



MEMORANDUM

TO: Southwest Washington Regional Transportation Council Board of Directors
FROM: Matt Ransom, Executive Director *MR*
DATE: November 28, 2017
SUBJECT: **MAP-21 Safety Performance Measures and Target Setting**

AT A GLANCE – INFORMATION

This Memo provides background information on an action that will be asked of the RTC Board at the February 6, 2018 meeting. In February, the Board will be asked to approve targets set for safety performance measures as required by the Federal Highway Administration. The Memo gives a status report on Transportation Performance Management (TPM) and provides specific information on traffic safety performance management requirements with a review of the established Washington state safety targets included in the attached WSDOT folio.

The RTC Board was last provided information on the federal Transportation Performance Management program at the June 2017 meeting when the Board addressed C-TRAN's Transit Asset Management program and set initial performance targets for the State of Good Repair of C-TRAN's assets. Federal rulemaking was discussed at the August 2016 Board meeting and traffic safety was addressed at the April 2017 meeting.

BACKGROUND

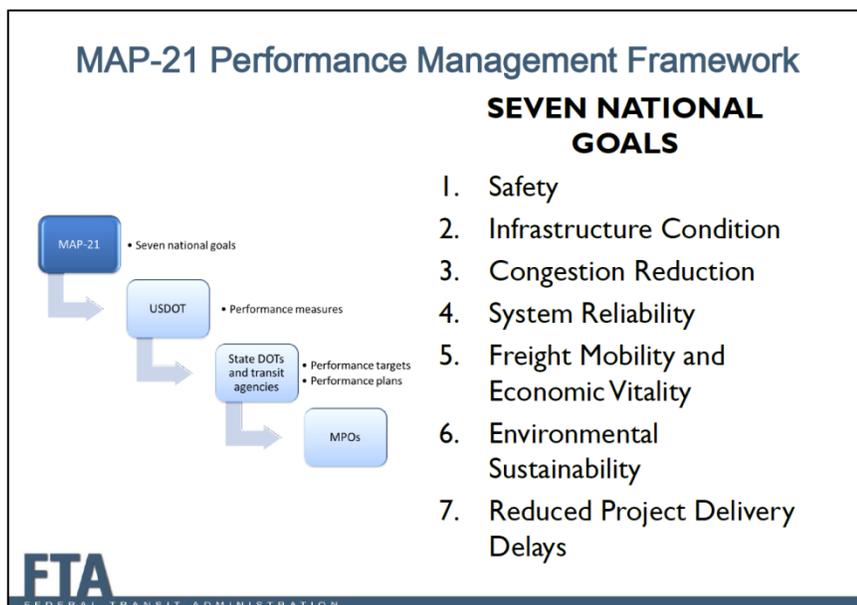
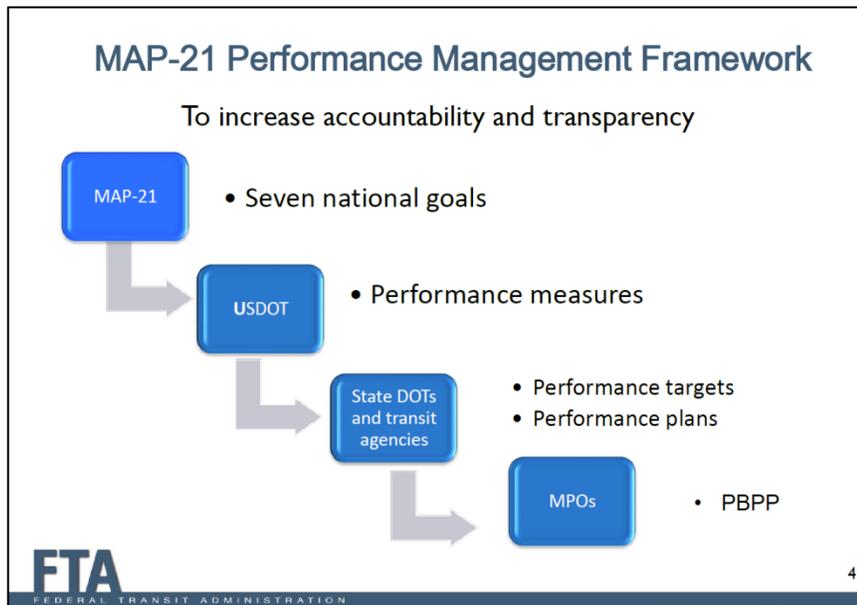
The federal transportation act, MAP-21 (2012), instituted performance driven transportation planning and decision making and these provisions were carried into the current federal transportation act, the FAST Act (2015). Following passage of MAP-21, the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) moved forward with rulemaking on how to implement the performance provisions and the timeline for implementation. Final rules are now in place.

