

ITEM 7 – Information

November 16, 2022

SAFETY TOPICS

7A. RECAP OF SAFETY WORK SESSION

A brief summary of the morning's work session will be provided.

7B. PBPP: DRAFT TARGETS FOR TRANSIT SAFETY

The board will be briefed on draft regional targets for transit safety performance measures, including fatalities, injuries, safety events, and system reliability, as required under the federal performance based planning and programming (PBPP) rulemaking for public transportation providers and MPOs. The board will be asked to approve the regional targets at its December meeting.

7C. PBPP: DRAFT TARGETS FOR HIGHWAY SAFETY

The board will be briefed on the proposed 2019-2023 targets for highway safety performance measures as part of federal PBPP requirements. The board will be asked to approve the regional targets at its December meeting.



MEMORANDUM

TO: Transportation Planning Board
FROM: Janie Nham, TPB Transportation Planner
SUBJECT: Performance-Based Planning and Programming (PBPP) Regional Highway Safety Targets
DATE: November 10, 2022

This memorandum describes the National Capital Region's progress in implementing federal highway safety performance evaluation and target-setting requirements established by the Federal Highway Administration (FHWA). State departments of transportation (DOTs) and metropolitan planning organizations (MPOs) are federally required to set highway safety performance targets and measure their progress towards those targets annually for their respective planning areas.

At its November 16 and December 21, 2022 meetings, the TPB will be asked to consider and approve 2019-2023 targets for highway safety in accordance with federal PBPP requirements.

BACKGROUND

The Safety Performance Management Measures (Safety PM) Final Rule, issued by the FHWA on March 15, 2016, established target-setting requirements for State DOTs and MPOs. Safety PM complements a collection of rules that establish and refine the program structure and requirements of the Highway Safety Improvement Program (HSIP), a Federal-aid program that requires States to improve highway safety on public roads using a data-driven, strategic approach focused on performance. Specifically, the Safety PM rule supports implementation of HSIP by requiring DOTs and MPOs to adopt safety performance targets annually for specific safety performance measures. It also establishes a process for measuring and reporting progress towards those targets.

By requiring safety targets and ongoing evaluation of safety performance, the compendium of regulations aims to promote transparency and accountability, enables the tracking and understanding of progress on roadway safety, and facilitates informed transportation planning and investment decisions.

RULE PROVISIONS

The Safety PM rule requires DOTs and MPOs to set safety performance targets in five performance categories and to measure progress towards those targets on a yearly basis. The targets are reported as five-year rolling averages. DOTs must establish and report targets each year by August 31 through their annual HSIP report, after which MPOs must set and report targets for the metropolitan planning area within 180 days. While the targets are set by State and regional agencies, they apply to all public roads within their respective areas regardless of ownership or functional classification.

Table 1: Highway Safety Performance Measures

Performance Measure	Description	Data Source
Number of Fatalities (5-year rolling average)	Total number of fatalities during a calendar year	FARS ¹
Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT) (5-year rolling average)	Ratio of total fatalities to VMT	FARS and HPMS ² (or MPO estimate)
Number of Serious Injuries (5-year rolling average)	Total number of serious injuries during a calendar year	State reported serious injury data
Rate of Serious Injuries per 100 million VMT (5-year rolling average)	Ratio of total serious injuries to VMT	State reported serious injury data and HPMS
Number of Non-motorized Fatalities and Serious Injuries (5-year rolling average)	Total number of fatalities and serious injuries during a calendar year	FARS and State reported serious injury data

¹FARS: Fatality Analysis Reporting System

²HPMS: Highway Performance Monitoring System

To avoid consequences outlined in the rule, States must either meet the target or make “significant progress” toward meeting the target for four of the five performance measures. The FHWA determines that the significant progress threshold has been met if the performance measure outcome is better than the “baseline,” which is defined as the 5-year rolling average for that performance measure for the year prior to the establishment of the target. State DOTs that have not met or made significant progress toward meeting their safety performance targets lose some flexibility in how they can spend their HSIP funds and are required to submit an annual implementation plan that describes actions the DOT will take to meet their targets.

