaluating transportation needs, it can be useful to examine how population has changed over time and how it is predicted to change. These changes can help explain how traffic levels change or if there are needs to examine travel *demand management* strategies or increase transportation capacity. Therefore, past, present and projected future population datasets are presented for each town in the corridor and the corridor system combined.

Another important population dataset to consider are *socioeconomic* trends. These trends paint a picture of the people that make up the regional community and how community members interact with the economy. Population characteristics provide a wealth of information on how to plan for the transportation system. Data that documents the number and proportion of people by age, income, disability, race, or the density of the community that they live in can provide insight on what mix of transportation might best serve the population. For example, if there are a number of youth in a community and we know that they cannot drive but their school is located in a walkable or bikeable distance, we can make assumptions that a sidewalk or bicycle safe path or shoulder may be warranted to facilitate their travel. Socioeconomic population data is also useful in addressing *environmental justice* concerns which examine the issue of fairness in transportation planning and the transportation system. Special population data is provided on the "Population" page for each Corridor. Geographic areas with above average proportions of special populations are identified in this section as well.

Table 8: Transportation Considerations for Segments of the SWRPC Population, 2010

Population or Household Categories	Transportation Considerations	Population or Households Estimates	% of Total Population or Households
Youth Population, Age 1-15	Non-drivers	20,941	20.5%
Young Adult Population, Age 18-34	Generation less attached to cars	22,685	22.2%
Middle Age Population, Age 35-64	Often demand high mobility and flexibility	43,592	42.6%
Senior Population, Age 65+	1 out of 5 non-drivers, tend to drive less	15,095	14.8%
Low Income Population	Sensitive to transportation expenses	16,680	16.3%
Disabled Population	Often non-drivers or need door to door service	30,221	29.5%
Single Parent Households	Need for flexibility to deal with time constraints	7,260	28.0%
Minority Race Population	History of transport disadvantages in the US	3,587	3.5%
Rural Population	Motorized transportation requirements	72,078	70.4%
Urban Population	Less need for motorized transportation	30,235	29.6%

Sources: US Census Bureau, National Household Travel Survey, SWRPC.

Travel and Vehicle Trends

While the performance measures provide a good way to monitor transportation system, there are a number of other system indicators that can provide more context about the transportation system. Some of these datasets are presented on the "Travel & Vehicle Trends" page for each corridor system. One dataset, Traffic Volume Changes 500 or Greater," shows the most significant recent traffic volume increases and decreases over a 3 to 6 year period. This data can be instructive in helping describe how local economic, land use or transportation system changes can dramatically impact traffic flows, or it can signal areas on the Corridor that deserve more study.

Another useful dataset provides information on the proportion of medium duty to heavy duty truck data based on available count information for that corridor. This data can be used in several different ways. It can help a reader get a sense of the quantity and proportion of transportation related freight traffic occurring on the corridor and it can also provide clues on the additional heavy vehicle stresses that roads or bridges in the area might experience. Readers should be advised that the data can change significantly from location to location, but it provides a general barometer of how much truck traffic that corridor is experiencing.

Other vehicle datasets that are documented in "Travel and Vehicle Trends" are information on ridesharing and the kinds of vehicles registered locally on the Corridor. A strategy of ridesharing is to encourage it when there are the most people making similar origin-destination trips. This typically happens during the peak hour. "Peak Hour Ridesharing" provides a glimpse of the true amount of ridesharing occurring based on the combined am and pm peak hours of unique traffic locations. The results are somewhat surprising when comparing it to US Census carpool data. This data, which includes all types of trips, not just commute to work trips, show significantly higher proportions of people sharing rides throughout the Region. The final data set provides a baseline of the kinds of vehicles registered on the Corridor. An interesting figure in this data set are the ratio of vehicles to population data as well as the number of passenger vehicles that are hybrid or electric.

If available, bicycle counts are also provided to document use of multi-use trails that are part of corridor systems.

Commuting and Economy

Information about commuting patterns is provided on the next sheet of each corridor system. Here readers can learn about how towns in a corridor system cross commute from one community to another, as well as how many people work and reside in the same community.

The second table shows communities that draw 50 or more residents from another individual community and are likely to use the corridor system as part of their commute. This table is instructive in showing a fairly large number of employees that might be making similar daily trips, and also shows possible opportunities for carpooling or other transportation sharing arrangements.

The final tables provide basic information about jobs. Job and institution numbers can give a sense of how many people the community might be attracting on a daily basis and from how many different locations in the community. The unemployment rate is also provided to understand the relative economic health of the community. In some cases, information is available about large employers. Here information is provided on known employers employing more than 50 people and located within the corridor system.

Housing and Land Use

Each corridor system's "Housing and Land Use" objective is to provide the reader with some data to understand how housing, land use and transportation are related on the corridor. The first table provides a great deal of information. Permit information can show how fast the community is growing, owner-rental household ratio gives a sense of the permanence of households living in the community, and then there are several measures that provide a sense of the cost of housing. These measures are important to look at, since housing is often the only household budget category more expensive then transportation. The final measure, median monthly budget needed for transportation, is derived from an index that examines housing costs, average trip distance, average number of trips per household, and the cost of owning a vehicle to determine a monthly budget required to support the household's driving expenses. In some communities, this transportation budget is estimated to be higher than the housing budget. For each data set, the tables compare the average of all towns in the corridor system to each town, so that readers can quickly identify where community averages are higher or lower than the corridor average.

Housing to jobs ratio is a second table that is provided. This gives the reader a sense of whether the community is a "bedroom" community. In some cases, this may indicate a community's reliance on traveling longer regional distances to work. Few communities in the region have a similar number of jobs and housing units. Job-Housing balance, coupled with housing and transportation cost information, can be instructive in predicting growth and pressure on the corridor system. For example, a community with very few jobs and high transportation costs and high housing costs is unlikely to experience a great deal of pressure for new housing, and thus traffic growth on that portion of the corridor.

The final dataset provided on the "Housing and Land Use" page shows the level of regulation of curb cuts that New Hampshire Department of Transportation has for each backbone corridor. The Southwest

Region does not have interstate highways within its district to quickly move through the Region. Consequently, the number of curb cuts and traffic generating land uses on corridors can have a debilitating effect on traffic flow and mobility over time if not carefully regulated to ensure safety and mobility. This table provides the mileage and level of regulation of curb cuts (access management) for each corridor backbone along with mileage level of regulation by town. Limited access is the strongest form of regulation, which ensures that no new curb cuts will be established for that section of highway. Controlled access refers to predetermined access points for undeveloped parcels along the corridor. Regular access refers to the traditional driveway and permit review process managed by NH DOT's District IV office.

NH 9 EAST CORRIDOR

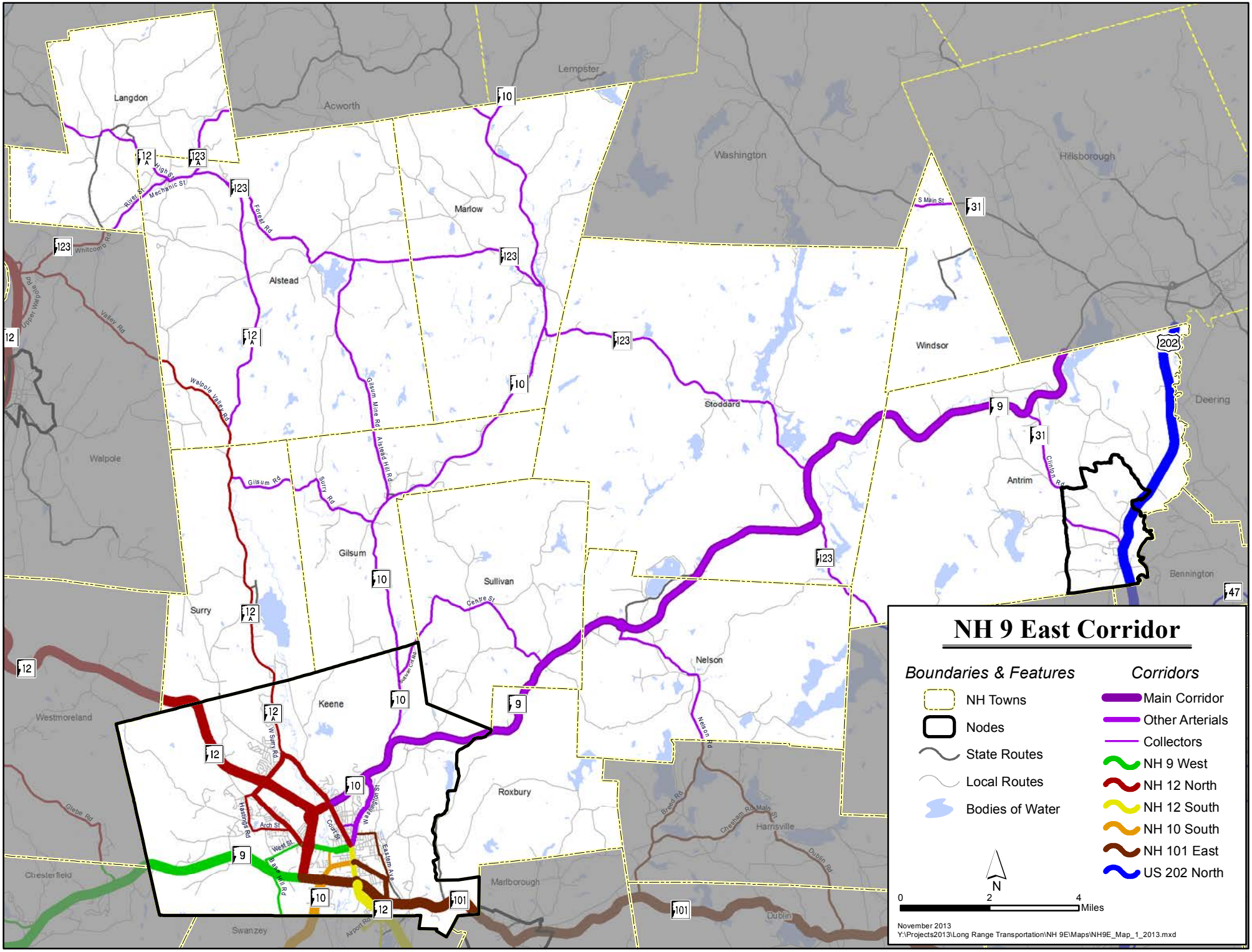
Among the two east-west highways in the Southwest Region--the NH 9 East and NH 101 East Corridors--the NH 9 East Corridor is the east-west highway that is the best suited for promoting regional mobility. This is because, unlike NH 101 East, it bypasses town centers along the way. Also, 64% of abutting land on NH 9 is protected by limited or controlled access regulations by the state, and much of the land use on the highway is in conservation or unsuitable for development due to natural constraints.

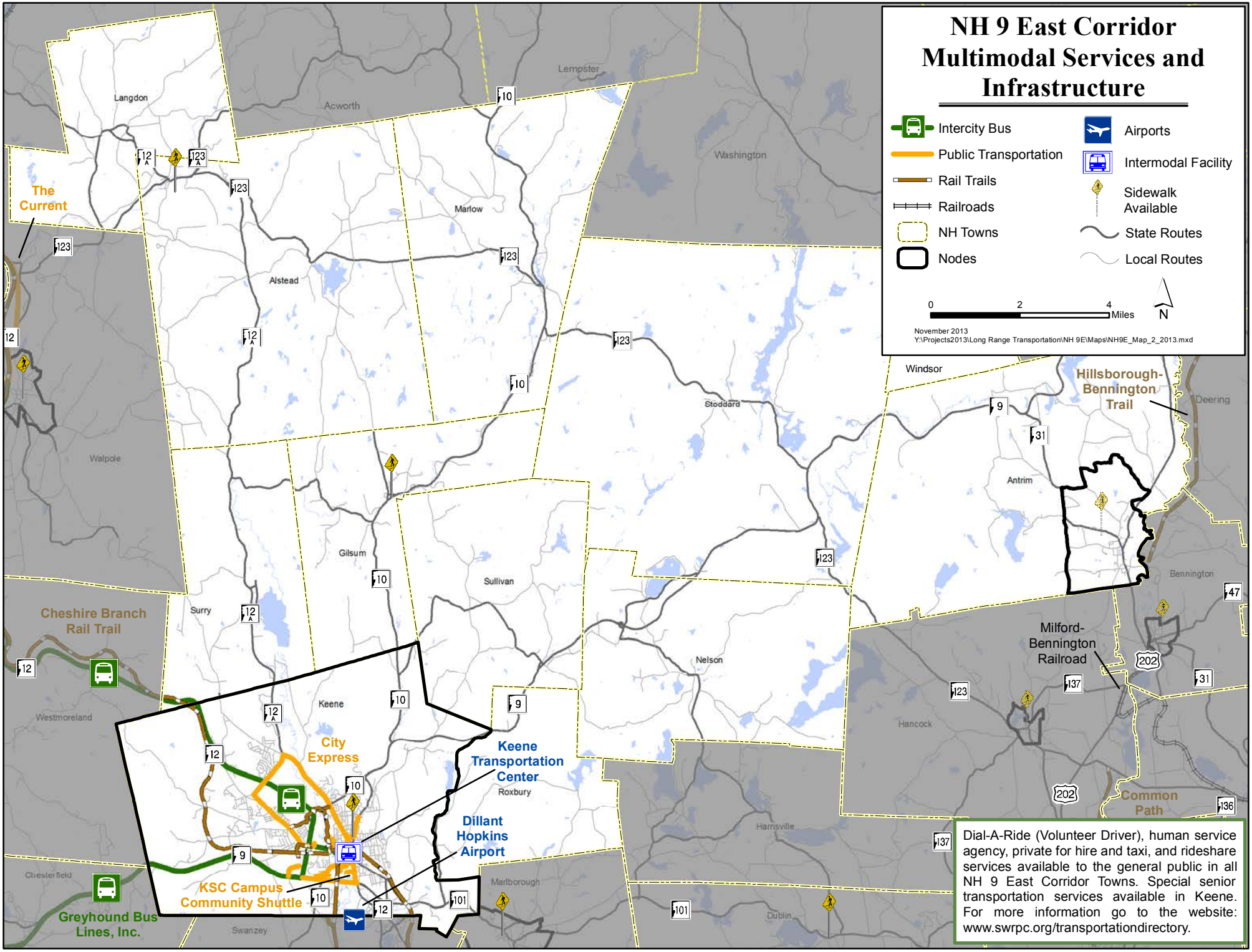
The NH 9 East Corridor is one of the most rural corridors in the Southwest Region. Eight of the 12 communities have populations less than 1,000. Outside of Keene, approximately 50% of the population is middle aged (between the ages of 35 to 64). Stoddard has a relatively large population of youth (20%) and seniors (20%). In the 2000s population declined in Alstead, Marlow, Roxbury and Sullivan. Notable population growth occurred in Antrim (188), Keene (846) and Stoddard (304), although this would be considered slow growth in other parts of the country. Population estimates from the NH Office of Energy & Planning predict these three communities to take on the most growth in the coming decades.

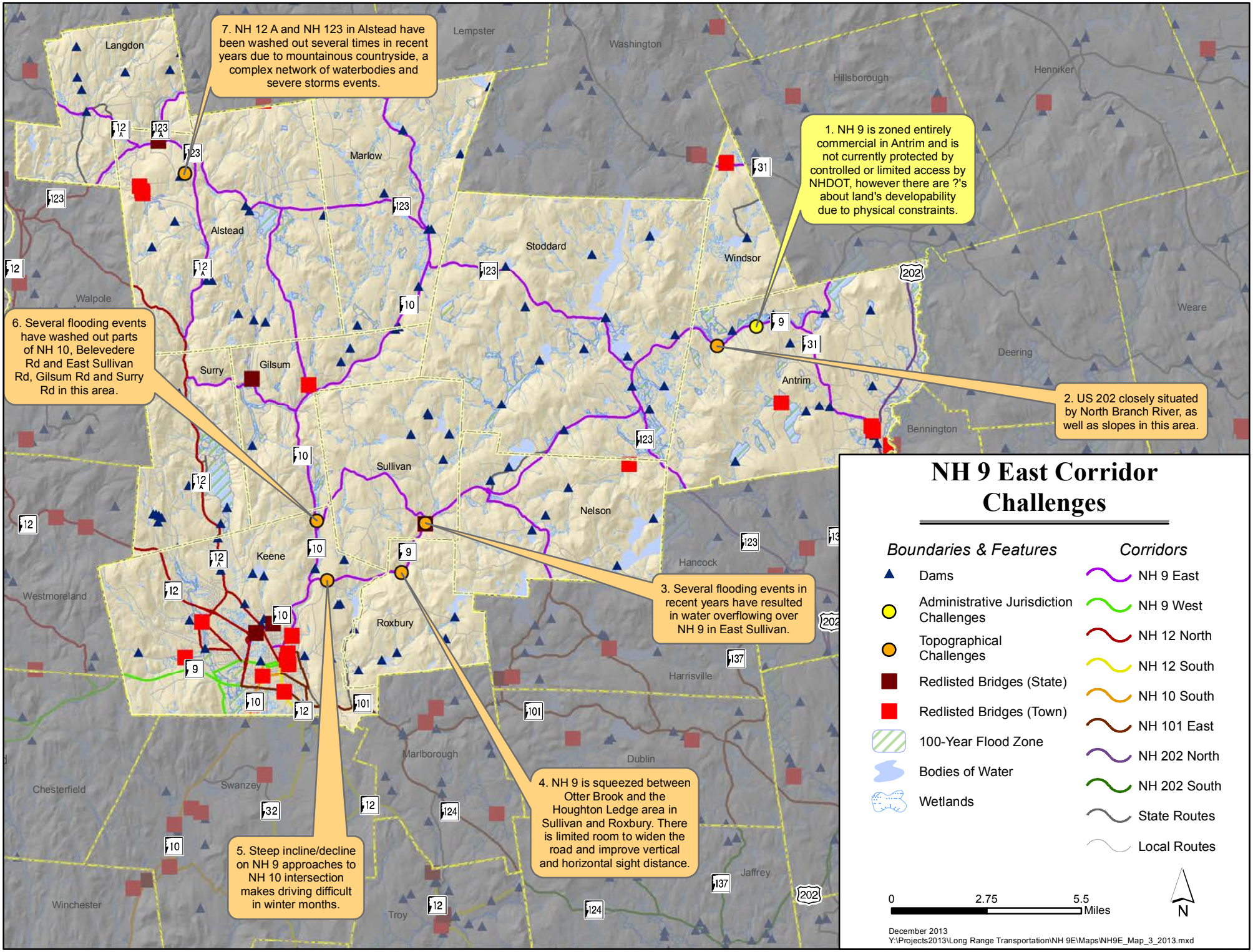
The majority of the towns in the Corridor are communities with primarily rural residential housing and very few jobs or commercial development. Eight of the 12 communities in the Corridor have a ratio of five or more housing units for every job in their community. Keene is the top workplace destination for most communities as well as the top destination for shopping, medical services and other basic needs. Communities in this area have some of the most expensive household transportation costs in the Southwest Region. In fact average transportation costs are expected to exceed housing costs in Alstead, Gilsum, Langdon, Sullivan and Windsor.

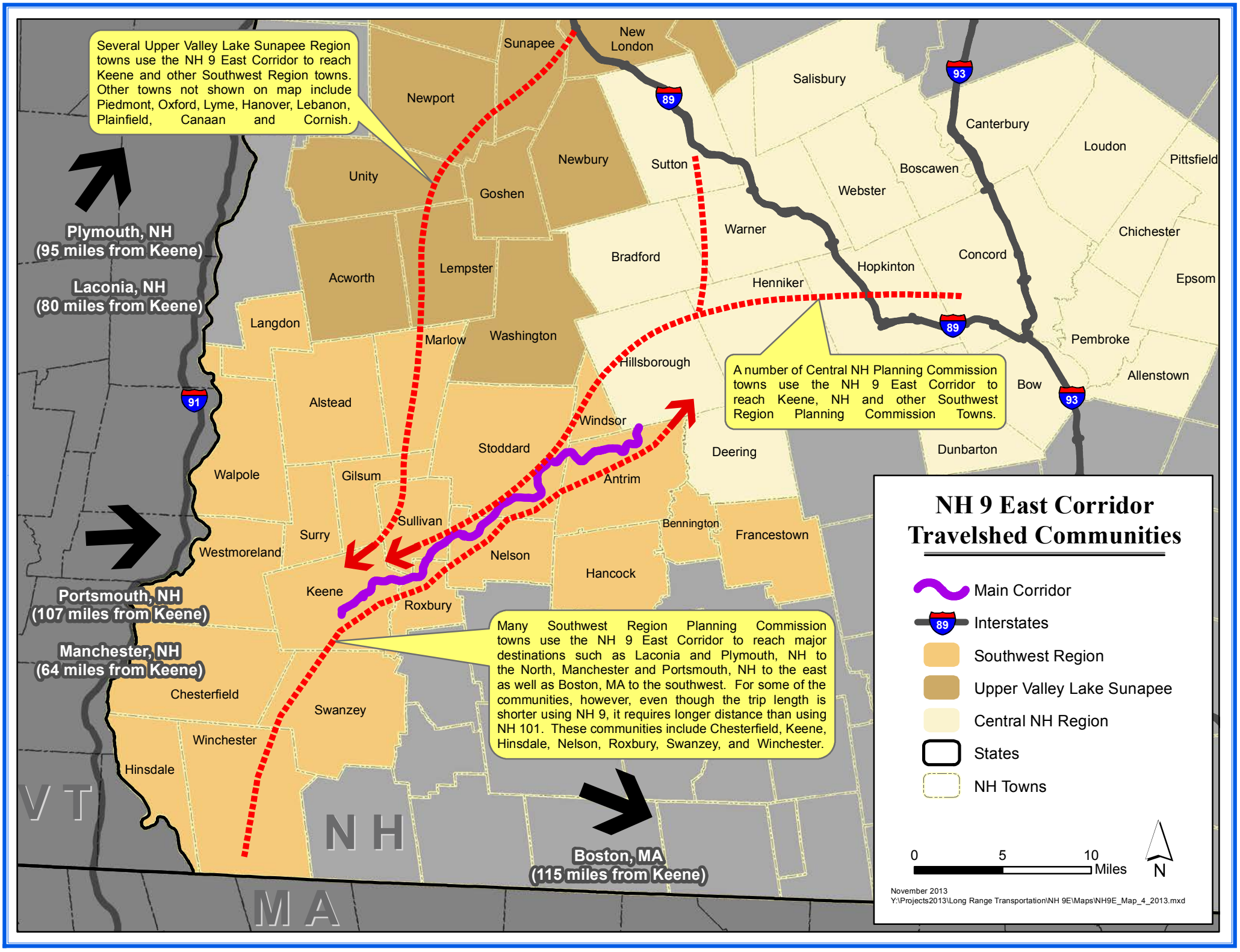
Priority challenges and opportunities for the NH 9 East Corridor include the following:

- NH 9, as a hilly, curvy high speed rural highway with occasional bad weather has experienced 10 crashes involving highway fatalities (9 in Stoddard) and 38 crashes involving incapacitating injuries from 2002-2010.
- 11.4 miles of NH 9 highway frontage between I-91 and I-89 is not protected by state limited or controlled access regulations. A SWRPC NH 9 Corridor Study, produced in 2006, estimated that up to 62 million square feet of commercial land could be available for development on this stretch of highway which could impede regional mobility if not carefully planned.
- The remote and rural nature of the Corridor, and Corridor residents' dependence on long distance travel for basic needs makes communities experience some of the highest household transportation costs in the Southwest Region. Seniors, youth and low income populations are disproportionately impacted because of a lack of other transport alternatives or in-town community resources.
- NH 9 parallels some major brooks (Otter Brook and North Branch River) that are limited in their capacity to handle severe storm events and may impact highway and bridge infrastructure.


NH 9 East Corridor
Boundaries & Features
NH Towns
Nodes
State Routes
Local Routes
Bodies of Water
Corridors
Main Corridor
Other Arterials
Collectors
NH 9 West
NH 12 North
NH 12 South
NH 10 South
NH 101 East
US 202 North
N
0
2
4
Miles
November 2013
Y:\Projects2013\Long Range Transportation\NH 9E\Maps\NH9E_Map_1_2013.mxd
Langdon
Acworth
Lempster
Washington
Hillsborough
Marlow
Alstead
Windsor
Stoddard
Deering
Walpole
Antrim
Gilsum
Sullivan
Bennington
Surry
Keene
Nelson
Westmoreland
Roxbury
Harrisville
Chesterfield
Marlborough
Swanzey
Dublin


NH 9 East Corridor Multimodal Services and Infrastructure
Intercity Bus
Public Transportation
Rail Trails
Railroads
NH Towns
Nodes
Airports
Intermodal Facility
Sidewalk Available
State Routes
Local Routes
0
2
4
Miles
N
November 2013
Y:\Projects2013\Long Range Transportation\NH 9E\Maps\NH9E_Map_2_2013.mxd
Langdon
Acworth
Lempster
Washington
Marlow
Alstead
Stoddard
Windsor
Deering
Walpole
Antrim
Gilsum
Sullivan
Surry
Bennington
Nelson
Keene
Westmoreland
Hancock
Roxbury
Harrisville
Chesterfield
Marlborough
Dublin
Swanzey
The Current
Cheshire Branch Rail Trail
Hillsborough-Bennington Trail
Milford-Bennington Railroad
Common Path
City Express
Keene Transportation Center
Dillant Hopkins Airport
KSC Campus Community Shuttle
Greyhound Bus Lines, Inc.
Dial-A-Ride (Volunteer Driver), human service agency, private for hire and taxi, and rideshare services available to the general public in all NH 9 East Corridor Towns. Special senior transportation services available in Keene. For more information go to the website: www.swrpc.org/transportationdirectory.


NH 9 East Corridor Challenges
Boundaries & Features
Dams
Administrative Jurisdiction Challenges
Topographical Challenges
Redlisted Bridges (State)
Redlisted Bridges (Town)
100-Year Flood Zone
Bodies of Water
Wetlands
Corridors
NH 9 East
NH 9 West
NH 12 North
NH 12 South
NH 10 South
NH 101 East
NH 202 North
NH 202 South
State Routes
Local Routes
0
2.75
5.5
Miles
N
December 2013
Y:\Projects2013\Long Range Transportation\NH 9E\Maps\NH9E_Map_3_2013.mxd
1. NH 9 is zoned entirely commercial in Antrim and is not currently protected by controlled or limited access by NHDOT, however there are ?'s about land's developability due to physical constraints.
2. US 202 closely situated by North Branch River, as well as slopes in this area.
3. Several flooding events in recent years have resulted in water overflowing over NH 9 in East Sullivan.
4. NH 9 is squeezed between Otter Brook and the Houghton Ledge area in Sullivan and Roxbury. There is limited room to widen the road and improve vertical and horizontal sight distance.
5. Steep incline/decline on NH 9 approaches to NH 10 intersection makes driving difficult in winter months.
6. Several flooding events have washed out parts of NH 10, Belevedere Rd and East Sullivan Rd, Gilsum Rd and Surry Rd in this area.
7. NH 12 A and NH 123 in Alstead have been washed out several times in recent years due to mountainous countryside, a complex network of waterbodies and severe storms events.
Langdon
Lempster
Washington
Hillsborough
Henniker
Marlow
Alstead
Stoddard
Windsor
Walpole
Weare
Deering
Antrim
Bennington
Surry
Gilsum
Sullivan
Nelson
Keene
Hancock
Westmoreland
Roxbury
Harrisville
Marlborough
Dublin
Chesterfield
Swanzey
Jaffrey
Winchester
Troy


Several Upper Valley Lake Sunapee Region towns use the NH 9 East Corridor to reach Keene and other Southwest Region towns. Other towns not shown on map include Piedmont, Oxford, Lyme, Hanover, Lebanon, Plainfield, Canaan and Cornish.
Plymouth, NH
(95 miles from Keene)
Laconia, NH
(80 miles from Keene)
Portsmouth, NH
(107 miles from Keene)
Manchester, NH
(64 miles from Keene)
Boston, MA
(115 miles from Keene)
A number of Central NH Planning Commission towns use the NH 9 East Corridor to reach Keene, NH and other Southwest Region Planning Commission Towns.
Many Southwest Region Planning Commission towns use the NH 9 East Corridor to reach major destinations such as Laconia and Plymouth, NH to the North, Manchester and Portsmouth, NH to the east as well as Boston, MA to the southwest. For some of the communities, however, even though the trip length is shorter using NH 9, it requires longer distance than using NH 101. These communities include Chesterfield, Keene, Hinsdale, Nelson, Roxbury, Swanzey, and Winchester.
Sunapee
New London
Newport
Salisbury
Canterbury
Loudon
Pittsfield
Unity
Newbury
Sutton
Boscawen
Goshen
Webster
Warner
Chichester
Bradford
Concord
Acworth
Lempster
Hopkinton
Henniker
Epsom
Langdon
Marlow
Washington
Pembroke
Hillsborough
Allenstown
Bow
Alstead
Windsor
Stoddard
Deering
Dunbarton
Walpole
Gilsum
Antrim
Sullivan
Bennington
Francestown
Surry
Westmoreland
Nelson
Hancock
Keene
Roxbury
Chesterfield
Swanzey
Winchester
Hinsdale
VT
NH
MA
89
93
91
NH 9 East Corridor Travelshed Communities
Main Corridor
Interstates
Southwest Region
Upper Valley Lake Sunapee
Central NH Region
States
NH Towns
0
5
10
Miles
N
November 2013
Y:\Projects2013\Long Range Transportation\NH 9E\Maps\NH9E_Map_4_2013.mxd

Towns: Alstead, Antrim, Gilsum, Keene, Langdon, Marlow, Nelson, Roxbury, Stoddard, Surry and Windsor

Nodal Centers: Downtown Antrim and Downtown Keene

Corridor Backbone: NH 9 from NH/9/10/12 in Keene to Antrim/Hillsborough Town Line

Highway Corridor System:
Source: NHDOT

Towns	Principal Arterials	Minor Arterials	Major & Urban Collectors	Minor Collectors
Alstead			NH 12A	NH 123A
			NH 123	Gilsum Mine Rd
Antrim	NH 9		NH 31	
			NH 123	
Gilsum			NH 10	Main St/ Alstead Hill Rd
				Surry Rd
Keene	NH 9	Washington St	NH 10	Sullivan Ctr St
Langdon			NH 12A	NH 123A
Marlow			NH 10	NH 123A
			NH 123	
Nelson	NH 9			Granite Lake Rd
				Nelson Rd
Roxbury	NH 9			
Sullivan	NH 9			Centre St
Stoddard	NH 9		NH 123	
Surry				Gilsum Rd
Windsor				NH 31

Other Transportation Infrastructure and Services:
Source: NHDOT & SWRPC

	Infrastructure/Service	Locations Where Accessible
Pedestrian	Sidewalks	Alstead, Antrim Village, Gilsum, Keene
	Multi-use Trails	Keene
Bicycle	Multi-use Trails	Keene
	4 foot Shoulders on NH 9 E Corridor Backbone	Keene, ~.2 mi in Roxbury, ~1.1 mi in Sullivan, ~2.6 mi in Nelson, Stoddard, Antrim
Fixed Route Bus	City Express	Keene
Demand Response Bus	Para Express, Friendly Bus	Keene
Volunteer Drivers	American Red Cross, Contoocook Valley Trans. Co	All Locations
Carpooling Program	CVTC	All Locations
Intercity Bus	No Examples Available	Not Available
Railroad Freight		
Railroad Passenger		

Population Projections:
Sources: US Decennial Census & NH OEP

Communities	2010	2040	Projected % Change in Population	Projected Total Population Change
Alstead	1,937	1,923	-0.7%	-14
Antrim	2,637	2,917	10.6%	280
Gilsum	813	850	4.6%	37
Keene	23,409	24,260	3.6%	851
Langdon	688	836	21.5%	148
Marlow	742	734	-1.1%	-8
Nelson	729	830	13.9%	101
Roxbury	229	220	-3.9%	-9
Stoddard	1,232	1,560	26.6%	328
Sullivan	677	600	-11.4%	-77
Surry	732	794	8.5%	62
Windsor	224	256	14.3%	32
NH 9 East Corridor	34,049	35,780	5.1%	1,731
SWRPC Region	102,313	108,168	5.7%	5,855

Special Populations: Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average proportion of Special Populations
Youth (Age 15 and Under)	5,240	15%	Alstead (19%); Antrim (19%); Gilsum (17%); Langdon (18%); Nelson (16%); Roxbury (16%); Sullivan (16%); Stoddard (20%); Windsor (16%)
Young Adults (Age 16-34)	10,610	31%	Keene (37%)
Middle Age (Age 35-64)	13,124	39%	Alstead (46%); Antrim (47%); Gilsum (49%); Langdon (47%); Marlow (53%); Nelson (46%); Roxbury (48%); Sullivan (49%); Surry (50%); Stoddard (46%); Windsor (48%)
Seniors (65 and older)	5,080	15%	Alstead (16%); Langdon (17%); Marlow (16%); Nelson (16%); Stoddard (20%); Surry (18%)
Racial Minorities	1,365	4%	Keene (5%)
Low Income (Population at or under 150% of Poverty Level)	6,597	19%	Keene (22%)
Single Parent Households	2,474	31%	Downtown Antrim (40%); Keene (36%)

Traffic Volume Changes 500 AADT or Greater:
Source: NHDOT

Community	Description	Data Range	AADT Change
Keene	NH 9 (FRANKLIN PIERCE HWY) EAST OF SULLIVAN RD	2006-2012	1100
Keene	NH 9/NH 10 (FRANKLIN PIERCE HWY) WEST OF WASHINGTON ST CONNECTOR	2006-2012	-600
Nelson	NH 9 (FRANKLIN PIERCE HWY) AT STODDARD TL	2007-2010	700
Nelson	NH 9 (FRANKLIN PIERCE HWY) AT SULLIVAN TL	2007-2010	900
Stoddard	NH 9 (FRANKLIN PIERCE HWY) EAST OF NH 123 NORTH	2005-2011	900
Sullivan	NH 9 (FRANKLIN PIERCE HWY) WEST OF CENTRE ST	2005-2011	3900
Keene	WASHINGTON ST SOUTH OF VERNON ST	2008-2010	-2000
Alstead	NH 123 AT LANGDON TL	2005-2011	-500

Pr oportion of Daily Traffic by Vehicle Class at NH 9 East Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Week Starting	Total	Motorcycles, Cars, Light Duty Trucks	Buses and Single Unit Trucks	Trailer Trucks
Antrim	NH 9 W at Hillsborough TL	8/19/2014	5,951	89.9%	3.5%	6.6%
Keene	NH 9 W of Washington St	8/19/2014	10,496	92.5%	3.5%	3.9%
Keene	Washington St S of NH 9	8/19/2014	5,629	97.5%	2.2%	0.3%

Peak Hour Ridesharing (am & pm peak hours combined):
Source: SWRPC

Location & $/gallon at time of count	Date/ Month	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
NH 9 of Washington St $3.625/gallon	8/2013	1,862	1.21	33%	16%
NH 9 W of US 202 $3.490/gallon	7/2014	933	1.26	48%	21%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Population	Motorcycles and Passenger Vehicles Excluding Electric or Hybrid	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
26,639	1.32	72.8%	0.1%	24.9%	1.9%	0.4%

Cross-commuting Patterns Among Corridor Communities

Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

Origin	Destination: Alstead	Antrim	Gilsum	Keene	Langdon	Marlow	Nelson	Roxbury	Stoddard	Sullivan	Surry	Windsor
Alstead	21	1	24	304	7	6	1	0	1	1	5	0
Antrim	0	71	0	64	0	0	1	0	0	1	1	0
Gilsum	14	0	11	128	0	7	0	0	1	0	4	0
Keene	12	2	17	4,667	2	7	0	1	9	5	8	0
Langdon	1	0	0	13	8	1	0	0	0	0	0	0
Marlow	14	1	3	114	4	2	0	0	0	0	1	0
Nelson	3	0	3	101	0	1	0	1	5	0	0	0
Roxbury	0	0	0	32	0	0	0	1	0	1	0	0
Stoddard	2	1	6	183	0	1	4	0	6	1	0	0
Sullivan	2	2	0	96	0	1	0	0	6	0	0	0
Surry	13	1	9	116	2	2	0	0	0	0	1	1
Windsor	0	2	0	1	0	0	0	0	1	0	0	0

Communities with Over 50 employees commuting to NH 9 West Communities and Likely Using NH 9 East

Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Employee Origin	Number	Employee Destination
Alstead	304	Keene
Manchester	303	Keene
Stoddard	183	Keene
Concord	131	Keene
Gilsum	128	Keene
Merrimack	128	Keene
Rockingham	119	Keene
Marlow	114	Keene
Nelson	101	Keene
Sullivan	96	Keene

Employee Origin	Number	Employee Destination
Hillsborough	78	Keene
Derry	74	Keene
Dover	74	Keene
Rochester	72	Keene
Antrim	71	Antrim
Antrim	64	Keene
Salem	59	Keene
Londonderry	56	Keene
Hancock	53	Keene
Newport	53	Keene
Portsmouth	50	Keene

Jobs, Employers, and Unemployment Rates

Sources: Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; NH Department of Employment Security, 2012; NH Department of Employment Security, August 2013.

