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DRAFT REGIONAL HIGHWAY SAFETY TARGETS

Performance-Based Planning and Programming

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DRAFT 2015-2019 REGIONAL HIGHWAY SAFETY TARGETS, DECEMBER 2018
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The National Capital Region Transportation Planning Board (TPB) is the federally designated metropolitan planning organization (MPO) for metropolitan Washington. It is responsible for developing and carrying out a continuing, cooperative, and comprehensive transportation planning process in the metropolitan area. Members of the TPB include representatives of the transportation agencies of the states of Maryland and Virginia and the District of Columbia, 24 local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and nonvoting members from the Metropolitan Washington Airports Authority and federal agencies. The TPB is staffed by the Department of Transportation Planning at the Metropolitan Washington Council of Governments (COG).

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REGIONAL HIGHWAY SAFETY TARGETS

This report proposes a set of draft regional highway safety performance targets for the 2015-2019 time period 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.

Overview of Performance-Based Planning and Programming Requirements

Under the Moving Ahead for Progress in the 21st Century Act (MAP–21) and reinforced in the Fixing America's Surface Transportation (FAST) Act, federal surface transportation regulations require the implementation of performance management requirements through which states and metropolitan planning organizations (MPOs) will "transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds."

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have been gradually issuing a set of rulemakings, initially proposed and subsequently final, for the implementation of this performance-based planning and programming (PBPP) process. Each rulemaking lays out the goals of performance for a particular area of transportation, establishes the measures for evaluating performance, specifies the data to be used to calculate the measures, and then sets requirements for the setting of targets.

Under the PBPP process, states, MPOs, and providers of public transportation must link investment priorities to the achievement of performance targets in the following areas:

- Highway Safety;
- Highway Assets: Pavement and Bridge Condition;
- System Performance (Interstate and National Highway System, Freight Movement on the Interstate System, and the Congestion Mitigation and Air Quality Improvement Program); and
- Transit Safety and Transit Asset Management.

The final Statewide and Metropolitan Planning Rule, published May 27, 2016, provides direction and guidance on requirements for implementation of PBPP, including specified measures and data sources, forecasting performance, target-setting, documentation in the statewide and metropolitan long-range transportation plans and Transportation Improvement Programs (TIPs), and reporting requirements. The initial part of the PBPP process will require coordination and agreement on specific responsibilities for each agency in accordance with the planning rule.

Highway Safety Targets: Setting, Coordinating, and Reporting

The expectation of the implementation of the Safety Performance Measure rule is to improve both the quantity and quality of safety data, with respect to data pertaining to serious injuries and fatalities. This implementation will also allow greater transparency by disseminating the data 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. The five required safety performance measures, along with proscribed data sources, are outlined in Table 1 below.

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. A breakdown of responsibilities for target setting are listed below.

State DOTs:

- Required to set statewide targets for each of the five performance measures:
    - Each of these targets must be identical to those set by the State Highway Safety Office (SHSO).
    - Each target shall represent anticipated performance outcome for all public roadways in the State, regardless of ownership.
    - Targets cannot be changed after they are reported.

MPOs:

- For each performance measure, the MPO will either:
    - Agree to plan and program projects so they contribute toward accomplishing the state DOT safety target for that PM, or
    - Commit to a quantifiable target for that PM for the MPO planning area:
        - Each target shall represent anticipated performance outcome for all public roadways in the MPO planning area, regardless of ownership.
        - MPOs shall coordinate with the state DOT(s) to ensure consistency.

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. Coordination is essential between these two entities in setting HSIP targets. Both should work together to share data, review strategies and understand outcomes.

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.

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.

RECENT TRENDS IN SAFETY DATA VS. TPB-ADOPTED 2018 TARGETS

Last year's TPB-adopted targets for the 2014-2018 period were set before calendar year 2017 safety data were available. This data has now been released and it is possible to review it in relation to the 2018 targets as shown in Table 2 below.

