

Appendix E: Plan Performance

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Federal Performance Management Targets

Transportation agencies rely on both monitored and forecasted data to support planning and investment decisions. In 2012, federal government enacted the Moving Ahead for Progress in the 21st Century Act (MAP-21), which placed increased emphasis on performance-based planning for both state and regional governments. The federal requirements hold state departments of transportation (e.g., Caltrans) and MPOs accountable for setting performance targets that will ensure transportation dollars are being used effectively and efficiently. Caltrans is required to set and report on progress towards three sets of annual performance measurement targets:

- Safety Performance Management (PM1): Fatalities and Injuries
- Pavement and Bridge Condition Performance Management (PM2): Infrastructure Conditions
- System Performance Management (PM3): Freight movement, congestion, and reliability

This appendix describes each federal performance metric, charts data collected to date, compares that data to currently adopted targets and describes how the MTP/SCS makes investments that support reaching those targets. For some targets, MPO's can either agree to support the State DOT target or establish a numerical target specific to the MPO planning area. Since this federal process started in 2018, SACOG has supported all of Caltrans statewide targets for all three sets of performance metrics. Below are summary tables of SACOG supported state targets for each performance metric.

Table 1 - Safety Performance Management (PM1): Fatalities and Injuries

	Data Source	5- Yr. Rolling Average Targets ¹		Percent Reduction Targets ¹	
		2018	2019	2018	2019
Number of Fatalities	FARS ²	3590.8	3445.4	7.69%	3%
Rate of Fatalities (per 100 million VMT)	FARS & HPMS ³	1.029	0.995	7.69%	3%
Number of Serious Injuries	SWITRS ⁴	12,823.4	12,688.1	1.5%	1.5%
Rate of Serious Injuries (per 100 million VMT)	SWITRS & HPMS	3.831	3.661	1.5%	1.5%
Number of Non-Motorized Fatalities and Non-Motorized Severe Injuries	FARS & SWITRS	4271.1	3949.8	10%	3% for Fatalities and 1.5% for Serious Injuries

¹ Caltrans Federal Liaison, <https://dot.ca.gov/programs/federal-liaison>, Accessed Sept 2019.

² Fatality Analysis Reporting System (FARS)

³ Highway Performance Monitoring System (HPMS) Data

⁴ Statewide Integrated Traffic Records System (SWITRS)

Table 2 - Pavement and Bridge Condition Performance Management (PM2): Infrastructure Conditions

	2-year NHS Targets¹ (1/1/2018 – 12/31/2019)		4-year NHS Targets⁵ (1/1/2020 – 12/31/2021)	
	Good	Poor	Good	Poor
Interstate NHS ²	45.1%	3.5%	44.5%	3.8%
Non-interstate NHS	28.2%	7.3%	29.9%	7.2%
Bridges on the NHS	69.1%	4.6%	70.5%	4.4%

Table 3 - System Performance Management (PM3): Freight movement, congestion, and reliability

	2017 Baseline Data	2-year Target⁵	4-year Target⁵
Percent of Reliable Person-Miles Traveled on the Interstate ³	64.6%	65.1% (+0.5%)	65.6% (+1%)
Percent of Reliable Person-Miles Traveled on the Non-interstate NHS ⁷	73.0%	N/A	74.0% (+1%)
Percentage of Interstate System Mileage Providing Reliable Truck Travel Time (Truck Travel Time Reliability Index) ⁷	1.69	1.68 (-0.01)	1.67 (-0.02)
Total Emissions Reductions by Applicable Pollutants under the CMAQ Program ⁴			
VOC (kg/day)	951.83	961.35 (+1%)	970.87 (+2%)
CO (kg/day)	6869.26	6931.90 (+1%)	7000.54 (+2%)
NOx (kg/day)	1753.36	1770.89 (+1%)	1788.43 (+2%)
PM10 (kg/day)	2431.21	2455.52 (+1%)	2479.83 (+2%)
PM2.5 (kg/day)	904.25	913.29 (+1%)	922.34 (+2%)
Annual Hours of Peak-Hour Excessive Delay Per Capita (PHED), Sacramento UA ⁷	14.9 Hours	N/A	14.7 (-1.0%)
Percent of Non-single Occupancy Vehicle (SOV) Travel, Sacramento UA ⁵	22.8%	23.3% (+0.5%)	23.8% (+1%)

¹ Caltrans Federal Liaison, <https://dot.ca.gov/programs/federal-liaison>, Accessed Sept 2019.

