

Nashua Regional Planning Commission FY 2023 Safety Performance Targets

Background

On March 15th, 2016 the Federal Highway Administration (FHWA) published the final rule on the Highway Safety Improvement Program (HSIP). The rule required State Departments of Transportation to set targets for Safety Performance (PM1) by August 31st, 2017 for calendar year 2018, and Metropolitan Planning Organizations (MPOs) to set regional targets 180 days after that. The NRPC, in its role as Metropolitan Planning Organization (MPO) for the Nashua Area, initially adopted statewide targets for 2018 on December 20, 2017. In 2019 the MPO transitioned to the adoption of regional targets developed from crash data for the NRPC area. The Safety Targets are re-set each year and must be approved by the MPO by the end of February for submission to NHDOT.

The targets deal with five 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 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.
- **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 “A” on the KABCO scale). Crashes can be aggregated at the state, region, community, or highway level.
- **Highway Performance Monitoring System (HPMS):** State Vehicle Miles of Travel (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.

Target Development

Safety is U.S. Department of Transportation’s top priority, and as part of the National Roadway Safety Strategy, the Department outlines a comprehensive approach to significantly reducing serious injuries and deaths of all road users on our Nation’s highways, roads, and streets. FHWA shares the vision that zero fatalities on our Nation’s

roadways is the only acceptable goal. Additionally, it is the policy of the Nashua MPO to prevent traffic related deaths and significant injuries by emphasizing a systemwide approach to safe mobility for all users (policy adopted on 9/21/2022).

Whereas FHWA agrees that zero fatalities on our Nations' roads is the only acceptable **goal**, it strongly discourages using aspirational targets for setting annual safety **targets**. State Dot's and MPO's should recognize that reaching zero fatalities will require time and significant effort by many different partner agencies. The Safety PM rule (23 CFR Part 490) is aligned with the Towards Zero Deaths vision and represents an important step in helping States and MPOs work toward the goal of eliminating traffic deaths and serious injuries. States and MPOs should ensure their annual targets are data-driven, realistic, and achievable.

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. MPO's are then required to set regional targets within 180 days. 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. 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 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 the four MPOs in the state. Currently available fatality, serious injury, and volume data were analyzed to establish 2013-2021 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 moving averages were developed from these values and utilized to compute projected values for 2023.

The Nashua MPO has established Regional Safety Targets in all five mandated areas. The presentation of data that supports the regional targets includes statewide crash totals and rates for comparison purposes. The Nashua MPO TTAC voted at its February 13, 2019 meeting to use the *five-year moving average* or the longer-term *trend* in motor vehicle crashes as the method for setting future targets in the following manner:

- The most recent *five-year moving average* for each measure
- OR-
- The longer- term *trend* for each measure
- Whichever is lower

The rationale is that we should not accept increasing rates of accidents in the future, and we should at least cap the target at the average of recent years. Where a downward trend exists, the future target is set as a continuation of that trend, resulting in a target lower than the five-year moving average. This methodology was endorsed by the MPO Policy Committee when the 2019 targets were adopted.

NRPC Target Summary

The summary table below presents five-year moving averages for each safety target up to the most current year (2021) for which crash data is available. A best fit of data was calculated in Excel for the 2013-2021 period for each safety measure and a trendline projection to 2023 was calculated. For each of the five safety measures, **the**

extended trend to 2023 falls below the most recent five-year moving average. The trend for each measure has therefore been selected for each 2023 performance target. It can also be seen that the 2023 targets are less than the 2022 targets. The details of how each target was calculated can be found in the pages following the summary table.

The NRPC Transportation Technical Advisory Committee (TTAC) approved the following motion at its December 14th, 2022 meeting:

The Nashua Regional Planning Commission TTAC recommends that the Nashua Metropolitan Planning Organization adopt the 2023 Highway Safety Performance Targets as presented.

The Nashua MPO Policy Committee approved the following motion at its December 21st, 2022 meeting:

THAT the Nashua Regional Planning Commission and Metropolitan Planning Organization adopt the 2023 Highway Safety Performance Targets (PM1) as presented.

