Appendix O:

Federal System Performance Report

Final

December 2021

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Appendix O:
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 the 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 regional, state, and national levels. FHWA released three rules that are commonly referred to as Performance Measure (PM) 1 (safety), PM 2 (infrastructure condition), and PM 3 (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 Public Transportation Agency Safety Plan (PTASP) 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, the San Diego Association of Governments (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, Metropolitan Transit System (MTS), and 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 MAP-21. 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 TAM regional targets. In January 2021, SANDAG signed an additional addendum to the master MOU with MTS and NCTD on sharing performance information and data related to transit safety and system reliability.

In addition, in Appendix B: Implementation Actions, San Diego Forward: The 2021 Regional Plan (2021 Regional Plan) includes an action to develop and implement a Transportation Performance Management Framework to improve transparency and reporting on SANDAG program effectiveness and project delivery, which aligns with federal transportation performance management.

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 PTASP targets, and MPOs have 180 days to set regional targets.

The federal performance-management areas have been phased in over a series of years; they have different implementation timeframes. This process began with PM 1 and was followed by PM 2, PM 3, and TAM. The 2021 Regional Plan is the first SANDAG plan to include PTASP targets also referred to as regional public transportation safety targets. 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.

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

PM 1: Safety performance management – Performance targets are set and evaluated annually. PM 1 performance targets were first established in 2017 for calendar year 2018. The required data sources for these measures[2] involve significant development time. There is a multiyear delay between when safety events occur and when observed data is finalized for safety performance measures. As a result, significant progress determination on target achievement generally occurs two years after the target has passed. The Fatality Analysis Reporting System (FARS), maintained by the National Highway Traffic Safety Administration, 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 – PM 2 consists of four-year performance periods. In 2018, targets were set for the end of the four-year performance period (2021) and mid-performance period (2019). Targets were documented in a State DOT (Caltrans) baseline report that included existing conditions and anticipated changes to inform the targets. At the mid-performance date, the State DOTs and MPOs can choose to modify their full performance period targets. Upon completion of the 2018–2021 performance period, a full performance period report will be developed. At the same time, a new four-year performance period will begin (2022–2025) with a new baseline report and targets.

PM 3: System performance, freight, and Congestion Mitigation and Air Quality – This performance-management area includes multiple schedules to cover six performance measures. System performance and freight performance follow the same four-year performance period as PM 2. 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]

Transit Asset Management performance targets – TAM performance targets are 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. Updates to regional TAM targets are required with each new Regional Plan. Targets cover four asset categories: equipment, facilities, infrastructure, and rolling stock. Each asset category consists of multiple asset types (see Table O.12). All asset types are evaluated for the proportion that is beyond its useful life or in need of repair/replacement.

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2 The National Highway Traffic Safety Administration FARS is used for fatality data. SWITRS is used for serious injury data.

3 The attached 2020 CMAQ Mid-Performance Period Progress Report includes additional details on target setting for this performance-management area.

Public Transportation Agency Safety Plan performance targets – These performance targets are set annually by transit operators. In the San Diego region, this includes MTS and NCTD. MPOs are required to develop regional public transportation safety targets incorporating transit operator targets. Updates to regional public transportation safety targets are required with each new Regional Plan. Fixed route bus, ADA/paratransit, and rail transit facilities each require targets for the seven performance measures.

Federal System Performance Report Structure

The five federal performance management areas—PM 1, PM 2, PM 3, TAM, and PTASP—are included below. Each of the five areas begins 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 2021 Regional Plan and 2021 Regional Transportation Improvement Program (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 Traffic Safety, establishes statewide safety targets. The statewide safety target-setting process is informed by safety plans, including the Caltrans Strategic Highway Safety Plan and Office of Traffic Safety Highway Safety Plan. 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.

Starting in 2018, the SANDAG Board of Directors has taken action to support the annual statewide safety targets, including the most recent 2021 safety targets. The SANDAG Board of Directors will be asked to take action on the 2022 safety targets within 180 days of the setting of 2022 statewide targets.

With each target-setting cycle, SANDAG agrees to plan and program projects that will help reach the established targets. The 2018–2022 statewide safety targets for PM 1 are shown in Table O.1.

Table O.1: Statewide PM 1 Safety Targets

Statewide PM 1 Safety Targets					
Performance Measure	**2018 Statewide PM 1 Safety Target**	**2019 Statewide PM 1 Safety Target**	**2020 Statewide PM 1 Safety Target**	**2021 Statewide PM 1 Safety Target**	**2022 Statewide PM 1 Safety Target[1]**
Number of fatalities	3,590.8	3,445.4	3,518.0	3,624.8	3,491.8
Rate of fatalities per 100 million vehicle miles traveled (VMT)	1.029	0.995	1.023	1.044	1.042
Number of serious injuries	12,823.4	12,688.1	13,740.4	15,419.4	16,704.2
Rate of serious injuries per 100 million VMT	3.831	3.661	3.994	4.423	4.879
Number of nonmotorized fatalities and serious injuries	4,271.1	3,929.8	4,147.4	4,340.8	4,684.4

Source: Caltrans, 2017, 2018, 2019, 2020, and 2021
Notes: [1] Statewide safety targets for 2022 were adopted by Caltrans at the time of this report. MPOs have 180 days from that adoption date to either support 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 2021 safety-target-setting process. These are also indicative of the committee and working group involvement in target setting from prior years.

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.

Public Safety Committee (PSC) – The PSC is composed of both elected officials and public safety representatives. The goals of the PSC 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 (TC) – The TC is composed of elected officials and partner agencies. TC 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 (ATWG) – The ATWG provides input on regional active transportation policy, planning, and implementation activities. The ATWG 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 (CTAC) – Comprising local jurisdiction public works directors, the CTAC reviews and advises on the development and maintenance of the regional road system. The CTAC prioritizes project funding requests and makes recommendations to the TC.

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 (TWG) – 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 TWG consists of the planning or community development director from each member agency and representatives from other single-purpose regional agencies. The TWG also provides coordination on regional growth management issues among member agencies.

San Diego Regional Traffic Engineers Council (SANTEC) – SANTEC 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.

Measures and Methodology

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

Table O.2: PM 1 Performance Measure Methodology

PM 1 Performance Measure Methodology			
	Performance Measure	**Calculation**	**Data Source**
1.	Number of fatalities	Five-year rolling average	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	SWITRS
4.	Rate of serious injuries per 100 million VMT	Five-year rolling average of annual serious injury rate	SWITRS HPMS
5.	Number of nonmotorized fatalities and nonmotorized serious injuries	Five-year rolling average of the annual sum of nonmotorized fatalities and nonmotorized serious injuries	FARS SWITRS

Source: 23 CFR 490

2021 Regional Plan and 2021 RTIP Investments

One of the three 2021 Regional Plan goals is access to affordable, reliable, and safe mobility options. This goal is supported by the proposed Vision Zero policy, which includes a near-term implementation strategy to develop a Regional Vision Zero Action Plan, including a Regional Safety Policy. The 2021 Regional Plan also includes a near-term implementation strategy to develop an Active Transportation Plan. The 2021 Regional Plan includes $850 million in Vision Zero program investments for member agency and project resource/coordination, community-based education, and capital and planning grants.

The 2021 Regional Plan also includes more than $4 billion in active transportation investments and $2.5 billion in complete streets investments. 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 2021 Regional Plan also integrates safety into the evaluation criteria that are used to help prioritize projects for inclusion in the revenue-constrained network. For this process, multimodal bundles of projects were created to better reflect choices travelers face when traveling to and from regional destinations. Evaluation criteria were developed to reflect plan goals and applied to each project bundle in the Unconstrained Transportation Network. Mobility and Safety was one of three evaluation criteria areas. This criteria area

includes evaluation of safety incidents (fatalities, serious injuries, and visible injuries)[4] in project bundle areas. Selection of the transportation network used this safety data in conjunction with other evaluation criteria and factors, including project readiness, project connectivity, and revenue phasing.

Updates to the RTIP database (ProjectTrak) were initiated with the development of the 2018 RTIP to support tracking of projects that support PM 1 targets. Data fields were added to allow project sponsors to provide information related to investments in safety. The 2021 RTIP includes 275 safety-related projects. These projects were identified by the project sponsors and include more than $1.3 billion in investments for the four-year RTIP program (FY 2021–FY 2024). 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 70% of the programmed safety dollars. The remaining projects include a variety of project categories and include projects where 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 O.3 summarizes the 2021 RTIP safety investments by project category.

[4] Incident data from tims.berkeley.edu/tools/gismap for fatalities, serious injuries, and visible injuries.

Table O.3: 2021 RTIP Safety Program Summary by Project Category (FY 2021–FY 2024)

2021 RTIP Safety Program Summary by Project Category (FY 2021–FY 2024)

Project Category	Safety Programming ($000)
Safety-Focused Projects[1]	$990,000
Intersection and Interchange Projects[2]	$29,000
Studies, Landscaping, and Enhancement Projects[3]	$46,000
Additional Safety Improvements Included in Other Projects[4]	$88,000
Public Transit[5]	$29,000
Bicycle and Pedestrian Improvements[6]	$195,000
Total	**$1,377,000**

Source: ProjectTrak, January 2021

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 statewide safety targets established by Caltrans for 2018–2021. Starting in 2020, the finalized observed data from the first target year (2018) became available. FHWA has since been able to assess the observed data and the targets from 2018 and 2019 to determine whether significant progress had been made.

