Transportation

Introduction



The NRPC Region benefits from a well-connected highway system that links our communities to a wide range of economic and quality of life opportunities in northern and western New Hampshire, the Seacoast region, and the Boston area. The Region, however, also faces many transportation challenges. Infrastructure maintenance needs have strained resources at all levels of government. State and federal revenues, which fund the largest share of transportation spending by far, have remained essentially flat though infrastructure improvement costs have increased dramatically since the 2020-2023 Pandemic. As a result, several of the region's projects that are included in the state's Ten Year Transportation Improvement Plan (Ten Year Plan or TYP), are proposed to be delayed or eliminated and few if any new projects are likely to be added over the next few years.

Funding for transit is also constrained and transit options, particularly outside of Nashua, are extremely limited. No fixed-route transit service operating within the region extends beyond the boundaries of the City of Nashua with the exception of a Nashua Transit System (NTS) extension to Walmart in Amherst. The closest station on the MBTA Commuter Rail system, which serves approximately 122,000 daily passenger trips on an average weekday, terminates just 13 miles from the Nashua City line. However, the Region has no direct rail links to Boston even though slightly more than a quarter of Region's residents commute to Massachusetts for work. That said, many people in the Region continue to actively pursue a rail connection to Boston. The Region does enjoy fixed route bus service to Boston via Boston Express and the Manchester Transit Authority runs a regular

route between downtown Nashua and Manchester with a stop at the Manchester-Boston Regional Airport. Further, on-demand service for elderly people and individuals with disabilities is provided in most of the Region's communities by the Souhegan Valley Transportation Collaborative (SVTC) and by NTS under contract, though gaps in service remain.

Investments in Bicycle and Pedestrian improvements have grown markedly in the Region in recent years. In the past two project solicitation cycles for the Ten Year Plan, Bike/Ped projects outnumbered road and bridge improvement projects and applications for federal Transportation Alternatives Program (TAP) and Congestion Mitigation and Air Quality (CMAQ) Program funds for Bike/Ped projects have been robust. The Region currently benefits from a number of multipurpose paths, trails, sidewalks in many areas and limited sections of bike lanes however, there is no integrated pedestrian and bicycle network across communities. Improvements to bicycle and pedestrian infrastructure should continue to be a priority, especially improvements designed to provide access to people of all abilities, safety improvements, and projects that enhance connectivity between existing bicycle and pedestrian networks.

It is also essential that the Region's transportation system adapts to changing demographics and economic and social conditions. The Region's population is aging with the fastest growth occurring in people age 65 and older. A greater emphasis will need to be placed on the transportation needs of seniors including improved demand/response transit and ridesharing, as well as investments in ADA compliant and all-persons accessible transportation infrastructure, improved street lighting, large font signage and ensuring that lane markings and fog lines are clearly visible. Other trends affecting transportation include the dramatic increase in telecommuting which has led to a decline in traffic volumes despite a growing population. In addition, people are increasingly interested in health and wellness which increases demand for opportunities to walk, hike and bike.

Given funding constraints, changing demographics and changes in the way we live, we need to emphasize maintenance and improvements to the existing street and highway network, investments in bicycle and pedestrian infrastructure and improvements to transit with a particular emphasis on the needs of older adults.

As a Metropolitan Planning Organization (MPO) under federal law, NRPC is required to have a Metropolitan Transportation Plan, (MTP) which serves as the region's long range transportation plan. NRPC is designated as an MPO because the region includes "urbanized" areas with more than 50,000 residents, as defined by the US Census. The Region's urbanized areas, known as the Nashua, NH Urbanized Area (UZA), is shown on Figure VII-1 on the following page. The MTP, adopted in December of 2023, informs the transportation component of this plan. Components of that plan are highlighted in this section along with relevant updates where appropriate. The following vision statement was adopted as part of the 2023 MTP:

Vision: An integrated, cost effective, multimodal transportation system that safely and efficiently moves people and goods throughout the region in an equitable and environmentally responsible manner to support economic prosperity and the highest possible quality of life for all users.

To help realize this vision, several goals and objectives were adopted as part of the MTP which have been adapted for the Regional Plan. Key goals and objectives are summarized on the following pages.

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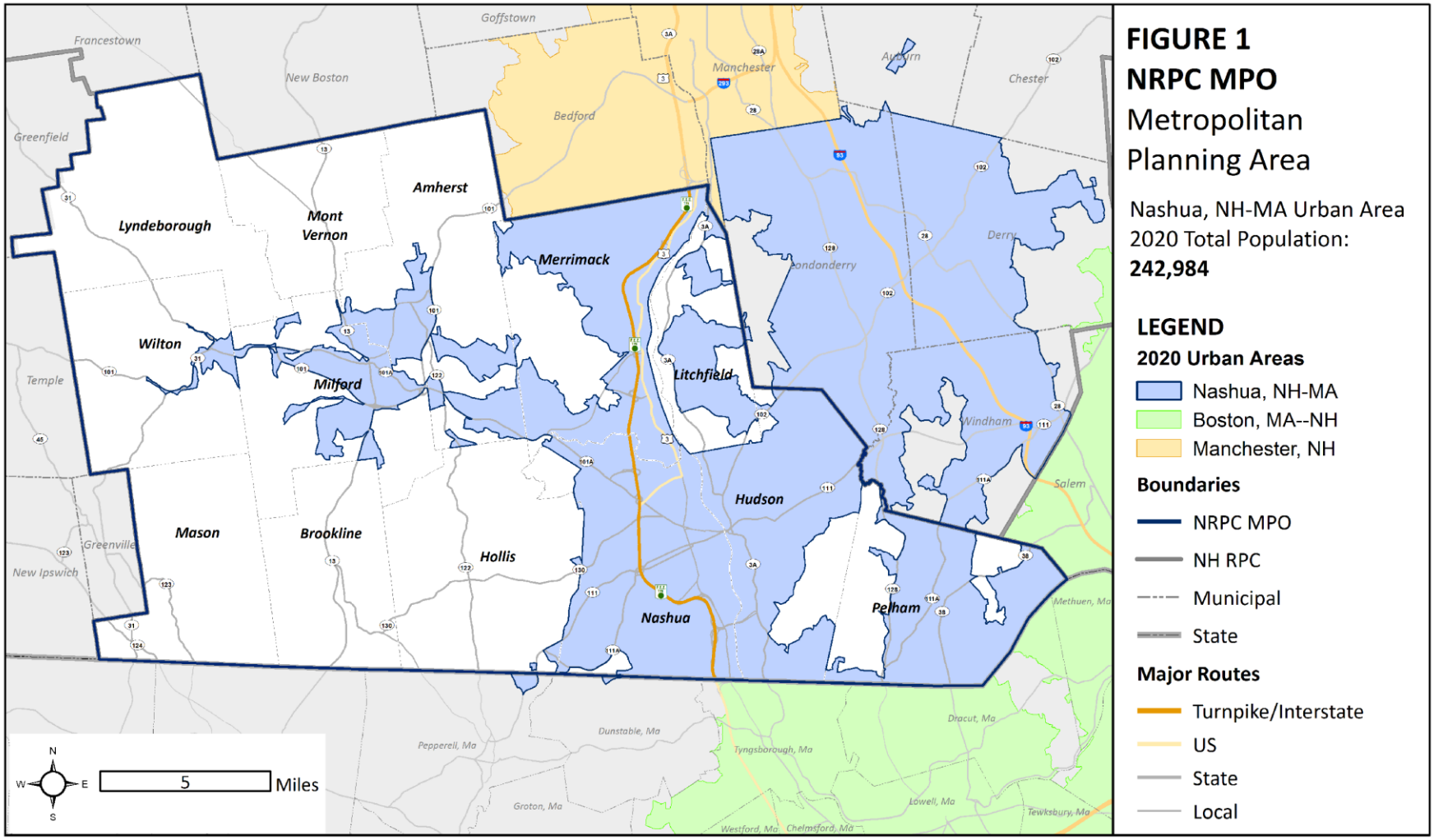
Map 1 – NRPC Urbanized Area with Major Transportation Routes



Highway Network

The NRPC Region is served by approximately 1,900 miles of roads. Though the NRPC Region is not served by an Interstate highway, New Hampshire's FE Everett Turnpike traverses Nashua and Merrimack providing vital links to Route 3 in Massachusetts (to Boston) and north to I-293 and I-93. With an average daily traffic (AADT) count of 112,603 near the NH-MA border and an AADT of 48,039 vehicles (2025) at the northern edge of the region, it is also the region's most heavily traveled roadway. Current and previous traffic count information for all the roads and highways detailed below are **available**. A description of the region's principal highways is provided below.

North-South Routes

FE Everett Turnpike



As noted above, the FE Everett Turnpike is the primary north/south arterial in the region. The Turnpike runs from the Massachusetts (MA) state line northward, through Nashua and Merrimack, and exits the region at the Merrimack/Bedford border. It connects the Boston area with the Nashua region and provides access to the central and northern areas of NH. The region is served by 11 interchanges including exits 1 through 8 in Nashua and Exits 10 through 12 in Merrimack. Exit 12, however, is only a partial interchange that lacks northbound on and southbound off ramps. Until recently, all three interchanges in Merrimack had ramp tolls. After several years of advocacy, the last ramp tolls were removed in 2022. The most recent interchange on the Turnpike, Exit 13, opened in 2011 just south of the Bedford mainline tolls. Exit 13 provides greatly improved access to the Boston-Manchester Regional Airport. In addition, it provided a much faster way for Litchfield residents to access the Turnpike. The Turnpike is a limited access median-divided highway, and the number of travel lanes varies from 3 in each direction from the MA state line northward to approximately Exit 11 in Merrimack where it currently narrows to 2 lanes in each direction creating a pinch point that results in severe congestion in peak hours. A widening project is currently underway.

The NHDOT has a stationary traffic counter on the Turnpike at about the Bedford Town line. Recorded traffic volumes on the Turnpike peaked at 49,623 ADT in 2019 before dropping by 23% to 38,067 ADT during the Pandemic in 2020. Though volumes have steadily increased since 2020,

volumes have yet to return to pre-pandemic levels. The highest recent traffic volumes recorded in 2025 are on a Friday at 58,965 with the lowest volumes recorded on Sunday at 44,808. High Friday traffic volumes are likely the result of people heading to vacation destinations and second homes to the north.



View of Main Street in downtown Nashua

Daniel Webster Highway/Main St/Concord St (US 3)

The Daniel Webster Highway (DW Highway), also known as Main Street in downtown Nashua and Concord St north of downtown to the Merrimack line, is the region's primary north/south route aside from the FE Everett Turnpike. The portion of DW Highway beginning at the Henri Burque Highway and extending northward to the Bedford town line is also known as US3. Within the NRPC Region, the corridor extends from the Massachusetts line in south Nashua, through Merrimack to the Bedford Town line. DW Highway in South Nashua provides access to the region's largest concentration of commercial uses, including the Pheasant Lane Mall, in addition to a large concertation of multi-family residences and office uses. Further north, the corridor serves as the principal spine for Nashua's downtown. DW Highway in Merrimack is also an important commercial/ industrial corridor that provides access to some of the region's largest employers in addition to housing and retail development.

