



MEMORANDUM

TO: TPB Technical Committee
FROM: Jon Schermann, TPB Transportation Planner
SUBJECT: Proposed PBPP Regional Highway Safety Targets
DATE: December 1, 2017

This memorandum proposes to the TPB Technical Committee a set of draft regional highway safety performance targets that meet the MAP-21/FAST performance-based planning and programming (PBPP) requirements and are consistent with the target setting approaches of Maryland, Virginia, and the District of Columbia.

REVIEW OF HIGHWAY SAFETY PERFORMANCE MEASURES AND TARGET SETTING REQUIREMENTS FOR MPOS

The Federal Highway Administration (FHWA) published the Safety Performance Management Measures (Safety PM) Final Rule on March 15, 2016, with an effective date of April 14, 2016. The rule requires states to set targets for five highway safety performance measures for calendar year 2018 by August 2017. MPOs are required to set their highway safety targets 180 days afterward, or by the end of February 2018.

Expected Outcomes

The FHWA expects that through the implementation of the Safety PM final rule, the amount and quality of safety data will be improved – particularly with respect to serious injuries. They also expect that greater transparency will be achieved by requiring fatality and serious injury data to be reported publicly. In addition, aggregation of targets and progress at the national level will become possible through improved data consistency among the states and MPOs.

State DOTs and MPOs are expected to use the information generated by these regulations to make investment decisions that result in the greatest possible reductions in fatalities and serious injuries.

Safety Performance Measures

The five required safety performance measures, along with proscribed data sources, are outlined in Table 1 on the next page.

Table 1: Highway Safety Performance Measures Summary

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 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 ³
Rate of Serious Injuries per 100 million VMT (5 year rolling average)	Ratio of total serious injuries to VMT	State reported serious injury data ³ 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 serious injury data ³

¹ FARS: Fatality Analysis Reporting System

² HPMS: Highway Performance Monitoring System

³ for the first 36 months – after that States must adopt the Model Minimum Uniform Crash Criteria (MMUCC) definition of serious injury

Target Setting

States and MPOs must fulfill the target setting requirements of the final rule. State DOTs are required to set statewide targets for each of the five performance measures. Targets for the first three performance measures (number of fatalities, rate of fatalities, and number of serious injuries) must be identical to the targets set by the State Highway Safety Office (SHSO). Each target must also represent the anticipated performance outcome for all public roadways in the state, regardless of ownership.

MPOs can satisfy the target setting requirement by either:

- 1) agreeing to plan and program projects to contribute toward accomplishing the state DOT safety target for that performance measures, or;
- 2) committing to a quantifiable target for that performance measure for the metropolitan planning area.

MPOs must coordinate with state DOTs to ensure consistency.

Target Reporting

State DOTs must report their targets to the FHWA within the state’s HSIP (Highway Safety Improvement Program) annual report due each year on August 31. This requirement is effective beginning with the 2017 HSIP annual report.

MPOs do not report their targets to the FHWA, but rather to their respective state DOTs in a manner that is documented and mutually agreed upon. MPOs also report progress toward achieving their

targets within the “System Performance Report” portion of their long-range transportation plan (Visualize 2045). In addition, MPO TIPs must include a discussion of how the implementation of the TIP will further the achievement of the targets.

MPO Coordination with State DOTs

MPOs are required to establish their performance targets in coordination with their state partners and these **targets should be data-driven and realistic.**

FHWA Determination of Significant Progress

States do not have to meet each of their safety targets to avoid the consequences outlined in the rule, but 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 is 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.

MPO targets are not evaluated by the FHWA.

Consequences for Failing to Meet Targets of Making Significant Progress

State DOTs that have not met or made significant progress toward meeting their safety performance targets lose some flexibility in how they spend their HSIP funds and are required to submit an annual implementation plan that describes actions the DOT will take to meet their targets.

There are no consequences outlined in the rule for MPOs not meeting their targets. However, the FHWA will review how MPOs are incorporating and discussing safety performance measures and targets in their long-range transportation plans and TIPs during MPO certification reviews.

