

SYSTEM PERFORMANCE REPORT

MAP-21 Performance Management Requirements

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) promote the use of an objectives-driven, performance-based approach to planning for operations as an effective way to integrate operations into planning and programming. This approach focuses on short- and long-term system performance rather than simply focusing on implementation of projects as a measure of success.

FHWA defines Transportation Performance Management as a strategic approach using system information to make investment and policy decisions to achieve national performance goals. It is systematically applied and a regular ongoing process; provides key information to help decision makers allowing them to understand the consequences of investment decisions across transportation assets or modes; improves communication between decision makers, stakeholders, and the traveling public; and ensures that performance targets and measures are developed through cooperative partnerships and based on data and objective information.

As a part of Moving Ahead for Progress in the 21st Century (MAP-21), and continued under the Fixing America's Surface Transportation (FAST) Act, states are to invest resources in projects that, collectively, will make progress toward achieving seven national goal areas that include:

- Safety
- Infrastructure Condition
- Congestion Reduction
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability
- Reduced Project Delivery Delay

The performance management requirements are being instituted by the U.S. Department of Transportation (USDOT), by rulemakings. The dates the rules were promulgated in the Federal Register, the dates by which they became effective and the relevant regulatory chapters in the Code of Federal Regulations for each of the key FHWA-established measures are presented in Table 1.

Table 1: Transportation Performance Management Rule Making

TPM-Related Rulemaking	Final Rule Published	Effective Date	Regulatory Chapter
Safety Performance Measures (PM1)	March 15, 2016	April 14, 2016	23 CFR 490 (Subpart B)
Highway Safety Improvement Program (HSIP)	March 15, 2016	April 14, 2016	23 CFR 924
Statewide and Non-Metropolitan Planning; Metropolitan Planning	May 27, 2016	June 27, 2016	23 CFR450

TPM-Related Rulemaking	Final Rule Published	Effective Date	Regulatory Chapter
Highway Asset Management Plans for NHS	October 24, 2016	October 2, 2017	23 CFR 515 & 667
Pavement and Bridge Condition Measures (PM2)	January 18, 2017	May20, 2017	23 CFR 490 (Subpart C & D)
Performance of the NHS, Freight, and CMAQ Measures (PM3)	January 18, 2017	May20, 2017	23 CFR 490 (Subpart E, F, G, H)

Source: FHWA, Office of Transportation Performance Management

MPOs are required to establish targets for safety, bridge and pavement condition, air quality, freight movement, and for performance of the National Highway System and to use the performance measures to track their progress toward meeting those targets.

StanCOG Staff has been involved from the beginning of the Performance Management development process, participating in Caltrans'/FHWA hosted workshops on the Safety Performance Measures PM1, held on November 28, 2016, December 12, 2016, February 8, 2017 and June 22, 2017 and holding its own MPO PM1 workshop with representatives of its 10 local member agencies on December 12, 2017.

Caltrans and FHWA have focused on three measures, 1.) Safety, 2.) Pavement and Bridge Condition, and 3.) NHS, Freight and CMAQ (referred to as PM1, PM2 and PM3, respectively), for initiating the objectives-driven, performance-based approach to planning for operations.

Table 2 presents the schedule established for PM1 through PM3 for the first round of performance target setting.

Table 2: Transportation Performance Management Final Rules

Transportation Performance Management Rules	Final Rule Effective Date	State Targets – First Round	MPO Targets – First Round
Safety Performance Measures (PM1)	4/14/2016	8/31/2017	2/27/2018
Pavement and Bridge Condition Measures (PM2)	5/20/2017	5/20/2018	11/16/2018
Performance of the NHS, Freight, and CMAQ Measures (PM3)	5/20/2017	5/20/2018	11/16/2018

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 Performance Measures 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.

The Federal Highway Administration (FHWA) also published a final rule in the Federal Register (82 FR 5886) with an effective date of May 20, 2017, establishing performance measures for State Departments of Transportation (DOTs) to use in managing pavement and bridge performance on the National Highway System (NHS). The rule, which was published in the Federal Register on January 18, 2017, establishes measures for state departments of transportation to use to carry out the National Highway Performance Program (NHPP) and to assess the condition of pavements on the National Highway System (NHS) (excluding the Interstate System), bridges carrying the NHS (including on- and off-ramps connected to the NHS), and pavements on the Interstate System.

