

Rockingham Planning Commission

2024 Transportation Safety (HSIP) Performance Targets

Draft – 12/1/2023

Rockingham Planning Commission
Adopted: [Date]

Background

The Federal Highway Administration (FHWA) implemented the final rule on the Highway Safety Improvement Program (HSIP) effective April 14, 2016. This regulation ([23 CFR 490](#)) requires that five safety related performance targets must be set and published annually by State DOTs by August 31st and MPOs within 180 days after the state targets are established. This target setting is intended to coordinate the efforts of the State Department of Transportation (NHDOT), State Office of Highway Safety (OHS), and Metropolitan Planning Organizations (MPO), as well as the specific planning efforts of the NHDOT State Strategic Highway Safety Plan (SHSP), OHS Highway Safety Plan (HSP), and the Highway Safety Improvement Program (HSIP), into measures that help to assess the safety performance of the transportation system. The federally required targets assess and report safety improvements in five ways:

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.

In addition, the MPOs in New Hampshire are tracking additional safety metrics that are not required by the Federal rule. To date, this includes a single measure:

1. **Motorcycle Fatalities:** The number of fatal crashes involving motorcycles.

Target Development

States establish Highway Safety Improvement Program (HSIP) targets and report them for the upcoming calendar year in the 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 targets established for number and rate of fatalities, and number of serious injuries must be identical to those established for the National Highway Transportation Safety Agency (NHTSA) Highway Safety Grant program in the annual Highway Safety Plan (HSP). The state has the option to also establish any number of urbanized area targets and a non-urbanized area target for the purposes of evaluating and reporting measures. However, those sub-state targets are not included in the significant progress determination that will be made by FHWA.

In New Hampshire, the process used to develop the required safety measures included in the annual HSP 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 the four MPOs in the state. Currently available fatality, serious injury, and volume data were analyzed to establish 2014-2022 conditions in terms of total fatalities, fatality rates, total serious injuries, serious injury rates, as well as total non-motorized fatalities and serious injuries. Five year rolling averages were developed from these values and utilized to compute projected values for 2024.

State Targets

Figure 1 below shows the New Hampshire HSIP targets for 2024. The figures in the “Supporting Data and Analysis” section of this document show state and regional data supporting the targets for the five required measures as well as charts showing historic values, 5-year averages, and projected 2024 values for each measure.

Figure 1: State of NH 2024 HSIP Targets

Measure	2022 Values		Trend Based Target	2024 Targets		
	Yearly	Five-Year Average		Current Trend	Desired Trend	2024 Target
Number of Fatalities	146	123.0	119.8			120.0
Fatality Rate per 100 Million VMT	1.100	0.932	0.917			0.919
Number of Serious Injuries	594	503.2	515.1			509.6
Serious Injury Rate per 100 Million VMT	4.480	3.827	3.960			3.877
Non-Motorized Fatalities and Serious Injuries	51	42.4	31.7			39.4

MPO Targets

For 2024, the MPO is agreeing to support the State of New Hampshire HSIP Targets in all five mandated areas. In doing so, the MPO is agreeing to:

- Work with the State and safety stakeholders to address areas of concern for fatalities or serious injuries within the metropolitan planning area.
- Coordinate with the State and include the safety performance measures and HSIP targets for all public roads in the metropolitan area in the MTP (Metropolitan Transportation Plan).
- Integrate into the metropolitan transportation planning process the safety goals, objectives, and performance measures and targets described in other State safety transportation plans and processes such as applicable portions of the HSIP, including the SHSP.
- Include a description in the TIP (Transportation Improvement Program) of the anticipated effect of the TIP toward achieving HSIP targets in the MTP, linking investment priorities in the TIP to those safety targets.

