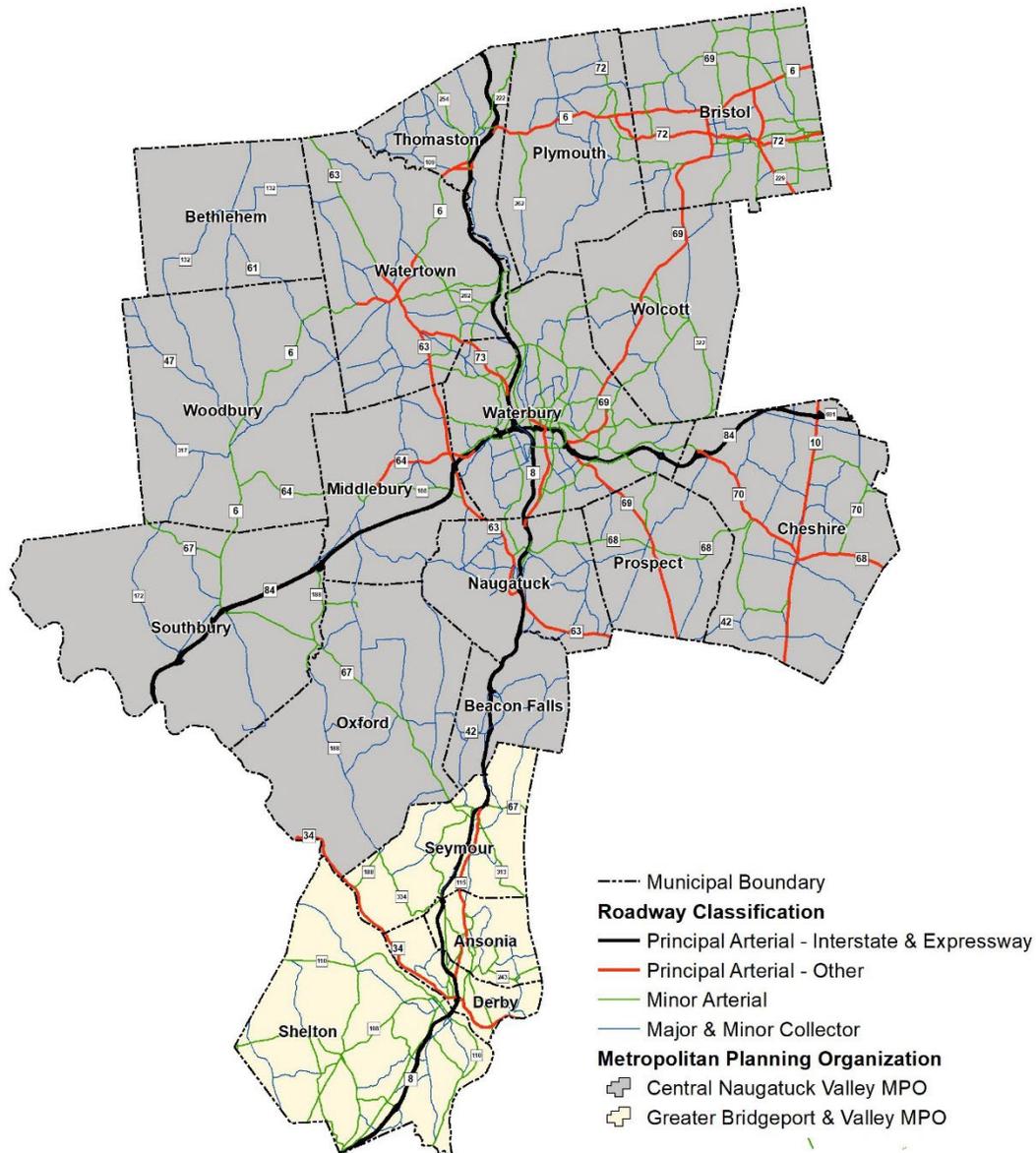


## 4.0 HIGHWAY PLANNING

The core of the region's transportation system, and by far the most heavily used piece, is the network of expressways, arterials, and supporting roadways that provide access to, through, and within the region.

### 4.1 EXISTING CONDITIONS

The Naugatuck Valley Planning region, like many in the United States, is crossed by and reliant on an aging and increasingly congested road network. 60 miles of expressway make up the spine



Map 1 Classification of major roadways within the NVCOG region

of this system, with Interstate 84 providing the primary East/West route through the region, Interstate 691 providing an alternate route east and connection to Interstate 91, and CT Route 8 serving as the primary north/south route. In conjunction with 360 miles of arterial roads, this network serves as the primary means of transportation for most residents and visitors to the NVCOG area, as well as the main route for freight traffic through the region. These highways are a vital connection between the NVCOG planning region and surrounding communities.

Interstate 84, to the west, connects the region to Danbury and the New York City Metropolitan area, ultimately terminating near Scranton, Pennsylvania. To the east, I-84 provides access to Hartford, where it intersects with Interstate 91, before terminating at the Massachusetts Turnpike, which ultimately connects to Boston and the remainder of Southern New England. I-84 is the most heavily trafficked road in the region, with 2018 volume of nearly 194,000 vehicles per day according to CTDOT traffic monitoring stations.

Through downtown Waterbury, I-84 carries both east and west traffic over a stacked viaduct called the Mixmaster because of the significant amount of mixing traffic. Though innovative at its time, this design has been detrimental to the City of Waterbury. The highway disconnected downtown and the northern half of the city from the formerly industrial south side. Finally, the roadway is inadequate for modern highway safety. Tight entrance and exit ramp proximity, a lack of shoulders, and limited sightlines plague the highway and are compounded by the aging and deteriorating conditions of the structure. CTDOT is currently performing a major rehabilitation on this structure and anticipates a full replacement and modernization program in the next 30 years.

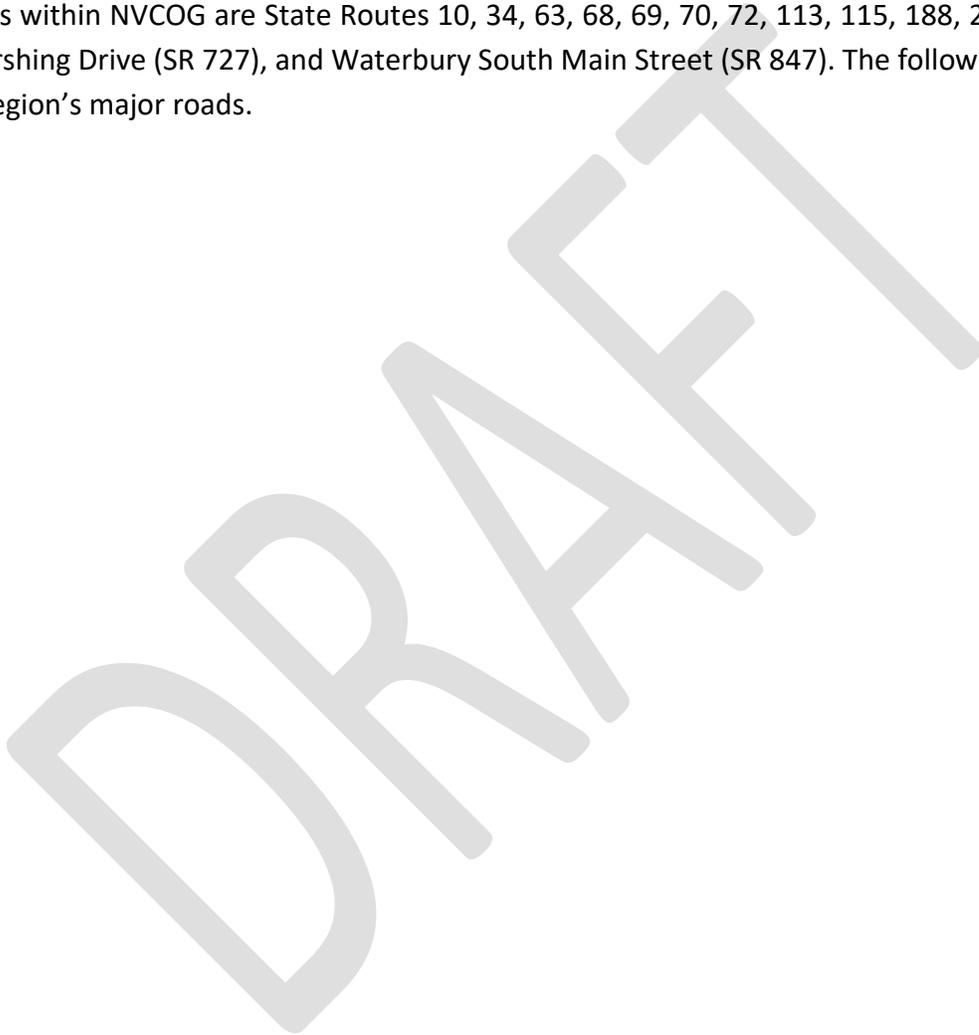
Connecticut Route 8 is the primary north/south route through the region, and is the only limited access highway in the majority of NVCOG towns. To the south, Route 8 terminates at Interstate 95 in Bridgeport. North of the NVCOG region, the Route 8 Expressway ends in Winstead, where it continues into Massachusetts as a two lane arterial road. Traffic along Route 8 peaks in Waterbury at an estimated 80,000 vehicles per day in 2018. Within the NVCOG region, but outside of the CNVMPO, Route 8 traffic also spikes at the Commodore Hull Bridge over the Housatonic River. This location, with an estimated 77,000 vehicles per day, is frequently congested.