	5-Year Moving Averages Used for Establishing Trends										2022	2023	
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Target	Target
Fatality Total	11.2	10.2	10.8	12.6	12.4	12.6	12.6	11.8	11.8	11.2	10.8	11.2	10.0
Fatality Rate	0.689	0.635	0.674	0.786	0.774	0.779	0.771	0.711	0.701	0.674	0.653	0.735	0.593
Serious Injury Total	74.2	75.6	73.2	69.4	68.2	68.6	63.6	59.6	59.4	56.2	50.2	54.8	45.7
Serious Injury Rate	4.59	4.71	4.57	4.34	4.26	4.23	3.88	3.59	3.54	3.40	3.05	3.270	2.753
Non-Motorized Fatal + Serious Injuries	6.2	5.4	6.8	7.2	8.2	7.8	8.6	7.4	7.8	6.8	6.8	6.8	5.8

NRPC Target Detail and Statewide Comparison

Number of Fatalities – 5-year Average

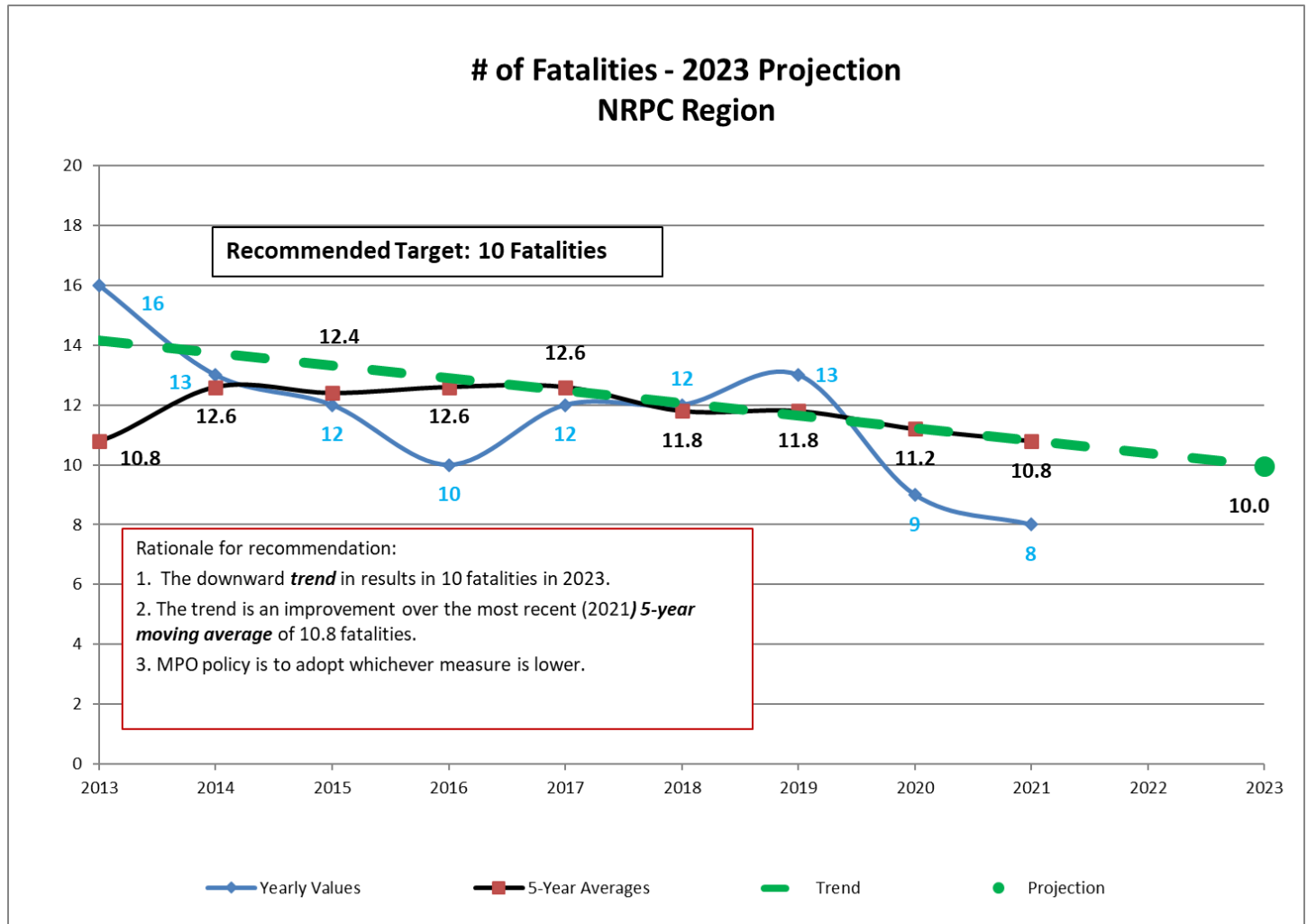
The Federal Fatal Analysis Reporting System (FARS) provides the data necessary for identifying the total number of traffic crash fatalities in New Hampshire and for the MPO region (see the following table). Five-year rolling averages were computed to provide a better understanding of the overall data over time without discarding years with significant increases or decreases, as well as to provide a mechanism for regression to the mean for a random variable such as fatalities.

