

Strafford Metropolitan Planning Organization Technical Advisory Committee Meeting Friday January 3, 2025 from 9:00am - 10:30am

Location: Conference Rm 1A, SRPC Office (Remote access via Zoom)

In accordance with RSA 91:A, the Commission requires a minimum of an in-person quorum. To organize this, the Commission staff will confirm the necessary in-person attendance. It is the preference of the Commission that others participate via Zoom, however, guests may attend the meeting at the SRPC Office. All participants, both in-person and virtual, can communicate contemporaneously. View the remote access information below.

MEETING LINK:

https://us02web.zoom.us/j/83483049101?pwd=RW9oK2xQRzJDbkdoYTVzVzZGNDNhZz09

MEETING ID: 834 8304 9101

TELEPHONE-ONLY ACCESS: +1 646 558 8656

These instructions have also been provided at www.strafford.org. If anybody is unable to access the meeting, please email mtaylorfetter@strafford.org

or call 603-994-3500 (x115).

Agenda Item	Time	Pre-Meeting Task/Notes
1. Introductions	5 mins	
2. Community Updates	5 mins	Round table discussion
3. Action Itemsa. Minutes from November 1, 2024b. 2025 Safety Performance Target Setting	30 mins	See meeting packet.
4. Discussion Items a. Draft technical analysis for regional Safety Action Plan	30 mins	See meeting packet.
5. Other Business	5 mins	
6. Adjourn		

Reasonable accommodation for people with disabilities is available upon request. Include a detailed description of the accommodation you will need along with your contact info. Please make your request as early as possible; allowing at least 5 days' advance notice. Last-minute requests will be accepted but may be impossible to fill. Please call (603) 994-3500 or email srpc@strafford.org.



RULES OF PROCEDURE

Strafford Regional Planning Commission Meeting Etiquette

Be present at the scheduled start of the meeting.

Be respectful of and open to the views of others.

Ensure that only one person talks at a time. Raising your hand to be recognized by the chair or facilitator is good practice.

Do not interrupt others or start talking before someone finishes.

Do not engage in cross talk.

Avoid individual discussions in small groups during the meeting. When one person speaks, others should listen.

Active participation is encouraged from all members.

When speaking, participants should adhere to topics of discussion directly related to agenda items.

When speaking, individuals should be brief and concise when speaking.

The Strafford Regional Planning Commission & Metropolitan Planning Organization holds both public meetings and public hearings.

For public meetings, guests are welcome to observe, but should follow proper meeting etiquette allowing the meeting to proceed uninterrupted. Members of the public who wish to be involved and heard should use venues such as Citizen Forum, Public Hearings, Public Comment Periods, outreach events, seminars, workshops, listening sessions, etc.



Memo

SRPC Technical Advisory Committee Re: Meeting Agenda Item Preview

January 2025

From: Colin Lentz, Transportation Planner

Safety Targets and preview of Safe Streets and Roads for All plan.

Once a year, SRPC is federally required to set targets for highway safety performance measures for all public roads in the region. SRPC must set targets for the following performance measures:

- Number of fatalities
- Rate of fatalities
- Number of serious injuries
- Rate of serious injuries
- Number of non-motorized fatalities and serious injuries

SRPC's targets are based on a "vision zero" goal – the only acceptable number of fatalities and serious injuries is zero. The targets are calculated toward achieving specific long-term targets:

- A 75% reduction in fatalities by 2035
- A 50% reduction in serious injuries by 2035
- A 100% reduction in non-motorized fatalities and serious injuries by 2035

The meeting packet includes a report on crash data analysis and proposed safety targets for 2025.

Directly related to safety performance targets, SRPC is also working with VHB to develop a Regional Safety Action Plan. The plan will make all municipalities eligible for funding to implement highway safety improvement projects through the Safe Streets and Roads for All program. The packet includes a draft of the technical analysis that will inform proposed strategies, actions, and projects in the plan. I've highlighted a few poignant sentences for my own reference. In particular, take a look at the "Emphasis Areas Analysis" on page 2 and the cross analysis of crash types on page 10. VHB is working on a full draft and we will have an opportunity to review the entire plan in the near future.

If you have time to review more of the draft technical analysis and have comments/edits, please send them my way and I'll pass them on the VHB.



Strafford MPO Technical Advisory Committee Meeting Minutes November 1, 2024 Suite 12, 150 Wakefield Street

1. Introductions

Chair Michelle Mears called the meeting to order and asked for introductions.

Members present:

Michelle Mears, Somersworth; Katrin Kasper, Lee; Lindsay Butler, Newmarket; Wayne Lehman, Lee; Vanessa Price, Barrington; John Mullen, Middleton; Lucy St. John, NHDOT; Michael Williams, COAST; Marshall Goldberg, Brookfield.

Staff present: Colin Lentz

Members attending on Zoom: Donna Benton, Dover; Leigh Levine FH, Bruce Woodruff, Milton; Beverly Cray, UNH

Staff attending on Zoom: Jen Czysz, Megan Taylor-Fetter

2. Community Updates

3. Action Items

a) Minutes from October 4, 2024

Following a motion from M. Goldberg and a second from J. Mullen and a second, all members voted in favor to approve the October 4, 2024 meeting minutes. The motion passed.

b) TIP Amendment 7

C. Lentz stated that amendment 7 is the last before we begin to develop the next TIP. The draft amendment contains two projects in our region with changes that are locally significant:



- A bridge project in Durham (project 41432) that is being pushed from 2028 to 2036
- A bridge project from Milton to Lebanon Maine (project 40658) that is not proceeding.

An official public comment period will begin on November 4th and conclude with the public hearing at our next Commissioner meeting on November 15th. We are anticipating the addition of a UNH bus replacement project to the amendment during the public comment period. C. Lentz outlined the original projects and the anticipated projects:

Original projects:

- Dover-Somersworth-Rochester (29604)
- Dover, NH Berwick, ME (Gulf Rd Bridge)
- Durham (41432)
- Milton, NH Lebanon, ME
- Somersworth (40646)

Anticipated additions via public comment:

- Previously approved grant funding for COAST Bus Replacement.
- (Dover 44367) Funding through the Congestion Mitigation & Air Quality Improvement (CMAQ) Program to reinvigorate the CommuteSMART Seacoast program.
- Previously awarded funds for UNH to replace diesel powered buses with compressed natural gas buses.

Michael Williams motioned to recommend that the Policy Committee approve TIP amendment 7 and include the five projects in the original draft amendment and three new projects that will be added to the amendment through public comment. W. Lehman seconded the motion. All members voted in favor. The motion passed.

4. Discussion Items

a) Opportunity to customize long-range project scoring

C. Lentz stated that In the past, SRPC project scoring efforts have centered on the process for selecting projects for the Statewide Ten Year Plan update. SRPC has begun transitioning to an online database that will include a customizable module for project scoring. This is an opportunity for SRPC to adopt a region-specific scoring process to rank all projects in the Metropolitan Transportation Plan. Scoring can also be adapted depending on the funding opportunity. For example, SRPC developed its own scoring criteria for Transportation Alternatives Program projects from the region.

C. Lentz stated that SRPC is working with a company called EcoInteractive to develop an online transportation project database that will include a project scoring

module. We will have the opportunity to customize the scoring criteria SRPC uses to rank its long-range projects. We currently use the statewide 10-year plan criteria.

The group discussed the current project scoring criteria. The general consensus was that the current 10-year plan criteria are fairly comprehensive and adding any other criteria would likely just dilute the results. We need more data on things like public transit, crashes, demographics, to better support project scoring discussions. EcoInteractive is a GIS-based system, so those data can be better incorporated into the process.

- 5. Other Business
- 6. Adjourn



Strafford Regional Planning Commission Proposed 2025 Highway Safety Performance Targets

January 17, 2025

Background

Federal regulations require states and Metropolitan Planning Organizations (MPOs) to track five performance measures focused on highway safety. "Highway" doesn't just mean large highways like NH16; these measures apply to all public roads. Each year, States and MPOs must set targets for each measure toward reducing crashes that kill and seriously injure people. The New Hampshire Dept. of Transportation (NHDOT) sets their targets in August, followed by the MPOs within 180 days. Targets are incorporated into major documents such as the Metropolitan Transportation Plan, to inform project development and prioritization. Below are the data and targets for set by Strafford Regional Planning Commission (SRPC) for the five federally required highway safety measures:

- 1. **Number of Fatalities:** The total number of persons suffering fatal injuries in a motor vehicle crash during a calendar year.
- 2. **Rate of Fatalities:** The ratio of total number of fatalities to the number of vehicle miles traveled (VMT, in 100 Million VMT) in a calendar year.
- 3. **Number of Serious Injuries:** The total number of persons suffering at least one serious injury in a motor vehicle crash during a calendar year.
- 4. **Rate of Serious Injuries:** The ratio of total number of serious injuries to the number of VMT (in 100 Million VMT) in a calendar year.
- 5. **Number of Non-Motorized Fatalities and Non-motorized Serious Injuries:** The combined total number of non-motorized fatalities and non-motorized serious injuries involving a motor vehicle during a calendar year.