The final rule for the Performance of the NHS, Freight, and CMAQ Measures (PM3), was published the Federal Register (p. 5970 of Volume 82, Part 11) in January 18, 2017 with an effective date of May 20, 2017. The PM3 measures in this final rule are to be employed by State DOTs and MPOs to assess the performance of the Interstate and non-Interstate National Highway System (NHS) for the purpose of carrying out the National Highway Performance Program (NHPP); to assess freight movement on the Interstate System; and to assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program.

23 CFR 490.101 defines a target as "a quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the Federal Highway Administration." The dates by which the State and MPOs are to establish targets for PM1 through PM3 are identified in Table 2.

Safety Performance Management (PM1)

Safety was the first national performance goal area for which states and MPOs were required to set performance. The Safety Performance Measures Final Rule supports the Highway Safety Improvement Program (HSIP) as it establishes safety performance management requirements for the purpose of carrying out the HSIP and assesses fatalities and serious injuries on all public roads.

The Safety Performance Management Final Rule establishes five performance measures:

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 PM1 Final Rule also establishes the process for State Departments of Transportation and Metropolitan Planning Organizations to establish and report their safety targets, and the process that

FHWA will use to assess whether State DOTs have met or made significant progress toward meeting those targets. The Safety PM Final Rule also establishes a common national definition for serious injuries.

The State is required to establish safety targets for each of the five measures identified above, and is required to report updated targets to the Federal Highway Administration (FHWA) by August 31 of each year. MPOs must establish their own targets or elect to support the State's targets within 180 days after the State targets have been reported to FHWA.

The State of California reported their first round of targets to FHWA on August 31, 2017 meeting the MPO deadline to establish their first round of targets by February 27, 2018.

PM1 Targets must also be included in updates to Long-Range Statewide Transportation Plans, Regional Transportation Plans, State Transportation Improvement Programs and Transportation Improvement Programs if the updates are completed or amended after May 27, 2018.

If an MPO elects to support the State's target then they are required to work and coordinate with the State to identify areas of concern and performance measures for all public roads and incorporate the targets into the metropolitan planning process. The MPO must also include a description in their plans of the affect its investments would have on reaching the State's targets.

States are considered to have met or made significant progress toward meeting their safety targets when at least 4 of the 5 targets are met or the outcome for the performance measure is better than the baseline performance the year prior to the target year.

If FHWA determines a State has either 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 for safety projects.

FHWA recently released guidance requiring states to produce a HSIP Implementation Plan if they do not make significant progress in achieving 4 out of the 5 annual safety performance management targets. Caltrans is reviewing the guidance at this time. (If the State does not meet or make significant progress towards meeting its 2018 safety targets, the State must use obligation authority equal to the FY 2017 HSIP apportionment or HSIP projects (in FY 2021) and submit an HSIP Implementation Plan by June 30, 2020)

Caltrans has adopted aspirational goals consistent with the Strategic Highway Safety Plan (SHSP) and Caltrans' Strategic Management Plan (SMP) to move California closer to zero deaths. The State's targets are presented in Table 3.

Table 3: First Round of State Targets Set on August 31, 2017*

Safety Performance Measures	Targets	Target Setting Method
Number of Fatalities	3,590.8	Toward Zero Death (TZD)-Aspirational goal based on a year to year decrease of 7.69% from 2017 onward
Rate of Fatalities per 100 Million Vehicle Miles Traveled (VMT)	1.029	Toward Zero Death (TZD)-Aspirational goal based on a year to year decrease of 7.69% from 2017 onward
Number of Serious Injuries	12,823.4	Target that decreases 1.5% per year starting in 2017
Rate of Serious Injuries per 100 Million VMT	3.831	Target that decreases 1.5% per year starting in 2017
Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries (Bicycles and Pedestrians)	4,271.1	Target that decreases 10% per year, from 2017 onward for both fatalities and serious injuries

*Based on a 5-Year Rolling Average - the unweighted mean of the previous 5 consecutive values.

FHWA will assess whether State DOTs have met or made significant progress toward meeting those targets and will make a determination in December of 2019. Findings will be reported in March of 2020, and MPO performance with regard to target achievement will be reviewed as a part of the ongoing FHWA planning certification reviews.

Schedule

State targets required by FHWA are due annually to FHWA on August 31st. The MPOs set their targets six months after the State submits their targets to FHWA. 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 the National Highway Transportation Safety Administration (NHTSA) by June 30th of each year.

Performance Targets must also be included in updates to Long-Range Statewide Transportation Plans (LRSTP), Metropolitan/Regional Transportation Plans (MTPs/RTPs), State Transportation Improvement Programs (STIP) and Transportation Improvement Programs (TIP) after May 27, 2018.

