

Safety Performance Management Targets for 2019

The California Department of Transportation (Caltrans), in cooperation with the Office of Traffic Safety (OTS), is required to set five annual Safety Performance Management Targets (SPMTs) for all public roads in the State of California by August 31 of each year. This is pursuant to the Moving Ahead for Progress in the 21st Century Act (MAP-21, P.L. 112-141). The Safety Performance Management 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.

Caltrans set SPMTs for the 2019 calendar year by August 31, 2018. Caltrans and OTS have adopted aspirational goals consistent with the California Strategic Highway Safety Plan (SHSP) as follows:

TABLE 1. PERFORMANCE MEASURE AND TARGET BASED ON 5-YEAR ROLLING AVERAGE

Performance Measure	Data Source	5-Yr. Rolling Average Target for 2019	Percent Reduction for 2019
Number of Fatalities	FARS	3445.4	3%
Rate of Fatalities (per 100M VMT)	FARS & HPMS	0.995	3%
Number of Serious Injuries	SWITRS	12,688.1	1.5%
Rate of Serious Injuries (per 100M VMT)	SWITRS & HPMS	3.661	1.5%
Number of Non-Motorized Fatalities and Non-Motorized Severe Injuries	FARS & SWITRS	3949.8	3% for Fatalities and 1.5% for Serious Injuries

Note: The targets highlighted in gray are set in coordination with OTS.

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in fatalities and serious injuries on all public roads. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads and focuses on performance. The HSIP regulation under 23 CFR 924 establishes the Federal Highway Administration’s (FHWA) HSIP policy, as well as program structure, planning, implementation, evaluation and reporting requirements for States to successfully administer the HSIP. The overarching highway safety plan for the State of California is the Strategic Highway Safety Plan (SHSP). In September 2015, California updated its SHSP, which is “a statewide coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and severe injuries on all public roads” (SHSP, 5). It further states that the “SHSP is a multi-disciplinary effort involving Federal, State, and local representatives from the 4Es of safety [i.e. engineering, education, enforcement, and emergency services]” (SHSP, 2015-2019, 34). In support of a data-driven and strategic approach, the HSIP Final Rule contains major policy changes related to: (1) the HSIP report content and schedule, (2) the Strategic Highway Safety Plan (SHSP) update cycle, and (3) the subset of the model inventory of roadway elements (MIRE), also known as the MIRE fundamental data elements (FDE).

The Safety Performance Measures (PM) Final Rule supports the data-driven performance focus of the HSIP. The Safety PM Final Rule establishes five performance measures to carry out the HSIP: the five-year rolling averages for: (1) Number of Fatalities, (2) Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT), (3) Number of Serious Injuries, (4) Rate of Serious Injuries per 100 million VMT, and (5) Number of Non-motorized Fatalities and Non-motorized Serious Injuries. These safety performance measures are applicable to all public roads regardless of ownership or functional classification. The Safety PM Final Rule also establishes a common national definition for serious injuries.

States must establish statewide targets for each of the safety performance measures. States also have the option to establish any number of urbanized area targets and one non-urbanized area target for any, or all, of the measures. Targets will be established annually, beginning in August 2017 for calendar year 2018 (and so forth). For three performance measures (number of fatalities, rate of fatalities and number of serious injuries), targets must be identical to the targets established for the National Highway Traffic Safety Administration (NHTSA) Highway Safety Grants program that is administered by OTS. The State Departments of Transportation (DOTs) must also coordinate with their Metropolitan Planning Organizations (MPOs) in their States on establishment of targets, to the maximum extent practicable. States will report targets to the FHWA in the HSIP report due in August of each year.

Each MPO will establish targets for the same five safety performance measures for all public roads in the MPO's planning area within 180 days after the State establishes each target. The targets will be established in coordination with the State, to the maximum extent practicable. The MPO can either agree to support the State DOT target or establish a numerical target specific to the MPO planning area. MPOs' targets are reported to the State DOT, which must be able to provide the targets to FHWA, upon request.