Motorcycle Fatalities

The four New Hampshire MPOs have mutually agreed to track motorcycle fatalities as a performance measure and Fatality Analysis Reporting System (FARS) data is utilized for this purpose. As the State and MPO are not required to establish targets by FHWA, the state is not establishing targets in this area and so the MPO must establish its own. Since 2010, the MPO region has averaged 3 motorcycle fatalities per year and this has kept the 5-year average nearly flat at around 2.8 since 2015. In 2022 however there were six motorcycle related fatalities which caused the 5-year average for the region to go above 3.0 for the first time since 2015. Statewide, motorcycle fatalities were 23% higher in 2021 than in 2020 and 50% higher in 2022 than in 2021, including 6 in the RPC region (up from 2 in 2021). Assuming no motorcycle fatalities in both 2023 and 2024 would reduce the 5-year average to **2.2 and this is the recommended 2024 target for the 5-year average Motorcycle fatalities**. Additional supporting data is included in the “Supporting Data and Analysis” section of this document.

Figure 2: Rockingham Planning Commission Additional 2022 Safety Performance Targets

Measure	2022 Values		Trend Based Target	2024 Targets		
	Yearly	5-Year Average		Current Trend	Desired Trend	2024 Target
Number of Motorcycle Fatalities	6	3.2	3.2			2.2

Supporting Data and Analysis

Data for the establishment of these measures is provided from three sources:

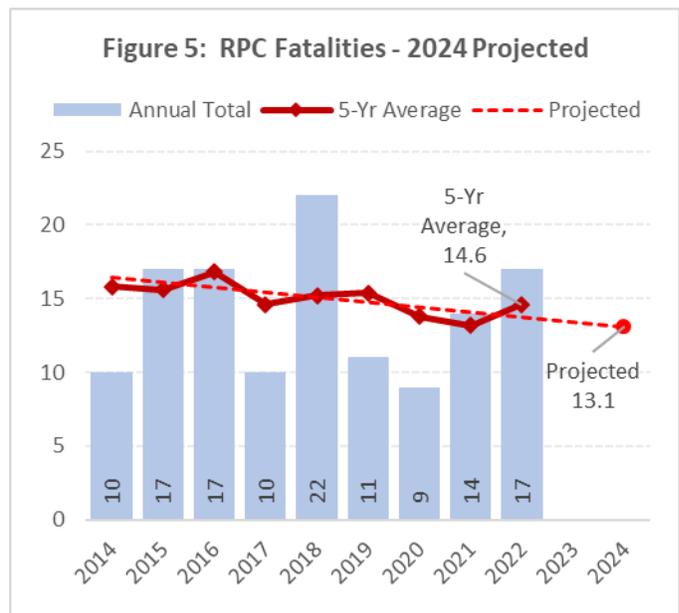
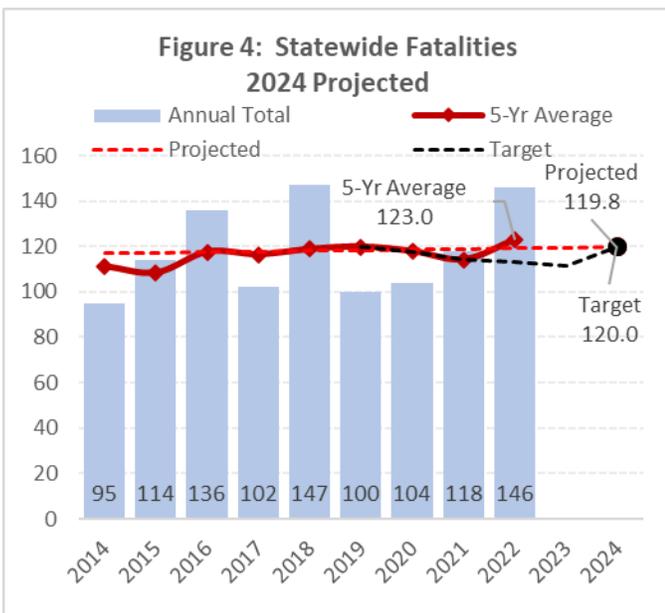
- **Fatality Analysis Reporting System (FARS):** FARS Annual Report File or Final data is utilized to provide information on fatal crashes in the state and to identify those that have occurred within the MPO region. Five-year rolling averages are computed to provide a better understanding of the overall data over time without discarding years with significant increases or decreases, as well as to provide a mechanism for regressing fatalities to the mean and accounting for their essential random nature in location and time.
- **State Motor Vehicle Crash Database:** Data collected and maintained by the NH Department of Safety is utilized to determine the number of serious injury crashes in the state (currently those classified as “Suspected Serious Injury” on the DSMV159, 2018). This includes injuries that involve severe lacerations, broken or distorted limbs, skull fracture, crushed chest, internal injuries, unconscious when taken from the accident scene, or unable to leave the accident scene without assistance. This data is necessary to identify the total number of serious injuries from traffic crashes in New Hampshire and the MPO region specifically.
- **Highway Performance Monitoring System (HPMS):** State VMT data is 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. The VMT data is combined with FARS data to calculate rate of fatalities (deaths per 100 million VMT) and with the State Motor Vehicle Crash data to calculate the rate of serious injuries (serious injuries per 100 million VMT).