NH3A

NH3A serves as the major north/south route in the NRPC Region east of the Merrimack River. In the NRPC Region, 3A runs from the Tyngsborough, MA line in south Hudson where it becomes River Road and then Lowell Road, through central Hudson where it becomes Derry Street and Webster Street, and into Litchfield where it is known at Charles Bancroft Highway. Lowell Road in south Hudson is a major commercial/industrial corridor



A heavily congested intersection on Lowell Road in Hudson

that serves several shopping centers, including a Walmart, Sam's Club, a major industrial park (the Sagamore Business Park), and a 1.4 million sq. ft. Target distribution center (currently under construction). The Sagamore Bridge intersects Lowell Road between the Sagamore Business Park and the Target site, providing direct access to the FE Everett Turnpike.

In Litchfield, 3A is largely rural/residential with limited commercial uses. 3A continues the entire length of Litchfield into Manchester where it is known as Brown Avenue.

NH13

NH13 provides a north/south corridor from the MA state line in Brookline through Milford and Mont Vernon. It provides an important economic connection to MA as well as a link between Milford and the rural areas to the north and west.

East-West Routes

NH101

NH101 is part of the National Highway System and is a primary east/west corridor in southern NH, connecting the NRPC Region to Keene and the Monadnock Region to the west and the Seacoast to the east. NH 101 enters the western part of the region at the Wilton/Temple line where it continues across Wilton into Milford, connecting to the limited access 101 Bypass. The 101 Bypass circumvents downtown Milford before intersecting NH 101A and then continuing north through Amherst and into Bedford where it connects to the FE Everett Turnpike. Average daily traffic on 101 in 2025 was 6,929 vehicle per day at the Wilton/Temple line. NH 101 has experienced a high number of crashes making it safety priority for the region.

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NH101A

NH101A is part of the National Highway System (NHS) and is a primary east/west corridor west of the Merrimack River. It extends east from Milford to downtown Nashua where it terminates at the intersection of Main Street, providing access to the downtown business district, south Nashua, and MA via the Daniel Webster Highway. Until the 1970s, NH101A was a two-lane rural highway, but as the communities west of Nashua grew, so did traffic volumes. In the mid-70s, the road was widened to 5-lanes from the Nashua/Merrimack town line westerly to just over the Amherst town line. Between 1987 and 1990, the rest of the roadway was widened to its intersection with the NH101 Bypass in Milford. 101A is a heavily used commercial corridor. In addition to serving as a commuter corridor, it provides access to several large shopping centers, big box stores and large office, apartment, and condominium complexes. As a result, the corridor suffers from heavy congestion during periods of peak demand, though various safety and capacity improvements are underway.

NH111

NH111 is an east/west arterial roadway that traverses through the communities of Hollis, Nashua, and Hudson. It extends from the Massachusetts border in the southeastern corner of Hollis, through Nashua where it connects to the FE Everett Turnpike at Exit 5. 111 continues east of the Turnpike through downtown Nashua, over the Merrimack River and into Hudson before existing the region at the Hudson-Windham town line and eventually connecting with I-93 via Exit 3 in Windham. Route 111 is a critical transportation corridor, providing commuters with access to the FE Everett Turnpike and downtown Nashua. The corridor also accommodates retail and commercial services along portions of its route and provides direct access to Nashua High South, the Four Hills Landfill and Public Works Department and Nashua's Police Station. The roadway crosses over the Merrimack River into Hudson via Taylor Falls Bridge where it intersects with NH3A and NH102. This segment, rated as severely congested, represents a major regional traffic choke point as it is the only river crossing for several miles in either direction.



NH 130 in Brookline Village

NH130

NH130 extends westerly from downtown Nashua (Broad Street) to an interchange at FE Everett Turnpike Exit 6, continuing west through Hollis and into Brookline where it intersects with NH13. NH 130 provides important east- west connections between the towns of Brookline, Hollis, and Mason to the west with the Turnpike and downtown Nashua to the east.



Taylor Falls Bridge

Crossing the Merrimack River

There are only two crossings of the Merrimack River within the Region. The northernmost crossing, between downtown Nashua and Hudson Center, is comprised of two one-way bridges: The Taylor Falls Bridge crosses the river in the easterly direction and the Veterans Memorial Bridge crosses in the westerly direction. Both bridges carry two lanes of traffic and are consistently plagued by serious intersection capacity problems on both sides of the Merrimack River. The traffic volume on the Taylor Falls Bridge at the Nashua-Hudson town line was 31,417 vehicles per day in 2025, down from a high of 32,687 vehicles per day in 2019. Despite the slight decline in traffic volumes, the Taylor Falls and Veterans Memorial Bridges and associated connecting streets remain one of the most congested areas in the region.

The Sagamore Bridge is the second and southernmost crossing of the Merrimack River in the region. The bridge was expanded as part of the Circumferential Highway project and connects the FE Everett Turnpike and Daniel Webster Highway with NH3A in Hudson. This is a high-capacity bridge with 4 lanes of traffic in each direction. The bridge is a major commuting route for residents east of the Merrimack River seeking to access the Turnpike. Adjacent to the Sagamore Bridge is the only dedicated bicycle pedestrian crossing of the Merrimack River in the region. The average daily traffic on the bridge at the Nashua-Hudson town line was 44,268 vehicles per day in 2025, a decline from 46,771 vehicles per day in 2019.

In November 2011, the Manchester Airport Access Road opened. This road provides another crossing of the Merrimack River just north of our region. While the primary purpose of the road is to provide direct access to Manchester-Boston Airport from the FE Everett Turnpike, it also improves access to Litchfield. Past analyses have suggested that the highway is located too far north to significantly reduce traffic at the Taylor Falls/Veterans Memorial Bridge or the Sagamore Bridge.

Traffic Volumes and Trends

Table 1 - Stationary NHDOT Traffic Counter Data - 2019 through 2025														
	2019	**2020**	**% Change 2019-2020**	**2021**	**% Change 2020-2021**	**2022**	**% Change 2021-2022**	**2023**	**% Change 2022-2023**	**2024**	**% Change 2023-2024**	**2025**	**% Change 2024-2025**	**% Change 2019-2025**
NH 101 @ Wilton/ Temple Line	7,538	6,315	-16.2%	6,948	10.0%	6,845	-1.5%	6,922	1.1%	6,878	-0.6%	6,929	0.7%	-8.1%
NH101A @ Milford/ Amherst Line	31,121	26,266	-15.6%	29,129	10.9%	29,682	1.9%	30,365	2.2%	28,546	-6.0%	29,097	1.9%	-6.5%
DW Hwy Merr. North of Hilton Dr.	15,553	13,234	-14.9%	14,598	10.3%	14,946	2.4%	15,036	0.6%	15,115	0.5%	15,384	1.8%	-1.1%
Taylor Falls Bridge	32,687	27,588	-15.6%	31,551	14.4%	32,150	1.9%	32,889	2.2%	28,572	-13.1%	31,417	10.0%	-3.9%
Sagamore Bridge	46,771	39,475	-15.6%	43,778	10.9%	44,610	1.9%	45,636	2.2%	44,542	-2.4%	44,268	-0.6%	-5.4%
FEE Turnpike at Bedford Tolls	49,623	38,067	-23.3%	42,679	12.1%	44,288	3.8%	45,907	3.5%	47,164	2.7%	48,039	1.9%	-3.2%
FEE Turnpike at Exit 5	125,544	100,357	-20.1%	110,055	9.7%	114,282	3.8%	118,864	3.9%	118,364	-0.4%	112,603	-4.9%	-10.3%

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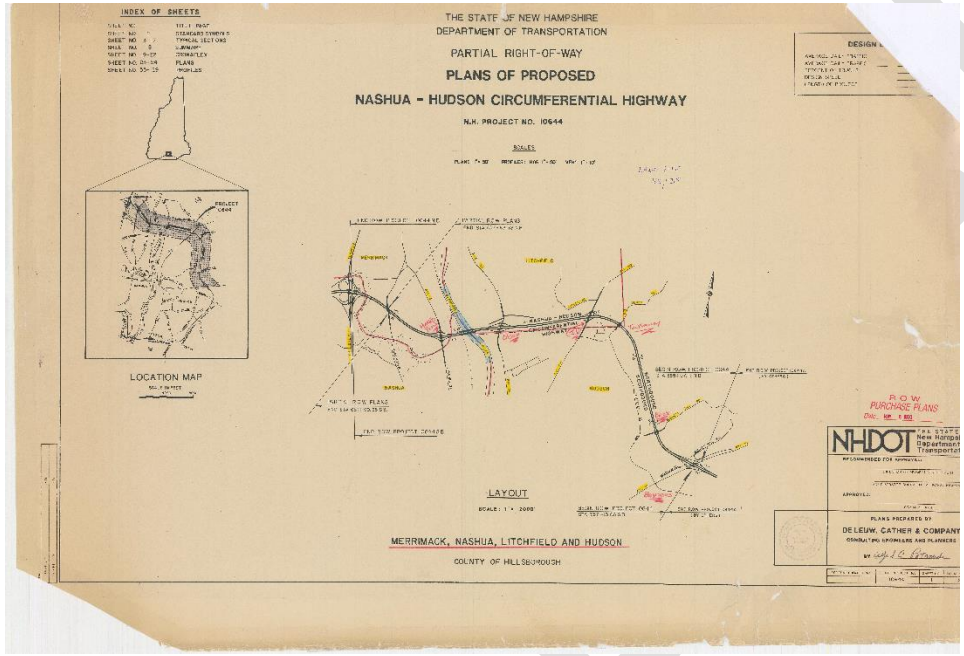
Circumferential Highway

The Circumferential Highway was conceived of in the late 1950s/early 1960s as a four lane divided highway intended to ease traffic flow on the FE Everett Turnpike by diverting traffic around central Nashua through Hudson, Litchfield, and Merrimack. In the 1980s the New Hampshire Department of Transportation formally advanced plans for the corridor which would have run from FE Everett Turnpike Exit 2 in South Nashua, across the Merrimack River on a new Sagamore Bridge where it would loop around central Hudson into southern Litchfield with interchanges at NH 3A, NH 111 and NH 102 in Hudson and 3A in Litchfield. The Highway would have then crossed the Merrimack River into southern Merrimack, connected to DW Highway, and then reconnected with the Turnpike at a new Exit 9. This northerly crossing would have provided the region with a third bridge over the Merrimack, thereby enhancing east-west travel and helping to alleviate congestion at the Taylor Falls/Veterans Memorial Bridge.



Cover Sheet from a 1990 Circumferential Highway ROW Plan

The project, however, faced persistent opposition due to environmental impacts and the US EPA ultimately vetoed the southern section in Hudson based on wetland and wildlife impacts. Further, demand for the project lessened with the widening of the Turnpike in Nashua in the mid-1990s. Despite periods of renewed study and a push by Hudson officials to revive the southerly section as a two-lane controlled access highway known as Hudson Boulevard, the initiative lacked sufficient public support, and a viable funding source was not identified.

