Appendix D

Federal System Performance Report

Appendix Contents

Federal System Performance Report

Transportation Performance Management

Introduction

Signed into law in 2012, the federal surface transportation bill Moving Ahead for Progress in the 21st Century Act (MAP-21) included provisions for establishing performance- and outcome-based planning and programming. This includes national performance goals for the Federal-Aid Highway Program in seven areas: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays (23 U.S.C §150[b]). This act significantly advanced the application of performance-based planning and programming in the field of transportation. It established a system to further inform transportation planning and programming with the unified application of observed data, performance measures, and performance targets in the areas of safety, asset condition, and system performance.

The subsequent federal surface transportation bill, Fixing America's Surface Transportation (FAST) Act continued these performance provisions. Starting in 2016, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued a series of Final Rules to implement the performance provisions of MAP-21 and FAST Act. These rules establish the protocols, including the timelines, processes, data, and reporting requirements for performance compliance.

The rules were designed to be applicable nationwide and to provide meaningful information at both regional and national levels. FHWA released three rules that are commonly referred to as: PM 1, for safety; PM 2, for infrastructure condition; and PM 3, for system performance, freight movement, and Congestion Mitigation and Air Quality (CMAQ) (23 CFR Part 490). FTA released a transit asset management (TAM) rule establishing procedures to help maintain key transit assets in a state of good repair and a transit safety performance rule.

The Metropolitan Transportation Planning rule (23 CFR Parts 450 and 771 and 49 CFR Part 613), jointly released by FHWA and FTA, guides how performance is integrated into planning and programming processes and documents. This rule states that:

- The regional transportation planning process "shall provide for the establishment and use of a performance-based approach to transportation decision making to support the national goals described in 23 U.S.C. § 150(b) and the general purposes described in 49 U.S.C. § 5301(c)." (23 CFR 450.306)
- The Regional Transportation Plan "shall, at a minimum, include: … (4) A system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets described in § 450.306(d)…" (23 CFR 450.324)

In support of these rules, SANDAG has developed this Federal System Performance Report to document the performance-based process and evaluation of the transportation system. In addition, SANDAG has entered into data-sharing and target-setting coordination agreements with Caltrans, the San Diego Metropolitan Transit System (MTS), and the North County Transit District (NCTD). In March 2018, SANDAG and Caltrans signed an addendum to the Memorandum of Understanding (MOU) on Planning and Programming to meet the performance-based planning and programming requirements established in the FAST Act. In April 2018, SANDAG and Caltrans entered into a data-concurrence agreement to enable the use of mutually agreed-upon datasets for target setting purposes. In May 2018, SANDAG, MTS, and NCTD signed an addendum to the master MOU adding coordination efforts on data collection and data sharing to support transit asset management regional targets.

Structure and Implementation Timeframe

The performance management process sets future performance targets using analyses of historical observed data and future projections as applicable. Targets are established using defined performance measures and data sources. Performance is monitored over time and evaluated against the established performance targets. State Departments of Transportation (DOTs) set statewide performance targets for PM 1, PM 2, and PM 3.[1] Metropolitan Planning Organizations (MPOs) have 180 days after the State DOT target adoption date to either support the statewide targets or develop regional targets. Similarly, transit operators set TAM targets and MPOs have 180 days to set regional TAM targets.

The federal performance-management areas are being phased in over a series of years and they have different implementation timeframes. This process began with PM 1 and was followed by PM 2, PM 3, and TAM. Transit safety is still in the implementation phase and it will be integrated into future regional transportation plans. The staggered phasing of performance areas means that not all performance measures or performance-management areas have the same update schedule. Below is a summary of the key timeframe differences.

PM 1, Safety performance management – Performance targets are set and evaluated annually. The required data sources for these measures[2] require significant development time, and safety data is often not available until about two years after its collection. PM 1 performance targets were first established in 2017 for calendar year 2018. Calendar year 2019 targets were set the following year, and 2020 targets are currently being developed. Observed data for safety performance measures has not been released for the years with adopted targets due to time requirements for data development. The Fatality Analysis Reporting System (FARS), maintained by the National Highway Traffic Safety Administration (NHTSA), has a two-year process time for the data to become final. The Statewide Integrated Traffic Records System (SWITRS), maintained by California Highway Patrol, has a one-year process time for the data to become final.

PM 2, Infrastructure condition performance management – Consists of four-year performance periods. In 2018, targets were set for the four-year performance period (2022) and mid-performance period (2020). At the mid-performance date, the State DOTs and MPOs can choose to modify their 2022 or full performance period targets. Data for evaluating the mid-performance period will be available in 2020. Upon completion of the 2018–2022 performance period, a new four-year performance period will begin (2022–2026).

PM 3, System performance, freight, and Congestion Mitigation and Air Quality (CMAQ) – This performance-management area includes multiple schedules to cover the six performance measures. System performance and freight performance follow the same four-year performance period as PM 2. Data for evaluating the mid-performance period will be available in 2020. The CMAQ performance measures are further broken down into emission-reduction measures and all other measures. Emission-reduction measures follow a four-year performance period matching the federal fiscal year (October to September) instead of the calendar year. All other PM 3 performance measures follow the four-year performance period aligned to the calendar year.[3] Data for evaluating the mid-performance period will be available in 2020.

Transit Asset Management (TAM) performance targets – Set annually by transit operators. In the San Diego region, this includes MTS and NCTD. MPOs are required to develop regional TAM targets incorporating transit operator targets. Targets cover four asset categories: equipment, facilities, infrastructure, and rolling stock. Each asset category consists of multiple asset types (see Table D.12). All asset types are evaluated for the proportion that is beyond its useful life or in need of repair/replacement.

Federal System Performance Report Structure

The four federal performance management areas—PM 1, PM 2, PM 3, and TAM—are included below. Each of the four areas begin with a description of the target-setting process and the specific performance targets themselves. This is followed by a review of the consultation process with regional partners. Next is a summary of the measures and methodology included in the performance management area. The following section details how the 2019 Federal Regional Transportation Plan (2019 Federal RTP) and 2018 Regional Transportation Improvement Program (2018 RTIP) support the performance targets. The final section for each of the performance management areas addresses the current conditions and progress-to-target effort with available data.

PM 1: Transportation Safety

Target-Setting Process

For the PM 1 target-setting process, Caltrans, in consultation with California MPOs and the Office of Transportation Safety, establishes statewide safety targets. The statewide safety target-setting process is informed by safety plans including the Caltrans State Highway Safety Plan (SHSP) and Office of Traffic Safety Highway Safety Plan (HSP). Once Caltrans has established statewide targets, SANDAG has 180 days to take action to support the statewide targets or develop and support regional targets. PM 1 requires annually updated targets.

On January 26, 2018, the SANDAG Board of Directors approved supporting the 2018 statewide safety targets. On January 25, 2019, the Board approved support of the 2019 statewide safety targets established by Caltrans and continued SANDAG efforts to plan and program projects that will help reach the statewide safety targets. Both the 2018 and 2019 statewide safety targets for the PM 1 performance measures are shown in Table D.1. The Caltrans statewide safety targets for 2020 established on August 31, 2019, are also shown in Table D.1. SANDAG has until February 27, 2020, to either support the 2020 statewide targets or establish regional targets.

Table D.1

Statewide Performance Management 1 Safety Targets

Performance Measure	2018 Statewide PM 1 Safety Target	2019 Statewide PM 1 Safety Target	2020 Statewide PM 1 Safety Target*
Number of Fatalities	3,590.8	3,445.4	3,518.0
Rate of Fatalities per 100 Million Vehicle Miles Traveled (VMT)	1.029	0.995	1.023
Number of Serious Injuries	12,823.4	12,688.1	13,740.4
Rate of Serious Injuries per 100 Million VMT	3.831	3.661	3.994
Number of Nonmotorized Fatalities and Serious Injuries	4,271.1	3,929.8	4,147.4

Source: Caltrans, 2017, 2018, 2019

* SANDAG has until February 27, 2020 to adopt the statewide targets or develop regional targets.

Interagency Coordination

SANDAG coordinates and collaborates on safety-related concerns and projects with local jurisdictions, Caltrans, public transit providers, public safety agencies, and the public through a number of working groups and committees. The following committees and working groups were involved in the development of the 2018 and 2019[4] safety target-setting process:

Public Safety Committee – Composed of both elected officials and public safety representatives, the goals of the Public Safety Committee include improving the quality of life in the region by promoting public safety and justice through collaboration, information sharing, effective technology, and objective monitoring and assessment.

Transportation Committee – Composed of elected officials and partner agencies, the Transportation Committee provides oversight for the preparation and implementation of transportation planning and programming. It provides oversight for the major highway, transit, regional arterial, and regional bikeway projects funded in the RTIP, including the *TransNet* Program of Projects.

Active Transportation Working Group – This group provides input on regional active transportation policy, planning, and implementation activities. The Active Transportation Working Group makes recommendations and fosters cooperation among the jurisdictions, agencies, and stakeholders within the San Diego region to plan for and support the development of local and regional improvements for active transportation modes (bicycling and walking). This includes Safe Routes to Transit, Safe Routes to School, facility development, operation and maintenance, education, encouragement, and evaluation.