Data for the establishment of these measures come from three sources:

- <u>Fatality Analysis Reporting System (FARS)</u>: FARS Annual Report File or Final data are utilized to provide information on fatal crashes in the state.
- <u>State Motor Vehicle Crash Database</u>: Data collected and maintained by the NH Department of Safety are utilized to determine the number of serious injuries in the state. This is based on the Federal Model Minimum Uniform Crash Criteria (MMUCC, 4th Edition).
- <u>Highway Performance Monitoring System (HPMS)</u>: State Vehicle Miles
 Traveled (VMT) data are collected by the Department of Transportation and
 aggregated into a dataset for the state. VMT data can be calculated for MPO
 regions and individual communities. SRPC contributes roughly 9% of the
 statewide VMT.



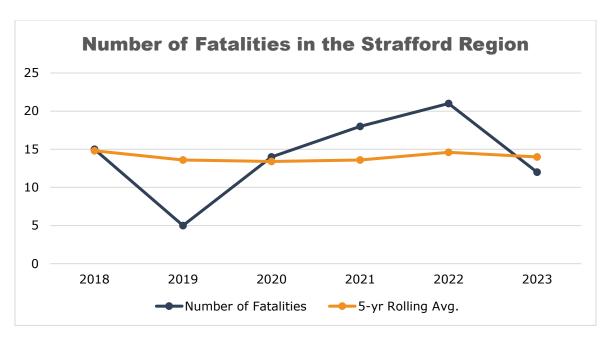
The process for collecting and analyzing crash data is lengthy and complex, and it has an impact on the target setting timeline. Crashes are responded to and reported on by local police officers; most crash reports in NH are submitted on paper forms that must be entered into the state database. All crash reports are due to NHDOS by the end of each calendar year. As noted elsewhere in this report, if a people person dies as a result of crash-related injuries within 30 days of the crash, an update crash report must be resubmitted. Additionally, crashes that are under investigation or involved in lawsuits cannot be included in the database/shared out of NHDOS, so there are delays there as well. These delays can take far longer to resolve. This lag in data access means that NHDOT does not have complete crash data to calculate their performance from the previous year until late spring/early summer. Calendar year 2023 is the most recent complete year of crash data that has been reviewed and compiled. MPOs are also required to set targets for the same calendar year as NHDOT.

Current Safety Data

Number of Fatalities

Fatal crashes are reported to the federal Fatal Analysis Reporting System (FARS) database every year. This database is used to calculate the number of fatalities measure. This measure is the five-year rolling average and targets are based on a minimum five-year trend line. Five-year rolling averages are used to smooth the trend line by accounting for years with exceptionally high or low numbers of severe or fatal crashes without significantly skewing the overall trend line. Rolling averages can still be affected when unusual years are added or lost. The 147 fatalities in 2018 are no longer included in the 2023 5-year average, and were replaced by 127 in 2023. This caused the 5-year average to decrease. In 2019, the region saw a significant decrease in fatalities, down to 101. If 2024 has more than 101 fatalities, we will see the 5-year average increase again. The total number of fatalities in NH for 2023 has the potential to change. If a person dies within 30 days of a crash because of injuries sustained in a crash, that crash is recorded as a fatality.

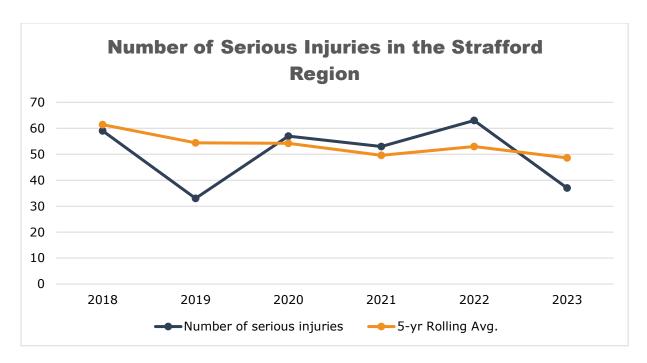
	Fatality Data									
	S	tate	S	RPC						
Year	Fatalities	5-year average	5-year Fatalities							
2018	147	118.8	15	14.8						
2019	101	120.0	5	13.6						
2020	104	118.0	14	13.4						
2021	118	114.4	18	13.6						
2022	146	123.2	21	14.6						
2023	127	119.2	12	14.0						



Number of Serious Injuries

The New Hampshire Division of Motor Vehicles in the Department of Safety maintains a database of crashes in the state. This is the data source for the serious injury measures. A serious injury is one that incapacitates the injured person. These include severe lacerations, broken or distorted limbs, skull fractures, crushed chest, internal injuries, unconsciousness, and any inability to leave the scene without assistance. Like the number of fatalities, the number of serious injuries is presented as a 5-year rolling average to account for outlier years.

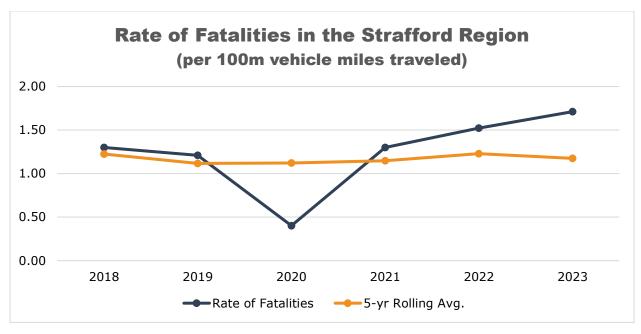
	Serious Injury Data									
		State		SRPC						
Year	Serious Injuries	5-year average	Serious Injuries	5-year average						
2018	451	466.4	59	61.4						
2019	485	480.5	33	54.4						
2020	504	490.3	57	54.2						
2021	482	493	53	49.6						
2022	594	503.2	63	53						
2023	635	540	37	48.6						

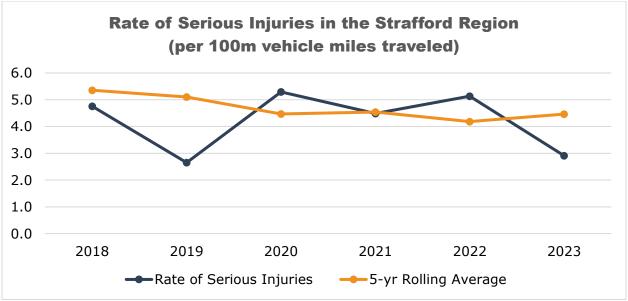


Rate of Fatalities and Rate of serious injuries

The rate of fatalities and the rate of serious injury measures combine their respective crash data with the vehicle miles traveled (VMT) data from the Highway Performance Monitoring System (HPMS). NHDOT has calculated regional shares of VMT for the MPOs to use in these calculations.

The rate of fatalities is calculated by dividing the number of fatalities by the VMT. Similarly, the rate of serious injuries is calculated by dividing the serious injuries by the VMT. SRPC's rate of fatalities and rate of serious injuries are both generally a bit higher than the state rates. This is because on average, the region's share of the state's fatalities and serious injuries (\sim 11%) is higher than the share of the VMT (\sim 9%).



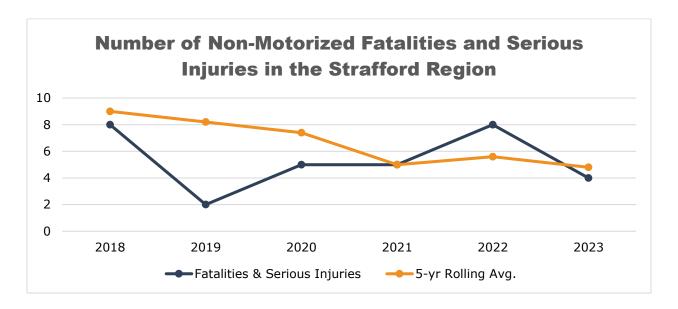


Number of Non-Motorized Fatalities and Serious Injuries

The non-motorized fatalities and serious injuries measure is the sum of the individuals who were killed or seriously injured while outside of a motor vehicle. This measure is primarily pedestrians and bicyclists.

As with most crashes, the locations for non-motorized crashes are random and highly variable. SRPC has seen anywhere from 0-33% of the statewide non-motorized fatalities and anywhere from 6-37% of the serious injuries since 2007. In 2016, SRPC had 3 non-motorized fatalities (14% of the state total that year), and 14 serious injuries (30% of the state total). In 2019, SRPC had 0 non-motorized fatalities and 2 serious injuries (7% of the state total).