What is Transportation Performance Management (TPM)

FHWA defines Transportation Performance Management as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. Transportation Performance Management is systematically applied as part of a regular ongoing process. It provides key information to help decision makers understand the consequences of investment decisions across multiple markets and modes. It is aimed to improve communications between decision makers, stakeholders and the traveling public. Performance measures and targets are to be based on data and objective information and developed in cooperative partnerships.

Elements of a TPM system include: 1. National Goals, 2. Measures, 3. Targets, 4. Plans, 5. Reports, and 6. Accountability and Transparency.

A graphic summarizing the Performance Management Framework is provided below with the second graphic showing the seven national goals. The transition to a performance and outcomes-based transportation program is designed to work toward achieving these national goals by having states and MPOs measure, monitor and report on transportation system performance to inform the decision making process and invest resources in projects to achieve individual targets that collectively will make progress toward national goals. This Memo focuses on safety measures.



USDOT, WSDOT AND MPO ROLES AND RESPONSIBILITIES

The USDOT, WSDOT and RTC, as this region's Metropolitan Planning Organization, each have roles and responsibilities in the Transportation Performance Management (TPM) process. USDOT responsibilities are listed below.

USDOT Responsibilities:

- Performance Measure Rules
- Establish measures; identify data sources; define metrics
- Report to Congress
- Stewardship and oversight

State Departments of Transportation and Metropolitan Planning Organizations (MPOs) also have roles and responsibilities in the Transportation Performance Management (TPM) process as listed below.

States and MPO Responsibilities

- Identify available and needed data
- Coordinate with other agencies
- Establish coordinated targets
- Collect and submit required data
- Report progress. States must report progress to USDOT.
- Support national goals in the planning process and consider measures and targets in long range plans and programs

Both the WSDOT and MPOs have to establish targets. Coordination is expected between WSDOT and the MPOs when setting the targets to ensure consistency to the maximum extent practicable. WSDOT has established teams and groups to ensure that the necessary coordination occurs. An MPO may establish its own quantifiable performance targets or may adopt a State's performance targets and support the State's efforts at achieving those targets.

IMPLEMENTATION OF RULES

Rules and Target Setting Timelines

Performance Management final rulemakings for Safety (PM1), Pavement and Bridge Condition (PM2) and System Performance - Congestion, Freight and CMAQ (PM3) are now complete and the Rules are codified in 23 CFR Part 490 which:

- Describes the 17 performance measures
- Explains the applicability of the measures
- Advises what data is needed to support measures
- Includes target due dates
 - State DOTs: 1 year from the effective date of the final rules
 - MPOs: 180 days after the State DOT

- Describes performance period, reporting requirements and timeline
- Defines the significant progress determination process

The timeline for implementation of Transportation Performance Management is summarized in Table 1 below:

Table 1

TIMELINE FOR IMPLEMENTATION OF PERFORMANCE MEASURES				
Final Rule	Effective Date	State DOTs Set Targets By	MPOs Set Targets By	LRSTP, MTP, STIP and TIP Inclusion
Safety Performance Measures (PM1)	April 14, 2016	Aug. 31, 2017	Up to 180 days after the State sets targets, but <u>not later than Feb. 27, 2018</u>	Updates or amendments on or after May 27, 2018
Pavement/Bridge Performance Measures (PM2)	May 20, 2017	May 20, 2018	No later than 180 days after the State(s) sets targets	Updates or amendments on or after May 20, 2019
System Performance Measures (PM3)	May 20, 2017	May 20, 2018	No later than 180 days after the State(s) sets targets	Updates or amendments on or after May 20, 2019