MPO targets are not evaluated by the FHWA, and there are no consequences for MPOs if they fail to meet their targets. The FHWA, however, will review how MPOs incorporate and discuss safety performance measures and targets in their long-range transportation plans and transportation improvement plans (TIPs) during quadrennial MPO certification reviews (the next such MPO certification process for TPB is anticipated to occur in 2023).

CALCULATION OF HIGHWAY SAFETY TARGETS FOR THE NATIONAL CAPITAL REGION

The TPB’s approach for calculating regional highway safety targets for the National Capital Region (NCR) leverages the approaches used by its Maryland, District of Columbia, and Virginia DOT partners. To account for and incorporate the different target setting approaches used by each State to develop targets for the entire NCR, TPB staff apply the following methodology to develop the proposed draft targets:

- identify a “sub-target” for the Maryland portion of the NCR by applying MDOT’s target setting approach to the safety data for the Maryland portion of the NCR;
- identify a “sub-target” for the Virginia portion of the NCR by applying a modified version of VDOT’s suggested MPO target setting methodology to the safety data for the Virginia portion of the NCR;

- identify a “sub-target” for the District of Columbia portion of the NCR by directly incorporating DDOT’s targets;
- combine the three sub-targets mathematically into a set of initial regional targets;
- compare each performance measure’s sub target with the corresponding target set last year; and
- select the lower (more aggressive) of the two targets as this year’s target.

The NCR targets for the number of fatalities, number of serious injuries, and number of non-motorist fatalities and serious injuries are calculated using this approach.

Determination of rate targets (fatality rate and serious injury rate) involve mathematically combining the effects of the Suburban Maryland, Northern Virginia, and District of Columbia targets according to their respective proportions of total regional VMT.

2017-2021 HIGHWAY SAFETY TARGETS AND TRENDS

The TPB adopted highway safety targets for 2017-2021 on December 16, 2020. Table 2 shows the National Capital Region’s annual performance in each of the five federally-required performance categories during this period. Performance data for 2021 were provided by State agencies as FARS has not yet published information for 2021.

Table 2: National Capital Region Highway Safety Trends, 2017-2021

	2017	2018	2019	2020	2021	Change from 2020 to 2021
Number of Fatalities	313	303	300	321	360	↑ 12.1 %
Fatality Rate (per 100 million VMT)	0.695	0.673	0.659	0.876	0.886	↑ 1.1 %
Number of Serious Injuries	2,613	2,464	2,371	1,839	2,221	↑ 20.8 %
Serious Injury Rate (per 100 million VMT)	5.755	5.473	5.211	5.026	5.277	↑ 5.0 %
Number of Nonmotorist Fatalities & Serious Injuries	586	552	595	440	518	↑ 17.8 %

Between 2020 and 2021, both fatalities and serious injuries from roadway crashes increased, including those of nonmotorists. Notably, the rise in the number of serious injuries and in the serious injury rate counters a general downward trend that has been occurring since at least 2006, the earliest year for which the TPB has serious injury data. In addition, while the rise in the number of roadway fatalities in 2021 continues an upward trend for the region, the fatality increase translates into a relatively small change in the fatality rate (a 1.1 percent increase since 2020) due to an 11 percent increase in regional VMT in 2021.

As a result of the region’s roadway safety performance between 2017 and 2021, the region met two out of its five highway safety targets (see, Table 3). Note that performance is reported as five-year averages, and although the region experienced an increase in the number of serious injuries and in the serious injury rate in 2021, the increases were not significant enough to offset progress made between 2017 and 2020 in these categories.

Table 3: 2017-2021 Actuals vs. Targets

Performance Measure (as 5-year rolling averages)	2017-2021 Target	2017-2021 Actual	Status
Number of Fatalities	253.0	319.4 ¹	Not met
Fatality Rate (per 100 million VMT)	0.588	0.750 ¹	Not met
Number of Serious Injuries	2,435.8	2,301.6	Met
Serious Injury Rate (per 100 million VMT)	5.539	5.393	Met
Number of Nonmotorist Fatalities & Serious Injuries	508.6	545.1	Not met

¹Reflects fatality data from State DOTs and FARS.