Table 4: Safety Performance Management (PM1) Schedule/Next Steps

Pavement and Bridge (PM2) Schedule				
Date	Action	MPO	State	FHWA
5/27/2018	PM1 Metropolitan Planning Agreements must be executed by this date and PM1 Targets must be included in LRSTPs, MTPs, STIPs and TIPs thereafter. MTPs adopted before this date do not have to include any of the PMs until their next scheduled update. However, FTIP amendments and the new FSTIP cycle will need to include information for PM1.	●	●	
7/1/2018	The OTS sets Statewide PM1 Targets for three of the five Targets (Number of Fatalities, Number of Serious Injuries and Rate of Fatalities) with NHTSA.		●	
8/31/2018	Caltrans sets Calendar Year 2019 Statewide PM1 Targets with FHWA in HSIP.		●	
9/30/2018	Caltrans will provide a whitepaper documenting target-setting coordination with MPOs and explaining the analytical methodology used to calculate statewide PM 1 safety targets.		●	
2/27/2019	MPOs must document with Caltrans whether they: 1) agree to plan and program projects so that they contribute toward the accomplishment of Caltrans 2019 PM1 target for that performance measure; or 2) commit to a quantifiable 2019 PM1 target for that performance measure for their metropolitan planning area. (Note: Caltrans will provide MPOs an MPO Target Reporting Template).	●	●	
4/15/2019	Serious injuries must be determined using the Model Minimum Uniform Crash Criteria (MMUCC) 4th Edition definition for "Suspected Serious Injuries (A)". The FHWA recommends using this definition beginning January 1, 2019, to ensure a consistent data set for the calendar year.		●	
7/1/2019	OTS sets Statewide PM1 Targets for 3 of the 5 Targets (Number of Fatalities, Number of Serious Injuries and Rate of Fatalities) with NHTSA.		●	
8/31/2019	Caltrans sets Calendar Year 2020 Statewide PM1 Targets with FHWA in HSIP.		●	●
9/30/2019	Caltrans will provide a whitepaper documenting target-setting coordination with MPOs and explaining the analytical methodology Caltrans used to calculate statewide Performance Management 1 safety targets.		●	

Pavement and Bridge (PM2) Schedule				
Date	Action	MPO	State	FHWA
2/27/2020	MPOs must document with Caltrans whether they: 1) agree to plan and program projects so that they contribute toward the accomplishment of Caltrans 2020 PM1 target for that performance measure; or 2) commit to a quantifiable 2020 PM1 target for that performance measure for their metropolitan planning area. (Note: Caltrans will provide MPOs an MPO Target Reporting Template).	●		
Expected by March 2020 and annually thereafter	FHWA notifies State DOTs whether they met or made significant progress toward meeting safety performance targets (for 2018 initially, and then for the following year thereafter).			●

Regional Support for State’s 2018 Safety Performance Targets

On December 12, 2017, StanCOG staff held a Planning and Programming Working Group (PPWG) workshop to present the new requirements and state and county level safety data to solicit input from our local member agencies regarding the two MPO target setting options: to support the State’s 2018 Safety Performance Targets or to establish MPO Specific Targets.

On January 17, 2018, the StanCOG Policy Board unanimously voted to support the California Department of Transportation 2018 Safety Performance Targets presented in Table 3. StanCOG will reassess whether to support the State targets or to set MPO targets as the yearly target setting process matures.

Next Steps

PM1 Metropolitan Planning Agreements are required to be executed by May 27, 2018, and PM Targets must be included in the RTPs and FTIPs thereafter. RTPs adopted before this date will not have to include the performance measures in their plans until their next scheduled update.

The MPOs must also include a description in their plans of the affect its investments would have on reaching the state’s targets.

Pavement and Bridge Performance Measures (PM2)

The Federal Highway Administration (FHWA) published in the Federal Register (82 FR 5886) a final rule, which became effective as of May 20, 2017, establishing performance measures for State Departments of Transportation (DOTs) to use in managing pavement and bridge performance on the National Highway System (NHS).

The State Department of Transportation must establish targets, regardless of ownership, for the full extent of the Interstate and non-Interstate NHS. Statewide 2- and 4-year targets for the non-Interstate NHS and 4-year targets for the Interstate NHS by May 20, 2018, and a report by October 1, 2018 must be completed by the State. Targets may be adjusted at the Mid Performance Period Progress Report (October 1, 2020). State DOT targets should be determined from asset management analyses and

procedures and reflect investment strategies that work toward achieving a state of good repair over the life cycle of assets at minimum practicable cost. State DOTs may establish additional measures and targets that reflect asset management objectives. The rule applies to bridges carrying the NHS, including on- and off-ramps connected to the NHS. If for 3 consecutive years more than 10.0% of a State DOT's NHS bridges' total deck area is classified as Structurally Deficient, the State DOT must obligate and set aside National Highway Performance Program (NHPP) funds for eligible projects on bridges on the NHS. Deck area of all border bridges counts toward both State DOTs' totals.