The 5-year moving average for fatalities in the Nashua region has remained the same or declined every year since 2016 (see the following table).

State of NH			NRPC Region	
Year	Fatalities	5-year Average	Fatalities	5-year Average
2007	129	n/a	17	N/A
2008	138	n/a	13	N/A
2009	110	n/a	4	N/A
2010	128	n/a	13	N/A
2011	90	119.0	9	11.2
2012	108	114.8	12	10.2
2013	135	114.2	16	10.8
2014	95	111.2	13	12.6
2015	114	108.4	12	12.4
2016	136	117.6	10	12.6
2017	102	116.4	12	12.6
2018	147	118.8	12	11.8
2019	101	120.0	13	11.8
2020	104	118.0	9	11.2
2021	118	114.2	8	10.8

Number of Fatalities – 2023 Target

The 2023 target of **10 fatalities** was chosen because it is an improvement over the (2021) 5-year moving average. Additionally, the 2023 target would maintain the downward trend in the longer-term moving average (see the following graph).



Rate of Fatalities – 5-Year Average

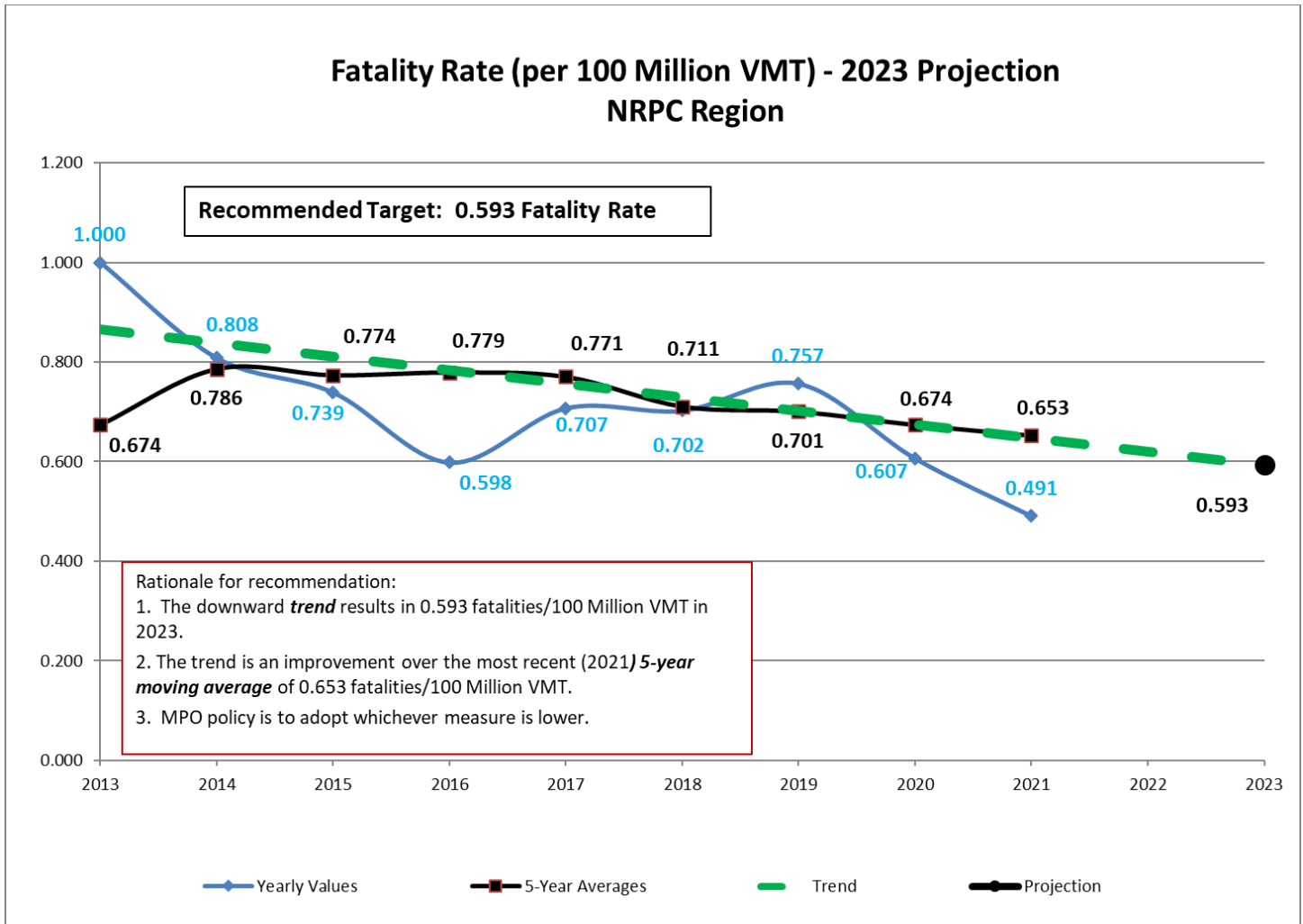
FARS data is combined with data from the Highway Performance Monitoring System (HPMS) which provides annual Vehicle Miles of Travel (VMT) at the State and community level to develop the rate of fatalities safety target. Combining the total