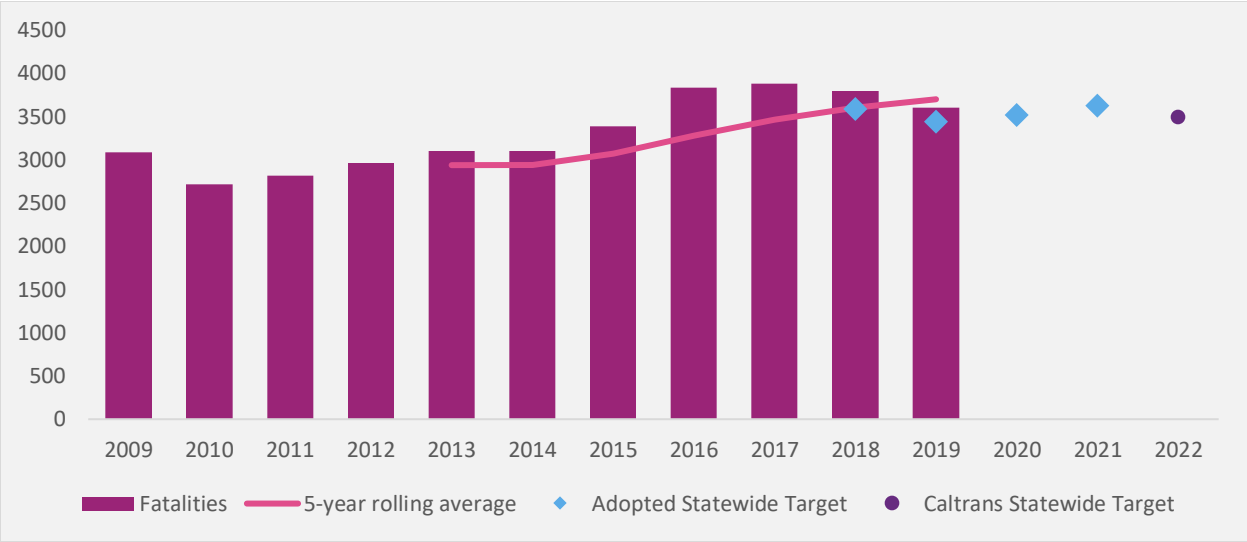
On April 24, 2020, FHWA determined that California did not make significant progress for calendar year 2018. FHWA made the same determination for calendar year 2019. The requirement for significant progress is to meet or exceed the established target or perform better than the baseline conditions for four out of the five performance measures. Targets and significant progress are based on the 5-year rolling average for each performance measure.

As a result of not meeting the significant progress determination, Caltrans is required to develop an implementation plan for the primary federal safety funding source, the Highway Safety Improvement Program (HSIP). The HSIP implementation plan will cover the following year and will continue to be a required annual document until significant progress is determined. SANDAG will continue to collaborate with Caltrans, FHWA, other

California MPOs, and regional partners on the HSIP implementation plan and future safety targets to help achieve adopted safety targets.

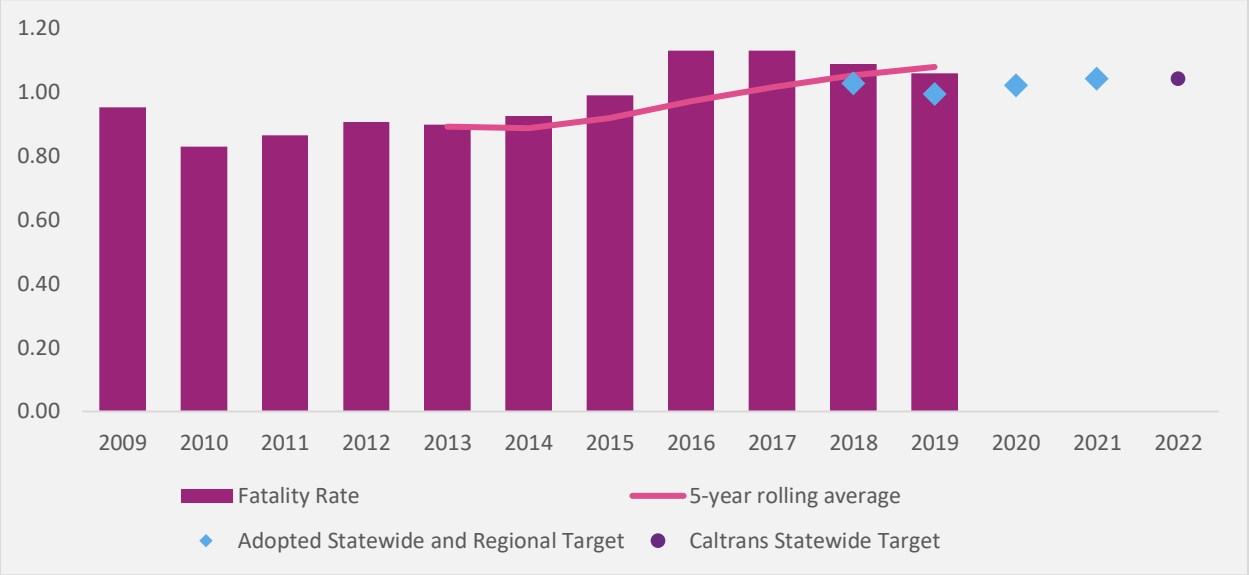
Figures O.1–O.5 show statewide traffic safety data for the five required performance measures under PM 1. The charts show available observed data and adopted targets.

Figure O.1: Statewide Fatalities



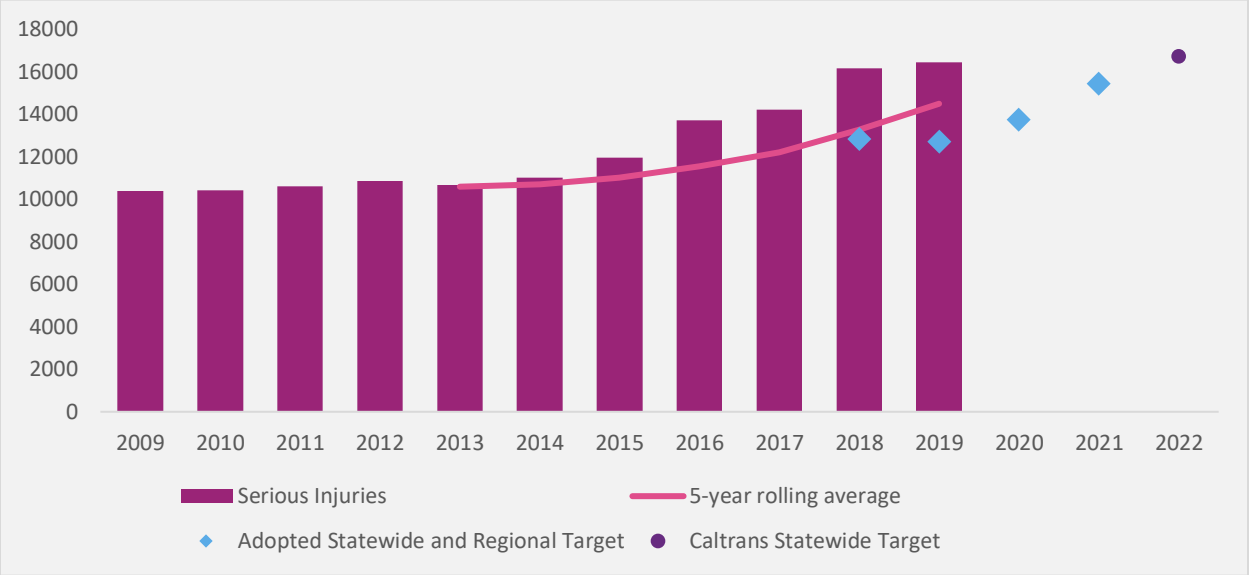
Source: Caltrans 2017, 2018, 2019, 2020, and 2021

Figure O.2: Statewide Fatality Rates



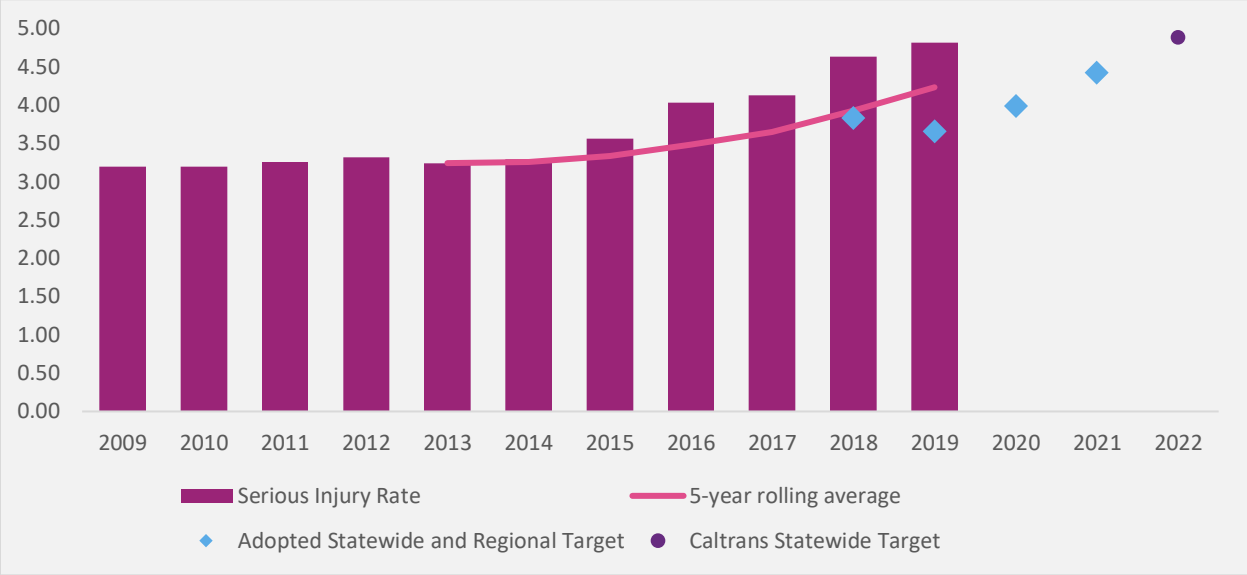
Source: Caltrans 2017, 2018, 2019, 2020, and 2021