Cities/County Transportation Advisory Committee – Comprised of local jurisdiction public works directors, the Cities/County Transportation Advisory Committee reviews and advises on the development and maintenance of the regional road system. The Cities/County Transportation Advisory Committee prioritizes project funding requests and makes recommendations to the Transportation Committee.

Interagency Technical Working Group on Tribal Transportation Issues – This group serves as a forum for regional tribal governments to discuss and coordinate transportation issues of mutual concern with the various public planning agencies in the region, including SANDAG, Caltrans, the County of San Diego, and the transit operators.

Regional Planning Technical Working Group – This group provides advice to the Regional Planning Committee and the SANDAG Board of Directors on the development and implementation of regional planning activities. The Regional Planning Technical Working Group consists of the planning or community development director from each member agency and representatives from other single-purpose regional agencies. The working group also provides coordination on regional growth management issues among member agencies.

San Diego Regional Traffic Engineers' Council – This group serves as the agency's technical advisory committee on regional traffic engineering matters. Membership consists of a traffic engineering representative from each of the region's cities, the County of San Diego, and Caltrans.

SANDAG also provides guidance and funding to local jurisdictions to improve safety for all roadway users, including a Regional Complete Streets Policy and funding through the Smart Growth Incentive Program and Active Transportation Grant Programs.

Measures and Methodology

The performance measures included in PM 1 are applicable to all public roads, regardless of ownership or maintenance responsibility. Table D.2 provides an overview of the calculations and data sources for each performance measure included in PM 1.

Table D.2
PM 1 Performance Measure Methodology

Performance Measure	Calculation	Data Source
1. Number of Fatalities	Five-year rolling average	• Fatality Analysis Reporting System (FARS)
2. Rate of Fatalities per 100 Million VMT	Five-year rolling average of annual fatality rate	• FARS • Highway Performance Monitoring System (HPMS)
3. Number of Serious Injuries	Five-year rolling average	• Statewide Integrated Traffic Records System (SWITRS)
4. Rate of Serious Injuries per 100 Million VMT	Five-year rolling average of annual serious injury rate	• SWITRS • HPMS
5. Number of Non-motorized Fatalities and Non-motorized Serious Injuries	Five-year rolling average of the annual sum of non-motorized fatalities and non-motorized serious injuries	• FARS • SWITRS

Source: 23 CFR 490

2019 Federal RTP and 2018 RTIP Investments

The 2019 Federal RTP includes as a policy objective the provision of safe and secure travel choices. This policy is supported by the 2019 Federal RTP's Active Transportation Implementation Strategy and Urban Area Transit Study, which include safety strategies for active transportation. The 2019 Federal RTP includes more than $6 billion in active transportation investments and more than $700 million in rail grade separations. The region is a vested partner in safety funding. *TransNet*, the region's half-cent sales tax, includes $280 million for bike paths and facilities, pedestrian improvements, neighborhood safety projects, and the Regional Bike Plan Early Action Program.

The 2019 Federal RTP also integrates safety into project evaluation criteria that are used to help prioritize projects for inclusion in the revenue constrained network[5], (Appendix M) and in the network performance measures[6] (Appendix N) that are modeled to evaluate the network performance. Inclusion of projects that are anticipated to improve safety helps the region support PM 1 targets.

For development of the 2018 RTIP, additional fields were added to the RTIP database (ProjectTrak) to allow project sponsors to provide project information related to investments in safety. The 2018 RTIP includes about 300 safety-related projects. These projects were identified by the project sponsors and include more than $1 billion in investments for the five-year RTIP program (FY 2019 – FY 2023). Just under half of these projects are considered categorical safety projects under the conformity rule, with safety improvements being the main project goal. These safety category projects account for approximately 55 percent of the programmed safety dollars. The remaining projects include a variety of project categories and include projects where only a portion of the overall investment includes safety-related elements such as the addition of bike lanes as part of a roadway-widening project. Table D.3 summarizes the 2018 RTIP safety investments by project category.

Table D.3

2018 RTIP Safety Program Summary by Project Category

Project Category	Safety Programming ($000)
Safety-Focused Projects[1]	$822,738
Intersection and Interchange Projects[2]	$28,104
Studies, Landscaping, and Enhancement Projects[3]	$43,671
Additional Safety Improvements Included in other projects[4]	$282,937
Public Transit[5]	$91,005
Bicycle and Pedestrian Improvements[6]	$230,469
Total	$1,498,924

Source: ProjectTrak, July 2019

Notes:
1. Examples of projects in this category include Safety Improvement Program projects, railroad/highway crossings, pavement resurfacing and/or rehabilitation, non-signalization traffic control, lighting improvements, increasing sight distance, hazard-elimination program, guardrails, median barriers, crash cushions, and adding medians.
2. Projects in this category include traffic signal synchronization projects, intersection signalization, interchange channelization, and interchange reconfiguration.
3. Some examples of projects contained within this category include engineering studies, landscaping, and transportation-enhancement projects.
4. This category includes safety elements that are part of a larger project.
5. This category includes safety elements related to public transit.
6. This category includes bicycle and pedestrian projects.

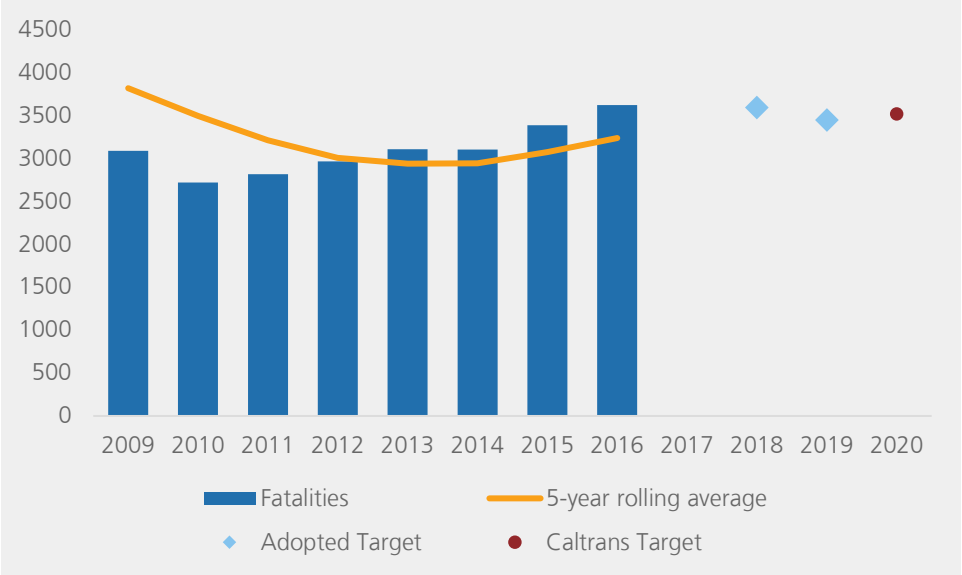
Target Achievement and Future Target Setting

The SANDAG Board of Directors approved supporting the 2018 and 2019 statewide safety targets established by Caltrans. Once safety data is available for 2018 and 2019, the FHWA will determine if California has made significant progress toward meeting the established safety targets. SANDAG will continue to collaborate with Caltrans, FHWA, and other California MPOs on future safety targets and regional partners to help achieve adopted safety targets.

Figures D.1–D.5 show statewide traffic safety data for the five required performance measures under PM 1. The charts show available observed data and adopted targets. Observed data is not yet available to evaluate the state's progress toward achieving the performance targets.

Figure D.1

Statewide Fatalities

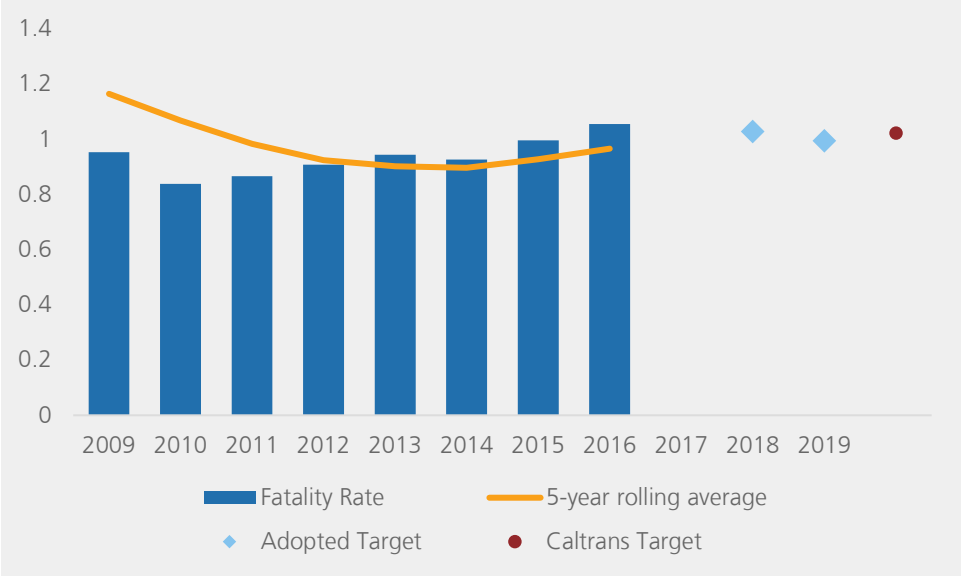


Source: Caltrans, 2017, 2018, and 2019

* SANDAG has until February 27, 2020, to adopt the 2020 Caltrans statewide targets or develop regional targets.