Though most of the Circumferential Highway was never built, the initial connection to the Turnpike, the Sagamore Bridge, was completed and hundreds of acres of right-of-way were acquired. In 2025, NHDOT initiated the process to formally abandon the project and dissolve the remaining highway layout and right-of-way. After decades of planning, design and debate, the remaining right-of-way will be declared surplus and sold off for redevelopment or conservation.

Safety

In 2025, NRPC collaborated with New Hampshire's other three MPOs to develop a Safe Streets For All Action Plan (SS4A). As stated in the plan:

"A Safety Action Plan is a detailed, data-driven roadmap that outlines specific measures and strategies to enhance transportation safety, reduce crash frequency and severity, and ultimately achieve zero fatalities and serious injuries. It includes a comprehensive analysis of crash data, identification of high-risk locations and behaviors, and targeted interventions. Developed through collaboration with stakeholders such as transportation agencies, law enforcement, public health organizations, and community members, the plan outlines projects, policies, and ongoing communication efforts to foster a shared understanding and responsibility for safety."

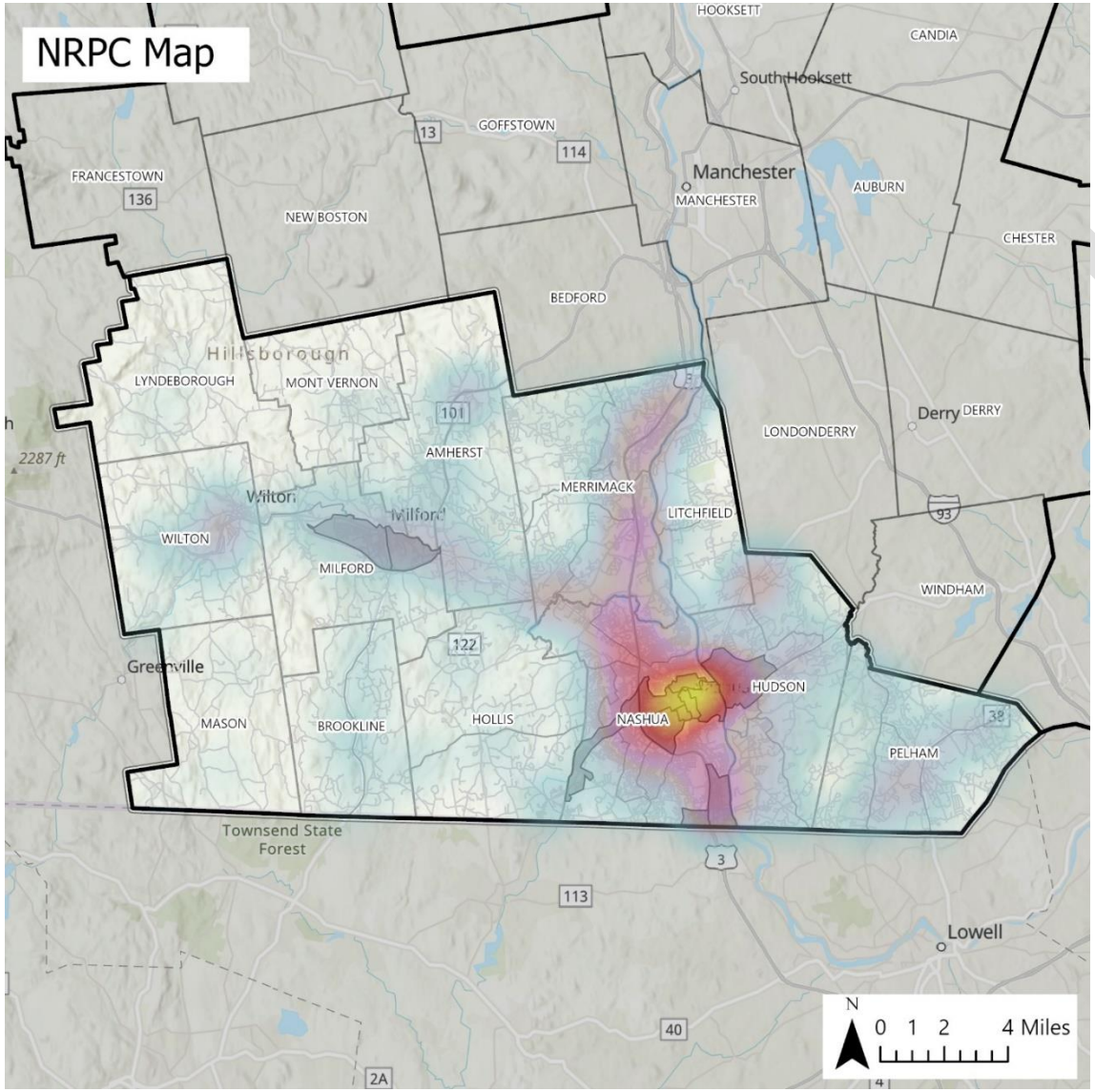


Safe System Approach Illustration

The SS4A plan included a crash analysis for the 2018 to 2022 period. Over that five year-period, the region experienced a total of 52 fatal crashes and an additional 19,044 serious injury, minor injury, possible injury, no apparent injury, and unknown injury crashes. In addition to loss of life, trauma and often life-altering disabilities that result from serious crashes, crashes also cause economic injury and often serious travel delays which impact economic productivity and quality of life.

The SS4A plan emphasizes a Safe System Approach. As noted in the plan: "The Safe System Approach is a holistic and comprehensive strategy for road safety that aims to reduce the risk of severe injuries and fatalities from road traffic crashes. It is based on the understanding that while human error is inevitable, road traffic fatalities and serious injuries are not. It works by building and reinforcing multiple layers of protection to both prevent crashes from happening in the first place and minimize the harm caused to those involved when crashes do occur."

Map 2- SS4A Hot Spot Map



Source: 2025 NRPC Safe Streets for All Action Plan

The SS4A plan identified several "hot spots" in the region where there are relatively large concentrations of fatal, serious, and minor injury crashes (in orange) and "cold spots" (in blue) where lower concentrations exist. The highest concentrations of fatal, serious, and minor crashes are in Nashua and Hudson. Smaller concentrations are shown in Merrimack and Litchfield, as well as Pelham, Wilton, and Amherst

The SS4A plan also identified 50 High Injury Networks (HIN) with the region. The table on the following page depicts the top 20 HIN road segments in the region in rank order. Note that the analysis did not include the FE Everett Turnpike.

Table 2 - NRPC Region High Injury Road Network (HIN)
Top 20 HIN Road Segments in Rank Order

Town/City	Road Segment	Fatal Crashes	Serious Injury Crashes	Minor Injury Crashes	Total Crashes
NASHUA	E Hollis St (NH 111)	0	5	27	32
NASHUA	Kinsley St	1	4	37	42
NASHUA	Main St	0	4	36	40
LITCHFIELD	Derry Rd (NH 102)	1	2	7	10
NASHUA	W Hollis St (NH 111)	1	5	22	28
NASHUA	Daniel Webster Hwy (US 3)	2	5	37	44
HUDSON	Dracut Rd	0	3	14	17
HUDSON	Old Derry Rd	0	3	4	7
HUDSON	Derry Rd (NH 102)	0	4	13	17
WILTON	Gibbons Hwy (NH 101)	1	6	12	19
NASHUA	Concord St (US 3)	1	2	21	24
AMHERST	Route 101	2	6	9	17
NASHUA	Broad St (NH 130)	0	3	25	28
PELHAM	Bridge St	0	5	38	43
NASHUA	Amherst St (NH 101A)	2	4	124	130
MERRIMACK	Continental Blvd	0	3	13	16
HUDSON	Wason Rd	1	2	8	11
MERRIMACK	Daniel Webster Hwy (US 3)	0	6	34	40
AMHERST	Route 101A	1	2	16	19
BROOKLINE	Route 13	1	4	7	12

Source: 2025 NRPC Safe Streets for All Action Plan

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Planned Highway Improvements

FE Everett Turnpike Improvements



F.E.E. Turnpike Widening

During the 1990's the F.E.E. Turnpike was widened in Nashua to a minimum of three lanes in each direction from the Massachusetts state line to Exit 7 at NH 101A, with the most travelled segment between Exits 5 and 6 having five lanes per direction. The remaining phases of this project will widen the 2-lane segments between Exit 8 (Nashua) Exits 10, 11, 12 (Merrimack) to I-293 in Bedford. The project will also address bridges within the widening segments that have not been substantively improved since their construction during the 1950's. This project is currently under construction and will be ongoing through FY2034.

F.E.E. Turnpike Open Road Tolling (Bedford-Merrimack)

The NHDOT will be implementing All Electronic Open Road Tolling at the Bedford toll plaza, which will remove toll barriers and install new electronic systems which will enable toll collection with vehicles maintaining highway speeds. The system is now in place at the Hooksett and Hampton toll plazas. This project will have a substantial impact on congestion and will improve the safety of toll collection on the turnpike. The project is scheduled to be completed in 2026.

F.E.E. Turnpike ITS Deployment (Nashua to Concord)

The NHDOT has programmed the implementation of intelligent transportation systems (ITS) on the Everett Turnpike. The project entails the design, planning and installation of dynamic message signs, closed-circuit video cameras, roadway detectors, and wireless communications linking the ITS components to NHDOT's Transportation Management Center. These systems streamline incident response and management, improve safety in work zones, facilitate greater fuel efficiency for drivers, and create "smart roads" that could potentially guide future autonomous vehicles. Safety will be enhanced by increased awareness of work zones and improved emergency response time.

FEE Turnpike Exit 5 Reconfiguration

The project addresses traffic and safety related issues for southbound traffic exiting the turnpike at exit 5E onto the overhead West Hollis

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Street on-ramp to travel to the east toward downtown. This traffic competes with eastbound traffic from West Hollis and Main Dunstable Road. All eastbound traffic converges at a very short weave section on West Hollis Street between the turnpike southbound off ramp and the turnpike northbound on ramp and is further exacerbated by the conflict between turnpike off-ramp traffic to West Hollis Street and northbound turnpike on-ramp traffic. The 500-ft. weave section along West Hollis Street is too short for the conflicting traffic movements. Queues back up on the ramp during peak periods to the southbound turnpike collector-distributor roadway segment.

The proposed project would realign the Exit 5E southbound off ramp with the traffic signal at the junction of Main Dunstable Road and the turnpike southbound on ramp. This approach would eliminate the exit from the southbound turnpike traffic onto West Hollis Street. Traffic would exit the turnpike onto Main Dunstable Road and turn right onto West Hollis Street from Main Dunstable Road where two right turn lanes exist.

This project (Project #42594) was included in the FY2025-2024 S TYP but was removed from the draft FY2027-2036 TYP during the legislative process.

NH 101 Corridor Improvements (Wilton/Milford/Amherst)

NH 101 corridor improvements have been programmed into the TYP based on findings of The New Hampshire Route 101 Corridor Plan (September 2002). The stated purpose of the plan was to improve safety and preserve the capacity of the roadway as land use patterns change along the corridor. The recommended plan was designed to result in a better-operating, more visually appealing arterial, as well as reduced traffic diversion to local streets. The project has evolved to include two projects (Project #13692D and #13692E) that will provide safety improvements along the corridor at a smaller scale than was originally envisioned. Project #13692D (safety improvements on the Milford Bypass) was completed in FY2025. Project #13692E (safety improvements in Amherst) is scheduled for construction in FY 2034.