Number of Fatalities

Statewide, there was a 3% increase in Vehicle Miles of Travel (VMT) which has edged volumes closer to those seen pre-pandemic (2% decrease from 2019) and along with the higher volumes there was a 23% increase in the number of motor vehicle crash related fatalities in 2022. The number of fatalities in the state has varied substantially since 2014 averaging a $\pm 23\%$ change from year to year (± 34 deaths) (**Figures 3 & 4**). Since the low in 2015, the five-year rolling average increased through 2019, dropped in 2020 and 2021, and has increased substantially with the 5-year period ending in 2022. This illustrates a return to a generally higher numbers of fatalities as 2018 and 2022 had the highest number of fatalities since the process of setting performance targets began. Calculating a trend line on the five-year averages indicates a slight decrease in the rolling average from the current 123.0 to 119.8 in 2024 and NHDOT rounded this to 120 to establish the state target for 2024. Fatalities in the RPC region continued to be lower than the 2018 peak of 22 with 17 during 2022 (**Figures 3 & 5**). After two years of declining numbers, the five-year average fatalities started to increase again and rose to 14.6 for the period ending in 2022. The overall trend is still indicating declining numbers of fatalities with a five-year average for the 2020-2024 period expected to be at 13.1 deaths.

Figure 3: Fatalities

Year	Annual Crash Fatalities		5-Year Period	5-Year Rolling Average Crash Fatalities	
	New Hampshire	MPO Region		New Hampshire	MPO Region
2014	95	10	2010-2014	111.2	15.8
2015	114	17	2011-2015	108.4	15.6
2016	136	17	2012-2016	117.6	16.8
2017	102	10	2013-2017	116.4	14.6
2018	147	22	2014-2018	118.8	15.2
2019	101	11	2015-2019	120.0	15.4
2020	104	9	2016-2020	117.8	13.8
2021	118	14	2017-2021	114.2	13.2
2022	146	17	2018-2022	123.0	14.6