The Federal Highway Administration (FHWA) published the Highway Safety Improvement Program (HSIP) and Safety Performance Management Measures (Safety PM) Final Rules in the Federal Register on March 15, 2016, with an effective date of April 14, 2016. The HSIP Final Rule updates the HSIP regulation under 23 CFR Part 924 to be consistent with MAP-21 and the FAST Act, and clarifies existing program requirements. The Safety PM Final Rule adds Part 490 to title 23 of the Code of Federal Regulations to implement the performance management requirements in 23 U.S.C. 150.

The Safety PM rule supports the HSIP, as it establishes safety performance measures to carry out the HSIP and to assess serious injuries and fatalities on all public roads. Together, these regulations will improve data; foster transparency and accountability; and allow safety progress to be tracked at the national level. Safety performance measurement, monitoring and target setting will inform State DOT and MPO planning, programming, and decision-making for the greatest possible reduction in fatalities and serious injuries.

PERFORMANCE MEASURES:

The 17 federally established Performance Measures are summarized in Table 2 below:

Table 2

17 PERFORMANCE MEASURES	
Measure Area	Performance Measures
Safety (PM1)	
Safety	<ul style="list-style-type: none"> • Number of fatalities on all public roads • Number of serious injuries on all public roads • Rate of fatalities per 100 million vehicle miles traveled on all public roads • Rate of serious injuries per 100 million vehicle miles traveled on all public roads • Number of non-motorized fatalities and non-motorized serious injuries on all public roads
Pavement & Bridge Condition (PM2)	
National Performance Management Measures to Assess Pavement Condition	<ul style="list-style-type: none"> • % of pavements on the Interstate System in Good condition • % of pavements on the Interstate System in Poor condition • % of pavements on the non-Interstate System in Good condition • % of pavements on the non-Interstate System in Poor condition
National Performance Management Measures to Assess Bridge Condition	<ul style="list-style-type: none"> • % of NHS bridges by deck area classified in Good condition • % of NHS bridges by deck area classified in Poor condition
System Performance & Freight (PM3)	
Performance of the National Highway System (System Performance)	<ul style="list-style-type: none"> • Interstate Travel Time Reliability Measure: % of reliable person-miles traveled on the Interstate • Non-Interstate Travel Time Reliability Measure: % of reliable person-miles traveled on the non-Interstate NHS
Freight Movement on the Interstate System	<ul style="list-style-type: none"> • Freight Reliability Measure: Truck Travel Time Reliability (TTTR) Index on the Interstate System
Congestion Mitigation and Air Quality Program (PM3)	
Measures to Assess the CMAQ Program: Traffic Congestion	<ul style="list-style-type: none"> • Peak hour Excessive Delay (PHED) Measure: Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita • Non-Single Occupancy Vehicle Travel (SOV) Measures: % of Non-Single Occupancy Vehicle (SOV) Travel
Measures to Assess the CMAQ Program: One-Road Mobility Source Emissions	<ul style="list-style-type: none"> • Emissions Measures: Total Emission Reductions

SAFETY PERFORMANCE MEASURES AND TARGET SETTING

Among the 17 required performance measures listed in Table 2, the 5 performance measures for safety are the first that have to have performance targets set by MPOs. Washington State Department of Transportation has published a folio providing background information and explaining the Safety Performance Targets already set by the State to meet the federally required August 31, 2017 deadline (see attached). MPOs now have until February 27, 2018 to set MPO Safety Targets. The 5 Safety Performance Management Measures for which targets have been set by WSDOT and for which MPOs must now do the same are noted on page 1 of the WSDOT MAP-21 and Safety folio (published September 2017) as well as listed in this Memo's Table 2.