Much like Interstate 84, Route 8's construction has proven extremely detrimental to many of the communities it serves. Throughout the Valley, towns and cities were cut off from their riverfronts, downtowns separated from neighborhoods, and communities subjected to excess noise and pollution. These problems are particularly prominent in Derby, Seymour, Naugatuck, and Waterbury.

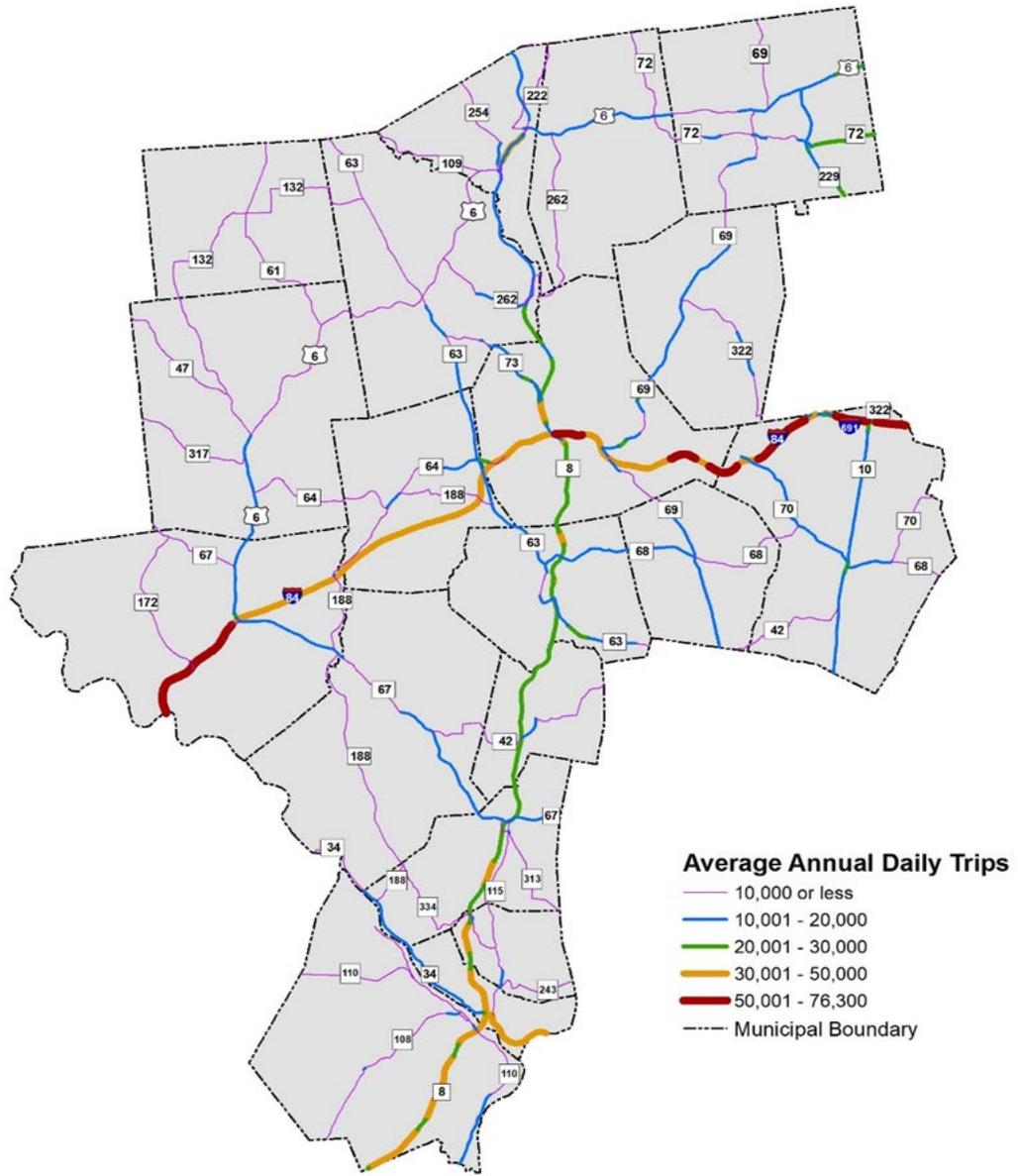
Interstate 691 is a spur route that connects Interstate 84 in Cheshire to Interstate 91 in Meriden, then continues as Connecticut Route 66 to an interchange with Connecticut Route 9 in

Middletown. This is an important truck route from the industrial and warehouse zones in northern Cheshire and a vital connection for freight from the rest of the region. Within the NVCOG region, traffic volumes peaked at 61,500 just east of the Route 10 interchange in Cheshire. The full peak, however, occurs near the interchange with Interstate 91 east of the region with a total of 82,000 vehicles per day.

The full highway network includes 120 miles of Expressway and 360 miles of arterial roads which facilitate the flow of traffic within and between municipalities. Some of the principal arterial routes within NVCOG are State Routes 10, 34, 63, 68, 69, 70, 72, 113, 115, 188, 229, U.S. Route 6, Pershing Drive (SR 727), and Waterbury South Main Street (SR 847). The following map shows the region's major roads.

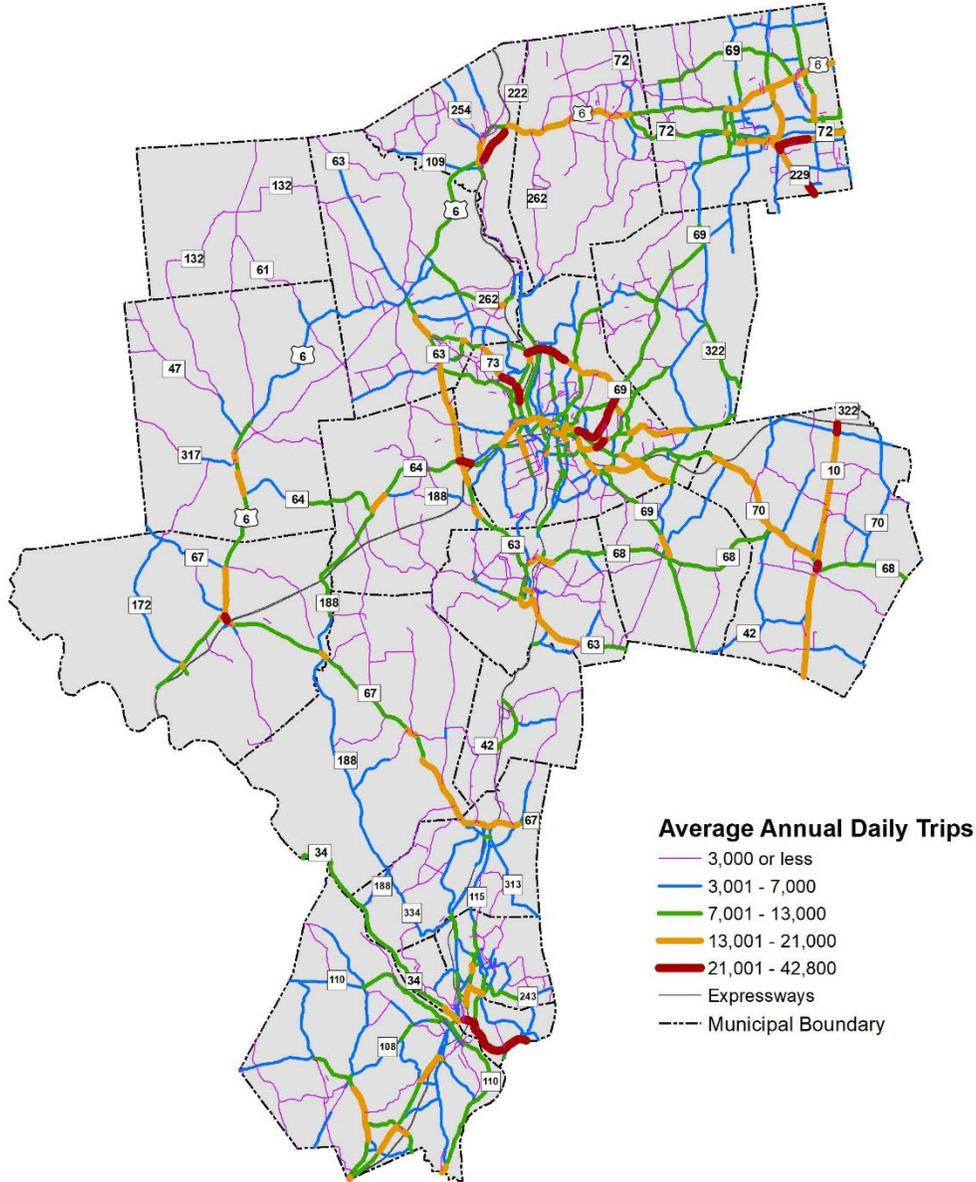


# Average Annual Daily Trips on the National Highway System



Map 2 Average annual daily traffic on the region's expressway network

Average Annual Daily Trips on State and Local Major Roads



Map 3 Average Annual Daily Trips on the non-expressway network

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## COMMUTING PATTERNS

As a result of COVID-19, commuting patterns are much more difficult to identify than in previous years. Though many residents work outside of the region and many of the region's jobs are filled by workers who live outside of the region, an increase in remote work, telework, and gig work has modified many of the traditional commuting expectations.