NH 101A Widening (Nashua, Merrimack)

The NH 101A Corridor Master Plan and Improvements Program (December 2002), proposed various capacity improvements to reduce congestion, increase speeds to efficient levels, and decrease vehicle miles by reducing the diversion of traffic to parallel routes.

TIP Project #10136A in Nashua would widen NH101A to three travel lanes per direction from Somerset Parkway and to Celina Avenue. The project will include pedestrian, bike, and transit improvements. Right of Way acquisition is scheduled for FY2030, 31, & 32 in the draft FY2027-36 TYP. Construction is not included in the draft TYP pending identification of a funding source.

In Merrimack there are three NH 101A travel lanes westbound from Continental Boulevard to Boston Post Road and two lanes eastbound. Improvements to the Continental Boulevard intersection with 101A will include a second lane for right turns from Continental Boulevard onto westbound 101A and a new right turn lane from 101A westbound onto Continental Boulevard . Non-motorized travel will also be enhanced with sidewalks, bike lanes, and a signalized crosswalk across 101A at the Continental Boulevard intersection. Traffic calming measures have been implemented with the reconfiguration of Boston Post Road and Craftsman Lane, and a public right-of-way through the parking lot at the Merrimack Valley Baptist Church has been discontinued. This project is expected to be completed in 2026.

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US 3 Daniel Webster Hwy./Wire Rd. (Merrimack)

Wire Road intersects Daniel Webster Highway (US3) at a significantly skewed angle which impacts sight distance of traffic approaching from the north on DW Highway. TIP Project #29174 will realign the intersection, and improve bicycle and pedestrian safety. This project has been combined with the bridge replacement over Baboosic Brook (BR. # 118/135) project and is scheduled for constructions in FY2026.

NH 13 Improvements (Brookline)

NH 13/South Main Street Realignment

Ten Year Plan Project #43768 in the draft FY2027-36 TYP entails the realignment of NH 13 and South Main Street to a configuration yet to be determined.. The project is intended to address safety, as right-turning vehicles from northbound NH 13 to South Main Street can take the obtuse angle at a high speed, posing a hazard particularly to vehicles exiting the business directly across the highway. The project is scheduled for construction in FY2027

NH 13/Old Milford Road

TIP Project #40662 will provide safety improvements to the NH13 Old Milford Road intersection. The improvements may include a dedicated southbound left turn lane onto Old Milford Road. Motorists report difficulty turning southbound from NH13 onto Old Milford Road, which provides access to a large residential section of the town. Vehicles moving southbound on NH13 use the southbound shoulder to pass vehicles queued to turn left which motorists report as unsafe. Although congestion reduction is not a priority, as the intersection operates at Level Of Service B, minor queuing on Old Milford Road would be lessened by improving gaps in the major approach volumes. This project is scheduled for preliminary engineering in FY2027, but the construction phase has been removed from the TIP and TYP pending identification of a funding source.

*NH 13/Ruonalla R*oad

This project will realign the skewed intersection of Ruonalla Road and NH13. The project is included in the FY2027-36 TYP and scheduled for construction in FY2032.NH122 Improvements (Amherst)

NH122/Merrimack Road

Project #44227 in the FY2027-2036 TYP will complete a longstanding improvement project that has been deferred for many years at the intersection of NH 122 and Merrimack Road by addressing established flaws in the intersection. The scope of this project includes a modern roundabout along with bicycle and pedestrian safety improvements. Preliminary Engineering is scheduled for FY2032 and Construction is scheduled for FY2036.

Bridge & Canal Complete Streets Improvements, Nashua

The project begins on Canal Street at Railroad Square near Main Street and continues east over the Canal Street bridge, where the street continues as Bridge Street, toward the Taylor Falls/Veterans Memorial bridges over the Merrimack River. The proposed improvements include pavement replacement, adjustments to curbs and reconstruction of sidewalks and curb ramps. New pavement markings will re-assign the street's use in terms of travelled way, parking, and bike lanes. Drainage problems will also be addressed.

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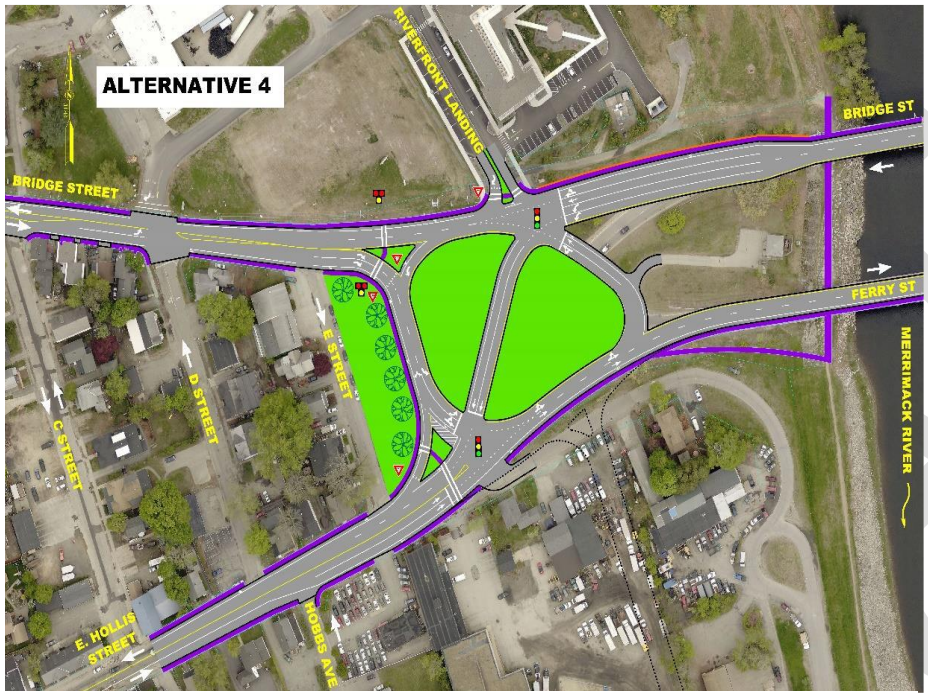
NH 111 Improvements



Recommended Alternative showing intersection improvements, sidewalks, and landscaping.

NH 111 - East Hollis St and Bridge Street Intersection Reconfiguration (Nashua)

As mentioned above, the Taylor Falls Bridge Area has historically been in the top tier of highly congested areas in the Nashua region. Limited Merrimack River crossings in the region focus a great deal of east-west traffic to this area and the junction of Bridge Street and East Hollis Street on the Nashua side results in significant delay for drivers eastbound from Bridge Street to Ferry Street and westbound from Bridge Street to East Hollis Street. An improvement project was added to the TYP, and a study was conducted to select a preferred improvement alternative. The project is intended to address traffic congestion, queues, lack of bicycle and pedestrian accommodations, safety concerns, improving access to Crown Street and new development and to provide a more welcoming gateway into Nashua. Several alternatives were considered, with the preferred alternative shown in the following figure to the left.

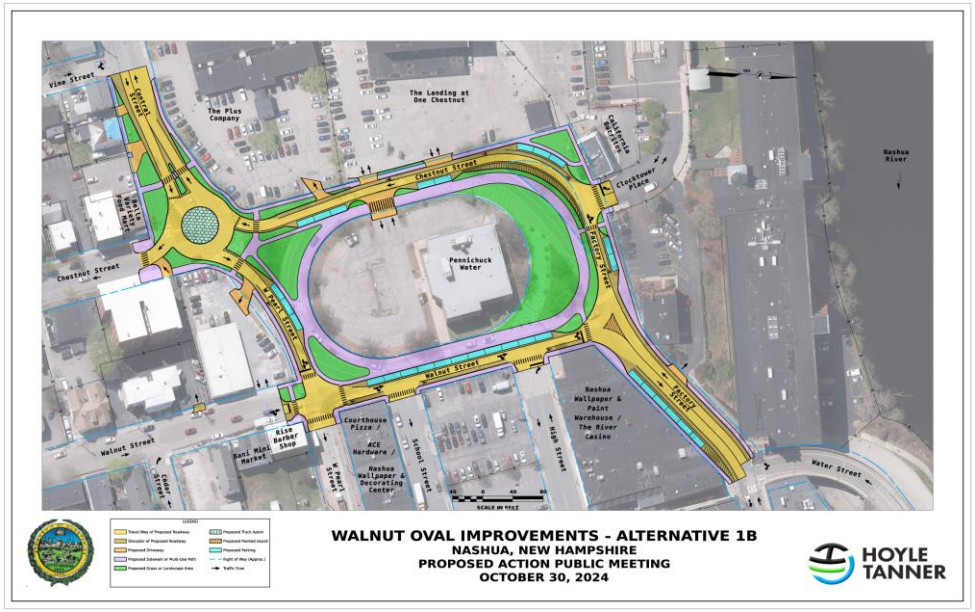
NH 111 East Hollis Street Intersection Improvements – Main Street to C Street (Nashua)

East Hollis Street serves as a downtown arterial that services regional east-west traffic, linking the FE Everett Turnpike and the Nashua core area with Hudson and points east. The roadway is utilized locally to access residential and commercial locations. Vehicular traffic is impeded by several factors including inconsistent cross-section, poor pavement conditions, inconsistent pavement markings/signage and inadequate shoulders and sidewalks in many locations. Pedestrian and bicyclist safety are a primary concern of the improvement program.

The project currently proposes eleven-foot travel lanes to provide adequate width without encouraging excessive operating speeds. Options for using either wide shoulders for bicycle use or narrow shoulders coupled with wider sidewalk/bikeways will be considered. Streetscape improvements include consistent lighting and landscaping. The project evolved from the 2004 East Hollis Area Study which included an in-depth public outreach effort. TYP Project #40660 is scheduled for Preliminary Engineering FY2032and Construction in FY2035 in the draft FY20267-36 TYP.

NH 111 - West Hollis Street Improvements

The City of Nashua has proposed improvements to a 2.9-mile corridor along West Hollis Street from Riverside Street to the Hollis Town Line. This critical corridor provides access to the FE Everett Turnpike and downtown Nashua from Hollis and Pepperell, MA, while providing access to the Four Hills Landfill and DPW facilities, the Police Station, NTS garage, Nashua High South, a recreation complex including a branch YMCA, the Conway Ice Arena and Stellos stadium as well as several residential developments and various commercial and other civic uses. The project would include intersection, access, traffic signalization, sidewalk, and bicycle infrastructure improvements along with additional crosswalks and speed mitigation measures. Funding has not yet been secured



NH 111 - West Gateway Improvements (Nashua)

This project entails the reconfiguration of the West Gateway of downtown Nashua, including the Walnut Street Oval and one-way street pair of Factory and West Pearl Streets to improve traffic flow, reduce speeds and improve pedestrian access. The reconfiguration would transform the oval into a city block configuration. Improving pedestrian access and safety is a major objective. The oval width and continuous fast speed operation create a physical and psychological barrier between the downtown and the Millyard. TIP Project #41586 provides funding for the intersection improvement component of this project and construction is scheduled for FY2027.