DRAFT REGIONAL SAFETY TARGET SETTING APPROACH

To account for and incorporate the different target setting approaches used by Maryland, Virginia, and the District of Columbia into targets for the entire National Capital Region (NCR), staff applied the following target setting methodology to develop the draft targets proposed in this memo:

- 1) identify a “sub-target” for the Maryland portion of the NCR by applying MDOT’s target setting approach to the NCR safety data;
- 2) identify a “sub-target” for the Virginia portion of the NCR by applying VDOT’s target setting approach to the NCR safety data;
- 3) identify a “sub-target” for the District of Columbia portion of the NCR by directly incorporating DDOT’s targets; and
- 4) establishing the draft NCR targets by mathematically combining items 1 through 3.

Overview of Member State’s Target Setting Methodologies

Maryland: Maryland applied their existing Toward Zero Deaths approach to develop interim targets to reduce fatalities by at least 50 percent from the 2008 base year to the 2030 target year. This same approach was used to set targets for each of the five performance measures. For each performance measure an exponential trend line connecting the historical (2008) data to the long-term (2030) goal which was set to 50 percent of the 2008 value. Five-year averages were used to calculate projections, and targets for each interim year were taken from the midpoint of the five-year average

(e.g., 2018 annual interim target = midpoint of the 2016-2020 average). *Maryland officials provided TPB staff with the exponential trend lines and interim targets for each of the five performance measures based on the safety data for the Suburban Maryland portion of the NCR.*

Virginia: Virginia analyzed their statewide safety data using a variety of time periods and trend lines (straight and exponential) using annual, 3-year average, and 5-year average safety measure data. Based on this analysis, Virginia determined the 5-year average targets by apply the following factors to the 2015 base year:

Number of fatalities:	2 percent annual reduction
Number of serious injuries:	5 percent annual reduction
Number of nonmotorist fatalities and serious injuries:	4 percent annual reduction
Rate of fatalities per 100 million VMT:	3 percent annual reduction
Rate of serious injuries per 100 million VMT:	7 percent annual reduction

TPB staff applied these same reduction factors to the data for the Northern Virginia portion of the NCR.

District of Columbia: The District of Columbia analyzed their safety data using a combination of annual and 5-year average data and polynomial trend lines to determine their targets. *TPB staff directly incorporated the District of Columbia targets, as published in their HSIP Annual Report, into the NCR target setting methodology.*

Overview of Methodology Used to Develop the Proposed National Capital Region Highway Safety Targets

The proposed NCR targets for the following performance measures:

- number of fatalities,
- number of serious injuries, and
- number of nonmotorist fatalities and serious injuries

were calculated by summing the sub targets for the Suburban Maryland, Northern Virginia, and District of Columbia portions of the region.

The proposed NCR targets for the following performance measures:

- fatality rate per 100 million VMT, and
- serious injury rate per 100 million VMT

were calculated by mathematically combining the effects of the Suburban Maryland, Northern Virginia and District of Columbia targets according to their respective proportions of total regional VMT. The following steps illustrate the process for the fatality rate:

- 1) Determine the percent fatality rate reduction represented by each sub target.

Fatalities per 100 MVMT	2012-2016 Average	2014-2018 Average (sub target)	Percent change
Suburban MD	0.792	0.734	-7.38%
NOVA	0.428	0.403	-5.91%
DC	0.598	0.703	17.58%

- 2) Determine the proportion of total regional VMT attributable to Suburban Maryland, Northern Virginia, and DC.

Sub region	100 MVMT (2016)	Proportion
Suburban MD	213.78	47.95%
NOVA	193.29	43.35%
DC	38.80	8.70%
Sum	445.87	100.00%

- 3) Determine the percent change for the regional rate by multiplying the percent change from step 1) by the VMT proportion from step 2).

Sub region	A: Percent change in fatality rate (from step 1)	B: Proportion (from step 2)	A x B
Suburban MD	-7.38%	47.95%	-3.537%
NOVA	-5.91%	43.35%	-2.562%
DC	17.58%	8.70%	1.530%
Sum			-4.569%

- 4) Apply the percent change for the regional rate calculate in step 3) (-4.569%) to the 2012-2016 average fatality rate. This is the regional fatality rate target for 2014-2018.

Fatalities per 100 MVMT	2012-2016 Average	Regional percent change (from step 3)	2014-2018 Average (regional target)
NCR	0.617	-4.569%	0.588

The method shown in steps 1 through 4 above was also used to determine the regional serious injury rate target.

DRAFT REGIONAL SAFETY TARGETS

Figures 1 through 5 and Table 2 (following pages) display the proposed NCR Highway Safety Targets.