Figure O.3: Statewide Serious Injuries



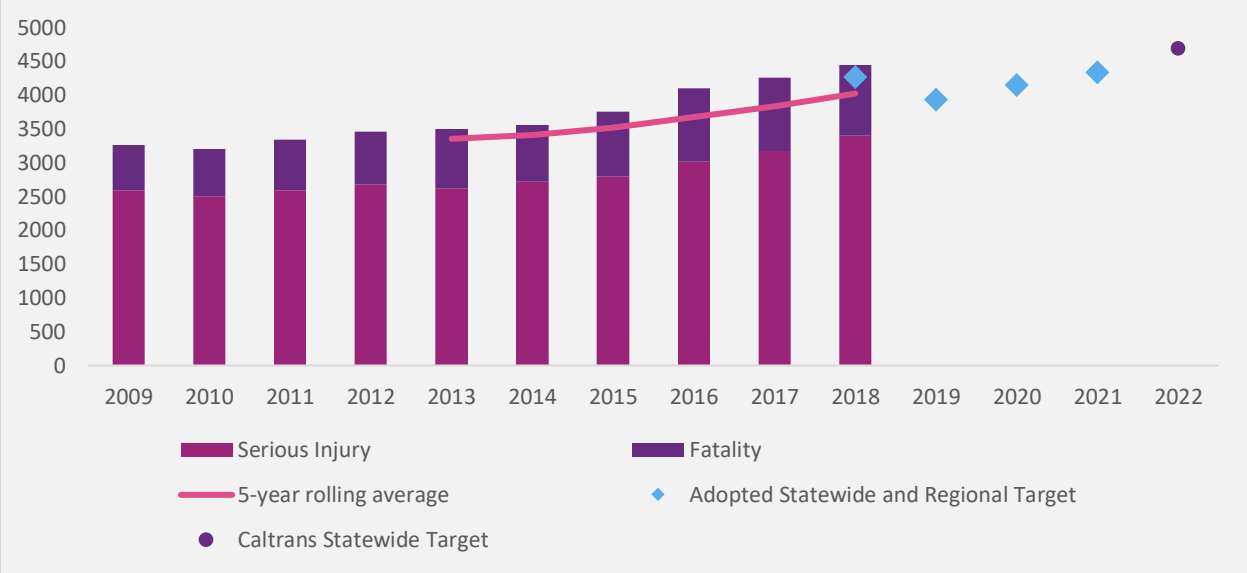
Source: Caltrans 2017, 2018, 2019, 2020, and 2021

Figure O.4: Statewide Serious Injury Rates



Source: Caltrans 2017, 2018, 2019, 2020, and 2021

Figure O.5: Statewide Nonmotorized Fatalities and Serious Injuries



Source: Caltrans 2017, 2018, 2019, 2020, and 2021

PM 2: Pavement and Bridge Condition

Target-Setting Process

Similar to the process for PM 1, MPOs have the option of supporting the State DOT'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 O.4. The target years are the mid-performance period, 2019, and the last year of the performance period, 2021. The statewide targets were informed by the 2020 Caltrans Transportation Asset Management Plan, which considers life-cycle costs, risk, and cost-effectiveness. On October 5, 2018, the TC approved supporting the statewide targets for pavement and bridge condition established by Caltrans in accordance with MAP-21.

Targets for PM 2 are based on a four-year performance period. The current performance period spans from 2018 to 2021. 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. In 2020 Caltrans reviewed the 2021 targets and data from prior years and elected not to update the 2021 targets.

Table O.4: PM 2 Statewide Pavement and Bridge Condition Targets

PM 2 Statewide Pavement and Bridge Condition Targets

Performance Measure	2-Year NHS Target		4-Year NHS Target	
	2019		2021	
	Good	Poor	Good	Poor
Pavements on the National Highway System (NHS)				
Interstate[1]			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
Notes: [1] For the first performance period only, baseline condition and 2-year targets are not required for the Pavements on the Interstate System measures. 23 CFR 490.105(e)(7)

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 CTAC, SANTEC, and TC. 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) (Figure O.6). 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 O.5 and O.6, summarizes the calculation and data sources for each performance measure included in PM 2.

Figure O.6: National Highway System

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 O.6.

Asphalt – International Roughness Index (IRI), rutting, cracking percent

JCP – IRI, faulting, cracking percent

CRCP – IRI, cracking percent

Table O.5: PM 2 Performance Measure Methodology

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	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 O.6: Pavement Category Rating System

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

2021 Regional Plan and 2021 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.[5] Although the percentage of the NHS in the SANDAG region is small, the 2021 Regional Plan supports PM 2 target achievement through long-term investments throughout the network. The 2021 Regional Plan includes funding for maintenance and operations on highways as well as local streets and roads through 2050 (Appendix V: Funding and Revenues).

The 2021 Regional Plan also includes a policy consideration related to infrastructure asset management. The Fix It First policy prepares SANDAG to develop a pavement-management framework to support the preservation of existing facilities and incorporate new facilities into the preservation framework.

As projects transition from the 2021 Regional Plan and are programmed into the SANDAG RTIP, project sponsors provide information that allows summary statistics of investments on the NHS. The 2021 RTIP includes investments that are anticipated to help preserve, maintain, or enhance the condition of NHS facilities. This includes 44 pavement and 17 bridge projects on the NHS, totaling more than $521 million in the first four years of the 2021 RTIP. Tables O.7 and O.8 summarize the investments currently programmed in the 2021 RTIP that support the pavement and bridge performance targets, respectively.

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

Table O.7: 2021 RTIP NHS Pavement Program Summary

2021 RTIP NHS Pavement Program Summary (FY 21–FY 24)	
Project Phase	**Investment ($000)**
Environmental / Preliminary Engineering / Design	$54,000
Right-of-Way	$14,000
Construction	$355,000
Total	**$423,000**

Source: ProjectTrak, November 2020

Table O.8: 2021 RTIP NHS Bridge Investments

2021 RTIP NHS Bridge Investments (FY 21–FY 24)	
Project Phase	**Investment ($000)**
Environmental / Preliminary Engineering / Design	$8,000
Right-of-Way	$12,000
Construction	$78,000
Total	**$98,000**

Source: ProjectTrak, November 2020

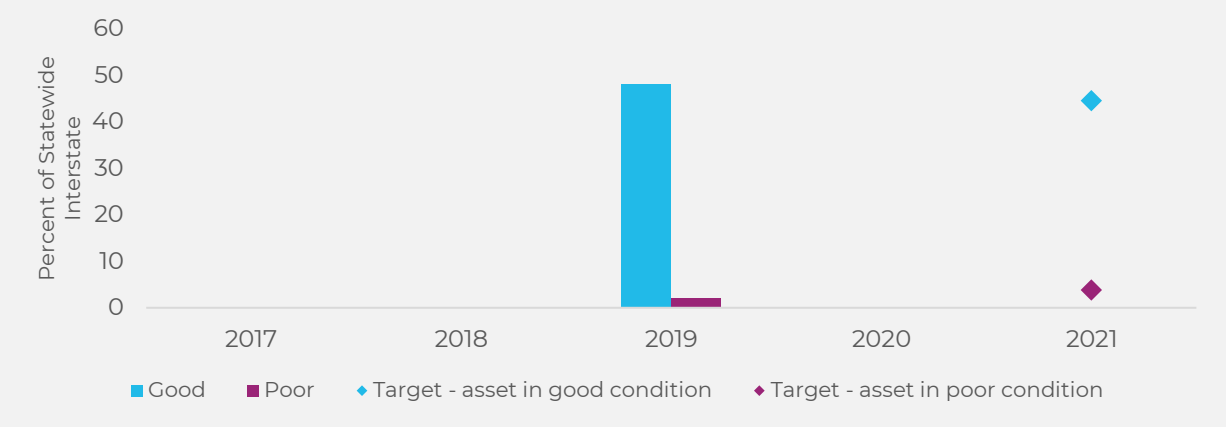
Target Achievement and Future Target-Setting

Performance measures in PM 2 are based on a four-year performance period and include a mid-performance period at the two-year mark. The target years are the mid-performance period, 2019, and the last year of the performance period, 2021. In 2020, Caltrans reviewed the 2021 targets and data from prior years and elected not to update the 2021 targets. Upon the completion of the current performance period at the end of 2021, coordination will begin on target setting for the subsequent performance period ending in 2025.

At the end of the performance period, FHWA will determine if California has made significant progress toward meeting the targets established for pavement and bridge condition targets. SANDAG continues to collaborate with Caltrans, FHWA, and other California MPOs on the monitoring of progress toward targets.

Figures O.7–O.9 show observed conditions and targets for the performance measure included in PM 2. Data collection cycles vary for asset types and observed-conditions data may not be for the same year for each asset type.

Figure O.7 Statewide Interstate NHS Pavement Conditions and Targets[1]

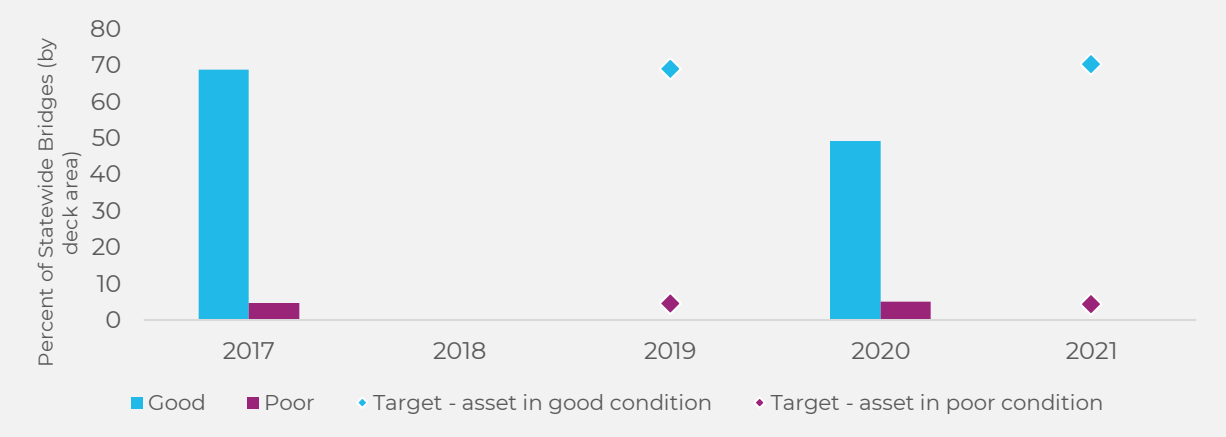


Source: Caltrans 2020
Notes: [1] For the first performance period only (2018-2021), baseline condition (2017) and 2-year targets (2019) are not required for the Pavements on the Interstate System measures. 23 CFR 490.105(e)(7)

Figure O.8: Statewide Non-Interstate NHS Pavement Conditions and Targets

Source: Caltrans 2020

Figure O.9: Statewide NHS Bridge Conditions and Targets



Source: Caltrans 2020

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—the National Highway Performance Program (NHPP), freight movement, and CMAQ. The target-setting process and timeframe are 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.