Statewide Safety Data and Established Targets:

As pointed out on pages 1 and 2 of the attached September 2017 folio, WSDOT and MPOs in Washington state have worked together on the safety performance management process, safety data and established safety targets which MPOs have agreed to adopt using the *Target Zero* approach; setting aspirational targets based on reaching zero by year 2030.

Page 2 of the WSDOT folio provides a description of the methodology used in establishing statewide safety targets based on data for a 10-year period with performance metrics and targets for each of the five safety performance measures expressed as rolling 5-year averages. The table on page 2 summarizes WSDOT's safety targets using a 2016 baseline and the established 2018 official statewide targets.

NEXT STEPS

RTC staff will continue to coordinate with WSDOT and the Regional Transportation Advisory Committee. Safety data and proposed targets for RTC's MPO region will be reviewed at the January 2, 2018 Board meeting as part of the safety performance measures target setting process. This will allow for a comparison of statewide and the RTC region's safety data and trends. In order to meet the February 27, 2018 deadline for MPOs to set safety performance targets, RTAC will have to make the safety target setting recommendation to the RTC Board at RTAC's January 19, 2018 meeting and the Board will be asked to adopt the safety performance measures targets at the February 6 meeting.

Following RTC Board adoption, the region's safety targets will be forwarded to WSDOT as part of the federal Performance Based Planning and Programming process. The Board will be updated on safety targets annually as targets are reviewed and potentially amended. The RTC Board will be engaged in all facets of compliance with Performance Based Planning and Programming as the measures and targets are integrated into RTC's Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP).

Attachment:

MAP-21 & Safety, Washington State, Official Targets, Sept 2017 Final Rule (WSDOT)



Moving Ahead for Progress in the 21st Century Act - Final rules on traffic safety performance management

The U.S. Department of Transportation has issued two interrelated final rules governing traffic safety and safety-oriented performance management which became effective on April 14, 2016. These two rules are referred to in this folio as

- Rule #1 - Safety Performance Measures rule; (23 CFR §490)
- Rule #2 - Highway Safety Improvement Program (HSIP) rule; (23 CFR §924)

Both final rules relate to highway safety, the primary objective being to significantly reduce fatal and serious-injury crashes on all public roads. The Safety Performance Measures rule (Rule #1) also includes the goal of reducing traffic fatalities of and serious injuries to people using non-motorized transportation modes, namely bicyclists and pedestrians.

Safety Performance Reporting

Rule #1 specifies the performance management measures for safety, and defines the target setting process for State DOTs and Metropolitan Planning Organizations (MPOs). Per Rule #2, State DOTs will establish and report their safety targets and progress toward these targets in an annual Highway Safety Improvement Program (HSIP) report.

Summary of required performance measures

Rule #1 requires all State DOTs to report targets and performance with respect to the following safety performance measures:

- No. 1 - Number of fatalities on all public roads** (due July 1/Aug 31)
- No. 2 - Number of fatalities per 100 million vehicle miles traveled (VMT) on all public roads** (due July 1/Aug 31)
- No. 3 - Number of serious injuries on all public roads** (due July 1/Aug 31)
- No. 4 - Number of serious injuries per 100 million VMT on all public roads** (due Aug 31)
- No. 5 - Number of non-motorist fatalities and serious injuries on all public roads (e.g. bicyclists and pedestrians)** (due Aug 31)

In general, MPOs establish targets by either agreeing to plan and program projects so that they contribute toward the accomplishment of the State DOT HSIP target, or by committing to a quantifiable target for their Metropolitan Planning Area. MPOs will report annually to their State DOT in a manner agreed upon and documented by both parties. MPOs would report safety performance in the Metropolitan Transportation Plan, as provided in U.S. Code 23 Section 134(i)(2)(C).

In Washington state, the MPOs and WSDOT worked together to jointly develop a collaborative approach in support of data, process, and target-setting decision making. This Target Setting Framework Group has agreed WSDOT will take the lead in establishing safety targets, which MPOs will adopt.