Figure D.2

Statewide Fatality Rates

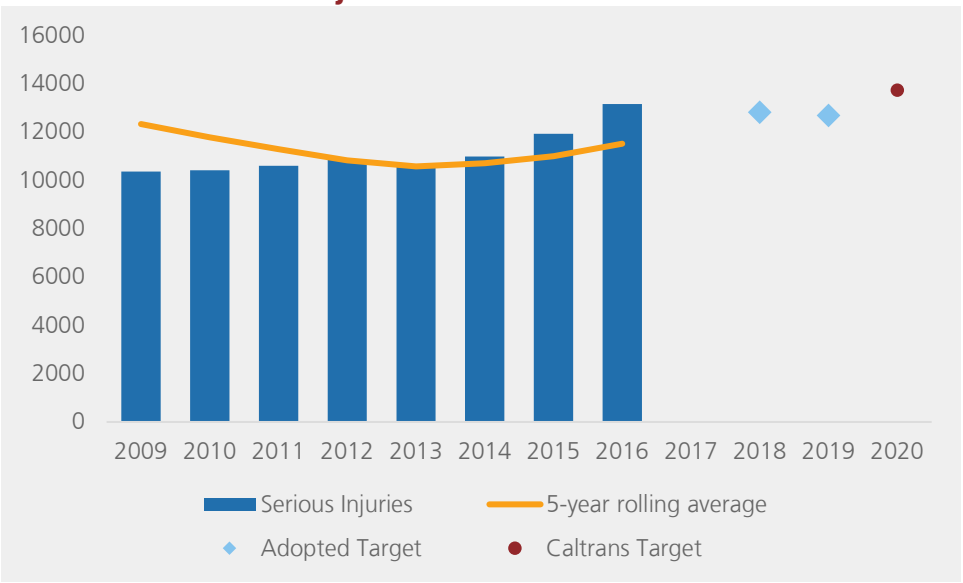


Source: Caltrans, 2017, 2018, and 2019

* SANDAG has until February 2020 to adopt the 2020 Caltrans statewide targets or develop regional targets.

Figure D.3

Statewide Serious Injuries

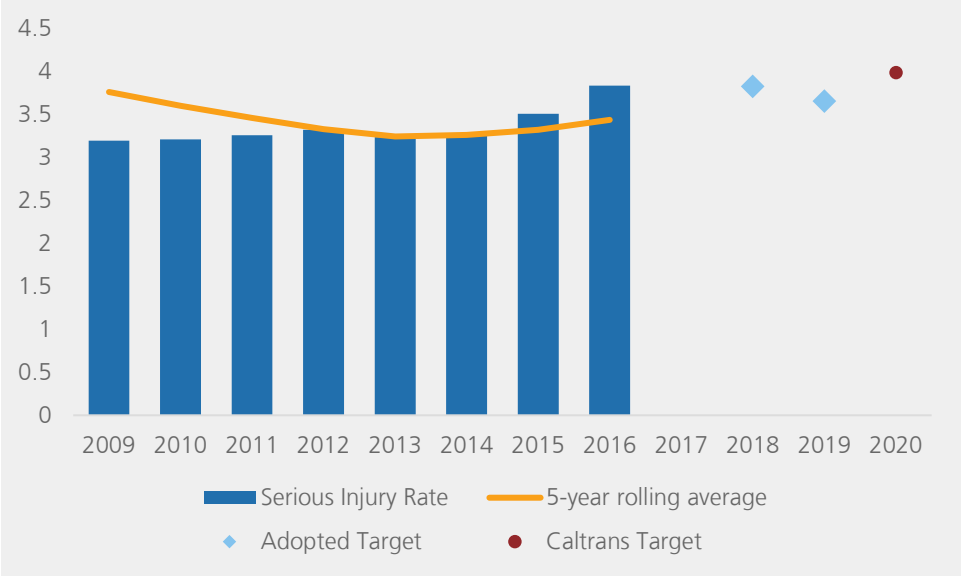


Source: Caltrans, 2017, 2018, and 2019

* SANDAG has until February 2020 to adopt the 2020 Caltrans statewide targets or develop regional targets.

Figure D.4

Statewide Serious Injury Rates

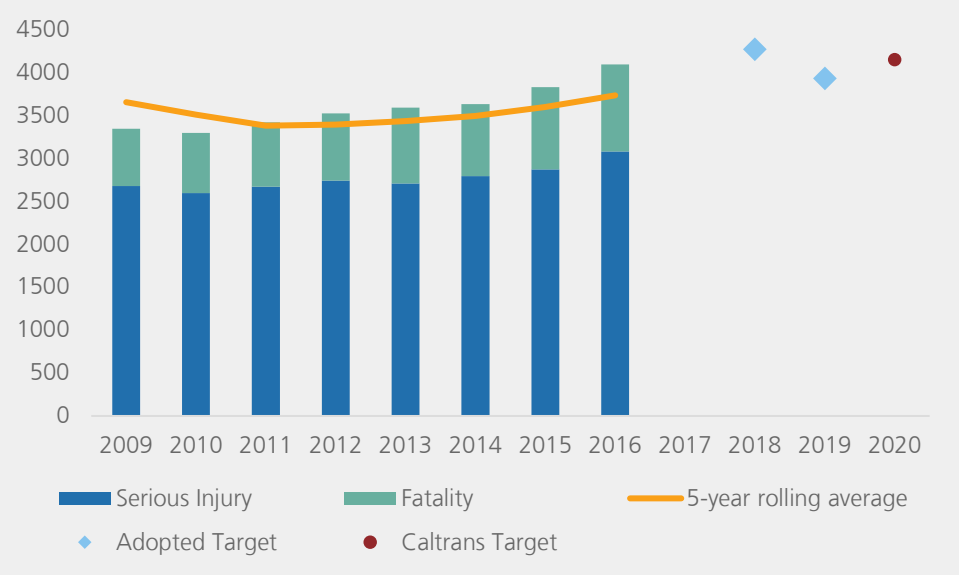


Source: Caltrans, 2017, 2018, and 2019

* SANDAG has until February 27, 2020, to adopt the 2020 Caltrans statewide targets or develop regional targets.

Figure D.5

Statewide Non-Motorized Fatalities and Serious Injuries



Source: Caltrans, 2017, 2018, and 2019

* SANDAG has until February 27, 2020, to adopt the 2020 Caltrans statewide targets or develop regional targets.

PM 2: Pavement and Bridge condition

Target-Setting Process

Similar to the process for PM 1, MPOs have the option of supporting the state department of transportation's PM 2 pavement and bridge condition targets or developing regional targets. On May 20, 2018, Caltrans established statewide targets for the PM 2 performance measures, shown in Table D.4. The statewide targets were informed by the Caltrans Transportation Asset Management Plan, which considers life-cycle costs, risk, and cost-effectiveness. On October 5, 2018, the SANDAG Transportation Committee approved supporting the statewide targets for pavement and bridge condition established by Caltrans, in accordance with the FAST Act.

Targets for PM 2 are based on a four-year performance period. The current performance period spans 2018 to 2022. In addition to the four-year target, a midcycle two-year target was established. At the midpoint of the performance period, Caltrans and MPOs can evaluate the progress to the four-year target and may elect to update the four-year target at that time.

Table D.4

PM 2 Statewide Performance Management 2 Pavement and Bridge Condition Targets

Performance Measures	2-Year NHS Targets 2020		4-Year NHS Targets 2022	
	Good	Poor	Good	Poor
Pavements on the NHS				
Interstate	45.1%	3.5%	44.5%	3.8%
Non-Interstate	28.2%	7.3%	29.9%	7.2%
Bridges on the NHS	69.1%	4.6%	70.5%	4.4%

Source: Caltrans, 2018

Interagency Coordination

SANDAG coordinates and collaborates on concerns and projects related to transportation infrastructure with local jurisdictions, Caltrans, and the public through several working groups and committees. The PM 2 targets on pavement and bridge conditions were developed in coordination with the Cities/County Transportation Advisory Committee, San Diego Regional Traffic Engineers' Council, and Transportation Committee. For more information on these groups, see Interagency Coordination under PM 1: Transportation Safety.

Measures and Methodology

The performance measures included in PM 2 are applicable to the National Highway System (NHS). In general, pavement condition for PM 2 is based on roughness, cracking, and rutting for asphalt pavement. Faulting is used for concrete pavement. The pavement measures are aggregated to lane miles, based on measurement and observation of the curb lane.

Bridge condition is based on engineering assessment of the deck and support structures. The bridge measures are aggregated to the bridge deck area. This section, including Tables D.5 and D.6, summarizes the calculation and data sources for each performance measure included in PM 2.

For performance monitoring, pavement is categorized into asphalt, Jointed Concrete Pavement (JCP), and Continuously Reinforced Concrete Pavement (CRCP). Each category of pavement is assessed using various rating systems as listed below. The pavement category rating system is included in Table D.6.