Vı	Vulnerable User Fatality & Serious Injury Data									
	1	State		SRPC						
Year	Serious Injuries	Fatalities	Serious Injuries	Fatalities						
2018	30	10	8	0						
2019	21	10	2	0						
2020	28	10	3	2						
2021	31	11	3	2						
2022	20	17	5	3						
2023	9	9	3	1						



Progress on Target Achievement

In February 2024, SRPC set 1-year targets as well as 10-year targets. The table below shows each target and the region's progress toward each.

Performance Measure	2024 1-year target	1-yr Progress	10-year target	10-yr Progress
Number of Fatalities	12.3	Positive	3.5	Flat
Rate of Fatalities	.919 (State)	Positive (State)	NA	Flat (State)
Number of Serious Injuries	46.6	Positive	24.3	Slightly positive
Rate of Serious Injuries	3.877 (State)	Positive (State)	NA	Slightly negative (State)
Number of Non-Motorized Fatalities and Serious Injuries	4	Flat	0	Positive

Target Development

States establish highway safety targets and report them for the upcoming calendar year in the Highway Safety Improvement Program (HSIP) annual report that is submitted to FHWA by August 31st each year. Targets are applicable to all public roads, regardless of functional classification or ownership. The state has the option to also establish separate targets for urbanized areas and a non-urbanized area target for the purposes of evaluating and reporting measures.

In New Hampshire, the process used to develop the required safety measures included in the annual Highway Safety Plan formed the basis for the establishment of the five FHWA mandated targets by NHDOT and the MPOs. This involved coordination and consultation between the New Hampshire Departments of Transportation and Safety, as well as the four MPOs in the state. Five performance measure trends were established based on crash and volume data from 2007 to the present. Five year rolling averages were developed from these values and utilized to project trends used to set targets for 2025.

State Targets Summary

STATI	STATE Safety Performance Measures and Targets Summary									
		2019	2020	2021	2022	2023	2024	2025		
Fatalities	Target	116.4	118.8	120	117.8	111.6	120.0	121.1		
	5-yr Ave	120.0	118.0	114.4	123.2	119.2				
Fatality Rate	Target	.879	0.884	.884	.874	.857	.919	.938		
	5-yr Ave	8.846	8.842	8.621	9.271	9.044				
Serious	Target	433.2	465.4	456.4	465.4	466.4	509.6	554.5		
Injuries	5-yr Ave	456.4	465.4	466.4	503.2	540				
Serious Injury	Target	3.2	3.5	3.3	3.5	3.5	3.877	4.298		
Rate	5-yr Ave	3.3	3.5	3.5	3.8	4.1				
Non-motorized	Target	53.4	42	45.9	38.0	37.0	39.4	33.4		
fatalities + serious injuries	5-yr Ave	31	39	42	37	31				

MPO Target Development

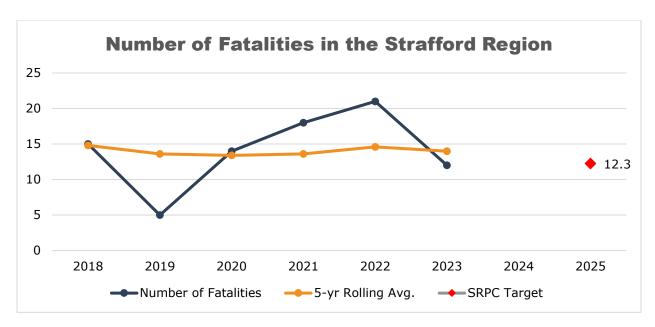
SRPC's target setting approach is based on the goal of achieving zero crashes that kill or seriously injure people. Reaching that goal will be difficult, but SRPC's targets reflect long-term reductions in crashes. The targets play a role in what projects are prioritized and funded in the Metropolitan Transportation Plan Annual targets are set according to a long-term numeric goal for crash reduction.

Long-term goals to be used for annual target setting:

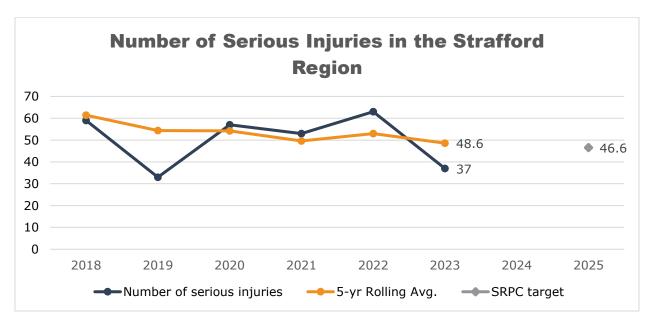
- 75% reduction in the number of fatalities by 2035
- 50% reduction in the number of serious injuries by 2035
- 100% reduction in the number non-motorized fatalities and serious injuries by 2035

These long-term goals are combined with five-year rolling averages to calculate a maximum number of fatalities or serious injuries allowed in successive years to still achieve the long-term target. This approach and the targets described below are included in SRPC's Metropolitan Transportation Plan and its future Regional Safety Action Plan.

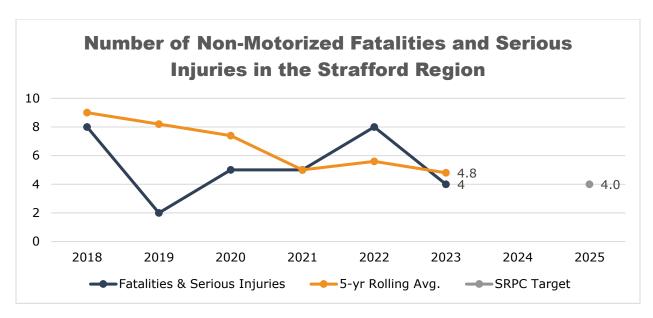
This alternative approach does not apply to the targets for the rate of fatalities and serious injuries. SRPC will continue to support the state targets for the rates of fatalities and serious injuries. This is primarily for mathematical reasons. On average, the Strafford region generally accounts for 11% of fatal crashes and 9% of VMT compared to statewide totals. Other regions, and the state as a whole, generally have higher VMT than fatal crashes. This means the Strafford region will always have proportionately higher rates of fatalities and serious injuries than the state as a whole. SRPC does not wish to set numeric targets that are higher than the targets that the state has set.



12.3 is the maximum number of fatalities that can occur in the Strafford region in 2025 and make progress toward achieving a 75% reduction in fatalities by 2035.



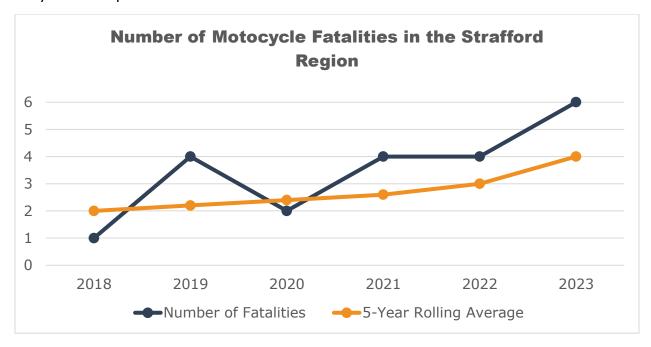
46.6 is the maximum number of serious injuries that can occur in the Strafford region in 2025 and make progress toward achieving a 50% reduction in serious injuries by 2035.



4.0 is the maximum number of non-motorized fatalities and serious injuries that can occur in the Strafford region in 2025 and make progress toward achieving a 100% reduction in non-motorized fatalities and serious injuries by 2035.

Supplemental Measure: Motorcycle Fatalities

Motorcycles are popular in NH, so SRPC tracks the number of motorcyclists killed on public roads. This is not required by federal law, so motorcycle fatalities are supplemental data. Motorcyclists deserve consideration as vulnerable users because they lack the protective shell of a vehicle.



SRPC	SRPC Safety Performance Measures and Targets Summary									
		2019	2020	2021	2022	2023	2024	2025		
Fatalities	Target	15	14	13.2	13	13	12.4	12.3		
	5-yr Ave	13.6	13.4	13.6	14.6	14.0				
Fatality Rate	Target	State								
	5-yr Ave	1.117	1.110	1.15	1.23	1.18				
Serious	Target	46	51	50.2	50.2	59	49.9	46.6		
Injuries	5-yr Ave	54.4	54.2	49.6	53	48.6				
Serious Injury	Target	State								
Rate	5-yr Ave	4.4	4.5	4.1	4.4	40				
Non-motorized	Target	8	7.4	6.9	7.4	6	4	4		
fatalities + serious injuries	5-yr Ave	8.2	7.4	5	5.6	4.8				

Relevant Trends

There are several notable issues and trends that may affect future safety performance and warrant monitoring:

- New Hampshire remains the only state without an adult seatbelt law. Past
 legislative efforts to introduce a primary seatbelt law have all failed but could
 be expected to improve safety performance. New Hampshire also does not
 require motorcyclists to wear a helmet.
- Marijuana legalization: Recreational marijuana is not yet legal in New Hampshire but is legal in New Hampshire's three abutting states and the Province of Quebec. Legalization of marijuana in New Hampshire could be expected to worsen safety performance, as has been seen in other states.
- Opioid addiction: Impaired driving continues to be a principal contributor to fatal and serious injury crashes. The ongoing opioid crisis within New Hampshire and the Northeast will continue to pose a hazard to highway safety and can be expected to worsen safety performance.
- Downtown revitalization is an opportunity to reduce speeds that decrease safety for all, and improve infrastructure to protect non-motorized users.
 Collaboration with maintenance staff will be required to ensure winter maintenance is not impacted.