About this folio:

See inside for the official statewide safety targets for 2018, a description of the target setting approach for the five required safety performance measures in Washington state, and how this approach to target setting relates to the stipulations of MAP-21 rulemaking.

Optional targets: States have the option to set additional targets for the performance measures for any number and combination of urbanized area boundaries, as well as for a single non-urbanized area. If optional targets are set, they will not be assessed when determining significant progress, and states will not incur penalties if they fail to show progress.

Overlapping measures/targets in the Highway Safety Plan: Targets for Measures No. 1-3 must also be reported to the National Highway Traffic Safety Administration by July 1 of each year. They must be numerically identical targets to those reported for MAP-21 compliance on August 31 as part of the HSIP. See the Timelines section inside for details.

MAP-21 Special Rules: Numeric targets are not required, but states must report performance in these two categories, and show improvement compared to baseline.

- Fatality rate on High Risk Rural Roads (due Aug 31)
- Number of fatalities and serious injuries of drivers and pedestrians age 65 and older on all public roads (due Aug 31)

Flexibility for safety target setting under MAP-21

State DOTs and MPOs have flexibility in setting numeric targets for the five performance measures identified in Rule #1. It does place stipulations on certain aspects of the process, however. It requires that states and MPOs report their performance metrics and targets for each of five performance measures as rolling 5-year averages. Per Rule #2, states are also required to develop a Strategic Highway Safety Plan (SHSP). Washington state's plan is called Target Zero, which can be used as the foundation for the target setting process (<http://www.targetzero.com>).

WSDOT's target adoption

WSDOT and its partners adopted the *Target Zero* approach for MAP-21 safety target setting in February 2017. See the table below for the targets produced via this method. Governor Inslee has endorsed this data-driven approach to traffic safety, as have statewide safety partners.

MAP-21 Safety Target Setting

5-yr. rolling averages; number of persons, or number of persons per 100 million VMT

	2016 Baseline	2018 Official Targets
	Statewide MAP-21 Target (Target Zero)	
No. 1 - Fatalities	484.8	415.5
No. 2 - Fatality rate	0.828	0.709
No. 3 - Serious injuries	2,086.0	1,788.0
No. 4 - Serious injury rate	3.568	3.058
No. 5 - Non-motorist fatalities & serious injuries	503.4	431.5

Data sources: Washington State Traffic Safety Commission - Fatality Analysis Reporting System; Washington State Department of Transportation - Transportation Data, GIS & Modeling Office.

FHWA's "Significant Progress" measurement

At the end of each reporting period, FHWA will determine whether a state has made overall "significant progress" toward achieving their safety targets. The penalties listed on the back page of this folio, including the obligation of state funds, will apply to the State DOT if FHWA deems it has not made that progress.

To make significant progress overall, a state must make significant progress in achieving at least four out of five targets. For each measure, there are two ways this can be done. For example, the value of the 5-year rolling average in 2018 must be:

- At or below the target set in 2017 for the 2018 year, OR
- At or below its 2016 (baseline) level. The FHWA included this provision to avoid punishing aspirational target setting.

If either of these conditions is met, the state has made significant progress for that individual measure. It must do so in any four of the five measures to have made significant progress overall and avoid the penalty provisions. For example, in the graph for Measure No. 1, Washington must lower the 5-year average to fewer than 484.8 fatalities (the baseline value) to achieve significant progress in that measure.

WSDOT uses Target Zero to reduce fatality and serious injuries

Due to long-term fatality reductions in Washington coupled with a recent rise in the number of fatalities, WSDOT may not achieve overall significant progress toward these targets. WSDOT and its partners concur that *Target Zero* should be consistently used to move Washington forward with fatality and serious injury reductions. WSDOT will continue to monitor spending levels and penalty consequences to assess risk and the impacts of this target setting approach.

The general process for generating trend and target information as prescribed by Rule #1 proceeds as follows:

- The annual number of fatalities, serious injuries, and Vehicle Miles Traveled (VMT) is determined for a 10-year period.
- A 5-year rolling average is calculated for each performance measure. For example, in the graph for Measure No. 1, data from 2006-2010 creates the value of the rolling average in 2010—535.4 fatalities. Data from 2007-2011 creates the next 5-year rolling average in 2011
- The rolling 5-year average value for 2016 will be set as the baseline performance (annual average of 2012 through 2016).