The Naugatuck Valley Planning Region, however, does have a high percentage of workers that must be in person, including healthcare, manufacturing, and higher education. These positions, however, often do not align with traditional work hours, which contributes to how difficult it is to pin down peak hour commuting. As a result, the NVCOG has reduced its focus on commuting as a generator of traffic volume and relied more on real world traffic counts. Additionally, the traditional planning ethos of focusing on the commuting peak hour has left many people underserved by the transportation system. By focusing on full-day system reliability and safety it can be better assured that low-income and non-employed residents benefit equally from long-term projects.

The one metric considered in this area is the in/out movements of employees through the region. Because this number focuses on all employees and not just those in traditional office settings, conclusions drawn from it will not unfairly burden those traveling outside of the peak hour, and providing access for all employees is critical to the metropolitan transportation planning goal of supporting an economically vibrant region. Based on 2020 ACS data, there are 166,382 total employees that work within the NVCOG area. Of these, 51.6% live and work within one of the 19 towns that make up the region, while the remaining 48.4% travel into the region for work. These 80,493 individuals are essential to the companies that call the NVCOG region home and maintaining easy access into the region for them is a priority for this plan, especially using public transit modes.

Similarly, of the 220,757 employed individuals that live within the NVCOG region, 61.1% work outside of the 19 towns that make up the NVCOG. For the 134,868 individuals commuting to an employment site in Hartford, New Haven, Bridgeport-Stamford, or the New York Metro area, safe and quick connections to these regions is equally important. Addressing unemployment and underemployment within the region require this access to be improved further. The goal for the region is to improve public transit connections to these job sites.

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## TRENDS

The COVID-19 pandemic increased the pace of disruptive trends in commuting patterns that had already begun. These changes, tied with broader patterns in the types of jobs held by NVCOG residents, have dramatically and permanently impacted travel patterns in the region. Demand is

now spread over a much larger portion of the day, with significant morning and evening peaks seeing slight reductions as volumes throughout the rest of the day increased.

For those who are still commuting, rising housing costs and limited availability of both rental and owned housing stock have been leading to increasingly long commutes. As a relatively affordable region in a very expensive state, this has meant that commuters have sought homes in the Naugatuck Valley despite their commutes to Hartford, New Haven, Bridgeport, Stamford, and New York City.

Reckless and aggressive driving has become a significant problem since the onset of the COVID-19 pandemic. In 2020, significantly reduced traffic volumes allowed for higher speeds and more dangerous driving in areas that typically were congested, and these habits have carried through the return of pre-pandemic volumes.

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## SAFETY

The NVCOG has adopted a regional approach to highway safety and will continue to work with CTDOT and our municipal members to best ensure that our transportation system is safe. The region's Vision Zero goal dictates that fatalities and serious injuries are avoidable, and it is the policy of the NVCOG and member municipalities to work toward eliminating these events. A full Vision Zero implementation plan is in development and will establish collaborative and ongoing steps that can be taken to avoid fatalities.

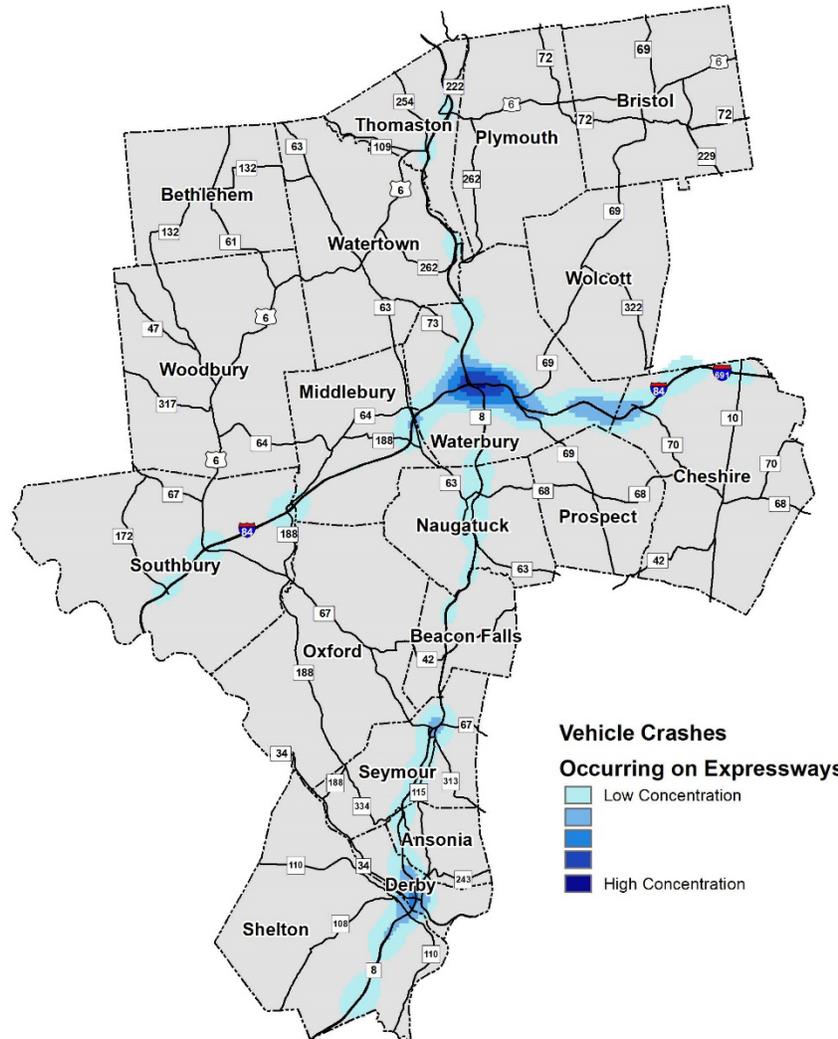
Vision Zero dictates a data-driven approach to safety. This includes regular reporting on crash data in the region, identification of serious injury and fatality hot spots, and development of implementation plans to address dangerous areas both in a quick-build and long-term fashion.



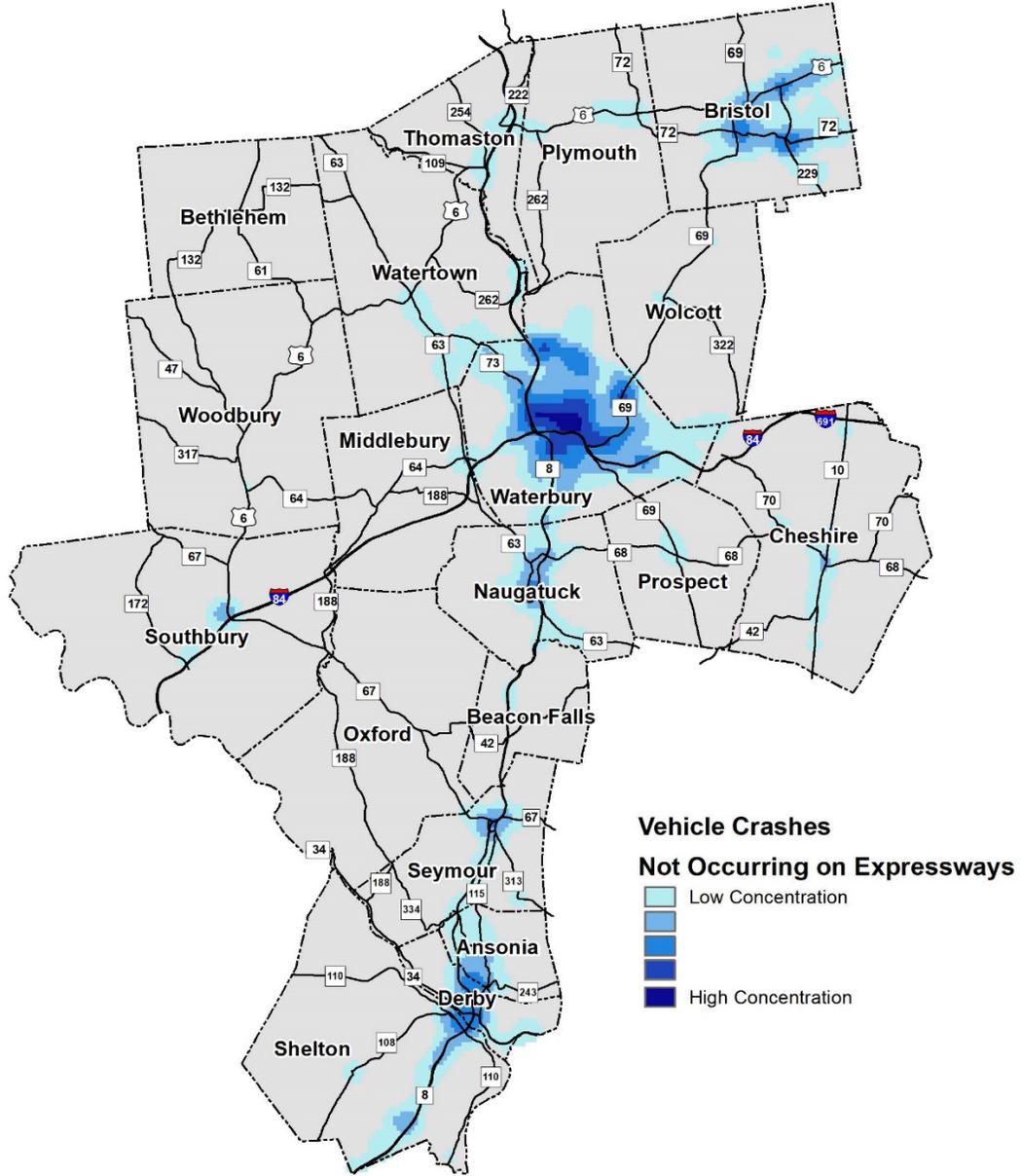
Figure 1 The Vision Zero approach to traffic safety. Resources such as this are available from the Vision Zero Network, [visionzeronetwork.org](http://visionzeronetwork.org)

NVCOG additionally participates in regional and statewide initiatives to improve enforcement, education, and emergency response.