Community	Total Jobs	Total Institutions	Unemploy-ment Rate
Alstead	148	38	4.5%
Antrim	401	53	5.9%
Gilsum	129	17	5.3%
Keene	16,946	864	5.7%
Langdon	94	18	3.1%
Marlow	64	12	2.9%
Nelson	18	N/A	4.3%
Roxbury	3	N/A	3.7%
Stoddard	63	16	3.6%
Sullivan	30	10	3.7%
Surry	39	14	3.0%
Windsor	16	N/A	2.9%

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

Sources: NH Housing; U.S. Census Bureau, 2010 Decennial Census (Table QT-H1); U.S. Census Bureau ACS 2007-11, B25088; U.S. Census Bureau ACS 2007-11, B25064; Abogo

	Housing Permits (2000-2010)	Owner/ Renter Household Ratio	Median Expenses (Owners w/ a Mortgage)	Median Expenses (Owners w/o a Mortgage)	Median Gross Rent (2011)	Median Monthly Budget Needed for Transportation
Corridor Community	87	5.7	$1,633	$621	$989	$1,513
Alstead	91	3.3	$1,460	$558	$792	$1,505
Antrim	149	2.7	$1,701	$618	$904	$1,549
Antrim Village	N/A	1.7	$1,693	$605	$823	$1,481
Gilsum	28	6.8	$1,225	$703	$950	$1,528
Keene	379	1.2	$1,764	$828	$962	$1,149
Langdon	39	8.7	$1,528	$593	$930	$1,572
Marlow	35	7.9	$1,810	$498	$1,225	$1,566
Nelson	44	2.8	$1,896	$559	$967	$1,522
Roxbury	11	8.0	$1,792	$800	$1,179	$1,522
Stoddard	178	6.8	$1,520	$447	$973	$1,561
Sullivan	20	6.6	$1,442	$732	$981	$1,522
Surry	53	8.4	$1,870	$724	$1,019	$1,528
Windsor	19	4.9	$1,588	$388	N/A	$1,630

Housing to Jobs Ratio:

Sources: Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011 and U.S. Census Bureau ACS 2007-11, B25001.

Number of Community Housing Units for Every Community Job				
20+	10 to 19	5 to 9	1 to 4	Less than 1
Roxbury (31)	Nelson (18)	Sullivan (10)	Langdon (3)	Keene
		Stoddard (8)	Antrim (3)	
		Surry (8)	Gilsum (3)	
		Alstead (6)		
		Windsor (6)		
		Marlow (5)		

Mileage by Level of Access Management Control on NH 9 East:

Source: NHDOT

Community	Limited Access	Controlled Access	Regular Access
Keene	6.9	0.4	1.2
Roxbury	0.0	0.0	1.5
Sullivan	0.0	1.2	0.7
Nelson	3.8	0.0	0.0
Stoddard	0.0	5.7	1.1
Antrim	0.0	0.0	5.7
Totals	**10.7**	**7.3**	**10.2**

Performance Measure Category	Measure	Units	NH 9 East Only	NH 9 East Corridor System	Target 2017
Improve Asset Conditions	State Highway Pavement in Good or Fair Condition	Fair/good miles: total miles	23.4 : 25.4	52.8 : 104.1	59.3
	Red Listed Bridges	Red list bridge number: total bridges	3 / 18	4 / 50	3/50
	Rail lines capable of speeds of 40 mph	miles: total miles	N/A	N/A	N/A
	Airport Runway Surface conditions	average condition	N/A	N/A	N/A
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	Inventory in progress	40%
Improve Safety	Highway Fatalities (5 year moving average 2008-2012	Number	4	7	0
	Highway Incapacitating Injuries (5 year moving average 2008-2012)	Number	12	24	10
Improve Mobility	PM peak hour volume/capacity ratio range	Volume to Capacity Range	.17 -.40	N/A	Under .62
Improve Multimodal Accessibility	Intermodal Facility	number	0		0
Improve Multimodal Accessibility	Sidewalks	miles	Inventory in progress	Inventory in progress	More study required
	Bikeways	miles			
	# of park and ride lot spaces	number	0	0	
	Public transportation routes	miles	0	0.5	
	Intercity bus routes	miles	0	0	

NH 9 WEST CORRIDOR

One of the most important regional attributes of the NH 9 West Corridor is that it is a well-built arterial highway that connects the Southwest Region to I-91 and beyond. One hundred percent of the abutting land is protected by state controlled access regulations. Not coincidentally, it is an important freight route carrying about 1,200 to 1,400 trucks daily on some parts of the Corridor. There are also approximately 2,300 residents that live on the corridor and work at one of the other municipalities on the Corridor. Some of the significant employers on the Corridor system include United Natural Foods in Chesterfield (300 employees), a Super Walmart in Hinsdale (230 employees) and National Grange Mutual Insurance in Keene (347) on West Street which is considered part of the NH 9 West Corridor.

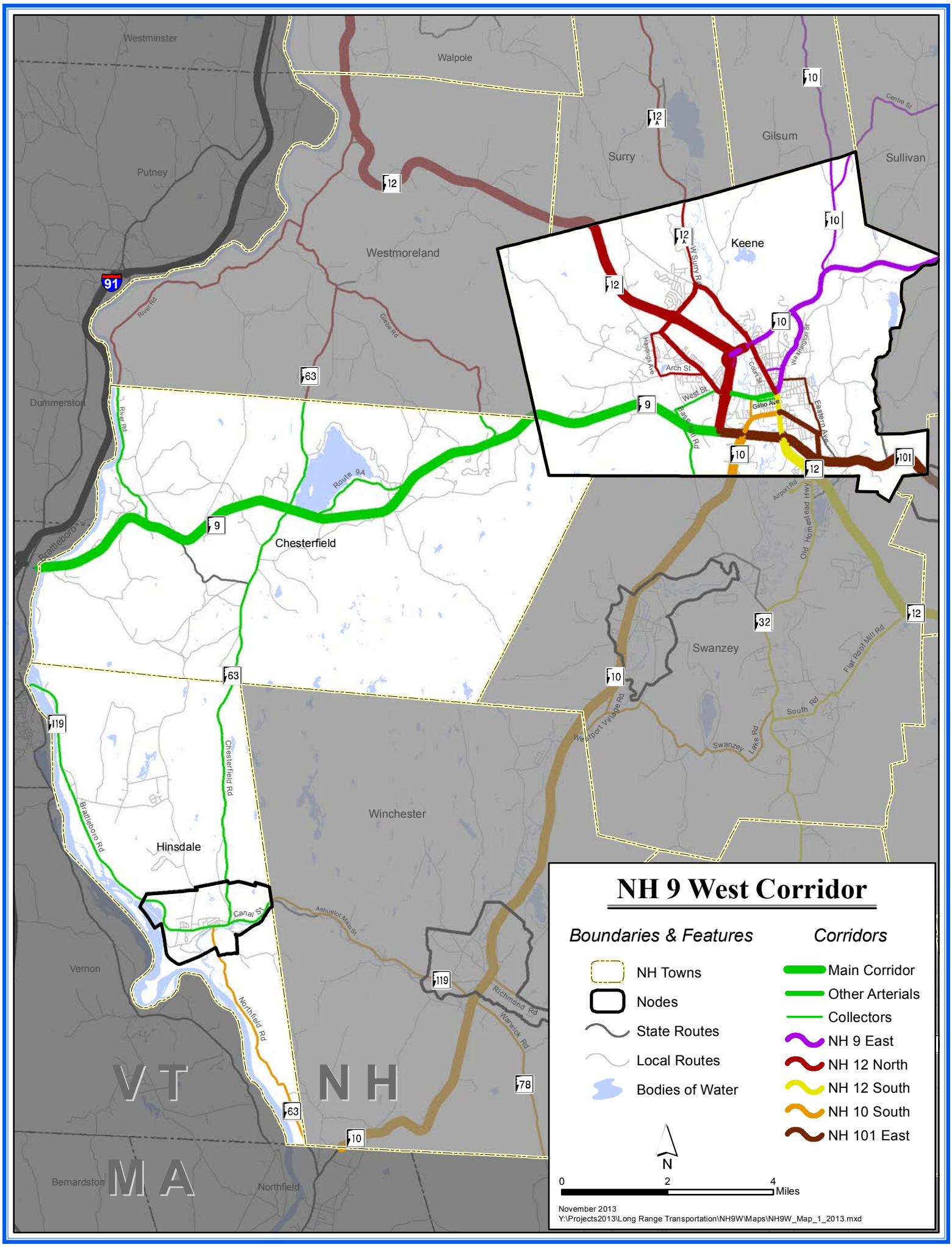
Significant nodes on the Corridor include Downtown Keene and Downtown Hinsdale, both of which today each have local transit service and good sidewalk systems. Though not part of the Corridor system, Brattleboro, Vermont is another important node. In fact many Hinsdale residents work, shop and receive services in Brattleboro. In addition to roads, transit and sidewalks, there is a park and ride lot at Granite Gorge State Park in Chesterfield. However, its location is not ideal for attracting carpool or bus riders. The Corridor also hosts the greater region's only intercity bus service, which makes a stop in Keene as well as just outside the corridor in Brattleboro, VT.

Hinsdale has slowly lost some of its population in the last ten years, which is predicted to continue into 2040, barring no significant economic development changes in that community. Aside from Keene, roughly 50% of the entire population is middle aged (between the ages of 35 to 64). Downtown Hinsdale has a relatively high proportion of youth (20%) and single parent households (42%). At the time of writing, Hinsdale also has the highest unemployment rate in the Southwest Region at 6.7%.

Priority challenges and opportunities for the NH 9 West Corridor include the following:

- Regional connectivity for Hinsdale to other communities is at risk because of poor highway and bridge infrastructure. The two bridges connecting Hinsdale and Brattleboro, VT were originally constructed in the early 1920s and are well overdue for replacement. NH 63, Hinsdale's primary link to Keene, is in poor condition. Detours around the bridges and/or NH 63 are both excessive distances.
- There is a great deal of duplicative commuter traffic moving along the corridor between Keene and Brattleboro, VT. However, land use patterns in Hinsdale and Chesterfield are such that the communities do not have ideal nodal centers that could be easily integrated into a commuter route for bus or rideshare services between the two cities.
- Chesterfield and Hinsdale's proximity to I-91 and the New England Central Railroad, both of which are transportation-related economic engines, perhaps provides the best position in the Southwest Region for economic growth opportunities. Some new employers have been attracted to the communities' location at the trisection of New Hampshire, Massachusetts and Vermont including

Walmart and Fed Ex. This may become more important as several Corridor communities rebound from the announcement about the pending closure of Vermont Yankee.


NH 9 West Corridor
Boundaries & Features
NH Towns
Nodes
State Routes
Local Routes
Bodies of Water
Corridors
Main Corridor
Other Arterials
Collectors
NH 9 East
NH 12 North
NH 12 South
NH 10 South
NH 101 East
N
0
2
4
Miles
November 2013
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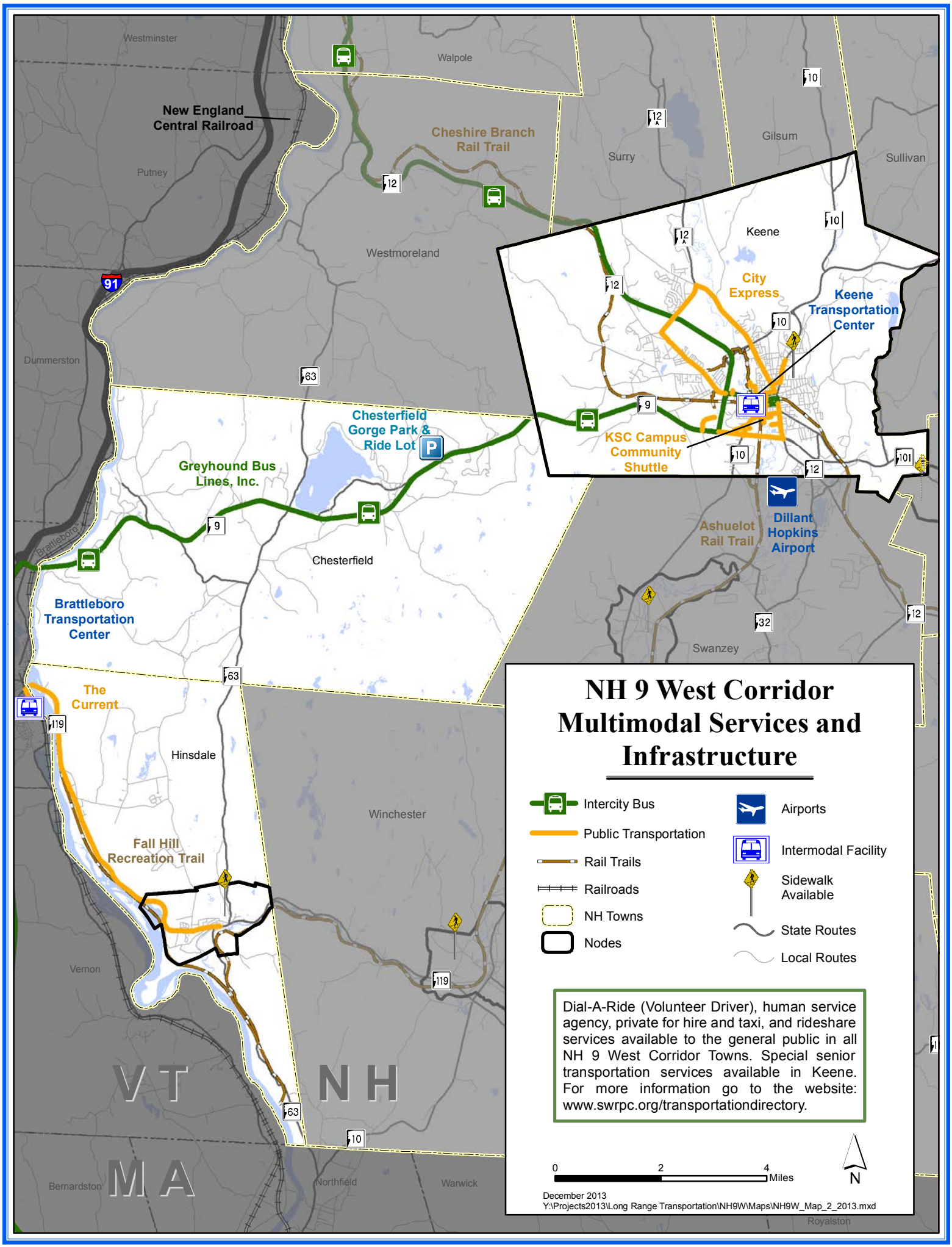
Westminster
Walpole
Putney
Surry
Gilsum
Sullivan
Westmoreland
Keene
Dummerston
Chesterfield
Swanzey
Winchester
Hinsdale
Vernon
Bernardston
Northfield
VT
NH
MA
Route 9A
Canal St
Ashuelot Main St
Chesterfield Rd
Brattleboro Rd
Northfield Rd
Westport Village Rd
Richmond Rd
Warwick Rd
Swanzey Lake Rd
South Rd
Flat Roof Mill Rd
Old Homestead Hwy
Airport Rd
River Rd
Glebe Rd
Centre St
W Surry Rd
Hastings Ave
Arch St
West St
Court St
Washington St
Gilbo Ave
Eastern Ave
Base Hill Rd
91
9
12
10
63
119
78
101
32


NH 9 West Corridor Multimodal Services and Infrastructure
Intercity Bus
Public Transportation
Rail Trails
Railroads
NH Towns
Nodes
Airports
Intermodal Facility
Sidewalk Available
State Routes
Local Routes
Dial-A-Ride (Volunteer Driver), human service agency, private for hire and taxi, and rideshare services available to the general public in all NH 9 West Corridor Towns. Special senior transportation services available in Keene. For more information go to the website: www.swrpc.org/transportationdirectory.
0
2
4
Miles
N
December 2013
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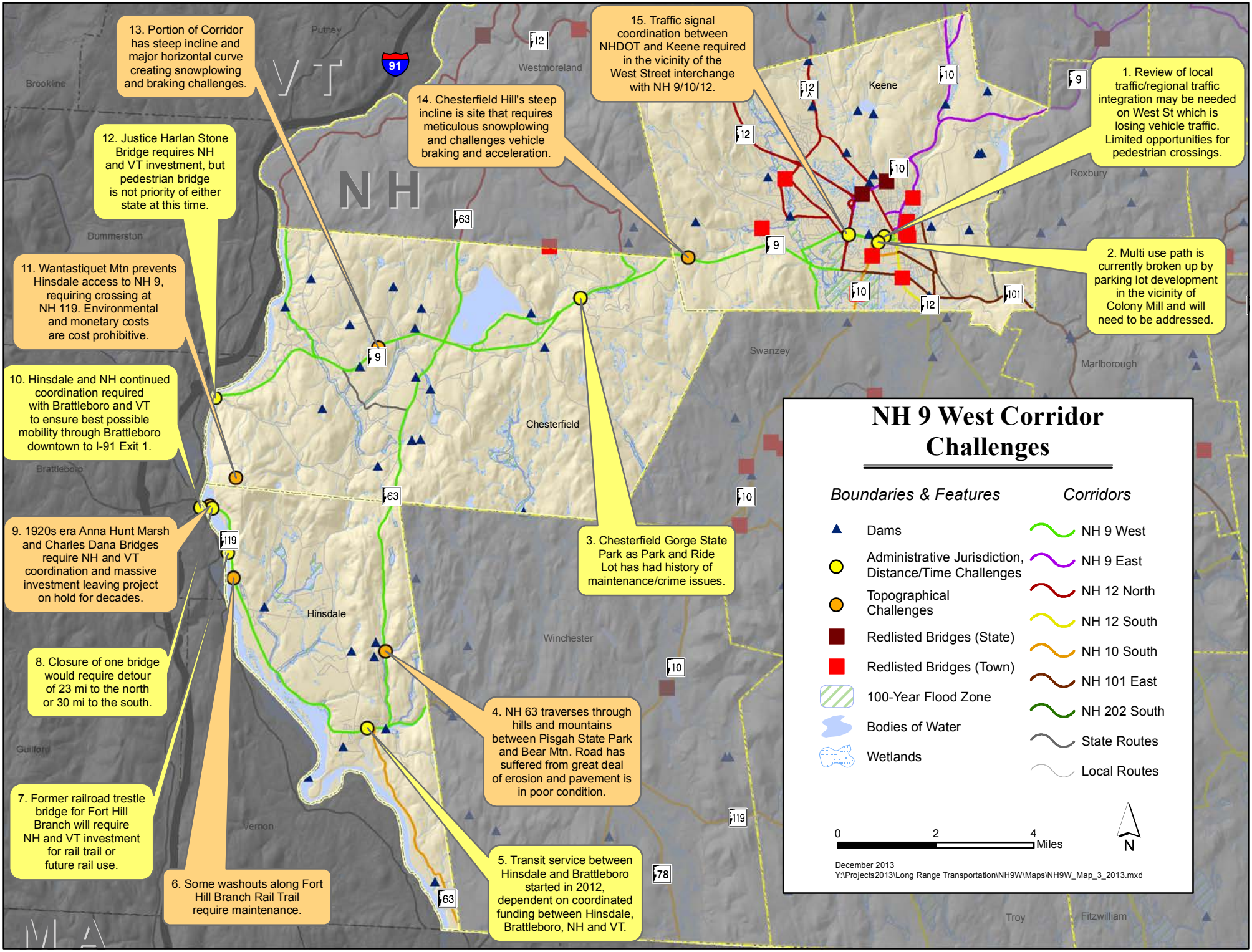
New England Central Railroad
Cheshire Branch Rail Trail
Westminster
Walpole
Putney
Westmoreland
Surry
Gilsum
Sullivan
Keene
City Express
Keene Transportation Center
KSC Campus Community Shuttle
Dummerston
Chesterfield Gorge Park & Ride Lot
Greyhound Bus Lines, Inc.
Brattleboro
Chesterfield
Brattleboro Transportation Center
Ashuelot Rail Trail
Dillant Hopkins Airport
Swanzey
The Current
Hinsdale
Winchester
Fall Hill Recreation Trail
Vernon
VT
NH
MA
Bernardston
Northfield
Warwick
Royalston


NH 9 West Corridor Challenges
Boundaries & Features
Dams
Administrative Jurisdiction, Distance/Time Challenges
Topographical Challenges
Redlisted Bridges (State)
Redlisted Bridges (Town)
100-Year Flood Zone
Bodies of Water
Wetlands
Corridors
NH 9 West
NH 9 East
NH 12 North
NH 12 South
NH 10 South
NH 101 East
NH 202 South
State Routes
Local Routes
0
2
4
Miles
N
December 2013
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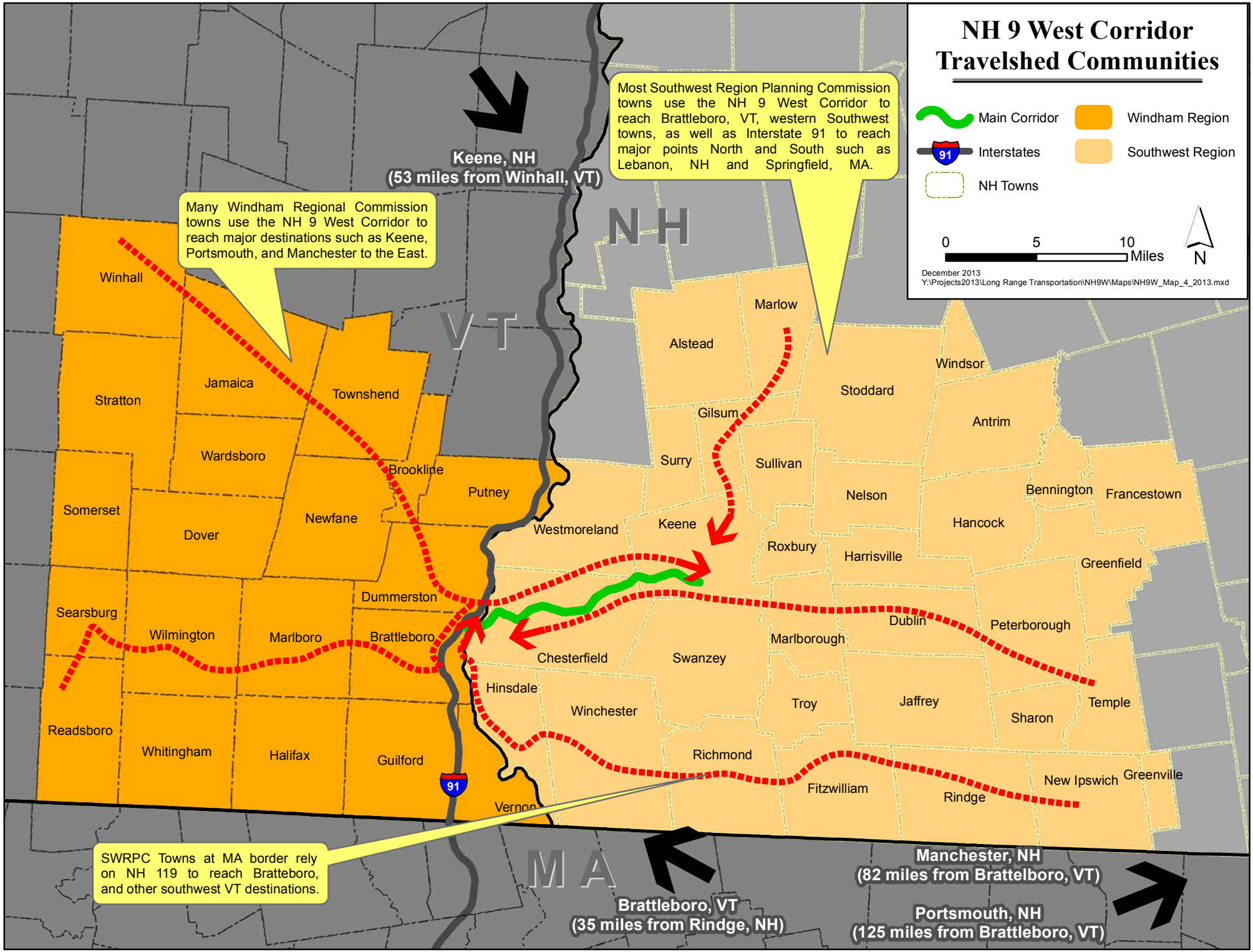
1. Review of local traffic/regional traffic integration may be needed on West St which is losing vehicle traffic. Limited opportunities for pedestrian crossings.
2. Multi use path is currently broken up by parking lot development in the vicinity of Colony Mill and will need to be addressed.
3. Chesterfield Gorge State Park as Park and Ride Lot has had history of maintenance/crime issues.
4. NH 63 traverses through hills and mountains between Pisgah State Park and Bear Mtn. Road has suffered from great deal of erosion and pavement is in poor condition.
5. Transit service between Hinsdale and Brattleboro started in 2012, dependent on coordinated funding between Hinsdale, Brattleboro, NH and VT.
6. Some washouts along Fort Hill Branch Rail Trail require maintenance.
7. Former railroad trestle bridge for Fort Hill Branch will require NH and VT investment for rail trail or future rail use.
8. Closure of one bridge would require detour of 23 mi to the north or 30 mi to the south.
9. 1920s era Anna Hunt Marsh and Charles Dana Bridges require NH and VT coordination and massive investment leaving project on hold for decades.
10. Hinsdale and NH continued coordination required with Brattleboro and VT to ensure best possible mobility through Brattleboro downtown to I-91 Exit 1.
11. Wantastiquet Mtn prevents Hinsdale access to NH 9, requiring crossing at NH 119. Environmental and monetary costs are cost prohibitive.
12. Justice Harlan Stone Bridge requires NH and VT investment, but pedestrian bridge is not priority of either state at this time.
13. Portion of Corridor has steep incline and major horizontal curve creating snowplowing and braking challenges.
14. Chesterfield Hill's steep incline is site that requires meticulous snowplowing and challenges vehicle braking and acceleration.
15. Traffic signal coordination between NHDOT and Keene required in the vicinity of the West Street interchange with NH 9/10/12.
VT
NH
MA
Putney
Brookline
Westmoreland
Keene
Roxbury
Dummerston
Swanzey
Marlborough
Chesterfield
Brattleboro
Hinsdale
Winchester
Guilford
Vernon
Troy
Fitzwilliam
91
12
63
9
10
101
119
78


NH 9 West Corridor
Travelshed Communities
Main Corridor
Windham Region
Interstates
Southwest Region
NH Towns
0
5
10
Miles
N
December 2013
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Keene, NH
(53 miles from Winhall, VT)
Most Southwest Region Planning Commission towns use the NH 9 West Corridor to reach Brattleboro, VT, western Southwest towns, as well as Interstate 91 to reach major points North and South such as Lebanon, NH and Springfield, MA.
Many Windham Regional Commission towns use the NH 9 West Corridor to reach major destinations such as Keene, Portsmouth, and Manchester to the East.
NH
VT
MA
Winhall
Stratton
Jamaica
Townshend
Wardsboro
Brookline
Putney
Somerset
Dover
Newfane
Dummerston
Searsburg
Wilmington
Marlboro
Brattleboro
Readsboro
Whitingham
Halifax
Guilford
Vernon
91
Marlow
Alstead
Windsor
Stoddard
Gilsum
Antrim
Surry
Sullivan
Nelson
Bennington
Francestown
Keene
Westmoreland
Hancock
Roxbury
Harrisville
Greenfield
Dublin
Peterborough
Marlborough
Chesterfield
Swanzey
Hinsdale
Winchester
Troy
Jaffrey
Sharon
Temple
Richmond
Fitzwilliam
Rindge
New Ipswich
Greenville
SWRPC Towns at MA border rely on NH 119 to reach Bratteboro, and other southwest VT destinations.
Brattleboro, VT
(35 miles from Rindge, NH)
Manchester, NH
(82 miles from Brattelboro, VT)
Portsmouth, NH
(125 miles from Brattleboro, VT)

Towns: Chesterfield, Hinsdale, and Keene

Nodal Centers: Downtown Hinsdale and Downtown Keene

Corridor Backbone: NH 9 from NH/9/10/12 in Keene to Chesterfield/Brattleboro, VT Town Line

Highway Corridor System:
Source: NHDOT

Towns	Principal Arterials	Minor Arterials	Major or Urban Collectors	Minor Collectors
Keene	NH 9		Base Hill Road	
			Gilbo Ave	
			West Street	
Chesterfield	NH 9		NH 63	Glebe Road
				NH 9A
				River Road
Hinsdale			NH 63	
			NH 119	

Other Transportation Infrastructure and Services:
Sources: NHDOT & SWRPC

	Examples	Locations Where Accessible
Pedestrian	Sidewalks	Downtown Hinsdale, Keene
	Fort Hill Branch Rail Trail	Hinsdale
Bicycle	Fort Hill Branch Rail Trail	Hinsdale
	4 foot Shoulders on NH 9 W Corridor Backbone	Keene, Chesterfield
Motor Vehicles and Trucks	Roads and Bridges	All Locations
Fixed Route Bus	Keene State College Campus Shuttle	Keene
	The Current: Hinsdale Blue Route	Hinsdale
Demand Response Bus	Para Express, Friendly Bus	Keene
Volunteer Drivers	American Red Cross	All Locations
Ridesharing Program	Contoocook Valley Trans. Co.	All Locations
Intercity Bus	Greyhound Bus Lines	Keene
Railroad Freight	No Examples Available	Not Available
Railroad Passenger		
Railroad Excursion		

Population Projections:

Sources: US Decennial Census & NH OEP

Communities	2010	2040	Projected % Change in Population	Projected Total Population Change
Chesterfield	3,604	3,661	1.6%	57
Hinsdale	4,046	3,994	-1.3%	-52
Keene	23,409	24,260	3.6%	851
NH 9 West Corridor	31,059	31,915	2.8%	856
SWRPC Region	102,313	108,168	5.7%	5,855

Special Populations:

Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average Proportion of Special Populations
Youth (Age 15 and Under)	4,728	15%	Chesterfield (18%); Hinsdale (18%); Downtown Hinsdale (20%)
Young Adults (Age 16-34)	10,051	32%	Keene (37%)
Middle Age (Age 35-64)	11,705	38%	Chesterfield (50%); Hinsdale (46%); Downtown Hinsdale (43%)
Seniors (65 and older)	4,575	15%	All communities 15% or below
Racial Minorities	1,325	4%	Keene (5%)
Low Income (Population at or under 150% of Poverty Level)[2]	5,809	19%	Keene (22%)
Single Parent Households[3]	2,270	32%	Hinsdale (35%); Downtown Hinsdale (42%); Keene (36%)

Traffic Volume Changes 500 AADT or Greater:
Source: NHDOT

Facility	Community	Description	AADT	Date Range	AADT Change
NH 119	HINSDALE	NH 119 (BRATTLEBORO RD) AT VERMONT SL	9,700	2007-2010	2600
NH 63	HINSDALE	NH 63 (CHESTERFIELD RD) 0.5 MILE NORTH OF NH 119	1,300	2006-2012	-800
Base Hill Rd	KEENE	BASE HILL RD SOUTH OF NH 9	3,600	2007-2010	1100
Gilbo Ave	KEENE	GILBO AVE SOUTH OF WEST ST	4,800	2006-2012	-900
West St	KEENE	WEST ST WEST OF NH 9/NH 10/NH 12	13,000	2008-2010	-4000
West St	KEENE	WEST ST AT ASHUELOT RIVER BRIDGE	19,000	2005-2011	-2000

Proportion of Daily Traffic by Vehicle Class at NH 9 West Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Month/ Year	Daily Traffic Volume	Motorcycles, Cars, Light Duty Trucks	Buses and Single Unit Trucks	Trailer Trucks
Chesterfield	NH 9 W of Mill Road	5/2012	10,848	88.7%	8.4%	2.9%
Chesterfield	NH 9 W of NH 63	9/2013	12,335	93.1%	3.2%	3.7%
Keene	NH 9 E of Ash Brook Rd	9/2012	22,382	94.4%	3.5%	2.1%
Keene	West St E of Avon St	11/2014	21,660	98.1%	1.5%	0.4%

Peak Hour Ridesharing (am & pm peak hours combined):
Source: SWRPC

Location & $/gallon	Month/ Year	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
NH 9 at NH/VT SL $3.409/gallon	10/2013	2,376	1.19	30%	17%
NH 9 West of Ash Brook Rd in Keene $3.599/gallon	8/2013	2,203	1.24	35%	20%
NH 119 at NH/VT SL $3.47/gallon	8/2014	1,180	1.31	43%	26%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Population	Motorcycles and Passenger Vehicles Excluding Electric or Hybrid	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
22,863	.74	75.4%	.2%	22.8%	1.5%	.2%

Trail Traffic:
Source: SWRPC

Traffic Count Location Description	Community	Month/Year	Weekly Volume
Cheshire Rail Trail West of Main St	Keene	9/2013	559
Cheshire Rail Trail West of Pearl St	Keene	10/2014	534

Cross-commuting Patterns Among Corridor Communities
Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

		Destinations		
		Keene	Chesterfield	Hinsdale
Origin	Keene	4,667	113	32
	Chesterfield	515	105	11
	Hinsdale	222	65	159

Communities with Over 50 employees commuting to NH 9 West Communities & Likely Using NH 9 West Corridor System
Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Employee Origin	Number	Employee Destination
Chesterfield	515	Keene
Hinsdale	222	Keene
Brattleboro	178	Keene
Keene	113	Chesterfield
Brattleboro	88	Chesterfield
Swanzey	79	Chesterfield
Hinsdale	65	Chesterfield
Westmoreland	65	Chesterfield
Brattleboro	52	Hinsdale

Jobs, Employers, and Unemployment Rates
Sources: Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; NHES, 2012; NHES, August 2013.