number of fatalities in a particular year with the aggregated volume of travel in the state and region during that same year provides a fatality rate per 100 Million VMT. This data was then aggregated into 5-year moving averages.

The 5-year moving average fatality rate has remained same or declined every year since 2016 in the Nashua region (see the following table).

Year	State of NH		NRPC Region	
	Rate of Fatalities	5-year Average	Rate of Fatalities	5-year Average
2007	0.958	n/a	1.019	N/A
2008	1.058	n/a	0.804	N/A
2009	0.848	n/a	0.249	N/A
2010	0.980	n/a	0.802	N/A
2011	0.708	0.910	0.571	0.689
2012	0.838	0.886	0.751	0.635
2013	1.046	0.884	1.000	0.674
2014	0.732	0.861	0.808	0.786
2015	0.871	0.839	0.739	0.774
2016	1.009	0.899	0.598	0.779
2017	0.746	0.881	0.707	0.771
2018	1.067	0.885	0.702	0.711
2019	0.729	0.884	0.757	0.701
2020	0.870	0.884	0.607	0.674
2021	0.898	0.861	0.491	0.653

Rate of Fatalities – 2023 Target

The 2023 target of .593 fatalities/100 Million VMT is an improvement over the (2021) 5-year moving average. Additionally, the 2023 target would maintain the downward trend in the longer-term moving average (see the following graph).