² Highway Performance Monitoring System (HPMS) Data

³ National Performance Management Research Data Set (NPMRDS) Analytics Tool
<https://nmpmrd.ritis.org/analytics>

⁴ CMAQ Public Access System (https://fhwaapps.fhwa.dot.gov/cmaq_pub/)

⁵ U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Safety Performance Management (PM1: Fatalities and Injuries)

As our economy recovers and vehicle travel increases, more people are likely to be seriously injured or die from vehicle collisions. Over the last 10 years, an average of 218 people died in vehicle collisions on our region's roads and highways.¹ In 2016, 285 people died in vehicle collisions, the highest number of annual recorded deaths in the last 10 years and a 21% increase from the prior year.

Figure 1 - 2006 - 2016 Fatal Collisions: State vs Sacramento Region²

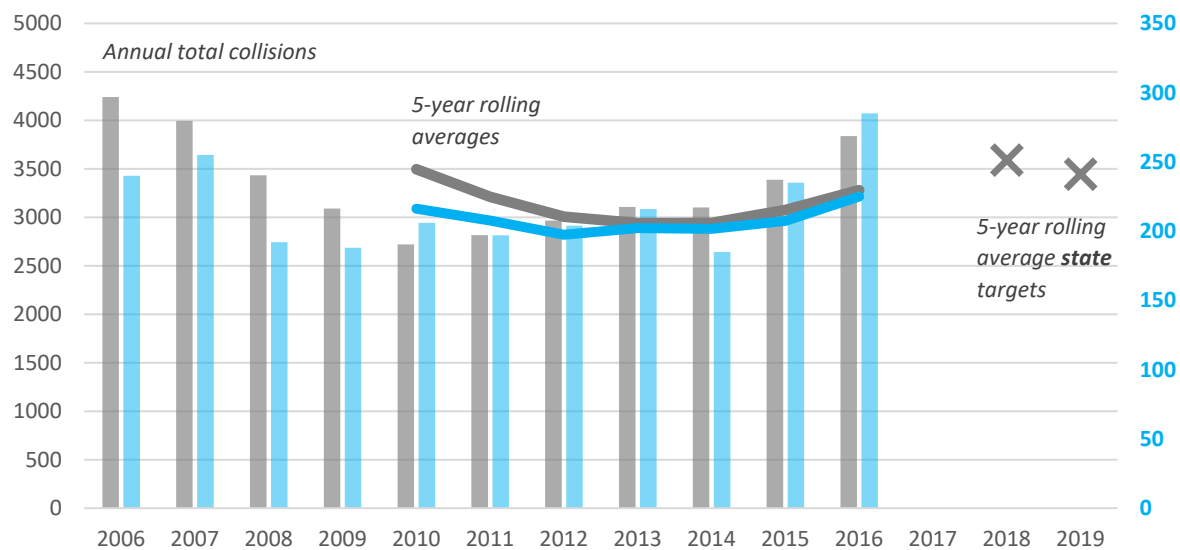
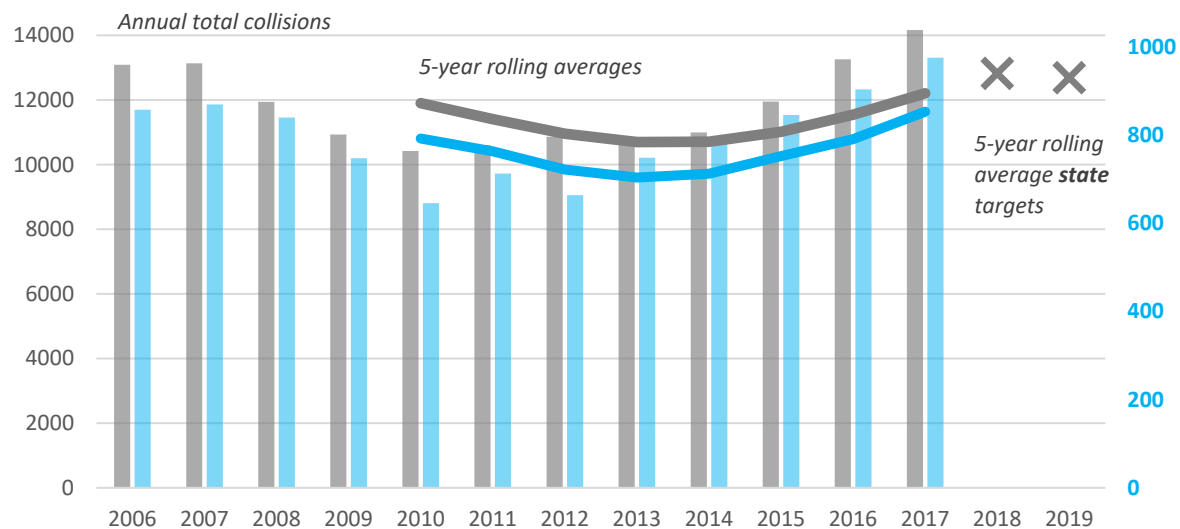