Transit

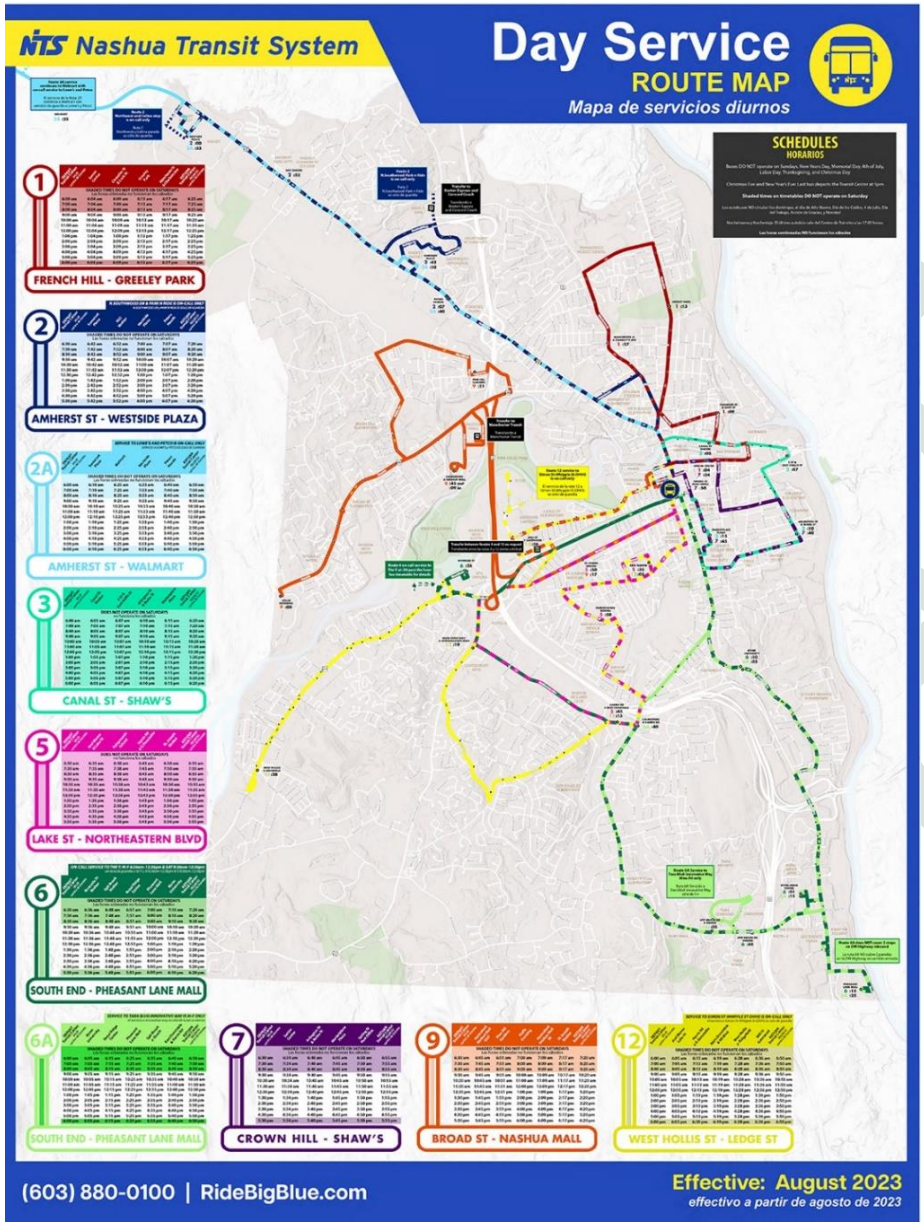




Bus Service

Fixed-route transit service in the region is limited to the Nashua Transit System (NTS) which provides bus service throughout the City of Nashua along with service to the Walmart in Amherst. Notably, NTS is one of the few transit operators in the state to provide nighttime service. No other fixed-route transit service is currently provided in the Region's other twelve communities.

Fixed-route inter-city bus service to Boston is provided by Boston Express which offers daily service between the FE Everett Turnpike Park & Ride facility at Exit 8 in Nashua, South Station in Boston, and Boston-Logan International Airport. There is also a stop at the Park & Ride in Tyngsborough right over the NH/MA border which is used by many residents of the region. Boston's South Station, located in the city's Financial District, provides direct access to one of New England's largest employment centers as well as providing connections to Amtrak passenger rail service to New York City, Washington, DC, and other destinations along the Northeast Corridor, as well as connections to the MBTA's Redline subway, the Silver Line Rapid Transit Bus service, Commuter Rail lines, and several inter-city bus services. Boston Express is the only transit operator that offers seven-day-a-week service including evenings. In addition, the Manchester Transit Authority (MTA) provides fixed-route intercity bus service between the Nashua Transit Center in downtown Nashua, the Manchester-Boston Regional Airport and downtown Manchester.



In addition to fixed-route service in Nashua, the Nashua Transit System provides on-demand service on a contractual basis to the towns of Hudson and Merrimack providing older individuals and people with disabilities access to critical destinations such as medical appointments.

The Souhegan Valley Transportation Collaborative (SVTC) provides similar services, also under a contract with NTS, for senior and disabled residents of Amherst, Brookline, Hollis, Milford, Mont Vernon, and Wilton. Pelham offers limited service, mainly for medical appointments and grocery shopping at no cost for all senior residents of the town through its Hobbs Center Bus. Though volunteer ride programs do help fill some gaps, until recently, little to no service has been available to residents of Litchfield, Mason, or Lyndeborough.

In 2024, a collaboration between NRPC, the NRPC Foundation and The Greater Nashua Regional Coordination Council for Community Transportation (RCC7) established the **Greater Nashua Community Rides Pilot Program**. This innovative program combines funding from multiple sources to fill gaps in transportation services for seniors, residents living with a disability, and low-income riders. These include wheelchair-accessible services, rides to destinations outside of the Greater Nashua service area including medical appointments at Dartmouth-Hitchcock (Lebanon, NH) or Boston as well as evening and weekend services within the region. The Rides can offer expanded services by covering the cost for taxis, Uber, and Lyft rides, and for other private ride services. The program also provides free public transit bus passes.

Passenger Rail

Despite its proximity to Boston, the NRPC Region has no passenger rail service, though many commuters drive to the Gallager Terminal in Lowell to access MBTA commuter rail service into Boston's North Station. Efforts to extend commuter service to Nashua and Manchester as part of what is known as the New Hampshire Capitol Corridor initiative have continued on and off for several years. The Capitol Corridor project would extend an existing commuter rail line running from Boston's North Station to Gallager Terminal in Lowell, MA, further north into New Hampshire to connect Nashua, Manchester, and the Manchester-Boston Regional Airport to Boston



Illustration of a possible South Nashua Commuter Rail Station

Transit Improvements

Currently, approximately 58 percent of residents in the Nashua Region do not have access to fixed-route transit, which with the exception of a stop at Walmart in Amherst, does not extend beyond Nashua's boundaries. The three most promising candidates for extended transit service in the region are Hudson, Merrimack, and Milford. Hudson has been previously identified by NRPC's Transit Plan for the Nashua Region as having the highest overall need for transit service.

Various Transit Studies have identified the following potential transit routes:

- NH 101A between Nashua and Milford - fixed route service between downtown Nashua and Milford including service to major employers. The project would address the need for fixed route bus service providing transportation for transit dependent populations living in Nashua, who are seeking manufacturing employment opportunities in Milford as well as Milford residents seeking access to employment, education, medical and shopping destinations both in-town, along NH 101A and in the City of Nashua. In 2023, NRPC unsuccessfully applied for CMAQ funds to support a pilot NTS service to Milford. A map of the proposed route is shown on the following page.
- Continental Boulevard and Daniel Webster Highway, Merrimack – Some of the region's largest employers, including BAE Systems, Fidelity Investments, and the Merrimack Premium Outlets, are situated in industrially zoned areas in southeastern Merrimack. These locations are all within approximately two miles of existing NTS Route 1 along Manchester and Concord Streets. Given the concentration of multi-family developments along the length of the DW Highway corridor in Merrimack, a route extending further north may be feasible.
- NH 3A in Hudson - The extension of NTS Routes 6 and 6A into Hudson would serve several major destinations, including the Sagamore Business Park, Wal-Mart, Sam's Club, and the future 1.4 million square foot Target Distribution Center. It would also serve densely populated neighborhoods surrounding Hudson's town center and multi-family residential developments along the Lowell Road corridor.
- Nashua Shuttle to Lowell Gallagher Transit Terminal – the implementation of passenger rail service is still uncertain. In the meantime, it may prove beneficial to initiate a Nashua to the Lowell Gallagher Transit Terminal shuttle as an interim service. A shuttle service is somewhat less convenient than a passenger rail extension to Nashua, as the shuttle would travel highways with a degree of congestion to reach Lowell Terminal, as opposed to boarding a train in south Nashua. Initial analysis indicates that most if not all of the operating cost of the service could be covered by passenger fares.
- Nashua Shuttle to Alewife MBTA Station – A direct shuttle from Nashua to Alewife could provide a more convenient path for commuters who travel to MBTA Red Line stations in Cambridge and Mass General in Boston than passenger rail service to Boston via Lowell since it avoids the need to transfer to the Green Line at North Station followed by another transfer to the Red Line at Park Street Station for a back-tracking trip to the final destination. There may also be potential reverse commuter ridership.