Figure 1: Proposed National Capital Region Fatality Target

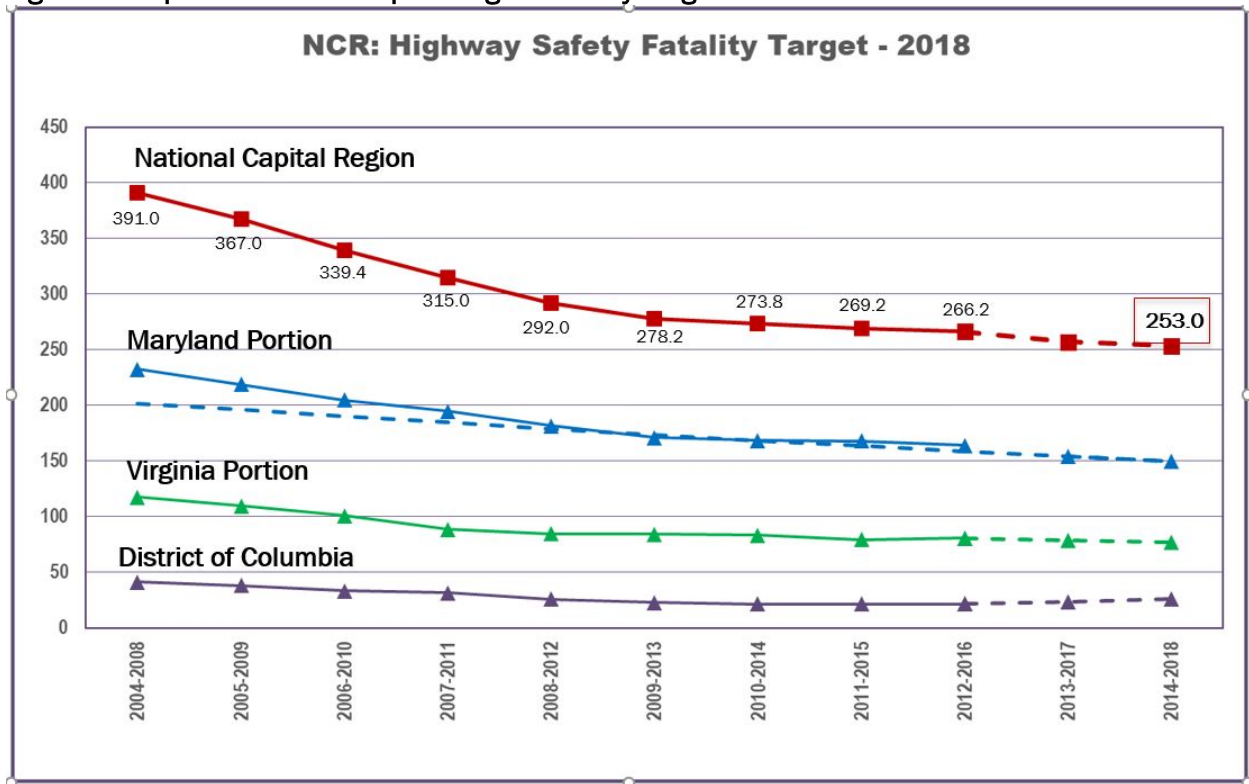


Figure 2: Proposed National Capital Region Serious Injury Target