- Asphalt – International Roughness Index (IRI), rutting, cracking percent
- JCP – IRI, faulting, cracking percent
- CRCP – IRI, cracking percent

Table D.5
PM 2 Performance Measure Methodology

Performance Measure	Calculation	Data Source
1. Pavement on the Interstate in good condition	Lane miles with all metrics rated as good	Highway Performance Monitoring System (HPMS)
2. Pavement on the Interstate in poor condition	Lane miles with two or more metrics rated poor	HPMS
3. Pavement on the non-Interstate NHS in good condition	Lane miles with all metrics rated as good	HPMS
4. Pavement on the non-Interstate NHS in poor condition	Lane miles with two or more metrics rated poor	HPMS
5. Percentage of NHS bridges by deck area in good condition	Deck area of NHS bridges with condition index of 7 or above (deck, superstructure, and substructure) divided by deck area of all NHS bridges	National Bridge Inventory (NBI)
6. Percentage of NHS bridges by deck area in poor condition	Deck area of NHS bridges with any condition index of below 5 (deck, superstructure, and substructure) divided by deck area of all NHS bridges	NBI

Source: 23 CFR 490

Table D.6

Pavement Category Rating System

	Good	Fair	Poor
IRI (inches/mile)	<95	95-170	>170
Rutting (inches)	<0.20	0.20-0.40	>0.40
Faulting (inches)	<0.10	0.10-0.15	>0.15
Cracking (%)	<5	5-20 (asphalt) 5-15 (JCP) 5-10 (CRCP)	>20 (asphalt) >15 (JCP) >10 (CRCP)

Source: FHWA, Transportation Performance Management (TPM)

2019 Federal RTP and 2018 RTIP Investments

PM 2 performance is limited to the NHS, which is a select group of corridors within the larger transportation network. The SANDAG region accounts for 1.8% of statewide NHS lane miles and 0.5% of statewide NHS bridge deck area[7]. Although the percentage of the NHS in the SANDAG region is small, the 2019 Federal RTP supports PM 2 target achievement through long-term investments throughout the network. The 2019 Federal RTP includes $208 billion[8] for major project investments; 20 percent of that is established for maintenance and operations on highways and local streets and roads.

As projects transition from the 2019 Federal RTP and are programmed into the SANDAG RTIP, project sponsors provide information that allows summary statistics of investments on the NHS. The 2018 RTIP includes investments that are anticipated to help preserve, maintain, or enhance the condition of NHS facilities. This includes 39 pavement and 18 bridge projects on the NHS, totaling more than $680 million. Tables D.7 and D.8 summarize the investments currently programmed in the 2018 RTIP that support the pavement and bridge performance targets, respectively.

Table D.7

2018 RTIP NHS Pavement Program Summary

Project Phase	Investment ($000)
Environmental / Preliminary Engineering / Design	$42,000
Right-of-Way	$7,000
Construction	$421,000
	$470,000

Source: ProjectTrak, September 2019 Table D.8: 2018 RTIP Bridge Program Summary

Table D.8
2018 RTIP NHS Bridge Investments

Project Phase	Investment ($000)
Environmental / Preliminary Engineering / Design	$22,000
Right-of-Way	$11,000
Construction	$178,000
	$211,000

Source: ProjectTrak, September 2019

Target Achievement and Future Target-Setting

Data for evaluating the mid-performance period will be available in 2020. Once the full performance period has elapsed, FHWA will determine if California has made significant progress toward meeting the pavement and bridge condition targets. SANDAG continues to collaborate with Caltrans, FHWA, and other California MPOs on the monitoring of progress toward targets.

PM 3: System Performance, Freight, and Congestion Mitigation and Air Quality

Target-Setting Process

PM 3 consists of six performance measures that support three federal programs—National Highway Performance Program (NHPP), freight movement, and Congestion Mitigation and Air Quality (CMAQ). The target-setting process and timeframe is specific to each of these programs. This section summarizes the target-setting timeframes, processes, and performance periods for the performance measures included in PM 3.

Three of the performance measures included in PM 3 allow MPOs the option of supporting the state department of transportation's targets or developing regional targets. For these performance measures, the SANDAG Board of Directors supported the statewide targets. These measures include percentage of reliable person-miles traveled on the interstate, percentage of reliable person-miles traveled on the non-interstate NHS, and percentage of interstate system mileage providing reliable truck travel time.

The performance measure related to total emissions reductions by applicable pollutants under the CMAQ Program allows MPOs to establish regional targets based on emissions anticipated to be reduced from CMAQ-funded projects.

For the following two performance measures, Caltrans and SANDAG are required to establish a single, unified target for the urbanized area within the SANDAG planning area. Figure D.6 shows the SANDAG Urbanized Area.

- Annual Hours of Peak-Hour Excessive Delay per Capita
- Percent of Non-Single-Occupancy Vehicle (SOV) Travel

Figure D.6

2010 Census Urbanized Area – October 2015

The target-setting timeframes for PM 3 performance measures vary by the associated federal program. Table D.9 summarizes the target-setting dates for each of the PM 3 performance measures. On October 5, 2018, the SANDAG Transportation Committee approved supporting the statewide targets for system performance, freight, and CMAQ established by Caltrans in accordance with the FAST Act.

The CMAQ emissions reduction measure four-year performance period follows the federal fiscal year and spans October 1, 2017, to September 30, 2021. The remaining performance measures follow the calendar year, beginning January 1, 2018, and ending December 31, 2021.

Table D.9

PM 3 Performance Target Approval Dates for System Performance, Freight, and CMAQ

Program	Performance Measure	Dates Targets Established
National Highway Performance Program (NHPP)	Percent of Reliable Person-Miles Traveled on the Interstate Percent of Reliable Person-Miles Traveled on the Non-Interstate NHS	October 5, 2018
Freight Movement on the Interstate System	Percent of Interstate System Mileage Providing Reliable Truck Travel Time (Truck Travel Time Reliability Index)	October 5, 2018
Congestion Mitigation and Air Quality (CMAQ)	Percent of Non-Single Occupancy Vehicle (SOV) Travel Annual Hours of Peak-Hour Excessive Delay per Capita	May 4, 2018
	Total Emissions Reductions by Applicable Pollutants under the CMAQ Program	September 15, 2018

Source: 23 CFR 490, SANDAG

The CMAQ total emission-reduction performance target reflects the anticipated cumulative emission reduction to be reported in the CMAQ Public Access System.

Table D.10

PM 3 Statewide and Regional Targets

Performance Measures	2017 Baseline Data	2-Year Target 2020	4-Year Target 2022
Percent of Reliable Person-Miles Traveled on the Interstate	64.6%	65.1% (+0.5%)	65.6% (+1%)
Percent of Reliable Person-Miles Traveled on the Non-Interstate NHS	73.0%	N/A	74.0% (+1%)
Percent of Interstate System Mileage Providing Reliable Truck Travel Time (Truck Travel Time Reliability Index)	1.69	1.68 (–0.01)	1.67 (–0.02)
Total Emissions Reductions by Applicable Pollutants under the CMAQ Program			
San Diego Urban Area (UA)[1]			
VOC (kg/day)		66	137
CO (kg/day)		0	0
NOx (kg/day)		82	168
Statewide [2]			
VOC (kg/day)	951.83	961.35 (+1%)	970.87 (+2%)
CO (kg/day)	6,863.26	6,931.90 (+1%)	7,000.54 (+2%)
NOx (kg/day)	1,753.36	1,770.89 (+1%)	1,788.43 (+2%)
PM_{10} (kg/day)	2,431.21	2,455.52 (+1%)	2,479.83 (+2%)
$PM_{2.5}$ (kg/day)	904.25	913.29 (+1%)	922.34 (+2%)
Annual Hours of Peak-Hour Excessive Delay per Capita[3]			
San Diego UA	18.4 hours	N/A	18.0 (–2.0%)
Percent of Non-SOV Travel[4]			
San Diego UA	23.8%	24.8% (+1%)	25.2 (1.4%)

Source: Caltrans and SANDAG 2018

Notes: [1] The CMAQ targets were established in the CMAQ Performance Plan on September 15, 2018 and include emission reductions from projects reported in the CMAQ Public Access System.

[2] Statewide emissions targets established by Caltrans.

[3] Source: NPMRDS Analytics Tool (https://npmrds.ritis.org/analytics/)

[4] Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Interagency Coordination

SANDAG coordinates and collaborates on transportation infrastructure–related concerns and projects with local jurisdictions, Caltrans, and the public through established working groups and committees. The PM 3 targets on System Performance, Freight, and Congestion Mitigation and Air Quality were developed in coordination with the Cities/County Transportation Advisory Committee, San Diego Regional Traffic Engineers' Council, and the SANDAG Transportation Committee. For more information on these groups, see Interagency Coordination under PM 1: Transportation Safety.

Measures and Methodology

For performance measures related to reliable person-miles-traveled, the Level of Travel Time Reliability (LOTTR) is first calculated for each applicable roadway segment for four time periods: 6 a.m. to 10 a.m., 10 a.m. to 4 p.m., and 4 p.m. to 8 p.m. on weekdays and 6 a.m. to 8 p.m. during weekends. The LOTTR is the 80th-percentile travel time divided by the 50th-percentile travel time. The LOTTR is weighed by the facility segment length, annual traffic volume, and vehicle occupancy value.