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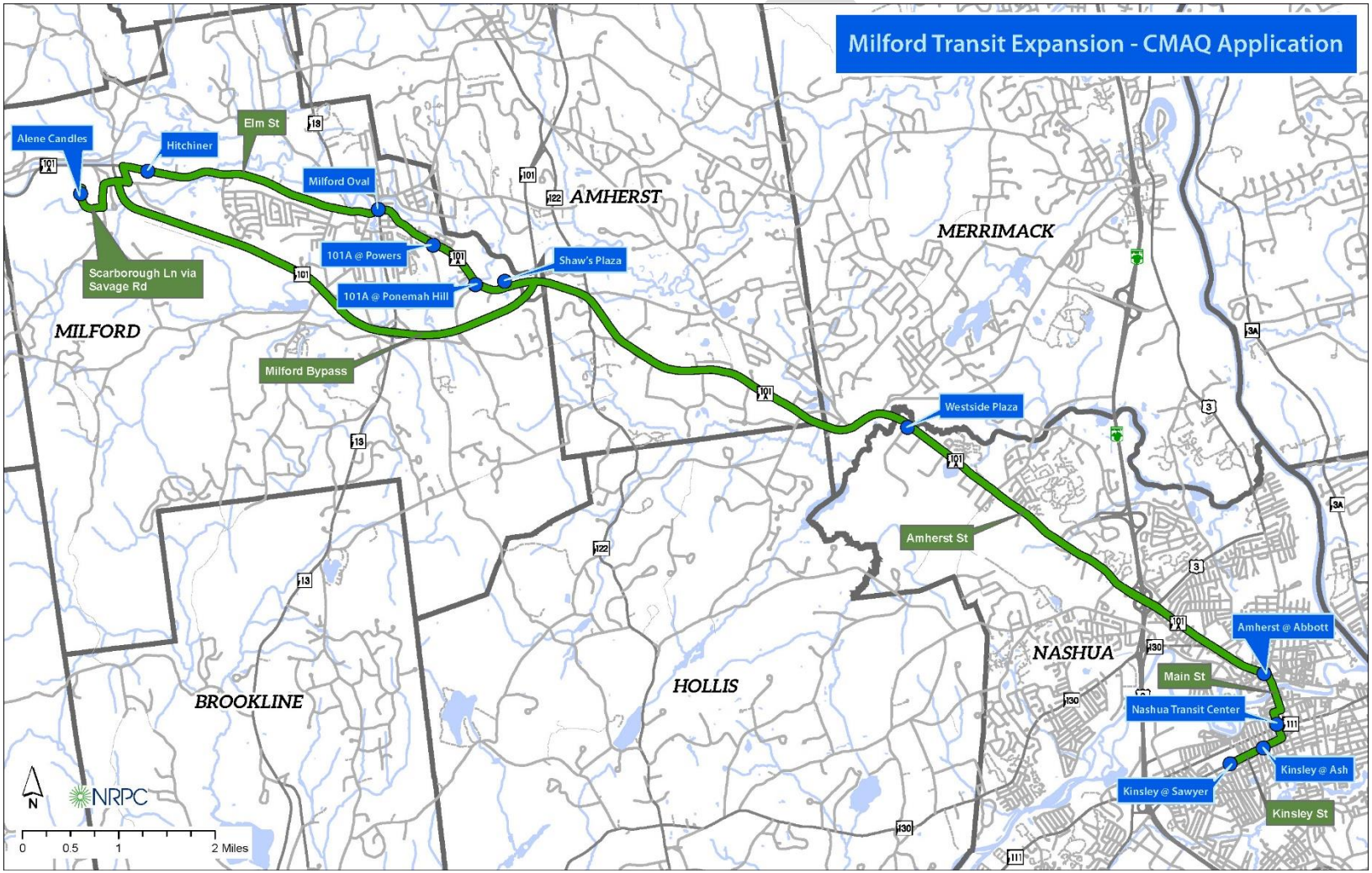
- Nashua Shuttle to University of Massachusetts, Lowell. Because a large number of UML faculty and students live in ethe Nashua area, a shuttle service is likely to be successful, though it may require subsidy to keep fares affordable. Charging a moderate fare reduces the ridership potential to a level that would not support the service.



Bicycle & Pedestrian Mobility



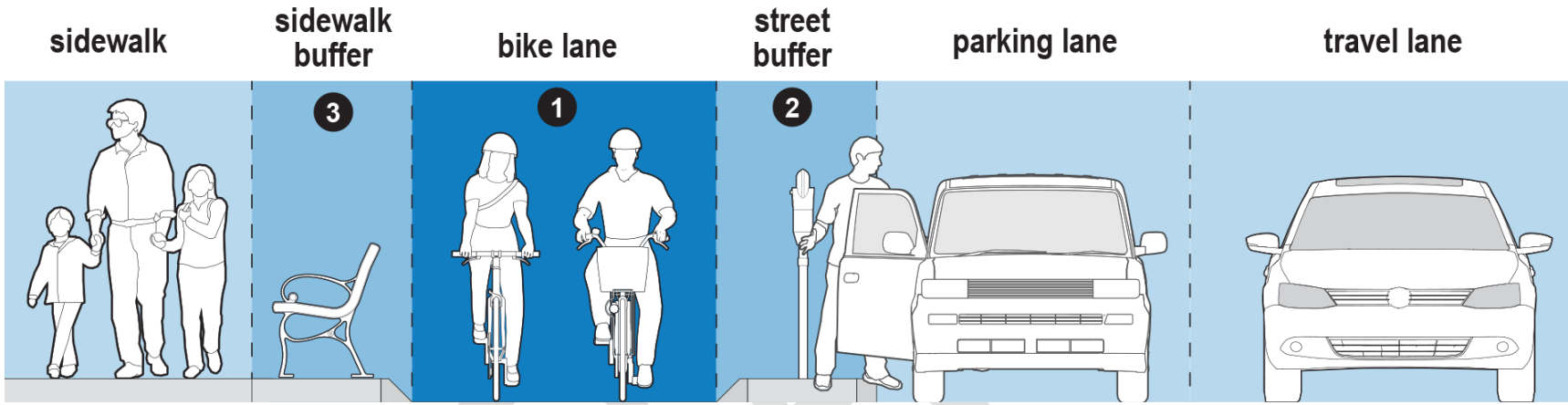
Typical urban/suburban sidewalk in Nashua

Pedestrian infrastructure in the region is well developed in most downtown and village center areas, but it is limited in most rural and suburban areas. According to the *2023 New Hampshire Bicycle and Pedestrian Plan,* there are 67 miles of paved sidewalks in the NRPC region. There are also 30 miles of trails, 167 miles of state roads with paved shoulders, but only ½ mile of dedicated bike lanes. To fill existing gaps in the Region's sidewalk network, an additional 36 miles of sidewalk is recommended in the state plan. Multi-modal paths are found along rail trails in Amherst, Brookline, Mason, Merrimack, Milford, Nashua, and along Albuquerque Avenue in Litchfield. Dedicated bike lanes along roads are limited to sections of recently improved highways and are not sufficiently developed to form a comprehensive network.

A priority of the NRPC is to encourage a shift from motorized to non-motorized travel for short trips wherever possible. Shifting trips from driving to walking and biking reduces congestion, lowers emissions, and improves air quality, and improves physical and mental health and overall well-being. Walking and biking also provide enhanced opportunities to experience the outdoors, to meet neighbors, and increase connectiveness to our communities.

To encourage increased walking and biking in our communities it is essential that safe accommodations are available along streets and roads or on appropriately designed multi-use paths. It is also essential that these accommodations are designed to accommodate all users including people with wheelchairs and other mobility devices and people with strollers. Pedestrian accommodations also must include signalized or unsignalized crosswalks at intersections and at mid-block locations as needed. What forms these accommodations take varies according to the nature of the roadway. On rural roads with moderate levels or traffic and speed, paved shoulders may suffice. On residential urban and suburban streets, bicycles

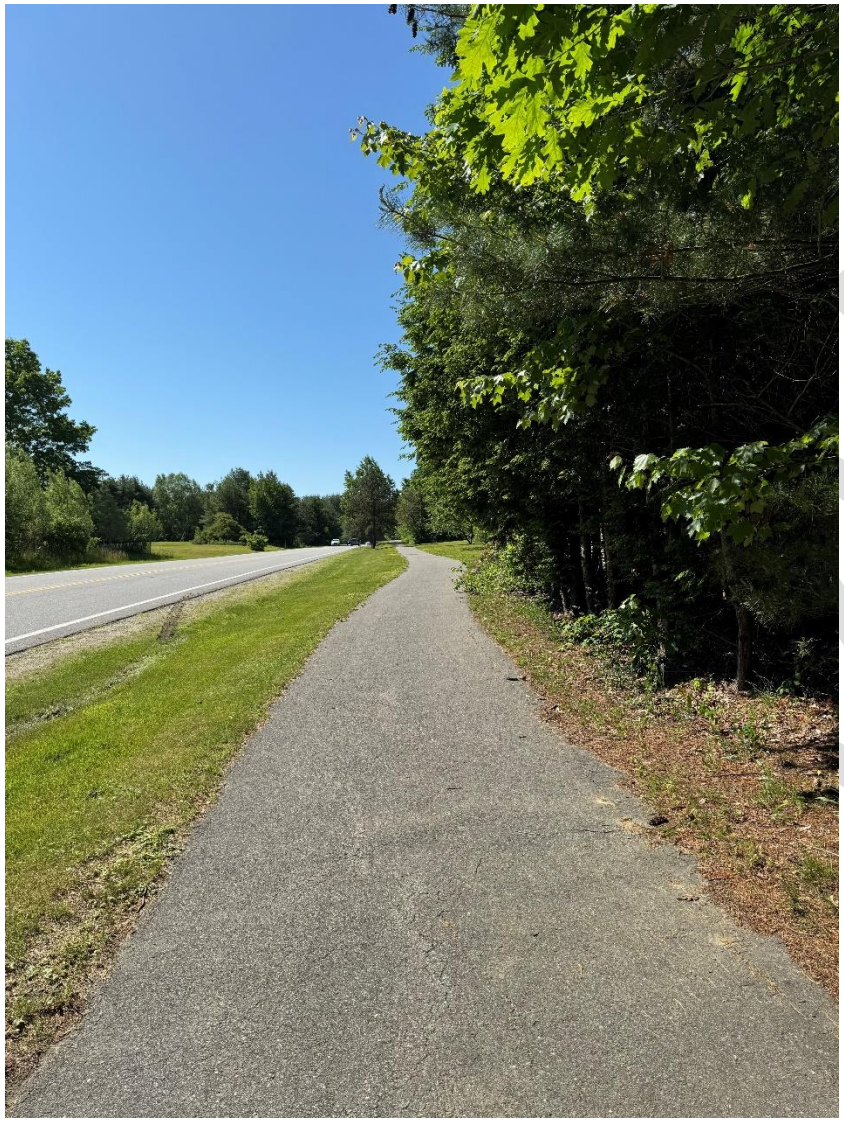
can generally share the road with automobiles and a four to five foot wide sidewalk for pedestrians, ideally separated from the road by a grass to landscaped panel, is generally sufficient. This is especially true in areas with on-street parking. Parked cars provide an excellent barrier between travel lanes and sidewalks and greatly increase a sense of safety for pedestrians. In downtown areas and business districts, wider sidewalks are required and on busier roads, a higher degree of separation is needed between bicycles, pedestrians, and motorized vehicles. Some examples of interventions appropriate under various conditions are provided on the following pages, including examples from within the NRPC Region.





The figure above, provided by the American Association of State Highway and Transportation Officials (AASHTO), illustrates a preferred condition for a major downtown street such as Main Street in Nashua. On the far left it shows sidewalks of sufficient width to accommodate multiple users together with a buffer area for benches, street trees, trash cans, and other similar items. A bike lane, at least five feet in width separated by a street buffer is provided due to higher traffic volumes and congestion. The street buffer can also be used for parking meters and traffic signage. Additional buffering is provided by a parking lane.

To the left is a picture of a section of Commonwealth Avenue in South Boston showing a protected bike lane at an intersection separated by a street buffer together with a sidewalk buffer.