States are then free to develop targets using any variety of data-based methods. In *Target Zero* and Washington state's particular approach to target setting, the method to establish targets continues:

- A straight line will be drawn from the baseline value to a zero value in 2030. (The line is redrawn with each new year of data.)
- The value of the *Target Zero* trendline in 2018 becomes the target for the performance measure in 2018.

Timelines

Final targets for these measures were ratified when official 2016 VMT data became available in June 2017. All targets are set for 2018 using 2012-2016 data as the baseline period, and the 2016 data used is preliminary FARS data. (Rule #1 provides the option of using either final or preliminary FARS data when setting targets, but in actuality the finalized data for the most recent year would not be available until after the State DOTs' annual reporting deadline.)

For MAP-21 compliance, all five targets must be reported to FHWA by the HSIP submission deadline August 31, 2017. However, targets for Measures No. 1–3 are also required in the state's Highway Safety Plan, which was submitted to the National Highway Traffic Safety Administration on July 1, 2017. Targets in both submissions must be numerically identical.

MPOs have until February 27, 2018 (180 days after the HSIP reporting deadline) to either agree to plan and program projects so that they contribute toward the accomplishment of the State DOT HSIP target, or commit to a quantifiable target for their Metropolitan Planning Area. In Washington state, MPOs have agreed to adopt the WSDOT target.

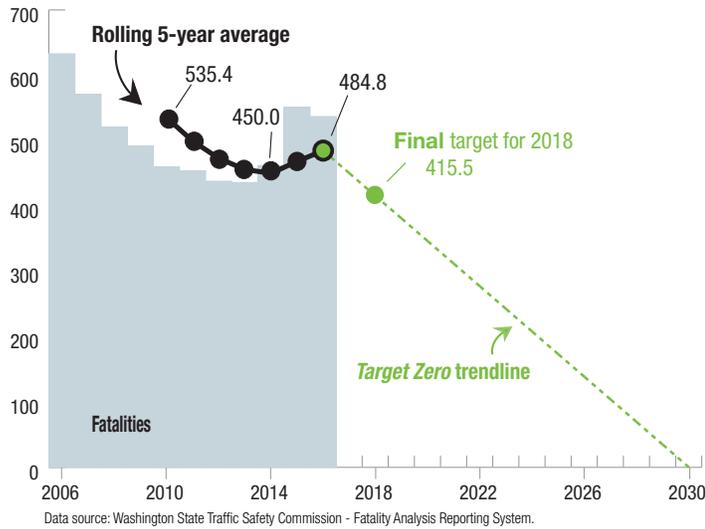
In December 2019, the FHWA will make its first determinations of significant progress toward achieving 2018 targets. They will notify states of the outcome in March 2020.

About these graphs

These graphs display the final 2018 targets for each of the five MAP-21 safety performance measures, and show the *Target Zero* methodology that will be used for safety target setting in Washington state. The targets were developed by WSDOT in coordination with the Washington State Metropolitan Planning Organizations, the Washington State Traffic Safety Commission, and other partners.