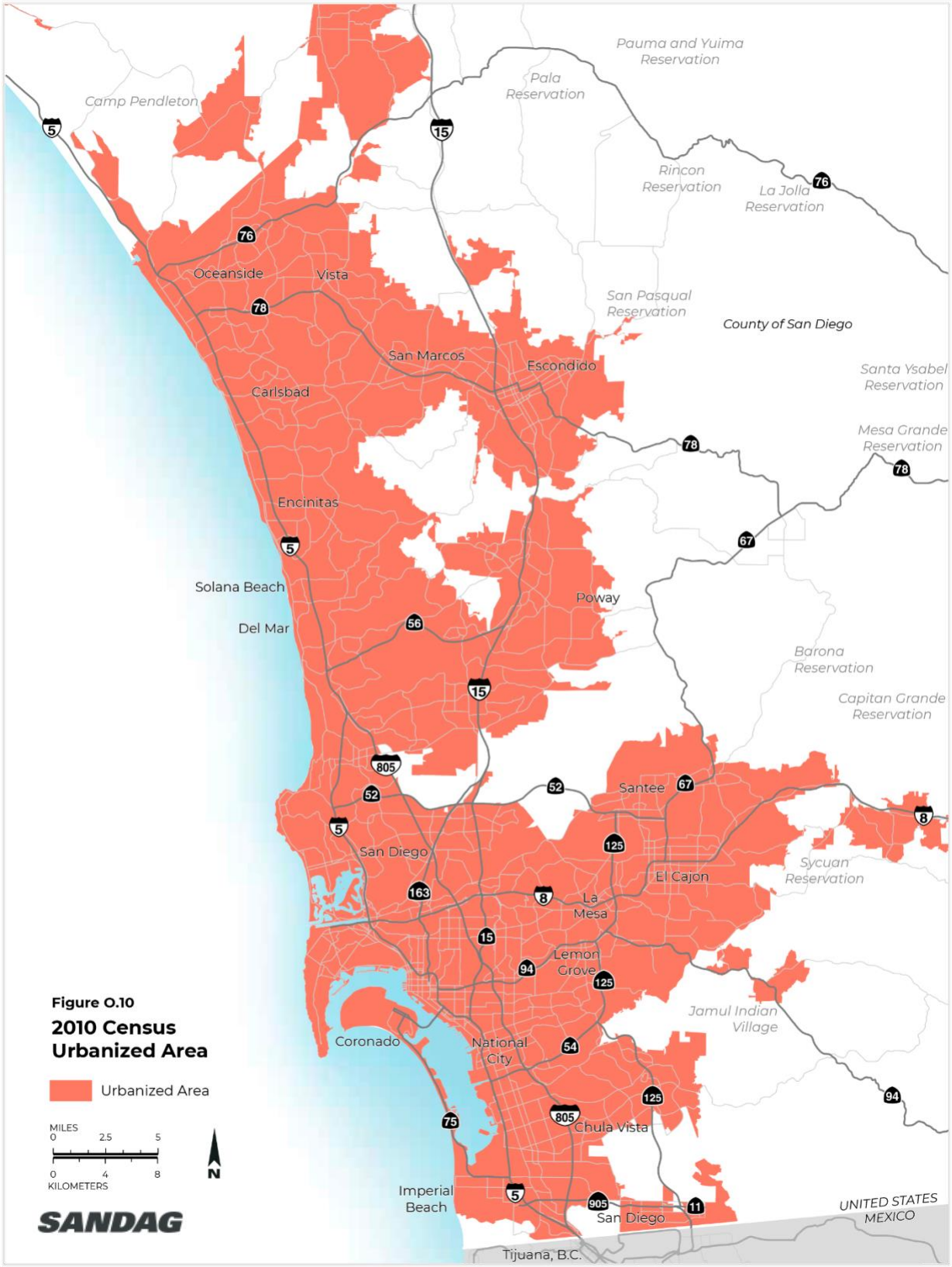
Three of the performance measures included in PM 3 allow MPOs the option of supporting the State DOT's targets or developing regional targets. For these performance measures, the SANDAG Board of Directors supported the statewide targets. These measures include percentage of reliable person-miles traveled 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.

The following two performance measures require Caltrans and SANDAG to establish single, unified targets for the urbanized area within the SANDAG planning area. Figure O.10 shows the SANDAG Urbanized Area.

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

Figure O.10: 2010 Census Urbanized Area



The target-setting timeframes for PM 3 performance measures vary by the associated federal program. Table O.9 summarizes the target-setting dates for each of the PM 3 performance measures. On October 5, 2018, the TC approved supporting the statewide targets for system performance, freight, and CMAQ established by Caltrans in accordance with MAP-21. In 2020 Caltrans reviewed the 2021 targets and data from prior years and elected not to update the 2021 targets.

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

Table O.9: PM 3 Performance Target Approval Dates for System Performance, Freight, and CMAQ

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

Program	Performance Measure	Date Target Established
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 [TTTR] Index)	October 5, 2018
CMAQ	Percent of Non-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

Table O.10 PM 3 Statewide and Regional Targets

PM 3 Statewide and Regional Targets			
Performance Measure	**2017 Baseline Data**	**2-Year Target 2019**	**4-Year Target 2021**
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 (TTTR 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 (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 CMAQ were developed in coordination with the CTAC, SANTEC, and TC. 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 O.11.

Table O.11: PM 3 Performance Measure Methodology

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 (TTTR 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, HPMS
6. Percent of non-SOV travel	Commute to work totaled by mode, 5-year estimate	American Community Survey

Source: 23 CFR 490

2021 Regional Plan and 2021 RTIP Investments

The 2021 Regional Plan helps support the targets in PM 3 by increasing reliability through more travel options and advancing smart and adaptive transportation solutions. 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 2021 Regional Plan includes investments of more than $18 billion for Complete Corridors, which include managed lane improvements, and an additional $5 billion in Active Transportation and Demand Management and Smart Intersection Systems to improve travel time reliability.

The 2021 Regional Plan was informed by several processes that support the PM 3 targets. The 2021 Regional Plan Vision was developed using propensity analysis on Transit Leap and Mobility Hubs in addition to corridor capacity analysis. These approaches support multimodal transportation, opportunity for additional non-SOV travel, and increased reliability with a more diversified transportation system. The 2021 Regional Plan also used PM 3 person-hours of excessive delay data in its evaluation criteria. The evaluation criteria also included data on goods movement routes and areas supporting the TTTR Index. The revenue-constrained 2021 Regional Plan transportation network was reviewed with

performance measures including access measure by several transportation modes. This process helps show how the network can further non-SOV travel options. More information on the vision development, evaluation criteria, and network performance measures can be found in Appendix T: Network Development and Performance.

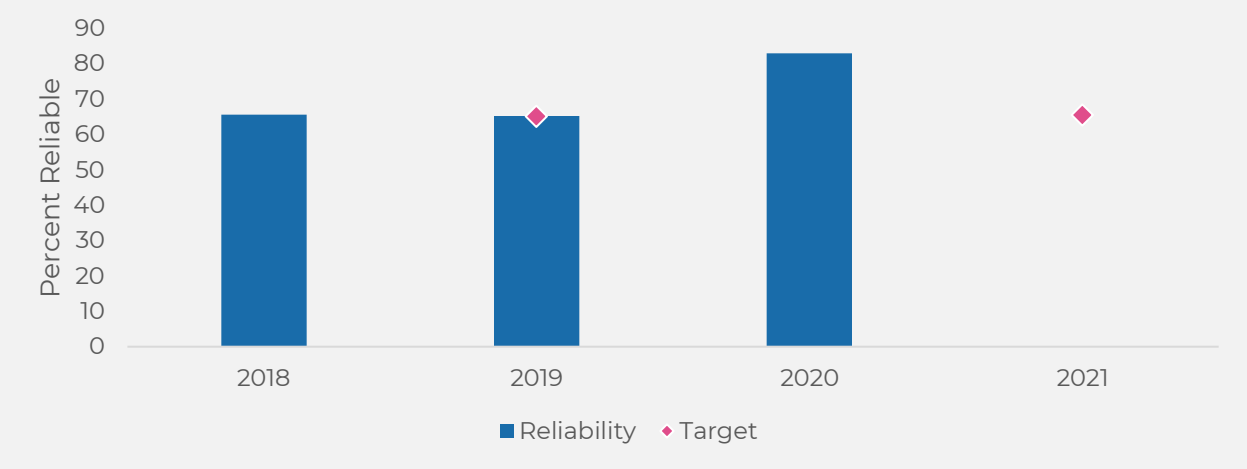
The 2021 RTIP includes nearly $15 billion dollars of project programming. More than a third of the RTIP, or $6.7 billion dollars, is programmed for multimodal facilities, transit, active transportation, transportation systems, and demand management. This also includes more than $28 million in the region's rideshare programs.

Target Achievement and Future Target Setting

Performance measures in PM 3 are based on a four-year performance period and include a mid-performance period at the two-year mark. 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 2021 targets. At the midpoint, MPOs and Caltrans can elect to update the 2021 target. In 2020 Caltrans reviewed the 2021 targets and data from prior years and elected not to update the 2021 targets. Upon the completion of the current performance period at the end of 2021, coordination will begin on target setting for the subsequent performance period ending in 2025.