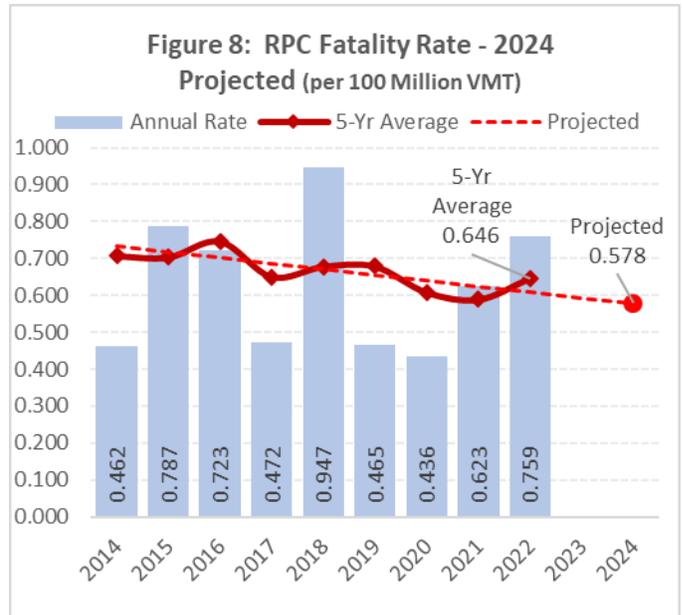
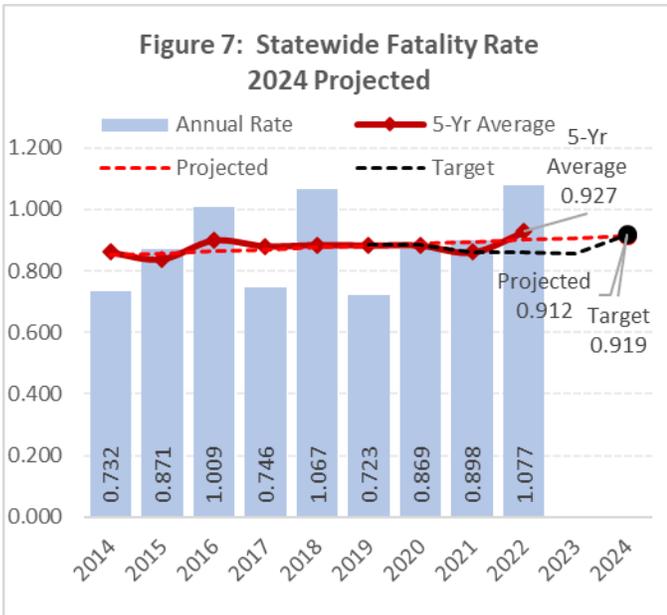


Rate of Fatalities

2022 saw a substantial increase in fatalities and a moderate increase in auto travel resulting in an increased annual Fatality Rate for the state from 0.898 to 1.077 fatalities per 100 Million VMT. Similarly, the statewide five-year average rate of fatalities jumped from 0.861 fatalities per 100 million VMT (2017-2021) to 0.927 for the current five-year average (2018-2022)(**Figures 6 & 7**). The projected rate for 2020-2024 drops slightly to 0.912 fatalities per 100 Million VMT however NHDOT set a slightly higher target of 0.919 which better reflects current performance of the system. Although the annual rate for the MPO region increased significantly for the second year in a row, it remains lower than the statewide rate. The higher numbers of fatalities in the last two years has reversed what was a downward trend in the five-year average rate and it has increased (**Figures 6 & 8**) for the first time since 2016 to 0.646 for the 2018-2022 cycle. Projections continue to show a downward trend however and the 2020-2024 timeframe is estimated to be 0.578 deaths per 100 million VMT.

Figure 6: Fatality Rates

Year	100 Million Vehicle Miles of Travel (VMT)		Fatality Rate per 100 Million VMT		5-Year Period	5-Year Average Fatality Rates per 100 Million VMT	
	New Hampshire	MPO Region	New Hampshire	MPO Region		New Hampshire	MPO Region
2014	129.70	21.65	0.732	0.462	2010-2014	0.861	0.707
2015	130.94	21.61	0.871	0.787	2011-2015	0.839	0.703
2016	134.76	23.53	1.009	0.723	2012-2016	0.899	0.747
2017	136.81	21.18	0.753	0.472	2013-2017	0.881	0.650
2018	137.76	23.24	1.074	0.947	2014-2018	0.885	0.678
2019	138.57	23.69	0.729	0.464	2015-2019	0.884	0.679
2020	119.70	20.66	0.869	0.436	2016-2020	0.882	0.608
2021	131.33	22.46	0.898	0.623	2017-2021	0.861	0.589
2022	135.58	22.40	1.077	0.759	2018-2022	0.927	0.646