A State is considered to have met, or made significant progress toward meeting, its safety targets when at least four of the five targets are met or the outcome for the performance measure is better than the baseline performance the year prior to the target year. Optional urbanized area or non-urbanized area targets will not be evaluated. Each year that FHWA determines a State has not met or made significant progress toward meeting its performance targets, the State will be required to use obligation authority equal to the baseline year HSIP apportionment only for safety projects. States must also develop a HSIP Implementation Plan.

Target Selection Methodology

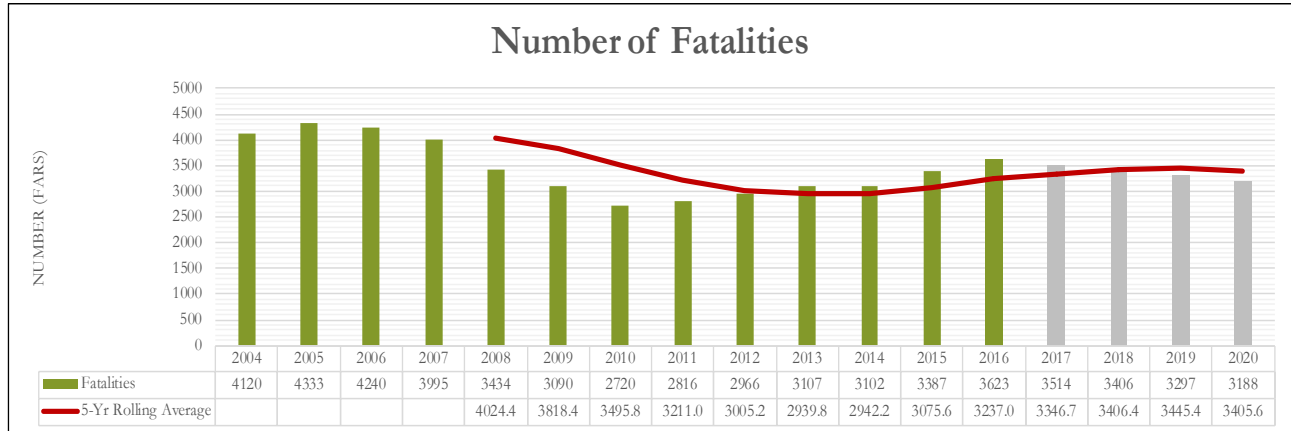
There are three steps to setting safety performance targets, which are: (1) estimating the existing trends to determine where we are now, (2) determining what external factors will impact the target in order to forecast future trends, and (3) estimating targets based on forecasted fatality reductions from safety plans. In line with these steps, on March 13, 2018, a workshop was held in Berkeley, California, to discuss the 2019 Safety Performance Management Targets with the MPOs and other vested stakeholders. During this workshop four possible scenarios for setting the 2019 Targets were presented. They included: (1) a trend line, which extrapolates the existing changes in fatalities and serious Injuries into the future; (2) a flat line scenario, which assumes that there is no change in the future from the current numbers; (3) a match to the Strategic Highway Safety Plan's goal of -3% for fatalities and -1.5% for serious injuries; (4) a target line of reaching zero fatalities by 2030.