For Vision Zero planning purposes, the region looks separately at the three major limited access roadways and the rest of the transportation system. Because of their limited access nature, the region's freeways do not have as direct a negative impact on vulnerable users, but still represent significant barriers to the goal of zero fatalities.

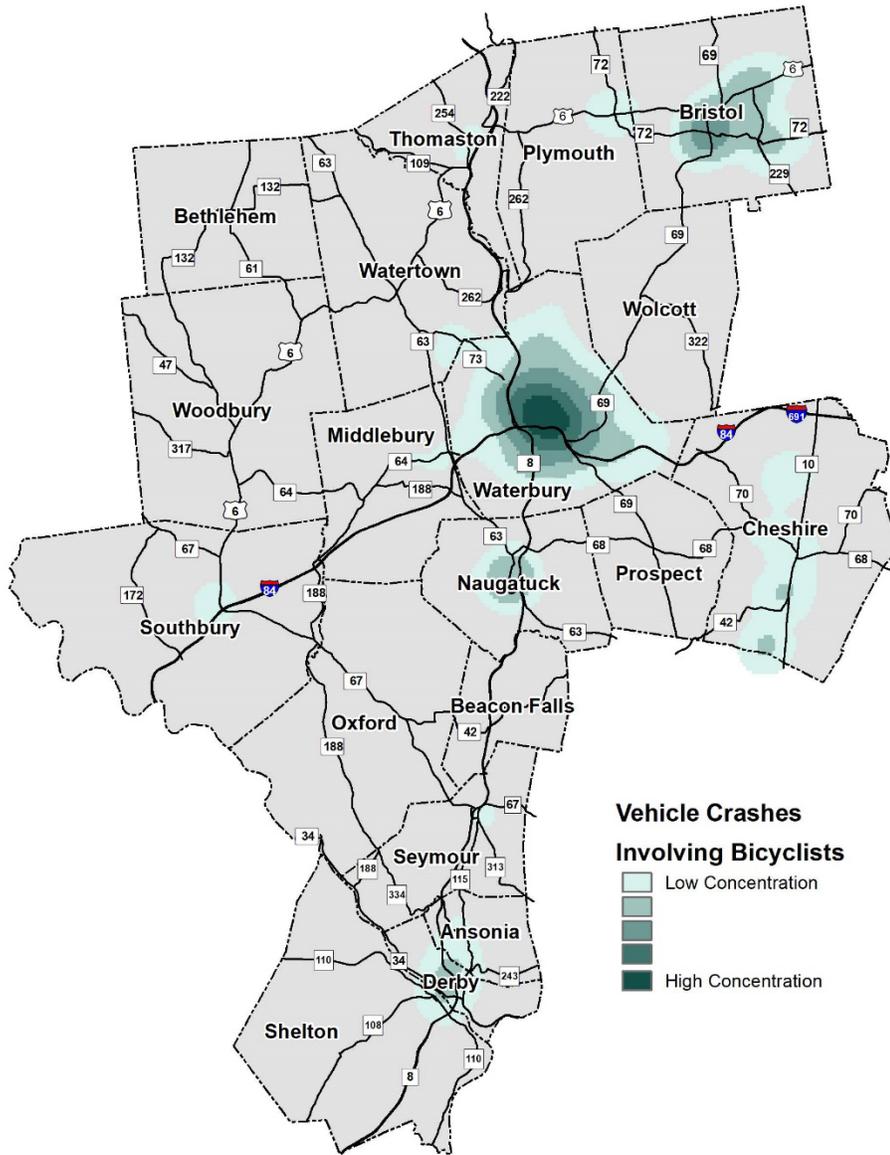


Map 4 Crash frequency on the limited access expressway network, UConn Crash Data Repository



Map 5 Crash frequencies on the non-expressway network

As demonstrated by the above maps, crashes in the region are in urban centers, providing a need for additional protection for vulnerable users. Cyclists and pedestrians are uniquely at risk in a crash involving a car as they do not have the protection of the vehicle.



Map 6 Crash frequencies for cyclists

Because cyclists are considered vehicles, they are often expected to ride within travel lanes. While this can be safe and comfortable for cyclists on slow speed, low volume roads, most of the region’s popular cycling routes have a higher volume of cars and travel speeds are faster, which means that cyclists should be separated from car traffic. Information provided by the Institute for Transportation Engineers suggests that separated bike lanes or shared use paths are desirable on roads with more than ~7,000 vehicles per day or where the speed limits exceed 25 mph. Further information on this topic is included in Chapter 6 – Active Transportation within this document.

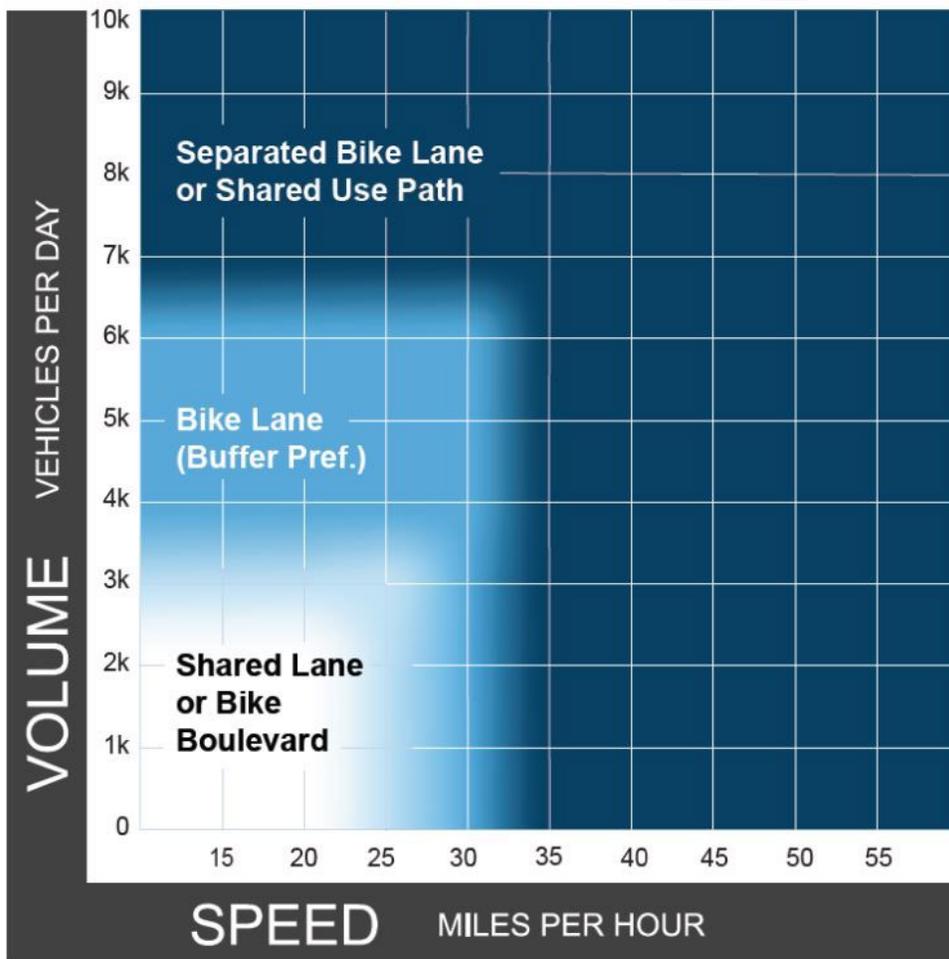
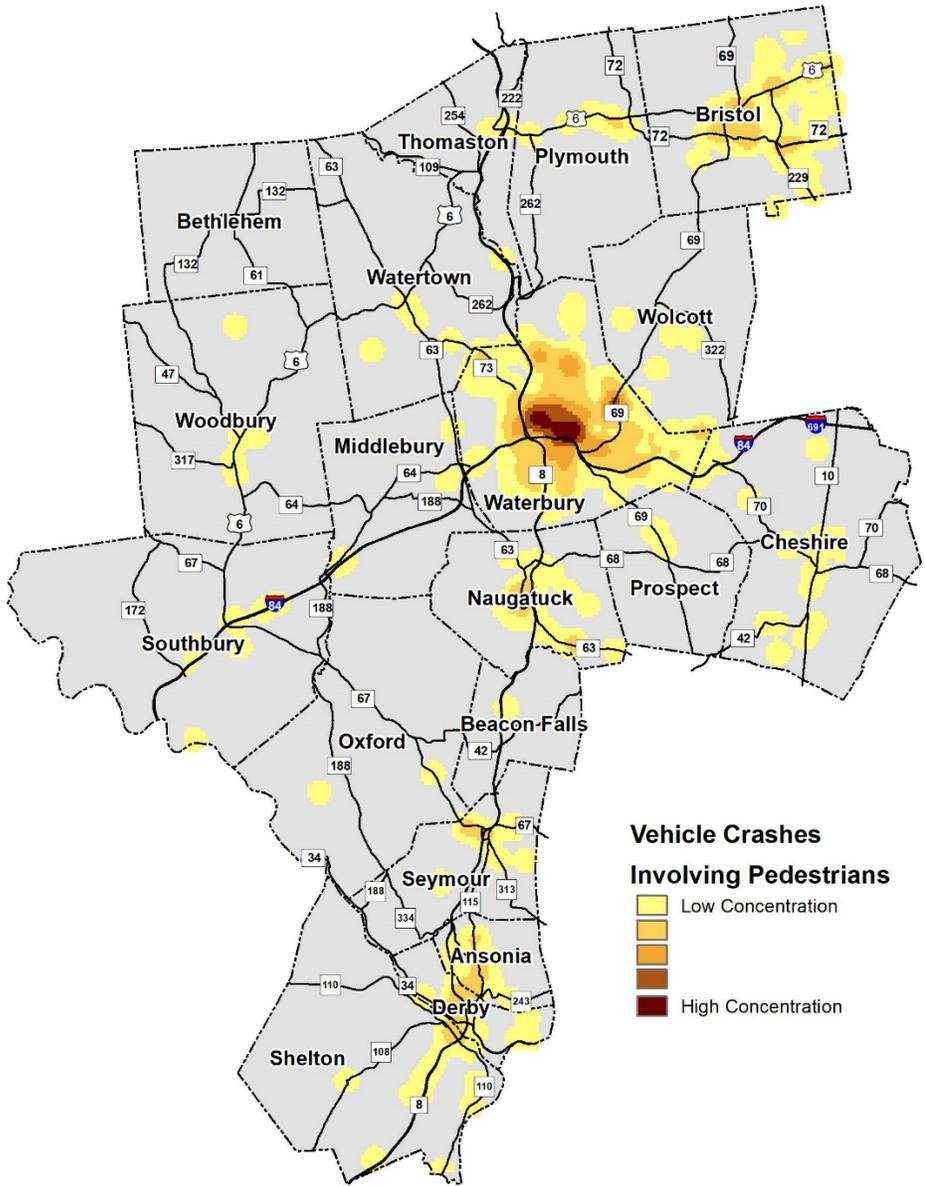