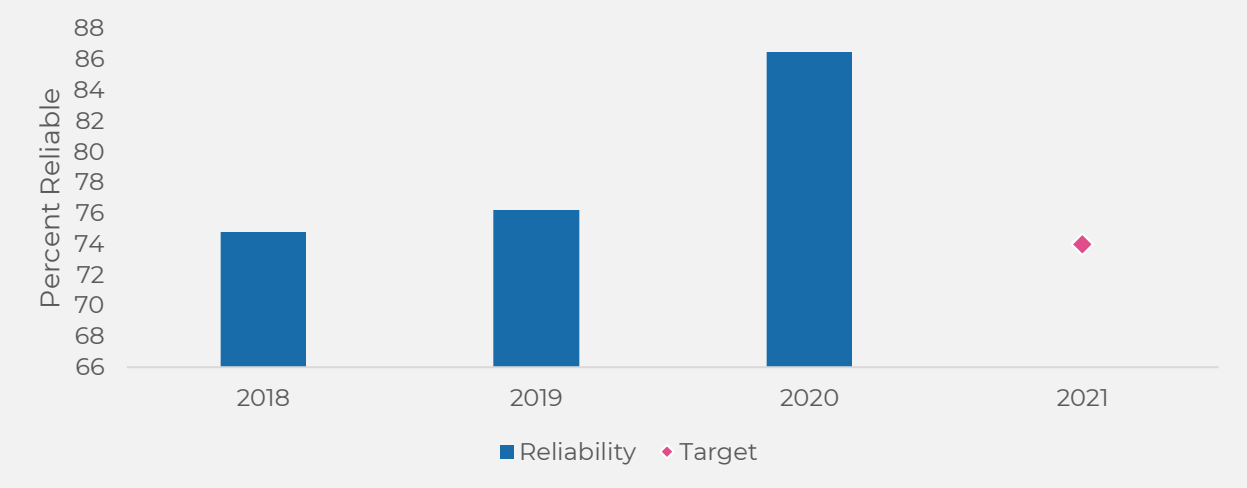
Data and targets for the travel time reliability measures under PM 3 are summarized in Figures O.11–O.13. Figure O.14 and O.15 display the percent of non-SOV commute travel and annual person-hours of excessive delay. Total emissions-reduction performance is on track with project programming.

Figure O.11: Percent of Reliable Interstate Person-Miles Traveled



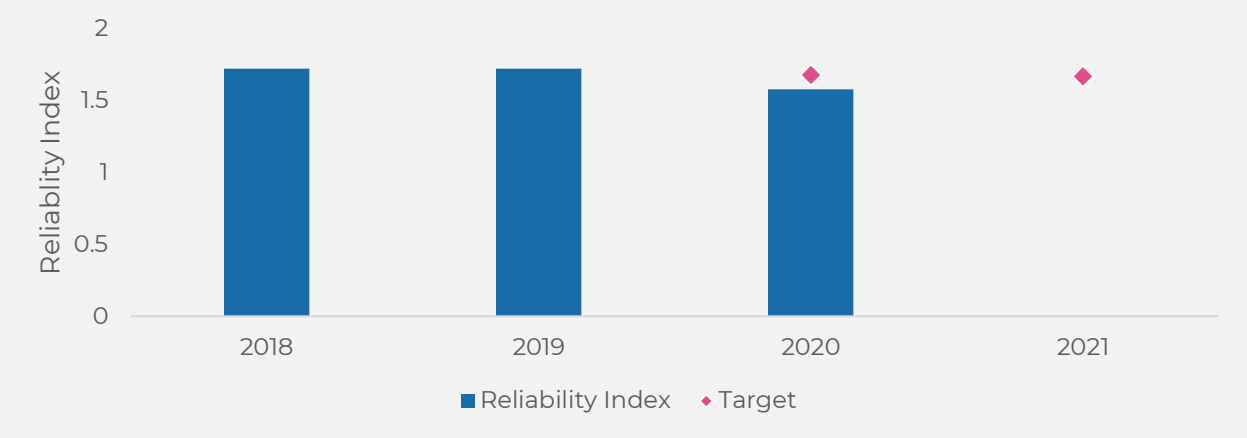
Source: NPMRDS, Regional Integrated Transportation Information System (RITIS) CATT Lab 2021

Figure O.12: Percent of Reliable Non-Interstate NHS Person-Miles Traveled



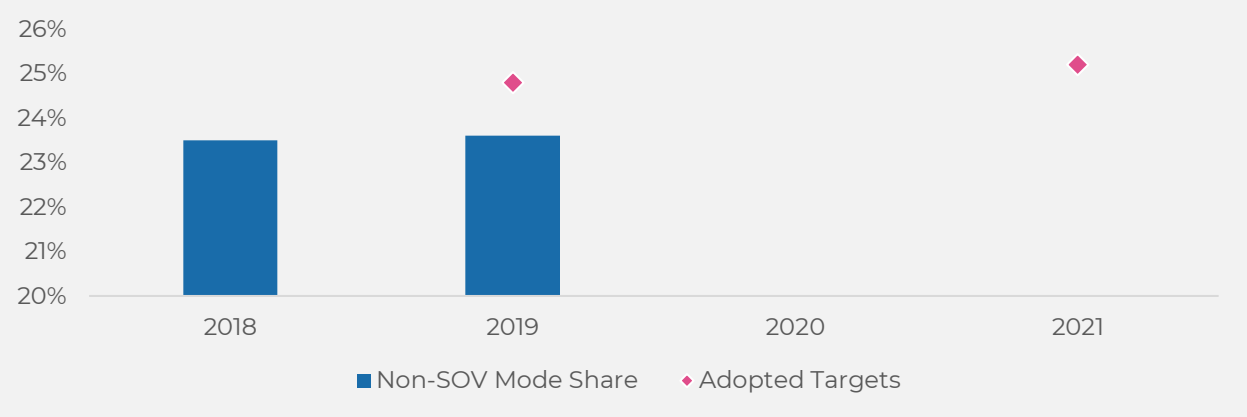
Source: NPMRDS, RITIS CATT Lab 2021

Figure O.13: Truck Travel Time Reliability Index



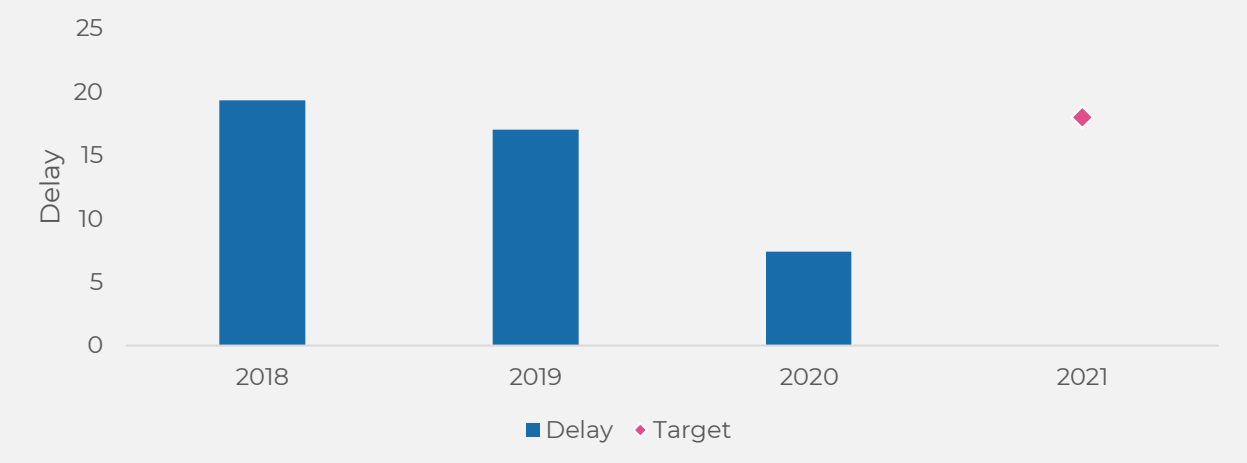
Source: NPMRDS, RITIS CATT Lab 2021

Figure O.14: Non-SOV Mode Share for Commute to Work Trips



Source: NPMRDS, RITIS CATT Lab 2021

Figure O.15: Person-Hours of Excessive Delay



Source: NPMRDS, RITIS CATT Lab 2021

Regional 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 regional plan.

Regional TAM performance targets were set in 2018 and 2020. The 2018 regional TAM performance targets were developed to meet the TAM implementation process and inform the SANDAG 2019 Federal Regional Transportation Plan. The 2020 regional TAM targets were developed to inform the 2021 Regional Plan.

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 and 2020 regional TAM targets are shown in Table O.12.

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.[6]

[6] 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.

Table O.12: Regional TAM Targets

Regional TAM Targets				
Asset Category	**Performance Measure**	**Asset Type**	**2019 Regional Targets**	**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%	61.7%
		Trucks and other rubber tire vehicles	50.5%	50.0%
		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%	11.7%
		Cutaway bus	7.2%	3.7%
		Light rail vehicle	0.0%	0.0%
		Minivan	100.0%	100.0%
		Commuter rail locomotive	71.0%	71.4%
		Commuter rail passenger coach	57.0%	57.1%
		Vintage trolley/ streetcar[4]	0.0%	100.0%

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.
[4] Vintage rolling stock are older vehicles that are not anticipated to improve in their ULB but are used in limited purposes.

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, MTS, and NCTD worked collaboratively to develop a weighted regional target-setting approach. Staff from all three agencies reviewed the application of this process for the 2019 and 2020 regional TAM targets. SANDAG continues to coordinate and collaborate with 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.

2021 Regional Plan and 2021 RTIP Investments

The 2021 Regional Plan includes approximately $163.5 billion in transportation investments, including more than $35 billion for commuter rail and other rail enhancements. Another $4 billion is planned for vehicle purchases, replacement, and rail maintenance facilities. These investments will help with maintaining the public transportation system in a good state of repair, managing the fleet age, and enabling needed 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 2021 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 O.13. The 2021 RTIP includes more than 35 projects totaling approximately $2 billion in support of TAM targets.