After receiving feedback from the MPOs from the March 13, 2018, meeting, the consensus was to select the third scenario, which matches the 2015–2019 Strategic Highway Safety Plan. This match line will help reach zero fatalities by 2050 (with 2016 numbers as the baseline numbers), similar to the goals adopted by several States in the nation of Toward Zero Deaths TZD by 2050. The next update of the SHSP will be in 2020 and the TZD goals in this future safety plan will be incorporated in the 2021 SPMTs. The rationale for selecting safety targets based on a comprehensive statewide safety plan is to set “empirically derived targets based on quantitative modeling of potential strategies. With this approach, targets are based on empirical evidence of the selected interventions’ previous effectiveness combined with best estimates of future effectiveness, using a model linking inputs and outcomes” (Performance Management Practices and Methodologies for Setting Safety Performance Targets, Federal Highway Administration, 2011). Since safety performance targets pertain to all public roads, in a practical sense for this to work, local jurisdictions need to develop individual performance measures based on the particular needs of the locality and also target the appropriate strategies. If regional implementation is adopted, this denotes a bottoms-up approach where targets are rolled up from the State and local jurisdictions based on safety effectiveness, supported by research, and are more realistic and achievable, which in turn helps secure political support (Joint Transportation Research Centre of the Organization for Economic Cooperation and Development and International Transport Forum, *Towards Zero: Ambitious Road Safety Targets and the Safe System Approach*, 2008).

The Number of Fatalities

For 2019, the target for fatalities based on the five-year rolling average is **3445.4** with 3297 fatalities projected for the same year. While referring to Figure 2, the dark green bars reflect the current data that was available in FARS at the time of the target setting process. For the 2019 targets, the last year that data was available in FARS was the 2016 data. The Number of Fatalities 2019 target is set by applying the same 3 percent decrease from year 2016 to year 2017 and then applying this same amount of fatalities (not a percentage that is applied to each subsequent year) to each year thereafter. This is denoted by the gray bars that begin in year 2017. This reflects the 2015–2019 SHSP goal of reducing fatalities three percent per year, which was presented at the March 13, 2018, SPMT Workshop.

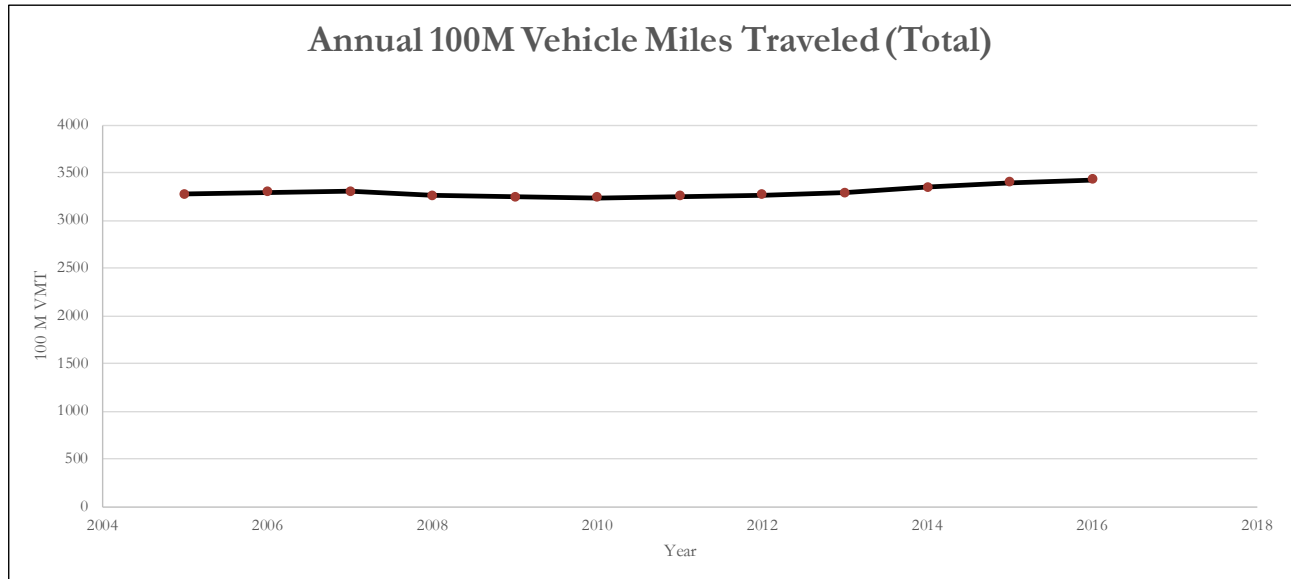
FIGURE 2: THE NUMBER OF FATALITIES



Annual Fatality Rate (per 100M VMT)

Statewide traffic volumes are reported in one hundred million vehicle miles traveled (100M VMT). While referring to Figure 3, traffic volumes have been steadily increasing since 2011. For the purposes of safety performance target setting, a 1 percent increase in VMT is forecasted from year-to-year for the years from 2017 to 2020.