Figure 2 Guidance from the Institute of Transportation Engineers regarding bicycle facilities

Similarly, those walking/rolling throughout the region are both especially vulnerable and often do not have safe space along the region's roads. Sidewalks can be incomplete or poorly maintained, and many are disrupted by utilities and roadway signs that provide small or interrupted space. Crosswalks pose a unique threat to pedestrians as well, with vehicles attempting to turn right-on-red, long wait periods before pedestrian crossing, and crossings that are often too short for many individuals.



Map 7 Pedestrian crash frequency within the NVCOG region

## 4.2 PERFORMANCE-BASED PLANNING

In the last two decades, states and MPOs, including the CNVMPO, have come to rely on performance data to guide planning, programming, and strategic decision-making. This approach is called performance management, and the 2012 federal Moving Ahead for Progress in the 21st Century Act (MAP-21) required states and MPOs to include it in transportation planning documents. The Fixing America's Surface Transportation Act (FAST Act) of 2015 re-emphasized the performance management requirements of MAP-21. In addition, the USDOT published the Final Rule on implementing performance-based transportation planning in May 2016. The rule requires the CTDOT, CNVMPO, and transit operators to use specific measures to document expectations for future performance.

Performance-based planning and programming refers to the application of performance management within the transportation planning and programming process to achieve desired performance outcomes for the multimodal transportation system. Performance-based planning uses goals, objectives, and trends analysis to develop strategies and priorities in the Metropolitan Transportation Plan (MTP), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and other performance-based plans. Recipients of Federal-aid highway program funds and Federal transit funds must link the investment priorities contained in their TIP to achieving performance targets that are in the statewide transportation plan. Throughout the performance-based planning process, public involvement and data are critical.

Performance management and performance-based planning and programming increases the accountability and transparency of the Federal-aid Program and offers a framework to support improved investment decision-making by focusing on performance outcomes for national transportation goals. The FHWA and FTA established national performance measures in areas of safety, infrastructure condition, congestion, system reliability, pollution emissions, freight movement, transit safety and transit state of good repair.



The following stages are core elements of the performance-based planning and programming process:

- Strategic direction – Where do we want to go?
- Planning analysis – How are we going to get there?
- Programming – What will it take?
- Implementation and Evaluation – How did we do?

## STRATEGIC DIRECTION

In transportation planning, stakeholders and the public set a strategic direction based on a vision for the future.

- Goals and objectives – Goals address key desired outcomes. Objectives are specific, measurable statements that support achieving those goals and shape planning priorities.

NVCOG’s goals for the 2023-2050 MTP are: to progress the goal of Vision Zero, manage congestion, improve safety, ensure transportation system security, advance technology, preserve and enhance public transportation services, expand multi-modal opportunities, enhance the efficient movement of freight and goods, enhance pedestrian and bicycle facilities, mitigate environmental impacts, promote sustainability, promote economic development and revitalization, practice environmental justice, and ensure transparent and active public engagement.

Specific objectives for these goals are listed in Chapter 3.2 of this document.

- Performance measures – Performance measures support objectives and allow agencies to compare alternative improvement strategies and track results over time. NVCOG adopts CTDOT’s performance measures in the areas of highway safety, transit, pavement and bridge condition, system reliability, freight movement, and air quality.

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## PLANNING ANALYSIS

Based on performance data, public involvement, and policy considerations, agencies conduct analysis to develop investment and policy priorities.

- Identify trends and targets – The agency sets preferred trends and/or specific targets for each performance measure. These are based on past trends, forecasting tools, and information on possible strategies, available funding, and other constraints. NVCOG adopts CTDOT’s performance targets, which are identified in Chapter 2.6 of this document.
- Identify strategies and analyze alternatives – Performance measures help the agency assess strategies and prioritize options. This may include scenario analysis.
- Develop investment priorities – The MTP and other long-range plans guide strategies that will help reach performance targets.

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## PROGRAMMING

Programming involves selecting investment priorities to include in the TIP/STIP and/or Capital Plan that will reach the performance targets and desired outcomes.

- Investment plan – This connects long-range plans, like the MTP, to projects selected in the TIP/STIP. CTDOT publishes an Investment Plan as part of the Transportation Asset Management Plan.
- Resource allocation and program of projects – Prioritizing projects helps to identify specific investments for the TIP/STIP or Capital Plan. Projects should show how they can meet performance objectives.

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## IMPLEMENTATION AND EVALUATION

These steps should be ongoing.

- Monitoring – Gathering data on actual conditions.
- Evaluation – Analyzing data to determine if strategies are meeting goals.
- Reporting – Agencies should tell stakeholders, policymakers, and the public how well transportation systems and plans are doing.

## 4.3 HIGHWAY PERFORMANCE MEASURES

The Federal Highway Administration has established a series of performance measures designed to ensure the nation's highways and roads are maintained in a safe and usable condition. These performance measures are identified below in three categories; safety, congestion, and system condition.

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### SAFETY

The Federal Highway Administration has codified highway safety into a series of five performance measures, which in Connecticut are monitored at the state and MPO level. The five performance measures are: 1. Number of fatalities, 2. The rate of fatalities, 3. Number of serious injuries, 4. The rate of serious injuries, and 5. Non-motorized fatalities and injuries. The CTDOT and the CNVMPO will collaborate to program appropriate Highway Safety Improvement Program (HSIP) safety projects. Projects will include:

1. **Programmatic highway safety improvements:** Projects or programs that are conducted regularly throughout the state such as signing and pavement marking programs.
2. **Programmatic driver safety activities:** Projects or programs that are conducted regularly on an ongoing basis. These include Highway Safety behavioral programs such as Impaired Driving, Occupant Protection, Distracted Driving, Speeding, Motorcycle Safety, and Teen Driving grants for State and Municipal Police Departments using National Highway Traffic Safety Administration (NHTSA) funds.
3. **Location-specific highway safety projects:** This includes roadway safety improvements selected to correct known safety problems at locations with a high frequency or severity of crashes.

The Safety Performance Management Measures regulation supports the Highway Safety Improvement Program (HSIP) and requires State Departments of Transportation and MPOs to set HSIP targets for 5 safety performance measures that cover all public roadways regardless of ownership or functional classification.

1. Number of fatalities
2. Rate of fatalities
3. Number of serious injuries
4. Rate of serious injuries
5. Number of non-motorized fatalities and non-motorized serious injuries.

The CTDOT, upon review of the 5-year rolling average for each measure, has set ambitious targets despite a recent rise in roadway injuries and fatalities. The penalty for missing those targets is a lack of ability to flex dedicated safety money to other transportation projects, something the CTDOT has already decided against. This gives the state more power to set and meet aggressive targets. The NVCOG and CNVMPO endorse the aggressive stance and will continue advocating for a Vision Zero setting a date when the targets for fatalities and serious injuries are zero. Within the NVCOG region, this target is currently set at 2060.