Community	Total Jobs	Total Institutions	Unemploy-ment Rate
Chesterfield	985	83	4.7%
Hinsdale	571	51	6.7%
Keene	16,946	864	5.7%

Known Large Employers (50+ employees)
Source: NHES

Name	Town	Product/Service	Employees
National Grange Mutual Insurance	Keene	Insurance Services	347
United Natural Foods	Chesterfield	Food Warehouse	300
Walmart	Hinsdale	Retail	230
Thomas Companies	Chesterfield	Construction, drilling and blasting	65

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

Sources: NH Housing; U.S. Census Bureau, 2010 Decennial Census (Table QT-H1); U.S. Census Bureau ACS 2007-11, B25088; U.S. Census Bureau ACS 2007-11, B25064; Abogo

	Housing Permits (2000-2010)	Owner/ Renter Household Ratio	Median Expenses (Owners w/ a Mortgage)	Median Expenses (Owners w/o a Mortgage)	Median Gross Rent (2011)	Median Monthly Budget Needed for Trans-portation
Community Average	245	3.4	$1,691	$735	$878	$1,464
Chesterfield	187	6.1	$1,906	$731	$854	$1,497
Hinsdale	168	2.9	$1,403	$646	$818	$1,431
Hinsdale Village	N/A	1.4	$1,373	$695	$805	$1,149
Keene	379	1.2	$1,764	$828	$962	$1,149

Housing to Jobs Ratio:
Source:

Sources: Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011 and U.S. Census Bureau ACS 2007-11, B25001.

Number of Community Housing Units for Every Community Job				
20+	10 to 19	5 to 9	1 to 4	Less than 1
			Hinsdale (3)	Keene
			Chesterfield (2)	

Mileage by Level of Access Management Control on NH 9 West:

Source: NHDOT

Community	Limited Access	Controlled Access	Regular Access
Chesterfield	0	10.7	0
Keene	0	3.7	0
Totals	**0**	**14.4**	**0**

Performance Measure Category	Measure	Units	NH 9 West Only	NH 9 West Corridor System	Target 2017
Improve Asset Conditions	State Highway Pavement in Good or Fair Condition	Fair/good miles: total miles	14.2 : 14.4	20 : 42.9	24.5
	Red Listed Bridges	Red list bridge number: total bridges	0 / 4	4 / 50	3/50
	Rail lines capable of speeds of 40 mph	miles: total miles	N/A	N/A	N/A
	Airport Runway Surface conditions	average condition	N/A	N/A	N/A
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	Inventory in progress	40%
Improve Safety	Crashes Involving Highway Fatalities (5 year moving average 2008-2012)	Ratio	2	3	0
	Crashes Involving Highway Incapacitating Injuries (5 year moving average 2008-2012)	number	11	13	0
Improve Mobility	PM peak hour volume/capacity ratio range	level of service	.23-.49	N/A	Under .62
Improve Multimodal Accessibility	Intermodal Facility	number	0	1	1
	Sidewalks	miles	Inventory in progress	Inventory in progress	More study required
	Bikeways	miles			
	# of park and ride lot spaces	number	45	45	
	Public transportation routes	miles	0	0.5	
	Intercity bus routes	miles	25.4	26.5	26.5

NH 10 SOUTH CORRIDOR

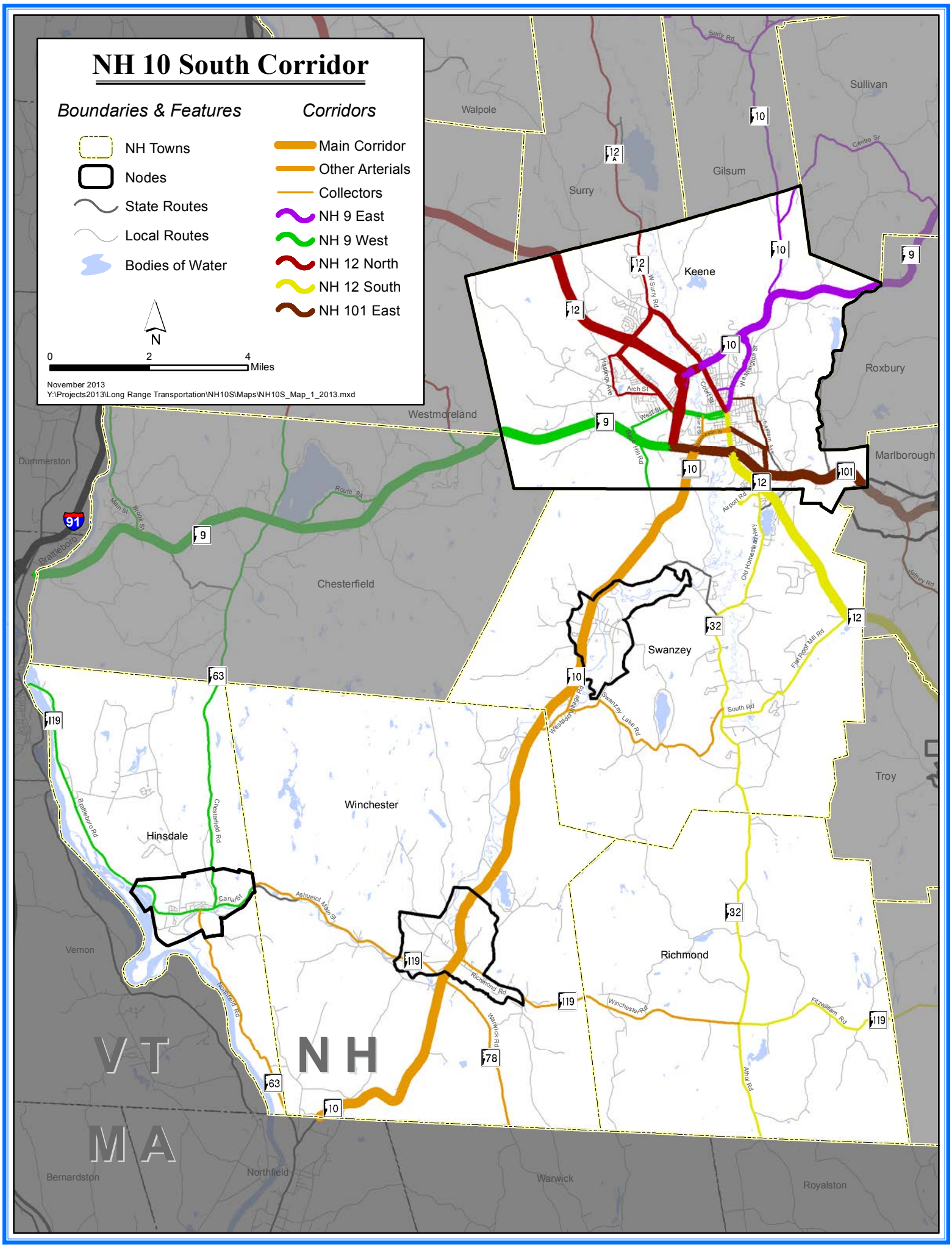
The NH 10 South Corridor, like the NH 9 West and NH 12 North Corridors, is important for facilitating traffic flow to and from I-91. SWRPC estimates that at least two thirds of the Southwest Region communities would use NH 10 to reach longer trip destinations to the south and west including trips that extend west via I-90 in Massachusetts and southwest via I-84 in Connecticut. However, during winter month inclement weather, the Manning Hill section of NH 10 South in Winchester is considered less reliable and other corridors may be used as an alternative route.

NH 10 South traffic continues to grow on most parts of the Corridor. At the north end of the corridor from approximately 2005-2011, average annual daily traffic growth grew by 5,000 vehicles near NH 10's intersection with Kit Street area and by 7,000 vehicles at the intersection of Winchester Street and Key Road. In the 2000s, the corridor saw some of the most housing growth in the 2000s, amounting to 1,175 units total. Anecdotally, it is known that there is a great deal of workforce housing and senior housing in the various communities that were built and driving some of the growth. The corridor is filling a gap in providing some of the affordable housing. Today the corridor has the highest proportion (20%) and highest total of low income population (8,093) compared to all other corridors. Its senior population is average (15%) totaling 5,880 people. Housing development is attractive in the area since the corridor has the least expensive average mortgage housing ownership costs ($1,558) as well as the least expensive median monthly budget ($1,413) needed for transportation of any corridor.

There are a number of significant nodes identified for the Corridor including Downtown Keene, West Swanzey Village, Downtown Hinsdale, and Downtown Winchester. Each nodal area has a sidewalk system in place, but only Keene and Hinsdale have transit service at this time. Although Keene is a dominant destination for shopping and services, many services are available at other nodes. For instance, West Swanzey and Downtown Winchester each have their own supermarkets and Winchester has a health clinic.

Priority issues and challenges for the NH 9 West Corridor include but are not limited to the following:

- The NH 10 Corridor has seen significant traffic increases over time partly due to the fact that Keene continues to develop commercial land in the western part of the City. In the heaviest traffic areas, in Keene, rights of way are severely limited. Although frontage on Keene's urban compact area is nearly built out, there are still additional locations available for commercial development which could put new pressures on Keene's urban compact area.
- Though it is an important corridor, only about 20% of the Corridor's abutting land is protected by state controlled access regulations in the northern Winchester area.
- A NH 10 JARC Study by SWRPC suggests that the NH 10 South Corridor is among the best areas for passenger service development, accommodating population needs in Winchester and West Swanzey (see special population data later in this section).
- Maintaining safety in the Manning Hill area will need to continue to be a high priority.


NH 10 South Corridor
Boundaries & Features
NH Towns
Nodes
State Routes
Local Routes
Bodies of Water
Corridors
Main Corridor
Other Arterials
Collectors
NH 9 East
NH 9 West
NH 12 North
NH 12 South
NH 101 East
N
0
2
4
Miles
November 2013
Y:\Projects2013\Long Range Transportation\NH10S\Maps\NH10S_Map_1_2013.mxd
Walpole
Sullivan
Gilsum
Surry
Keene
Roxbury
Westmoreland
Dummerston
Marlborough
Chesterfield
Swanzey
Troy
Winchester
Hinsdale
Richmond
Vernon
VT
NH
MA
Bernardston
Northfield
Warwick
Royalston

NH 10 South Corridor Multimodal Services and Infrastructure

- Intercity Bus
- Public Transportation
- Rail Trails
- Railroads
- NH Towns
- Nodes
- Airports
- Intermodal Facility
- Sidewalk Available
- State Routes
- Local Routes

Dial-A-Ride (Volunteer Driver), human service agency, private for hire and taxi, and rideshare services available to the general public in all NH 10 South Corridor Towns. Special senior transportation services available in Keene. For more information go to the website: www.swrpc.org/transportationdirectory.

0 2 4 Miles

N

November 2013
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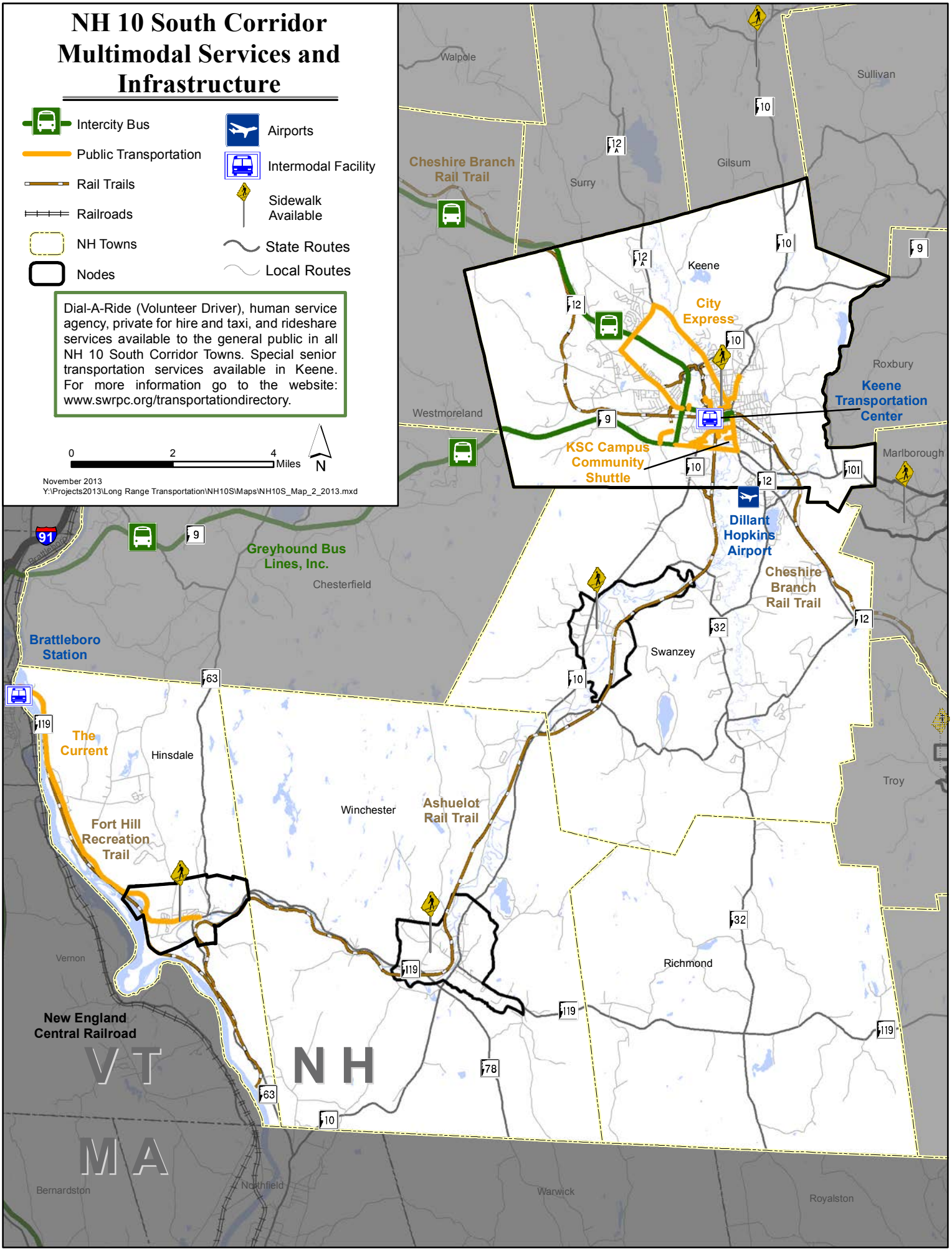

NH 10 South Corridor Challenges

Boundaries & Features

- Administrative Jurisdiction, Distance/Time Challenges
- Topographical Challenges
- Redlisted Bridges (State)
- Redlisted Bridges (Town)
- Dams
- 100-Year Flood Zone
- Bodies of Water
- Wetlands

Corridors

- NH 10 South
- NH 9 East
- NH 9 West
- NH 12 North
- NH 12 South
- NH 101 East
- State Routes
- Local Routes

0 2 4 Miles

N

December 2013
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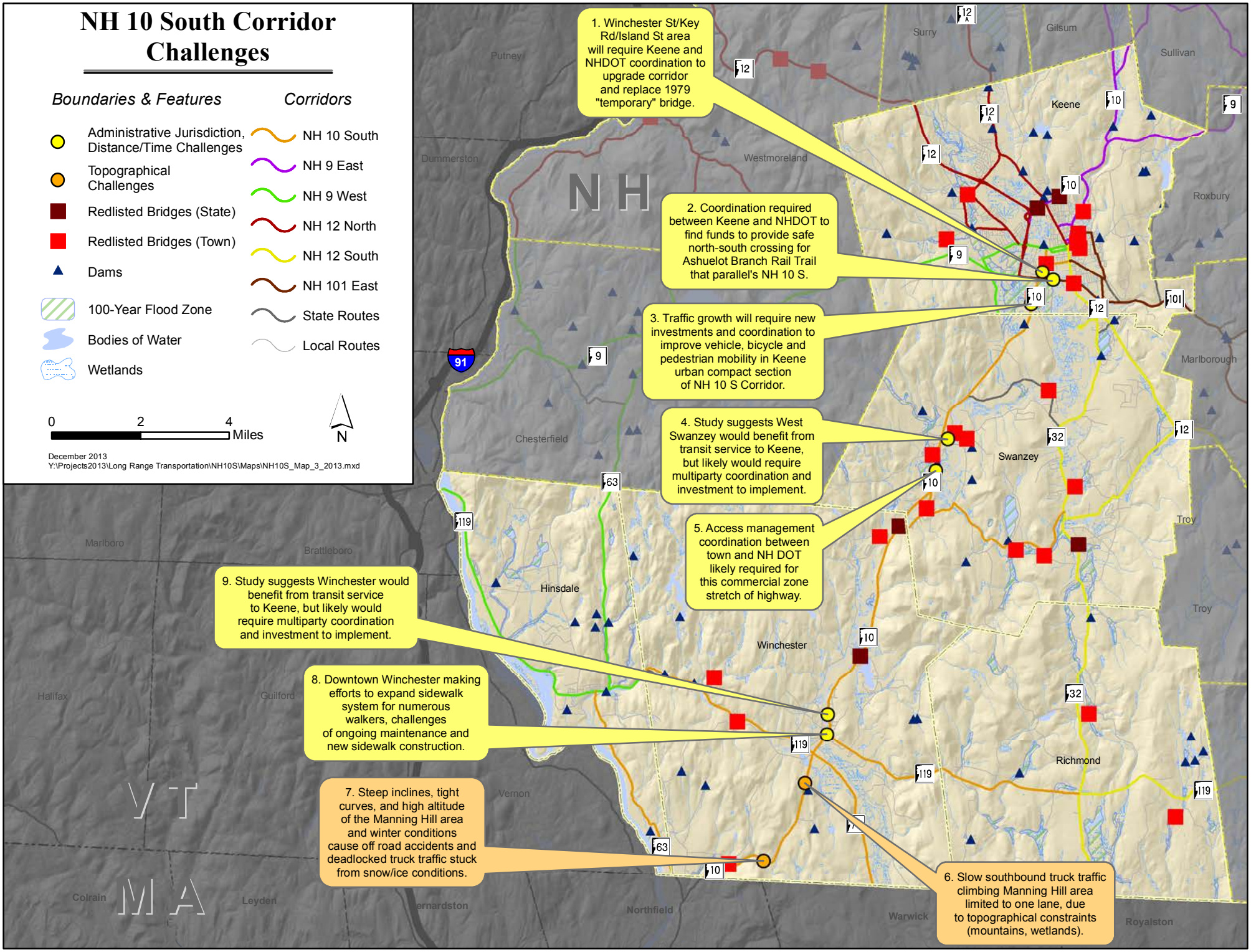

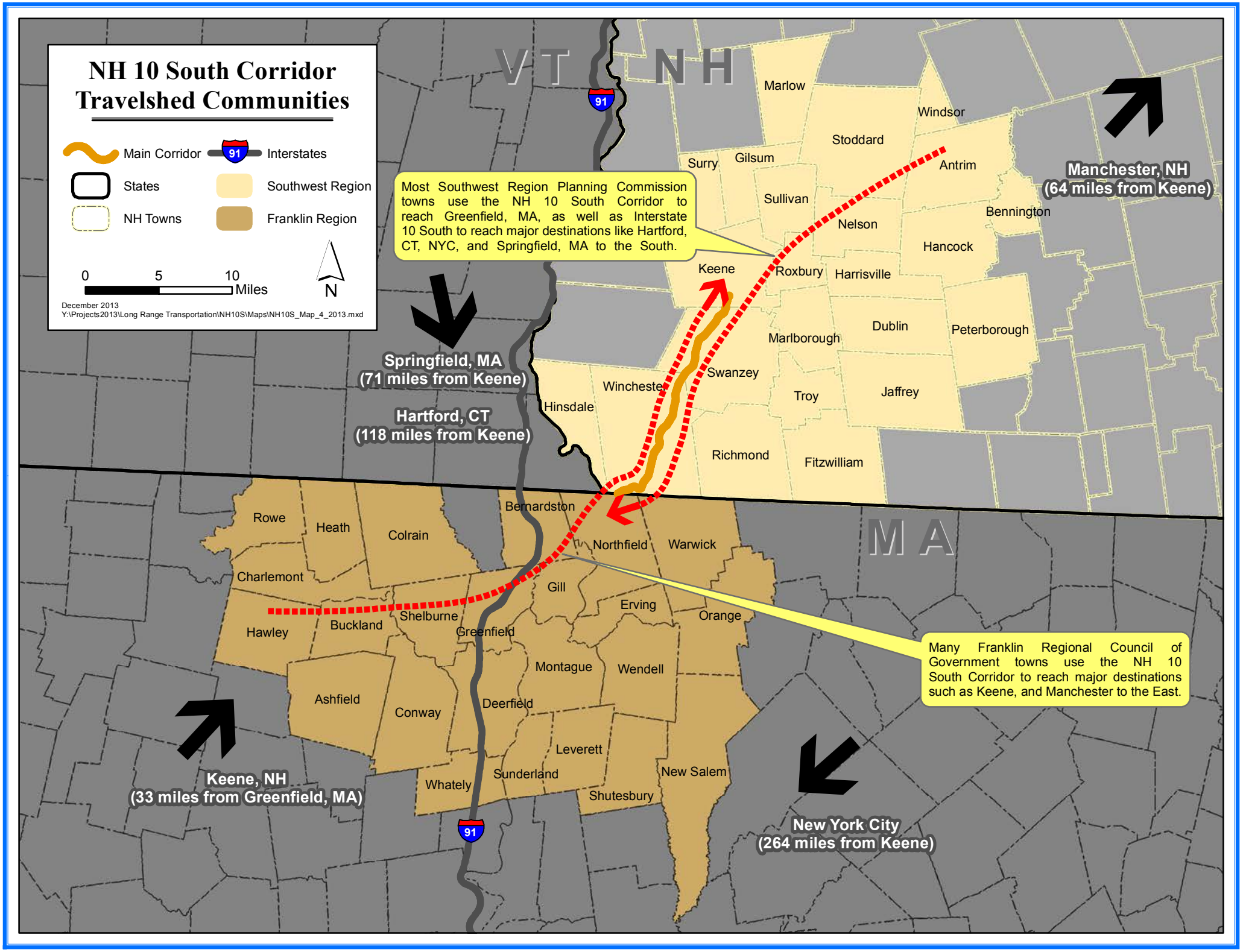
NH 10 South Corridor Travelshed Communities
Main Corridor
Interstates
States
Southwest Region
NH Towns
Franklin Region
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5
10
Miles
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December 2013
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VT
NH
MA
91
Most Southwest Region Planning Commission towns use the NH 10 South Corridor to reach Greenfield, MA, as well as Interstate 10 South to reach major destinations like Hartford, CT, NYC, and Springfield, MA to the South.
Manchester, NH
(64 miles from Keene)
Springfield, MA
(71 miles from Keene)
Hartford, CT
(118 miles from Keene)
Keene, NH
(33 miles from Greenfield, MA)
New York City
(264 miles from Keene)
Many Franklin Regional Council of Government towns use the NH 10 South Corridor to reach major destinations such as Keene, and Manchester to the East.
Marlow
Windsor
Stoddard
Surry
Gilsum
Antrim
Sullivan
Bennington
Nelson
Hancock
Keene
Roxbury
Harrisville
Dublin
Peterborough
Marlborough
Swanzey
Winchester
Troy
Jaffrey
Hinsdale
Richmond
Fitzwilliam
Rowe
Heath
Colrain
Bernardston
Northfield
Warwick
Charlemont
Gill
Erving
Orange
Hawley
Buckland
Shelburne
Greenfield
Montague
Wendell
Ashfield
Conway
Deerfield
Leverett
Sunderland
New Salem
Whately
Shutesbury

Towns: Hinsdale, Keene, Richmond, Swanzey and Winchester

Nodal Centers: Hinsdale Village, Keene, West Swanzey Village, and Winchester Village

Corridor Backbone: NH 10 from NH 10/12/101 in Keene to Winchester/Northfield, MA Town Line

Highway Corridor System:
Source: NHDOT

Towns	Minor Arterials	Major or Urban Collectors	Minor Collectors
Hinsdale		NH 63 South of NH 119	
Keene	NH 10	Island St	
	Winchester St West of Main St		
Richmond		NH 119 to NH 32	
Swanzey	NH 10		Westport Village Rd from Homestead Ave and Swanzey Lake Rd
Winchester	NH 10	NH 119	
		NH 78	

Other Transportation Infrastructure and Services:
Sources: NHDOT & SWRPC

	Examples	Locations Where Accessible
Pedestrian	Sidewalks	Hinsdale Village, Keene, West Swanzey Village, Winchester Village
	Ashuelot Rail Trail	Keene, Swanzey, West Swanzey Village, Winchester, Winchester Village
Bicycle	Ashuelot Rail Trail	Keene, Swanzey, West Swanzey Village, Winchester, Winchester Village
	4 foot shoulders on NH 10 S Corridor Backbone	0 mi in Keene; ~3.7 mi in Swanzey, ~7.9 mi in Winchester
Fixed Route Bus	City Express, Para Express, Keene State College Shuttle	Keene
Demand Response Bus	Friendly Bus	Keene, Swanzey
Volunteer Drivers	American Red Cross	All Locations
Ridesharing Program	Contoocook Valley Trans. Co.	All Locations
Intercity Bus	No Examples Available	Not Available on Corridor System
Railroad Freight		
Railroad Passenger		
Railroad Excursion		

Population Projections:

Sources: US Decennial Census & NHOEP

Communities	2010	2040	Projected % Change in Population	Projected Total Population Change
Hinsdale	4,046	3,994	-1.3%	-52
Keene	23,409	24,260	3.6%	851
Richmond	1,155	1,237	7.1%	82
Swanzey	7,230	7,677	6.2%	447
Winchester	4,341	4,543	4.6%	202
NH 10 South Corridor	40,181	41,710	3.8%	1,529
SWRPC Region	102,313	108,168	5.7%	5,855

Special Populations:

Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year Estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average proportion of Special Populations
Youth (Age 15 and Under)	6,501	16%	Hinsdale (18%); Hinsdale Village (20%); Richmond (22%); Swanzey (18%); West Swanzey Village (20%); Winchester (20%); Winchester Village (21%)
Young Adults (Age 16-34)	12,179	30%	Keene (37%)
Middle Age (Age 35-64)	15,621	39%	Hinsdale (46%); Hinsdale Village (43%); Richmond (47%); Swanzey (46%); Winchester (43%); Winchester Village (41%)
Seniors (65 and older)	5,880	15%	All at or below average
Racial Minorities	1,095	4%	Keene (5%)
Low Income (Population at or under 150% of Poverty Level)	8,093	20%	Keene (22%); Winchester (30%); Downtown Winchester (49%)
Single Parent Households	3,178	34%	Hinsdale (35%); Downtown Hinsdale (42%); Keene (36%); West Swanzey (45%); Winchester (40%); Downtown Winchester (53%)

Traffic Volume Changes 500 AADT or Greater:
Source: NHDOT

Town	Description	AADT	Date Range	AADT Change
Keene	NH 10 (WINCHESTER ST) NORTH OF MATTHEWS RD	16,000	2007-2010	2,000
Keene	NH 10 (WINCHESTER ST) NORTH OF KIT ST	21,000	2005-2011	5,000
Swanzey	NH 10 (W. SWANZEY RD) AT KEENE TL	13,000	2007-2010	2,000
Swanzey	NH 10 (W. SWANZEY RD) SOUTH OF BASE HILL RD (SB-NB) (81441071-81441072)	13,000	2007-2010	2,000
Winchester	NH 10 (MANNING HILL RD) SOUTH OF BACK ASHUELOT RD	3,300	2007-2010	-600
Keene	ISLAND ST SOUTH OF WEST ST	8,600	2005-2010	1,800
Keene	WINCHESTER ST NORTH OF KEY RD	28,000	2006-2011	7,000
Winchester	NH 119 (GENERAL JAMES REED HWY) WEST OF MAIN ST	3,200	2007-2010	-500
Winchester	NH 78 (WARWICK RD) EAST OF MAIN ST	3,100	2007-2010	-1,400

Proportion of Daily Traffic by Vehicle Class at NH 10 South Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Month/ Year	Daily Traffic Volume	Motorcycles, Cars, Light Duty Trucks	Buses and Single Unit Trucks	Trailer Trucks
Winchester	NH 10 at Mass SL	11/2014	3,296	91.9%	4.6%	3.5%
Winchester	NH 10 at Swanzey TL	5/2013	7,906	95.6%	3.3%	2.5%
Keene	NH 10 S of NH 9/10/12/101	10/2014	24,634	95.0%	4.2%	0.8%
Keene	Island St N of Ashuelot River	10/2014	8,610	98.1%	1.8%	0.1%

Peak Hour Ridesharing (am & pm peak hours combined):
Source: SWRPC

Location & $/gallon	Month/ Year	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
NH 10 South of Base Hill Rd, $3.531/gallon	9/2013	2,264	1.2	31%	17%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Population	Motorcycles and Passenger Vehicles Excluding Electric or Hybrid	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
31,842	0.79	72.5%	0.1%	24.9%	2.2%	0.3%

Trail Traffic:
Source: SWRPC

Traffic Count Location Description	Community	Month/Year	Weekly Volume
Ashuelot Rail Trail at Foundry St	Keene	8/2014	889
Ashuelot Rail Trail South of Krif Rd	Keene	10/2014	81
Ashuelot Rail Trail North of Eaton Rd	Swanzey	10/2014	54
Ashuelot Rail Trail North of Elm St	Winchester	10/2014	83

Cross-commuting Patterns Among Corridor Communities

Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

		Destination				
		Hinsdale	Keene	Richmond	Swanzey	Winchester
Origin	Hinsdale	159	222	0	69	42
	Keene	32	4,667	6	315	76
	Richmond	4	114	8	23	17
	Swanzey	15	1,314	4	347	45
	Winchester	35	495	5	126	226

Communities with Over 50 employees commuting to NH 10 South Communities & Likely Using NH 10 South Corridor System

Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Employee Origin	Number	Employee Destination
Swanzey*	1,314	Keene
Winchester	495	Keene
Swanzey*	347	Swanzey
Keene*	315	Swanzey
Winchester	226	Winchester
Hinsdale*	159	Hinsdale
Winchester	126	Swanzey
Richmond*	114	Keene
Keene	76	Winchester
Hinsdale	69	Swanzey
Chesterfield*	61	Swanzey
Marlborough*	61	Swanzey

Jobs, Employers, and Unemployment Rates

Sources: [1]Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; [2]NH Department of Employment Security, 2012; [3]NH Department of Employment Security, August 2013.