PROPOSED 2019-2023 HIGHWAY SAFETY TARGETS FOR THE NATIONAL CAPITAL REGION

Based on the region’s roadway safety performance in 2021, Staff proposes the following highway safety targets for 2019-2023 (see, Table 4). The draft 2022 targets will be briefed to the TPB at their November meeting. Comments will be taken through the end of November, after which the targets will be finalized for adoption at the TPB’s December meeting.

Table 4: 2019-2023 Proposed Highway Safety Targets

Performance Measure (5-year rolling average)	Adopted 2017-2021 Targets	Adopted 2018-2022 Targets	DRAFT 2019-2023 Targets	Difference	Percent Difference
Number of Fatalities	253.0	253.0	<u>253.0</u>	0.0	0.0%
Fatality Rate (per 100 million VMT)	0.588	0.588	<u>0.588</u>	0.0	0.0%
Number of Serious Injuries	2,435.8	1,889.7	<u>1,757.4</u>	-132.3	-7.0%
Serious Injury Rate (per 100 million VMT)	5.539	3.867	<u>3.733</u>	-0.134	-3.5%
Number of Nonmotorist Fatalities & Serious Injuries	508.6	492.4	<u>486.9</u>	-5.5	-1.1%

Following adoption, the Visualize 2045 long-range metropolitan transportation plan System Performance Report (Appendix D) will be updated with the 2019-2023 targets as well as available information on recent performance in relation to targets.

SAFETY TOPICS

Work Session Recap, Draft Transit Safety and Highway Safety Targets

Andrew Meese
TPB Program Director, Systems Performance Planning

Eric Randall
TPB Transportation Engineer

Janie Nham
TPB Transportation Planner

Transportation Planning Board
November 16, 2022

TPB Safety Work Session

- Scheduled the morning of November 16, immediately prior to the TPB meeting
- State DOT representatives invited to provide updates on their safety activities and challenges
- Scheduled speakers
 - Charlie Willson and Christine Mayeur, DDOT Vision Zero analysts
 - Douglas Mowbray of the Maryland Highway Safety Office, with University of Maryland specialists
 - Stephen Read, VDOT Highway Safety Planning Mgr.



PBPP: Draft 2022 Transit Safety Targets



Transit Safety: Presentation Items

- Transit Agency Safety Plans Rule
- Transit Safety Performance Measures
- Applicability
- Adopted 2021 Regional Transit Safety Targets
- 2021 Transit Safety Performance
- 2022 Draft Regional Transit Safety Targets
- Schedule



Federal Requirement: Transit Agency Safety Plans

- Federal Performance Based Planning and Programming (PBPP) regulations requires applicable providers of public transportation to develop and certify an agency safety plan
- Applicable transit providers are required to annually set targets for four (4) Transit Safety performance measures
- MPOs have 180 days following to adopt Transit Safety targets for the metropolitan planning area (i.e., regional targets)



Transit Safety Performance Measures

	Performance Measures
Fatalities	Total number of reportable fatalities and the rate per total vehicle revenue miles by mode
Injuries	Total number of reportable injuries and the rate per total vehicle revenue miles by mode
Safety Events*	Total number of reportable events and the rate per total vehicle revenue miles by mode
System Reliability	Mean distance between major mechanical failures by mode

*Collisions, derailments, fires, or life safety evacuations



Applicable Regional Agencies

- Transit safety requirements apply to providers of public transportation that are recipients and sub-recipients of federal Section 5307 funding under FTA regulation
 - WMATA: Metrorail, Metrobus, MetroAccess
 - DDOT: DC Circulator, DC Streetcar
 - MDOT-MTA: MTA Commuter Bus
 - PRTC: Bus and paratransit
 - and local systems in Suburban Maryland:
 - VanGo (Charles Co.)
 - TransIT (Frederick Co.)
 - Ride On (Montgomery Co.)
 - The Bus (Prince George's Co.)
- Northern Virginia local bus systems do not use federal funds, so the safety targets requirements are not applicable*