FIGURE 3. ANNUAL STATEWIDE TRAFFIC VOLUMES

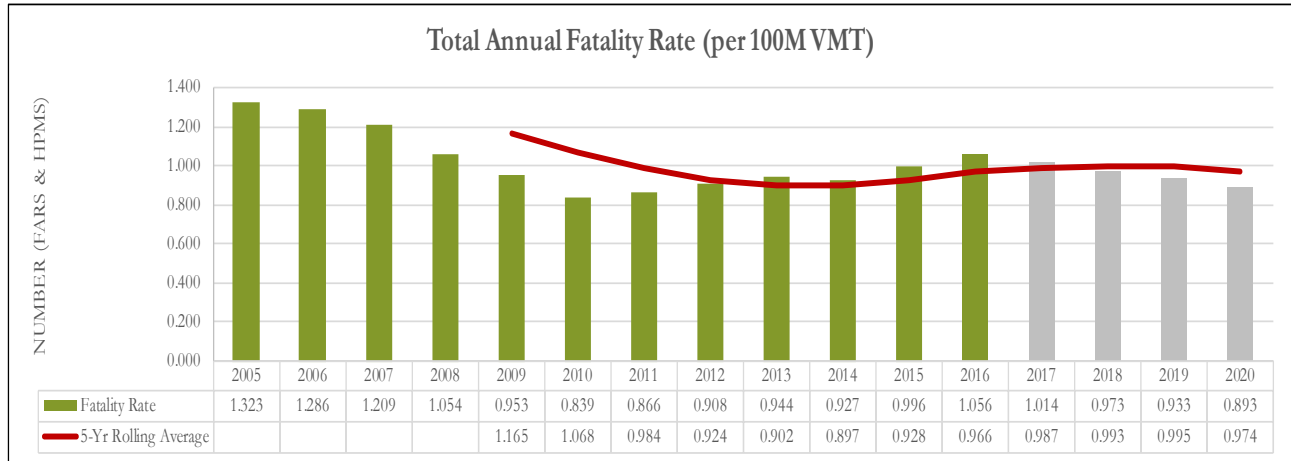


2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
3274.46	3297.75	3304.15	3257.55	3242.75	3242.16	3250.33	3268.23	3291.74	3346.88	3400.71	3429.91

The fatality rate is calculated by dividing the number of fatalities by 100M VMT. The same assumptions are relevant for the calculation of the number of fatalities and they are (refer to Figure 4):

- The bars in dark green denote the current data that is available in FARS (as of June 2018 when the OTS presented their targets to NHTSA);
- The gray bars show a year-to-year decrease of 3% from 2016 to 2019.

FIGURE 4. THE FATALITY RATE



The red line represents the five-year rolling average from annual fatality numbers that reflect the 2015-2019 SHSP goal, which is **0.995** per 100M VMT. The fatality rate for 2019 is 0.933 (or 3297 fatalities / 3533.8383 100M VMT).