Table 2: NCR Safety Trends – with Final 2017 Annual Data

Performance Measure	2013	2014	2015	2016	2017	Change from 2016 to 2017
# of Fatalities	261	263	263	275	313	↑ 13.8 %
Fatality Rate (per 100 MVMT)	0.612	0.618	0.610	0.635	0.693	↑ 9.2 %
# of Serious Injuries	3,040	2,856	2,642	2,946	2,632	↓ 10.7 %
Serious Injury Rate (per 100 MVMT)	7.078	6.666	6.112	6.749	5.826	↓ 13.7 %
# Nonmotorist Fatalities & Serious Injuries	514	549	526	565	556	↓ 1.6 %

Fatalities increased nearly 14 percent between 2016 and 2017 which drove the fatality rate (per VMT) higher by more than 9 percent over the same period. Both the number and rate of serious injuries fell and the number of nonmotorist fatalities plus serious injuries also dropped between 2016 and 2017.

Table 3 (next page) shows how the 2017 data affects the five safety performance measures with respect to the 2014-2018 targets set last year.

Table 3: Summary of NCR 2014-2017 Data with 2014-2018 Targets

Performance Measure (5-year rolling average)	2014-2017 Actual	2014-2018 Target
# of Fatalities	278.5	253.0
Fatality Rate (per 100 MVMT)	0.640	0.588
# of Serious Injuries	2,769.0	3,007.3
Serious Injury Rate (per 100 MVMT)	6.332	6.791
# Nonmotorist Fatalities & Serious Injuries	549.0	528.8

As shown above, both the number of fatalities and fatality rate performance measures for the years 2014-2017 are higher than the 2014-2018 targets set last year. To meet the targets for these performance measures would require a precipitous decrease in fatalities in 2018. While official numbers are not yet available, it is clear from the state data that has been made available that the number of fatalities in 2018 is not dropping and may be increasing over 2017 levels. Based on these factors, it is very unlikely that the regional targets for these two performance measures will be met.

With respect to the performance measures for serious injuries and serious injury rate, the region is already more than meeting the targets set last year and it is likely that once the 2018 data are in, the resulting performance will have met the 2014-2018 targets set last year.

The number of nonmotorist fatalities plus serious injuries has been moving in the right direction (see Table 2, previous page) and if the numbers continue to decline in 2018 there is a chance that this target could be met.

NCR REGIONAL SAFETY TARGET SETTING APPROACH

This year, a new set of targets for the five safety performance measures will be adopted. These targets will be for the 2015-2019 period. The methodology used to develop these targets is similar to the process used last year and leverages the approaches used by our state DOT partners. To account for and incorporate the different target setting approaches used by Maryland, Virginia, and the District of Columbia to develop targets for the entire National Capital Region (NCR), staff applied 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 NCR safety data;
- identify a “sub-target” for the Virginia portion of the NCR by applying VDOT’s target setting approach to the NCR safety data;

- 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.[1]

Overview of Member States' 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 used linear regression of annual safety data to make 2018 and 2019 projections for each of the numeric performance measures[2] and used them to calculate the 2015-2019 statewide targets. For the rate performance measures[3], Virginia used annual forecasts for fatalities and serious injuries and divided them by projected VMT (vehicle miles traveled) to make 2018 and 2019 projections which were then used to calculate the 2015-2019 statewide targets. TPB staff applied this same process 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.

Calculation of the National Capital Region Highway Safety Targets

Numerical Targets

The NCR targets for the 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. This is straightforward mathematical addition.

As a final step, the calculated numerical targets were compared to the corresponding targets adopted by the TPB last year and the lower (more aggressive) target for each performance measure was selected.

[1] This ensures that none of this year's safety targets will be higher than the targets that were adopted by the TPB last year.

[2] Number of fatalities, number of serious injuries, and number of nonmotorist fatalities plus serious injuries

[3] Fatality rate per 100 million VMT and serious injury rate per 100 million VMT

Rate Targets

Determination of rate targets (fatality rate and serious injury rate) are somewhat more complicated and 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. The following steps illustrate the process for the fatality rate (a similar process was used for the serious injury rate):

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

Fatalities per 100 MVMT	2013-2017 Average	2015-2019 Average (sub target)	Percent change
Suburban MD	0.819	0.733	-10.51%
NOVA	0.414	0.414	-0.06%
DC	0.691	0.850	22.97%

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

Sub region	100 MVMT (2017)	Proportion
Suburban MD	218.73	48.57%
NOVA	194.48	43.18%
DC	37.16	8.25%
Sum	**450.37**	**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	-10.51%	48.57%	-5.106%
NOVA	-0.06%	43.18%	-0.024%
DC	22.97%	8.25%	1.896%
Sum			**-3.235%**

4) Apply the percent change for the regional rate calculate in step 3 to the 2013-2017 average fatality rate. This is the regional fatality rate target for 2015-2019.