2021 Regional Transit Safety Targets

Final targets for the region adopted by the TPB on November 17, 2021

	Fatalities		Serious Injuries		Safety Events		Reliability
	Number	Rate	Number	Rate	Number	Rate	MDBF
Heavy Rail (HR)	0	0	244	0.31	84	0.11	254,000
Streetcar Rail (SR)	0	0	0	0.00	4	0.27	672
Urban Bus (MB)	0	0	411	0.69	463	0.78	13,654
Commuter Bus (CB)	0	0	6	0.07	20	0.23	13,265
Demand Response (DR)	0	0	40	0.19	18	0.08	0
Vanpools (VP)	0	0	6	0.05	118	1.05	9,500

Rate - Per 100,000 Vehicle Revenue Miles

MDBF = Mean Distance Between Failures



2021 Regional Transit Safety Performance

As reported to the FTA National Transit Database, Safety & Security time-series.
Data may be incomplete

2021	Fatalities*		Serious Injuries		Safety Events	
	Number	Rate	Number	Rate	Number	Rate
Heavy Rail (HR)	2	0.002	13	0.016	97	0.12
Streetcar Rail (SR)	0	0	0	0	5	4.68
Urban Bus (MB)	6	0.011	247	0.43	217	0.43
Commuter Bus (CB)	0	0	0	0	1	0.015
Demand Response (DR)	0	0	15	0.16	30	0.16
Vanpools (VP)	0	0	0	0	0	0

Rate - Per 100,000 Vehicle Revenue Miles

* Excludes suicides

2022 Regional Transit Safety Targets - **DRAFT**

Some agencies are still formalizing their targets

	Fatalities		Serious Injuries		Safety Events		Reliability
	Number	Rate	Number	Rate	Number	Rate	MDBF
Heavy Rail (HR)	0	0	255	0.29	23	0.04	14,000
Streetcar Rail (SR)	0	0	0	0.00	4	0.27	1,000
Urban Bus (MB)	0	0	268	0.49	404	0.74	10,918
Commuter Bus (CB)	0	0	4	0.06	2	0.03	18,596
Demand Response (DR)	0	0	46	0.24	39	0.20	22,903
Vanpools (VP)	0	0	4	0.04	0	0.00	53,000

Rate - Per 100,000 Vehicle Revenue Miles

MDBF = Mean Distance Between Failures

Timeline

- October – Collect 2022 targets, previous year’s performance vs. target information from applicable Transit Agencies
- October – TPB Regional Public Transportation Subcommittee briefed on draft 2022 targets
- November – Technical Committee briefed on requirements and draft 2022 regional transit safety targets
- **November** – TPB briefed on requirements and draft 2022 regional transit safety targets
- December – TPB will be asked to adopt resolution with final regional transit safety targets



PBPP: Draft 2019-2023 Highway Safety Targets



Highway Safety: Presentation Items

- Part I: Review of Federal Requirements
- Part II: 2017-2021 Highway Safety Targets and Trends
- Part III: Staff Recommended 2019-2023 Regional Safety Targets
- Part IV: Next Steps

Federal Requirement: Highway Safety

- Federal Highway Administration (FHWA) issued the Safety Performance Management Measures (Safety PM) Final Rule in March 2016, which requires State DOTs and MPOs to:
 - Adopt annual safety performance targets in five (5) safety performance measures
 - Measure and report progress towards those targets each year
 - State DOTs are required to report their safety targets annually through their HSIP report by August 31, and MPOs are required to report their safety targets within 180 days thereafter
- Requirement supports implementation of the Highway Safety Improvement Program (HSIP), which requires States to improve highway safety on public roads using a data-drive, strategic approach



Highway Safety Performance Measures

Performance Measure	Description
Number of Fatalities <i>(5 year rolling average)</i>	Total number of fatalities during a calendar year
Rate of Fatalities per 100 million VMT <i>(5 year rolling average)</i>	Ratio of total fatalities to VMT
Number of Serious Injuries <i>(5 year rolling average)</i>	Total number of serious injuries during a calendar year
Rate of Serious Injuries per 100 million VMT <i>(5 year rolling average)</i>	Ratio of total serious injuries to VMT
Number of Non-Motorized Fatalities and Serious Injuries <i>(5 year rolling average)</i>	Total number of fatalities and serious injuries during a calendar year