Community	Total Jobs[1]	Total Institutions[2]	Unemploy-ment Rate[3]
Hinsdale	571	51	6.7%
Keene	16,946	864	5.7%
Richmond	107	15	4.0%
Winchester	684	69	5.7%

Known Large Employers (50+ employees)

Source: NHES

Name	Town	Product/Service	Employees
Plum Pak	Winchester	Packaging, manufacturing	215-240
Market Basket	Swanzey	Supermarket	55 FT/300 PT
Harborside Applewood	Winchester	Nursing Home	72
Kulick's Inc	Winchester	Supermarket	55

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

Sources: NH Housing; U.S. Census Bureau, 2010 Decennial Census (Table QT-H1); U.S. Census Bureau ACS 2007-11, B25088; U.S. Census Bureau ACS 2007-11, B25064; Abogo

	Housing Permits (2000-2010)	Owner/ Renter Household Ratio	Median Expenses (Owners w/ a Mortgage)	Median Expenses (Owners w/o a Mortgage)	Median Gross Rent (2011)	Median Monthly Budget Needed for Trans-portation
Community Average	250	4.22	$1,558	$688	$968	$1,413
Hinsdale	168	2.94	$1,403	$646	$818	$1,431
Keene	379	1.19	$1,764	$828	$962	$1,149
Richmond	62	12.03	$1,588	$574	$1,182	$1,602
Swanzey	392	2.62	$1,598	$674	$965	$1,406
Winchester	174	2.31	$1,438	$718	$913	$1,479
Hinsdale Village	N/A	1.38	$1,373	$695	$805	$1,365
West Swanzey Village	N/A	0.89	$1,177	$674	$861	$1,400
Winchester Village	N/A	1.48	$1,418	$656	$934	$1,429

Housing to Jobs Ratio:

Sources: Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011 and U.S. Census Bureau ACS 2007-11, B25001.

Number of Community Housing Units for Every Community Job				
20+	**10 to 19**	**5 to 9**	**1 to 4**	**Less than 1**
		Richmond (5)	Hinsdale (3)	Keene
			Winchester (3)	
			Swanzey (2)	

Mileage by Level of Access Management Control on NH 9 West:

Source: NHDOT

Community	Limited Access	Controlled Access	Regular Access
Keene	0.0	0.0	0.9
Swanzey	0.0	0.0	5.6
Winchester	0.0	3.4	7.0
Totals	**0.0**	**3.4**	**13.5**

Performance Measure Category	Measure	Units	NH 10 South Only	NH 10 South Corridor System	Target 2017
Improve Asset Conditions	State Highway Pavement in Good or Fair Condition	Fair/good miles: total miles	13.9 : 16.9	25.8 : 43	24.5
	Red Listed Bridges	Red list bridge number: total bridges	3 / 6	4 / 11	1
	Rail lines capable of speeds of 40 mph	miles: total miles	N/A	N/A	N/A
	Airport Runway Surface conditions	average condition	N/A	N/A	N/A
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	Inventory in progress	40%
Improve Safety	Crashes Involving Highway Fatalities (5 year moving average 2008-2012)	number	5	5	0
	Crashes Involving Highway Incapacitating Injuries (5 year moving average 2008-2012)	number	10	12	0
Improve Mobility	PM peak hour volume/capacity ratio range	ratio range	.13-.61	N/A	.62
Improve Multimodal Accessibility	Intermodal Facility	number	0	0	Additional study required
	Sidewalks	miles	Inventory in progess	Inventory in progess	
	Bikeways	miles			
	# of park and ride lot spaces	number	0	0	
	Public transportation routes	miles	0	.75	
	Intercity bus routes	miles	0	0	

NH 12 NORTH CORRIDOR

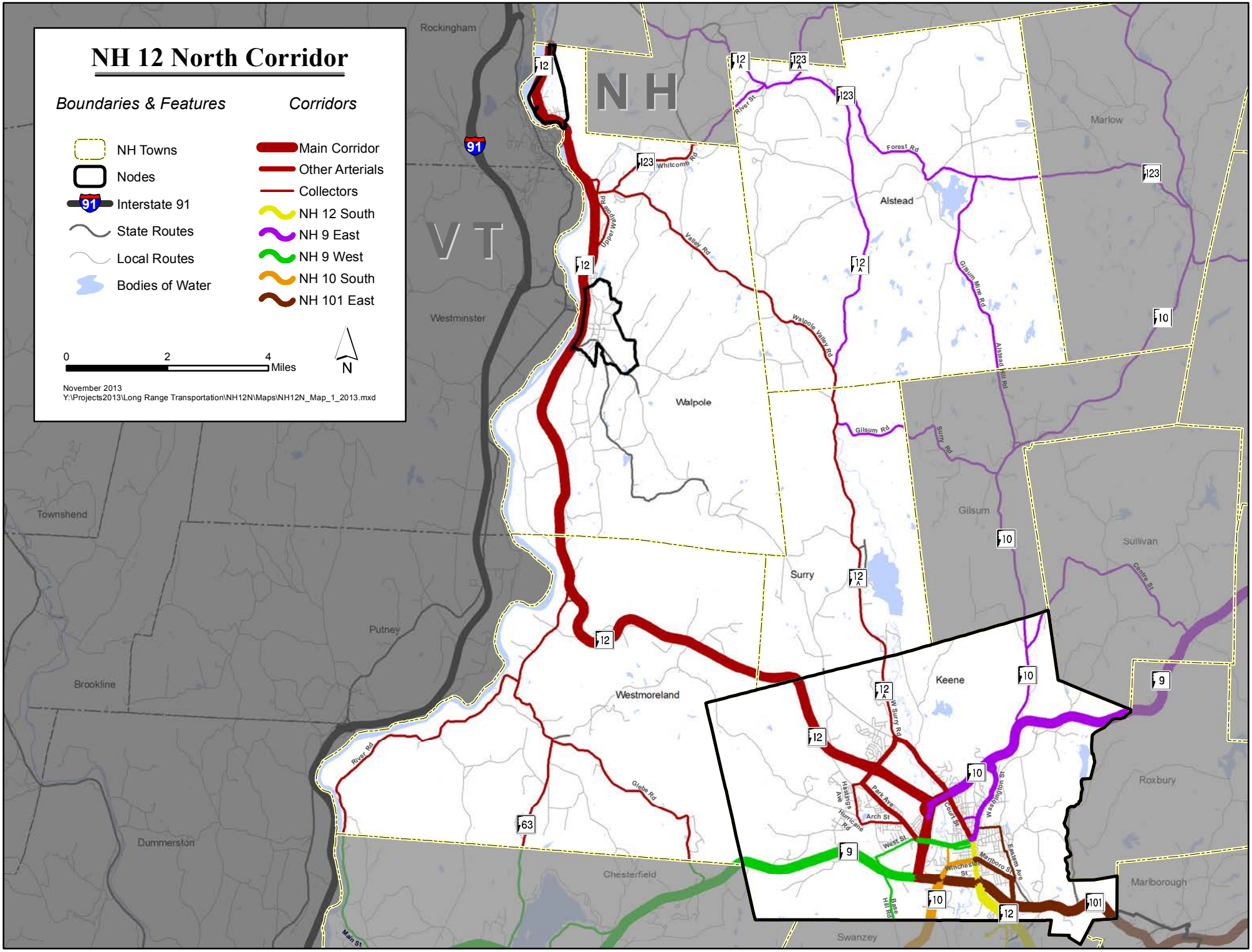
The NH 12 North Corridor connects much of the Southwest Region with major northern cities in New Hampshire, Vermont and Canada via I-91. The corridor has the most multi-modal offerings of any corridor in the Southwest Region, hosting Greyhound Bus Lines, Inc. intercity bus routes, as well as local transit routes in Keene and Walpole, and passenger and freight rail access in or within walking distance of North Walpole Village. Through the leadership of Keene, regional destinations by rail trail are improving as well after the City invested in North Bridge, a multiuse bridge that crosses over NH 9/10/12 near West Street.

Much of the Corridor is rural, but there are three nodal centers identified in the corridor including Keene, Walpole Village and North Walpole Village. Though Walpole has a significant number of jobs its housing growth was unusually slow in the 2000's with only 9 housing permits recorded by the town. Future growth is projected to be slow to moderate in this Corridor, with Alstead perhaps losing population by 2040. Today 46% of the corridor's population outside of Keene consists of people in their middle age (ages 35-64). However, North Walpole Village has a concentrated high number of special populations including youth, seniors, low income and single parent households. There are a number of senior housing units in Walpole hosted by Southwestern Community Services as well as Cheshire County's Maplewood Nursing Home in Westmoreland.

Several interesting traffic trends have occurred on the Corridor in recent years. In the past 4-6 years, NH 12 South of Maple Avenue has seen a reduction in average annual daily traffic by 5,000 vehicles, possibly due in part to the closure of the Fed Ex facility just North of that location. During that same time period North Walpole village has seen its use of the Arch Bridge increase by over 7,200 vehicles daily after the closure of Vilas Bridge. More traffic is expected on NH 12 in Walpole as a number of new retail establishments have replaced former open space and farmland along the highway.

Priority challenges and opportunities for the NH 12 North Corridor include the following:

- The closed Vilas Bridge will require more cooperation and coordination with Vermont. Many in New Hampshire are seeking a higher contribution from Vermont.
- This Corridor, which includes the Connecticut River watershed, has suffered greatly in recent years from severe storm events impacting NH 12 South, NH 123, NH 63, several bridges and the Cheshire Rail Trail. Some infrastructure has been upgraded but other infrastructure needs maintenance or upgrades to prevent dangerous and costly future impacts.
- The New England Central Railroad presents itself as a challenge and perhaps an economic opportunity for the NH 12 North Corridor with its at-grade crossing in North Walpole, its bridges that constrict traffic in North Walpole and Westminster, VT and its sidings in North Walpole.
- Population data suggests that planning attention may be required for North Walpole Village.
- Retail growth on NH 12 in Walpole, which has been enabled by connections to Rockingham, VT sewer lines, has implications for mobility and safety on that portion of the corridor.


NH 12 North Corridor
Boundaries & Features
NH Towns
Nodes
Interstate 91
State Routes
Local Routes
Bodies of Water
Corridors
Main Corridor
Other Arterials
Collectors
NH 12 South
NH 9 East
NH 9 West
NH 10 South
NH 101 East
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2
4
Miles
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NH
VT
Rockingham
Westminster
Townshend
Putney
Brookline
Dummerston
Walpole
Alstead
Surry
Westmoreland
Chesterfield
Swanzey
Gilsum
Marlow
Sullivan
Roxbury
Marlborough
Keene
Forest Rd
Whitcomb Rd
Valley Rd
Walpole Valley Rd
Gilsum Mine Rd
Alstead Hill Rd
Gilsum Rd
Surry Rd
River Rd
Glebe Rd
Main St
Centre St
W Surry Rd
Park Ave
Arch St
West St
Hastings Ave
Hurricane Rd
Court St
Washington St
Winchester St
Marlboro St
Eastern Ave
Base Hill Rd

NH 12 North Corridor Multimodal Services and Infrastructure

- Intercity Bus
- Public Transportation
- Rail Trails
- Railroads
- NH Towns
- Nodes
- Airports
- Intermodal Facility
- Sidewalk Available
- State Routes
- Local Routes

Dial-A-Ride (Volunteer Driver), human service agency, private for hire and taxi, and rideshare services available to the general public in all NH 12 North Corridor Towns. Special senior transportation services available in Keene. For more information go to the website: www.swrpc.org/transportationdirectory.

0 2 4 Miles

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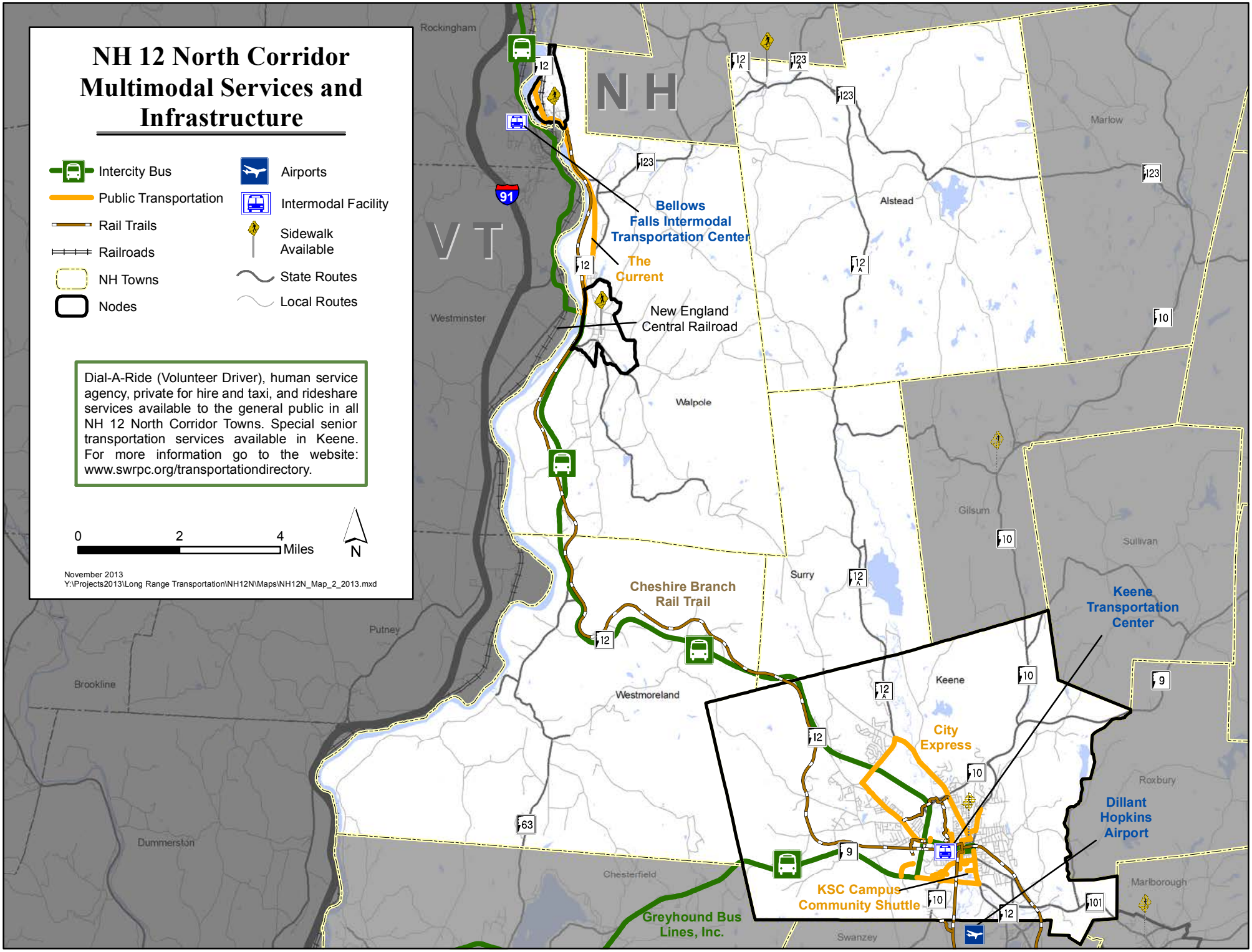

NH 12 North Corridor Challenges

Boundaries & Features

- Redlisted Bridges (State)
- Redlisted Bridges (Town)
- NH Towns
- Administrative Jurisdiction Challenges
- Administrative Jurisdiction, Distance/Time Challenges
- Topographical Challenges
- Dams
- 100-Year Flood Zone
- Bodies of Water
- Wetlands

Corridors

- NH 12 North
- NH 12 South
- NH 9 East
- NH 9 West
- NH 10 South
- NH 101 East
- State Routes
- Local Routes

0 2 4 Miles

N

November 2013
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1. East to west mobility restricted to NH 12 by Fall Mountain in the vicinity of North Walpole.

2. New England Central Railroad at grade crossing impedes traffic flow affecting emergency service coordination and occasional traffic congestion.

3. Vilas Bridge, a historic bridge, is closed and rehabilitation dependent on NH and VT coordination. Limited NH funds impacting implementation schedule.

4. Mobility in Walpole at risk as corridor changes from agricultural to commercial area.

5. New England Central Railroad Bridge in Vermont limits sight distance, truck turning radii, horizontal and vertical clearance. Important route to I-91.

6. Major erosion from storm events on Cheshire Rail Trail. Fill from former railroad washing downstream towards NH 12.

7. City Express Transit service expansion constrained by limited funding and operations opportunities.

8. Rough on Cheshire Rail Trail in location south of Hurricane Road due to alignment change from Railroad right of way.

9. NH 12 has suffered several washouts on hill leaving Surry and entering Westmoreland.

10. Major bridge damage resulting from storm events in 2013.

11. Cheshire Rail Trail impassable in this and other locations due to neglected maintenance.

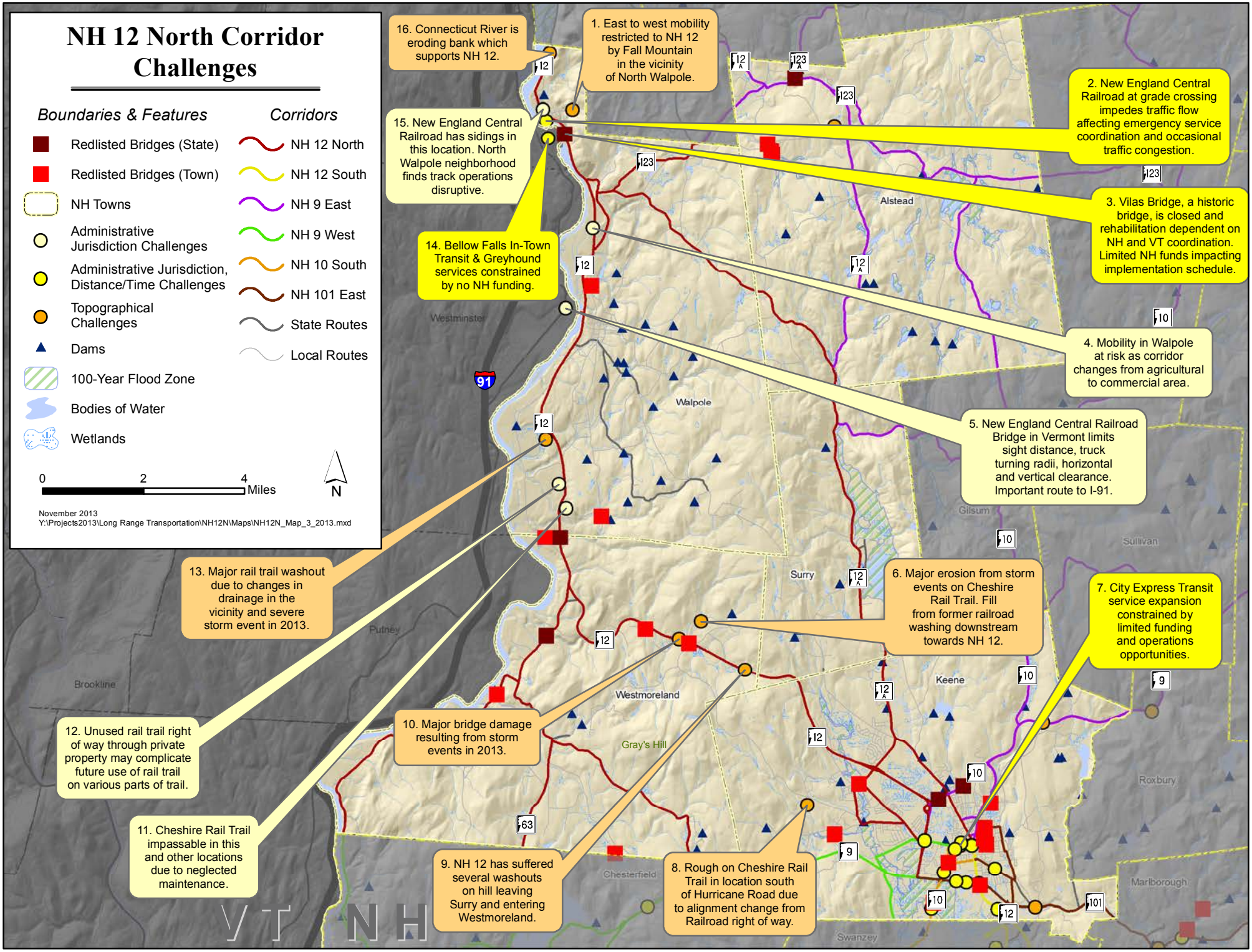
12. Unused rail trail right of way through private property may complicate future use of rail trail on various parts of trail.

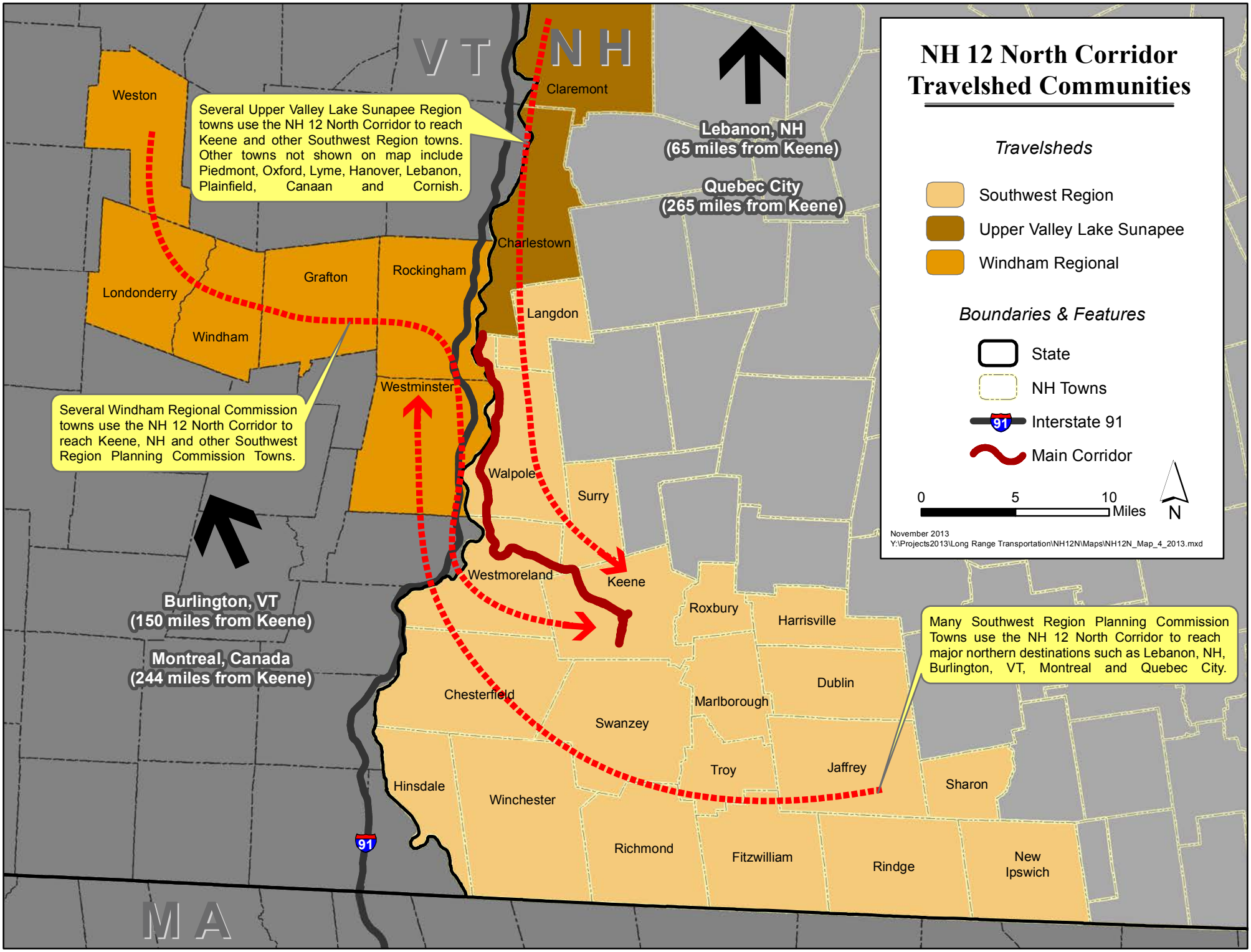
13. Major rail trail washout due to changes in drainage in the vicinity and severe storm event in 2013.

14. Bellow Falls In-Town Transit & Greyhound services constrained by no NH funding.

15. New England Central Railroad has sidings in this location. North Walpole neighborhood finds track operations disruptive.

16. Connecticut River is eroding bank which supports NH 12.




NH 12 North Corridor Travelshed Communities
Travelsheds
Southwest Region
Upper Valley Lake Sunapee
Windham Regional
Boundaries & Features
State
NH Towns
Interstate 91
Main Corridor
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Miles
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November 2013
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VT
NH
MA
Weston
Several Upper Valley Lake Sunapee Region towns use the NH 12 North Corridor to reach Keene and other Southwest Region towns. Other towns not shown on map include Piedmont, Oxford, Lyme, Hanover, Lebanon, Plainfield, Canaan and Cornish.
Claremont
Lebanon, NH
(65 miles from Keene)
Quebec City
(265 miles from Keene)
Charlestown
Grafton
Rockingham
Londonderry
Langdon
Windham
Westminster
Several Windham Regional Commission towns use the NH 12 North Corridor to reach Keene, NH and other Southwest Region Planning Commission Towns.
Walpole
Surry
Westmoreland
Keene
Roxbury
Harrisville
Burlington, VT
(150 miles from Keene)
Montreal, Canada
(244 miles from Keene)
Many Southwest Region Planning Commission Towns use the NH 12 North Corridor to reach major northern destinations such as Lebanon, NH, Burlington, VT, Montreal and Quebec City.
Dublin
Chesterfield
Marlborough
Swanzey
Troy
Jaffrey
Sharon
Hinsdale
Winchester
Richmond
Fitzwilliam
Rindge
New Ipswich
91

Towns: Alstead, Keene, Surry, Walpole and Westmoreland

Nodal Centers: Keene, Walpole Village, and North Walpole Village

Corridor Backbone: NH 12 from NH 9/10/12/101 in Keene to Walpole/Charlestown Town Line

Highway Corridor System:
Source: NHDOT

Towns	Minor Arterials	Major or Urban Collectors	Minor Collectors
Alstead		NH 12A from Surry TL to Walpole Valley Rd	Walpole Valley Rd
Keene	NH 12 North	Arch St	
	Maple Ave	Hurricane Rd	
	Park Ave	Hastings Ave	
	Court St	West Surry Rd/NH 12A	
Surry	NH 12 North	NH 12A	
Walpole	NH 12 North	Arch Bridge St	Whitcomb Rd (NH 123)
	Dwinnel St (NH 123)	Vilas Bridge Rd	Valley Rd
			Upper Walpole Rd
Westmoreland	NH 12 North	NH 63	River Rd
			Glebe Rd

Other Transportation Infrastructure and Services:
Source: NHDOT and SWRPC

	Examples	Locations Where Accessible
Pedestrian	Sidewalks	Alstead, Keene, Walpole Village, North Village
	Cheshire Rail Trail	Keene, Surry, Westmoreland, Walpole
Bicycle	Cheshire Rail Trail	Keene, Surry, Westmoreland, Walpole
	4 foot shoulders on NH 12 N Corridor Backbone	~3.2 mi in Keene, Surry, ~5.2 mi in Westmoreland, ~ 8.9 mi in Walpole
Fixed Route Bus	City Express, Para Express/ Bellows Falls In-Town	Keene/ Walpole, North Walpole,
Demand Response Bus	Friendly Bus	Keene
Volunteer Drivers	American Red Cross	All Locations
Ridesharing Program	Contoocook Valley Trans. Co.	All Locations
Intercity Bus	Greyhound Bus Lines	Keene, North Walpole Village (walking distance)
Railroad Freight	New England Central Railroad	North Walpole
Railroad Passenger	Amtrak Vermonter	North Walpole (walking distance)
Railroad Excursion	Green Mountain Rail - Green Mountain Flyer	North Walpole (walking distance)

Population Projections:
Source: US Decennial Census & NHOEP

Communities	2010	2040	Projected % Change in Population	Projected Total Population Change
Alstead	1,937	1,923	-0.7%	-14
Keene	23,409	24,260	3.6%	851
Surry	732	794	8.5%	62
Walpole	3,734	3,875	3.8%	141
Westmoreland	1,874	2,007	7.1%	133
NH 12 North Corridor	31,686	32,860	3.7%	1,174
SWRPC Region	102,313	108,168	5.7%	5,855

Special Populations:
Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year Estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average proportion of Special Populations
Youth (Age 15 and Under)	4,780	15%	Alstead (19%); Walpole (19%); North Walpole Village (23%)
Young Adults (Age 16-34)	10,159	32%	Keene (37%)
Middle Age (Age 35-64)	11,861	37%	Alstead (46%); Surry (50%); Walpole (44%); Westmoreland (47%); Walpole Village (45%); North Walpole Village (40%)
Seniors (65 and older)	4,889	15%	Alstead (16%); Surry (18%); Walpole (17%); Westmoreland (20%); Walpole Village (27%)
Racial Minorities	1,290	4%	Keene (5%)
Low Income (Population at or under 150% of Poverty Level)	6,037	19%	Keene (22%); North Walpole Village (42%)
Single Parent Households	2,228	31%	Keene (36%); North Walpole Village (49%)

Traffic Volume Changes 500 AADT or Greater:
Source: NHDOT

Facility	Town	Description	AADT	Date Range	AADT Change
NH 12 North	Keene	NH 12 South of Maple Ave	10,000	2005-2011	-5000
NH 12 North	Walpole	NH 12 (River St) East of Center St	8,600	2007-2010	2800
Park Avenue	Keene	Park Ave North of West Street	14,000	2007-2010	3000
Arch Bridge Street	Walpole	Arch Bridge at Vermont SL	12,000	2006-2012	7200
Dwinnel Street (NH 123)	Walpole	NH 123 (Dwinnel St) at Vermont SL	8,600	2006-2012	3700
Upper Walpole Road	Walpole	Upper Walpole Rd East of NH 12/NH 123	2,000	2007-2010	-1900
Vilas Bridge Road	Walpole	Vilas Bridge at Vermont SL	0	2006-2013	-6500

Proportion of Daily Traffic by Vehicle Class at NH 12 North Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Month/ Year	Daily Traffic Volume	Motorcycles, Cars, Light Duty Trucks	Buses and Single Unit Trucks	Trailer Trucks
Walpole	NH 12 N of Northmeadow Plaza	8/2013	6,922	92.7%	4.4%	2.9%
Walpole	NH 123 E of Vermont SL	11/2014	6,708	94.8%	4.5%	0.6%
Keene	Park Ave W of NH 9/10/12	10/2014	12,386	96.0%	3.8%	0.2%
Keene	NH 9/10/12 South of West St	8/2013	24,173	95.7%	2.4%	2.0%

Peak Hour Ridesharing (am & pm peak hours combined):
Source: SWRPC

Location & $/gallon	Month/ Year	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
Arch Bridge Rd at Vermont SL $3.410/gallon	10/2013	1,249	1.18	29%	16%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Popula-tion	Motorcycles and Passenger Vehicles Excluding Electric or Hybrid	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
23,490	0.74	74.09%	0.11%	23.60%	1.94%	0.26%

Trail Traffic:
Source: SWRPC

Traffic Count Location Description	Community	Month/Year	Weekly Volume
Cheshire Rail Trail West of North Bridge	Keene	10/2013	442
Monadnock Marketplace Ent (South of Trail)	Keene	10/2013	214
Cheshire Rail Trail South of Hurricane Rd	Keene	10/2013	25

Cross-commuting Patterns Among Corridor Communities

Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

		Destination				
		Alstead	Keene	Surry	Walpole	Westmore-land
Origin	Alstead	21	304	5	60	4
	Keene	12	4,667	8	84	35
	Surry	13	116	1	15	0
	Walpole	4	373	5	220	3
	Westmoreland	0	264	0	8	25

Communities with Over 50 employees commuting to NH 12 North communities and Likely Using NH 12 North Corridor System

Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Employee Origin	Number	Employee Destination
Walpole	373	Keene
Westmoreland	264	Keene
Walpole	220	Walpole
Claremont	144	Keene
Surry	116	Keene
Rockingham, VT	95	Walpole
Keene	84	Walpole
Charlestown	81	Keene
Alstead	60	Walpole
Lebanon	59	Keene
Westminster, VT	57	Keene
Hartford, VT	56	Keene
Springfield, VT	55	Keene
Charlestown	52	Walpole

Jobs, Employers, and Unemployment Rates

Sources: [1]Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; [2]NH Department of Employment Security, 2012; [3]NH Department of Employment Security, August 2013.