Freight movement is assessed by a Truck Travel Time Reliability (TTTR) Index. Reporting is divided into five periods: morning peak (6 to 10 a.m.), midday (10 a.m. to 4 p.m.), and afternoon peak (4 to 8 p.m.) Mondays through Fridays; weekends (6 a.m. to 8 p.m.); and overnights for all days (8 p.m. to 6 a.m.). The TTTR ratio is generated by dividing the 95th-percentile time by the normal time (50th percentile) for each segment. Then, the TTTR Index is generated by multiplying each segment's largest ratio of the five periods by its length, then dividing the sum of all length-weighted segments by the total length of Interstate.

The Annual Hours of Peak Hour Excessive Delay per Capita is the amount of time spent in congested conditions, which are defined as conditions that result in excess delay at speeds of 20 miles per hour (mph) or 60 percent of the posted speed limit, whichever is greater. Travel time data is aggregated in 15-minute intervals per vehicle. The morning period is 6 to 10 a.m. on weekdays. The afternoon period is 3 to 7 p.m. or 4 to 8 p.m., providing flexibility to State DOTs and MPOs.

Additional details on the methodology used in calculating the six performance measures included in PM 3 are summarized in Table D.11.

Table D.11
PM 3 Performance Measure Methodology

Performance Measure	Calculation	Data Source
1. Percent of Reliable Person-Miles Traveled on the Interstate	Percent of Interstate by length with an LOTTR less than 1.5	National Performance Measure Research Data Set (NPMRDS)
2. Percent of Reliable Person-Miles Traveled on the Non-Interstate NHS	Percent of non-Interstate NHS by length with an LOTTR less than 1.5	NPMRDS
3. Percent of Interstate System Mileage Providing Reliable Truck Travel Time (Truck Travel Time Reliability Index)	Weighted sum of reliable segments divided by all segments	NPMRDS
4. Total Emissions Reductions by Applicable Pollutants under the CMAQ Program	Daily Kilograms of Emission Reductions	CMAQ Public Access System
5. Annual Hours of Peak-Hour Excessive Delay per Capita	Time of excess delay weighted by average vehicle volume and occupancy by vehicle class	NPMRDS, Highway Performance Monitoring System (HPMS)
6. Percent of Non-SOV Travel	Commute to work totaled by mode, 5-year estimate	American Community Survey (ACS)

Source: 23 CFR 490

2019 Federal RTP and 2018 RTIP Investments

A foundational element of the 2019 Federal RTP is the continued development of a regional transportation system that provides multimodal transportation options to the traveling public. Fostering travel choices between the places where people live, work, and play supports travel time reliability, promotes non-SOV travel, and reduces excessive delay and pollutant emissions. The 2019 Federal RTP includes investments of nearly $7 billion for highway operational improvements and $37 billion in managed lanes and managed lane connectors to improve travel time reliability.

2018 RTIP investments of nearly $5 billion in active transportation and more than $40 billion in transit facilities will greatly improve multimodal transportation options. Of the nearly $16 billion programmed in the 2018 RTIP, $7.2 billion are programmed for multimodal facilities, transit, active transportation, transportation systems, and demand management - including more than $44 million in the region's rideshare programs.

The 2019 Federal RTP also integrates metrics related to mode share, congestion relief, and air quality project the evaluation criteria which are used to help prioritize projects for inclusion in the revenue-constrained network[9] (Appendix M) and in the network performance measures[10] (Appendix N), which are modeled to evaluate the network performance of the 2019 Federal RTP. Inclusion of projects that are anticipated to improve non-single-occupant mode share and air quality and, which reduce delay and travel times, helps the region support the PM 3 targets.

Target Achievement and Future Target-Setting

Data for evaluating the mid-performance period will be available in 2020. At the end of the performance period, FHWA will determine if California has made significant progress toward meeting the targets established for Interstate and Non-Interstate NHS travel time reliability and freight reliability measures. SANDAG continues to collaborate with Caltrans, FHWA, and other California MPOs on the monitoring of progress toward targets. At the midpoint of the four-year performance period, SANDAG, Caltrans, and other California MPOs will evaluate progress toward achieving the 2022 targets. At the midpoint, MPOs and Caltrans can elect to update the 2022 target.

Data for the travel time reliability measures under PM 3 will become available on an annual basis and inform agencies on progress toward performance targets. SANDAG, Caltrans, and member jurisdictions have significantly invested in projects that are anticipated to support the achievement of PM 3 targets.

Transit Asset Management

Target-Setting Process

There are two types of targets for TAM: provider targets and regional targets. The SANDAG planning area includes two providers of public transportation subject to this target-setting requirement: MTS and NCTD. The provider targets are established by MTS and NCTD separately for their service area to support their four-year TAM plan. The provider targets are updated annually. MPOs, in coordination with providers, are responsible for developing regional TAM targets. MPOs are required to set TAM targets with each update of their RTPs.

Regional TAM performance targets were set in 2018. The transit operators are required to set their 2019 performance targets by the end of their fiscal years. MTS has established 2019 performance targets for its fiscal year from July 1 to June 30. NCTD has finalized its 2019 performance targets for its fiscal year from October 1 to September 30. MPOs have 180 days after transit operators set their targets to establish regional targets.

The TAM Final Rule includes four asset categories: equipment, facilities, infrastructure, and rolling stock. There is one performance measure for each asset category. Each asset category may contain several asset types that are calculated separately. Regional TAM targets are required for each asset type. The performance measures are calculated such that a value of zero indicates that the asset type is in a state of good repair. The 2019 regional TAM targets and draft 2020 regional TAM targets are shown in Table D.12.

Table D.12
Regional TAM Targets

Asset Category	Performance Measure	Asset Type	2019 Regional Targets	Draft 2020 Regional Targets
Equipment: Non-revenue support-service and maintenance vehicles	Percentage of non-revenue vehicles met or exceeded Useful Life Benchmark (ULB)[1]	Automobiles	33.3%	63.6%
		Trucks and other Rubber Tire Vehicles	50.5%	64.8%
		Steel Wheel Vehicles	0.0%	0.0%
Facilities: Maintenance and administrative facilities and passenger stations (buildings) and parking facilities	Percentage of assets with condition rating below 3.0 on FTA Transit Economic Requirements Model (TERM) Scale[2]	Passenger Facilities	0.0%	0.0%
		Passenger Parking Facilities	0.0%	0.0%
		Maintenance Facilities	0.0%	0.0%
		Administrative Facilities	0.0%	0.0%
Infrastructure: Only rail fixed-guideway, track, signals and systems	Percentage of track segments with performance restrictions	Commuter Rail	2.0%	1.0%
		Hybrid Rail[3]		0.5%
		Light Rail	1.8%	2.0%
Rolling Stock: Revenue vehicles by mode	Percentage of revenue vehicles met or exceeded ULB	Articulated bus	0.0%	0.0%
		Over-the-road bus	0.0%	0.0%
		Bus	13.8%	11.9%
		Cutaway bus	7.2%	4.3%
		Light rail vehicle	0.0%	0.0%
		Minivan	100.0%	100.0%
		Commuter rail locomotive	71.0%	71.0%
		Commuter rail passenger coach	57.0%	57.0%
		Vintage trolley/streetcar	0.0%	0.0%

Source: 49 CFR 625; SANDAG, MTS, and NCTD

Notes: [1] ULB is a value used with lifecycle cost to assess when an asset costs more to maintain than to replace. MTS and NCTD used the same ULB.
[2] TERM is a five-point scale (1–5) with one signifying poor condition and five signifying excellent condition.
[3] The NCTD SPRINTER rail was reclassified as Hybrid Rail for 2020. Previously it was classified as Light Rail.

To coordinate the development of regional TAM targets, MTS and NCTD provided SANDAG with their respective target values and inventory quantities by asset type. MTS and NCTD target and inventory values were applied in developing regional TAM targets using a weighted average calculation.[11]

Interagency Coordination

In 2018 SANDAG, MTS and NCTD updated their master MOU agreements to include provisions on the sharing of TAM and performance data including targets, inventory, and asset conditions. SANDAG continues to coordinate and collaborate with the MTS, NCTD, and FTA in order to support TAM objectives.

Measures and Methodology

The performance measures and their calculations are specified in the TAM Final Rule. Additionally, the asset types that are included in each asset category are established by FTA and detailed in the FTA Asset Inventory Module. The infrastructure asset category assesses performance restrictions on rail segments. A performance restriction exists when the permissible speed is less than the guideway's full-service speed. For more details on infrastructure performance, refer to the FTA Performance Restriction (Slow Zone) Calculation.

2019 Federal RTP and 2018 RTIP Investments

The 2019 Federal RTP includes $208 billion[12] in transportation investments; 47 percent of that is for transit consisting of 25 percent for transit capital, 14 percent for transit operations and maintenance, and 8 percent for high-speed rail. Transit capital investments include construction of transit facilities and procurement of transit fleet vehicles. Transit operations and maintenance includes costs associated with running the transit system, repairs, and preventative maintenance.

SANDAG works closely with MTS and NCTD to identify and secure funding to update the region's fleet of service vehicles, transit facilities, equipment, and infrastructure. The 2018 RTIP was reviewed for projects sponsored by SANDAG, MTS, and NCTD that include elements that corresponded to a TAM asset category as shown in Table D.13. The 2018 RTIP includes more than 40 projects totaling more than $2 billion in support of TAM targets.