Figure 2 - 2006 - 2016 Serious Injury Collisions: State vs Sacramento Region



¹ UC Berkeley Safe Transportation Research and Education Center (SafeTREC) into the Transportation Injury Mapping System (TIMS). TIMS data for SACOG area fatalities use SWITRS data instead of FARS, due to spatial boundaries.

The region's 2016 collision fatality rate has returned to record highs not seen since 2007 of 1.3 fatalities per 100 million vehicle miles traveled (MVMT).¹ This is much higher than the 2016 statewide average of 1.1 fatalities per MVMT of more urban areas, such as the San Diego area with 0.8 fatalities per MVMT. But, the Sacramento region's rate is not as high as more rural areas, such as the Fresno area with 1.7 fatalities per MVMT.

Figure 3 - 2006 - 2016 Fatalities/100 MVMT: State vs Sacramento Region

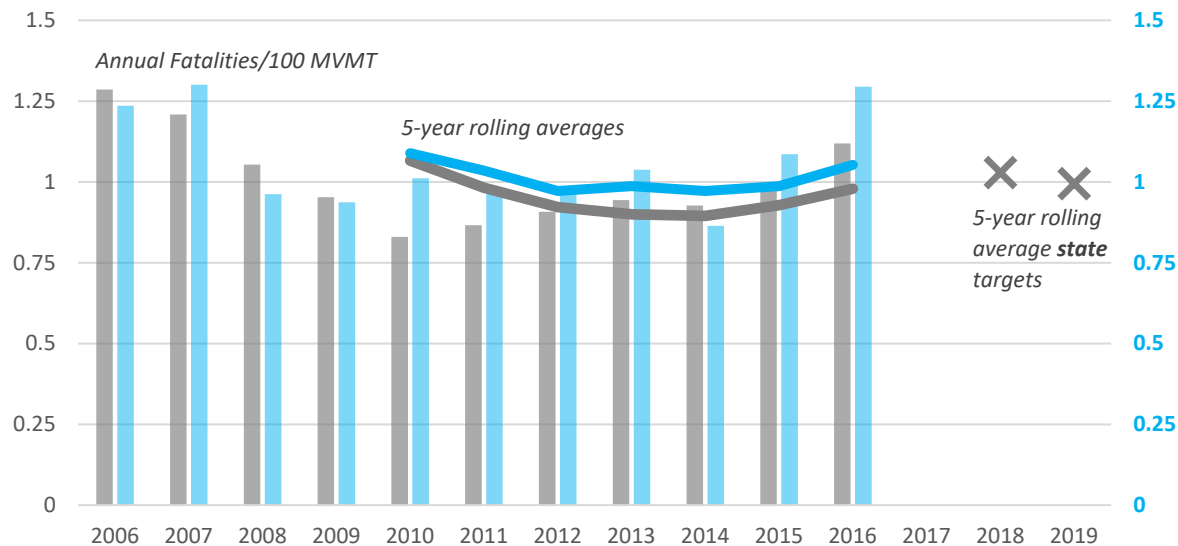
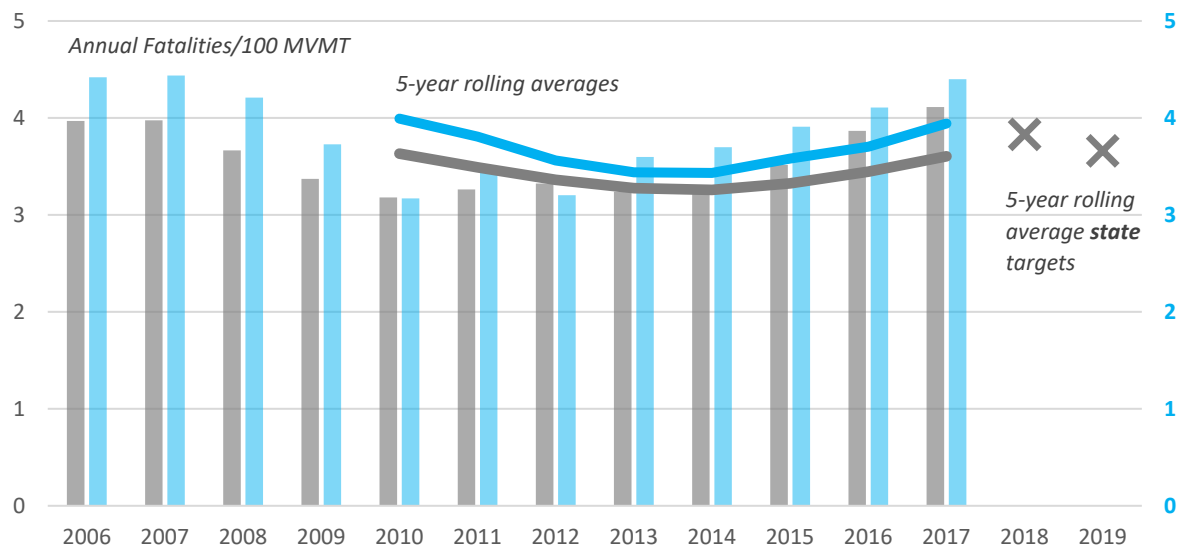