	Total Jobs	Total Institutions	Unemployment Rate
Alstead	148	38	4.5%
Keene	16,946	864	5.7%
Surry	39	14	3.0%
Walpole	1,086	131	5.4%
Westmoreland	256	42	4.2%

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

Sources: NH Housing; U.S. Census Bureau, 2010 Decennial Census (Table QT-H1); U.S. Census Bureau ACS 2007-11, B25088; U.S. Census Bureau ACS 2007-11, B25064; Abogo

	Housing Permits (2000-2010)	Owner/ Renter Household Ratio	Median Expenses (Owners w/ a Mortgage)	Median Expenses (Owners w/o a Mortgage)	Median Gross Rent (2011)	Median Monthly Budget Needed for Trans-portation*
Community Average	121	4.4	$1,754	$664	$900	$1,437
Alstead	91	3.3	$1,460	$558	$792	$1,505
Keene	379	1.2	$1,764	$828	$962	$1,149
Surry	53	8.4	$1,870	$724	$1,019	$1,528
Walpole	9	2.7	$1,831	$559	$752	$1,466
Westmoreland	72	6.4	$1,844	$653	$975	$1,536
Walpole Village	N/A	1.4	$2,530	$523	$638	$1,404
North Walpole Village	N/A	1.6	$1,575	$384	$748	$1,267

Housing to Jobs Ratio:

Sources: Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011 and U.S. Census Bureau ACS 2007-11, B25001.

Number of Community Housing Units for Every Community Job				
20+	**10 to 19**	**5 to 9**	**1 to 4**	**Less than 1**
		Surry (8)	Westmoreland (3)	Keene
		Alstead (7)	Walpole (2)	

Mileage by Level of Access Management Control on NH 9 West:

Source: NHDOT

Community	Limited Access	Controlled Access	Regular Access
Keene	6.9	0.4	1.2
Surry	0	0	0.8
Walpole	0	8.6	2.3
Westmoreland	0	1	5.1
Totals	**6.9**	**10.03**	**9.4**

Performance Measure Category	Measure	Units	NH 12 North Only	NH 12 North Corridor System	Target 2017
	State Highway Pavement in Good or Fair Condition	miles: total miles	21 : 26.7	30 : 68.6	32.2
	Red Listed Bridges	Red list bridge number: total bridges	1 : 18	4 : 34	2
	Rail lines capable of speeds of 40 mph	miles: total miles	1.7 : 1.7	1.7 : 1.7	1.7
	Airport Runway Surface conditions	average condition	N/A	N/A	N/A
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	Inventory in Progess	40%
Improve Safety	Highway Fatalities (5 year moving average 2008-2012)	Number	5	7	0
	Highway Incapacitating Injuries (5 year moving average 2008-2012)	number	9	14	10
Improve Mobility	PM peak hour volume/capacity ratio range	Volume to capacity range	.15-.83	N/A	.62
Improve Multimodal Accessibility*	Intermodal Facility	number	0	1	1
	Sidewalks	miles	Inventory in progess	Inventory in progress	Additional study required
	Bikeways	miles			
	# of park and ride lot spaces	number	0	0	
	Public transportation routes	miles			
	Intercity bus routes	miles	25.4	25.4	25.4

NH 12 SOUTH CORRIDOR

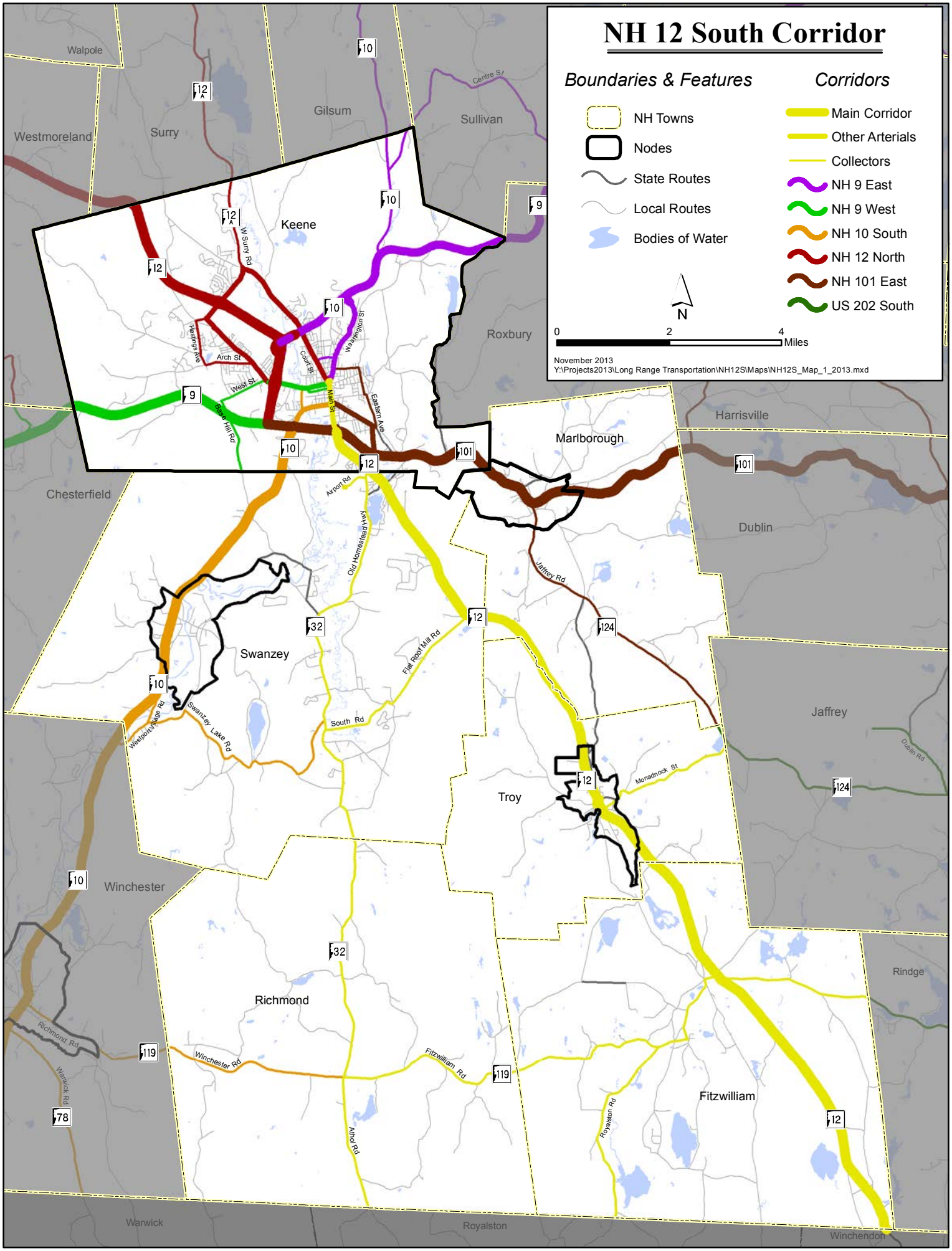
The NH 12 South Corridor connects the western part of the Southwest Region with destinations in Massachusetts and beyond via the limited access highways MA 2, I-495 and I-95. Along with NH 9 and NH 101, this Corridor is designated part of the National Highway System. The Cheshire Branch Rail Trail parallels the Corridor all the way from Keene to Fitzwilliam, much of it in fair to good condition, although the crossing from downtown Keene to the trail requires bicyclists and pedestrians to use extra care crossing NH 101. The NH 12 South Corridor hosts the only public airport in the Southwest Region at Dillant-Hopkins Airport located in Swanzey, which is only a short distance off NH 12. This airport caters mostly to business and recreational aviation needs.

The two nodal centers present on this corridor include downtown Keene and downtown Troy. Marlborough is included as part of the corridor, but very little of the town has frontage on NH 12 itself, and Marlborough Village Center is part of the NH 101 East Corridor. Outside of Keene, 46% of the corridor's population are middle-aged (between the ages of 35 and 64). However, there are a fairly high proportion of youth in Richmond (22%), Troy (21%) and Troy Village (23%), as well as single parent households in Downtown Troy (40%).

Traffic growth on the corridor has been slow to moderate over the last several years with most of the higher traffic levels growing in the vicinity of Keene. Truck traffic on the corridor is significant. An SWRPC traffic count in August 2013 found that 13% of approximately 9,000 vehicles at the Marlborough and Troy town line were medium or heavy duty trucks. Housing unit growth during the 2000s was strongest in Keene (379) and Swanzey (392) and Fitzwilliam (138) while the other communities had modest growth (averaging 68). Overall, the corridor population is projected to grow 5% between 2010 and 2040. Today most jobs on the corridor are in Keene and Swanzey. Fitzwilliam, Richmond and Troy have at least 5 housing units for every community job.

Priority challenges and opportunities for the NH 12 South Corridor include the following:

- Ongoing coordination is warranted with stakeholders in Massachusetts to monitor change happening between the NH/MA state line and MA Route 2. SWRPC has a strong interest in maintaining regional mobility to the limited access highway at MA Route 2.
- There are several locations on the corridor where towns, SWRPC, NHDOT and landowners will need to coordinate local, regional and state interests. Areas that need special attention include Lower Main Street in Keene, the intersection of NH 32, the Cheshire Fairgrounds/TIF District in Swanzey, downtown Troy and the intersection of NH 119 and NH 12 in Fitzwilliam.
- More assessment is likely required to maximize the regional economic benefit of the Dillant-Hopkins Airport.
- The Cheshire Branch Rail Trail is in fair to good shape through most of the corridor area. Spot trail improvements, regional cooperation and marketing could improve recreation and economic development opportunities for area towns.


NH 12 South Corridor
Boundaries & Features
NH Towns
Nodes
State Routes
Local Routes
Bodies of Water
Corridors
Main Corridor
Other Arterials
Collectors
NH 9 East
NH 9 West
NH 10 South
NH 12 North
NH 101 East
US 202 South
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2
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Miles
November 2013
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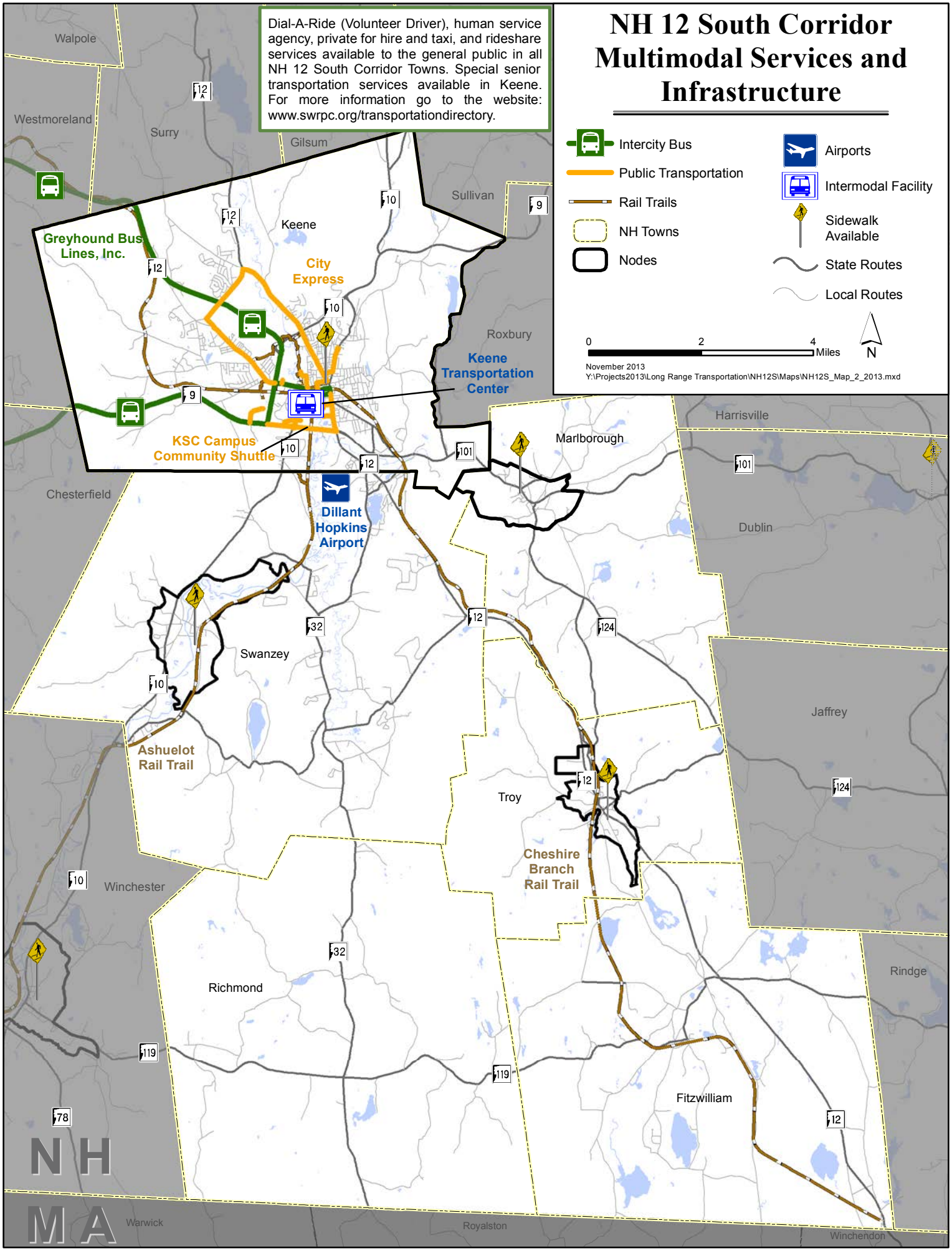
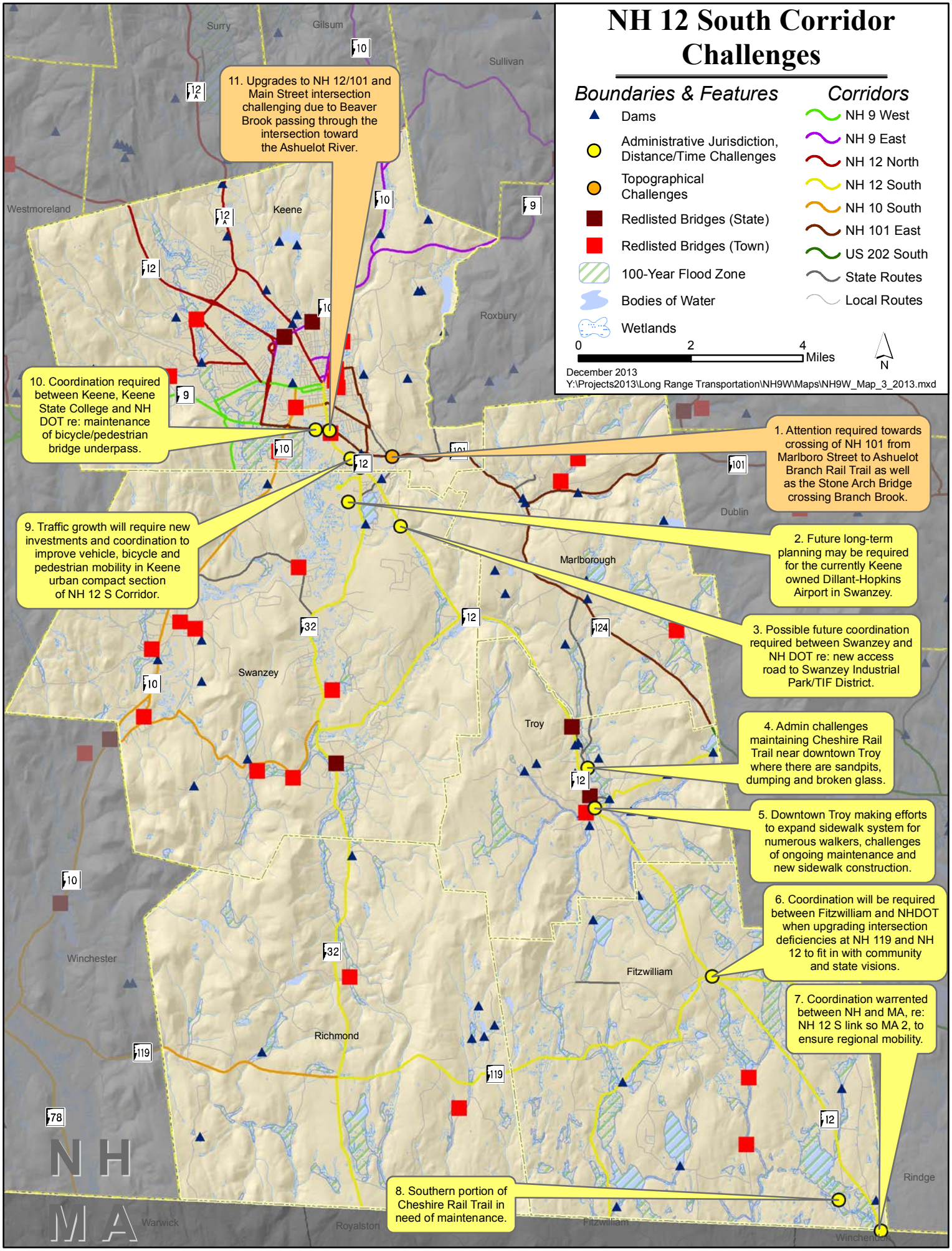
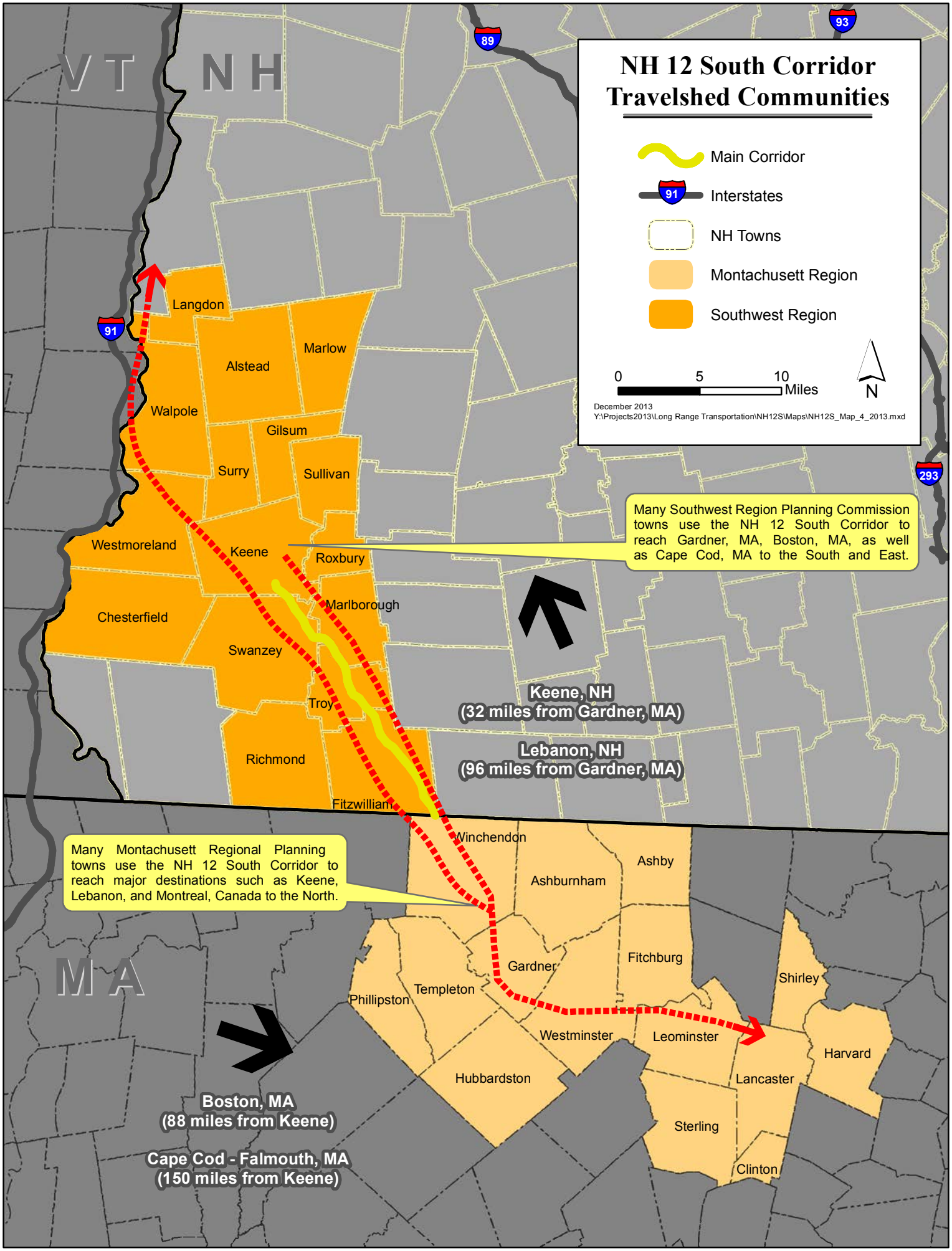
Walpole
Westmoreland
Surry
Gilsum
Sullivan
Centre St
Keene
W Surry Rd
Hastings Ave
Arch St
West St
Court St
Washington St
Main St
Eastern Ave
Base Hill Rd
Roxbury
Harrisville
Marlborough
Chesterfield
Airport Rd
Old Homestead HWY
Dublin
Jaffrey Rd
Swanzey
Flat Roof Mill Rd
South Rd
Swanzey Lake Rd
Westport Village Rd
Jaffrey
Dublin Rd
Monadnock St
Troy
Winchester
Richmond
Rindge
Richmond Rd
Winchester Rd
Fitzwilliam Rd
Warwick Rd
Athol Rd
Royalston Rd
Fitzwilliam
Warwick
Royalston
Winchendon

NH 12 South Corridor Multimodal Services and Infrastructure



NH 12 South Corridor Challenges




NH 12 South Corridor Travelshed Communities
Main Corridor
Interstates
NH Towns
Montachusett Region
Southwest Region
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Miles
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VT
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91
293
Langdon
Alstead
Marlow
Walpole
Gilsum
Surry
Sullivan
Westmoreland
Keene
Roxbury
Chesterfield
Marlborough
Swanzey
Troy
Richmond
Fitzwilliam
Winchendon
Ashby
Ashburnham
Gardner
Fitchburg
Shirley
Phillipston
Templeton
Westminster
Leominster
Harvard
Hubbardston
Lancaster
Sterling
Clinton
Many Southwest Region Planning Commission towns use the NH 12 South Corridor to reach Gardner, MA, Boston, MA, as well as Cape Cod, MA to the South and East.
Many Montachusett Regional Planning towns use the NH 12 South Corridor to reach major destinations such as Keene, Lebanon, and Montreal, Canada to the North.
Keene, NH
(32 miles from Gardner, MA)
Lebanon, NH
(96 miles from Gardner, MA)
Boston, MA
(88 miles from Keene)
Cape Cod - Falmouth, MA
(150 miles from Keene)

Towns: Fitzwilliam, Keene, Marlborough, Richmond, Swanzey, Troy

Nodal Centers: Keene and Troy Village

Corridor Backbone: NH 12 from NH 12/101 in Keene to Fitzwilliam/Winchendon, MA Town Line

Highway Corridor System:
Source: NHDOT

Towns	Principal Arterials	Minor Arterials	Major and Urban Collectors	Minor Collectors
Fitzwilliam	NH 12 South		NH 119	Royalston Rd
Keene	NH 12 South	Main St NH 32		
Marlborough	NH 12 South			
Richmond			NH 32 NH 119 East of NH 32	
Swanzey	NH 12 South	NH 32	NH 32 Airport Rd	Flat Roof Mill Rd
Troy	NH 12 South		Monadnock St	

Other Transportation Infrastructure and Services:
Source: NHDOT and SWRPC

	Examples	Locations Where Accessible
Pedestrian	Sidewalks	Keene, Swanzey, Troy Village
	Cheshire Branch Rail Trail	Fitzwilliam, Keene, Swanzey, Marlborough, Troy, Troy Village
Bicycle	Cheshire Branch Rail Trail	Fitzwilliam, Keene, Swanzey, Marlborough, Troy, Troy Village
	4 foot Shoulders on NH 12 S Corridor Backbone	Fitzwilliam, ~2.7 Troy, Marlborough, Swanzey, ~.7 mi in Keene
Fixed Route Bus	City Express, Keene State College Shuttle	Keene
Demand Response Bus	Para Express, Friendly Bus	Keene
Volunteer Drivers	American Red Cross	
Carpooling Program	Contoocook Valley Trans. Co.	
Intercity Bus	No Example Available	Not Available
Railroad Freight	No Example Available	Not Available
Railroad Passenger		
Railroad Excursion		
Airport	Dillant-Hopkins Airport	Swanzey

Population Projections:

Source: US Decennial Census & NHOEP

Communities	2010	2040	Projected % Change in Population	Projected Total Population Change
Fitzwilliam	2,396	2,667	11.3%	271
Keene	23,409	24,260	3.6%	851
Richmond	2,063	2,116	2.5%	53
Swanzey	7,230	7,677	6.2%	447
Troy	2,145	2,338	9.0%	193
NH 12 South Corridor	37,243	39,057	4.9%	1,814
SWRPC Region	102,313	108,168	5.4%	5,855

Special Populations:

Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year Estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average proportion of Special Populations
Youth (Age 15 and Under)	6,139	16%	Fitzwilliam (18%); Marlborough (17%); Richmond (22%); Swanzey (18%); Troy (21%); Troy Village (23%)
Young Adults (Age 16-34)	11,804	31%	Keene (37%)
Middle Age (Age 35-64)	14,874	39%	Fitzwilliam (48%); Marlborough (45%); Richmond (47%); Swanzey (46%); Troy (42%)
Seniors (65 and older)	5,581	15%	Marlborough (17%)
Racial Minorities	1,624	4%	Keene (5%)
Low Income (Population at or under 150% of Poverty Level)	7,094	18%	Keene (22%)
Single Parent Households	2,756	32%	Keene (36%); Downtown Troy (40%)

Traffic Volume Changes 500 AADT or Greater:
Source: NHDOT

Facility	Municipality	Description	Date Range	AADT Change
NH 12	Keene	NH 12 (MAIN ST) AT SWANZEY TL	2005-2012	3,000
NH 12	Marlborough	NH 12 (MONADNOCK HWY) AT TROY TL	2006-2012	-700
NH 12	Marlborough	NH 12 (MONADNOCK HWY) AT SWANZEY TL	2005-2008	1100
Main Street	Keene	MAIN ST NORTH OF COMMERCIAL ST	2008-2010	3000
NH 32	Keene	NH 32 (OLD HOMESTEAD HWY) AT SWANZEY TL	2006-2009	-700
NH 119	Fitzwilliam	NH 119 EAST OF RHODODENDRON RD	2007-2010	-1000

Proportion of Daily Traffic by Vehicle Class at NH 12 South Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Month/Year	Daily Traffic Volume	Motorcycles, Cars, Light Duty Trucks	Buses and Single Unit Trucks	Trailer Trucks
Fitzwilliam	NH 12 at Mass SL	5/2014	4,593	92.1%	3.9%	4.0%
Richmond	NH 119 W of NH 32	6/2014	1,465	94.1%	4.4%	1.4%
Swanzey	NH 12 S of Rust Way	5/2014	14,234	94.3%	3.6%	2.1%
Keene	NH 12 at St. Joseph's Cemetery	9/2014	19,760	93.9%	4.2%	1.8%

Peak Hour Ridesharing (am & pm peak hours combined):
Source: NHDOT

Location & NH Gasbuddy.com $/gallon	Month/ Year	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
NH 12 at Keene/Swanzey TL $3.605/gallon	8/2013	2,373	1.18	28%	16%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Population	Motorcycles and Passenger Vehicles Excluding Electric or Hybrid	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
30,517	0.79	72.75%	0.08%	24.66%	2.23%	0.29%

Cross-commuting Patterns Among Corridor Communities

Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

Origin	Destination: Fitzwilliam	Keene	Marlborough	Richmond	Swanzey	Troy
Fitzwilliam	36	230	9	16	67	12
Keene	10	4,667	106	6	315	37
Marlborough	7	304	35	3	61	25
Richmond	28	114	9	8	23	4
Swanzey	19	1,314	29	4	347	20
Troy	7	289	37	2	53	29

Communities with Over 50 employees commuting to Keene and Likely Using NH 9 East

Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Employee Origin	Number	Employee Destination
Swanzey*	1,314	Keene
Swanzey*	347	Swanzey
Keene*	315	Swanzey
Troy	289	Keene
Fitzwilliam	230	Keene
Rindge	168	Keene
Richmond*	114	Keene
Fitzwilliam	67	Swanzey
Chesterfield*	61	Swanzey
Marlborough*	61	Swanzey
Troy	53	Swanzey

Jobs, Employers, and Unemployment Rates

Sources: [1]Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; [2]NH Department of Employment Security, 2012; [3]NH Department of Employment Security, August 2013.

Community	Total Jobs	Total Institutions	Unemployment Rate
Fitzwilliam	228	44	2.9%
Keene	16,946	864	5.7%
Marlborough	415	54	4.0%
Richmond	107	15	4.0%
Swanzey	1,791	149	4.8%
Troy	205	28	5.1%

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

	Housing Permits (2000-2010)	Owner/ Renter Household Ratio	Median Expenses (Owners w/ a Mortgage)	Median Expenses (Owners w/o a Mortgage)	Median Gross Rent (2011)	Median Monthly Budget Needed for Trans-portation*
Community Average	186	4.3	$1,610	$669	$987	$1,426
Fitzwilliam	138	5.7	$1,530	$562	$951	$1,467
Keene	379	1.2	$1,764	$828	$962	$1,149
Marlborough	68	2.3	$1,521	$734	$1,036	$1,444
Richmond	62	12.0	$1,588	$574	$1,182	$1,602
Swanzey	392	2.6	$1,598	$674	$965	$1,406
Troy	74	2.2	$1,657	$644	$828	$1,487
Troy Village	N/A	1.4	$1,613	$743	$839	

Housing to Jobs Ratio:

Number of Community Housing Units for Every Community Job				
20+	**10 to 19**	**5 to 9**	**1 to 4**	**Less than 1**
		Fitzwilliam (6)	Marlborough (2)	Keene
		Richmond (5)	Swanzey (2)	
		Troy (5)		

Mileage by Level of Access Management Control on NH 9 West:

Community	Limited Access	Controlled Access	Regular Access
Fitzwilliam	0	5.5	2.4
Keene	0	0	1
Marlborough	0	1.5	0
Swanzey	0	3.1	0.3
Troy	0	0.9	3.5
Totals	**0**	**5.5**	**4.8**

Performance Measure Category	Measure	Units	NH 12 South Only	NH 12 South Corridor System	Target 2017
Improve Asset Conditions	State Highway Pavement in Good or Fair Condition	miles: total miles	16.2 : 18.1	22.8 : 54.9	31.3
	Red Listed Bridges	Red list bridge number: total bridges	1 / 13	2 / 22	1/22
	Rail lines capable of speeds of 40 mph	miles: total miles	N/A	N/A	N/A
	Airport Runway Surface conditions	average condition	N/A	Excellent (5)	Good (4.5)
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	Inventory in progress	40%
Improve Safety	Crashes with Highway Fatalities (5 year moving average 2008-2014)	Number	1	0	0
	Crashes with Incapacitating Injuries (5 year moving average 2008-2014)	Number	6	10	5
Improve Mobility	PM peak hour volume/capacity ratio range	Volume to capacity	.14-.60	N/A	Under .62
Improve Multimodal Accessibility*	Intermodal Facility	number	0	1	1
	Sidewalks	miles	Inventory in progress	Inventory in progress	Additional study required
	Bikeways	miles			
	# of park and ride lot spaces	number	0	0	
	Public transportation routes	miles	0	.4	
	Intercity bus routes	miles	0	.1	

NH 101 EAST CORRIDOR

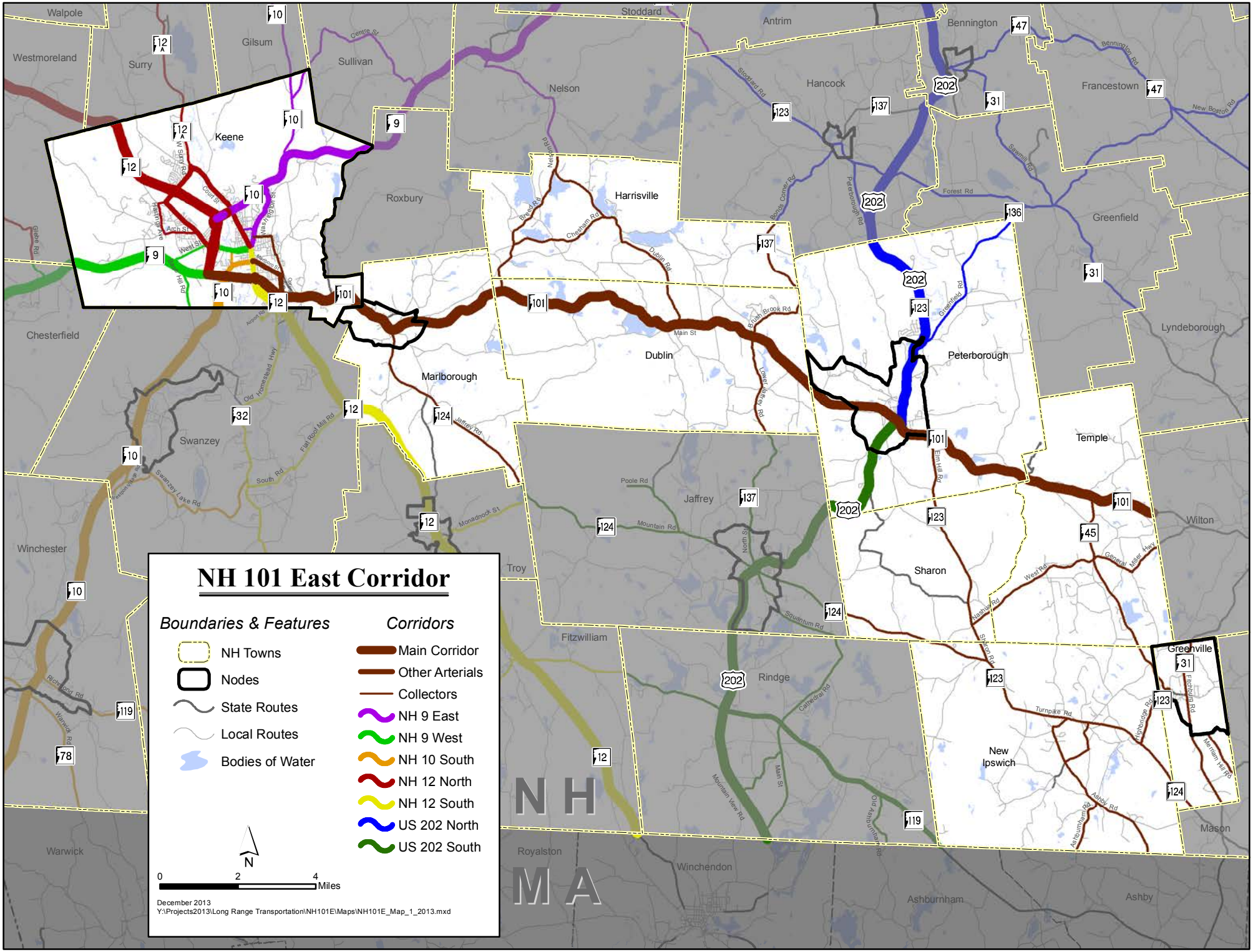
The NH 101 East Corridor, designated as part of the National Highway System, is an important east-west highway in the Southwest Region connecting the region to Manchester, Nashua and I-93. It is used frequently by communities having origins or destinations in the southern half of the Southwest Region, however, communities with origins or destinations to the south and west of Keene may prefer using the NH 9 East Corridor. There are a number of characteristics along the NH 101 Corridor that sometimes delay traffic including village centers in Marlborough and Dublin, mountains in Marlborough, Dublin, Peterborough and Temple, and a stop light in Peterborough. Passenger transportation and rail trail options are extremely limited on the NH 101 Corridor, but available.