Table O.13: 2021 RTIP TAM Program Summary by Category (FY 2021–FY 2024)

2021 RTIP TAM Program Summary by Category (FY 2021–FY 2024)	
Project Asset Category	**Total TAM Programming ($000) MTS, NCTD, and SANDAG**
Equipment	$—
Facilities	$273,000
Infrastructure	$1,093,000
Rolling Stock	$604,000
Total	**$1,970,000**

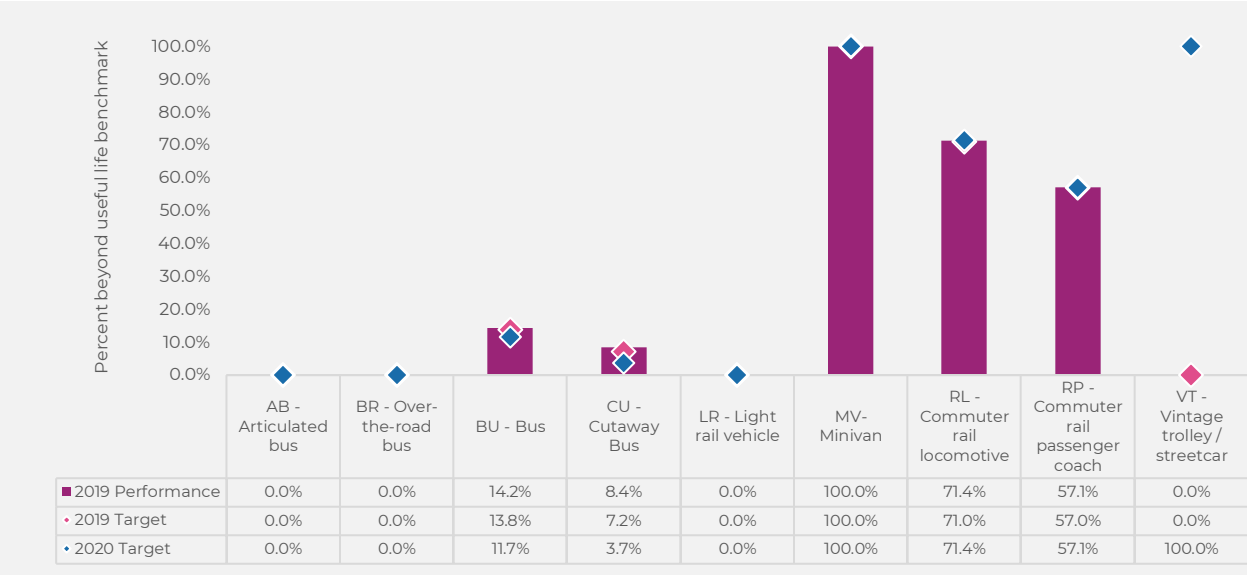
Source: ProjectTrak, November 2020

Target Achievement and Future Target Setting

The SANDAG Board of Directors approved the 2019 regional TAM targets at its September 28, 2018, meeting and the 2020 regional TAM targets at its February 28, 2020, meeting. As data are 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 O.16–O.19 show the regional TAM targets and the observed regional TAM performance data.

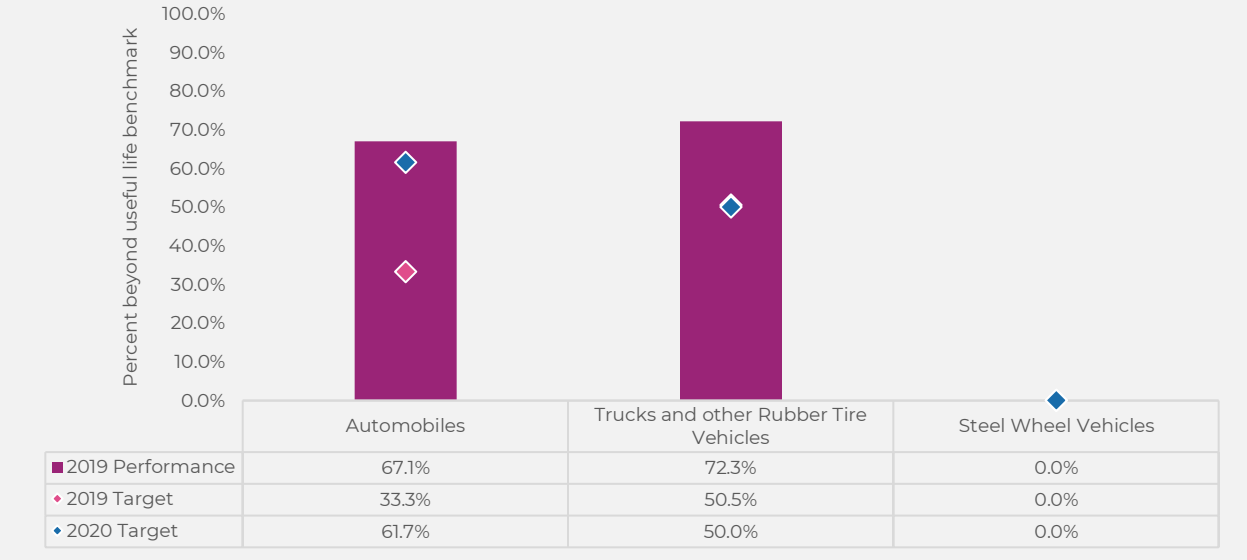
Figure O.16: Regional Revenue Vehicles Targets and Observed Performance



	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%
2020 Target	0.0%	0.0%	11.7%	3.7%	0.0%	100.0%	71.4%	57.1%	100.0%

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.

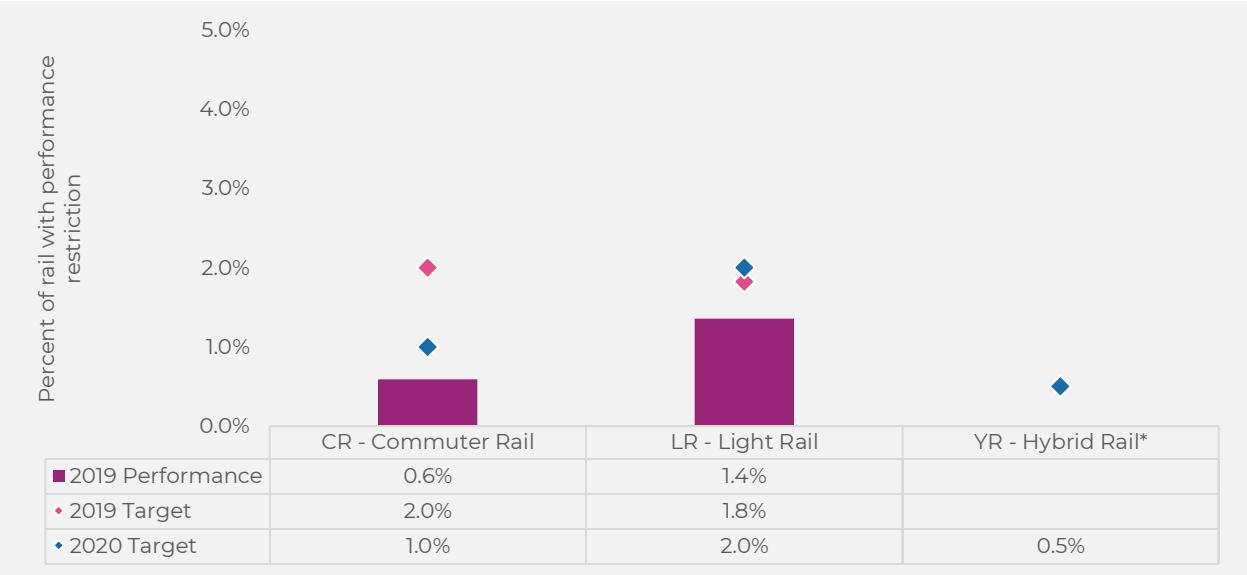
Figure O.17: Regional Service Vehicles Targets and Observed Performance



	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%
2020 Target	61.7%	50.0%	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.

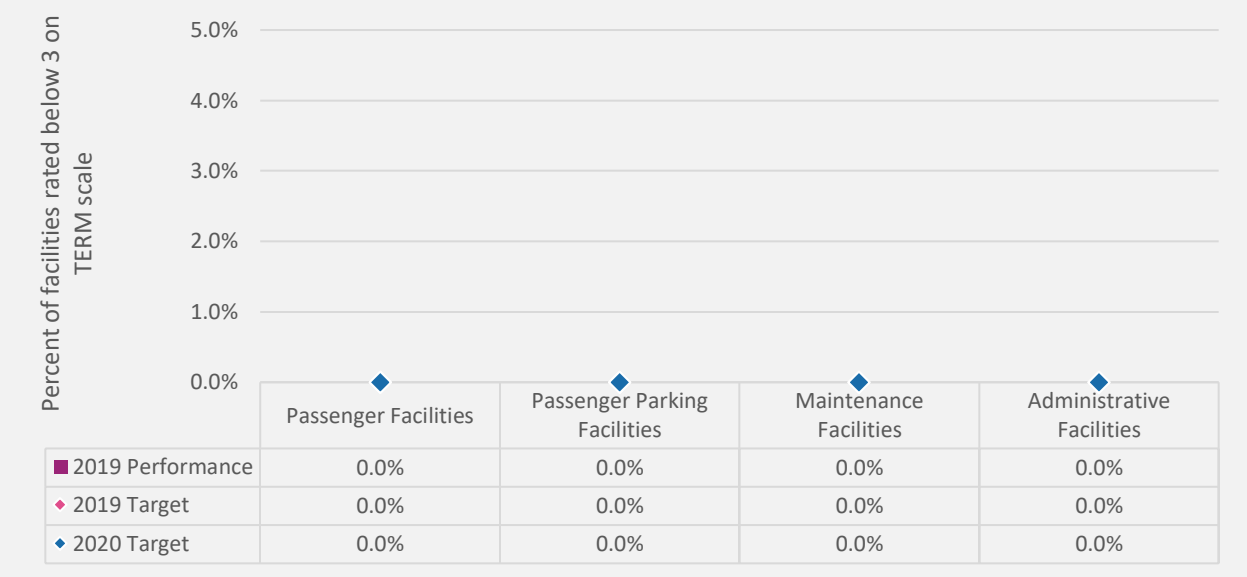
Figure O.18: Regional Rail Performance Restriction Targets and Observed Performance



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

Source: MTS, NCTD, and SANDAG
Note: Percent of rail with performance restriction of 0.0% means the asset type is in a complete state of good repair.
*The NCTD SPRINTER rail was reclassified as hybrid rail for 2020. Previously it was classified as light rail.