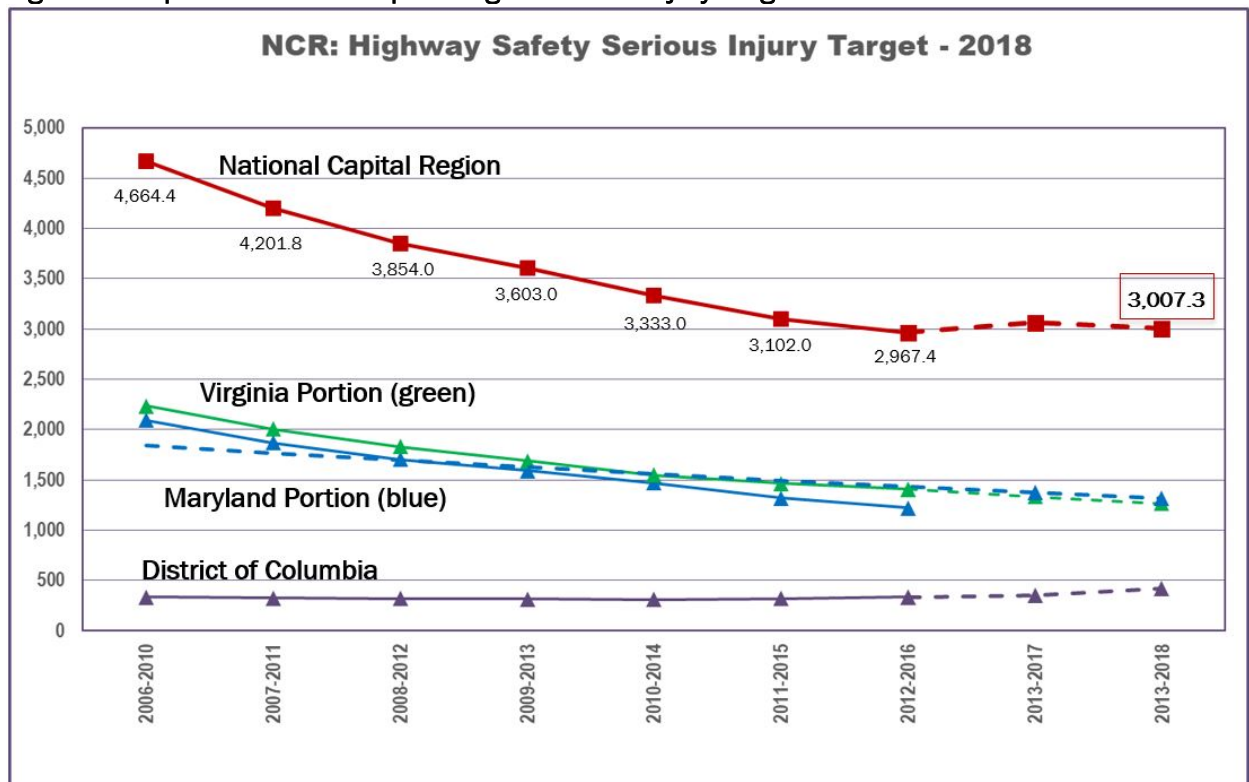


Figure 3: Proposed National Capital Region Nonmotorist Fatality and Serious Injury Target