Like most communities in the Southwest Region there is a large proportion of middle age people residing (ages 34-65) on the NH 101 Corridor, and in some communities such as Harrisville, Sharon and Temple, the proportion of middle aged populations is above 50%. Downtown Greenville has the highest geographic concentration of youth (age 15 and under) at 20%. Downtown Greenville and Temple were found to have a relatively large proportion of low income people in their communities (30% and 25% respectively). Downtown Greenville also has a high proportion of single parent households (46%). Though not excessively high, several communities had moderately high unemployment rates in the corridor including Greenville (6.5%), Temple (6.5%) and New Ipswich (6.1%).

Traffic has not grown significantly on any part of the NH 101 Corridor in the 2000s, and in some cases it has decreased. The highest levels of traffic, above 10,000 AADT, are in Keene. Peterborough's traffic on NH 101 West of Grove Street was 9,100 AADT in 2012. The fastest growing communities on the corridor are New Ipswich, Keene and Peterborough. Those three municipalities issued 420, 379 and 260 housing permits respectively during the 2000s. Each of those communities are also projected to lead the other communities in future population growth, accounting for 97% of the growth of the entire corridor by 2040. Meanwhile, other communities are expected to lose population or to have relatively flat growth such as Greenville, Harrisville, Marlborough and Sharon. Keene, Peterborough and New Ipswich also lead by leaps and bounds in the number of jobs offered on the Corridor.

Priority challenges and opportunities for the NH 101 East Corridor include the following:

- Many parts of the Region are extremely rural and isolated. There will need to be persistent push to continue improving alternative passenger transportation options on the Corridor.
- Maintaining winter safety in the mountainous parts of the NH 101 highway corridor (Hurricane Hill, Pack Monadnock and Temple Mountain on NH 101 and Mount Monadnock on NH 137) will need to continue to be a high priority.
- Intercity bus services used to connect Peterborough with Keene and the I-93 communities. In 2014 Greyhound Bus Inc. reinitiated a direct route from Keene to Nashua to Boston passing through (but not stopping) in Peterborough, but a stop should be assessed.
- The former Manchester and Keene Branch Rail Trail is an asset that deserves more attention.


NH 101 East Corridor
Boundaries & Features
NH Towns
Nodes
State Routes
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Bodies of Water
Corridors
Main Corridor
Other Arterials
Collectors
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NH 9 West
NH 10 South
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Surry
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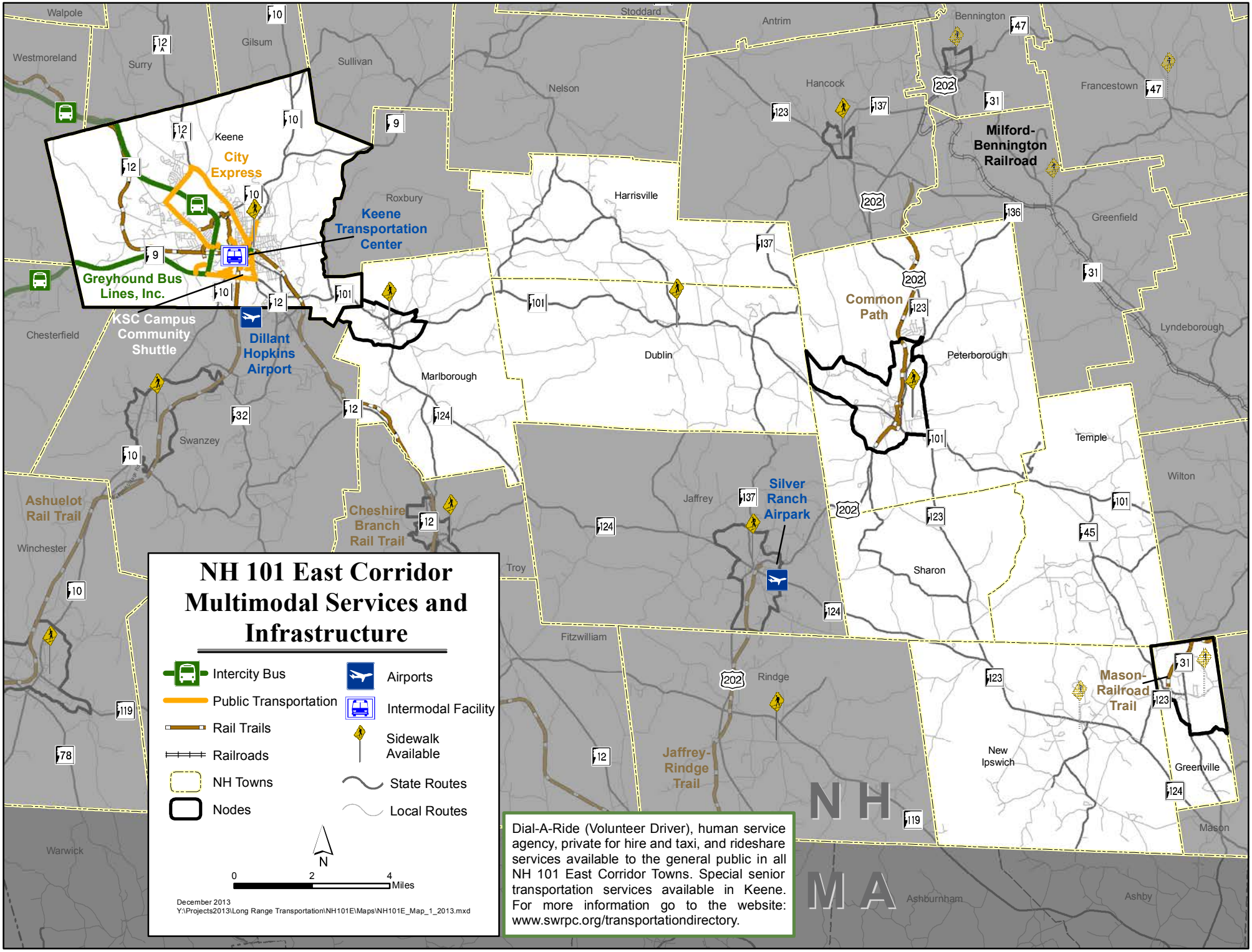
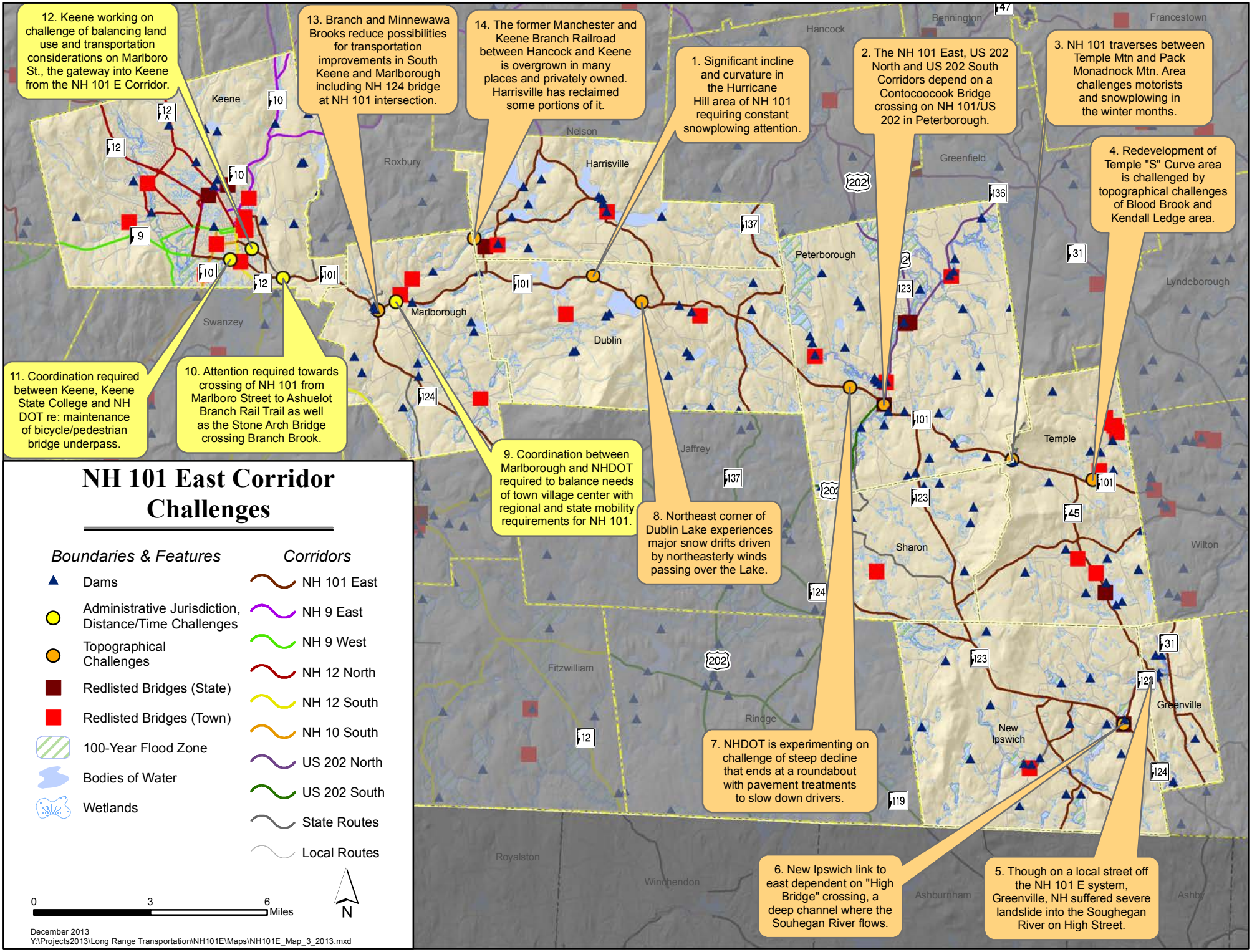
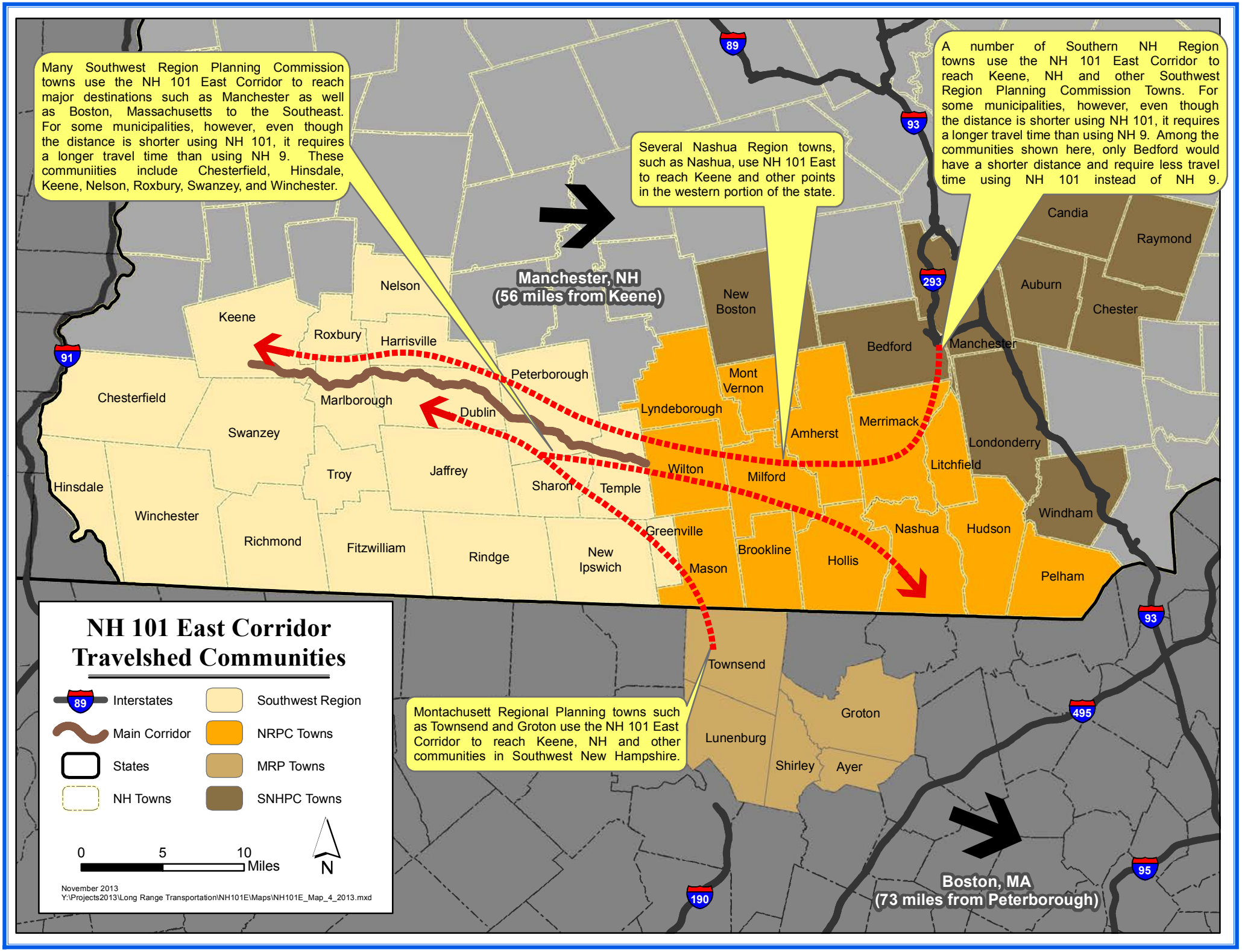
Bennington
Hancock
Francestown
Nelson
Keene
Roxbury
Harrisville
Greenfield
Chesterfield
Marlborough
Dublin
Peterborough
Lyndeborough
Swanzey
Temple
Jaffrey
Wilton
Winchester
Sharon
Troy
Fitzwilliam
Rindge
Greenville
New Ipswich
Warwick
Royalston
Winchendon
Ashburnham
Ashby
Mason


NH 101 East Corridor Multimodal Services and Infrastructure
Intercity Bus
Public Transportation
Rail Trails
Railroads
NH Towns
Nodes
Airports
Intermodal Facility
Sidewalk Available
State Routes
Local Routes
N
0 2 4 Miles
December 2013
Y:\Projects2013\Long Range Transportation\NH101E\Maps\NH101E_Map_1_2013.mxd
Dial-A-Ride (Volunteer Driver), human service agency, private for hire and taxi, and rideshare services available to the general public in all NH 101 East Corridor Towns. Special senior transportation services available in Keene. For more information go to the website: www.swrpc.org/transportationdirectory.
Keene
City Express
Keene Transportation Center
Greyhound Bus Lines, Inc.
KSC Campus Community Shuttle
Dillant Hopkins Airport
Ashuelot Rail Trail
Cheshire Branch Rail Trail
Silver Ranch Airpark
Common Path
Milford-Bennington Railroad
Jaffrey-Rindge Trail
Mason-Railroad Trail
NH
MA
Walpole
Westmoreland
Surry
Gilsum
Sullivan
Stoddard
Antrim
Bennington
Nelson
Hancock
Francestown
Roxbury
Harrisville
Greenfield
Chesterfield
Dublin
Peterborough
Lyndeborough
Marlborough
Swanzey
Temple
Wilton
Jaffrey
Winchester
Troy
Sharon
Fitzwilliam
Rindge
New Ipswich
Greenville
Mason
Warwick
Ashburnham
Ashby


NH 101 East Corridor Challenges
Boundaries & Features
Dams
Administrative Jurisdiction, Distance/Time Challenges
Topographical Challenges
Redlisted Bridges (State)
Redlisted Bridges (Town)
100-Year Flood Zone
Bodies of Water
Wetlands
Corridors
NH 101 East
NH 9 East
NH 9 West
NH 12 North
NH 12 South
NH 10 South
US 202 North
US 202 South
State Routes
Local Routes
0
3
6
Miles
N
December 2013
Y:\Projects2013\Long Range Transportation\NH101E\Maps\NH101E_Map_3_2013.mxd
1. Significant incline and curvature in the Hurricane Hill area of NH 101 requiring constant snowplowing attention.
2. The NH 101 East, US 202 North and US 202 South Corridors depend on a Contocoocook Bridge crossing on NH 101/US 202 in Peterborough.
3. NH 101 traverses between Temple Mtn and Pack Monadnock Mtn. Area challenges motorists and snowplowing in the winter months.
4. Redevelopment of Temple "S" Curve area is challenged by topographical challenges of Blood Brook and Kendall Ledge area.
5. Though on a local street off the NH 101 E system, Greenville, NH suffered severe landslide into the Soughegan River on High Street.
6. New Ipswich link to east dependent on "High Bridge" crossing, a deep channel where the Souhegan River flows.
7. NHDOT is experimenting on challenge of steep decline that ends at a roundabout with pavement treatments to slow down drivers.
8. Northeast corner of Dublin Lake experiences major snow drifts driven by northeasterly winds passing over the Lake.
9. Coordination between Marlborough and NHDOT required to balance needs of town village center with regional and state mobility requirements for NH 101.
10. Attention required towards crossing of NH 101 from Marlboro Street to Ashuelot Branch Rail Trail as well as the Stone Arch Bridge crossing Branch Brook.
11. Coordination required between Keene, Keene State College and NH DOT re: maintenance of bicycle/pedestrian bridge underpass.
12. Keene working on challenge of balancing land use and transportation considerations on Marlboro St., the gateway into Keene from the NH 101 E Corridor.
13. Branch and Minnewawa Brooks reduce possibilities for transportation improvements in South Keene and Marlborough including NH 124 bridge at NH 101 intersection.
14. The former Manchester and Keene Branch Railroad between Hancock and Keene is overgrown in many places and privately owned. Harrisville has reclaimed some portions of it.
Keene
Swanzey
Roxbury
Marlborough
Nelson
Harrisville
Dublin
Jaffrey
Fitzwilliam
Rindge
Royalston
Winchendon
Hancock
Bennington
Francestown
Greenfield
Peterborough
Lyndeborough
Temple
Sharon
Wilton
New Ipswich
Greenville
Ashburnham
Ashby


Many Southwest Region Planning Commission towns use the NH 101 East Corridor to reach major destinations such as Manchester as well as Boston, Massachusetts to the Southeast. For some municipalities, however, even though the distance is shorter using NH 101, it requires a longer travel time than using NH 9. These communiities include Chesterfield, Hinsdale, Keene, Nelson, Roxbury, Swanzey, and Winchester.
Several Nashua Region towns, such as Nashua, use NH 101 East to reach Keene and other points in the western portion of the state.
A number of Southern NH Region towns use the NH 101 East Corridor to reach Keene, NH and other Southwest Region Planning Commission Towns. For some municipalities, however, even though the distance is shorter using NH 101, it requires a longer travel time than using NH 9. Among the communities shown here, only Bedford would have a shorter distance and require less travel time using NH 101 instead of NH 9.
Manchester, NH
(56 miles from Keene)
Montachusett Regional Planning towns such as Townsend and Groton use the NH 101 East Corridor to reach Keene, NH and other communities in Southwest New Hampshire.
Boston, MA
(73 miles from Peterborough)
Nelson
Keene
Roxbury
Harrisville
Peterborough
Chesterfield
Marlborough
Dublin
Swanzey
Hinsdale
Winchester
Troy
Jaffrey
Sharon
Temple
Richmond
Fitzwilliam
Rindge
New Ipswich
New Boston
Mont Vernon
Lyndeborough
Bedford
Amherst
Merrimack
Manchester
Candia
Raymond
Auburn
Chester
Londonderry
Litchfield
Wilton
Milford
Greenville
Mason
Brookline
Hollis
Nashua
Hudson
Windham
Pelham
Townsend
Groton
Lunenburg
Shirley
Ayer
89
93
293
91
495
190
95
NH 101 East Corridor Travelshed Communities
Interstates
Main Corridor
States
NH Towns
Southwest Region
NRPC Towns
MRP Towns
SNHPC Towns
0
5
10
Miles
N
November 2013
Y:\Projects2013\Long Range Transportation\NH101E\Maps\NH101E_Map_4_2013.mxd

Towns: Dublin, Greenville, Harrisville, Keene, Marlborough, New Ipswich, Peterborough, Sharon, Temple

Nodal Centers: Greenville Village, Keene, Marlborough Village, and Downtown Peterborough

Corridor Backbone: NH 101 from NH 9/10/12/101 in Keene to Temple/Wilton Town Line

Highway Corridor System:
Source: NHDOT

Towns	Principal Arterials	Minor Arterials	Major and Urban Collectors	Minor Collectors
Dublin	NH 101			Chesham Rd
				Beech Hill Rd
				NH 137
Greenville			NH 31	NH 45
			NH 124	NH 123
Harrisville				NH 137
				Chesham Rd
				Breed Rd
				Nelson Rd
				Main St/Dublin Rd
Keene	NH 101	Winchester St East of Main St		
		Optical Ave		
Marlborough	NH 101		NH 124	
New Ipswich			NH 123	NH 45
				NH 123
			NH 124	NH 123A
				Ashby Rd
Peterborough	NH 101		NH 123	
Sharon			NH 123	Nashua Rd
			NH 124	
Temple	NH 101			NH 45
				W Rd

Transportation Infrastructure and Services:
Source: NHDOT and SWRPC

	Examples	Locations Where Accessible
Pedestrian	Sidewalks	Dublin, Greenville Village, Keene, Marlborough Village, Peterborough, Downtown Peterborough, New Ipswich
Bicycle	Manchester and Keene Branch Rail Trail and Greenville Rail Trail	Harrisville, Greenville Village
	4 foot Shoulders on NH 101 E Backbone Corridor	~2.0 mi in Keene, ~ 6.7 mi in Marlborough, ~3.3 mi in Dublin, ~6.2 mi in Peterborough; Temple
Demand Response Bus	Para Express, Friendly Bus	Keene
Volunteer Drivers	American Red Cross, Contoocook Valley Trans. Co. (CVTC)	All Locations
Ridesharing Program	CVTC	
Intercity Bus	Greyhound Bus Lines	Keene

*No Fixed Route Bus, Railroad Services or Airport Available on Corridor.

Population Projections:
Source: US Decennial Census & NHOEP

Communities	2010	2040	% Change in Population	Total Population Change
Dublin	1,597	1,724	8.0%	127
Greenville	2,105	2,022	-3.9%	-83
Harrisville	961	834	-13.2%	-127
Keene	23,409	24,260	3.6%	851
Marlborough	2,063	2,116	2.5%	53
New Ipswich	5,099	6,148	20.6%	1,049
Peterborough	6,284	6,898	9.8%	614
Sharon	352	352	0.0%	0
Temple	1,366	1,479	8.3%	113
NH 101 East Corridor	43,236	45,832	6.0%	2,596
SWRPC Region	102,313	108,168	5.40%	5,855

Special Populations:
Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year Estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average proportion of Special Populations
Youth (Age 15 and Under)	7,251	17%	Dublin (18%); Greenville (19%); Greenville Village (20%); Marlborough Village (19%); New Ipswich (25%);, Peterborough (19%); Temple (18%)
Young Adults (Age 16-34)	12,493	29%	Keene (37)
Middle Age (Age 35-64)	16,950	39%	Dublin (48%); Greenville (45%); Greenville Village (43%); Harrisville (54%); Marlborough (45%); Marlborough Village (40%); New Ipswich (43%);, Peterborough (42%); Sharon (51%); Temple (51%)
Seniors (65 and older)	6,542	15%	Dublin (16%); Harrisville (19%); Marlborough (17%); Marlborough Village (17%); Peterborough (22%); Downtown Peterborough (26%); Sharon (16%)
Racial Minorities	1,674	4%	Keene (5%)
Low Income (Population at or under 150% of Poverty Level)	7,522	17%	Greenville (22%); Greenville Village (30%); Keene (22%); Downtown Peterborough (20%); Temple (25%)
Single Parent Households	3,124	31%	Greenville (42%); Greenville Village (46%); Keene (36%); Marlborough Village Center (38%); Peterborough (33%); Downtown Peterborough (40%)

Traffic Volume Change500 AADT or Greater
Source: NHDOT

Facility	Town	Description	AADT	Date Range	AADT Change
NH 101	Dublin	NH 101 WEST OF OLD HARRISVILLE RD	5,300	2006-2012	-700
NH 101	Dublin	NH 101 WEST OF NH 137	6,700	2006-2012	-600
NH 101	Dublin	NH 101 EAST OF CHURCH ST	6,400	2006-2012	-600
NH 31	Greenville	NH 31 AT WILTON TL	3,900	2006-2012	-500
NH 101	Keene	NH 101 EAST OF OPTICAL AVE	14,000	2006-2012	1000
NH 101	Keene	NH 101 EAST OF MAIN ST	12,000	2005-2011	1000
NH 101	Marlborough	NH 101 EAST OF CANADA ST	12,000	2006-2012	-1000
NH 101	Marlborough	NH 101 EAST OF ROXBURY RD	7,400	2005-2011	-500
NH 101	Marlborough	NH 101 EAST OF NH 124	8,200	2005-2011	-1,200
NH 101	Marlborough	NH 101 AT DUBLIN TL	6,700	2006-2012	-600
NH 123	New Ipswich	NH 123 AT GREENVILLE TL	2,500	2005-2011	700
NH 123	New Ipswich	NH 123/NH 124 WEST OF CURRIER RD	4,900	2005-2011	600
NH 123/ NH 124	New Ipswich	NH 123/NH 124 AT SOUHEGAN RIVER	5,200	2006-2011	600
NH 101	Peterborough	NH 101 AT DUBLIN TL	6,500	2007-2010	-600
NH 101	Peterborough	NH 101 AT TEMPLE TL	7,500	2006-2012	700
NH 101	Peterborough	NH 101 WEST OF GROVE ST	9,100	2006-2012	800

Proportion of Daily Traffic by Vehicle Class at NH 101 East Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Month/Year	Daily Traffic Volume	Motorcycles, Cars, Light Duty Trucks	Buses and Single-Unit Trucks	Trailer Trucks
Peterborough	NH 101 at Temple TL	7/2012	8,684	95.2%	2.7%	2.1%
Dublin	NH 101 E of Church St	6/2012	3,516	95.4%	3.1%	1.5%
Keene	NH 101 E of Optical Ave	9/2014	13,471	95.2%	3.2%	1.6%
Keene	Optical Ave N of NH 101	8/2014	6,716	97.3%	2.1%	0.6%
Keene	NH 101 W of Winchester St	6/2008	26,850	94.2%	3.5%	2.3%

Peak Hour Ridesharing (am & pm peak hours combined) :
Source: SWRPC

Location & $/gallon	Month/ Year	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
NH 101 E of NH 45 $3.660/gallon	7/2014	1,229	1.22	33%	18%
NH 101/US 202 in Peterborough $3.635/gallon	7/2014	2,258	1.27	39%	22%
NH 101 East of Optical Ave $3.604/gallon	9/2013	2,271	1.18	29%	16%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Population	Motorcycles and Passenger Vehicles Excluding Electric or Hybrid	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
34,169	0.79	73.72%	0.11%	23.98%	1.89%	0.30%

Cross Commuting Patterns Among Corridor Communities

		Destination							
		Dublin	Green ville	Keene	Marl borough	New Ipswich	Peter borough	Sharon	Temple
Origin	Dublin	32	0	212	14	0	68	1	0
	Greenville	0	31	0	0	0	2	0	5
	Keene	25	0	4,667	106	12	123	0	2
	Marlborough	0	0	304	35	0	35	0	0
	New Ipswich	0	0	64	0	333	207	9	0
	Peterborough	20	2	207	4	40	800	0	3
	Sharon	0	4	2	0	22	15	1	4
	Temple	0	5	19	1	0	46	1	6

Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

Communities with Over 50 employees commuting to NH 101 East Communities and Likely Using NH 101 East

Employee Origin	Number	Employee Destination
Marlborough	304	Keene
Dublin	213	Keene
Peterborough	207	Keene
New Ipswich	207	Peterborough
Jaffrey	201	Keene
Nashua	185	Keene
Harrisville	140	Keene
Keene	123	Peterborough
Keene	106	Marlborough
Milford	91	Keene

Employee Origin	Number	Employee Destination
Milford	81	Peterborough
Temple	78	New Ipswich
Dublin	68	Peterborough
Greenville	66	New Ipswich
New Ipswich	64	Keene
Hudson	59	Keene
Jaffrey	59	New Ipswich
Manchester	56	Peterborough
Swanzey	54	Peterborough
Rindge	52	New Ipswich

Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Jobs, Employers, and Unemployment Rates

Community	Total Jobs	Total Institutions	Unemploy-ment Rate
Dublin	291	53	4.4%
Greenville	208	35	6.5%
Harrisville	136	19	3.3%
Keene	16,946	864	5.7%
Marlborough	415	54	4.0%
New Ipswich	1,125	110	6.1%
Peterborough	4,368	305	4.7%
Sharon	20	N/A	2.6%
Temple	109	N/A	6.5%

Sources: [1]Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; [2]NH Department of Employment Security, 2012; [3]NH Department of Employment Security, August 2013.

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

	Housing Permits (2000-2010)	Owner/ Renter House hold Ratio	Median Expenses Owner (w/ Mortgage)	Median Expenses Owner (w/o Mortgage)	Median Gross Rent (2011)	Median Budget Needed for Transport ation
Community Average	158	3.84	$1,806	$768	$971	$1,502
Dublin	76	4.21	$1,686	$960	$1,080	$1,522
Greenville	43	2.35	$1,356	$644	$591	$1,458
Harrisville	55	4.51	$1,564	$627	$910	$1,477
Keene	379	1.19	$1,764	$828	$962	$1,149
Marlborough	68	2.34	$1,521	$734	$1,036	$1,444
New Ipswich	420	5.39	$2,128	$714	$734	$1,586
Peterborough	260	1.79	$1,876	$853	$929	$1,529
Sharon	21	6.58	$2,183	$720	$1,313	$1,675
Temple	97	6.19	$2,173	$836	$1,184	$1,675
Greenville CDP	N/A	1.39	$1,604	$660	$569	$1,394
Marlborough CDP	N/A	1.37	$1,475	$715	$952	$1,415
Peterborough CDP	N/A	1.07	$1,641	$835	$942	$1,399

Housing to Jobs Ratio:

Number of Community Housing Units for Every Community Job				
20+	**10 to 19**	**5 to 9**	**1 to 4**	**Less than 1**
		Sharon (8)	Greenville (4)	Peterborough
		Harrisville (5)	Dublin (3)	Keene
		Temple (5)	Marlborough (2)	

Mileage by Level of Access Management Control on NH 9 West:

Community	Limited Access	Controlled Access	Regular Access
Dublin	0.0	2.4	6.9
Keene	6.9	0.4	1.2
Marlborough	0.0	0.0	4.0
Peterborough	0.0	2.6	4.1
Temple	0.0	0.0	3.4
Totals	**6.9**	**3.1**	**12.7**

Performance Measure Category	Measure	Units	NH 101 East Only	NH 101 East Corridor System	Target 2017
	Red Listed Bridges	Red list bridge number: total bridges	1 / 16	4 / 40	2
	Rail lines capable of speeds of 40 mph	miles: total miles	N/A	N/A	N/A
	Airport Runway Surface conditions	average condition	N/A	N/A	N/A
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	N/A	N/A
Improve Safety	Crashes Involving Fatalities (5 year moving average 2008-2012)	Number	3	6	0
	Crashes Involving Incapacitating Injuries (5 year moving average 2008-2012)	number	19	39	10
Improve Mobility	PM peak hour volume/capacity ratio range	Volume to capacity	.19-.76	N/A	Under .62
Improve Multimodal Accessibility*	Intermodal Facility	number	0	0	Additional Study Required
	Sidewalks	miles	Inventory in progress	Inventory in progress	
	Bikeways	miles			
	# of park and ride lot spaces	number	0	0	
	Public transportation routes	miles	.5	.5	
	Intercity bus routes	miles	27.2	27.2	

US 202 NORTH CORRIDOR

The US 202 North Corridor is the north-south arterial of choice in the eastern part of the Southwest Region, providing connections to the NH 9 East Corridor to the north and the US 202 South Corridor and NH 101 East Corridor to the south. Much of the road meets modern arterial highway standards with twelve foot wide travel lanes and eight foot wide shoulders. Lanes and shoulder widths reduce as the highway passes through two of its nodal centers, Downtown Peterborough and Downtown Antrim. The other two nodal areas on the Corridor, Hancock Village and Downtown Bennington, are bypassed by US 202 itself. All nodal centers have sidewalk infrastructure, particularly towards the centers of each community. Although some passenger transportation services are available in this area, they are very limited. Two rail trails, Peterborough's Common Path and the Hillsborough-Bennington Trail parallel US 202 and are recognized as part of the US 202 Corridor System. In addition, the US 202 North Corridor has active rail on the short line Milford-Bennington Railroad, which is owned by the State of New Hampshire. The Hawthorne-Feather Airport, just outside of the Corridor area, is nearby in Hillsborough.