The Number of Serious Injuries

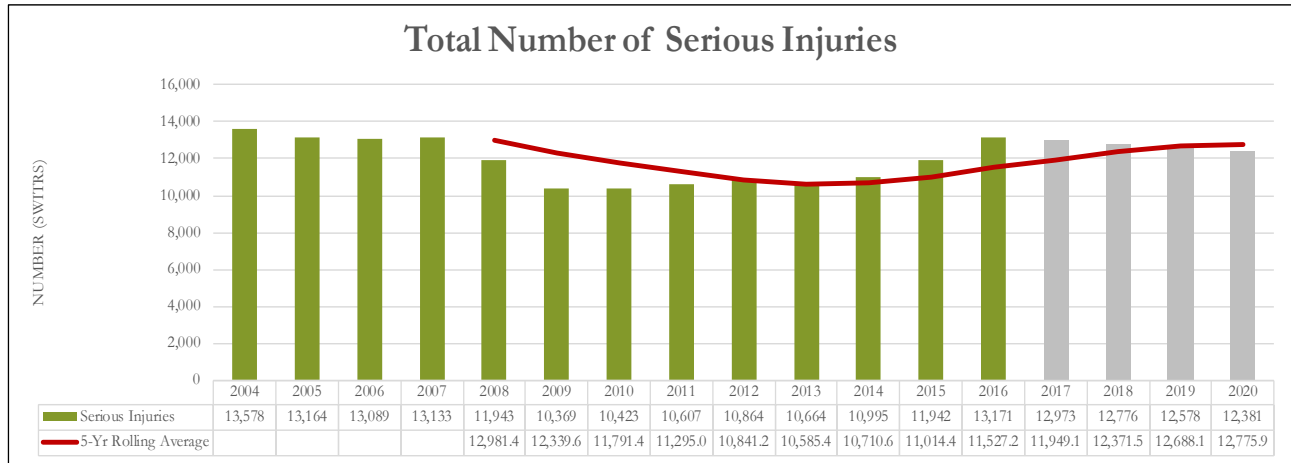
The serious injury data for the State of California resides in the Statewide Integrated Traffic Records System (SWITRS). The definition of serious injury corresponds to “A” in the KABCO Scale and the corresponding value in the SWITRS database is coded as “2”. This is explained in Table 2 (below).

TABLE 2. A COMPARISON BETWEEN KABCO AND SWITRS SERIOUS INJURY DEFINITIONS

KABCO Definition (FHWA)	SWITRS Definition (CHP)
K: Fatal Serious Injury	1: Fatal
A: Serious Injury	2: Injury (Severe)
B: Minor Injury	3: Injury (Other Visible)
C: Possible Injury	4: Injury (Complaint of Pain)
O: Property Damage Only	5: Property Damage Only

Referring to Figure 5 below, the bars in dark green denotes the current data that is available in SWITRS (as of June, 2018). The gray bars show the number of serious injuries when decreased at a rate of 1.5% per year starting in the year 2016, which is consistent with the 2015-2019 SHSP. The target year for serious injury numbers is 12,578. The red line represents a five-year rolling average and for 2019 it is **12,688.1**.

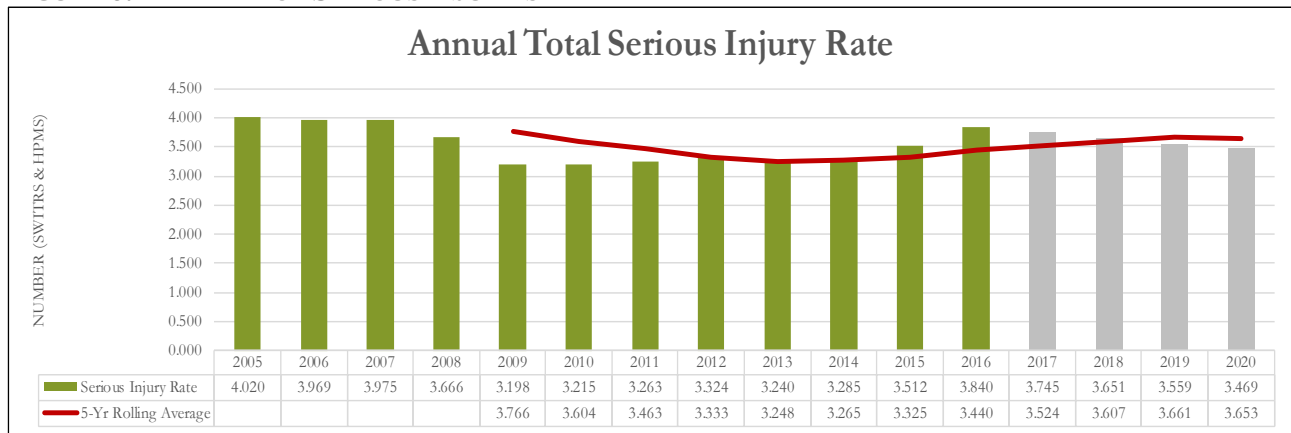
FIGURE 5. THE NUMBER OF SERIOUS INJURIES