Target Setting Methodology

- TPB targets for each performance measure is a composite of sub-targets developed for each State
 - Apply Maryland’s approach to identify a “sub-target” for the Maryland portion of the NCR
 - Apply a modified version of Virginia’s suggested approach for its MPOs to identify a sub-target for the Virginia portion of the NCR
 - Incorporate the District of Columbia’s target as a sub-target for the DC portion of the NCR
 - Combine the three sub-targets into a regional target for the NCR
 - If a calculated target is higher than the previous target, set the target equal to the previous target



2017-2021 NCR Annual Highway Safety Data

	2017	2018	2019	2020	2021	Change from 2020 to 2021
# of Fatalities	313	303	300	321	360 ¹	↑ 12.1 %
Fatality Rate (per 100 MVMT)	0.695	0.673	0.659	0.876	0.886 ¹	↑ 1.1 %
# of Serious Injuries	2,613	2,464	2,371	1,839	2,221	↑ 20.8 %
Serious Injury Rate (per 100 MVMT)	5.755	5.473	5.211	5.026	5.277	↑ 5.0 %
# Nonmotorist Fatalities & Serious Injuries	586	552	595	440	518	↑ 17.8 %

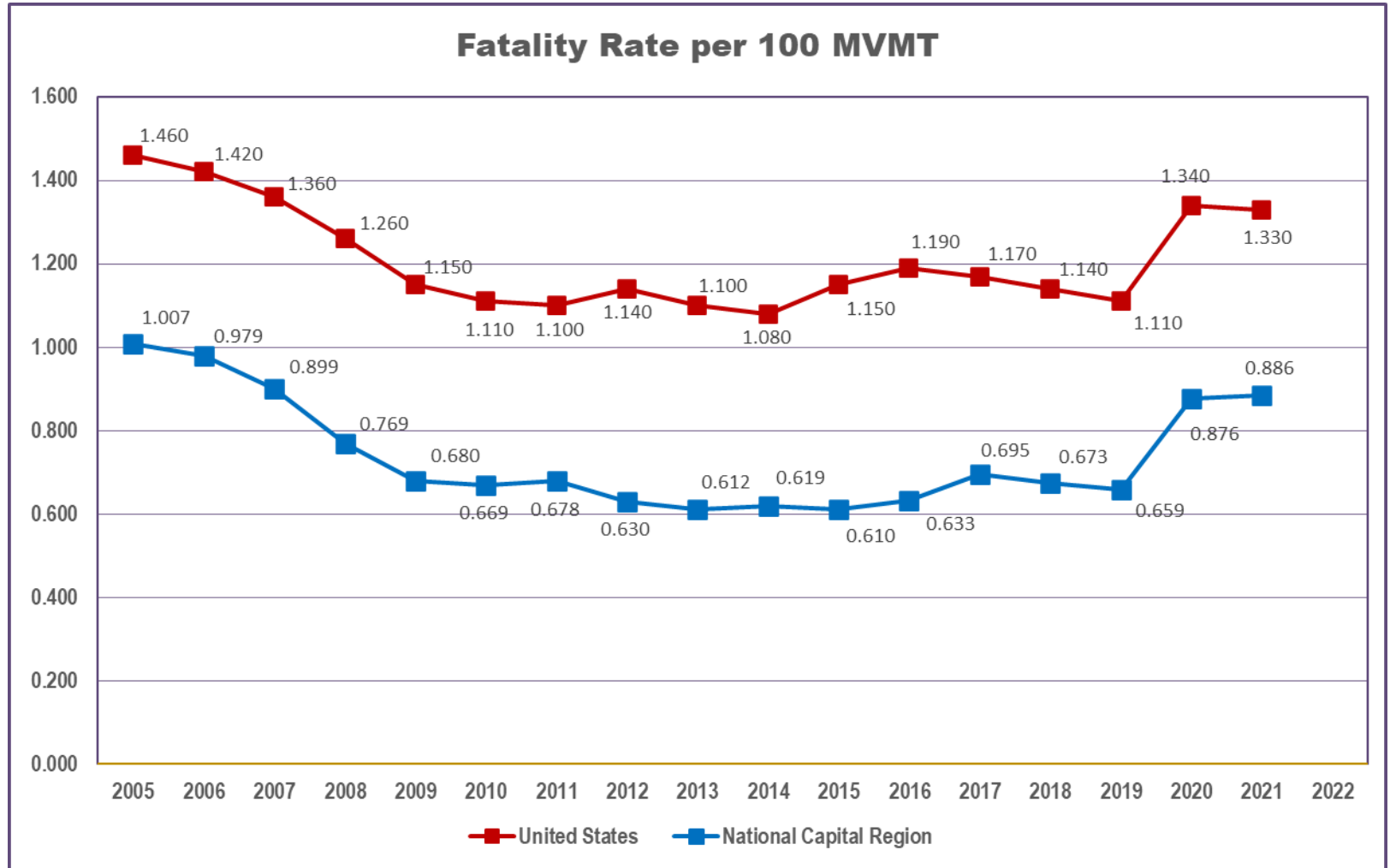
Note ¹: Figures listed are from state fatality data; 2021 FARS data not yet published