Figure O.19: 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%
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.

Regional Public Transportation Agency Safety Plan

Target-Setting Process

Starting July 20, 2020, the FTA requires providers of public transportation receiving specific FTA funds to develop a PTASP. These plans include policies and procedures to implement Safety Management Systems that include performance measures and annual performance targets. MTS and NCTD are the two public transportation providers in the San Diego region that are required to develop PTASPs. The provider targets are updated annually. MPOs, in coordination with providers, are responsible for developing regional public transportation safety targets. MPOs are required to set regional public transportation safety targets with each update of their regional plan.

Staff from MTS, NCTD, and SANDAG reviewed transit safety data from 2015 to 2019 to develop the regional targets included in Table O.14. Historical trends, along with the most current observed data, informed target development. The 2020 regional public transportation safety targets in Table O.14 were approved by the SANDAG Board of Directors at its December 18, 2020, meeting.

Table O.14: 2020 Regional Public Transportation Safety Targets

2020 Regional Public Transportation Safety Targets			
Performance Measure	**Fixed Route**	**Bus ADA/ Paratransit**	**Rail Transit**
Number of fatalities	0	0	0
Fatality rate by 100 thousand vehicle revenue miles (VRM)	0	0	0
Number of injuries	150	6	120
Injury rate by 100 thousand VRM	0.5	0.1	1.2
Number of safety events	140	7	130
Safety event rate by 100 thousand VRM	0.7	0.1	2.3
System reliability	6,000	20,000	15,000

Source: SANDAG, in coordination with MTS and NCTD

Interagency Coordination

Beginning in 2019, SANDAG, MTS, and NCTD staff began coordinating on processes for developing regional public transportation safety targets and an MOU addendum to include a provision for sharing safety performance data. Both MTS and NCTD completed their respective PTASPs and provided copies to SANDAG to facilitate coordination of regional targets.

The regional public transportation safety target-setting process was presented to the CTAC at their November 5, 2020, meeting for discussion. The draft 2020 regional public transportation safety targets were presented to the TC on December 11, 2020. The Board of Directors approved the targets on December 18, 2020.

Measures and Methodology

FTA's National Public Transportation Safety Plan directs the required performance measures. Data from the National Transit Database (NTD) was reviewed with performance measure calculation processes from FTA's PTASP Technical Assistance Center. Table O.15 summarizes the seven performance measures into four process categories.

Table O.15: Regional Public Transportation Safety Performance Measure Categories

Regional Public Transportation Safety Performance Measure Categories	
Fatalities	Total number of fatalities reported to NTD and rate per total VRM by mode.
Injuries	Total number of injuries reported to NTD and rate per total VRM by mode.
Safety Events	Total number of safety events reported to NTD and rate per total VRM by mode.
System Reliability	Mean distance between major mechanical failures by mode.

Source: FTA PTASP Technical Assistance Center

2021 Regional Plan and 2021 RTIP Investments

The 2021 Regional Plan's investments support the regional public transportation safety targets by upgrading transit facilities and creating additional transit priority facilities. These types of investments are anticipated to reduce the number of conflict points, which would reduce the likelihood of a crash.

The 2021 RTIP was developed prior to the approval of the first round of regional public transportation safety targets. MTS and NCTD Capital Improvement Programs, as well as SANDAG and multiagency-sponsored projects that address transit facilities and corridors that carry transit services, are incorporated into the RTIP.

Target Achievement and Future Target-Setting

Regional public transportation safety is the newest area of the Federal System Performance Report and has not yet gone through multiple regional plan development cycles. As data are 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 public transportation safety targets. These results will be reported in the subsequent Federal System Performance Report.

Attachments

Attachment 1: Congestion Mitigation and Air Quality Improvement (CMAQ) Mid Performance Period Progress Report – September 2020

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT (CMAQ) MID PERFORMANCE PERIOD PROGRESS REPORT – September 2020

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: percent of non-single occupancy vehicle (Non-SOV) travel, annual hours of peak-hour excessive delay per capita (PHED), and total emissions reductions by applicable pollutants under the CMAQ Program.

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.

Background

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 Baseline Performance Plan to Caltrans on September 14, 2018 for inclusion in the state CMAQ Performance Plan. That CMAQ Baseline Performance Plan serves the CMAQ first performance period, which is January 2018 -January 2022 for the two traffic congestion measures: percent of non-single occupancy vehicle travel and annual hours of peak-hour excessive delay per capita, and October 2017 – October 2021 for the total emissions reductions performance measure.

SANDAG will provide this CMAQ Mid Period Performance Report to Caltrans in September 2020 to fulfill elements required under 23 CFR 490.107(c) and 23 USC 149(l). The Mid Period Performance Report provides updates on progress toward targets based on available data. The Mid Period Performance Report also provides an opportunity for modifications to the four-year targets. No CMAQ performance target updates are being requested for this performance cycle.

Caltrans coordinated with MPOs, including SANDAG, in December of 2019 and again in August of 2020 regarding the election to keep the four-year performance targets included in the CMAQ performance area. Caltrans provided updated performance data in December of 2019 and again in August of 2020 for the CMAQ performance measures.

Mid Period Condition/Performance for Traffic Congestion Measures

Mid period performance 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. Data from the Census Bureau for the Percent of non-SOV travel is only available up to 2018. The 2019 five-year estimates are scheduled for publication in December of 2020. A summary of these data is included in **Table 1**. Baseline data for these measures is from 2017.

Table 1: Mid Period Condition for Traffic Congestion Measures

Traffic Congestion Measures Mid Period Condition			
Measure	2017	2018	2019
Percent of non-SOV travel[1]	23.8%	23.5%	N/A
Annual Hours of Peak-Hour Excessive Delay Per Capita[2]	18.4	19.3	17.0[3]

Mid Period 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 2018-2019 was used to calculate the mid period performance condition for the On-Road Mobile Source Emissions Reductions Measure. A summary of these data is included in **Table 2**. Baseline data for these measures is from 2017.

Table 2: Mid Period Condition for Emission Reductions Measure

Emission Reductions Measure Mid Period Condition [4]			
Pollutant	2017	2018	2019
NOx Benefit (kg/day)	398.1 kg/day	41 kg/day	41 kg/day
VOC Benefit (kg/day)	362.28 kg/day	33 kg/day	33 kg/day

[1] Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates
[2] Source: NPMRDS Analytics Tool (https://npmrds.ritis.org/analytics/)
[3] Calculated using 99.90% of miles in San Diego. Final calculations under development.
[4] Source: Projects reported in the CMAQ Public Access System between Federal fiscal years 2018 to 2019

Two and Four-year Targets:

Tables 3 and 4 include the CMAQ targets for Traffic Congestion and On-Road Mobile Source Emissions Performance Measure targets respectively. Targets for both Traffic Congestion measures indicate anticipated improvements; an increase in non-SOV travel and a reduction in excessive delay. Caltrans and SANDAG have the same targets for these measures and the four-year targets remain unchanged from the 2018 CMAQ Baseline Report. Targets for On-Road Mobile Source Emissions indicate the expected reductions from projects programmed with CMAQ funds.

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%

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

Targets for On-Road Mobile Source Emission Reductions		
Emission Reduction Measure[5]	**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

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, support the person hours of excessive delay, and percent of non-single occupancy vehicle targets. The anticipated benefits are listed in **Table 5**. The 2021 Federal fiscal year includes a programmed project that was not included in the initial baseline report. This safety project is a rail grade separation that is anticipated to reduce delay, vehicle idling emissions and improve safety.

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

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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)**	**PHED benefit**	**Non-SOV benefit**
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2018	41	33	Yes	Yes
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2019	41	33	Yes	Yes
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2020	42	35	Yes	Yes
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2021	44	36	Yes	Yes
Congestion Reduction and Traffic Flow Improvements	Safety Program	2021	0.26	0.17	Yes	No
Travel Demand Management	Regional Ridesharing - Carpooling and Vanpooling	2022	45	37	Yes	Yes

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Assessment of Progress towards achieving the 2-year targets:

SANDAG uses performance in four areas to assess progress towards CMAQ target achievement. These are the two traffic congestion measures, Non-Single Occupancy Vehicle Mode Share, and Annual Person Hours of Excessive Delay Per Capita; and two emission reductions measures, one for each Ozone precursors, Oxides of Nitrogen and Volatile Organic Compounds. For this initial reporting period (2018-2022) the Annual Person Hours of Excessive Delay Per Capita only includes a four-year target and this measure is on track to achieve that target. Of these three remaining areas, two are on track to meet or be better than the two-year target. The performance area that currently is not demonstrating target achievement is the Non-Single Occupancy Vehicle Mode Share. More information on each of these is included below.

Traffic Congestion Measures

From the data available at the time of this report the trend for Non-Single Occupancy Vehicle Mode Share is relatively flat. During this same time period the working age population has continued to grow substantially. The number of non-SOV commute to work trips continues to increase, however this increase is outpaced by the growth in the working age population.

Chart 1 shows that the change in Non-Single Occupancy Vehicle Mode Share is relatively flat. Target achievement will require a more upward or positive trend. This measure is based on the working age population in the urbanized area. For the San Diego County Urbanized area, the working age population has been growing by over 25,000 annually on average over this time period. The number of Non SOV trips has also grown but at a slower rate; on average just over 5,500 per year. The strongly positive growth in working age population is illustrated in **Chart 2**. For this performance measure positive growth demonstrates improvements.