Number of Serious Injuries – 5-year Average

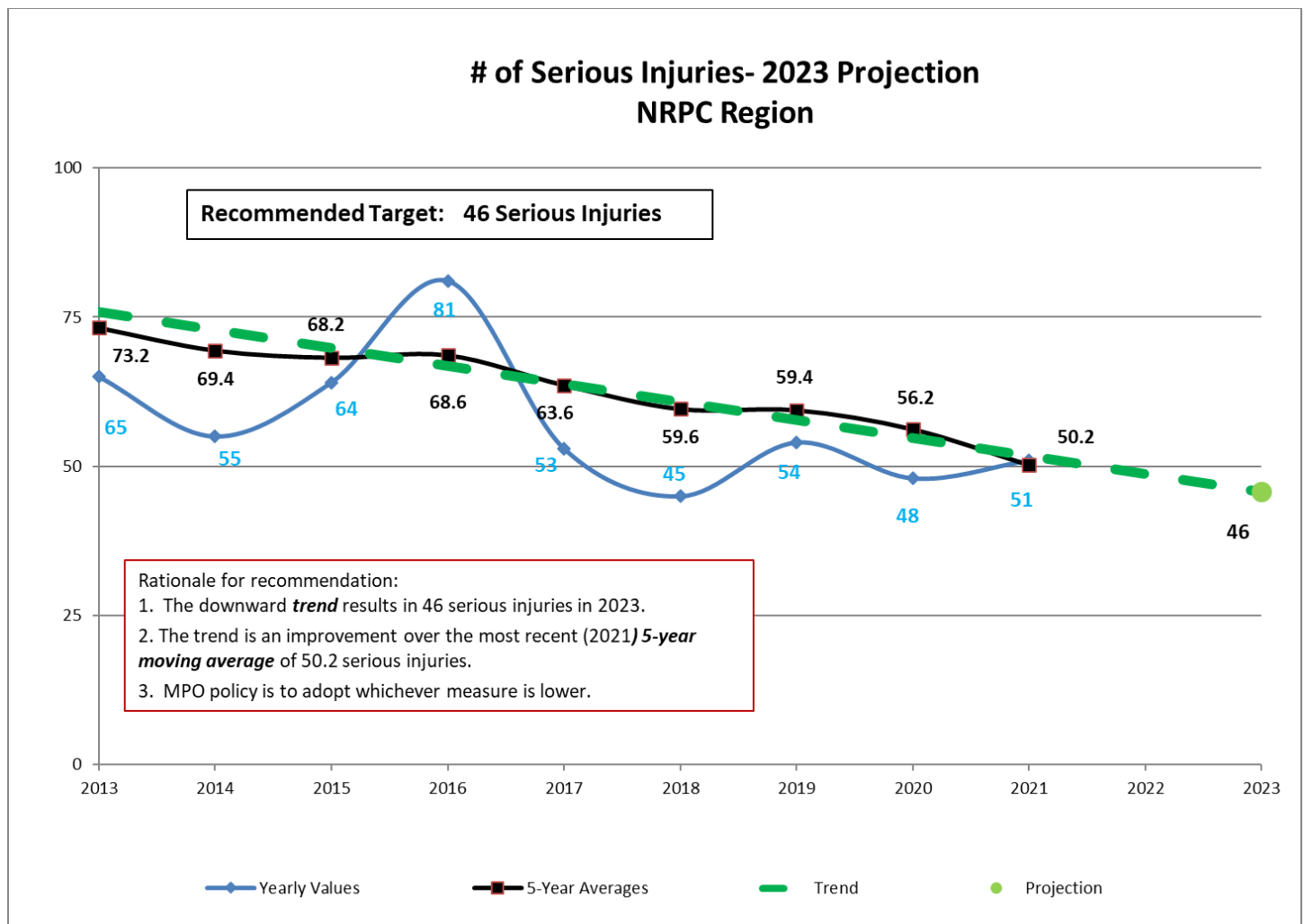
Serious injuries include those that involve severe lacerations, broken or distorted limbs, skull fracture, crushed chest, internal injuries, unconscious when taken from the accident scene, or unable to leave the accident scene without assistance.