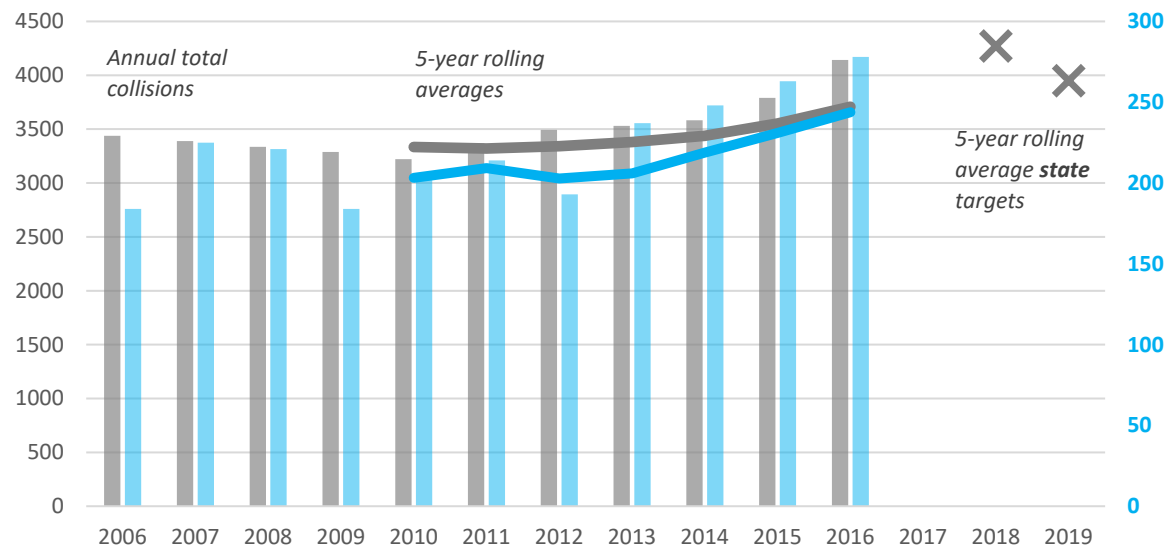
Figure 4 - 2006 - 2016 Serious Injuries/100 MVMT: State vs Sacramento Region



¹ UC Berkeley Safe Transportation Research and Education Center (SafeTREC) into the Transportation Injury Mapping System (TIMS). TIMS data for SACOG area fatalities use SWITRS data instead of FARS, due to spatial boundaries.

The region's non-motorized fatalities and serious injuries trend closely with state figures, both showing signs of increasing collisions as the economy continues to recover.¹

Figure 5 - 2006 - 2016 Total Non-Motorized Fatalities and Serious Injuries: **State** vs **Sacramento Region**



Pavement and Bridge Condition Performance Management (PM2: Infrastructure Conditions)

Maintaining our mobility assets in a cost-effective manner is critical to reducing long-term costs for pavement and bridge rehabilitation in the MTP/SCS. The statewide targets for infrastructure condition supported by SACOG include the following 2-year and 4-year targets to maintain interstate, non-interstate and bridges on the National Highway System (NHS) by a percentage of maintained lane miles as shown below:²

¹ UC Berkeley Safe Transportation Research and Education Center (SafeTREC) into the Transportation Injury Mapping System (TIMS) . TIMS charts for SACOG area fatalities use SWITRS data instead of FARS, due to spatial boundaries.