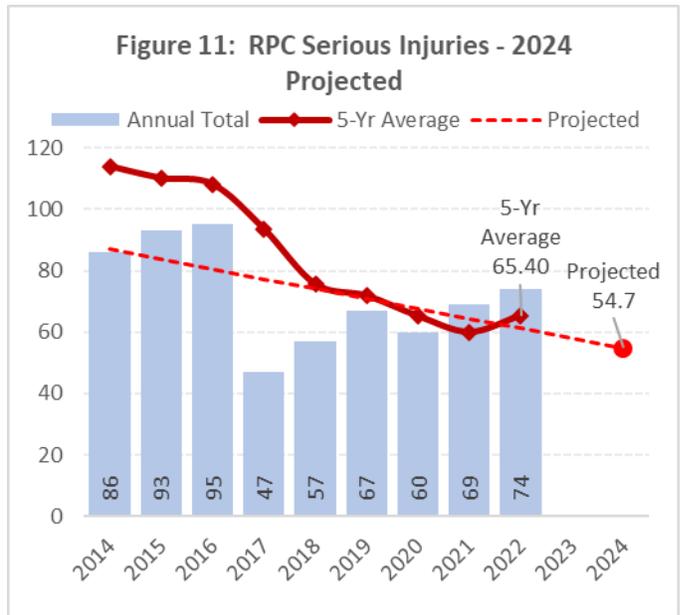
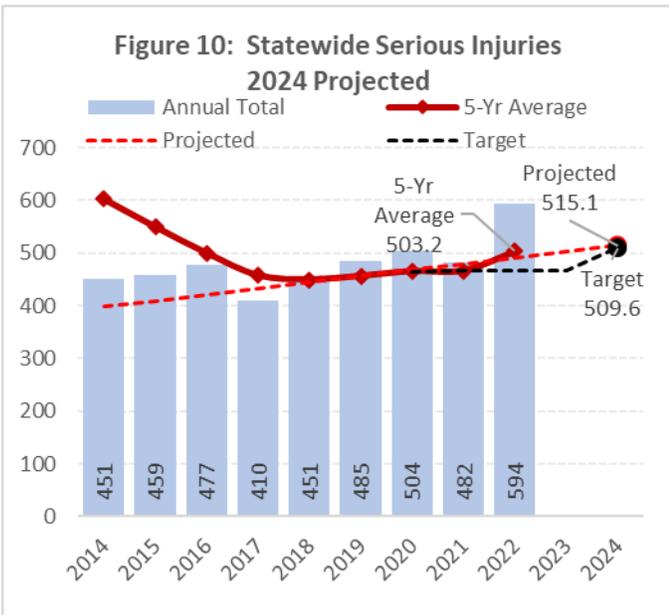


Serious Injuries

The state crash data shows some variation from year to year but has generally indicated a flat trend in the number of serious injuries at both the State (**Figures 9 & 10**) and MPO level (**Figures 9 & 11**). 2022 had the highest number at the state level since 2012 and a 23% over 2021. At the regional level, 2022 had a substantial increase over 2021 (7%) and the region experienced the highest number of serious injuries since 2016. The five-year average at the state level showed a sharp upward increase after several cycles of staying relatively level while the at the regional level the five-year average returned to values seen in the period ending in 2020. The statewide five-year average of serious injuries is projected to rise to 515.1 for 2024 and an increasing rate is not acceptable for a state target. For that reason, NHDOT has set the 2024 target at 509.6 for the five-year average of serious injuries. Despite the uptick in serious injuries in 2022, the trend for the regional five-year average continues to decline and the current average is still more than 40% lower than the period ending in 2014.