Fatalities per 100 MVMT	2013-2017 Average	Regional percent change (from step 3)	2014-2018 Average (regional target)
NCR	0.632	-3.235%	**0.611**

As a final step, the calculated rate targets were compared to the corresponding targets adopted by the TPB last year and the lower (more aggressive) target for each performance measure was selected.

REGIONAL SAFETY TARGETS

Figures 1 through 5 and Table 2 display the proposed NCR Highway Safety Targets.

Figure 1: National Capital Region Fatality Target

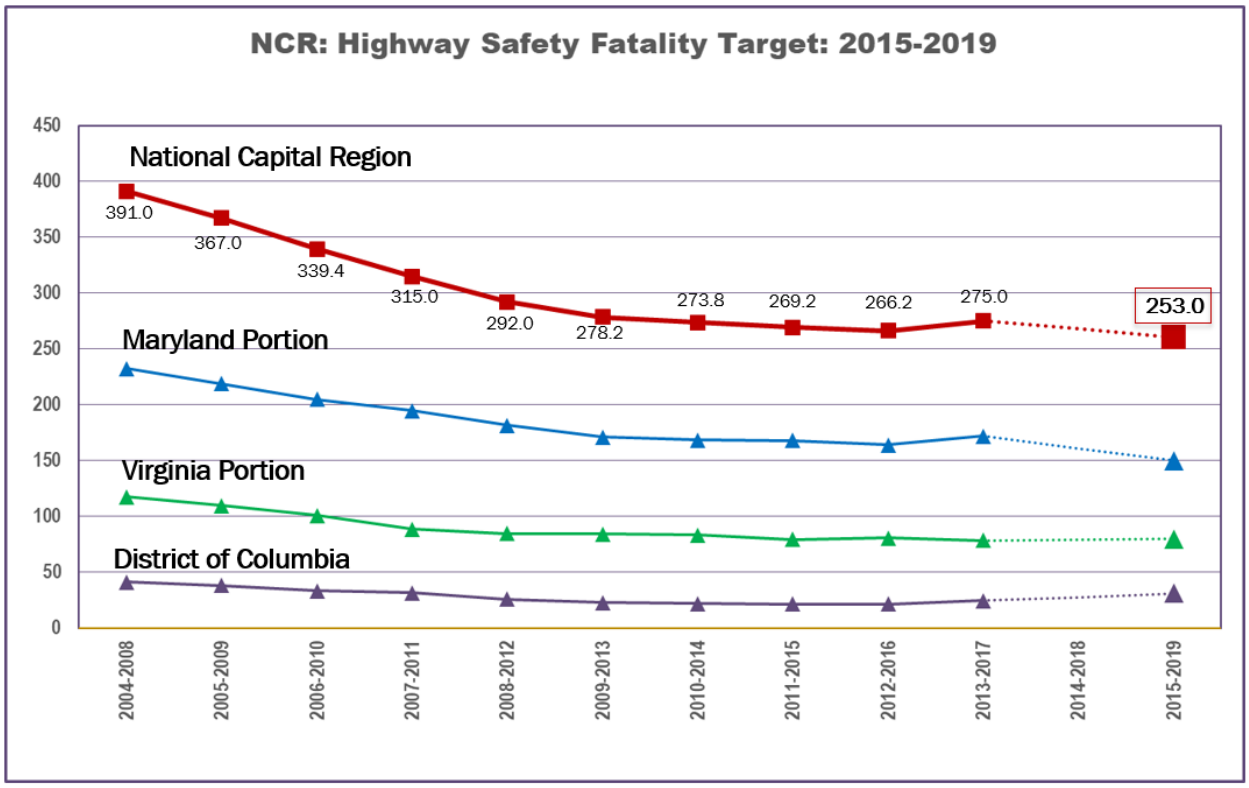

Figure 2: National Capital Region Serious Injury Target

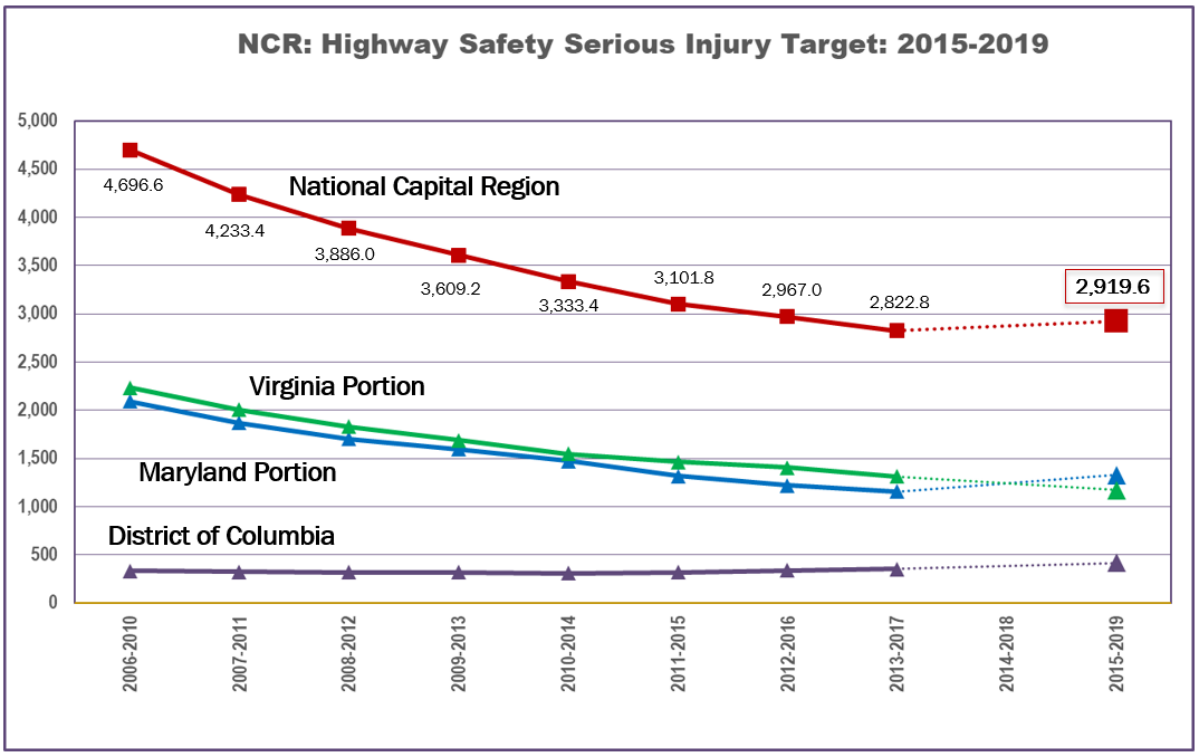

Figure 3: National Capital Region Nonmotorist Fatality and Serious Injury Target

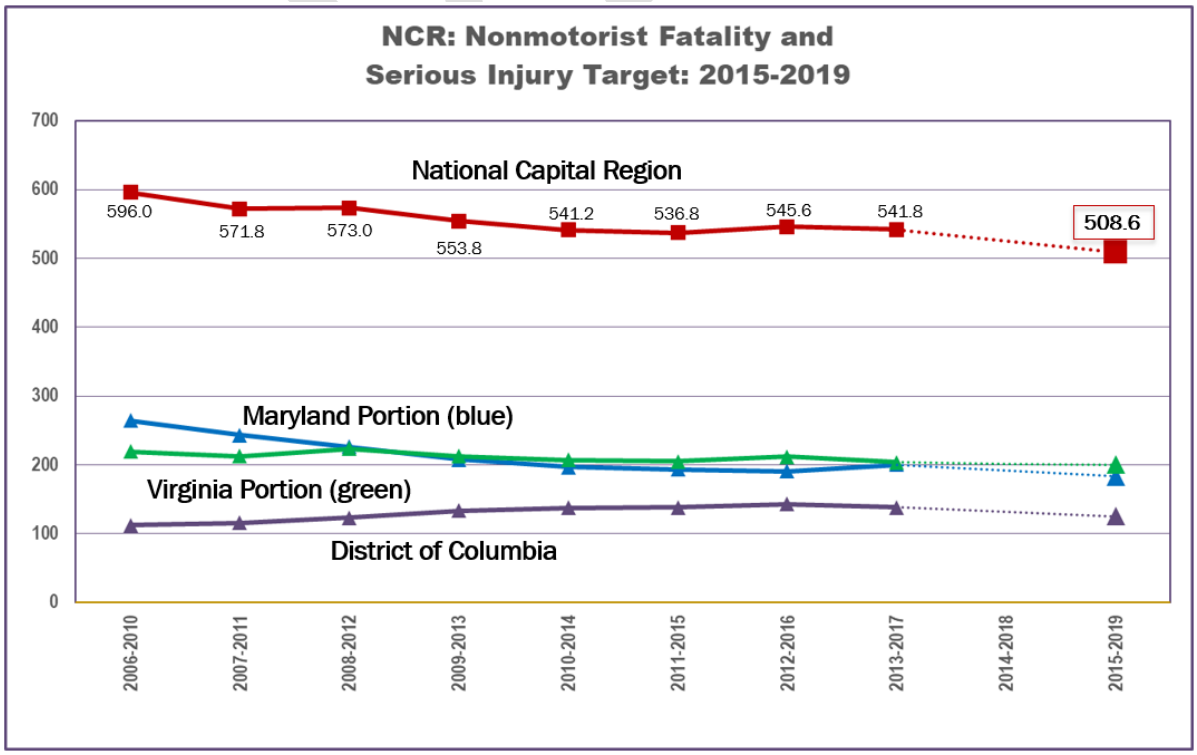

Figure 4: National Capital Region Fatality Rate Target

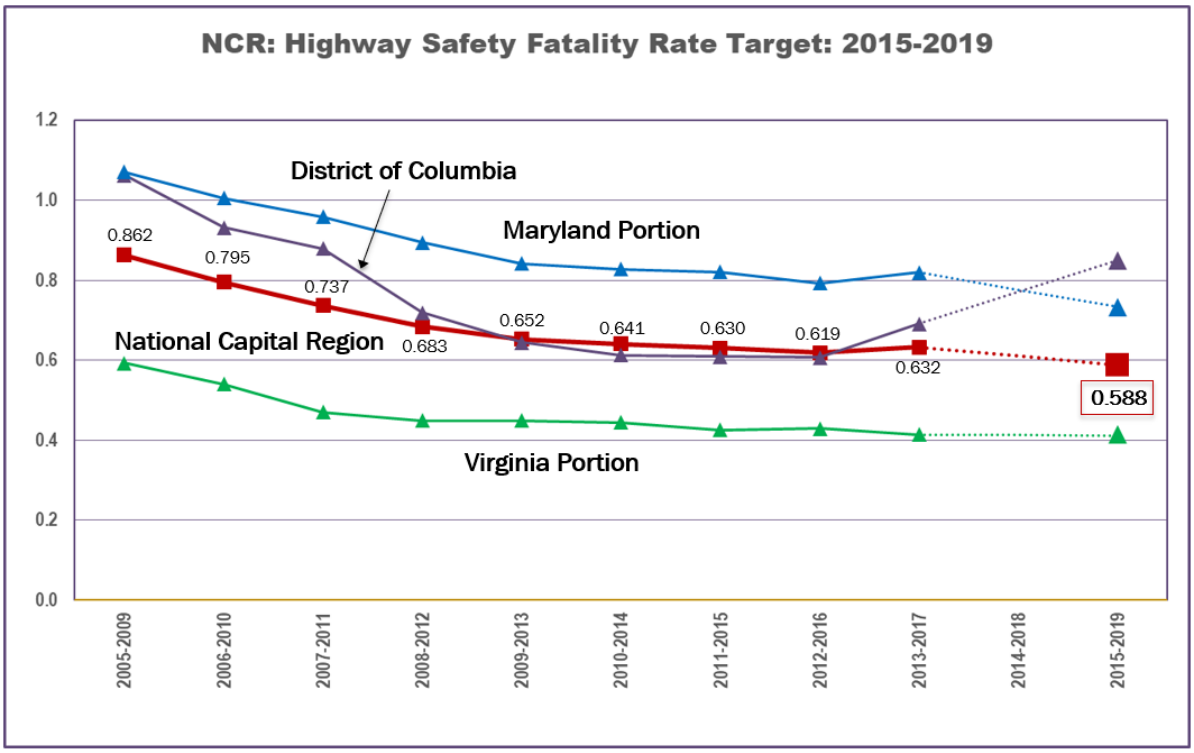

Figure 5: National Capital Region Serious Injury Rate Target