Table D.13

2018 RTIP Transit Asset Management Program Summary by Category

Project Asset Category	MTS	NCTD	SANDAG	Total TAM Programming ($000)
Equipment	$—	$—	$941	$941
Facilities	$143,886	$146,784	$77,624	$368,294
Infrastructure	$35,441	$13,822	$1,287,753	$1,337,016
Rolling Stock	$821,515	$108,054	$14,700	$944,269
Total	$1,000,842	$268,660	1,381,018	$2,650,520

Source: ProjectTrak, July 2019

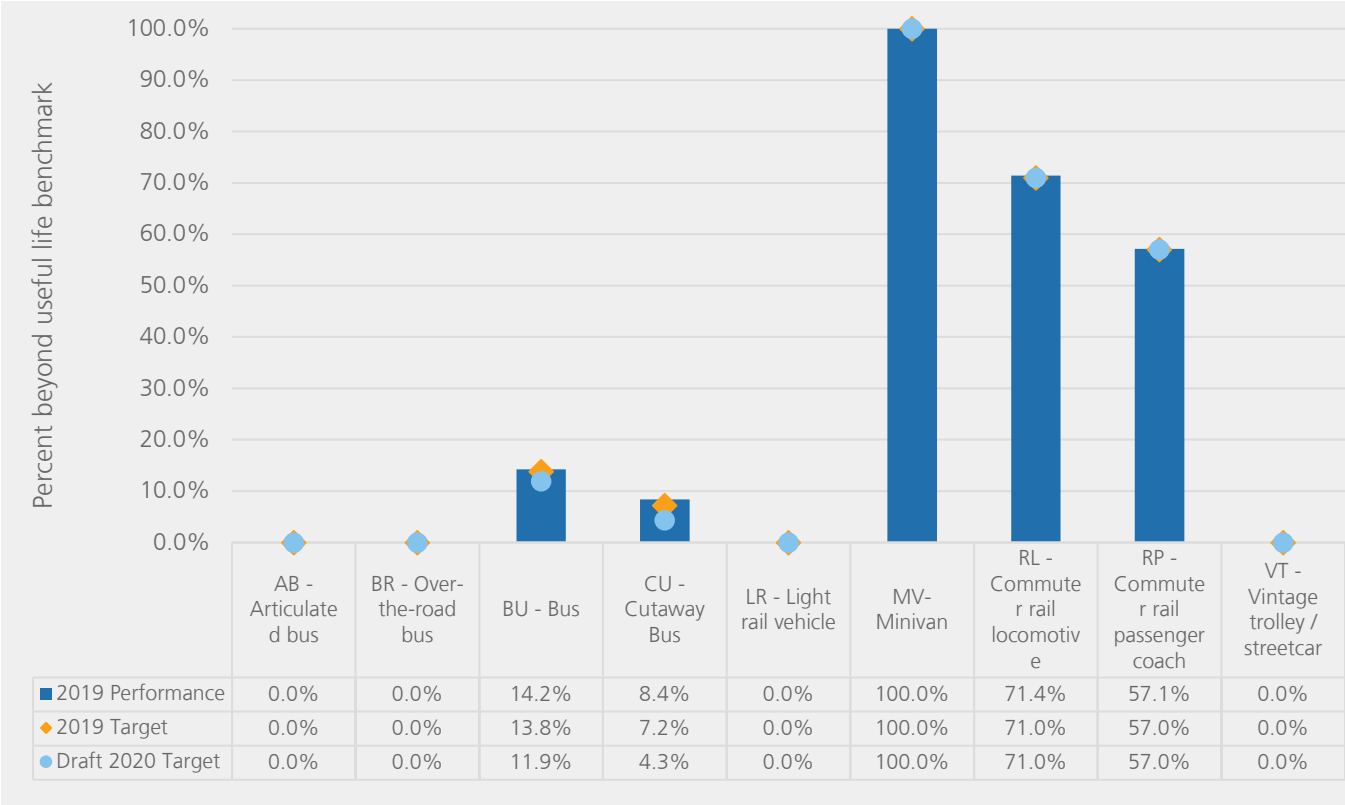
Target Achievement and Future Target-Setting

The SANDAG Board of Directors approved the 2019 regional TAM targets at its September 28, 2018, meeting. As data is shared by MTS and NCTD in alignment with their annual updates, SANDAG will continue to work with the providers and FTA to monitor progress on achievement of regional TAM targets.

Figures D.7 - D.10 show the regional TAM targets and the observed performance for 2019, in addition to the draft 2020 regional TAM targets.

Figure D.7

Regional Revenue Vehicles Targets and Observed Performance



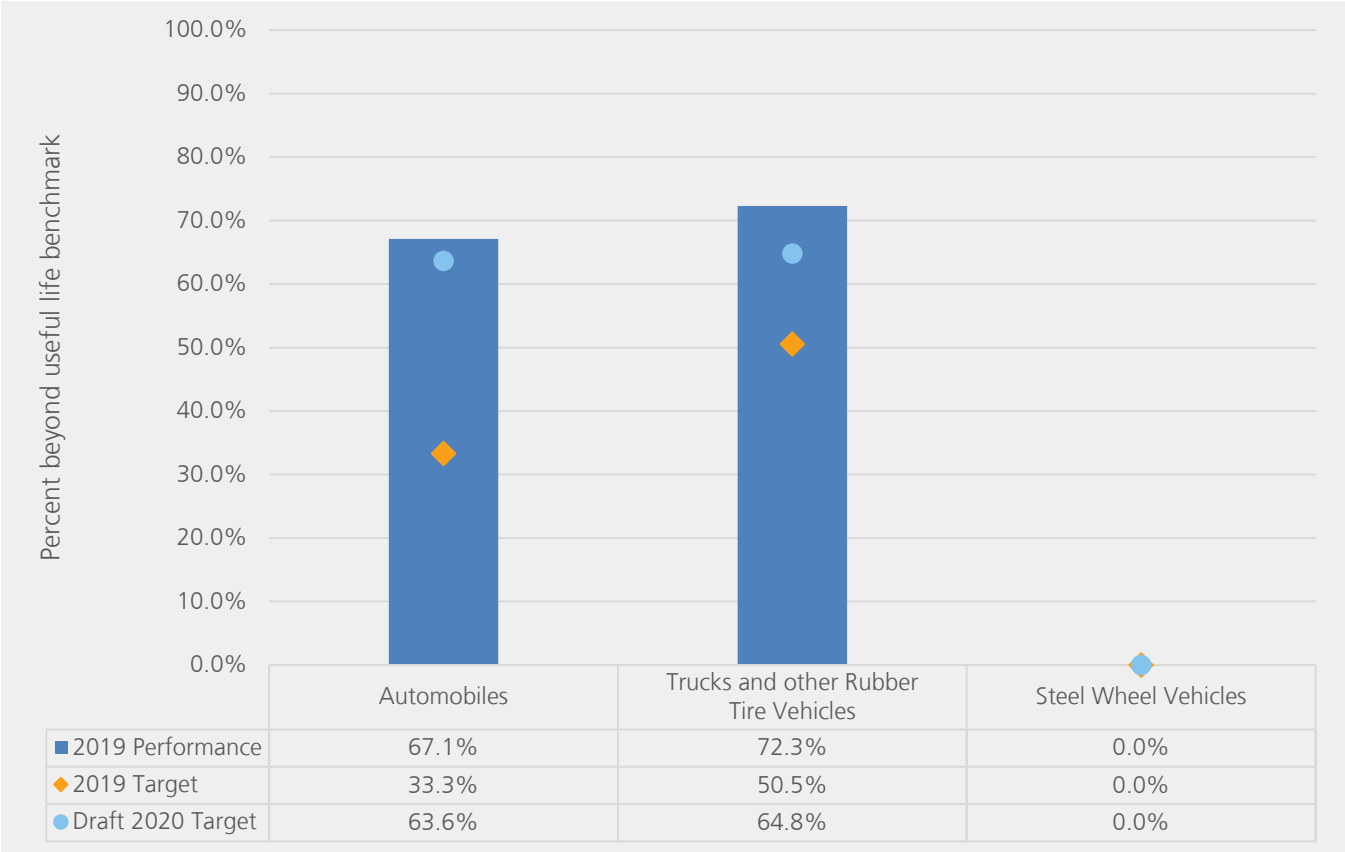
	AB - Articulated bus	BR - Over-the-road bus	BU - Bus	CU - Cutaway Bus	LR - Light rail vehicle	MV-Minivan	RL - Commuter rail locomotive	RP - Commuter rail passenger coach	VT - Vintage trolley / streetcar
2019 Performance	0.0%	0.0%	14.2%	8.4%	0.0%	100.0%	71.4%	57.1%	0.0%
2019 Target	0.0%	0.0%	13.8%	7.2%	0.0%	100.0%	71.0%	57.0%	0.0%
Draft 2020 Target	0.0%	0.0%	11.9%	4.3%	0.0%	100.0%	71.0%	57.0%	0.0%

Source: MTS, NCTD, and SANDAG

Note: Percent beyond useful life benchmark of 0.0% means the asset type is in a complete state of good repair.