Summary and Attainment Objectives

SRPC sets unique regional safety targets for the number of fatalities, serious injuries, and non-motorized fatalities and serious injuries. These targets are based on working toward zero crashes that kill and seriously injury people on all public

roads. This is an ambitious but necessary approach to reducing the number of people killed and seriously injured on public roads reflects SRPC regional transportation goals. SRPC will continue to support the state targets for the rate of fatalities and serious injuries.

Regional Safety Action Plan

SRPC is currently working with a consultant and the other three MPOs in New Hampshire to develop a Regional Safety Action Plan. This process is being funded by the Safe Streets and Roads for All program. Approval of that plan is expected in early 2025 and will enable all municipalities in the SRPC region to apply for grants to implement local priority safety projects. The Safety Action Plan includes detailed regional analysis of crashes, causal factors, and proposed strategies for improvement. SRPC's safety targets will be incorporated into the plan, which will also include specific projects that were prioritized by municipalities. SRPC will be helping communities apply for implementation grants in 2025 and beyond.

Other Objectives and Strategies

There are multiple broader strategies and actions that SRPC staff can take to achieve safety targets and long-term goals. SRPC will also take advantage of any emerging resources and opportunities to improve safety in New Hampshire. Below are descriptions of ongoing work done by SRPC staff and committee members.

- Continue collaborating with vulnerable road users and advocates to understand how to improve street designs and increase safety for pedestrians and bicyclists.
- Conduct regional analysis to identify highway safety hazards and work with the State and safety stakeholders to address areas of concern for fatalities or serious injuries within the region. Many such locations could be prime candidates for Road Safety Audits.
- Coordinate with state agencies to incorporate safety performance measures and targets into the Metropolitan Transportation Plan and Transportation Improvement Program. This includes more specific description of the anticipated effect of programmed or proposed projects in achieving safety targets and improving safety outcomes.
- Collaborate with local and state law enforcement to understand the justice system's role in deterring driver behavior that contributes to crashes that cause fatalities and serious injuries.
- Integrate applicable goals, objectives, performance measures, and targets described in other state transportation safety plans and processes into the MPO planning process.
- Conduct more detailed analysis of road geometry to identify hazards before they result in a fatality of serious injury (e.g. intersections that have a "Y" shape rather than a "T" shape).

Data Analysis Background

This Safety Action Plan is driven by data analysis that identified when, where, and how crashes occurred in the Stafford Regional Planning Commission (SRPC) region. Crash data is managed by the Department of Motor Vehicles' DMV VISION Crash Records Management System (CRMS). The NHDOT distributed the crash data to the consultant for analysis. Fatal, serious injury, minor injury, possible injury and property damage only crashes were analyzed for the period of 2018-2022. The data source for fatal crashes was the federally maintained Fatality Analysis Reporting System (FARS).

This action plan focuses on addressing crashes with the most severe injury outcomes. This includes fatal, serious, and minor injury crashes. The analysis for this plan includes a focus on the New Hampshire Strategic Highway Safety Plan (SHSP) Emphasis Areas. This alignment helps the SRPC to focus roadway safety improvement efforts on locations, policies, and programs that have the greatest chance in moving towards zero fatalities and serious injuries by [insert target date].

General Trends

During the 5-year period from 2018-2022, there were 65 fatal, 220 serious injury, and 1,666 minor injury crashes in Strafford Regional Planning Commission region. Figure 1: Fatal, Serious, and Minor Injury Crashes by Year, SRPC shows the trend of fatal, serious, and minor injury crashes.

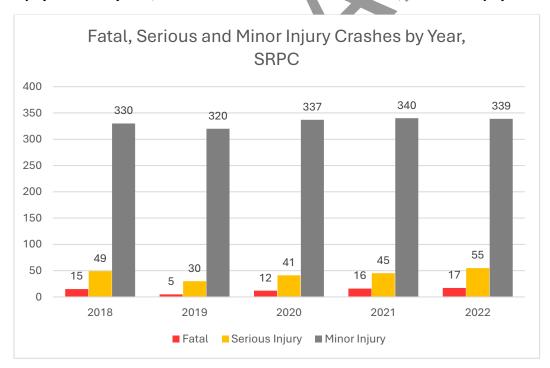


Figure 1: Fatal, Serious, and Minor Injury Crashes by Year, SRPC

Table 1: Crash Total by Severity shows the total number of crashes resulting in all levels of severity – fatal, serious injury, minor injury, possible injury, and property damage only. Total crashes fluctuate

over the 5-year period, with the 2020 being the low point of 2,973 crashes, and 2022 being the high point of 3,060 crashes. While 2020 and 2021 represent the two lowest years for total crashes, the proportion of fatal, serious, and minor injury crashes peaked in these years – accounting for approximately 15% of all crashes.

Severity	2018	2019	2020	2021	2022	Row Total
Fatal	15	5	12	16	17	65
Serious Injury	49	30	41	45	55	220
Minor Injury	330	320	337	340	339	1,666
Possible Injury	117	139	122	120	133	631
Property Damage Only	2,342	2,479	2,151	2,167	2,516	11,655
Column Total	2,853	2,973	2,663	2,688	3,060	14,237

Table 1: Crash Total by Severity

Emphasis Areas Analysis

Table 2: Crash Severity by Emphasis Area shows the total crashes during the 5-year period for each New Hampshire SHSP Emphasis Area (as rows) broken down by injury severity (as columns). Please note that the columns do not add up to the 'Total' row shown at the bottom of the table. Crashes can involve multiple emphasis areas at once. The three Emphasis Areas with the highest crash totals are Older Drivers (2,479), Distracted Driving (2,455), and Occupant Protection (2,190).

The 'Percent of Emphasis Area Resulting in KAB' column shows the percent of total crashes for each Emphasis Area that result in a fatality, serious, or minor injury. The five leading emphasis areas are, Vulnerable Motorized Users – Motorcycles and Mopeds (65%), Vulnerable Non-Motorized Users – Ped/Bikes (64%), Speed and Aggressive Driving (35%), Impaired Driving (29%) and Roadway Departure (24%). Safety countermeasures should also be chosen with consideration that people involved in these 5 crash types are more likely to suffer a fatal, serious, or minor injury.

SHSP Emphasis Area Crashes	Fatal (K)	Serious Injury (A)	Minor Injury (B)	Possible Injury (C)	Property Damage Only (O)	% of Emphasis Area Resulting in KAB	Percent of Total KAB	Total
Intersections	13	14	81	33	396	20%	6%	537
Roadway Departure	44	33	214	60	881	24%	15%	1,232
Distracted Driving	4	30	337	119	1,965	15%	19%	2,455
Impaired Driving	15	22	144	44	398	29%	9%	623
Speed and Aggressive Driving	22	13	70	20	171	35%	5%	296
Occupant Protection	31	58	406	122	1,573	23%	25%	2,190
Older Drivers (65+)	15	51	307	126	1,980	15%	19%	2,479

Teen Drivers (18 and Younger)	2	15	141	55	909	14%	8%	1,122
Vulnerable Motorized Users – Motorcycles and Mopeds	15	63	165	26	102	65%	12%	371
Vulnerable Non- Motorized Users – Ped/Bikes	6	18	67	15	36	64%	5%	142
Total	65	220	1,666	631	11,655	-	-	14,237

Table 2: Crash Severity by Emphasis Area

Figure 2: Crash Severity by Emphasis Area shows the share of each severity that an Emphasis Area is involved in – for example, 68% of fatal crashes involved a roadway departure, while 15% of serious injuries involved a Roadway Departure. Of the 65 fatal crashes during the 5-year period, the three Emphasis Areas with the highest share of involvement were Roadway Departure (44 crashes, 68%), Occupant Protection (31 crashes, 48%), and Speed and Aggressive Driving (22 crashes, 34%). By comparing the stark differences in representation across each crash severity, Figure 2: Crash Severity by Emphasis Area shows that the Emphasis Areas are overrepresented in fatal crashes. Roadway Departure crashes account for 15% of all fatal, serious, and minor injury crashes, while Speed and Aggressive Driving, and Occupant Protection account for 5% and 25% respectively. Countermeasure strategies that address these Emphasis Areas can help make significant progress in reaching the target of xx fatalities and [xx] serious injuries by [insert target date].