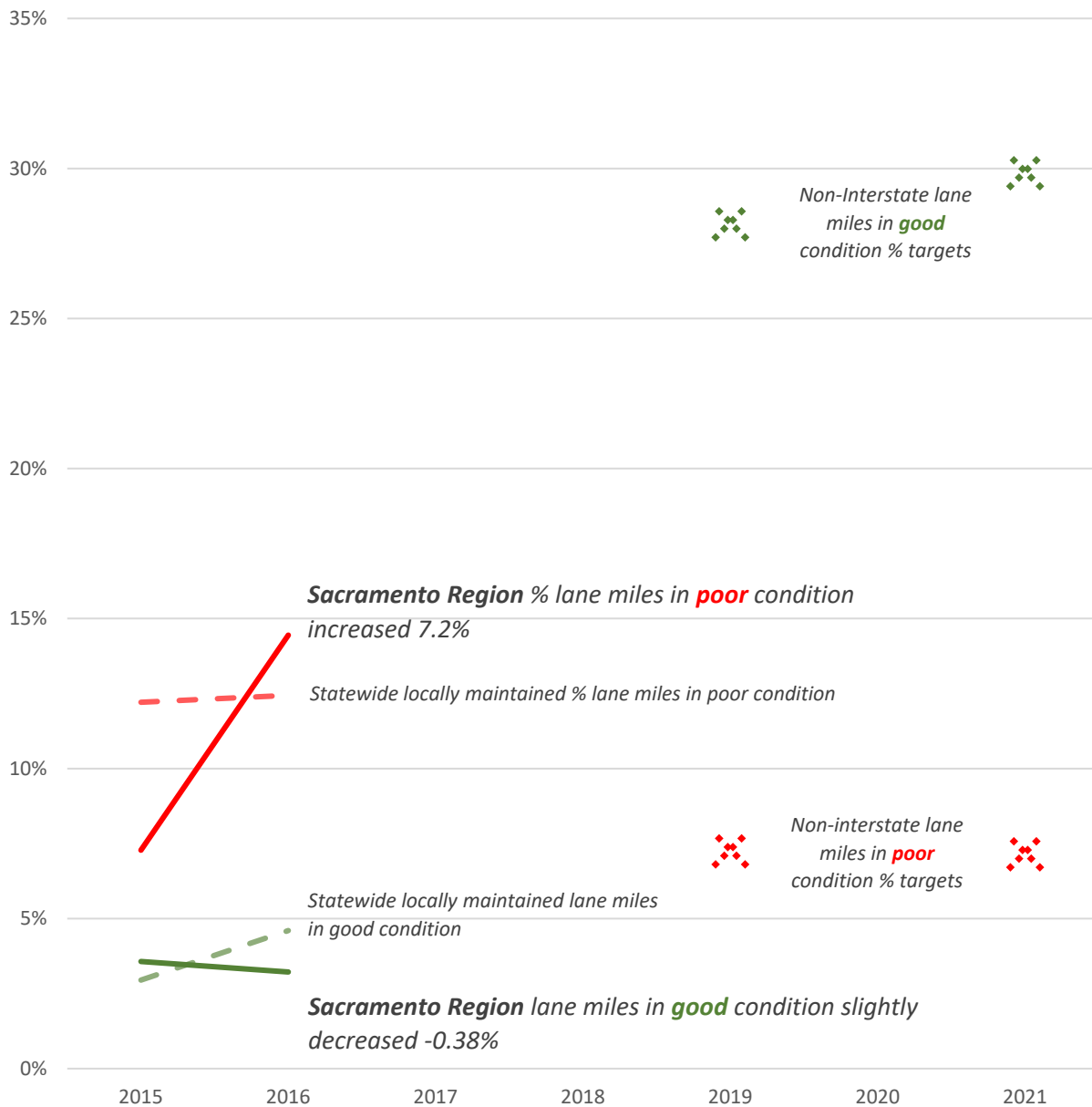
² Highway Performance Monitoring System (HPMS) Data

Figure 6 - 2015 and 2016 **Statewide NHS Interstate and Non-interstate**, Percent of Pavement Lane Miles in Good and Poor Conditions with 2019 two-year targets and 2021 four-year targets



Caltrans NHS data for 2016 and 2015 show that Caltrans made progress increasing State-maintained pavement in “Good” condition and decreasing pavement in “Fair” or “Poor” condition. Locally maintained NHS pavement remains mostly in Fair condition without much progress made.