Measure	2022 Target	2023 Target
<b>Number of fatalities</b>	270 fatalities/year	270 fatalities/year
<b>Rate of fatalities</b>	.850 fatalities/100 Million VMT	.850 fatalities/100 Million VMT
<b>Number of serious injuries</b>	1,300 serious injuries/year	1,300 serious injuries/year
<b>Rate of serious injuries</b>	4.30 serious injuries/100 Million VMT	4.30 serious injuries/100 Million VMT
<b>Number of non-motorized fatalities and non-motorized serious injuries</b>	280 fatalities and serious injuries/year	280 fatalities and serious injuries/year

An analysis of crash data within the region during the period of the previous MTP yields the following results:

Year	Number of fatalities	Number of serious injuries	Number of non-motorized fatalities and non-motorized serious injuries
<b>2019</b>	32	174	43
<b>2020</b>	38	171	34
<b>2021</b>	30	207	30
<b>2022</b>	31	175	29
<b>Total</b>	131	727	136

For comparison, the data table presented in the 2019 CNVMPO MTP is below:

Year	NUMBER OF FATALITIES	NUMBER OF SERIOUS INJURIES	NUMBER OF NON-MOTORIZED FATALITIES AND NON-MOTORIZED SERIOUS INJURIES
2014	20	175	26
2015	48	171	33
2016	40	210	37
2017	43	172	38
Total	151	728	134

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## TRENDS

At the regional, state, and national level, traffic injuries and fatalities have increased during the past several years. At all levels of government and academia, research has been done to identify the cause of this increase, especially since traffic volumes decreased during the COVID-19 pandemic. While it is impossible to know the exact reasons, it is commonly believed that a reduction in congestion has allowed motorists to drive faster, and that frustration and stress from life impacts caused by the pandemic have caused drivers to calculate the risk of driving differently.

In addition to higher speeds and reckless driving, the movement of residents back to urban areas, plus pandemic related need for outdoor activities have resulted in larger numbers of pedestrians and cyclists in the transportation system. While this is a positive that should be encouraged to continue, the current system is not designed for the safety of these users and must be updated to ensure cyclists and pedestrians are safe.

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## SYSTEM CONGESTION

Congestion occurs when more people are driving, cycling or walking than a road, bike path or sidewalk can accommodate. In our region, congestion is a significant challenge for moving people and goods, especially on our limited access freeways and interstates. According to the FHWA, congestion has many causes, each of which impact how it can be alleviated. The following

measures are meant to identify congestion and its causes. From these analyses, locations specific projects and programs can be proposed.

Metropolitan Planning Organizations representing urban areas with populations greater than 200,000, also known as Transportation Management Areas (TMAs), must maintain an ongoing Congestion Management Process (CMP) to ensure that future programming of projects can address issues of system reliability and delay. As the CNVMPO pursues TMA status for the Waterbury Urban Area, the region will develop a comprehensive CMP that addresses the region's expressways, major arterial roadways, and considers the impacts of transit on congestion. For the purposes of this plan, however, a more limited focus will be placed on congestion along the region's expressways, with additional data collected and presented on travel time reliability on the national highway system network.

Data in this section is pulled from the National Performance Measure Research Data Set (NPMRDS), a key tool used by MPOs to measure critical data.

## The MixMaster, Waterbury

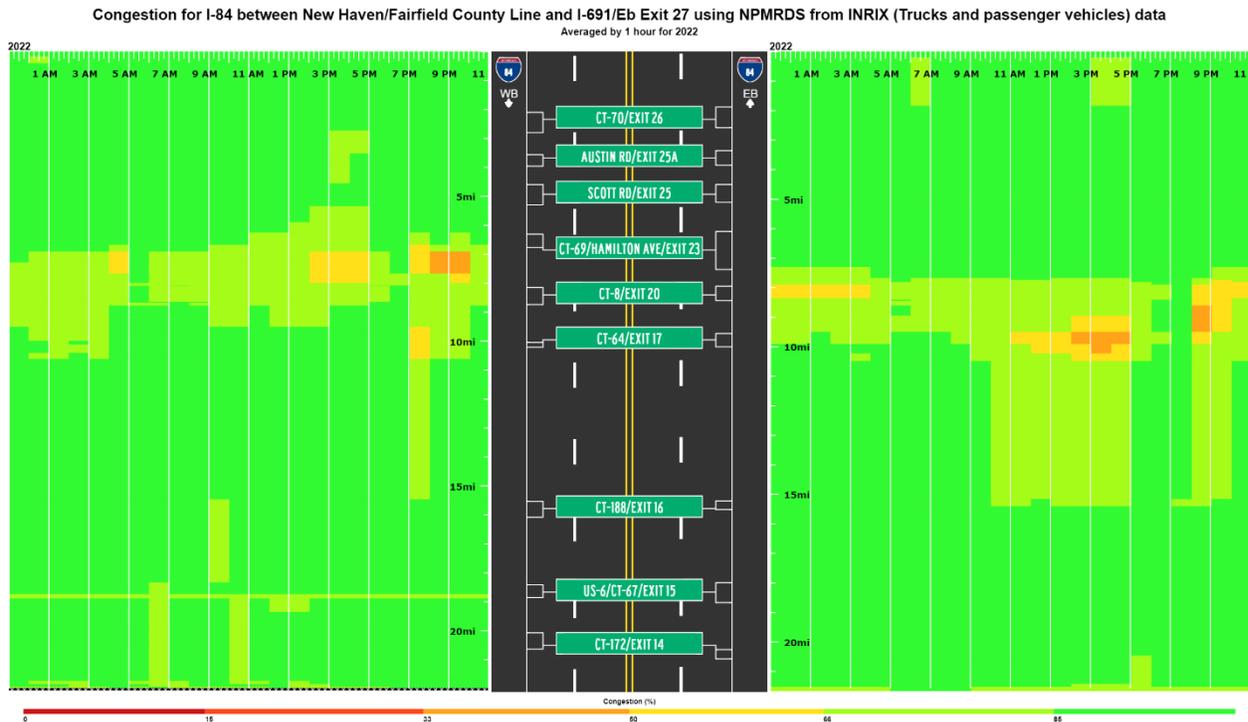


Figure 3 Photo Source: CTDOT MixMaster Rehab Project

## LIMITED ACCESS EXPRESSWAYS

### Interstate 84

Interstate 84 provides the region's primary east-west route and is a primary connector between New York and the rest of New England. This highway is vital for travelers and freight.



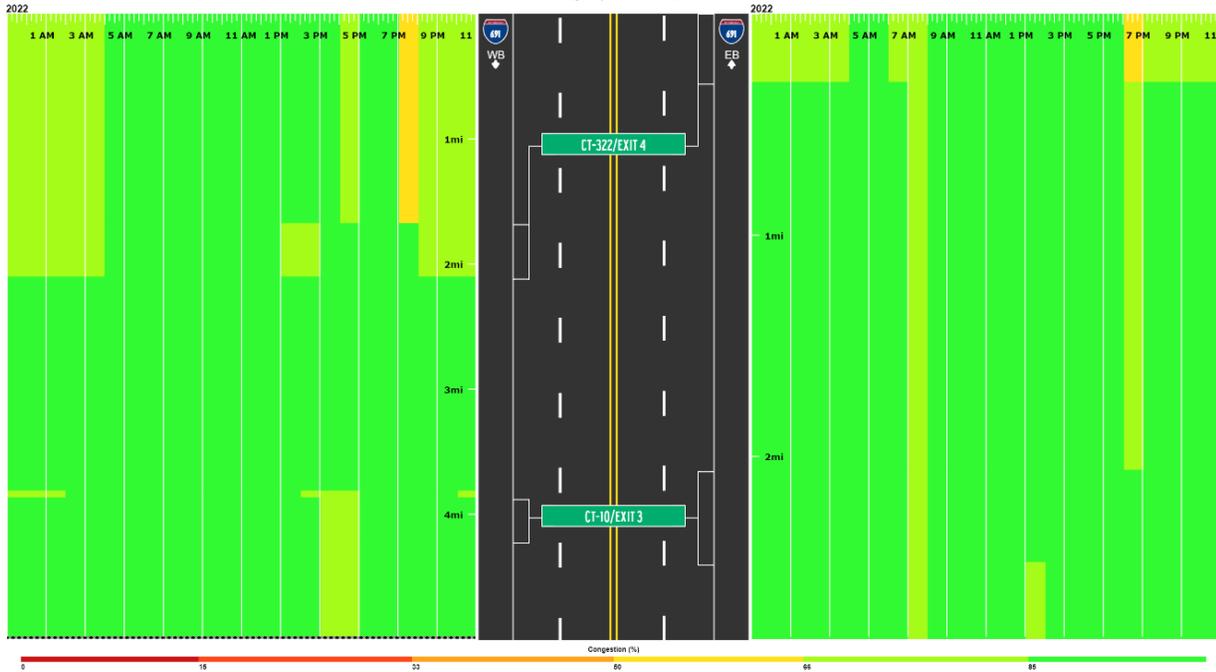
Utilizing full year data for 2022, the congestion scan provided by the NPMRDS for Interstate 84 within their region shows minimal delays in most locations, with congestion mostly focused around the MixMaster in Waterbury, between exits 23 and 17.

### Interstate 691

Only a short section of this spur route is in the NVCOG region, but this segment passes through the heavily shipping and warehousing focused northern end of Cheshire and is vital to the economy of the region.