Chart 1: Percent Non-SOV Travel and Working Age Population

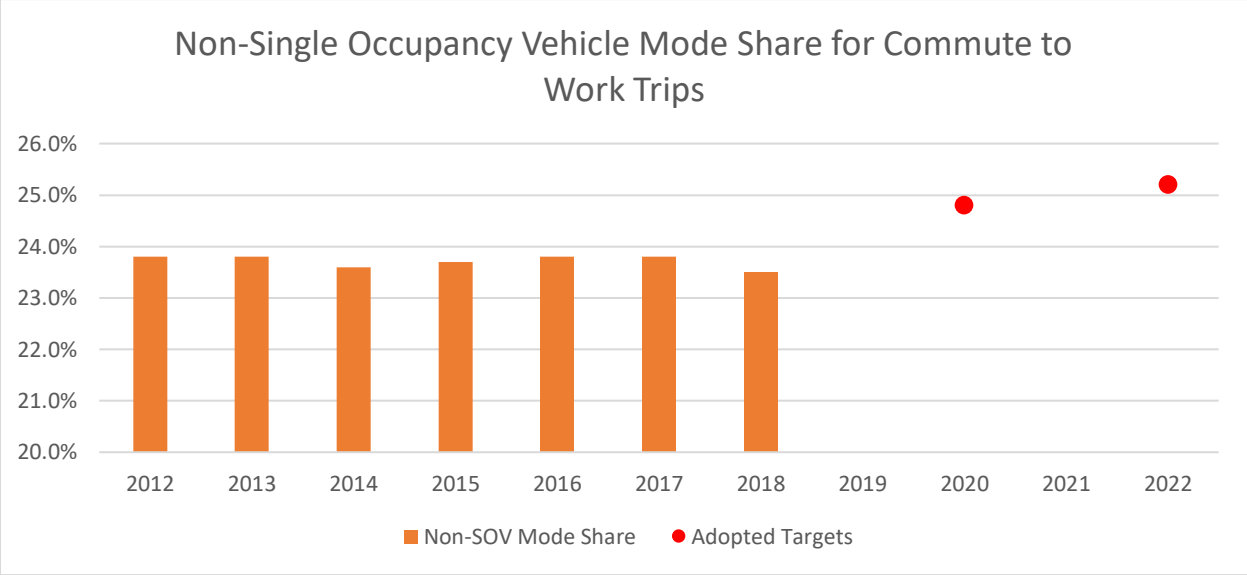
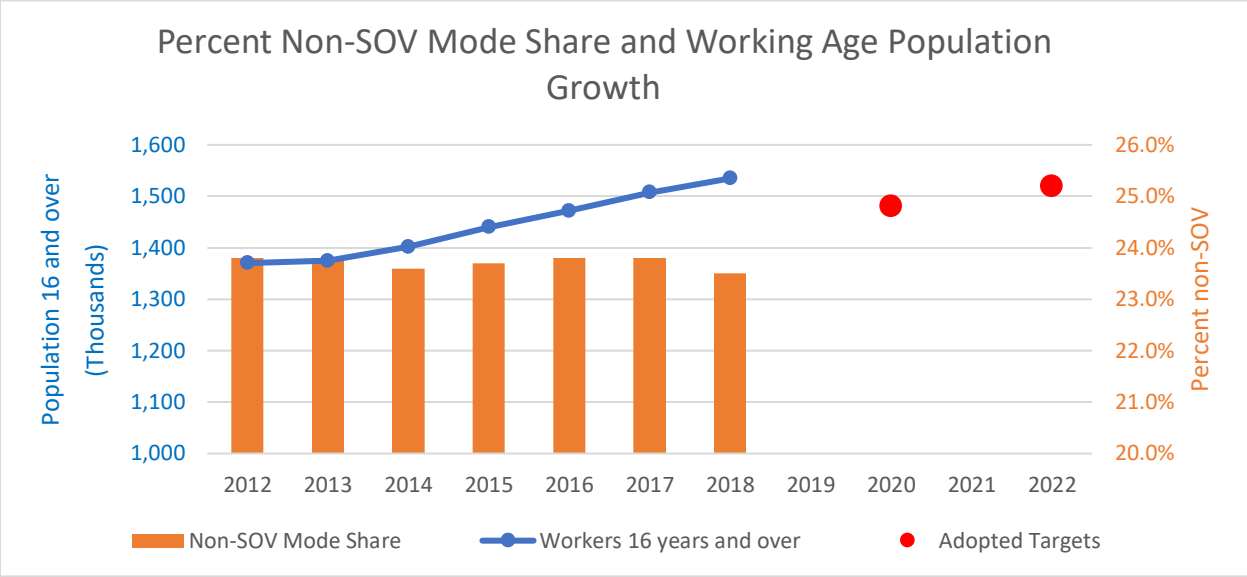
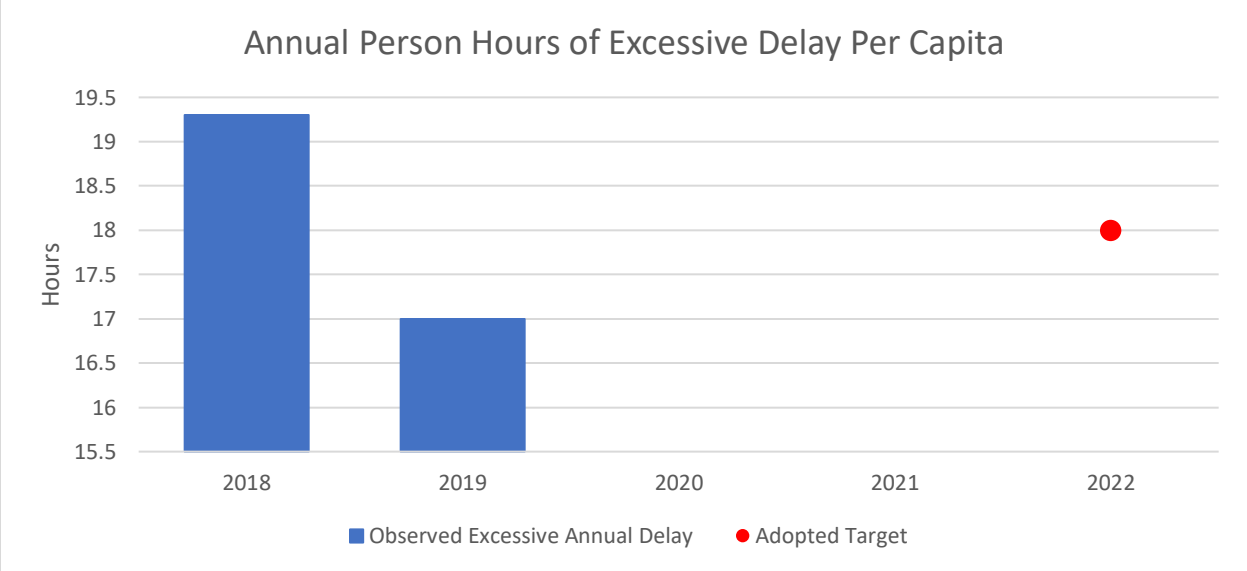


Chart 2: Percent Non-SOV Travel and Growth in Working Age Population



For this initial reporting period (2018-2022) the Annual Person Hours of Excessive Delay Per Capita measures only includes a four-year target and this measure is on track to achieve that target. This is illustrated in **Chart 3**. There was a significant drop improvement in 2019 for this measure, which if continued will result in better conditions than the 2022 target value. For this performance measure reductions or negative growth demonstrates improvements.

Chart 3: Annual Hours of Peak Hour Excessive Delay



On-Road Mobile Source Emissions Performance Measures

The SANDAG area includes a non-attainment area for the 2008 and 2015 Ozone standards. For CMAQ Ozone is assessed on two precursors to Ozone, Oxides of Nitrogen (NOx), and Volatile Organic Compounds (VOC). This performance measure is calculated based on the cumulative reductions anticipated by CMAQ funded projects. A list of these projects is included in **Table 5**. Both precursors are on track to meet or perform better than the two-year target as illustrated in **Charts 4 and 5**. For this performance measure positive growth demonstrates improvements.

Chart 4: Oxides of Nitrogen On-Road Mobile Source Emission Reductions

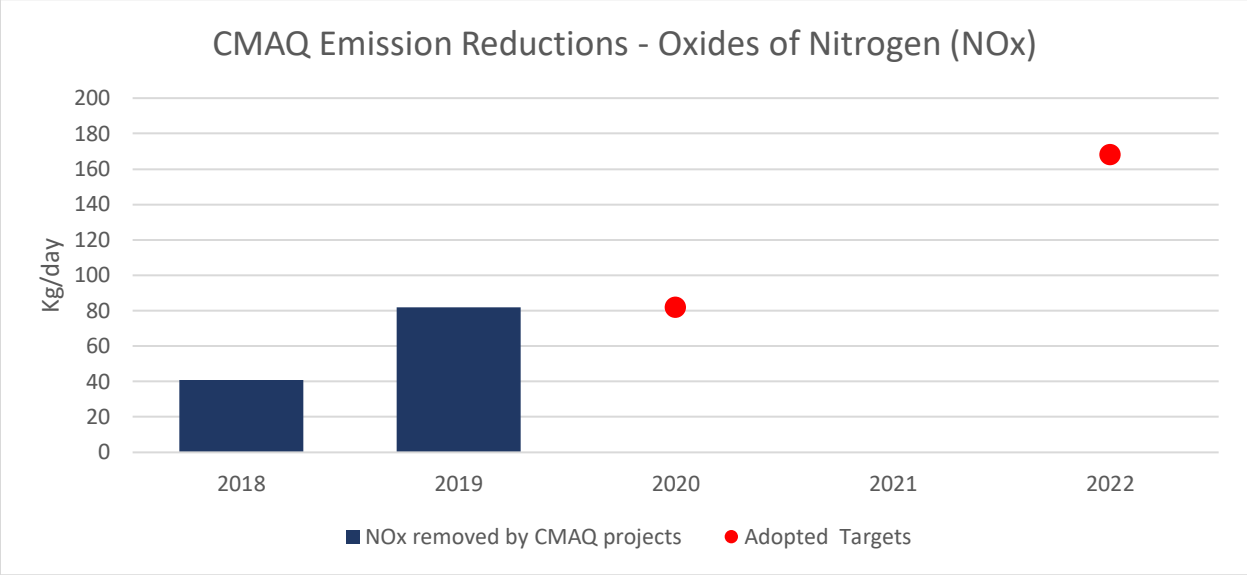


Chart 5: Volatile Organic Compounds On-Road Mobile Source Emission Reductions