2017-2021 NCR Actual vs. Targets

Performance Measure (5-year rolling average)	2017-2021 Target	2017-2021 Actual	Status
# of Fatalities	253.0	319.4 ¹	Not met
Fatality Rate (per 100 MVMT)	0.588	0.750 ¹	Not met
# of Serious Injuries	2,435.8	2,301.6	Met
Serious Injury Rate (per 100 MVMT)	5.539	5.393	Met
# Nonmotorist Fatalities & Serious Injuries	508.6	545.1	Not met

Note ¹: Figures listed are a combination of FARS and state fatality data; 2021 FARS data not yet published

Fatality Rates: USA and National Capital Region



Staff Observations

- Challenges introduced by the pandemic are still present
 - Highway fatalities remain elevated
 - Regional performance echoes national trend
- Future trajectory of serious injuries is to be determined
 - Highway safety performance can have year-to-year variations
 - Highway safety practitioners consider multi-year trends vs. annual figures (e.g., FHWA evaluates performance as five-year averages)
- NCR highway safety performance measures remain below (better than) national average
 - Underscores importance of safety efforts



NCR Highway Safety Targets (*pre-cap*) - **DRAFT**

	2018-2022 Target	2019-2023 Target	Difference	Percent Difference
# of Fatalities	271.0	<u>282.7</u>	11.7	4.3%
Fatality Rate (per 100 MVMT)	0.632	<u>0.644</u>	0.012	1.9%
# of Serious Injuries	1,889.7	<u>1,757.4</u>	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	3.867	<u>3.733</u>	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	492.4	<u>486.9</u>	-5.5	-1.1%

NCR Highway Safety Targets (*with cap*) - **DRAFT**

	2018-2022 Target	2019-2023 Target	Difference	Percent Difference
# of Fatalities	253.0	<u>253.0</u>	0.0	0.0%
Fatality Rate (per 100 MVMT)	0.588	<u>0.588</u>	0.000	0.0%
# of Serious Injuries	1,889.7	<u>1,757.4</u>	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	3.867	<u>3.733</u>	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	492.4	<u>486.9</u>	-5.5	-1.1%



Summary: NCR Highway Safety Targets

Performance Measure (5-year rolling average)	Adopted 2017- 2021 Targets	Adopted 2018- 2022 Targets	DRAFT 2019- 2023 Targets	Difference	Percent Difference
# of Fatalities	253.0	253.0	<u>253.0</u>	0.0	0.0%
Fatality Rate (per 100 MVMT)	0.588	0.588	<u>0.588</u>	0.0	0.0%
# of Serious Injuries	2,435.8	1,889.7	<u>1,757.4</u>	-132.3	-7.0%
Serious Injury Rate (per 100 MVMT)	5.539	3.867	<u>3.733</u>	-0.134	-3.5%
# Nonmotorist Fatalities & Serious Injuries	508.6	492.4	<u>486.9</u>	-5.5	-1.1%

Timeline

- November 16: TPB Safety Work Session
- November 16: Present staff-proposed regional safety targets to the TPB
- Finalize staff-proposed targets based on board feedback
- December 21: Request board approval of targets

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