In the 2000s, the most housing permit activity occurred in Peterborough (260), Antrim (149) and Greenfield (111). By 2040 all corridor communities are predicted to grow 8-10% with the exception of Hancock which is expected to lose about 3% of its existing population. Today the US 202 North Corridor has a relatively high proportion of seniors, especially in Hancock Village and Downtown Peterborough (28% and 26% respectively). However, there are significant proportion of youth (age 15 and under) and *millennial* populations in Downtown Bennington (26% and 27% respectively). The proportion of single parent households is also very high in Downtown Bennington (54%). Community housing to job ratios are quite balanced, with the exception of Francestown which has 10 housing units for every job and Hancock, which has 6 housing units for every job. A number of large employers are part of the US 202 Corridor System including Crotched Mountain (900 employees) and Monadnock Community Hospital (668 employees).

Priority challenges and opportunities for the US 202 North Corridor include the following:

- Francestown has an inordinate number of municipal red list bridges. Some of these bridges will be addressed in the next few years, but there are several additional bridges that need to be rehabilitated or reconstructed.
- The Milford-Bennington Railroad represents a potential economic development opportunity for the Region. At the time of writing there is no railroad operating on the rail corridor.
- US 202 North area is ranked as one of the most expensive transportation corridors for households. Passenger transportation services, such as vanpools and carpools should be explored to help households save money.
- This corridor has the highest proportion of seniors of any corridor (17%). Although the entire population on the corridor is small, this may be a corridor that requires more targeted assistance to seniors.

US 202 North Corridor

Boundaries & Features

- NH Towns
- Nodes
- State Routes
- Local Routes
- Bodies of Water

Corridors

- Main Corridor
- Other Arterials
- Collectors
- US 202 South
- NH 9 East
- NH 12 South
- NH 101 East

N

0 2 4 Miles

December 2013
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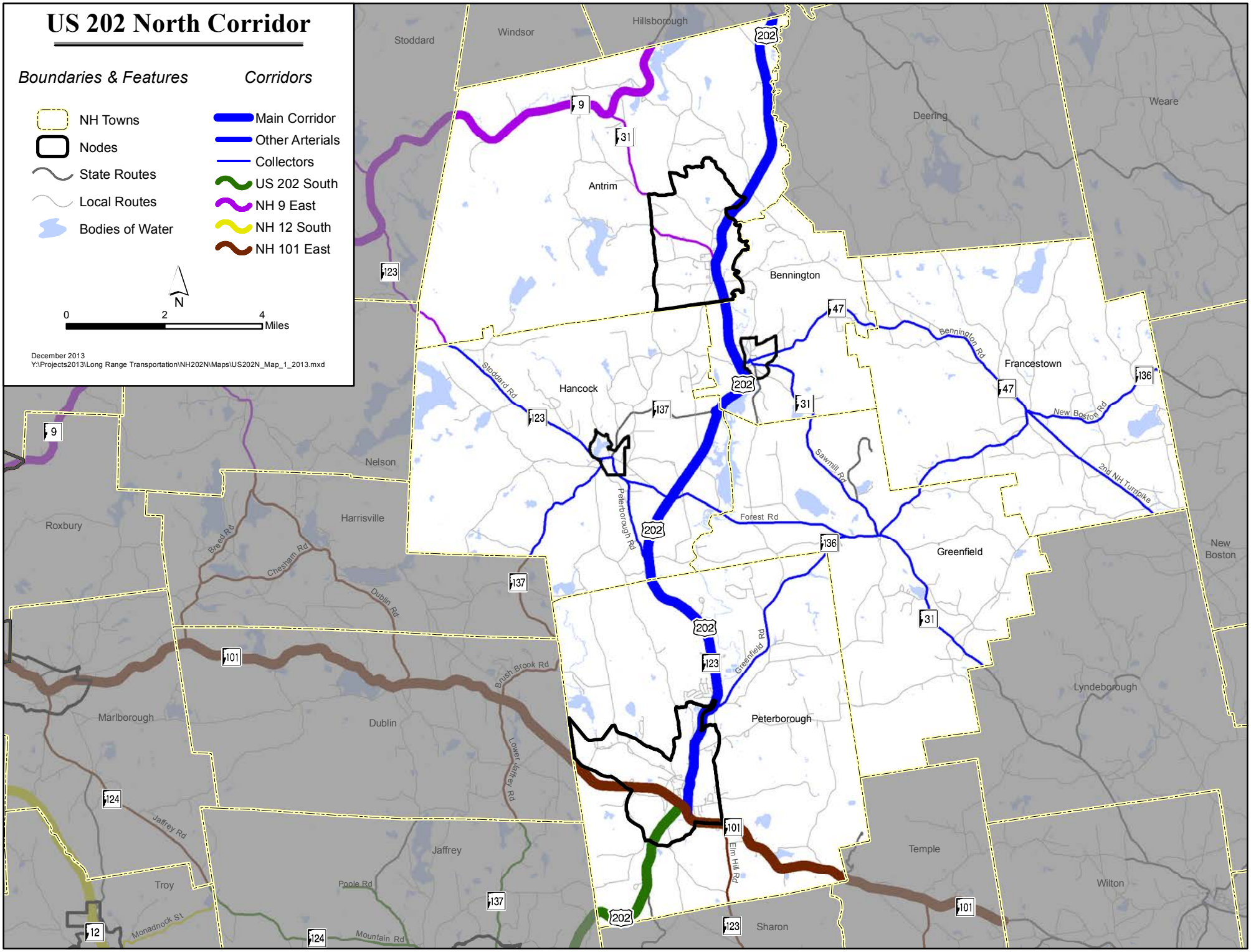

US 202 North Corridor Multimodal Services and Infrastructure

Rail Trails
Railroads
NH Towns
Nodes
Airports
Sidewalk Available
State Routes
Local Routes

Dial-A-Ride (Volunteer Driver), human service agency, private for hire and taxi, and rideshare services available to the general public in all US 202 North Corridor Towns. For more information go to the website: www.swrpc.org/transportationdirectory.

N

0 2 4 Miles

December 2013
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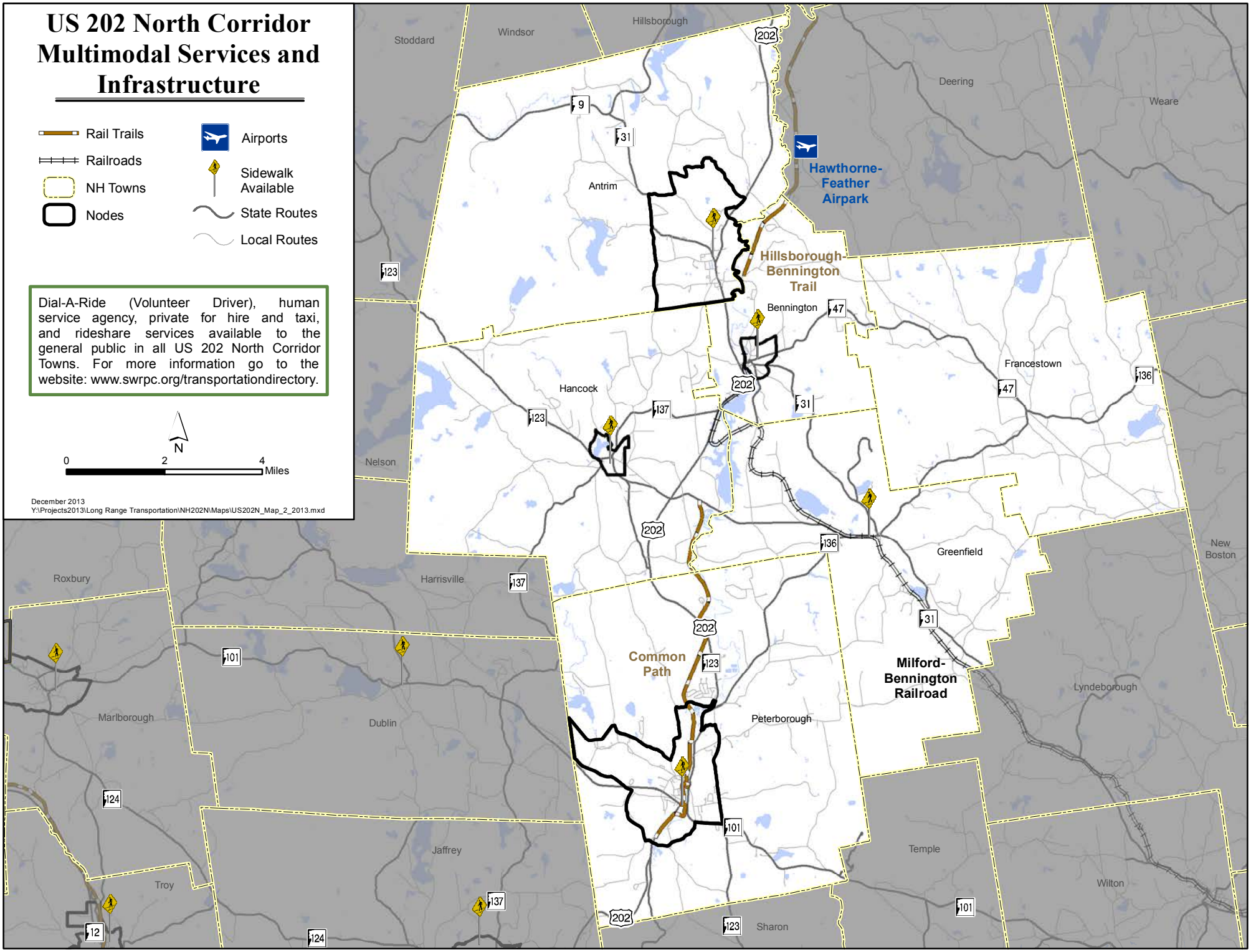

NH 202 North Corridor Challenges

Boundaries & Features

- Dams
- Administrative Jurisdiction, Distance/Time Challenges
- Topographical Challenges
- Redlisted Bridges (State)
- Redlisted Bridges (Town)
- 100-Year Flood Zone
- Bodies of Water
- Wetlands

Corridors

- US 202 North
- US 202 South
- NH 9 East
- NH 12 South
- NH 101 East
- State Routes
- Local Routes

0 2 4 Miles

N

December 2013
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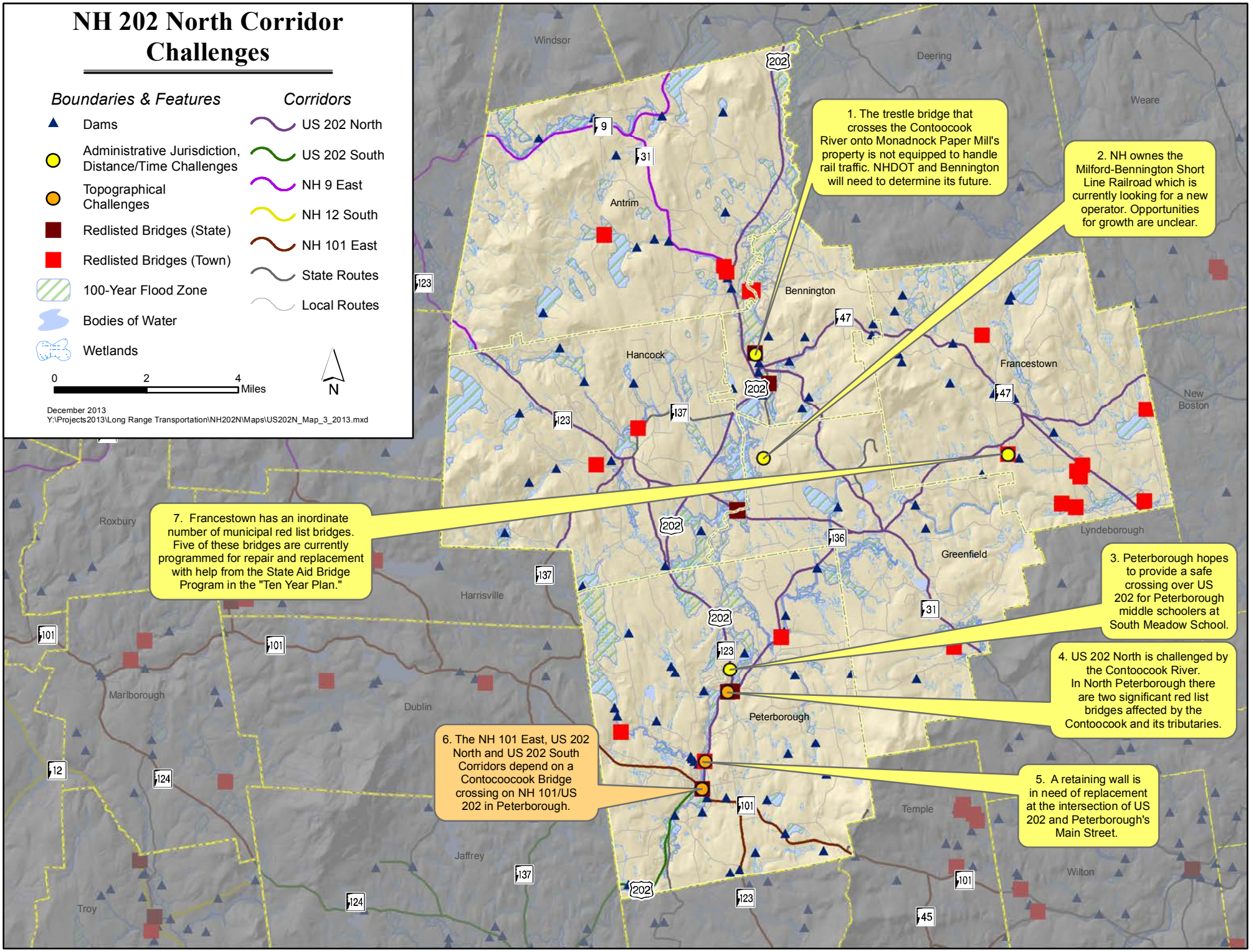

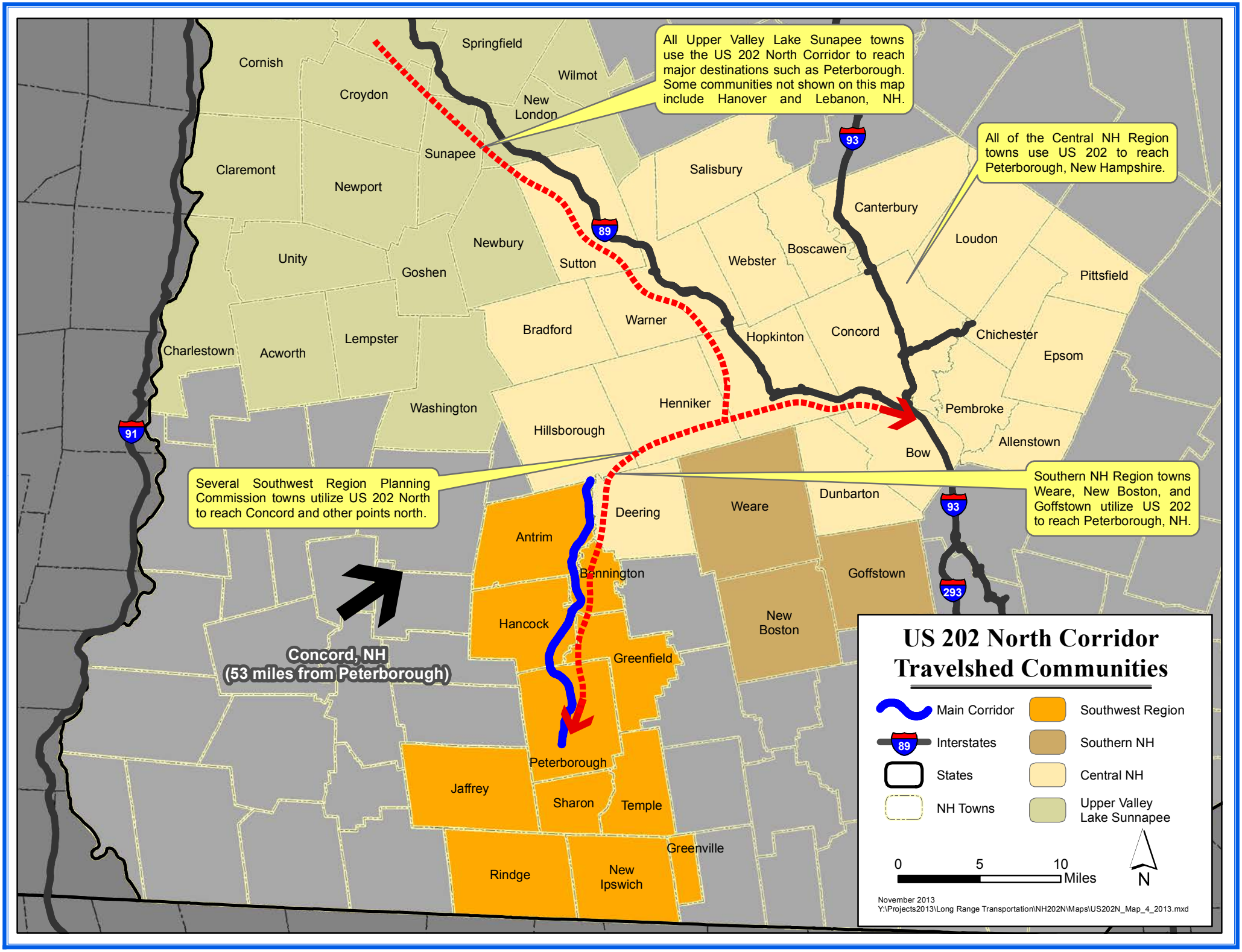
US 202 North Corridor Travelshed Communities
Main Corridor
Interstates
States
NH Towns
Southwest Region
Southern NH
Central NH
Upper Valley Lake Sunnapee
0
5
10
Miles
N
November 2013
Y:\Projects2013\Long Range Transportation\NH202N\Maps\US202N_Map_4_2013.mxd
All Upper Valley Lake Sunapee towns use the US 202 North Corridor to reach major destinations such as Peterborough. Some communities not shown on this map include Hanover and Lebanon, NH.
All of the Central NH Region towns use US 202 to reach Peterborough, New Hampshire.
Several Southwest Region Planning Commission towns utilize US 202 North to reach Concord and other points north.
Southern NH Region towns Weare, New Boston, and Goffstown utilize US 202 to reach Peterborough, NH.
Concord, NH
(53 miles from Peterborough)
Cornish
Springfield
Wilmot
Croydon
New London
Sunapee
Claremont
Newport
Salisbury
Canterbury
Loudon
Newbury
Unity
Goshen
Sutton
Webster
Boscawen
Pittsfield
Bradford
Warner
Hopkinton
Concord
Chichester
Charlestown
Acworth
Lempster
Epsom
Henniker
Pembroke
Washington
Hillsborough
Bow
Allenstown
Deering
Weare
Dunbarton
Antrim
Bennington
Goffstown
Hancock
New Boston
Greenfield
Peterborough
Jaffrey
Sharon
Temple
Greenville
Rindge
New Ipswich
91
89
93
293

Towns: Antrim, Bennington, Francestown, Greenfield, Hancock, and Peterborough

Nodal Centers: Antrim Village, Bennington Village, Hancock Village, and Peterborough Village

Corridor Backbone: US 202 from NH 101/US 202 in Peterborough to NH 9/US 202 in Antrim

Highway Corridor System:
Source: NHDOT

Towns	Minor Arterials	Major Collectors	Minor Collectors
Antrim	US 202		
Bennington	US 202	NH 31	NH 47
Francestown		NH 136	NH 47
			2nd NH Turnpike
Greenfield		NH 31	
		NH 136	
Hancock	US 202	NH 123	NH 137
			Peterborough Rd
Peterborough	US 202 starting at NH 101	NH 136	

Other Transportation Infrastructure and Services:
Source: NHDOT and SWRPC

	Examples	Locations Where Accessible
Pedestrian	Sidewalks	Antrim Village, Bennington Village, Hancock, Hancock Village, Peterborough, Downtown Peterborough
	Peterborough Common Path and Hillsborough Trail	Bennington, Hancock, Hancock Village, Peterborough, Downtown Peterborough
Bicycle	Peterborough Common Path and Hillsborough Trail	Bennington, Hancock, Hancock Village, Peterborough, Downtown Peterborough
	4 foot Shoulders in US 202 N Corridor Backbone	~4.3 mi in Antrim, ~4.9 mi in Bennington, ~2.8 mi in Peterborough
Fixed Route Bus	No Example Available	Not Available
Demand Response Bus		
Volunteer Drivers	Contoocook Valley Trans. Co.	All Locations
Ridesharing Program		
Intercity Bus	No Example Available	Not Available
Railroad Freight	Milford-Bennington Railroad	Greenfield, Bennington
Railroad Passenger	No Example Available	Not Available
Railroad Excursion		

Population Projections:

Source: US Decennial Census & NHOEP

Communities	2010	2040	Projected % Change in Population	Projected Total Population Change
Antrim	2,637	2,917	10.62%	280
Bennington	1,476	1,598	8.29%	122
Francestown	1,562	1,694	8.48%	132
Greenfield	1,749	1,898	8.49%	149
Hancock	1,654	1,599	-3.34%	-55
Peterborough	6,284	6,898	9.77%	614
US 202 North Corridor	15,362	16,604	8.08%	1,242
SWRPC Region	102,313	108,168	5.40%	5,855

Special Populations:

Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year Estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average proportion of Special Populations
Youth (Age 15 and Under)	2,846	19%	Antrim Village (21%); Bennington (22%); Bennington Village (26%)
Young Adults (Age 16-34)	2,847	19%	Antrim (20%); Antrim Village (22%); Bennington (22%); Bennington Village (27%); Greenfield (22%)
Middle Age (Age 35-64)	7,004	46%	Antrim (47%); Francestown (51%); Greenfield (49%); Hancock (48%)
Seniors (65 and older)	2,665	17%	Hancock (22%); Hancock (28%); Peterborough (22%); Downtown Peterborough (26%)
Racial Minorities	483	3%	Bennington Village (4%); Peterborough (4%); Downtown Peterborough (4%)
Low Income (Population at or under 150% of Poverty Level)	1,943	13%	Antrim (16%); Antrim Village (19%); Hancock (14%); Downtown Peterborough (20%)
Single Parent Households	1,162	28%	Antrim (31%); Downtown Antrim (40%); Bennington (35%); Bennington Village (54%); Peterborough (33%); Downtown Peterborough (40%)

Traffic Volume Changes 500 AADT or Greater:
Source: NHDOT

Facility	Town	Description	AADT	Date Range	AADT Change
US 202	Antrim	US 202 AT HILLSBOROUGH TL	5,400	2005-2012	-600
US 202	Peterborough	US 202/NH 101 OVER CONTOOCOOK RIVER	15,000	2005-2011	1000
US 202	Peterborough	US 202/NH 123 SOUTH OF SAND HILL RD	12,000	2009-2012	-1000
US 202	Peterborough	US 202/NH 123 NORTH OF HIGH SCHOOL DRIVEWAY	8,000	2005-2011	1,300
NH 31	Bennington	NH 31 OVER THE CONTOOCOOK RIVER	2,500	2005-2011	800
NH 136	Francestown	NH 136 EAST OF POTASH RD	1,400	2006-2012	-500
NH 136	Greenfield	NH 136 WEST OF SAW MILL RD	3,200	2006-2012	-600
NH 136	Peterborough	NH 136 NORTH OF BOGLE RD	3,000	2007-2010	-700

Proportion of Daily Traffic by Vehicle Class at US 202 North Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Month/Year	Daily Traffic Volume	Motorcycles, Cars, Light Duty Trucks	Buses and Single-Unit Trucks	Trailer Trucks
Antrim	US 202 South of Rest Area	6/2014	5,780	92.9%	4.0%	3.0%
Bennington	Antrim Rd E of US 202	10/2014	2,723	94.6%	4.8%	4.7%
Bennington	NH 31 E of US 202	10/2014	1,427	91.0%	6.8%	2.2%
Peterborough	NH 136 E of US 202	10/2014	3,822	96.1%	3.4%	0.5%
Peterborough	US 202 N of US 202/NH 101	10/2014	8,804	94.7%	3.7%	1.6%

Peak Hour Ridesharing (am & pm peak hours combined):
Source: SWRPC

Location & $/gallon	Month/ Year	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
US 202 @ Antrim/Hillsborough TL $3.490/gallon	7/2014	933	1.26	48%	21%
US 202 North of Main St, Peterborough $3.409/gallon	10/2013	2,072	1.19	31%	16%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Population	Motorcycles and Passenger Vehicles	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
14,284	0.93	72.33%	0.19%	24.81%	2.31%	0.36%

Cross-commuting Patterns Among Corridor Communities

Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

Origin	Destination: Antrim	Bennington	Francestown	Greenfield	Hancock	Peterborough
Antrim	71	29	5	41	13	170
Bennington	10	31	13	21	1	72
Francestown	18	28	7	18	3	73
Greenfield	12	8	1	86	3	114
Hancock	8	19	1	23	66	184
Peterborough	16	14	4	77	6	800

Communities with Over 50 employees commuting to US 202 North Communities and Likely Using US 202 North Corridor System

Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Employee Origin	Number	Employee Destination
Hancock	184	Peterborough
Antrim	170	Peterborough
Greenfield	114	Peterborough
Hillsborough	80	Peterborough
Peterborough	77	Greenfield
Francestown	73	Peterborough
Bennington	72	Peterborough
Deering	72	Peterborough
Hillsborough	54	Greenfield
Concord	52	Peterborough

Jobs, Employers, and Unemployment Rates

Sources: [1]Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; [2]NH Department of Employment Security, 2012; [3]NH Department of Employment Security, August 2013.

Community	Total Jobs	Total Institutions	Unemployment Rate
Antrim	401	53	5.9%
Bennington	356	20	5.8%
Francestown	74	23	4.6%
Greenfield	826	31	5.2%
Hancock	139	43	4.3%
Peterborough	4,368	305	4.7%

Large Employers (50+)

Name	Town	Product/Service	Employees
Crotched Mountain Rehabilitation	Greenfield	Brain injury rehabilitation	900
Monadnock Community Hospital	Peterborough	Health care services	668
Peterborough Public Schools	Peterborough	Education	272
Crotched Mountain Ski Area	Bennington	Ski Seasonal	250
Monadnock Paper Mills	Bennington	Printing Specialty Papers	235
Eastern Mountain Sports	Peterborough	Outdoor Equipment/Clothing	130
Millard Group	Peterborough	Mailing list brokerage	130
Pheasant Wood Health care	Peterborough	Nursing Home	100
Frameworks	Antrim	AutoLights Manufacturing	70
American Steel	Greenfield	Steel erection, fabrication	50

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

Community	Housing Permits (2000-2010)	Owner/ Renter Household Ratio	Median Expenses (Owners w/ a Mortgage)	Median Expenses (Owners w/o a Mortgage)	Median Gross Rent (2011)	Median Budget Needed for Transportation
Community Average	124	4.14	$1,874	$727	$942	$1,593
Antrim	149	2.73	$1,701	$618	$904	$1,549
Bennington	72	3.15	$1,579	$555	$921	$1,596
Francestown	79	7.84	$2,131	$794	$1,016	$1,668
Greenfield	111	4.07	$1,998	$717	$725	$1,617
Hancock	74	5.30	$1,961	$823	$1,159	$1,597
Peterborough	260	1.79	$1,876	$853	$929	$1,529
Downtown Antrim	N/A	1.72	$1,693	$605	$823	$1,481
Bennington Village	N/A	1.69	$1,534	$850	$1,013	$1,525
Hancock Village	N/A	2.74	$1,837	$625	$1,031	$1,526
Downtown Peterborough	N/A	1.07	$1,641	$835	$942	$1,399

Housing to Jobs Ratio:

Number of Community Housing Units for Every Community Job				
20+	**10 to 19**	**5 to 9**	**1 to 4**	**Less than 1**
	Francestown (10)	Hancock (6)	Antrim (3)	Greenfield
			Bennington (2)	Peterborough

Mileage by Level of Access Management Control on NH 9 West:

Community	Limited Access	Controlled Access	Regular Access
Antrim	0.0	5.4	0.8
Bennington	0.0	0.0	2.5
Hancock	0.0	3.9	0.0
Peterborough	0.0	1.1	4.4
Totals	**0.0**	**10.4**	**7.7**

Performance Measure Category	Measure	Units	US 202 North Only	US 202 North Corridor System	Target 2017
			16.6 : 18.2	31.5 : 65.5	37.3
	Red Listed Bridges	Red list bridge number: total bridges	1 / 6	2 / 18	1
	Rail lines capable of speeds of 40 mph	miles: total miles	N/A	0 : ?	Additional study required
	Airport Runway Surface conditions	average condition	N/A	N/A	N/A
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	N/A	N/A
Improve Safety	Crashes involving Fatalities (5 year moving average 2008-2012)	Number	2	3	0
	Crashes involving Incapacitating Injuries (5 year moving average 2008-2012)	Number	4	5	0
Improve Mobility	PM peak hour volume/capacity ratio range	Volume to capacity ratio	.18-.42	N/A	Under .62
Improve Multimodal Accessibility*	Intermodal Facility	number	0	0	0
	Sidewalks	miles	Inventory in progress	Inventory in progress	Additional study required
	Bikeways	miles			
	# of park and ride lot spaces	number	0	0	
	Public transportation routes	miles	0	0	
	Intercity bus routes	miles	0	0	

US 202 SOUTH CORRIDOR

Like the NH 10 and NH 12 Corridors, the US 202 South Corridor is one of the arterials in the Southwest Region that connects several Southwest Region communities to Massachusetts. It is particularly important to southern Peterborough, Jaffrey and Rindge, three of the most populous communities in the Southwest Region and host to a number of important employers including Millipore (700 employees), NH Ball Bearings (550 employees), Teleflex Medical (303 employees) and Franklin Pierce University (300 employees). Passenger transportation services are very limited on the corridor, but there are some services. Peterborough's Common Path parallels the northern portion of the Corridor down to Noone Falls. The same rail right of way picks up again in downtown Jaffrey north of US 202/NH 124 intersection and continues south all the way through Rindge into Massachusetts where it abruptly ends in Winchendon, MA.

In the 2000s, Jaffrey's population decreased a small number, while Peterborough and Rindge's population increased by 6.8% and 10.3% respectively. Despite Jaffrey's population loss, it recorded demand for 204 housing permits. Noteworthy special populations on the Corridor include Jaffrey's youth (21% of the community), Rindge's millennials from Franklin Pierce University (37% from that community) and relatively high number of single parent households in downtown Jaffrey (47%). Peterborough's senior population is substantial on the corridor, probably because of the presence of Rivermead, a retirement community in southern Peterborough off of US 202.

Traffic volumes have remained relatively steady, with the highest traffic levels in downtown Jaffrey (13,000 AADT), a mix of local and regional traffic. Traffic volumes in Peterborough amount to 12,000 near the NH 101 intersection to 9,000 AADT near Sharon Road. In Rindge, traffic volumes hover between 5,500 at the MA State Line to 9,100 AADT just south of NH 119.

Priority challenges and opportunities for the US 202 South Corridor include:

- The Jaffrey dog-leg area in downtown Jaffrey remains a significant challenge for this corridor. The intersection has a number of issues including high delays at traffic lights, limited maneuverability for trucks negotiating the intersections, extra wide streets making it difficult for pedestrian crossings, a lack of parking, confusing routing, and other concerns.
- The Rail Trail breaks up between Peterborough and Jaffrey. Yet there are a number of potential users of a recreational rail trail in the connecting area including residents of Rivermead and employees of NH Ball Bearings and Staff Development for Educators.
- There are a number of bus/shuttle-like transportation services that use this Corridor, however they do not market themselves to the general public. There may be an opportunity to connect people to Downtown Jaffrey, Downtown Peterborough and shopping in Rindge.