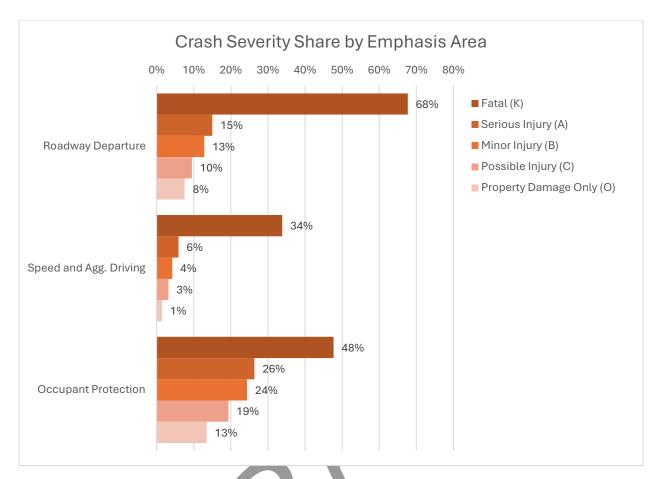


Figure 2: Crash Severity by Emphasis Area

Figure 3: Crash Severity Share by Emphasis Area shows the 7 other Emphasis Areas. Distracted Driving, and Teen Drivers are the only Emphasis Areas with a smaller proportion of crashes that result in fatal and serious injuries, compared to minor injury, possible injury, and property damage only crashes. Please note that Distracted Driving is difficult to gather accurate data on, and levels of involvement in crashes are underreported.

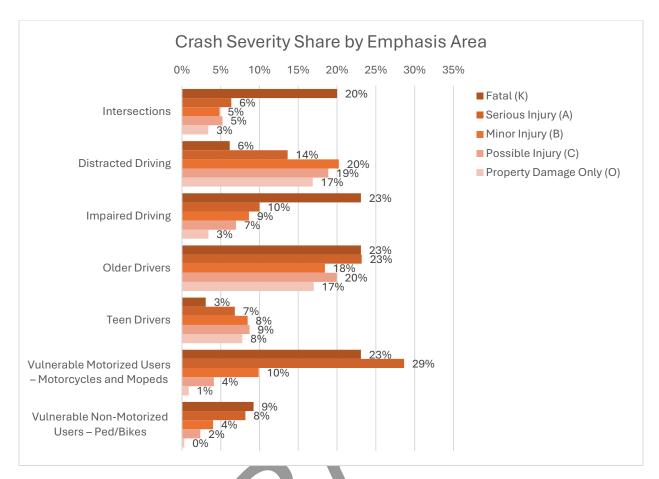


Figure 3: Crash Severity Share by Emphasis Area

Emphasis Area Highlights

The following section highlights crash factors for the following five Emphasis Areas; Roadway Departure, Occupant Protection, Speed and Aggressive Driving, Vulnerable Motorized Users – Motorcycles and Mopeds, and Vulnerable Non-Motorized Users – Bicycles and Pedestrians. These five Emphasis Areas have a high level of involvement in fatal, serious, and minor injury crashes.

Roadway Departure

- 44 (67%) of the 65 fatal crashes in the SRPC involved a Roadway Departure
- Approximately 24% of Roadway Departure crashes resulted in a fatal, serious, or minor injury
- There were a total of 1,232 crashes involving a Roadway Departure during the 5-year period.
- 14 (32%) of the 44 fatal Roadway Departure crashes also involved Impaired Driving.
- 19 (43%) of the 44 fatal Roadway Departure crashes also involved Speed and Aggressive Driving

Occupant Protection

- 31 (48%) of the 65 fatal crashes in the SRPC involved improper Occupant Protection. During the 5-year period, the average seat belt usage rate was 74% in New Hampshire, and 91% Nationwide¹.
- Approximately 23% of crashes involving improper Occupant Protection resulted in a fatal, serious, or minor injury.
- There were a total of 2,190 crashes involving improper Occupant Protection during the 5-year period.
- 13 (42%) of the 31 fatal Occupant Protection crashes involved a Roadway Departure.
- Improper Occupant Protection is most common with the 26–35-year-old age group. Approximately 13% of all occupants in crashes were not properly restrained.

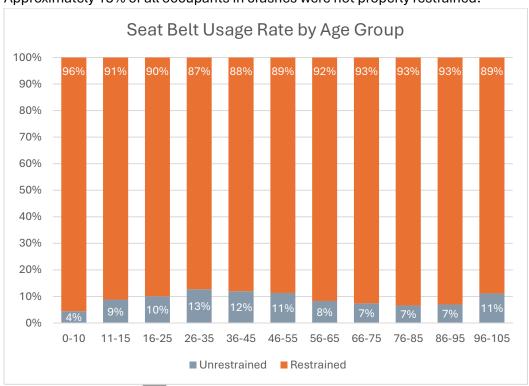


Figure 4: Seat Belt Usage Rate by Age Group, SRPC

Speed and Aggressive Driving

- 22 (34%) of the 65 fatal crashes involved Speed and Aggressive Driving during the 5-year period in SRPC.
- Approximately 35% of all Speed and Aggressive Driving crashes resulted in a fatal, serious, or minor injury.
- A total of 296 crashes involved Speed and Aggressive Driving during the 5-year period.
- Speed and Aggressive Driving crashes resulting in a fatal, serious, or minor injury fluctuate throughout the year. There were 7 fatal crashes during the month of September the next highest were August (3) and November (3).

Seat Belt Use in 2022 – NHTSA (https://crashstats.nhtsa.dot.gov/Api/Public/Publication/813487)

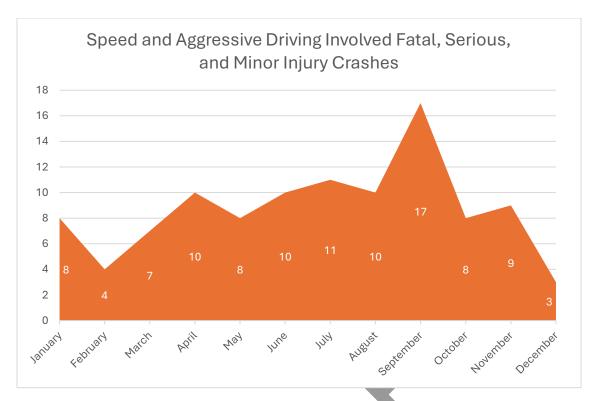


Figure 5: Speed and Aggressive Driving Involved Fatal, Serious, and Minor Injury Crashes, SRPC

Vulnerable Motorized Users – Motorcycles and Mopeds

- 15 (23%) of the 65 fatal crashes involved a Vulnerable Motorized User during the 5-year period.
- Approximately 65% of all Vulnerable Motorized User crashes resulted in a fatal, serious, or minor injury. This is the highest proportion for all Emphasis Areas.
- There were a total of 371 crashes involving Vulnerable Users during the 5-year period.
- 10 of the 15 fatal crashes (66%) occurred on either a Principal Arterial or a Major Collector roadway
- 47% of fatal Vulnerable Motorized User crashes involved a Roadway Departure.
- 79% of all Vulnerable Motorized User crashes occurred during the warm months of May through September.

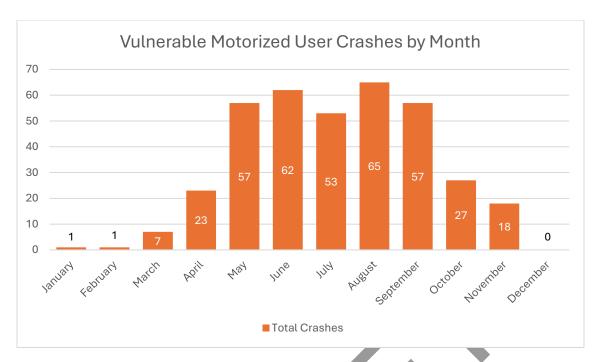


Figure 6: Vulnerable Motorized User Crashes by Month

Vulnerable Non-Motorized Users – Pedestrians and Bicycles

- 6 of the 65 fatal crashes involved a Vulnerable Non-Motorized User during the 5-year period.
- Approximately 64% of all Vulnerable Non-Motorized User crashes resulted in a fatal, serious, or minor injury.
- There were a total of 142 crashes involving a Vulnerable Non-Motorized User during the 5year period.
- 4 of the 6 Vulnerable Non-Motorized User crashes (67%) occurred away from an intersection.
- Approximately 84% of all Vulnerable Non-Motorized User crashes occurred in either Rochester, Dover, or Durham. Similarly, 86% of Vulnerable Non-Motorized User crashes which resulted in a fatal, serious, or minor injury occurred in these three jurisdictions.