Though not available through the NPMRDS, congestion is common during morning and evening peaks at the interchange between Interstate 84 and Interstate 691. A proposal to improve ramp geometry and capacity is included in the project listing.

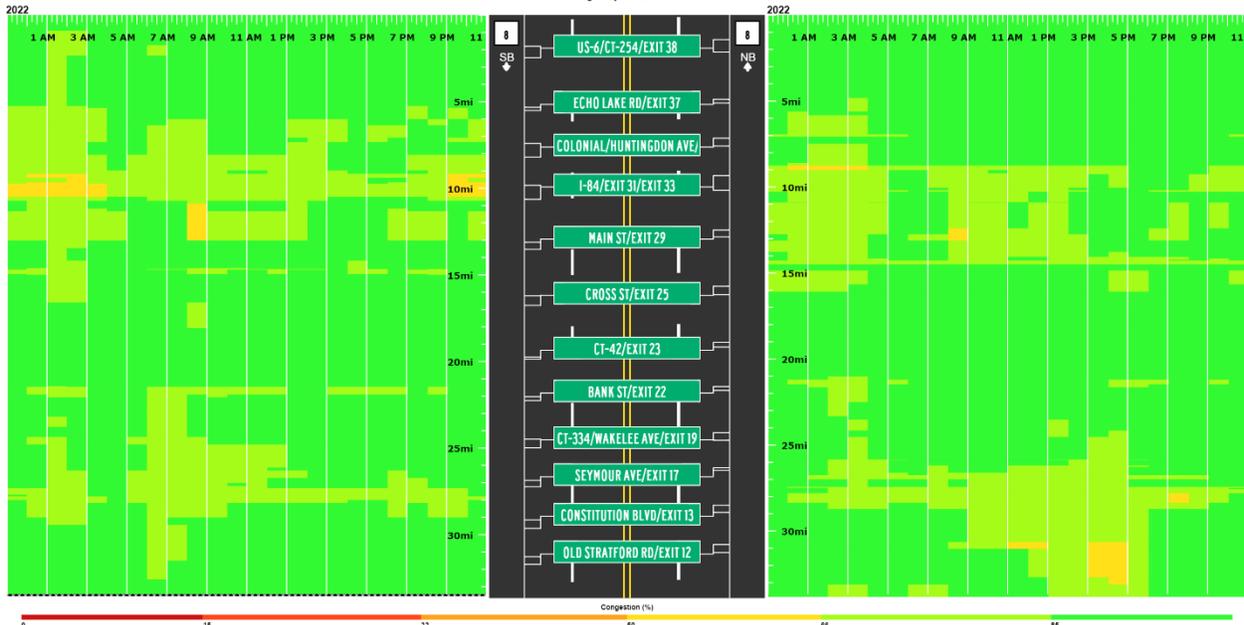
Congestion for I-691 between I-84/Exit 1/Exit 2 and CT-322/Exit 4 using NPMRDS from INRIX (Trucks and passenger vehicles) data  
Averaged by 1 hour for 2022



### CT Route 8

As the primary north-south route in the region, Route 8 is also vital to the area and suffers from regular congestion at key spots, notably at the Route 8/Interstate 84 interchange and at the Commodore Hull Bridge over the Housatonic River between Shelton and Derby.

Congestion for CT-8 between Bridgeport/Huntington/Exit 11 and US-6/Exit 39 using NPMRDS from INRIX (Trucks and passenger vehicles) data  
Averaged by 1 hour for 2022



Two additional measures used to track highway functionality are the Level of Travel Time Reliability (LOTTR), which looks at how consistent travel times are along the system, even if that consistency includes recurring delays, and Truck Travel Time Reliability (TTTR), a similar measure for the movement of freight. These measures will both be examined further in the region's forthcoming CMP.

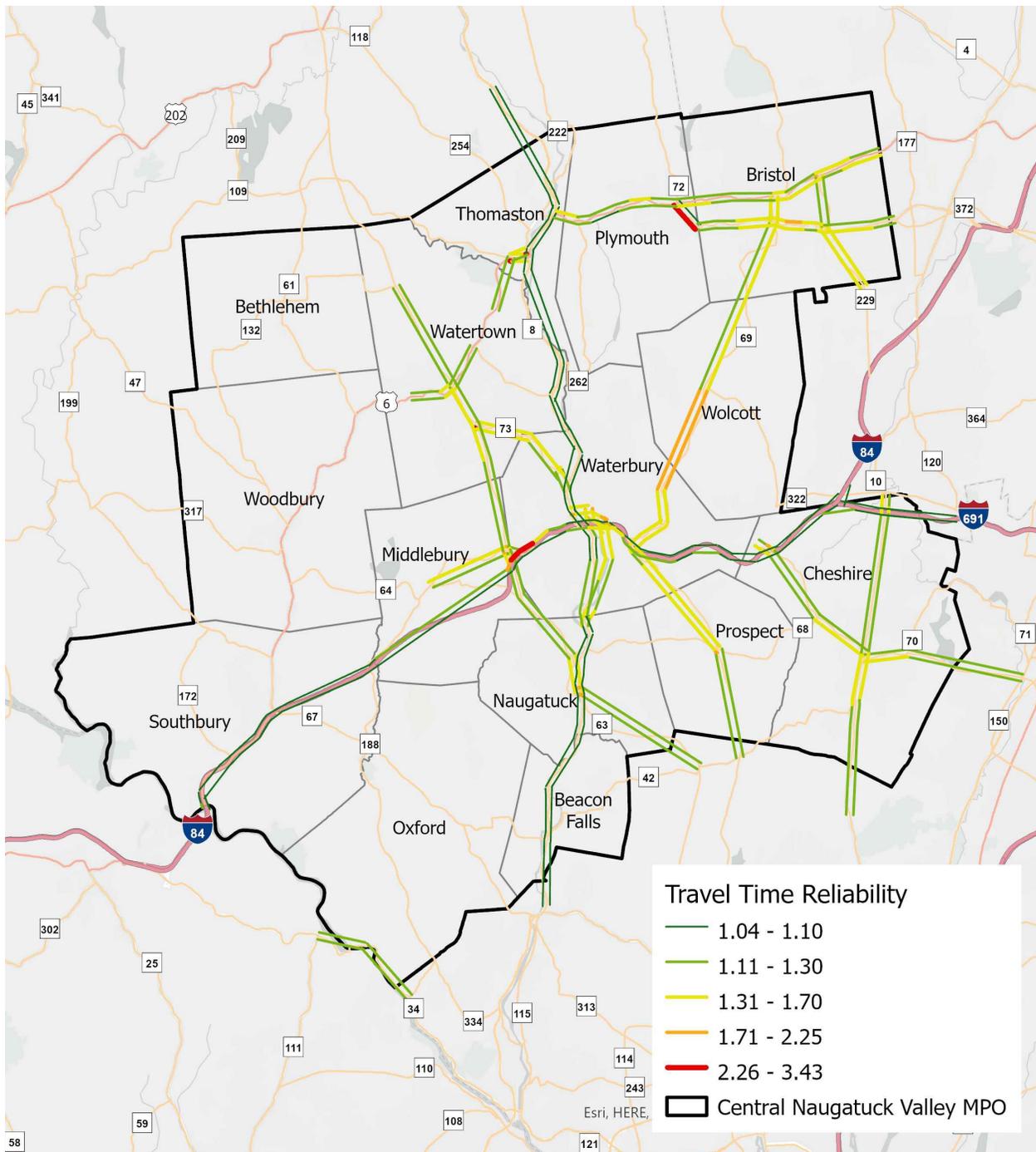
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## LOTTR

The second measure of congestion is Travel Time Reliability (TTR). The TTR is defined as the ratio of the longer travel times (80th percentile) to a "normal" travel time (50th percentile), using data from FHWA's National Performance Management Research Data Set (NPMRDS). NVCOG analysis identified the relevant portions of the NHS that are reliable and unreliable. The reliability of a road segment is an important factor in how drivers assess the congestion on their commute. Regular congestion is seen as less offensive than unpredictability. Nowhere is this truer than in the freight industry.

The level of travel time reliability (LOTTR) is an extension of the TTR; it is expressed as a ratio, of the 80th percentile travel time of a reporting segment to the "normal" (50th percentile) travel time of a reporting segment occurring throughout a full calendar year. Segments that have a ratio less than 1.5 are considered "reliable." The performance measure, as defined in title 23 CFR 490.507, is the percentage of the person-miles traveled on the Interstate section and the non-Interstate NHS that are reliable.

FHWA has identified 90% reliability as the target for travel time reliability. Within the NVCOG region, for the year 2022, both the interstate and non-interstate NHS met this measure, with interstate LOTTR at 97.2% and non-interstate NHS LOTTR 95.6% reliable. As can be seen on Map 8, reliability issues within the region are located mostly along non-interstate arterials. These roads are vital connections between cities in west-central Connecticut, and efforts to improve connection between these cities via public transit and non-motorized facilities to better accommodate all travelers on these roads.