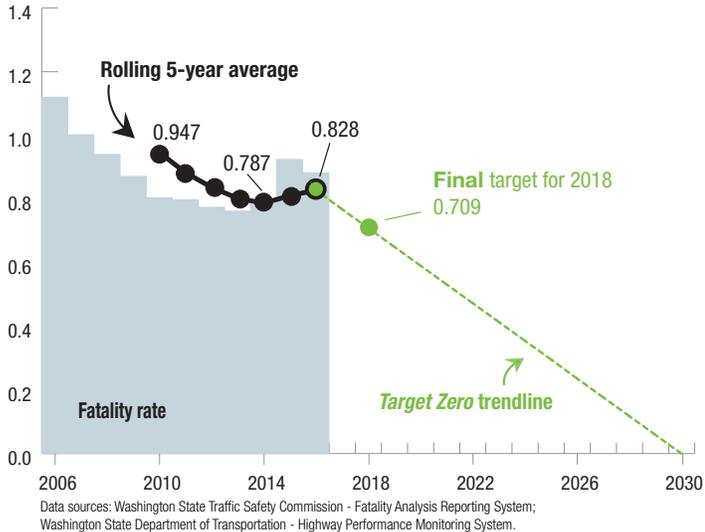
Measure No. 1 - Fatalities

2006 through 2030; Fatalities in Washington state



Measure No. 2 - Fatality rate

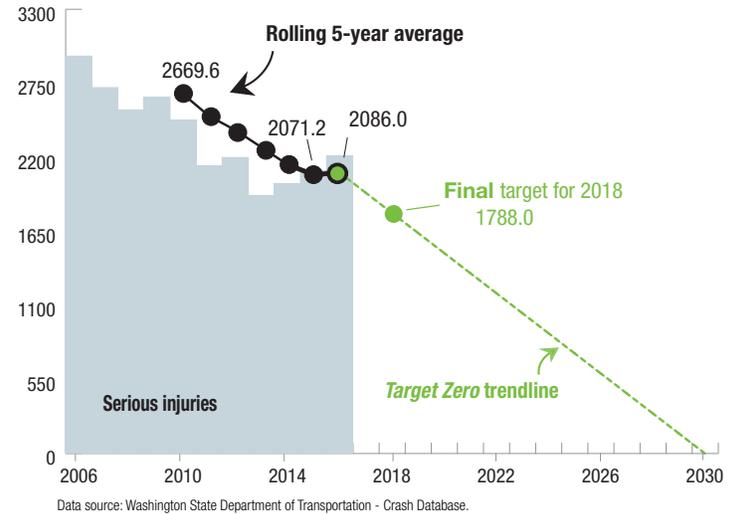
2006 through 2030; Fatalities per 100 million VMT in Washington state



Notes for all graphics: Fatality data for 2015 is finalized as of January 2017, serious injury count for 2015 is as of April 2017. All data for 2016 is preliminary as of April 2017. Under 23 U.S. Code § 148 and 23 U.S. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a federal or state court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Measure No. 3 - Serious injuries

2006 through 2030; Serious injuries in Washington State



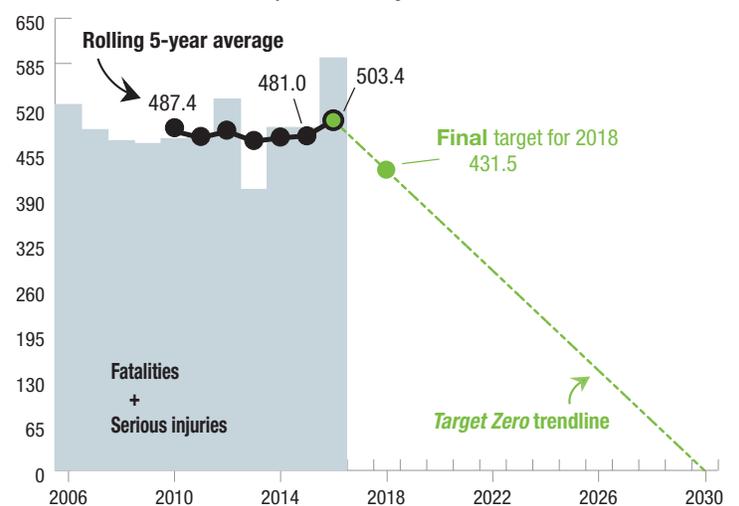
Measure No. 4 - Serious injury rate

2006 through 2030; Serious injuries per 100 million VMT in Washington state



Measure No. 5 - Non-motorist fatalities and serious injuries

2006-2030; Fatalities and serious injuries in Washington state



Penalties

As described in U.S. Code 23 Section 148(i), for the Final Safety Performance Rule (Rule #1), if the U.S. Department of Transportation (U.S. DOT) Secretary determines a state has not met or made significant progress toward achieving its safety performance targets by the date that is two years after the establishment of its targets, the State DOT would:

- Dedicate its obligation authority equal to the apportionment for HSIP to the state for the prior year to highway safety improvement projects until the U.S. DOT Secretary determines that the state has made significant progress or met the targets; and
- Annually submit to U.S. DOT a safety implementation plan until the U.S. DOT Secretary determines that the state has made significant progress or met the targets.