Crossmatrix Analysis

When a crash occurs, there can be multiple factors that caused the crash. When analyzing crashes to identify trends in Emphasis Area involvement, we acknowledge the same possibility – there can be an impaired driver, who runs off the roadway while speeding. Stated another way, a single crash can involve multiple Emphasis Areas. The following chart below shows the overlap between Emphasis Areas in crashes that result in a fatal, serious, or minor injury – the percentages listed are in reference to the Emphasis Area in the column header. For example, 22% of Older Driver crashes also involved improper Occupant Protection.

The highest overlap in the chart is observed at the intersection of Intersection crashes and Occupant Protection crashes. Approximately 37% of crashes that occurred at an intersection involved a motor vehicle occupant not wearing their seatbelt or wearing it incorrectly. In total,

Intersections represent approximately 6% of all fatal, serious, and minor injury crashes in the SRPC. Improper Occupant Protection is a risk-taking behavioral choice, while Intersection involvement is a location-based factor in a crash. Furthermore, improperly wearing your seatbelt is a more constant choice, in comparison to the choice of speeding on a certain stretch of roadway. With that in mind, SRPC should consider solutions that improve Occupant Protection usage in the region – for example, an increase in media messaging that promotes the use of seatbelts for all adults and children.

Older Drivers are involved in 19% of fatal, serious, and minor injury crashes, while Younger Drivers are involved in 8%. When comparing the two emphasis areas further, while Older Drivers have a higher involvement in Occupant Protection crashes (22%), Teen Drivers (20%) have a higher level of overrepresentation since they are involved in 11% fewer fatal, serious and minor crashes all together.

In total, Impaired Driving was involved in 9% of all fatal, serious, and minor injury crashes. The crossmatrix chart shows that 32% of Impaired Driving crashes also involved a Roadway Departure, indicating a high level of overlap. Similarly, 36% of Impaired Driving crashes involved improper Occupant Protection. Impaired Driving is a risk-taking behavior that is often coupled with other risk-taking behaviors, like speeding, and not wearing a seatbelt. Impaired Driving also leads to slower reaction times, and navigating corners become a deadly challenge. With high levels of overlap between these risk-taking behaviors, recommendations that address one behavior, like Impaired Driving, may provide an outsized benefit by also addressing Speeding, Distracted Driving, and Occupant Protection crashes.

SRPC (KAB) Percentages	Intersections	Roadway Departure	Distracted Driving	Impaired Driving	Speeding	Occupant Protection	Older Drivers (65+)	Teen Drivers (18 and Younger)	Motorcycles and Mopeds	Bikes and Pedestrians
Intersections	-	2%	4%	3%	8%	8%	8%	9%	5%	14%
Roadway Departure	5%	-	14%	32%	22%	15%	10%	11%	11%	1%
Distracted Driving	12%	18%	-	10%	3%	20%	14%	18%	10%	20%
Impaired Driving	5%	20%	5%	-	15%	13%	3%	3%	5%	5%
Speeding	7%	8%	1%	9%	-	7%	3%	8%	10%	2%
Occupant Protection	37%	25%	26%	36%	33%	-	22%	20%	21%	20%
Older Drivers (65+)	26%	13%	15%	6%	10%	17%	-	9%	15%	21%
Teen Drivers (18 and Younger)	14%	6%	8%	3%	11%	6%	4%	-	3%	4%
Motorcycles and Mopeds	12%	9%	7%	7%	24%	10%	10%	5%	-	0%
Bikes and Pedestrians	12%	0%	5%	3%	2%	4%	5%	3%	0%	-
Total	6%	15%	19%	9%	5%	25%	19%	8%	12%	5%

Figure 7: SRPC Fatal (K), Serious (A), and Minor Injury (B) Crossmatrix Analysis

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Systemic Analysis

The systemic analysis used crash trees to identify multiple factors at play in each crash. While the crossmatrix exclusively analyzes Emphasis Area involvement in crashes, the systemic crash tree analysis incorporates several other data fields. For example, road classification, weather conditions, lighting conditions, location of crash, and crash types. The data source for fatal crashes is the Fatality Analysis Reporting System (FARS) which is a national database maintained by National Highway Safety Traffic Administration (NHTSA). The FARS database provides additional fields that are not available in the NHDOT crash database. Therefore, crash trees that analyze fatal crashes may utilize fields that are not available in the NHDOT dataset. The NHDOT data is used for all non-fatal crashes.

Crash Tree: Pedestrian Crash Locations

Figure 8: Pedestrian Crash Tree below analyzes road classification in Pedestrian involved fatal crashes in SRPC. A total of 6 fatal crashes involved Pedestrians during the 5-year period. Of those 6 crashes, 3 (50%) occurred on a Minor Arterials, in an urban context. Major Collector, Local Streets, and Other Principal Arterials accounted for the next highest proportions, with 1 crash each (17%). All of the fatal pedestrian crashes occurred in an urban context. Arterial roads are often popular for pedestrian traffic due to a mixture of uses being present, including residential and commercial uses. Still, the roadway design on these streets may be lacking pedestrian infrastructure, for example missing or incomplete sidewalk networks, long crossing distances, unmarked crosswalks, too great of a distance between intersections, and high vehicle speeds. Installing mid-block crossings, pedestrian lighting, filling in sidewalk network gaps and implementing road diets are examples of ways to improve pedestrian infrastructure.

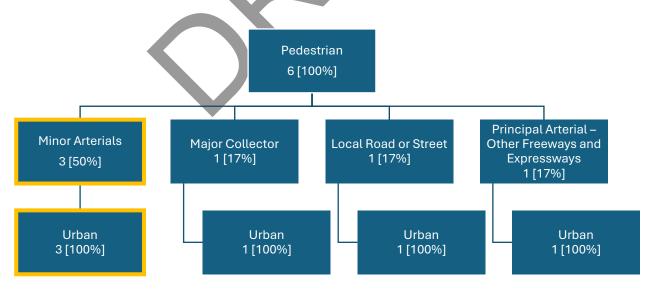


Figure 8: Pedestrian Crash Tree

Crash Tree: Pedestrian Crash Locations

Figure 9: Pedestrian Crash Tree - Intersection analyzes the lighting conditions at where Pedestrian involved fatal crashes in SRPC. A total of 6 fatal crashes involved Pedestrians during the 5-year period. Of those 6 crashes, 4 (67%) occurred at non-intersections. Of the fatal crashes at non-intersection locations three crashes occurred in the dark-not lighted conditions, and one occurred in daylight conditions. Five of the Six fatal crashes occurred in dark conditions with 3 of those being in not lighted areas. Intersections are a natural conflict point due to the convergence of pedestrians and vehicles at the same location, however, they are not where the majority of the fatal crashes including pedestrians occurred. Fatal crashes including pedestrians at non-intersection locations indicates locations where pedestrians are crossing at mid-block crossings or locations that do not have existing or adequate pedestrian infrastructure. Installing mid-block crossings where possible, pedestrian lighting, filling in sidewalk network gaps and implementing rectangular rapid flashing beacons (RRFBs) where possible are examples of ways to improve pedestrian infrastructure.

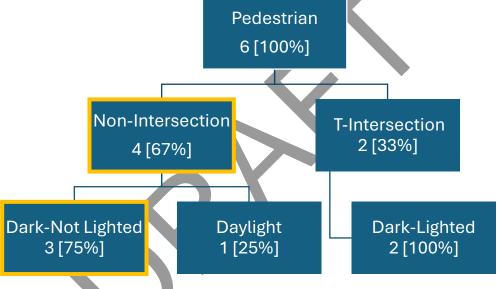


Figure 9: Pedestrian Crash Tree - Intersection

Crash Tree: Fatal Crashes by Location

Figure 10: Intersection Crash Trees shows the breakdown of fatal crashes in SRPC, based on whether they occurred at, or away from an intersection. This tree also displays crash types. As shown, 80% of fatal crashes (52 of 66) in SRPC occurred away from an intersection. Of those 52 crashes, 38 did not involve a collision with another motor vehicle. Potential crash types for non-motor vehicle collisions include fixed object crashes, rollover crashes, and pedestrian or bicycle involved crashes. While intersections are a natural conflict point due to the convergence of multiple roads, they are not where the majority of fatal crashes occurred. Non-Intersection crashes not including a collision motor vehicle point to a Roadway Departure crash type. Curve warning signing, edge striping, pavement friction treatments, and centerline and shoulder rumble strips are all examples of ways to keep vehicles on the roadway and reduce the potential of the non-intersection crashes that do not involve a collision with another motor vehicle.