Figure D.8

Regional Service Vehicles Targets and Observed Performance



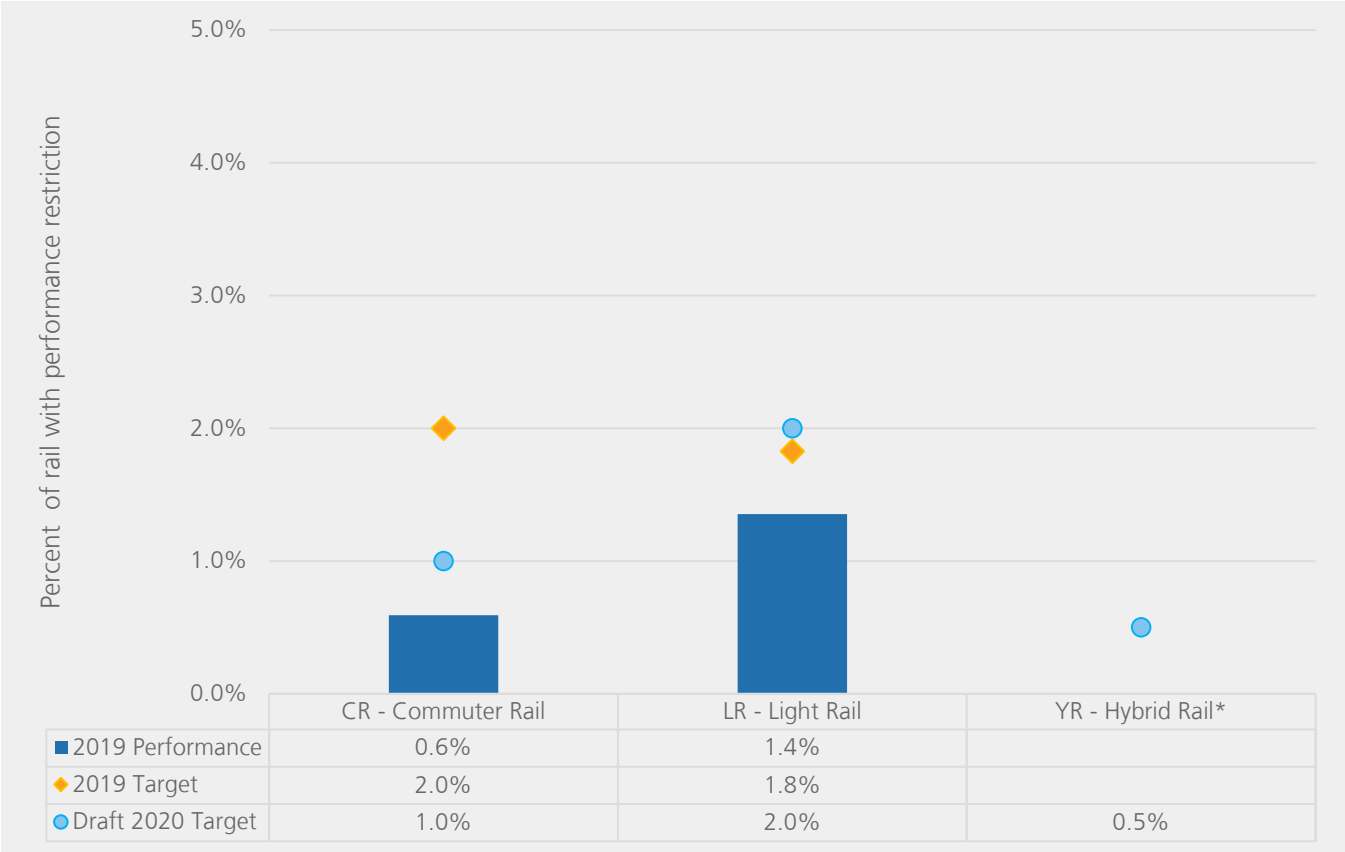
	Automobiles	Trucks and other Rubber Tire Vehicles	Steel Wheel Vehicles
2019 Performance	67.1%	72.3%	0.0%
2019 Target	33.3%	50.5%	0.0%
Draft 2020 Target	63.6%	64.8%	0.0%

Source: MTS, NCTD, and SANDAG

Note: Percent beyond useful life benchmark of 0.0% means the asset type is in a complete state of good repair.

Figure D.9

Regional Rail Performance Restriction Targets and Observed Performance



	CR - Commuter Rail	LR - Light Rail	YR - Hybrid Rail*
2019 Performance	0.6%	1.4%	
2019 Target	2.0%	1.8%	
Draft 2020 Target	1.0%	2.0%	0.5%

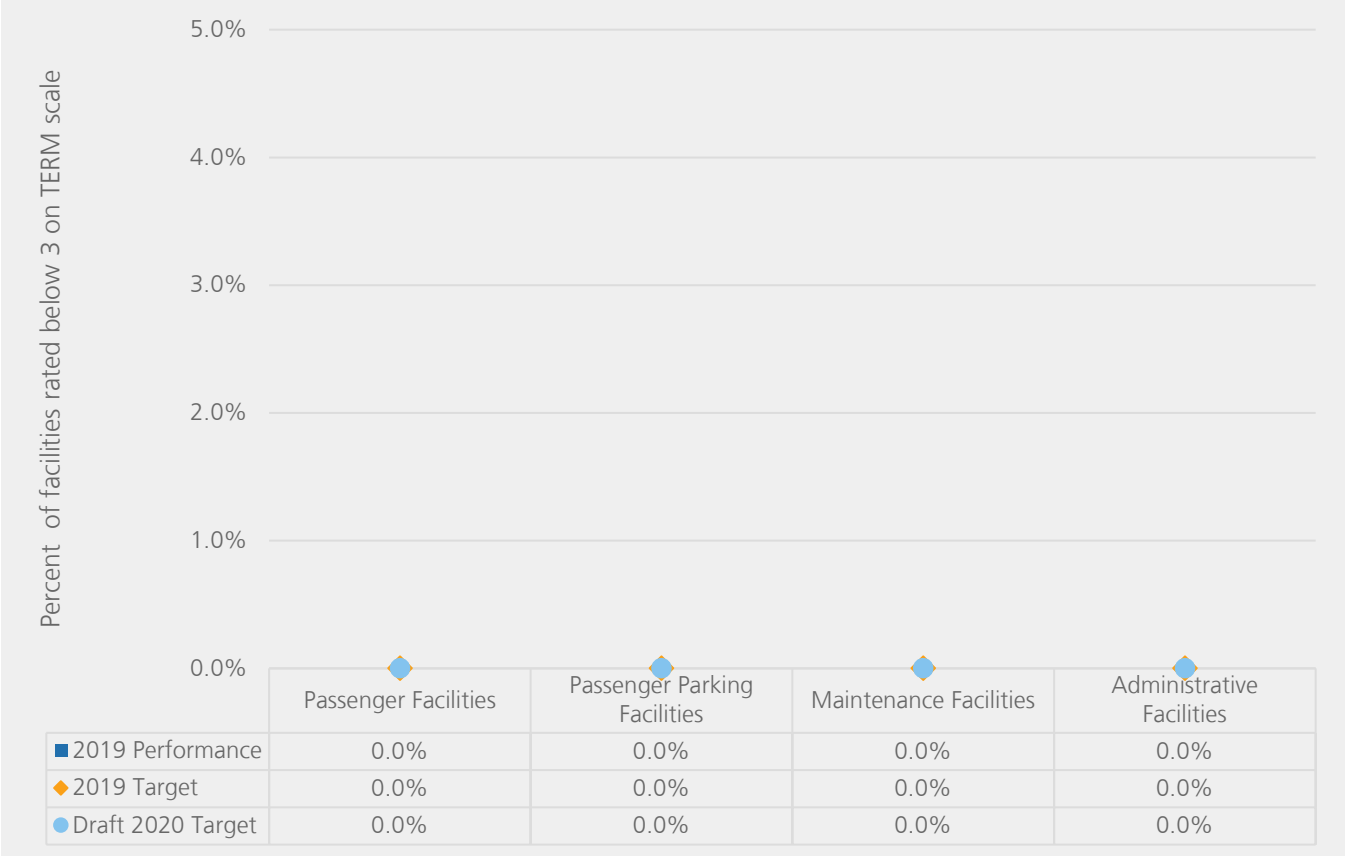
Source: MTS, NCTD, and SANDAG

*The NCTD SPRINTER rail was reclassified as Hybrid Rail for 2020. Previously it was classified as Light Rail.

Note: Percent of rail with performance restriction of 0.0% means the asset type is in a complete state of good repair.

Figure D.10

Regional Facilities Targets and Observed Performance



	Passenger Facilities	Passenger Parking Facilities	Maintenance Facilities	Administrative Facilities
2019 Performance	0.0%	0.0%	0.0%	0.0%
2019 Target	0.0%	0.0%	0.0%	0.0%
Draft 2020 Target	0.0%	0.0%	0.0%	0.0%

Source: MTS, NCTD, and SANDAG

Note: Percent of facilities rated below 3 on TERM scale of 0.0% means the asset type is in a complete state of good repair. TERM stands for Transit Economic Requirements Model.

Endnotes

[1] Only regional targets are set for CMAQ performance measures within PM 3. These require concurrence between State DOT and MPO.