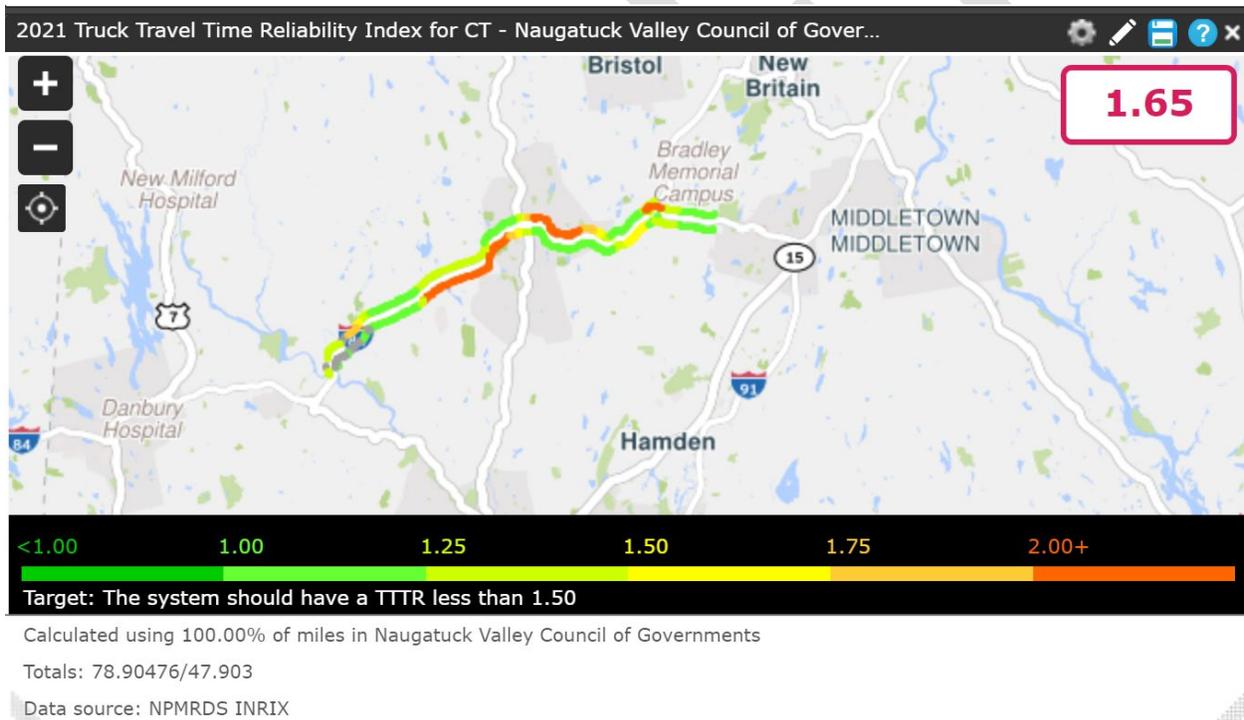


Map 8 Level of Travel Time Reliability on the CNVMPO's major road network

## TRUCK TRAVEL TIME RELIABILITY (TTTR)

Reliability for truck travel is a critical measure for the trucking industry, and reliability on the region's highways can contribute to growth or stagnation of the region's economy. Truck travel time reliability uses a similar process to travel time reliability, not penalizing a region for congestion but instead for sporadic congestion. The Federal Highway Administration identifies a truck travel time reliability target of 1.5 as preferred. Within the CNVMPO the TTTR is 1.65, slightly above the national target.

Projects identified within this plan work to address locations of sporadic congestion to improve travel time reliability for all users, especially for the freight industry that does not necessarily use the expressway system during peak hours. As can be seen in the below image from the CMPRDS, the least reliable sections of the network are on the approach to Waterbury on Interstate 84. Additional information about truck travel time reliability will be presented in the forthcoming Waterbury Urban Area CMP.



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## BRIDGEPORT-STAMFORD CMP

In addition to data across the CNVMPO, portions of the region are part of the Bridgeport-Stamford TMA, and therefore are covered under the TMA wide Congestion Management Process. NVCOG staff, along with staff from the CT MetroCOG and WestCOG, prepared the 2023 Bridgeport-Stamford CMP in conjunction with NVision50 and their respective MTPs. This process identifies the most significant issues within the TMA and the strategies proposed by the MTPs of the three MPOs to address these issues. The full CMP was adopted by the CNVMPO Board at the February 17, 2023, meeting and is included as Appendix E of this document.

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## SYSTEM PRESERVATION AND MAINTENANCE

Preservation is essential to maintaining the smooth operation and reliability of the highway network. While this work does not add capacity, it allows the infrastructure to function as designed. To help track the state of the highway network, FHWA developed pavement and bridge condition measures. The four performance measures for pavement condition include (1) the percent of the Interstate system in Good, (2) the percent of the Interstate system in Poor condition, (3) the percent of the non-Interstate National Highway System (NHS) in Good, and (4) the percent of the non-Interstate NHS in poor condition. The two performance measures for Bridge condition include (1) the percent of NHS Bridges in Good, and (2) the percent of NHS Bridges in Poor condition.

**FHWA Measure for Pavement Condition:** Percent of the Interstate System and the non-interstate National Highway System (NHS) pavement in lane miles that are in good and poor condition.

	<b>Current Condition (State)</b>	<b>2-year targets</b>	<b>4-year targets (2025)</b>
Percent interstate in <b>good</b> condition	68.6%	72.0%	70.0%
Percent interstate in <b>poor</b> condition	0.2%	1.0%	1.3%
Percent Non-Interstate NHS in <b>good</b> condition	37.9%	37.0%	35.0%
Percent Non-Interstate NHS in <b>poor</b> condition	1.8%	2.7%	3.5%

**FHWA Measure for Bridge Condition:** Bridges (deck area) on the National Highway System (NHS) that are rated as good and poor condition.

	<b>Current Condition (State)</b>	<b>2-year targets</b>	<b>4-year targets (2025)</b>
Percent in <b>good</b> condition	14.1%	14.2%	14.5%
Percent in <b>poor</b> condition	7.7%	6.2%	6.0%

CTDOT in collaboration with the CNVMPO will program projects to meet the targets using the Department’s Pavement Management System and the Bridge Management System, which uses a systematic look at conditions to develop optimal strategies. These strategies are included in the CTDOT Transportation Asset Management Plan (TAMP).

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## TRANSPORTATION ASSET MANAGEMENT PLAN:

Transportation Asset Management Plan (TAMP) acts as a focal point for information about the assets, their management, long-term expenditure forecasts, and business management processes. CTDOT is required to develop a risk-based TAMP for the NHS to improve or preserve the condition of the assets and the performance of the system (23 U.S.C. 119(e) (1), MAP-21 § 1106). MAP-21 defines asset management as a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost. (23 U.S.C. 101(a) (2), MAP-21 § 1103).

Pavement and Bridge State of Good Repair needs are identified, quantified, and prioritized through the TAMP process. Projects to address SGR repair needs are selected from the TAMP for inclusion in the STIP and TIPs.

Between the DOT's commitment to improving current pavement conditions and the passage of major federal infrastructure spending, it is expected that the state of good repair for pavement and bridges will improve in the coming decades. However, this trend could be offset by the shift to electric vehicles with their increased weight, along with more on-road freight movements, which will lead to additional wear on the region's roads. The NVCOG will continue advocating for a state of good repair and fix-it-first spending within the region. Over the four year period of current goals both the percentage of pavement in good condition and pavement in poor condition increase. Utilizing preservation funding available through NVision50, however, the region believes that it is possible to reduce the percentage in poor condition by 2050.

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## NETWORK ACTIONS

The NVCOG is committed to improving the region's roads and highways in a way that supports freight and passenger movements without doubling down on mistakes of the past. This includes advocating for maintenance over roadway expansion, very limited and targeted expansions only in the places where they will have the greatest impact, and addressing the lasting impacts of highway construction on our municipalities and the health of our residents. Even with the influx of federal money, it is expected that transportation dollars will be insufficient to accomplish all the state's goals, so prioritizing those projects that improve mobility and quality of life is essential. The following action items are some of the NVCOG's priorities for the highway system.

- Utilizing well studied engineering solutions, implement safety improvements that reduce the severity of crashes when they happen, building off a safe-systems approach that prioritizes safety.

- The region will seek to maximize efforts as part of the Federal Local Bridge program, the State Local Bridge Program, and On-System Bridge Maintenance with the goal of getting all the region's bridges to a state of good repair.
- Improve pavement conditions across the region, with an extra focus on local roads in municipalities with the least resources to maintain their infrastructure.
- Promote solutions that improve incident management and the transfer of real time traffic information to improve reliability.
- Endorse small, targeted capacity increases in locations where these enhancements are likely to have the biggest impact on travel time and not negatively impact vulnerable communities.
- Encourage road diets and safety improvements on urban streets, integrating the tenets of a complete streets program to better serve all users and encourage non-motorized travel.
- Promote enhancements to public transportation, including shorter headways on the region's buses and more frequent and reliable service on the Waterbury Rail Line. Expanding services and improving station and stop amenities is included as a critical component of this goal.
- Encourage municipalities to welcome and push for transit-oriented development around the region's existing public transit assets, helping to remove vehicles from the road and therefore better utilizing the highway capacity that exists today.
- Encourage the adoption of cyclist training for all students at a young age, focused on both safety and technical skill to make cycling a more viable alternative for more of the population.
- Develop and encourage a curriculum for pedestrian safety within schools to ensure those walking/rolling are doing so safely from a young age.
- Coordinate with CTDOT to address high hazard areas, particularly on the many downtown streets located along state routes.