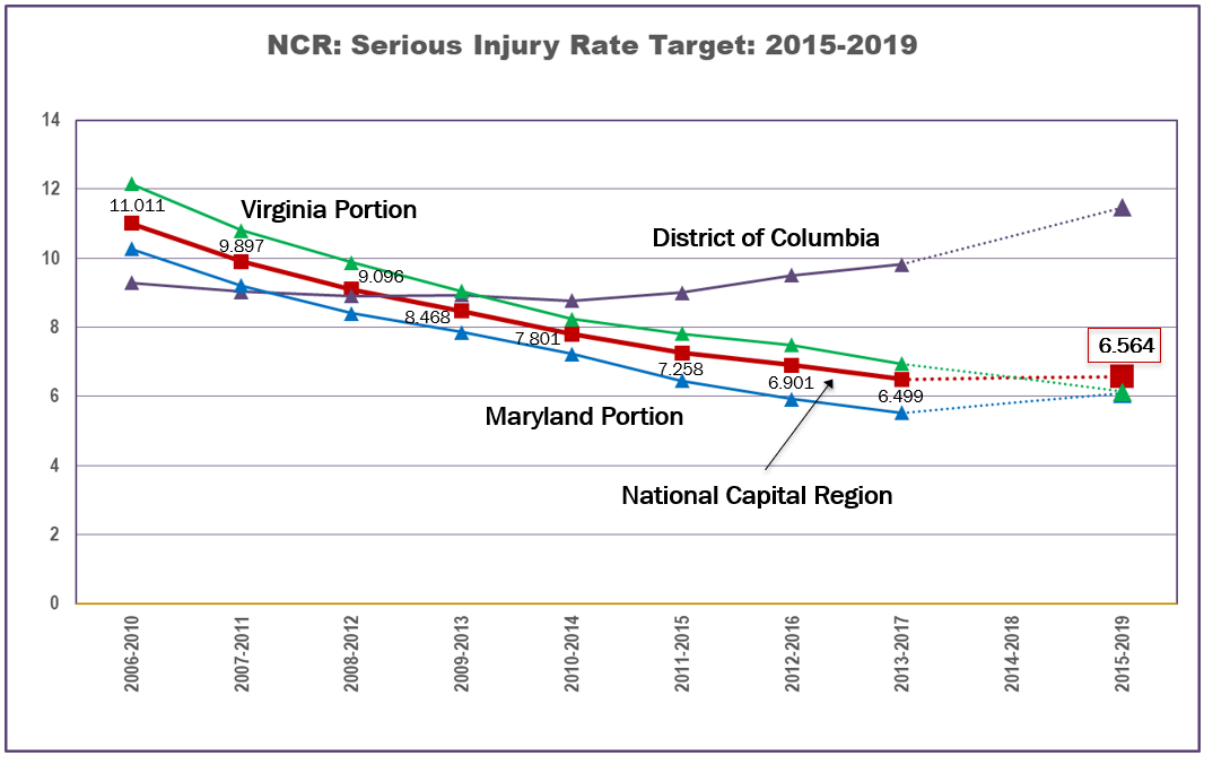

Table 4: Summary of Highway Safety Targets

Performance Measure	2014-2018 Target	2015-2019 Target	Difference	Percent Difference
# of Fatalities	253.0	253.0	0.0	0.0%
Fatality Rate (per 100 MVMT)	0.588	0.588	0.000	0.0%
# of Serious Injuries	3,007.3	2,919.6	-87.7	-2.9%
Serious Injury Rate (per 100 MVMT)	6.791	6.564	-0.217	-3.2%
# Nonmotorist Fatalities & Serious Injuries	528.8	508.6	-20.2	-3.8%

DURATION

Upon adoption by the Transportation Planning Board, the targets described in this report become the official National Capital Region highway safety targets for calendar year 2019 (as represented by the average of the 5 years of data from CY 2015 through CY 2019).

As per federal regulations, the National Capital Region highway safety targets will be updated on an annual basis by no later than February 27 of each calendar year.