The Rate of Serious Injury

The serious injury rate is the number of serious injuries divided by 100M VMT. While referring to Figure 6 (below), the bars in dark green denote the current data that is available in SWITRS and HPMS. The serious injury rate in 2019 is 3.559. The red line represents a five-year rolling average of serious injuries that decreases 1.5 percent per year from 2016. This concept is incorporated in the SHSP. This is a “vision” based or “aspirational” target. The 2019 target for the serious injury rate is **3.661**. The Average Annual Daily Traffic (AADT) volumes are increased 1 percent per year from the 2016 levels for the years from 2017 to 2020 (as is the case in calculating the fatality rate).

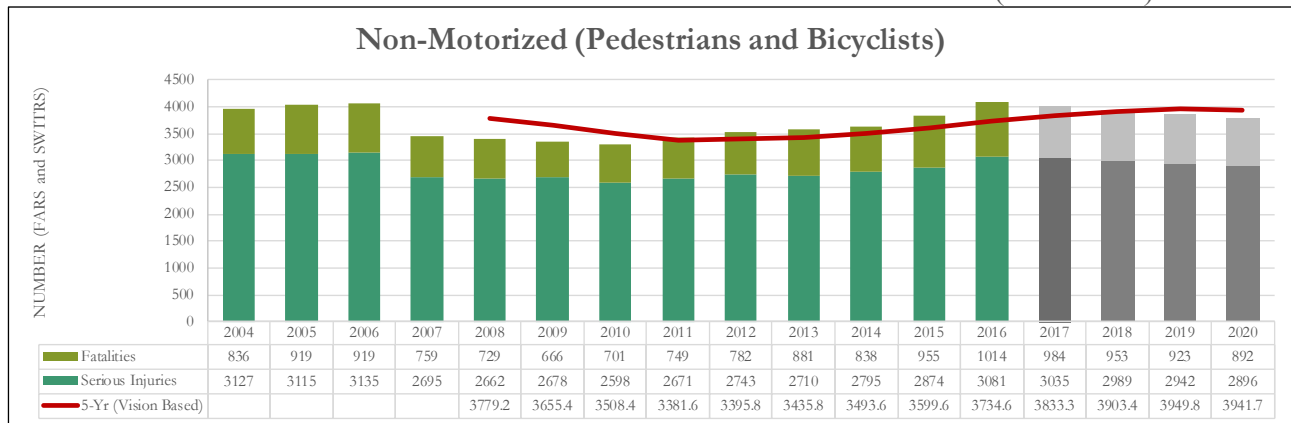
FIGURE 6. THE RATE OF SERIOUS INJURIES



The Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries (Bicycles and Pedestrians)

While referring to Figure 7 (below), the yellow bars show the number of fatalities for pedestrians and bicyclists combined. In 2016, the number of combined pedestrian bicycle fatalities is 1,014 as of June, 2018. The bar chart in green denotes the current data that is available in SWITRS for the number of serious injuries for pedestrians and bicyclists combined. In 2016, the number of combined serious injuries for bicycles and pedestrians is 3,081. The light gray bars depict a 3% decrease in the number of non-motorized fatalities from 2016, which the darker gray bars portray a 1.5% decrease in the number of serious injuries from 2016. The 3% reduction in fatalities and the 1.5% reduction in serious injuries are consistent with the 2015-2019 SHSP. The red line represents the five-year rolling average for non-motorized fatalities and serious injuries, which for the target year of 2019 is **3949.8**.