The 5-year moving average for the number of serious injuries has declined every year since 2016 in the Nashua region (see the following table).

State of NH			NRPC Region	
Year	Serious Injuries	5-yr Ave	Serious Injuries	5-year Average
2007	N/A	N/A	71	N/A
2008	N/A	N/A	77	N/A
2009	667	N/A	74	N/A
2010	528	N/A	70	N/A
2011	462	552.3	79	74.2
2012	623	570.0	78	75.6
2013	489	553.8	65	73.2
2014	451	510.6	55	69.4
2015	459	496.8	64	68.2
2016	477	499.8	81	68.6
2017	410	457.2	53	63.6
2018	451	449.6	45	59.6
2019	485	456.4	54	59.4
2020	512	467.0	48	56.2
2021	482	466.4	51	50.2

Number of Serious Injuries – 2023 Target

The 2023 target of **46 serious injuries** is an improvement over the (2021) 5-year moving average. Additionally, the 2023 target would maintain the downward trend in the longer-term moving average (see the following graph).



Rate of Serious Injuries – 5-Year Average

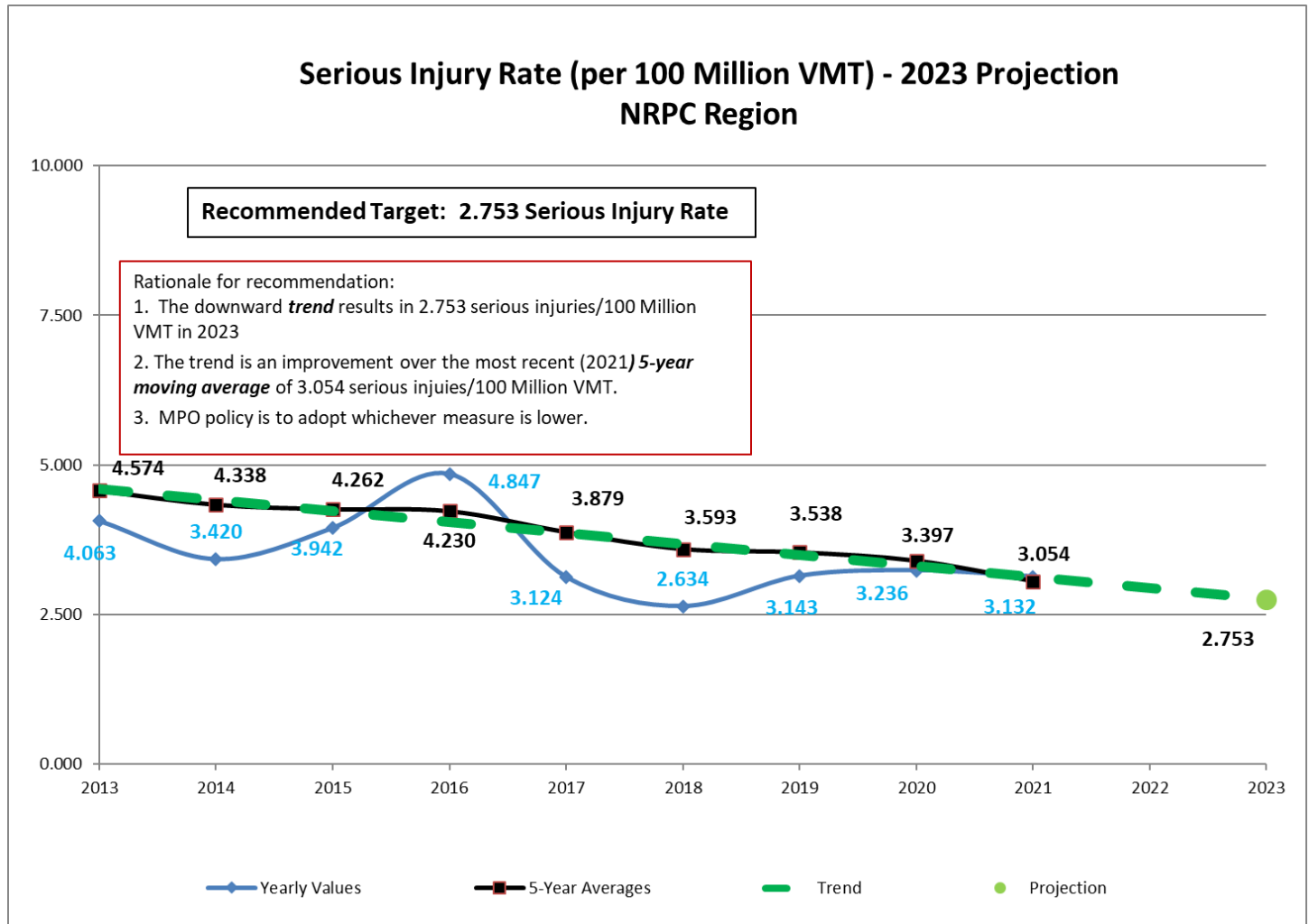
The Rate of Serious Injuries is calculated by applying an estimate of annual travel in the state to the serious injury totals for the same year. As was done for fatality rates, serious injury crash data is combined with HPMS data to produce a rate of serious injuries per 100 Million VMT. This value is further aggregated into five-year averages to identify longer-term trends and reduce the impacts of the variability of the data.