To the left is a portion of the multi-use path along Albuquerque Avenue in Litchfield. Albuquerque Avenue is a limited access two-lane road that serves as Litchfield's principal arterial, linking several neighborhoods with parks, schools, and the Town Hall complex. Note the wide separation and grade difference between the path and travel lanes. Due to the design speed of Albuquerque Avenue and its rural/suburban setting, a separated side path is the most appropriate accommodation for bicycles and pedestrians in this area. Its typical width of only 8 feet, however, is the minimal acceptable for a multi-use path. Generally, a width of at least 10 feet is preferred. Above is a section of heavily used Heritage Rail Trail in Nashua. The trail is located between heavily trafficked West Hollis and Kinsely Streets in one of Nashua's most densely populated areas. As such, the trail functions as a transportation corridor as well as a recreational trail.







Above left is unsignalized crosswalk on Manchester Street in Nashua. The crosswalk uses color and texture to make the crosswalks more visible to motorists. The use of stamped pavement also creates rumble effect that can help reduce speed. Note the use of ramp curbs for accessibility.

In addition to sidewalks paths and trails, supporting bicyclists and pedestrians, providing amenities such as bike racks, benches, trash receptacles and ideally access to drinking water and restrooms where possible. The image above to the right depicts a sheltered bike rack in Cambridge, MA. Protecting bikes from rain is a helpful accommodation. On the lower left is an image of an age-friendly bench installed in Boston. Age-friendly benches have raised armrests on the ends and center of the bench as well as raised seats and backs for easy support. These features provide better back support while sitting and make it easier for people to sit and get back up. Benches should also be made of temperature-resistant materials. Benches without backs, though they can be ornamental, should not be installed where the primary purpose is to provide seating.

Bicycle & Pedestrian Count Data



Installing a bike/ped counter in Milford



Bike/ped counter at Palmer Bartell Forst Trailhead

Biking and walking have many advantages but just as traffic counts, turning count movements and travel speeds are necessary for planning road improvements, usage data for biking and walking is necessary to target infrastructure investments, plan for future biking and walking growth, and design bike-ped infrastructure improvements. Currently, NRPC deploys several portable automatic counters throughout the region to develop and

track baseline data. NRPC continues to conduct a robust bicycle and pedestrian counting program. NRPC traffic count locations and data can be viewed **here**. In addition to deploying counters, NRPC also uses GPS to map trails throughout the region.

Notable Bicycle and Pedestrian Improvement Projects

Amherst: Baboosic Greenway

The primary purpose of the Baboosic Greenway is to create a regional off-road trail network to enhance safety and increase mobility for nonmotorized transportation. The initiative, broken up into several individual projects, utilizes abandoned B&M Railroad property as well as Town owned property to provide a future continuous non-motorized path over six miles in length running north to south in Amherst.

Hudson: NH 3A and NH 102 Non-Motorized Improvements

The Town of Hudson has included eliminating gaps in non-motorized infrastructure along sections of NH 3A (Lowell Road), and NH 102 (Derry Road).. The project on NH 102 would continue the pedestrian/bike lane from Towhee Dr. to Megan Dr. and from Phillips Dr. to the Hudson Mall. On NH 3A sidewalks would be continued from Birch St. to Pelham Rd. The projects have been in the MTP for a number of years; however, the Town has not moved toward implementation through a Transportation Alternatives Program application. The Board of Selectmen affirmed the projects as future goals, and it is recommended that the Town pursue TAP funding for one or more segments in the next application round.

Merrimack: Town Center Sidewalks

The Town of Merrimack has received federal TAP grant funds to construct 3,600 linear feet of sidewalk from Souhegan River (Chamberlain Br.) to Merrimack 360 Plaza on DW Highway. The project connects a number of Town facilities and commercial establishments with the town center. Construction is anticipated to be completed in 2032. Merrimack has also been approved for funding to continue an existing sidewalk on Baboosic Lake Road in the Town Center area from DW Highway to O'Gara Drive with construction scheduled to be complete in 2036.

Milford: Pedestrian Linkages

Rehabilitation of the historic Swing Bridge in downtown Milford would maintain an important nonmotorized network serving recreational programs. Construction is scheduled for completion in 2028. In addition, a 200 ft. pedestrian bridge over the Souhegan River together with a 3000 ft. path/trail is planned for construction in 2037. This project would create direct pedestrian linkages to the Souhegan River, existing trail systems, the elementary school, parks, a recreational center, and the downtown center. Several additional sidewalk improvements are also planned around the downtown area.

Nashua Heritage Rail Trail East

The Heritage Rail Trail East project will extend the existing Heritage Rail Trail West' from its terminus at Main Street in downtown Nashua and continue the multi-use path to the East Hollis Street/Denton Street intersection, roughly doubling the length of the heavily used bicycle and pedestrian corridor. Unlike many multi-use paths and trails that are used mainly for recreational purposes, the Nashua Heritage Rail serves as an

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important pedestrian corridor through some of the region's most economically disadvantaged neighborhoods with relatively low levels of automobile ownership. The project is scheduled for construction in 2027.





Nashua Riverwalk

In 2025, Nashua completed most of the western section of the long-planned Nashua Riverwalk in its downtown and historic Millyard areas. Key elements included two new pedestrian bridges to connect Main Street to an existing path on the north side of the Nashua River and a connection between Bicentennial Park on Main Street and a revamped *Le Parc De Notre Renaissance Francaise* on the south side of the river. In 2024, a wheelchair accessible ramp was built to connect the existing path on the north side of the river to the historic Cotton Transfer Bridge which forms the western end of the Riverwalk loop. Completing the eastern portion of the Riverwalk will require connecting an existing cantilevered walkway on the north shore of the river adjacent to the Peddler's Daughter restaurant and Jackson Falls Condominiums to a new pedestrian bridge at the eastern terminus of the project and a new pedestrian walkway on the south bank of the River between Main Street and an existing unimproved path near the Library. When completed, the 2.8-mile loop will connect hundreds of apartments and condominiums with restaurants, shops, offices, the Public Library, and parks in the heart of downtown Nashua.

Main Street Reconstruction/Streetscaping Project (Imagine Main Street

The Main Street reconstruction and streetscaping project (Imagine Main Street is essentially a complete streets project that would reconfigure approximately 1.5 miles of Nashua's Main Street in a way that prioritizes the reduction of speed and minimized motorized vehicle-pedestrian

conflict along the corridor by re-orienting the street towards the non-motorized-user. The project is based on recommendations from the 2021 *Imagine Nashua Plan* master plan. The project would include a road diet, reducing four through lanes to two with a center turn lane and center median for loading/unloading of trucks, creation of protected bikes lanes, reconfigured parking areas, expanded sidewalks for pedestrian mobility and outdoor dining space, and designated transit bus boarding and alighting areas. Multiple funding alternatives are currently being pursued.

Freight Railroads



The Hillsborough Branch in Milford

There are 2 freight railroad lines operating in the NRPC Region:

New Hampshire Main Line - The New Hampshire Main Line is 39 miles long and runs in our region through Nashua and Merrimack. CSX acquired the line from Pan AM Railways in 2022. The line is maintained to FRA Class 3 from Nashua to Manchester, Class 2 between Manchester and Bow, and Class 1 between Bow and Concord. According to the Federal Railroad Administration (FRA), the maximum allowable operating speeds are 10 mph on Class 1, 25 mph on Class 2, and 40 mph for Class 3 freight trains. There are 11 bridges and 23 grade crossings along the line. CSX, operating from the Massachusetts state line to Bow, delivers unit coal trains and local freight to Nashua, Merrimack, Manchester, and Concord.

Hillsborough Line - The Hillsborough Branch from Nashua to Wilton is 12 miles long and is also owned and operated by CSX after the 2022 acquisition from Pan AM Railways. This section of the branch, known as the Hillsboro Running Track, passes over 8 bridges and 36 grade crossings and is categorized as FRA *Excepted*, which means that no passenger trains are permitted to operate along the line and there are limitations on hazardous material that can be transported over the line. According to the FRA, the maximum allowable operating speed on Excepted Track is 10 mph for freight trains. The Milford-Bennington railroad operates freight service along the Hillsborough Branch between the Granite State Concrete batching facility in west Milford and the Granite State Concrete quarry in Wilton. After years of disinvestment, CSX has begun replacing rails, ties and ballast on the branch line and is now providing scheduled freight service. Shippers on the Hillsboro branch include Granite State Concrete of Milford, Harrows Chemicals of Nashua, Hendrix Wire & Cable of Milford, and Granite State Concrete.

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Emerging Transportation Trends and Technology

Today, companies all over the world are developing technologies that are transforming the ways people travel and in turn will affect land use patterns, productivity levels, and human behavior. While many of these emerging technologies are promising to improve transportation for future generations, the actual impact they will have on our individual lives and on our communities is difficult to foresee at this point. Popular topics among the planning field regarding future mobility are geared toward curbside management, shared mobility, and mobility as a service. These topics further explore how communities might manage shared public spaces, like public streets, varying transportation modes, and the future of mobility options.

Despite the uncertainty and ambiguity of future transportation trends, the NRPC recognizes the need to plan for and integrate emerging technologies into and our future transportation system. The following are a few of the emerging technologies that are gaining traction in the future of transportation. Many seek to improve efficiency, productivity, safety, equity, and sustainability efforts.

Electric Vehicles

Electric vehicles (EVs) have become part of the modern mainstream transportation landscape and are anticipated to become increasingly common and widespread. As newer consumer models become more efficient and affordable, EV technology is spreading to commercial truck, bus, and utility vehicle fleets. The term EV, as defined by the New Hampshire Department of Environmental Services (NHDES), “refers to a vehicle propelled solely by an electric motor with a battery as the motor's energy storage device.” The NHDES website notes that “there are presently two forms of EV:

- "Battery Electric Vehicle or BEV," which uses an electric motor to propel the vehicle, powered by battery packs that are recharged directly from a source of electricity (Nissan Leaf, e.g.).
- "Plug-In Electric Hybrid Vehicle or PHEV," which can be driven by an electric motor and internal combustion engine (Ford C-Max Energi, e.g.) or can be driven only by its electric motor with an internal combustion engine and generator to recharge the battery (Chevy Volt, e.g.).

An EV uses an external electricity source to recharge the battery by connecting it to an electrical supply through a connector system that is designed specifically for this purpose (plugging in).”

There are three types or levels of EV charging stations:

- Level 1 chargers use a 120 V AC plug and can be plugged into a standard outlet. These chargers typically deliver two to five miles of range per hour of charging and are most often used at home.

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- Level 2 chargers use a 240 V (for residential) or 208 V (for commercial) plug, usually installed by a professional electrician. Level 2 EV chargers deliver 10 to 60 miles of range per hour of charging and can fully charge an electric car battery in as little as two hours. Level 2 chargers can be installed at home and are ideal options for public facilities, parking lots, and businesses where drivers tend to spend an hour or more
- Level 3 or DC Fast Chargers can offer 60 to 100 miles of range for an electric car in just 20 minutes of charging. They are typically used in commercial and industrial applications and require highly specialized, high-power equipment to install and maintain.