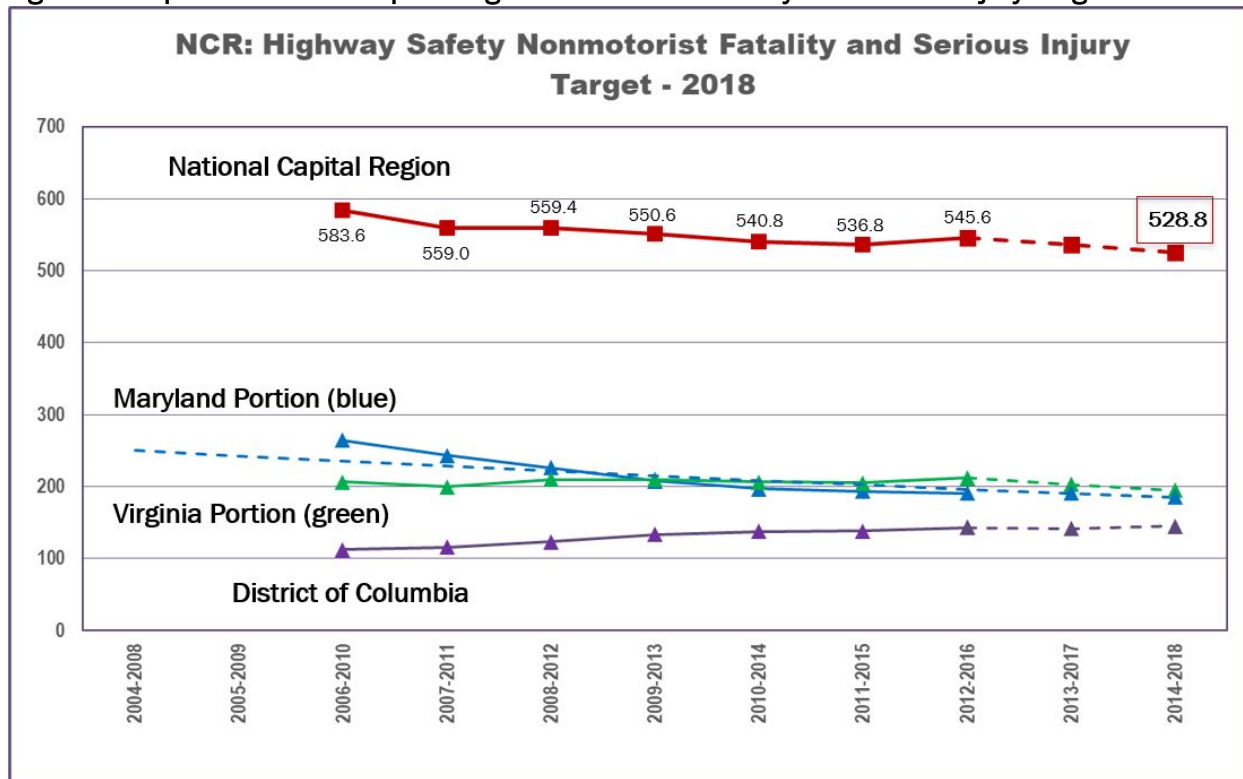


Figure 4: Proposed National Capital Region Fatality Rate Target

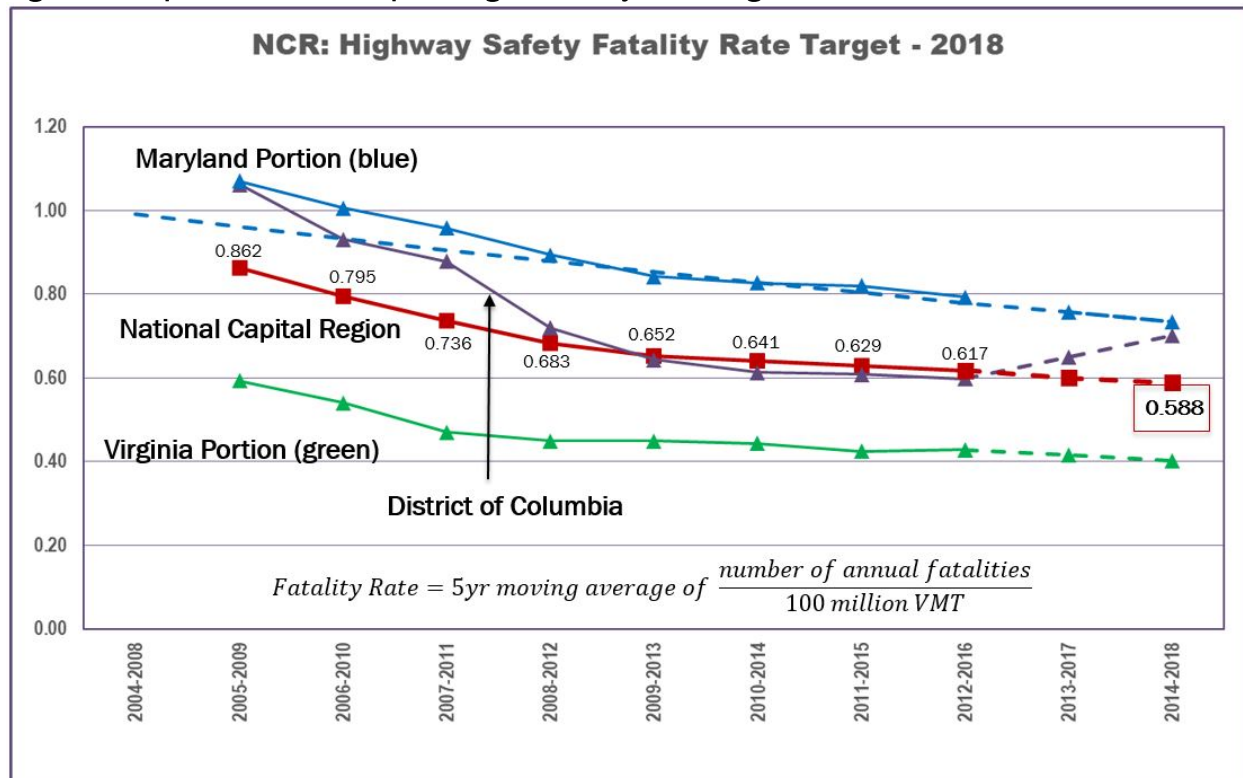


Figure 5: Proposed National Capital Region Serious Injury Rate Target

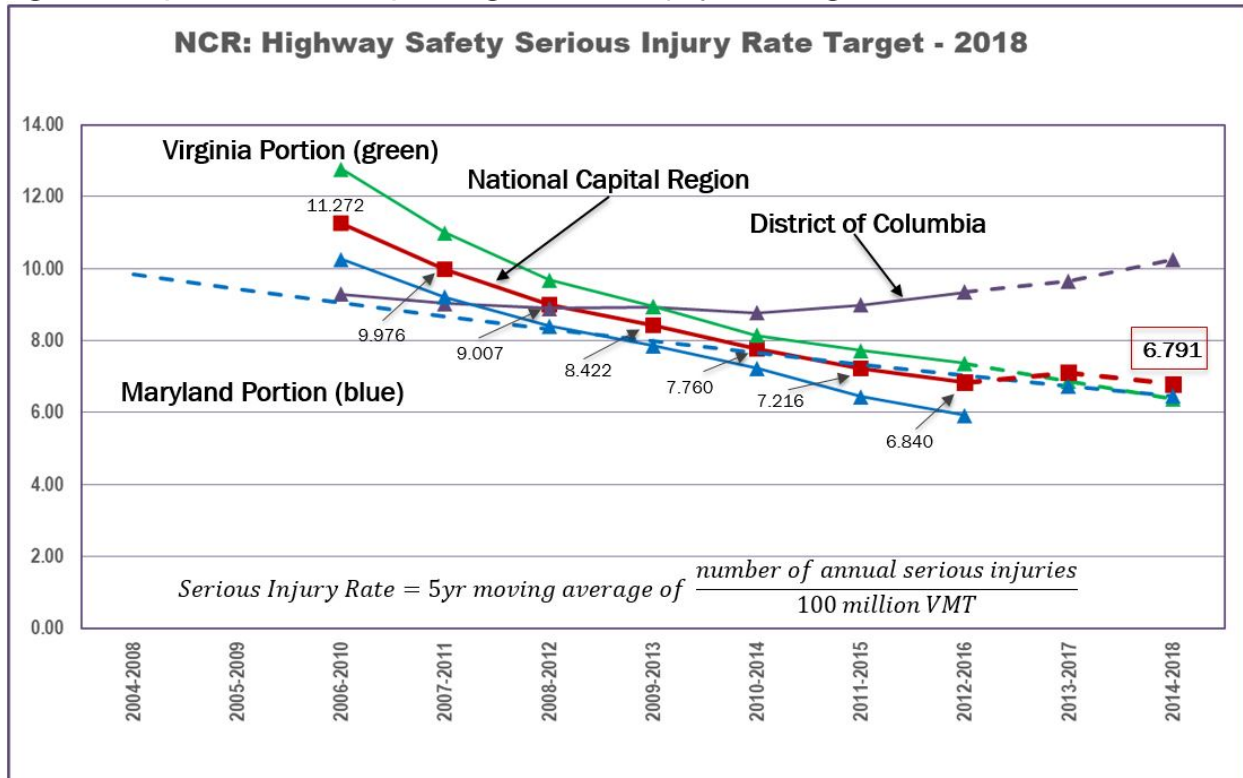


Table 2: Summary of Proposed National Capital Region Highway Safety Targets

	2012-2016 Actual	2014-2018 Target	Difference	Percent Difference
# of Fatalities	266.2	<u>253.0</u>	↓ 13.2	↓ 4.9%
Fatality Rate (per 100 MVMT)	0.617	<u>0.588</u>	↓ 0.029	↓ 4.7%
# of Serious Injuries	2,967.4	<u>3,007.3</u>	↑ 39.9	↑ 1.3%
Serious Injury Rate (per 100 MVMT)	6.840	<u>6.791</u>	↓ 0.007	↓ 0.1%
# <u>Nonmotorist</u> Fatalities & Serious Injuries	545.6	<u>528.8</u>	↓ 16.8	↓ 3.1%

NEXT STEPS

Next steps are as follows:

- Finalize NCR target setting approach based on Technical Committee feedback.
- Present draft to the board at the December TPB meeting.
- Request board approval of the proposed targets at the January 2018 TPB meeting.