See WSDOT's [MAP-21 Funding and Performance Penalties](#) folio for full details, including special rule penalties.

Available Data

- Number of traffic fatalities for all public roads
- Rate of traffic fatalities per 100 million Vehicle Miles Traveled (VMT) for all public roads¹
- Number of serious traffic injuries for all public roads
- Rate of serious traffic injuries per 100 million VMT for all public roads¹
- Bicyclist/Pedestrian fatalities and serious injuries for all public roads²
- Fatality and serious injury data for drivers and pedestrians age 65 and older³
- Rate of traffic fatalities for all High Risk Rural Roads (HRRR)^{1,3}

Notes: Crash data is available for all Washington public roads and annual summaries are also available by county. WSDOT entered into a data sharing agreement with the Washington Traffic Safety Commission to incorporate the fatality data necessary for target setting. **1** The Federal Highway Administration (FHWA) requires the use of Highway Performance Monitoring System (HPMS) data for any performance metric involving estimated vehicle miles travelled. **2** This data is required as part of the Fiscal Year 2015 Omnibus Appropriations Bill. **3** This data satisfies a MAP-21 special rule reported at the statewide level to FHWA, that may be of interest to MPOs.

For more information

MAP-21 safety requirements information: John Milton, Director of Quality Assurance and Transportation System Safety, at (360) 704-6363 or Milton.J@wsdot.wa.gov.

Dan Davis, Assistant Director, Office of Strategic Assessment and Performance Analysis, at (360) 705-7558, or DavisD@wsdot.wa.gov.

Traffic crash fatal and serious injury data: Mike Bernard at (360) 570-2454, BernarM@wsdot.wa.gov. Data is protected by U.S. Code 23 §148 and §409, but can be requested.

What is the current distribution of HSIP funds?

Safety: Federal Highway Safety Improvement Program (HSIP) funding provided to the state is split based upon fatal and serious injury crash data on state and local facilities. The HSIP funds are used to implement engineering countermeasures which reduce fatal and serious injury crashes. WSDOT manages the Local Federal Safety program and provides more than \$24 million annually for improvements on local facilities. WSDOT prioritizes the improvements on state and local facilities based on crash data and benefit-cost analysis. The HSIP is one component of WSDOT's total annual expenditure on safety projects. WSDOT uses additional funds from other federal and state resources each year, averaging over \$15 million since 2013.

Data collection

- MAP-21 requires fatality data from the Washington State Traffic Safety Commission's (WTSC) Fatality Analysis Reporting System (FARS) and serious injury data from WSDOT's system.
- State law enforcement officers record crash events in The Washington State Police Traffic Collision Report. This report is the sole source for all WSDOT serious injury data and most FARS data, with few exceptions.
- MAP-21 requires Vehicle Miles Traveled (VMT) data from WSDOT's Highway Performance Monitoring System. Along with the number of fatalities or serious injuries, VMT is used to calculate the rate of fatalities or serious injuries per 100 million VMT.
- WSDOT's serious injury data and FARS fatality data for the previous calendar year is preliminarily available in about February and April of the following year, respectively. WSDOT's VMT data is available about June of the following calendar year.

Purpose of reporting requirements

In July 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) became law. The primary objectives of MAP-21 are to increase the transparency and accountability of states for their investment of federal taxpayer dollars into transportation infrastructure and services nationwide, and to ensure that states invest money in transportation projects that collectively make progress toward the achievement of national goals. The new rules will require reporting performance on the following areas: Safety; Pavement and Bridge; System Performance, Freight, and Congestion Mitigation and Air Quality.

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