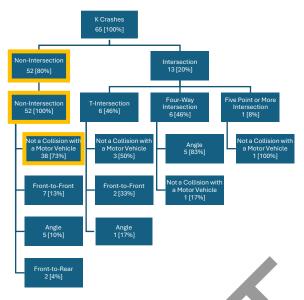


Figure 10: Intersection Crash Trees

Crash Tree: Fatal Crashes by Location - Urban/Rural

Figure 11: Crashes by Location - Urban/Rural shows the breakdown of fatal crashes in SRPC, based on the urban/rural context, roadway type, and whether the crash was classified as Roadway Departure. As shown, 54% of fatal crashes (35 of 66) in SRPC occurred in a rural area. Of those 35 crashes, 13 (37%) occurred on a principal arterial, of which 10 of those were Roadway Departure Crashes. 26 of the 35 rural crashes occurred in a rural area. Curve warning signing, edge striping, pavement friction treatments, and centerline and shoulder rumble strips are all examples of ways to keep vehicles on the roadway and reduce roadway departure crashes in rural areas.

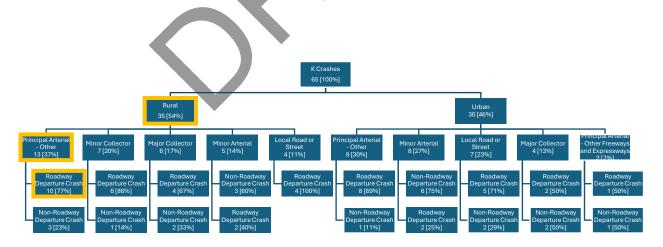


Figure 11: Crashes by Location - Urban/Rural

Equity Analysis

The following section details the Equity Analysis for the Strafford Regional Planning Commission. The U.S. Department of Transportation (USDOT) identifies census tracts that face a cumulative burden as a result of underinvestment in transportation, across five measures: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. Census tracts are considered Transportation Disadvantaged if the overall index score for a given tract is in the 65th percentile (or higher) when compared to all other U.S. census tracts. Data from the USDOT Equitable Transportation Community (ETC) explorer were analyzed to identify tracts in the SRPC that were considered Transportation Disadvantaged on a nationwide level².

There are four census tracts in the SRPC that are Transportation Disadvantaged. All four are located in Rochester. Table 3: Census Tract Data shows a breakdown of the component scores for each disadvantaged census tract. As shown the four disadvantaged communities tend to score higher in Environmental Burden and Transportation Insecurity. Some of the factors that make up the Environmental Burden score include: toxic release sites proximity, percent of housing stock built before 1980 and impaired surface water. Factors that make up the Transportation Insecurity marker are transportation safety, transportation cost burden, and transportation access.

Census Tract	Climate & Disaster Risk Burden	Environmental Burden	Health Vulnerability	Social Vulnerability	Transportation Insecurity
Tract 842.01 (Rochester)	23	59	49	48	75
Tract 843.02 (Rochester)	23	69	11	73	77
Tract 843.01 (Rochester)	34	72	4	66	84
Tract 844 (Rochester)	42	75	38	59	60
Average for Disadvantaged Tracts	31	69	26	62	74
Average for SRPC	19	38	34	36	71

Table 3: Census Tract Data

² Equitable Transportation Community (ETC) Explorer - (https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/ETC-Explorer---National-Results/)

Hot Spot Maps

During the 5-year period, 231 (12%) of the 1,951 fatal, serious, and minor injury crashes occurred in a Transportation Disadvantaged census tract in the SRPC. Figure 12: SRPC Hot Spot Map shows the "hot spots where there are relatively large concentrations of fatal, serious, and minor injury crashes (in orange) and "cold spots" (in blue) where lower relative concentrations exist. Census tracts that are considered "Transportation Disadvantaged" are depicted in gray shading in Figure 12: SRPC Hot Spot Map. The highest concentrations of fatal, serious, and minor injury crashes are shown in Rochester, Dover, and Somersworth.

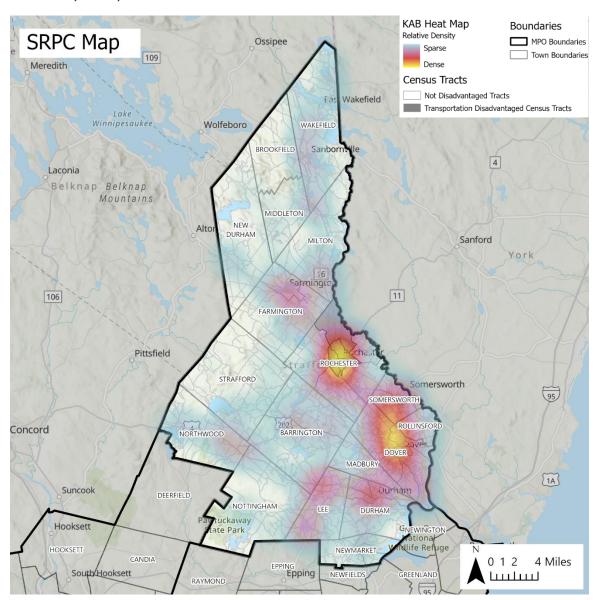


Figure 12: SRPC Hot Spot Map

HIN Analysis

The following map shows the High Injury Network (HIN) corridors for the SRPC. The High Injury Network analysis identifies a small subset of roads in Strafford Regional Planning Commission where a high proportion of fatal, serious, and minor injury crashes occur. The analysis identifies which road each fatal, serious or minor injury crash occurred on, and attributes each crash to a specific segment of roadway if it is within 100 feet of the roadway. Crashes with XY coordinates that are greater than 100 feet from a road were excluded from this analysis. Each roadway segment must be at least a half mile in length and have at least six fatal, serious, or minor severity crashes to qualify for the analysis. Crashes are multiplied by the crash cost values shown in Table 4: Crash Cost Table and divided by the length of the roadway segment. Segments are then ranked from 1 to 50 based on the highest to lowest crash cost scores.

Crash Severity	Crash Cost		
Fatal or Serious Injury	\$1,328,148		
Minor Injury	\$111,200		

Table 4: Crash Cost Table

The HIN accounts for 48% of eligible crashes, and only 10% of the road network.

There was a total of 1,720 fatal, serious, or minor injury crashes with XY coordinates within 100 feet of a road segment in the SRPC. Across the 50 corridors that qualify, there were a total of 833 KAB crashes. 77% of all Principal Arterial roads are on the HIN. Minor Arterial roads account for 44% of crashes, and only 34% of HIN miles. Similarly, Principal Arterial Roads account for 36% of HIN crashes and 34% of HIN miles.

Road Types	Total Eligible Crashes	Total Miles	HIN Crashes	% of HIN Crashes	HIN Miles	% of HIN Miles
Local	398	914	33	4%	13	7%
Major Collector	279	144	118	14%	39	22%
Minor Arterial	466	91	365	44%	60	34%
Minor Collector	67	63	17	2%	4	2%
No Functional System	50	475	0	0%	0	0%
Principal Arterial - Other	329	78	300	36%	60	34%
Principal Arterial - Other	131	53	0	0%	0	0%
Freeways and Expressways						
Grand Total	1,720	1,818	833	100%	177	100%

Table 5: High Injury Network

Of the 50 HIN corridors, parts of nine of them fall within a Transportation Disadvantaged census tract. These corridors include North Main Street, Highland Street, Washington Street, Wakefield Street, and the Spaulding Turnpike Connector. All but one of the HIN corridors in a Transportation Disadvantaged tract are classified as Minor or Principal Arterial roads. Brock Street is classified as a Local Road. While there are several towns without roads identified as HIN corridors, that isn't a determination that there are no safety concerns on roads in these towns. For example, in

Newmarket there were approximately 9 crashes resulting in a minor injury on Exeter Road between South Main Street and Day Break Drive. In New Durham there were approximately 6 crashes resulting in a serious or minor injury on Kings Highway during the 5-year period.

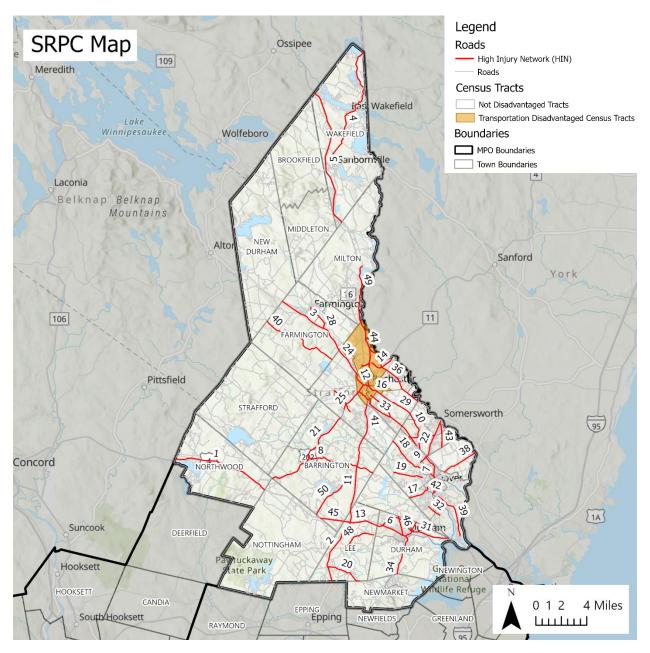


Figure 13: High Injury Network

Census Data Overrepresentation Analysis

Additional Equity analysis overlaid Transportation Disadvantaged census tracts over data identifying census tracts with higher proportions of the following populations, in comparison to the rest of the Strafford Regional Planning Commission:

- Black, Indigenous, and People of Color (BIPOC) populations
- Persons with a disability
- Persons aged 65 and older
- Persons in poverty
- Zero vehicle households
- Households with limited English proficiency

This analysis identifies overrepresented populations on a region wide scale, helping to provide the basis for certain safety countermeasure recommendations. For example, in communities with higher populations aged 65 years old and older, countermeasures should the unique needs of this population. In communities with higher poverty rates and a high percentage of zero vehicle households, countermeasure recommendations may emphasize pedestrian, bicyclist, and transit safety.