Figure 9: Serious Injuries

Year	New Hampshire Serious Injuries	MPO Region Serious Injuries	5-Year Period	5-Year Rolling Average Serious Injuries	
				New Hampshire	MPO Region
2014	451	86	2010-2014	510.6	114.0
2015	459	93	2011-2015	496.8	110.2
2016	477	95	2012-2016	499.8	108.2
2017	410	47	2013-2017	457.2	93.6
2018	451	57	2014-2018	449.6	75.6
2019	485	67	2015-2019	456.4	71.8
2020	504	60	2016-2020	465.4	65.2
2021	482	69	2017-2021	466.4	60.0
2022	594	74	2018-2022	503.2	65.4

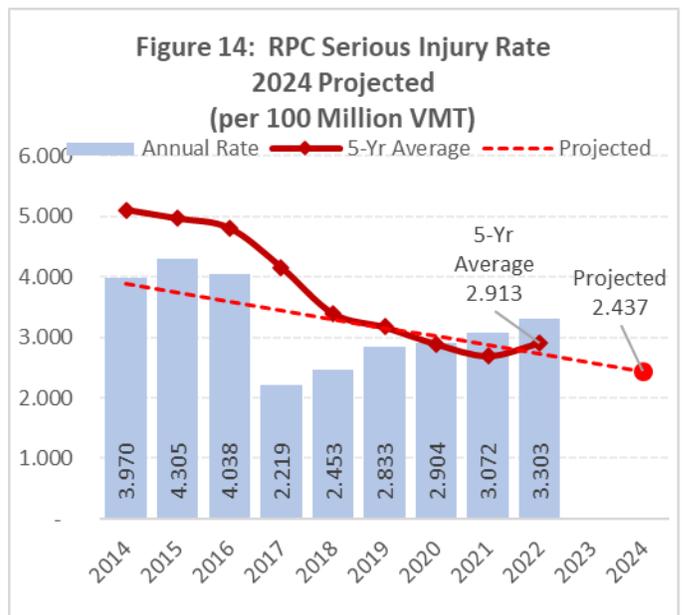
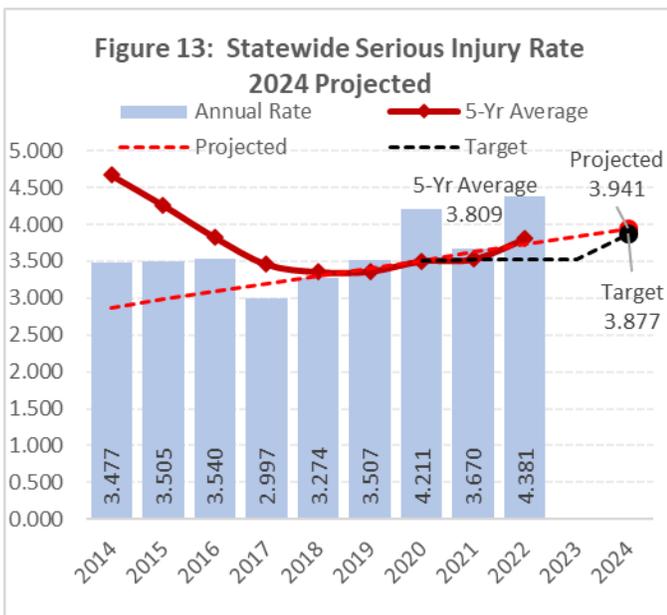


Rate of Serious Injuries

A substantial increase in the number of serious injuries and continued growth in VMT at the state level resulted in a significant jump in the serious injury rate to 4.381 serious injuries per 100 million VMT in 2022. The five-year average continued to increase as well (*Figures 12 & 13*) as numbers of serious injuries remain higher than the low observed in 2017 and this results in a projected statewide 2020-2024 five-year average of 3.941 serious injuries per 100 million VMT. NHDOT has established the 2024 target at 3.877 serious injuries per 100 Million VMT which is higher than the 2022 observed rate and lower than the projected trend but reflects the higher rates seen in the last three years. Regionally (*Figures 12 & 14*), the annual serious injury rate continued to increase as the number of injuries grew and the amount of VMT stayed flat. The five-year average increased for the first time in many years reflecting the increases in the annual rate seen since 2017. Projecting the five-year average for the 2020-2024 period results in a serious injury rate of 2.437 per 100 million VMT for the region however the annual rate would need to drop by about 50% to meet that trend.