US 202 South Corridor

Boundaries & Features

- NH Towns
- Nodes
- State Routes
- Local Routes
- Bodies of Water

Corridors

- Main Corridor
- Other Arterials
- Collectors
- NH 12 South
- NH 101 East
- US 202 North

N

0 2 4 Miles

December 2013
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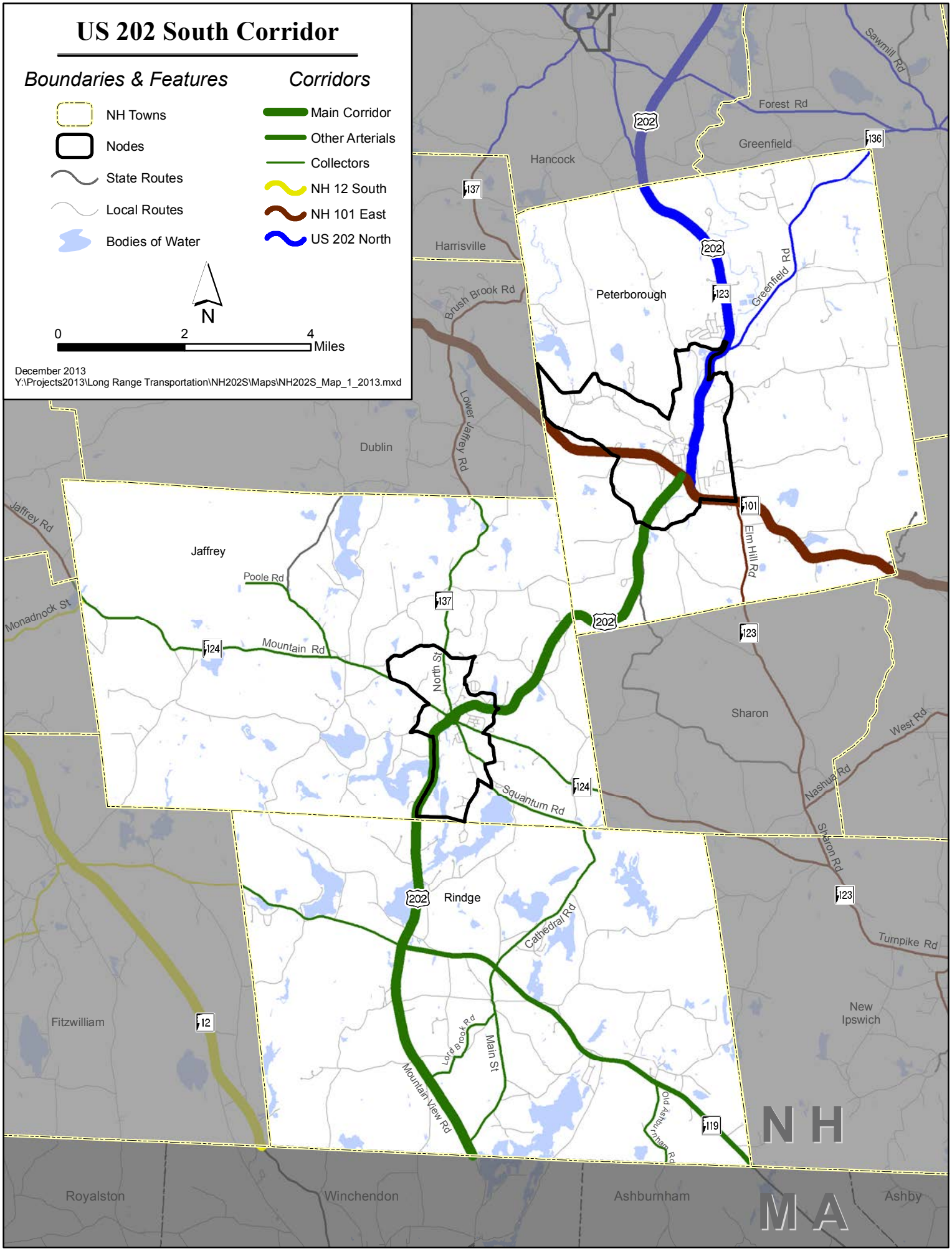


US 202 South Corridor Multimodal Services and Infrastructure

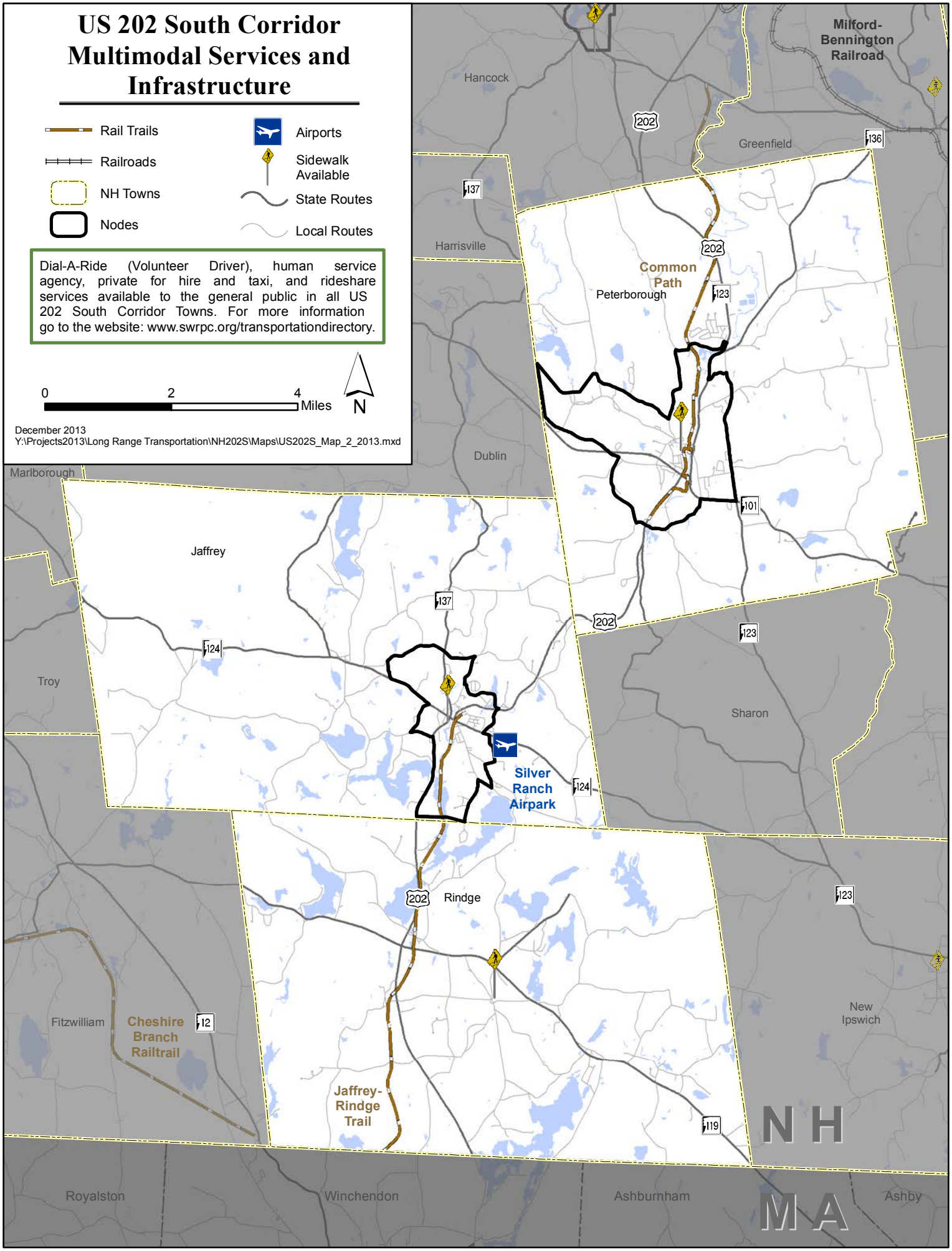
Rail Trails
Railroads
NH Towns
Nodes
Airports
Sidewalk Available
State Routes
Local Routes

Dial-A-Ride (Volunteer Driver), human service agency, private for hire and taxi, and rideshare services available to the general public in all US 202 South Corridor Towns. For more information go to the website: www.swrpc.org/transportationdirectory.

0 2 4 Miles

N

December 2013
Y:\Projects2013\Long Range Transportation\NH202S\Maps\US202S_Map_2_2_2013.mxd



US 202 South Corridor Challenges

Boundaries & Features

- Dams
- Administrative Jurisdiction, Distance/Time Challenges
- Topographical Challenges
- Redlisted Bridges (State)
- Redlisted Bridges (Town)
- 100-Year Flood Zone
- Bodies of Water
- Wetlands

Corridors

- US 202 South
- US 202 North
- NH 9 East
- NH 12 South
- NH 101 East
- State Routes
- Local Routes

0 2 4 Miles

N

December 2013
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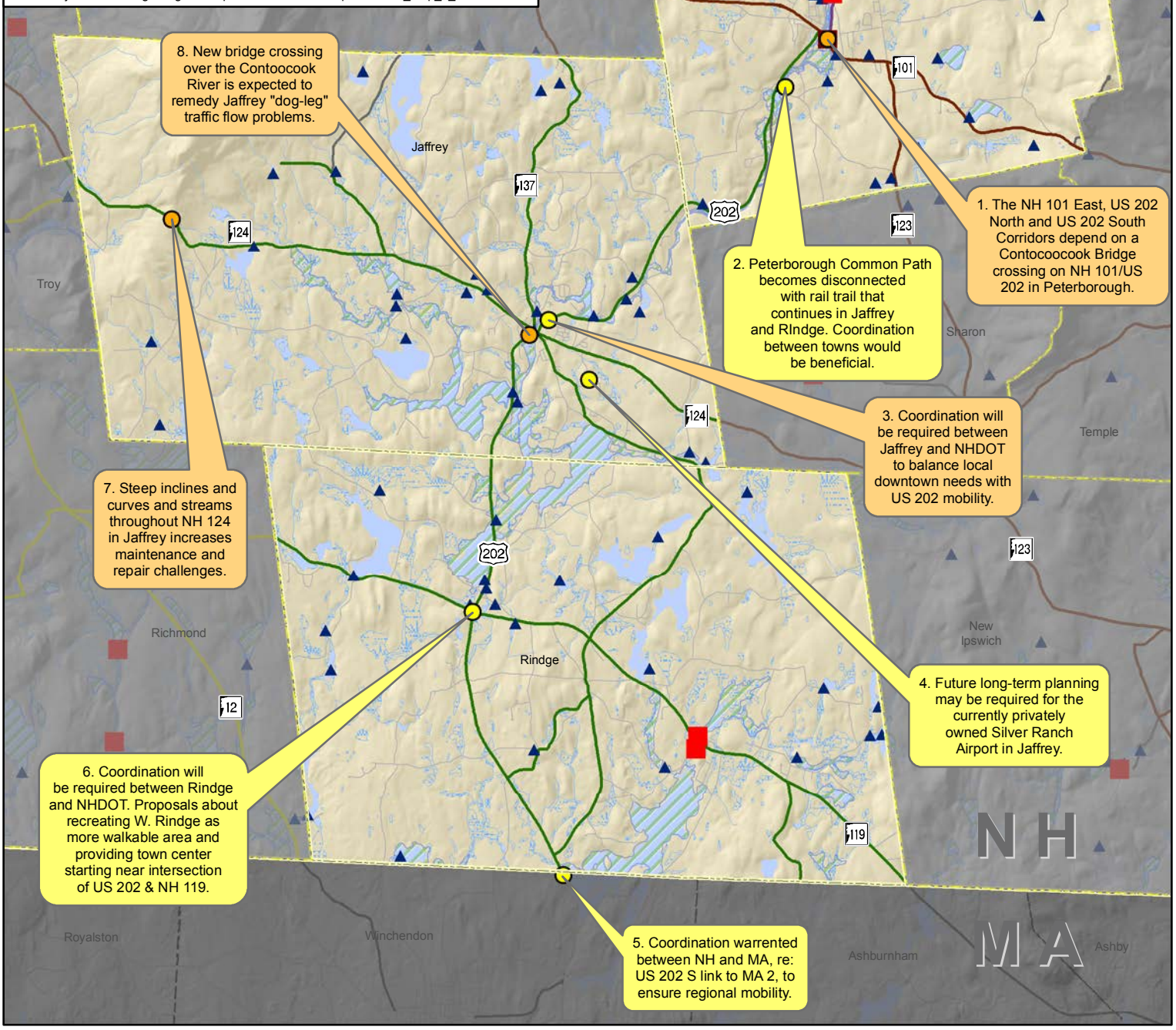

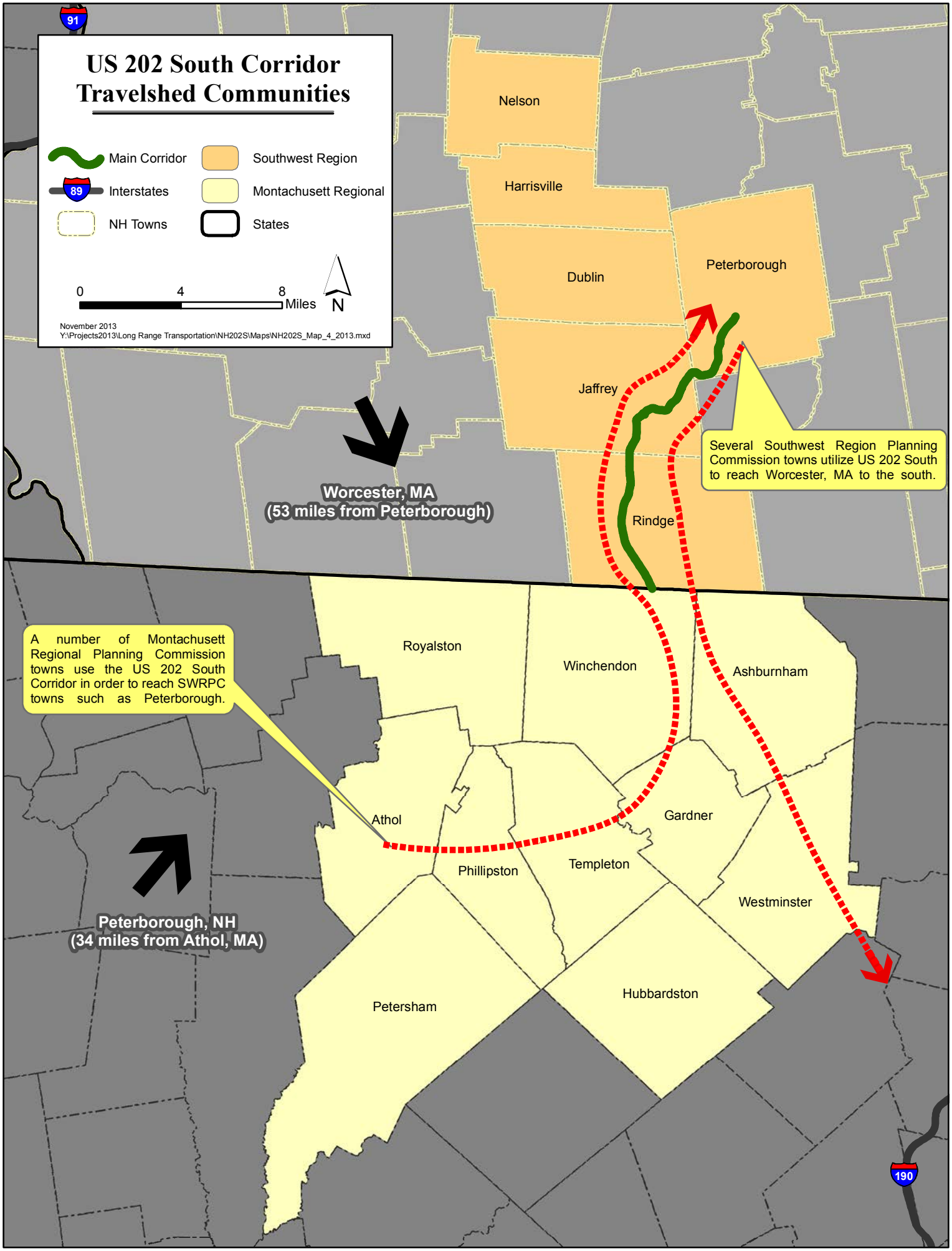
US 202 South Corridor
Travelshed Communities
Main Corridor
Interstates
NH Towns
Southwest Region
Montachusett Regional
States
0
4
8
Miles
N
November 2013
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91
89
Nelson
Harrisville
Dublin
Peterborough
Jaffrey
Rindge
Worcester, MA
(53 miles from Peterborough)
Several Southwest Region Planning Commission towns utilize US 202 South to reach Worcester, MA to the south.
A number of Montachusett Regional Planning Commission towns use the US 202 South Corridor in order to reach SWRPC towns such as Peterborough.
Royalston
Winchendon
Ashburnham
Athol
Gardner
Phillipston
Templeton
Westminster
Petersham
Hubbardston
Peterborough, NH
(34 miles from Athol, MA)
190

Towns: Jaffrey, Peterborough, and Rindge

Nodal Centers: Downtown Jaffrey and Downtown Peterborough

Corridor Backbone: US 202 from NH 101/US 202 in Peterborough to Rindge/Winchendon, MA Town Line

Highway Corridor System:
Source: NHDOT

Towns	Minor Arterials	Major Collectors	Minor Collectors
Jaffrey	US 202	NH 124	NH 137
			Dublin Rd/ Poole Rd
			Stratton Rd/ Squantam Rd
Peterborough	US 202 starting at NH 101		
Rindge	US 202		Cathedral Rd
	NH 119 East of US 202		Payson Hill Rd/ Main St
			Lord Brook Rd/ Middle Winchendon Rd

Other Transportation Infrastructure and Services:
Source: NHDOT and SWRPC

	Examples	Locations Where Accessible
Pedestrian	Sidewalks	All Locations
	Peterborough Common Pathway, Monadnock Branch Rail Trail	All Locations
Bicycle	Peterborough Common Pathway, Monadnock Branch Rail Trail	All Locations
	4 foot Shoulders on US 202 S Corridor Backbone	~2.0 mi in Peterborough, ~3.8 mi in Jaffrey, Rindge
Fixed Route Bus	No Example Available	Not Available
Demand Response Bus		
Volunteer Drivers	Contoocook Valley Trans. Co.	All Locations
Ridesharing Program		
Intercity Bus	No Example Available	Not Available
Railroad Freight		
Railroad Passenger		
Railroad Excursion		

Population Projections:

Source: US Decennial Census & NHOEP

Communities	2010	2040	Projected % Change in Population	Projected Total Population Change
Jaffrey	5,457	5,420	-0.7%	-37
Peterborough	6,284	6,898	9.8%	614
Rindge	6,014	6,609	9.9%	595
US 202 South Corridor	17,755	18,927	6.6%	1,172
SWRPC Region	102,313	108,168	5.7%	5,855

Special Populations:

Sources: US Census, 2010 Decennial Census, (Table QT-P2); ACS 2007-2011 5 Year Estimate (Table S1701); US Census Bureau, 2010 Decennial Census, (Table P39)

	All Corridor Communities	Proportion of Corridor Population	Communities with Above Average proportion of Special Populations
Youth (Age 15 and Under)	3,366	19%	Jaffrey (21%); Downtown Jaffrey (21%)
Young Adults (Age 16-34)	4,443	25%	Rindge (37%)
Middle Age (Age 35-64)	7,156	40%	Jaffrey (43%); Downtown Jaffrey (41%); Peterborough (42%);
Seniors (65 and older)	2,790	16%	Peterborough (22%); Downtown Peterborough (26%)
Racial Minorities	721	4%	No communities are above average
Low Income (Population at or under 150% of Poverty Level)	2,587	15%	Downtown Jaffrey (17%); Downtown Peterborough (20%); Rindge (21%);
Single Parent Households	1,262	29%	Jaffrey (35%); Jaffrey Village (47%); Peterborough (33%); Downtown Peterborough (40%)

Traffic Volume Changes 500 AADT or Greater:
Source: NHDOT

Facility	Towns	Description	AADT	Date Range	AADT Change
US 202	Jaffrey	US 202/NH 124 (MAIN ST) EAST OF NH 137 OVER CONTOOCOOK RIVER	13,000	2007-2010	-3,000
US 202	Peterborough	US 202/NH 101 (WILTON RD) OVER CONTOOCOOK RIVER	15,000	2005-2011	1000

Proportion of Daily Traffic by Vehicle Class at US 202 South Corridor System Locations:
Source: SWRPC

Community	Traffic Count Location Description	Month/Year	Daily Traffic Volume	Motorcycles, Cars, Light Duty Trucks	Buses and Single-Unit Trucks	Trailer Trucks
Rindge	US 202 at Mass SL	10/2014	4,715	94.6%	3.1%	2.3%
Rindge	NH 119 E of US 202	10/2014	5,771	94.7%	4.2%	1.1%
Rindge	NH 119 W of US 202	10/2014	6,323	96.2%	2.8%	1.0%
Jaffrey	US 202 S of NH 124	10/2014	8366	93.2%	5.2%	1.7%
Jaffrey	US 202 N of NH 124	10/2014	9785	94.7%	4.1%	1.3%
Peterborough	US 202 S of NH 101	10/2014	12263	93.7%	5.4%	0.9%

Peak Hour Ridesharing (am & pm peak hours combined):
Source: SWRPC

Location & $/gallon	Month/ Year	Total Vehicles	Average Vehicle Occupancy	% People Ridesharing	% Vehicles with Ridesharers
US 202 at Rindge/MA SL $3.530/gallon	8/2014	795	1.35	49%	30%

Corridor Communities Registered Vehicles:
Source: NHDES

Total Registered Vehicles	Ratio of Vehicles to Population	Motorcycles and Passenger Vehicles Excluding Electric or Hybrid	Passenger Vehicles Hybrid or Electric	Light Duty Trucks and SUVs	Buses and Single Unit Trucks	Heavy Duty Trucks
15,283	0.86	72.94%	0.16%	24.01%	2.46%	0.43%

Cross-commuting Patterns Among Corridor Communities

Source: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011

		Destination		
		Jaffrey	Peterborough	Rindge
Origin	Jaffrey	605	352	91
	Peterborough	136	800	22
	Rindge	261	140	235

Communities with Over 50 employees commuting to US 202 South Communities and Likely Using US 202 South Corridor System

Sources: Longitudinal Housing – Employment Dynamics, Primary Jobs, 2011 and Google Maps

Employee Origin	Number	Employee Destination
Jaffrey	352	Peterborough
Rindge	261	Jaffrey
Rindge	140	Peterborough
Peterborough	136	Jaffrey
Keene	122	Jaffrey
New Ipswich	101	Jaffrey
Jaffrey	91	Rindge
Winchendon, MA	90	Jaffrey
Swanzey	60	Jaffrey
Fitzwilliam	50	Jaffrey

Jobs, Employers, and Unemployment Rates

Sources: [1]Longitudinal Housing -Employment Dynamics, Primary Jobs, 2011; [2]NH Department of Employment Security, 2012; [3]NH Department of Employment Security, August 2013.

Community	Total Jobs	Total Institutions	Unemployment Rate
Peterborough	4,368	305	4.2%
Jaffrey	2,624	156	4.7%
Rindge	1,273	114	5.4%

Known Large Employers (50+)

Name	Town	Product/Service	Employees
Millipore Corporation	Jaffrey	Industrial filters	700
NH Ball Bearings	Peterborough	Precision bearings	550
TFX Medical	Jaffrey	Medical tubing	303
Franklin Pierce University	Rindge	Education	300
Market Basket	Rindge	Supermarket	274
Jaffrey-Rindge School District	Jaffrey	Education	264
Wal-mart	Rindge	Retail Store	200
Staff Development for Educators	Peterborough	Education seminars	170
Rivermead	Peterborough	Retirement community	160
Hannaford Brothers	Rindge	Supermarket	114
Good Shepherd Nursing Home	Jaffrey	Nursing Home	69
Belletete's	Jaffrey	Hardware Store	55
DD Bean & Sons	Jaffrey	Paperbook matches	51

Housing Growth and Housing and Transportation Expenses (Green Above Average and Red Below Average):

Community	Housing Permits (2000-2010)	Owner/ Renter Household Ratio	Median Expenses (Owners w/ a Mortgage)	Median Expenses (Owners w/o a Mortgage)	Median Gross Rent (2011)	Median Budget Needed for Transportation
Community Average	298	2.90	$1,814	$771	$936	$1,448
Jaffrey	204	1.96	$1,764	$833	$774	$1,361
Peterborough	260	1.79	$1,876	$853	$929	$1,529
Rindge	430	4.96	$1,803	$628	$1,105	$1,455
Downtown Jaffrey	N/A	1.11	$1,741	$699	$708	$1,322
Downtown Peterborough	N/A	1.07	$1,641	$835	$942	$1,399

Housing to Jobs Ratio:

Number of Community Housing Units for Every Community Job				
20+	**10 to 19**	**5 to 9**	**1 to 4**	**Less than 1**
			Rindge (2)	Jaffrey
				Peterborough

Mileage by Level of Access Management Control on NH 9 West:

Community	**Limited Access**	**Controlled Access**	**Regular Access**
Jaffrey	0.0	2.0	2.6
Peterborough	0.0	2.4	1.0
Rindge	0.0	4.4	1.3
Totals	**0.0**	**8.8**	**4.9**

Performance Measure Category	Measure	Units	US 202 South Only	US 202 South Corridor System	Target 2017
Improve Asset Conditions	State Highway Pavement in Good or Fair Condition	miles: total miles	12.5 : 13.7	25.4 : 50.8	29.0
	Red Listed Bridges	Red list bridge number: total bridges	0 : 6	0 : 9	0
	Rail lines capable of speeds of 40 mph	miles: total miles	N/A	N/A	N/A
	Airport Runway Surface conditions	average condition	N/A	3.0 (Fair)	4.5 (Good)
	Remaining useful life of transit buses	% of vehicle life remaining	N/A	N/A	N/A
Improve Safety	Crashes involving Fatalities (5 year moving average 2008-2012)	Number	4	6	0
	Crashes involving incapacitating injuries (5 year moving average 2008-2012)	Number	6	14	10
Improve Mobility	PM peak hour volume/capacity ratio range	Ratio	.21-.46	N/A	Under .62
Improve Multimodal Accessibility*	Intermodal Facility	number	0	0	Additional study required
	Sidewalks	miles	Inventory in progress	Inventory in progress	
	Bikeways	miles			
	# of park and ride lot spaces	number	0	0	
	Public transportation routes	miles	0	0	
	Intercity bus routes	miles	0	0	

GLOSSARY OF TERMS

Access Management (generally): The systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a road. The purpose of these controls balances vehicle access to land development while preserving the safety and efficiency of the transportation system.

> **Controlled Access Management in NH:** A form of highway access control with access permitted only at designated points. When NHDOT purchases right of way on a highway during a construction project, it determines how many points of access are allowed into the future.
>
> **Limited Access Management in NH:** A right-of-way or highway where the right of access from an abutting property is not allowed, except at connections to other public highways.
>
> **Regular Access Management in NH:** A roadway designed to provide access to abutting properties. NHDOT regulates typical access management on state roads with a driveway permitting process enabled by state law (RSA 21-L: 12, IX and RSA 236:13).

Accessibility: Refers to the ability to reach desired goods, services, activities and destinations. Relative accessibility can be understood based on generalized costs (time, money, discomfort and risk) needed to reach activities.

Asset Management: A system that monitors the attributes and facilities of the transportation system. In New Hampshire, the Bureau of Planning and Community Assistance (P&CA) maintains and provides aerial images of towns, detailed state and local road information, maps of NH's transportation system, bridge inspection reports documenting the condition of municipally-owned bridges, crash data mapping and other related transportation data to the public and any other customers.

Betterment Program: Funds allocated for maintenance and repair work that may include culvert replacements, pavement replacement, underground wiring for street lights, improving drainage systems, repairing damage from storms and washouts, and improvements to Rest Areas.

Broadband Last Mile: Broadband infrastructure consists of the internet "backbone" which is hosted by large commercial, government, academic, and other high-capacity network centers. The "middle mile" refers to the segment linking a network operator's core network to the local network plant. The "last mile" describes the remaining infrastructure connecting to homes and businesses.

Capacity: The maximum rate of flow that can be accommodated by a roadway or signalized intersection, often expressed in vehicles per hour.

Census Designated Place (CDP): Areas delineated by the United States Census Bureau, in cooperation with local officials, to provide data for settled concentrations of people that are not incorporated under state laws. CDP's often represent village areas or downtown areas.

Complete Streets: A policy with the goal of balancing the use of multiple modes of transportation by all users, with the goal of making more livable communities. Some typical features include wider sidewalks, lower traffic speeds, bike and bus lanes, improved crosswalks, and many other design features.

Congestion: Typically measured as a ratio of the volume of traffic occurring at a given time divided by the capacity of the road. High levels of congestion can reduce vehicle throughput and increase travel times. See also *Level of Service.*

Environmental Justice: The mission of identifying and resolving disproportionate and negative impacts of development projects and transportation services on certain groups. Furthermore, environmental justice advocates for the participation of any potentially negatively-impacted party in transportation projects.

Impact-

> **Direct:** Resource costs, business opportunities, and wages created by a transportation solution.
>
> **Indirect:** Changes in consumer behaviors, accessibility, or efficiency resulting from direct impacts.
>
> **Internal:** The cost or benefit of a transportation solution experienced by the consumer.
>
> **External:** The cost or benefit of a transportation component experienced by others.
>
> **Social:** The total cost to society from internal and external impacts.

Inter Regional: Transportation between geographically separate areas.

Intra Regional: Transportation within a specific geographic area.

Jobs/Housing Balance: Refers to the ratio of employment opportunities and quantity of housing in a given area. An increase in this ratio tends to reduce commuting distances and increase the use of local services.

Level of Service: A quantitative measure to describe the flow of traffic. Ratings are assigned "A" through "F" depending on the speed, time of occurrence, flow, and density of motor vehicles on the roadway. Recently, attempts have been made to measure multi-modal levels of service to account for transit and non-motorized trips.

Livability: The qualities of the physical and social environments perceived by their inhabitants. These factors are largely determined by activities that take place in public, which are influenced directly by policy and planning decisions.

Maintenance: Upkeep as it applies to transportation infrastructure such as paving, spot improvements, repair of guardrail, etc.

Millennials/Millennial Generation: Sometimes referred to as "Generation Y," the age cohort born between 1980 and 1995. Compared to previous generations, they are less likely to hold a driver's license or own a car. This phenomena may significantly influence travel demand in the future.

Mobility: The ability to travel between places with reasonable convenience. Often, speed is the primary factor determining relative convenience between modes of transportation.

Modernization: Upgrading transportation infrastructure to provide increased safety and mobility including the adoption of newer technologies or revised design specifications.

Operations: Activities determined by the maintenance of and modification to any part of the transportation system such as plowing, transit services or other services.

Red List Bridge: According to NHDOT, state or municipality-owned bridges requiring inspections of a bridge at least 2 times a year due to known deficiencies, poor condition, weight restrictions, or type of construction.

Speed: Rate of travel, a specified velocity, or the relative efficiency of travel between an origin and destination.

State Aid Highway Block Grant Aid: Provided under NH RSA 235:23, funds provided to municipalities for construction, reconstruction, and maintenance of Class IV and V highways. Funds are provided from 1) Apportionment A, 12% of state highway revenue, and 2) Apportionment B, a set funding source provided to communities with low property valuation compared to road mileage.

State Aid Highway Program: Provided under NH RSA 235, 2/3 reimbursement to a municipality for qualifying expenses on a Class I, II, or III highway project.

State Aid Bridge Program: Provided under NH RSA 234, reimbursement to a municipality for qualifying bridge rehabilitation or replacement. The ratio for the aid is 80% Federal or State and 20% municipality. Monies consist of both State and Federal Highway Funds budgeted for construction or reconstruction of structures on Class IV and Class V highways as well as municipally-maintained bridges on Class II highways.

Sustainability: The reassessment of systems for the purpose of maintaining long-term use within economic, natural, social, or other constraints.

Ten Year Transportation Improvement Plan: A comprehensive plan, undergone once every two years, designed to address the transportation needs at the local, regional, and statewide levels.

Transportation-

Freight: Type of transportation utilized for the distribution of goods.

Intermodal: Encompassing multiple transportation means. When referencing passenger or freight systems, the transition from one mode of transportation to another.

Modes of: Categories which describe the vehicle or means of travel between an origin and destination.

Multimodal: The availability of multiple transportation modes to reach a destination.

Passenger: An individual accompanying a driver or others on a trip.

Personal: A method of transportation provided for a single person. For example, single-occupancy vehicle describes a car or truck carrying only one person to a destination.

Virtual: Utilization of technology for the purpose of replacing a vehicular trip. Telecommuting is one common example.

Win-win: A transportation solution with multiple benefits, including direct and indirect benefits.

LIST OF ACRONYMS

AADT	**Average Annual Daily Traffic**
ADA	**Americans with Disabilities Act**
ARC	**American Red Cross**
CDP	**Census Designated Place**
CNHRPC	**Central New Hampshire Regional Planning Commission**
CVTC	**Contoocook Valley Transportation Company**
FHWA	**Federal Highway Administration**
FRCOG	**Franklin Regional Council of Governments**
FTA	**Federal Transit Administration**
FAA	**Federal Aviation Administration**
HCS	**Home Healthcare Hospice and Community Services**
JARC	**Job Access Reverse Commute (FTA Program)**
LOS	**Level of Service**
MDS	**Monadnock Development Services**
MRCC	**Monadnock Region Coordinating Council**
MRPC	**Montachusett Regional Planning Commission**
MRTMA	**Monadnock Region Transportation Management Association**
NHDES	**New Hampshire Department of Environmental Services**
NHDOT	**New Hampshire Department of Transportation**
NHES	**New Hampshire Employment Security**
NRPC	**Nashua Regional Planning Commission**
SCS	**Southwestern Community Services**
TAC	**Transportation Advisory Committee**

TYP	**Ten Year Plan (Ten Year Transportation Improvement Plan)**
RTIP	**Regional Transportation Improvement Program**
SNHPC	**Southern New Hampshire Regional Planning Commission**
STIP	**State Transportation Improvement Program**
SWRPC	**Southwest Region Planning Commission**
USDOT	**United States Department of Transportation**
UVLSRPC	**Upper Valley Lake Sunapee Regional Planning Commission**
WRC	**Windham Regional Commission**