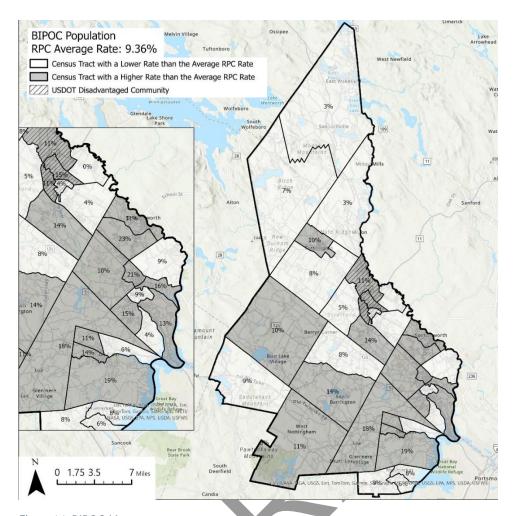


Figure 14: BIPOC Map

The region wide average for persons who identify as Black, Indigenous, or a Person of Color (BIPOC) is approximately 9% in the SRPC. The three census tracts with the highest rates are tract 801 (18%, Durham), tract 815 (21%, Dover) and tract 830.02 (23%, Somersworth).

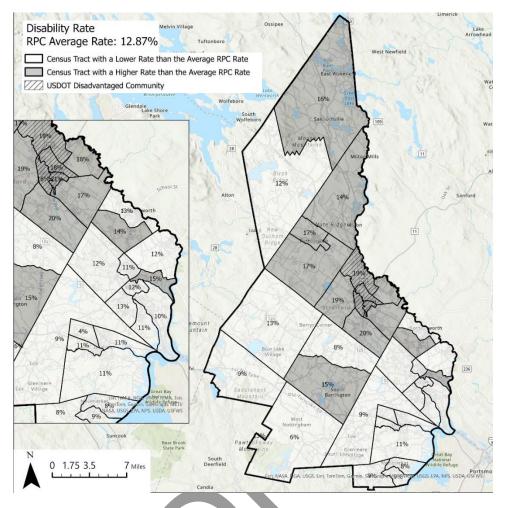


Figure 15: Disability Map

The region wide rate of persons with a disability is approximately 13%. Several census tracts in Rochester have rates that are more than 5% higher than the regional average. Three of the four Transportation Disadvantaged tracts have rates at 18% or higher (tract 842.01, tract 843.01, and tract 843.02). Outreach in these communities can help identify what the unique needs of these populations are, and what countermeasure improvements should be emphasized. Some may have visual impairments, while others may have ambulatory impairments.

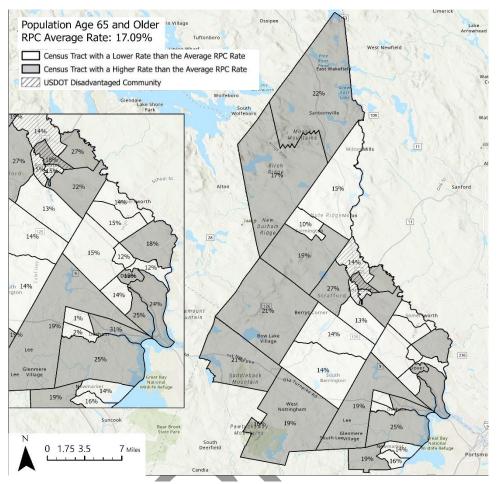


Figure 16: Older Population Map

Approximately 17% of people are aged 65 and older in the Strafford Regional Planning Commission. The highest rate is in tract 802.02 which is in Durham. As we age, we can become more susceptible to injury, reaction time can become slower, vision may be reduced and safe driving abilities can be affected. It's important to note that, while everyone ages, aging does not affect everyone's abilities in the same ways. When considering safety improvement countermeasures, SRPC should consider the needs of the aging population. For example, in areas where Older Driver nighttime crashes are prevalent, installing high visibility materials on traffic signage and signals can enhance conspicuity.

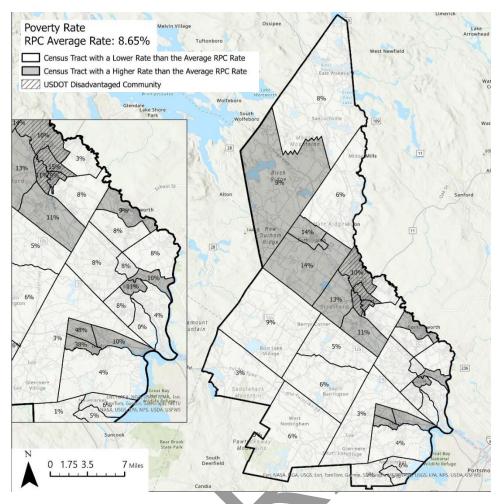


Figure 17: Poverty Rate Map

The region wide rate of persons living in poverty is approximately 9%. The highest rates are in tracts 802.03 (38%, Durham) and 802.04 (48%, Durham), but it is worth noting that these census tracts are likely high because they overlap with the University of New Hampshire campus. Aside from these tracts, the highest poverty rate is in tract 843.02 (15%, Rochester). Countermeasure recommendations in census tracts with higher rates of poverty should be selected with the consideration that households in poverty are more likely to use transportation modes other than cars for some or all of their trips. Countermeasures should emphasize providing safety for pedestrians, bicyclists, and transit users.

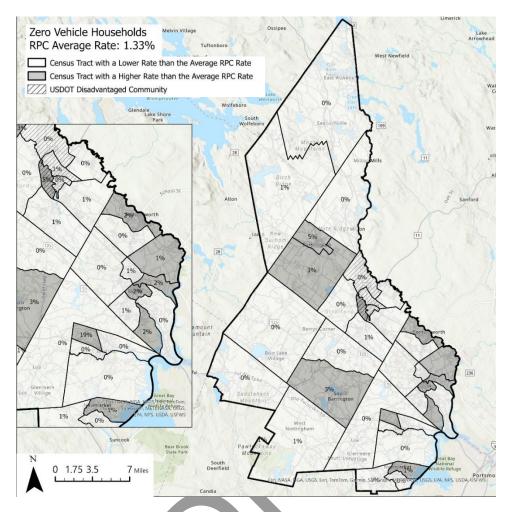
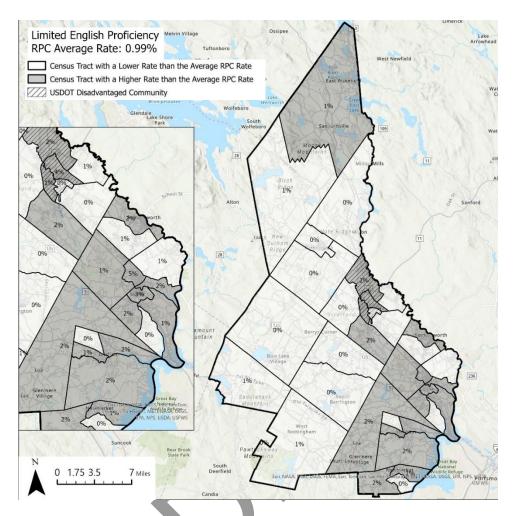


Figure 18: Zero Vehicle Household Map

Zero vehicle households are households that do not have access to at least one motor vehicle. The rate households in the SRPC that do not have access to a vehicle is approximately 1%. Similarly to the poverty rate analysis, approximately 19% of people in tract 802.04 in Durham do not have access to a vehicle – this tract encompasses the University of New Hampshire. Otherwise, most tracts throughout the region have rates from 1-3%. Approximately 5% of households in tract 844 in Rochester, and tract 870.01 in Farmington do not have access to a vehicle.



The region wide rate of persons with limited English proficiency is approximately 1%. Rates range from 1-5% throughout the region. Census tract 815 in Dover is the only tract with 5% of people experiencing limited English proficiency. Ensuring that educational materials for road and transportation safety are available in languages other than English is important for bridging the language barrier. Outreach in these communities can identify what languages people can read.