Figure 12: Serious Injury Rate

Year	100 Million Vehicle Miles of Travel (VMT)		Serious Injury Rate per 100 Million VMT		5-Year Average Serious Injury Rates per 100 Million VMT		
	New Hampshire	MPO Region	New Hampshire	MPO Region	5-Year Period	New Hampshire	MPO Region
2014	129.70	21.65	4.919	3.970	2010-2014	3.954	5.103
2015	130.94	21.61	4.636	4.305	2011-2015	3.847	4.961
2016	134.76	23.53	4.964	4.038	2012-2016	3.829	4.803
2017	136.81	21.18	3.033	2.219	2013-2017	3.462	4.158
2018	137.76	23.24	3.492	2.453	2014-2018	3.359	3.397
2019	138.57	23.69	3.536	2.828	2015-2019	3.365	3.168
2020	119.70	20.66	4.280	2.904	2016-2020	3.506	2.888
2021	131.33	22.46	3.670	3.072	2017-2021	3.532	2.696
2022	135.58	22.40	4.381	3.303	2018-2022	3.809	2.913

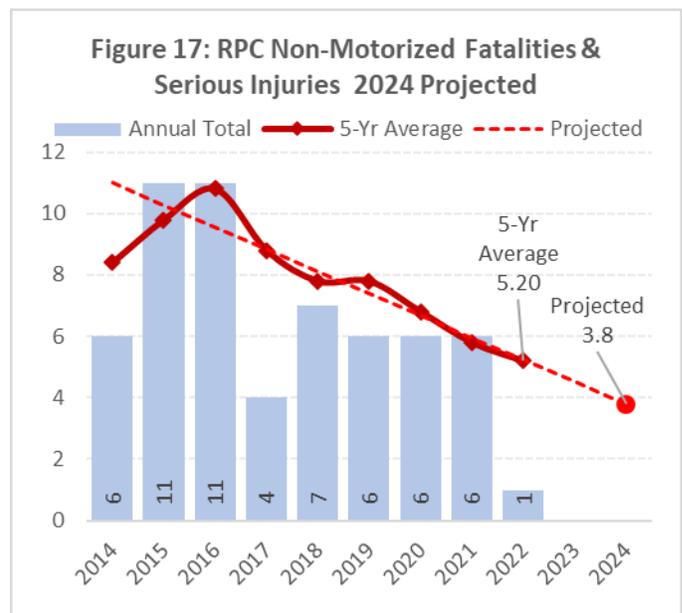
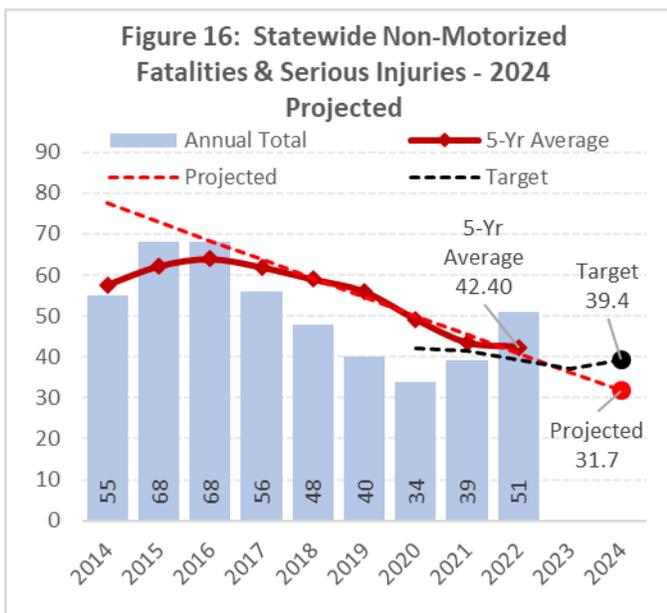