The Final Rule establishes the Pavement Performance Measures as follows.

1. % of Interstate pavements in Good condition
2. % of Interstate pavements in Poor condition
3. % of non-Interstate NHS pavements in Good condition
4. % of non-Interstate NHS pavements in Poor condition

Table 1 presents the pavement condition criteria for rating a pavement as good, fair or poor, based on four metrics: International Roughness Index (IRI), Cracking, Rutting and Faulting. If all metrics receive a rating of good then the pavement condition is considered to be good. If two or more metrics are determined to be poor, then the pavement is considered to be in poor condition. **Table 1: Pavement Condition Criteria**

Parameter	Good	Fair	Poor
IRI ¹ (in/mi)	<95	95-170	>170
Cracking (%)	<5	5-10 (CRCP ²) 5-15 (JPCP ³) 5-20 (AP ⁴)	>10 (CRCP ¹) >15 (JPCP ²) >20 (AP ³)
Rutting ⁴ (in)	<0.2	0.2-0.4	>0.4
Faulting (in)	<0.10	0.10-0.15	>0.15

¹ International Roughness Index ² Continuously reinforced concrete pavement ³ Jointed plain concrete pavement ⁴ Asphalt pavement ⁵ Rutting is applicable to asphalt pavement only. ⁶ Faulting is applicable to jointed plain concrete pavement only.

The Final Rule also establishes the Bridge Performance Measures as:

1. % of NHS bridges by deck area classified as in Good condition
2. % of NHS bridges by deck area classified as in Poor condition

Table 2: National Bridget Inventory (NBI) Condition Rating and Associated Asset Classification

Asset Classification	Lowest NBI Condition Rating
Good	9
	8
	7
Fair	6
	5
Poor	4
	3
	2
	1
	0

State DOTs must establish targets for all bridges carrying the NHS, including on- and off-ramps connected to the NHS and bridges carrying the NHS that cross a State border, regardless of ownership. State DOTs are to set Statewide 2- and 4- year targets by May 20, 2018 and report targets to FHWA by October 1, 2018 in a Baseline Performance Period Report.

Metropolitan Planning Organizations have the option to either support the relevant State DOT 4- year targets or establish their own targets for pavement and bridges within 180 days after the State DOT targets are established.

If FHWA determines the State DOT’s Interstate pavement condition falls below the minimum level for the most recent year, the State DOT must obligate a portion of National Highway Performance Program (NHPP) and transfer a portion of Surface Transportation Program (STP) funds to address Interstate pavement condition. If for 3 consecutive years more than 10.0% of a State DOT’s NHS bridges’ total deck area is classified as Structurally Deficient, the State DOT must obligate and set aside National Highway Performance Program (NHPP) funds for eligible projects on bridges on the NHS.

The deadline for MPOs to document with Caltrans whether they: 1) agree to plan and program projects so that they contribute toward the accomplishment of Caltrans PM2 target for that performance measure; or 2) Commit to a quantifiable PM2 target for that performance measure for their metropolitan planning area is November 16, 2018.

Performance Targets must also be included in updates to Long-Range Statewide Transportation Plans (LRSTP), Metropolitan/Regional Transportation Plans (MTPs/RTPs), State Transportation Improvement Programs (STIP) and Transportation Improvement Programs (TIP) after May 20, 2019.

PM1 Metropolitan Planning Agreements are required to be executed by May 20, 2018, and PM Targets must be included in the RTPs and FTIPs thereafter.

Table 3: Pavement and Bridget Performance Management (PM2) Schedule/Next Steps

Pavement and Bridge (PM2) Schedule			
Date	Action	MPO	State
5/20/2018	Caltrans will set 2-year and 4-year PM2 Targets. MPOs have up to 180 days to set their targets from this date.		●
6/30/ 2018	Caltrans will provide a whitepaper for PM2, documenting target-setting coordination with MPOs and explaining the analytical methodology Caltrans used to calculate statewide targets.		●
10/1/2018	State DOTs must submit first Baseline Performance Period Report to FHWA.		●
11/16/2018	Deadline for MPOs to document with Caltrans whether they: 1) agree to plan and program projects so that they contribute toward the accomplishment of Caltrans PM2 target for that performance measure; or 2) Commit to a quantifiable PM2 target for that performance measure for their metropolitan planning area. (Note: Caltrans will provide MPOs an MPO Target Reporting Template).	●	●
5/20/2019	Metropolitan Planning Agreements must be executed by this date and PM Targets must be included in LRSTP, MTP, STIP and TIP thereafter. RTPs adopted before this date, do not have to include PM2 until their next scheduled revision; FTIP and new FTIPs need to include the PM information.	●	●
6/30/2019	Caltrans shall submit a State-approved Asset Management Plan meeting all the requirements of 23 USC 119 and this part, including paragraph (c) of this section..." [23 CFR 515.11].		●