FIGURE 7. NON-MOTORIZED TARGETS FOR FATALITIES AND SERIOUS INJURIES (COMBINED)



Summary

For a breakdown of the five SPMTs, refer to Table 1. Appendix A also details the outreach efforts done by Caltrans, OTS, and the FHWA to the MPO’s, counties, and local agencies in order to coordinate and communicate the SMPTs. Further information with regards to the webinars listed in Appendix A is accessible at: <http://www.dot.ca.gov/trafficops/shsp/>. Here data is provided from Caltrans, OTS, and the FHWA. For example, traffic volumes from HPMS are broken down by county for 10 years. In addition, the webinars have been recorded and can be accessed from this website.

APPENDIX A: Safety Performance Management Target Setting Outreach Efforts

Background:

Safety Performance Management (Safety PM) is part of the overall Transportation Performance Management (TPM) program, which the Federal Highway Administration (FHWA) defines as a strategic approach that uses system *information* to make investment and policy decision to achieve national performance goals. The Safety PM Final Rule supports the Highway Safety Improvement Program (HSIP), as it establishes safety performance measure requirements for the purpose of carrying out the HSIP and to assess fatalities and serious injuries on all public roads.

The Safety PM Final Rule establishes five performance measures as the five-year rolling averages to include:

1. Number of Fatalities
2. Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
3. Number of Serious Injuries
4. Rate of Serious Injuries per 100 million VMT
5. Number of Non-motorized Fatalities and Non-motorized Serious Injuries

The Safety PM Final Rule also establishes the process for State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to establish and report their safety targets, and the process that the FHWA will use to assess whether State DOTs have met or made significant progress toward meeting their safety targets.

Important Dates/Deadlines:

The overall State targets required by FHWA are due on August 31st, annually, while the MPOs set their targets six months after the State sets its targets. Three of the five safety targets must be coordinated with the Highway Safety Plan administered by the Office of Traffic Safety (OTS), which must submit their targets to NHTSA by June 30th of each year.

Performance Targets must also be included in updates to Long-Range Statewide Transportation Plans (LRSTP), metropolitan transportation plans (MTP), state transportation improvement programs (STIP) and transportation improvement programs (TIP) after May 27, 2018.

Engagement Timeline:

- **December 17, 2017** – A workshop took place at the Caltrans District 7 Office in Los Angeles, California. The purpose of the workshop was to provide an overview of the Safety Performance Management Target process that took place to establish the 2019 targets. The intent was also to solicit feedback for the MPOs and other stakeholders with regards to the outreach efforts to date. Also, there was a discussion concerning the reporting requirements for the MPOs to turn in their targets to the State 180 days after the State submitted its targets to the FHWA.
March 13, 2018 – A workshop was held in Berkeley, California, to discuss the 2019 Safety Performance Management Targets with the MPOs and other vested stakeholders. During this workshop four possible scenarios for setting the 2019 Targets were presented. They included: (1) a trend line, which extrapolates the existing changes in fatalities and serious Injuries into the future; (2) a flat line scenario, which assumes that there is no change in the future from the current numbers; (3) a match to the Strategic Highway Safety Plan’s goal of -3% for fatalities and -1.5% for serious injuries; (4) a target line of reaching zero fatalities by 2030.

After receiving feedback from the MPOs from the March 13, 2018, meeting, the consensus was to select the third scenario, which matches the 2015–2019 Strategic Highway Safety Plan.

- **August 24, 2018** – A final workshop took place by webinar to the MPOs to present the State safety targets with an explanation of the underlying assumptions in establishing the 2019 targets.

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