Level 2 Charging Station in Derry

The primary drivers behind the growth of EVs are the reductions in air pollution and greenhouse gas emissions that can be realized when the electricity used is obtained from cleaner burning fuels such as natural gas or more importantly, renewable energy sources such as solar, wind, or hydro power. Given the potential benefits of EV adoption, state, federal and local governments together with environmental advocacy organizations and private industry are actively encouraging and incentivizing the deployment of EVs. According to US Department of Energy Station Count Data, there are currently 289 public EV charging locations in New Hampshire with 781 individual charging ports compared to a total of 98 public charging locations with 181 charging ports in 2016. Continued growth of the EV sector, however, is dependent on the development of a reliable network of conveniently located EV charging infrastructure at private homes, public facilities, and commercial settings such as shopping centers, office buildings, and other sites where vehicle owners are likely to remain for one or more hours. At the local government level, ideal sites include town halls, police and fire stations, schools, public works garages, and other publicly owned facilities.

Communities can take proactive steps to encourage local infrastructure development to ensure that they are *EV ready*. To become EV ready, communities should consider creating plans to deploy strategically placed EV charging stations at both public and private commercial sites. The plans should consider key regulatory areas such as zoning, site plan regulations, parking requirements, and the creation of opportunities for both the public and private sector charging station development.

ITS technologies

Intelligent Transportation Systems (ITS) technologies enable various technological mediums to communicate information to and between roadway users and transportation infrastructure. This includes vehicle-to-vehicle and vehicle-to-roadside wireless communications (connected vehicle technology). These efforts provide real-time information for roadway users and traffic operations alike. ITS aims to improve traffic safety, relieve traffic congestion, reduce air pollution, increase energy efficiency, among other objectives. ITS technology currently exists in several forms including changeable message roadway signing and advanced traffic signal systems.

Adaptive Traffic Control Systems

Poor traffic signal timing contributes to traffic congestion and delays. Most conventional signals use pre-programmed, daily signal timing schedules. Adaptive and linked signal control technology adjusts the timing of red, yellow, and green lights to accommodate changing traffic patterns and ease traffic congestion. The main benefits of adaptive signal control technology over conventional signal systems are that it can:

- Continuously distribute green light time equitably for all traffic movements.
- Improve travel time reliability by progressively moving vehicles through green lights.
- Reduce congestion by creating smoother flow.
- Prolong the effectiveness of traffic signal timing.

Connected/Autonomous Vehicles



Automated vehicles are vehicles that use devices and technology to take over a portion or potentially all the decision making related to the driving task (aka Autonomous Vehicles, Self-Driving Vehicles, Driverless Cars, or Robotic Cars). The U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) has adopted the Society of Automotive Engineers (SAE), six levels of automation definition as illustrated in the figure below.

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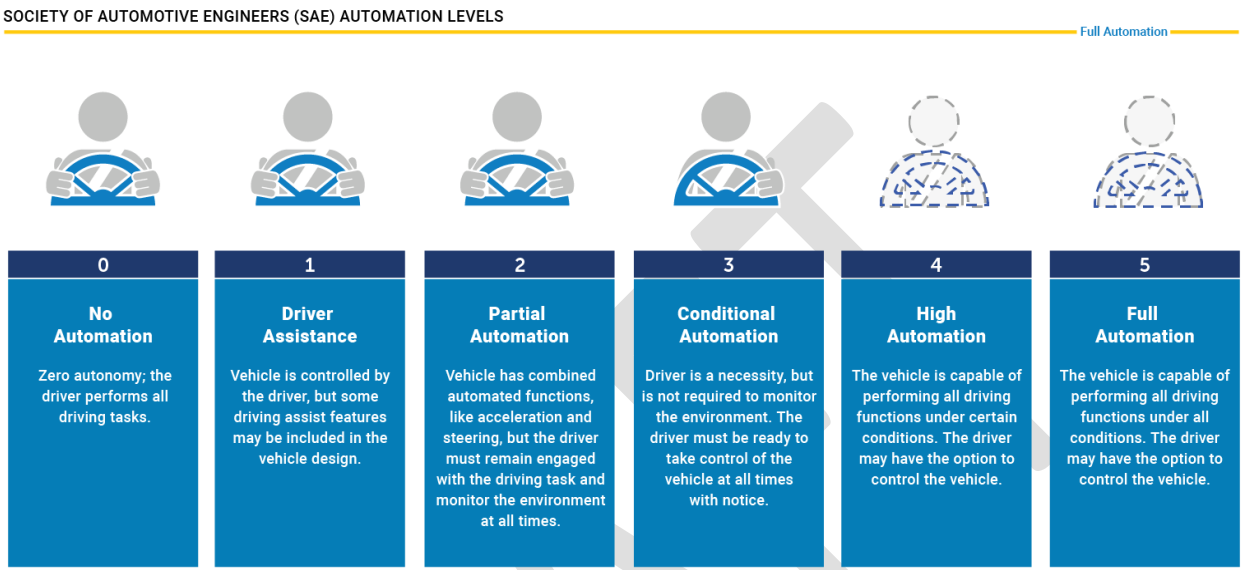

Source: Society of Automotive Engineers' (SAE) 6 Levels of Automation

Potential CAV Safety Benefits

Driver behavior and driver error are believed to be contributing factors in more than 90% of crashes nationwide. CAVs mitigate human error issues and are expected to substantially reduce crashes. By eliminating human error, transportation planners would be able to focus better on safety improvement resources in areas with true infrastructure deficiencies.

Potential CAV Capacity Benefits

Potential CAV Special Mobility Benefits

- CAVs could facilitate independent living by improving mobility for elderly, disabled, and visually impaired populations.
- The need for human assistance and accessible vehicles will still exist.
- Deploying CAV technology is expected to be more cost effective than demand response human service transportation, particularly in rural areas.

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Potential CAV Environmental Benefits

- Vehicles will accelerate and decelerate more efficiently aerodynamic drafting (platooning) resulting in improved traffic flow dynamics.
- Fewer unnecessary stops.
- Many CAVs are likely to be Zero Emission Vehicles.
- May reduce the need to consume land with large parking areas.

Potential Environmental Drawbacks

- Zero-occupant Vehicles will increase VMT and VHT (in the medium-term)
- Convenience of CAVs could increase the proliferation of suburban sprawl land use patterns.
- Faster driving speeds

It should also be noted that the current car ownership model will likely change as fully automated vehicles become more widely available. Though the extent of such changes is unknown at this time, the high cost of fully automated vehicles coupled with likely early adoption of the technology by ride-hailing services such as Uber and Lyft, suggest that shared autonomous vehicle models, whether through ride-hailing or subscription-based services, may come to dominate the automobile market.

Curbside Management - Curb space availability and management are becoming more important with the growth of the following services:

- online shopping and associated deliveries, curbside pickups, and drop-offs.
- ride-share services like Uber, Lyft, e-bikes, and e-scooters.
- overall shared public spaces with local businesses.

Planning for the rise in rideshare services and e-commerce related deceives also has implications for the design and layout of commercial sites and multi-family developments.

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E-Commerce



Commercial and personal deliveries are on the rise with the overwhelming growth of e-commerce; a trend that escalated dramatically during the COVID-19 pandemic of 2020-2023. Consumer behavior is changing the way goods are delivered and purchased, affecting brick-and-mortar stores and consumer travel patterns. Box trucks from companies such as Amazon, UPS and FedEx have become a daily part of the rhythm of residential and commercial areas with most households now receiving multiple deliveries per week. Several companies are also exploring various forms of automated last-mile package deliveries including the use autonomous vehicles and drones. Regardless of the delivery method, transportation for the growing deliveries spurred by e-commerce will require innovative strategies to keep up with consumer demands.

Shared Mobility

Shared mobility today ranges from e-bikes and e-scooters to rideshare services like Uber and Lyft. Shared mobility allows people the flexibility of travelling without personal ownership of a vehicle, whether at home or while traveling to new places. These shared mobility services are sometimes contentious topics with the use of public right-of-way and how to manage those spaces. While these transport modes may be a trend for today, it is uncertain how sustainable they will be in the years to come.

Linked Communication & Automation

Advances in communication and automation technology result in new mobility options, ranging from automated and connected transport, electric vehicles, ridesharing, and micro-mobility, to flying cars and space travel. These changes may be disruptive and transformative, with impacts to safety, vehicle ownership, travel capacity, vehicle miles traveled, land-use, transportation design, future investment demands, supply chain logistics, economy, and the workforce.

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Global Positioning System (GPS) is a critical component in the growth of micro-transit services and ridesharing applications like Uber and Lyft. Micro-transit is an app-driven demand response, zonal-based transit service currently used in fixed route first-and-last mile solutions and where fixed route transit service may not be viable.

New and emerging technologies have already had an impact on the region's transportation system. For example:

- smartphone technology has enabled Uber and other ridesharing applications to operate more smoothly throughout the region.
- NTS riders can now get real-time service alerts on their smartphones.
- Adaptive and linked traffic signal technology has improved traffic flow and operation in and around the NRPC Region.
- GPS technologies are now widely available in cars, trucks, and mobile devices enabling drivers to reach their destinations and deal more easily with detours and other unexpected conditions.

These technologies are changing so rapidly that it is challenging to predict their impact over a 10-year planning horizon. NRPC recognizes the important influence of emerging mobility/technology on the multi-modal transportation system and will include planning studies, collaboration efforts, research, or other activities in their Unified Planning Work Program (UPWP). These studies will evaluate the region's preparedness to adapt and adopt new technologies combined with recommendations on how local governments can better integrate emerging mobility/technology into their land use, planning, and budget decisions.

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Transportation Goals & Objectives

Safety

Emphasize a safe system approach to project development that minimizes the risk of injury or fatality to pedestrians, bicyclists, and other vulnerable road users including encouraging project planning and design that is responsive to the ways people actually use the transportation system including recognition of the likelihood of human error. Eliminate deaths and serious injuries from crashes by 2050.

Mobility

Emphasize a Complete Streets approach to project planning and design that accommodates the needs of all foreseeable users including bicyclists and pedestrians based on street classification, traffic volumes, design speed, and land use. In addition, deployment of intelligent transportation systems and emerging technologies in all aspects of transportation planning including connected and automated vehicles, advanced air mobility, and other emerging technologies should be pursued. Expand the region's network of multi-use paths, bike paths, and trails in addition to sidewalks and bike lanes to encourage active, healthy lifestyles.

System Preservation & Sustainability

Prioritize maintaining road pavements, bridges, sidewalks, signage, and other transportation infrastructure in a good state of repair and emphasize improving the resiliency of the transportation system by mitigating potential impacts from floods and other climate related impacts.

Transit & Community Transportation

Promote improvements to public transportation within the City of Nashua as well as the extension of transit service to urbanized areas outside of Nashua where feasible, with an emphasis on expanding access to employment centers, housing, major shopping destinations, educational opportunities, and other services. Encourage expansion of paratransit and other on-demand transportation services, including collaborations with private ride hailing services, to fill gaps in community transportation and paratransit networks.

Quality of Life & Economic Vitality

Reduce congestion by eliminating traffic bottlenecks, coordinating traffic signal timing, , improving key intersections and encouraging alternative transportation modes including transit and bike/ped alternatives where feasible. Prioritize access improvements to major employment centers, shopping, and recreational destinations within and outside of the region including connections to the interstate highway system, inter-city bus transit, and passenger rail.

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