Next Steps

StanCOG has solicited input from local member agencies to assess current conditions on the locally owned NHS pavement and bridges and to provide a preliminary estimate of possible future conditions. The information will be used by the State for the development of statewide targets.

System Performance (PM3)

A final rule, published in the Federal Register (82 FR 5970) on January 18, 2017, establishes performance measures that State Departments of Transportation (DOTs) and metropolitan planning organizations (MPOs) will use to report on the performance of the Interstate and non-Interstate National Highway System (NHS) to carry out the National Highway Performance Program (NHPP); freight movement on the Interstate system to carry out the National Highway Freight Program (NHFP); and traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program.

The final rule, effective as of May 20, 2017, establishes six performance measures:

1. Percent of reliable person-miles traveled on the Interstate
2. Percent of reliable person-miles traveled on the non-Interstate NHS
3. Percentage of Interstate system mileage providing for reliable truck travel time - Truck Travel Time Reliability Index
4. Total emissions reductions by applicable pollutants under the CMAQ program
5. Annual hours of peak hour excessive delay per capita
6. Percent of non-single occupancy vehicle travel which includes travel avoided by telecommuting.

While the published rule includes a GHG measure, the effective date of the portion of the Final Rule pertaining to that measure has been delayed.

State DOTs must establish targets for PM3 by May 20, 2018, and report targets to FHWA by October 1, 2018 in the Baseline Performance Period Report.

Metropolitan Planning Organizations have an option to either support the relevant State DOT targets or establish their own targets within 180 days of the State establishing their targets. StanCOG has participated in numerous workshops, technical advisory group meetings and webinars hosted by Caltrans since late 2017.

Caltrans is scheduled to set 2-year and 4-year PM3 targets by May 20, 2018 a Baseline Performance Period Report to FHWA by June 30, 2018.





By November 16, 2018, MPOs are to document with Caltrans whether they: 1) agree to plan and program projects so that they contribute toward the accomplishment of Caltrans PM3 target for that performance measure; or 2) Commit to a quantifiable PM3 target for their metropolitan planning area.

Performance Targets must be included in updates to Long-Range Statewide Transportation Plans (LRSTPs), Metropolitan/Regional Transportation Plans (MTPs/RTPs), State Transportation Improvement Programs (STIPs) and Transportation Improvement Programs (TIPs) after May 20, 2019.

Metropolitan Planning Agreements must be executed by May 20, 2019.

Table 1: System Performance (PM3) Schedule/Next Steps

System Performance (PM3) Schedule			
Date	Action	MPO	State
5/20/2018	Caltrans will set 2-year and 4-year PM3 Targets. MPOs have up to 180 days to set their targets from this date.		●
6/30/ 2018	Caltrans will provide a whitepaper for PM3, documenting target-setting coordination with MPOs and explaining the analytical methodology Caltrans used to calculate statewide targets.		●
10/1/2018	Caltrans must submit first Baseline Performance Period Report to FHWA.		●

System Performance (PM3) Schedule			
Date	Action	MPO	State
11/16/2018	MPOs to document with Caltrans whether they: 1) agree to plan and program projects so that they contribute toward the accomplishment of Caltrans PM3 target for that performance measure; or 2) Commit to a quantifiable PM3 target for that performance measure for their metropolitan planning area. (Note: Caltrans will provide MPOs an MPO Target Reporting Template).		
5/20/2019	Metropolitan Planning Agreements must be executed by this date and PM Targets must be included in LRSTP, MTP, STIP and TIP thereafter. RTPs adopted before this date, do not have to include PM3 until their next scheduled revision; FTIP and new FTIPs need to include the PM information.		

Next Steps

Caltrans is currently working to integrate National Performance Management Research Dataset (NPMRDS) and the Performance Measurement System (PeMS) data to develop a PM3 target setting tool.

StanCOG will continue to coordinate with Caltrans to support the State ensure that it meets its November 16, 2018 for either supporting the State targets or setting its own targets.