The 5-year moving average for the rate of serious injuries has declined every year since 2016 in the Nashua region (see the following table).

Year	State of NH		NRPC Region	
	Rate of Serious Injures	5-yr Ave	Rate of Serious Injures	5-year Average
2007	N/A	N/A	4.254	N/A
2008	N/A	N/A	4.762	N/A
2009	N/A	N/A	4.599	N/A
2010	N/A	N/A	4.321	N/A
2011	3.632	N/A	5.009	4.589
2012	4.832	N/A	4.878	4.714
2013	3.790	4.085	4.063	4.574
2014	3.477	3.933	3.420	4.338
2015	3.505	3.847	3.942	4.262
2016	3.540	3.829	4.847	4.230
2017	2.997	3.462	3.124	3.879
2018	3.270	3.358	2.634	3.593
2019	3.500	3.362	3.143	3.538
2020	4.285	3.518	3.236	3.397
2021	3.670	3.532	3.132	3.054

Rate of Serious Injuries – 2023 Target

The 2023 target of **2.753 serious injuries/100 Million VMT** is an improvement over the (2021) 5-year moving average. Additionally, the 2023 target would maintain the downward trend in the longer-term moving average (see the following graph).



Number of Non-Motorized Fatalities and Serious Injuries - 5-Year Average

This performance measure utilizes data from both NHTSA’s FARS database and the State Crash Records Database which is maintained by the New Hampshire Department of Safety. Each dataset is queried for non-motorized vehicle crashes and the results are tabulated below. This data can be analyzed at the state, regional, municipal, or corridor level (see the table below).

The 5-year moving average for non-motorized fatalities and serious injuries has shown increases and decrease over the past several years.

Year	State of NH		NRPC Region	
	Non-Motorized Fatalities & Serious Injuries	5-yr Ave	Non-Motorized Fatalities & Serious Injuries	5-year Average
2007		N/A	12	N/A
2008		N/A	2	N/A
2009		N/A	4	N/A
2010		N/A	5	N/A
2011	52	52.0	8	6.2
2012	58	55.0	8	5.4
2013	56	55.3	9	6.8
2014	52	54.5	6	7.2
2015	64	56.4	10	8.2
2016	41	54.2	6	7.8
2017	62	55.0	12	8.6
2018	39	51.6	3	7.4
2019	37	48.6	8	7.8
2020	34	42.6	5	6.8
2021	39	41.6	6	6.8

Number of Non-Motorized Fatalities and Serious Injuries - 2023 Target

The 2023 target of **6 non-motorized fatalities/serious injuries** is an improvement over the (2021) 5-year moving average. Additionally, the 2023 target would maintain the downward trend in the longer-term moving average (see the following graph).