Non-motorized Fatalities and Serious Injuries

Non-motorized crash data is pulled from FARS and from state crash records. Rates are not established for non-motorized crashes as the overall volume of bicycle and pedestrian travel is unknown. Statewide, non-motorized fatalities and serious injuries continued to be lower than the peaks seen in 2015 and 2017 (**Figures 15 & 16**) however there was an increase from 2020 to 2021. The five-year average continues to decline although the projected 2019-2023 average of 33.2 fatalities and serious injuries is not a viable target. For that reason, NHDOT has established a target of 37.0 non-motorized fatalities and serious injuries. Regionally, there were 6 non-motorized fatalities and serious injuries for the third year in a row however there were more fatalities in 2021 than in either of the first two years (**Figures 15 & 17**). The five-year average declined as well. Using a linear projection, the five-year average for the 2019-2023 period is expected to continue the downward trend to 4.6 non-motorized fatalities and serious injuries per year for the region. This would require an average of 2.5 or less non-motorized fatalities and serious injuries in the region for each of the next two years which is significantly lower than current observed values.

Figure 15: Non-Motorized Fatalities & Serious Injuries

Year	New Hampshire			MPO Region			5-Year Rolling Average Non-Motorized Fatalities & Serious Injuries		
	Non-Motorized Crashes			Non-Motorized Crashes			5-Year Period	New Hampshire	MPO Region
	Fatalities	Serious Injuries	Total	Fatalities	Serious Injuries	Total			
2014	16	36	52	0	6	6	2010-2014	51.8	8.4
2015	14	50	64	2	9	11	2011-2015	56.4	9.8
2016	21	20	41	1	10	11	2012-2016	54.2	10.8
2017	15	47	62	0	4	4	2013-2017	55.0	8.8
2018	14	25	39	5	2	7	2014-2018	51.6	7.8
2019	10	27	37	0	6	6	2015-2019	48.6	7.8
2020	11	20	31	1	5	6	2016-2020	42.0	6.8
2021	10	29	39	2	4	6	2017-2021	41.6	5.8
2022	20	31	51	1	0	1	2018-2022	42.4	2.9



Motorcycle Fatalities

The FARS dataset provides the data necessary for identifying the total number of motorcycle crash fatalities in New Hampshire (**Figures 18 & 19**) and for the MPO region (**Figures 18 & 20**). No fatalities rates are set as information on motorcycle-specific VMT is not available. The State does not set performance targets for motorcycle fatalities and that data is included for context only. Overall, motorcycle fatalities increased substantially statewide (52%) in 2022 over 2021 numbers to the highest numbers seen since this metric began to be tracked. There were six motorcycle fatalities in the MPO region which is three times the number seen in 2021. The five-year average number of fatalities increased statewide to 22.0 and for the region to 3.2 both of which are the highest averages seen since the metric began being tracked. The projected value for the 2020-2024 five-year period anticipates a increase in fatalities statewide with an expected 25.7 average. At the regional level, the five-year average fatalities are projected to increase to 3.2 however keeping annual totals below three would ensure that the projected increase does not become an actual increase. To meet the proposed target rate for the MPO in 2024 there would need to be zero motorcycle fatalities in 2023 and 2024.

Figure 18: Motorcycle Fatalities

	Annual Motorcycle Crash Fatalities		5-Yr Period	5-Year Rolling Average Crash Fatalities	
	New Hampshire	MPO Region		New Hampshire	MPO Region
2014	17	2	2010-2014	22.40	3.20
2015	26	2	2011-2015	22.00	2.80
2016	18	2	2012-2016	22.80	2.80
2017	16	4	2013-2017	20.20	2.60
2018	26	4	2014-2018	20.60	2.80
2019	30	1	2015-2019	23.20	2.60
2020	17	3	2016-2020	21.40	2.80
2021	21	2	2017-2021	22.00	2.80
2022	32	6	2018-2022	25.20	3.20