[2] The National Highway Traffic Safety Administration Fatality Analysis Reporting System is used for fatality data. The California Statewide Integrated Traffic Records System is utilized for serious injury data.

[3] The attached 2018 CMAQ Performance Plan includes additional details on target-setting for this performance-management area.

[4] The Active Transportation Working Group and Interagency Technical Working Group on Tribal Transportation Issues did not convene during the 2019 target review period.

[5] Appendix M: Includes project-evaluation criteria that provide points for highway projects that have a higher percentage of collisions measured against the statewide average and for rail grade separation projects with qualifying accidents within the past five years.

[6] Appendix N: Includes performance metrics for the annual projected number of injury/fatal vehicle collisions per vehicle miles traveled and the annual project number of bike/pedestrian injury/fatal collisions per bike/pedestrian miles traveled.

[7] Caltrans California Pavement Conditions and Bridge Conditions (NHS) Target Calculator Tools, 2016.

[8] Year of expenditure dollars.

[9] Appendix M: Includes project-evaluation criteria that provide points for projects that include person-hours saved, facilitate FasTrak®/carpool/Managed lane, transit, pedestrian, and bike mobility; reduce CO_2 emissions, reduce smog-forming pollutants; and increase transit trips.

[10] Appendix N: Includes performance metrics which measure average peak-period travel time to work; daily vehicle delay per capita; increase in walk, bike, transit and carpool mode share; average truck/commercial vehicle travel times to and around regional gateways and distribution hubs; percentage of population/employment within 0.5 mile of a high-frequency transit stop; percentage of population/employment within 0.25 miles of a bike facility; on-road smog-forming pollutants (pounds/day) per capita; and on-road CO_2 emissions (pounds/day) per capita and regionwide.

[11] The calculation involved multiplying each provider's target by their inventory. The results were added together, divided by the sum of the inventories, and multiplied by 100.

[12] Year of expenditure dollars.

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT (CMAQ) PROGRAM PERFORMANCE PLAN – September 2018

San Diego Association of Governments (SANDAG)
San Diego, California

Introduction

On January 18, 2017, the Federal Highway Administration (FHWA) published the Performance Management 3 (PM 3) rule, which established performance measures that State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) will use to report on the performance of the 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 rule addressed requirements established by the Moving Ahead for Progress in the 21st Century Act (MAP-21), and included three national performance measures related to the CMAQ Program: total emissions reductions by applicable pollutants under the CMAQ Program, annual hours of peak-hour excessive delay per capita (PHED); and the percent of non-single occupancy Vehicle (Non-SOV) Travel.

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program Performance Measures and Plan applicability requirement includes any Metropolitan Planning Organization (MPO) serving a Transportation Management Area (TMA) with a population over one million, that overlaps with a criteria pollutant nonattainment or maintenance area. The applicability determination for the CMAQ Performance Measures and CMAQ Performance Plan occurred in October 2017. At that time the SANDAG region's population was greater than 3 million and contained a maintenance area for the federal carbon monoxide (CO) standard and a non-attainment area for the federal ozone standard.

Caltrans is required to submit to FHWA biennial performance reports for the Baseline, Mid Period, and Full-Period of each four-year performance period. Following these requirements, SANDAG submitted the CMAQ Performance Plan to Caltrans on September 14, 2018 for inclusion in the state CMAQ Performance Plan. This CMAQ Performance Plan serves as the baseline report for the CMAQ first performance period, which is October 2017 – October 2021 for the total emissions reductions performance measure and January 2018 -January 2022 for the two traffic congestion measures: annual hours of peak-hour excessive delay per capita, and percent of non-single occupancy vehicle travel.

Background

SANDAG, Caltrans and other California MPOs have coordinated extensively on the development of performance targets in support of the PM 3 final rule, which include performance measures for the percent of reliable person-miles traveled on the Interstate and on the non-Interstate NHS, percentage of Interstate system mileage providing reliable truck travel time, and the three CMAQ Program performance measures outlined above.

Caltrans and MPO coordination involved multiple points of engagement including in-person workshops, video conferences and conference calls. Coordination between Caltrans and MPOs officially began with a kick-off workshop in August 2017. This meeting and the subsequent September 2017 meeting focused on rule requirements, and data needs. They were followed by in-person target setting workshops in February, March, and April 2018. Throughout the coordination process, video and teleconferences were utilized to address questions and follow-up items in a timely manner.

At its May 4, 2018 meeting, the SANDAG Transportation Committee provided guidance on target setting options for three PM 3 metrics: annual hours of peak-hour excessive delay per capita, percent of non-single occupancy vehicle (SOV) travel, and the total emissions reductions by applicable pollutants under the CMAQ program. Through an iterative process, SANDAG and Caltrans established mutually agreed upon targets for the percent of non-SOV Travel and Annual Hours of Peak-Hour Excessive Delay Per Capita for the San Diego region urbanized area on May 20, 2018.

SANDAG is a non-attainment area for the federal ozone standard and, until recently, was a maintenance area for the federal carbon monoxide (CO) standard and is therefore required to establish a target for the total emissions reductions by applicable pollutants under the CMAQ program. SANDAG is in attainment for the federal particulate matter standards. The San Diego region has received CMAQ funds in conjunction with its federal CO maintenance and ozone non-attainment status. The San Diego region CO emissions have been significantly reduced to levels below the federal standard. In June 2018, the CO maintenance designation ended and the region reached attainment for the federal CO standard. As a result, the annual average CMAQ allotment is expected to be reduced by approximately $650,000 per year from $33.4 million starting in FY 2019. Although the San Diego region is no longer considered a maintenance area for CO, SANDAG is required to set a target for CO for this initial round of target setting. Targets also are needed for volatile organic compounds (VOC) and nitrogen oxide (NOx) as precursors of ozone.

Baseline Condition/Performance

Baseline Condition/Performance for Traffic Congestion Measures

Baseline condition for the traffic congestion measures was established using available federal data sources, as specified by the PM 3 rule and in coordination with Caltrans.

Table 1: Baseline Condition for Traffic Congestion Measures

Baseline Condition for Traffic Congestion Measures	
Percent of non-SOV travel[1]	23.8%
Annual Hours of Peak-Hour Excessive Delay Per Capita[2]	18.4%

[1] Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates
[2] Source: NPMRDS Analytics Tool (https://npmrds.ritis.org/analytics/)

Baseline Condition/Performance for On-Road Mobile Source Emissions Measures

Information on projects reported in the CMAQ Public Access System with initial obligation years between federal fiscal year 2014-2027 was used to calculate the baseline condition for the On-Road Mobile Source Emissions Reductions Measure.

Table 2: Baseline Condition for Emission Reductions Measure

Baseline Condition for Emission Reductions Measure[3]	
NOx Benefit (kg/day)	398.1 kg/day
VOC Benefit (kg/day)	362.28 kg/day
CO Benefit (kg/day)	203.7 kg/day

2-year and 4-year Targets

Targets for Traffic Congestion Measures

The targets for the two traffic congestion measures included in Table 3 are consistent with the Caltrans targets for the San Diego urbanized area.

Table 3: Targets for Traffic Congestion Measures

Targets for Traffic Congestion Measures		
Congestion Measures	**2-year target 2020**	**4-year target 2022**
Percent of non-SOV travel	24.8%	25.2%
Annual Hours of Peak-Hour Excessive Delay Per Capita	N/A	18.0%

Targets for On-Road Mobile Source Emissions Measures

The targets for the On-Road Mobile Source Emission Reductions Measure are based on projects programmed and anticipated to be obligated prior to the applicable target date.

[3] Source: Projects reported in the CMAQ Public Access System between Federal fiscal years 2014 to 2017

Table 4: Targets for On-Road Mobile Source Emission Reductions

Targets for On-Road Mobile Source Emission Reductions		
Emission Reduction Measure[4]	**2-year target 2020**	**4-year target 2022**
NOx Benefit (kg/day)	82 kg/day	168 kg/day
VOC Benefit (kg/day)	66 kg/day	137 kg/day
CO Benefit (kg/day)	0 kg/day	0 kg/day

Description of Projects

Projects included in the target setting process for the On-Road Mobile Source Emission Reductions Measure are limited to those that use CMAQ funds and have not passed their initial obligation year. CMAQ projects that are anticipated to be funded in federal fiscal years 2018-2021 support the region's rideshare programs through carpooling and vanpooling and are part of the travel demand management strategies used by SANDAG to manage congestion. These projects are anticipated to advance the on-road mobile source emission reductions targets, and support the person hours of excessive delay and percent of non-single occupancy vehicle targets. The anticipated benefits are listed in Table 5.

[4] Cumulative emissions reductions (over 2 or 4-year period).

Table 5: Anticipated CMAQ Funded Projects and Benefits

Anticipated CMAQ Funded Projects and Benefits							
Project Type	**Project Description**	**Year Anticipated for CMAQ Obligation**	**NOx Benefit (kg/day)**	**VOC Benefit (kg/day)**	**CO Benefit (kg/day)**	**PHED benefit**	**Non-SOV benefit**
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2018	41	33	0	Yes	Yes
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2019	41	33	0	Yes	Yes
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2020	42	35	0	Yes	Yes
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2021	44	36	0	Yes	Yes