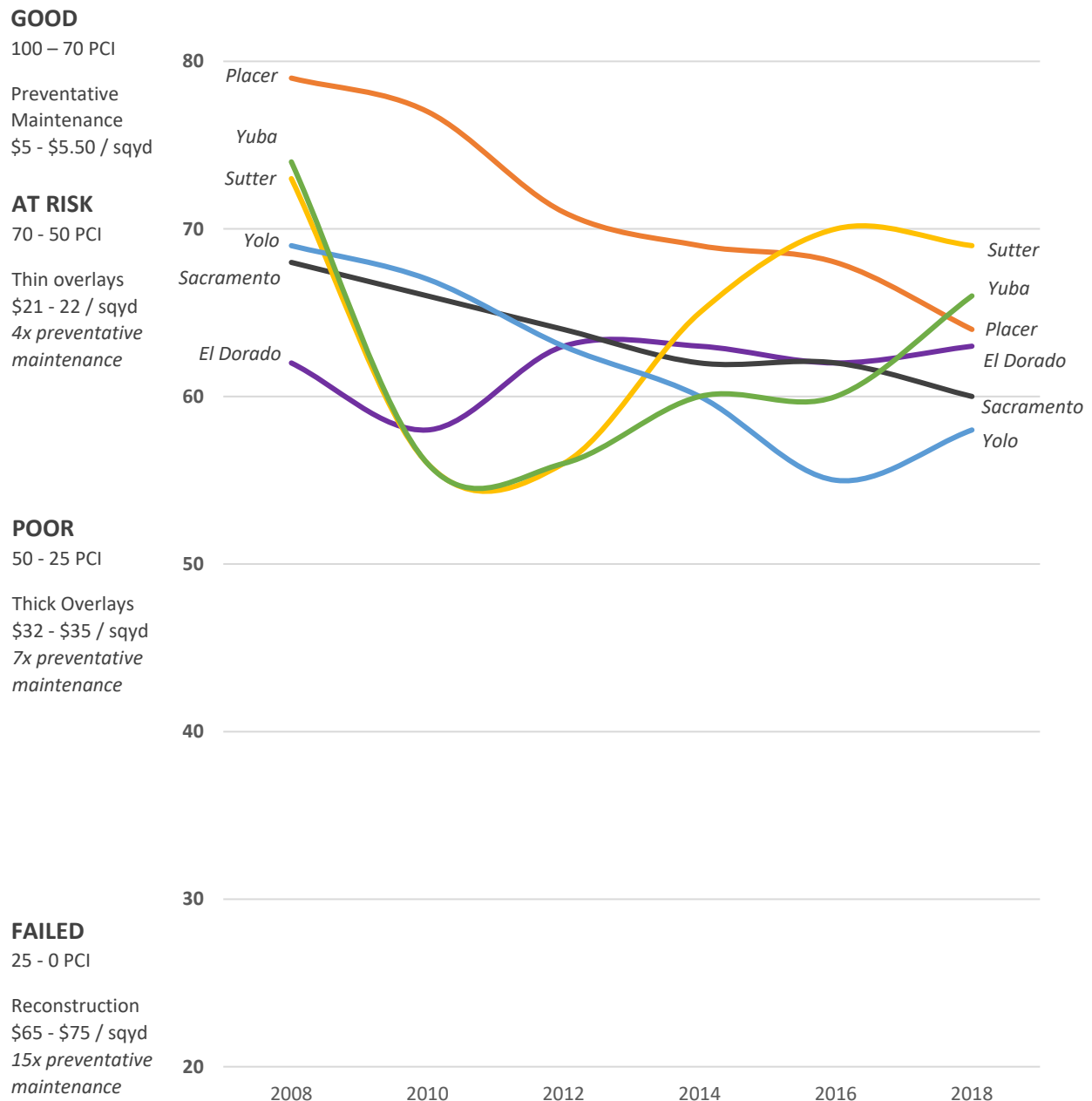
Figure 7 - 2015 and 2016 **Locally Maintained NHS Non-interstate Percent of Pavement Lane Miles**, Statewide vs Sacramento Region, with 2019 two-year targets and 2021 four-year targets



Our region's 1,149 lane miles of locally maintained NHS, mostly principle arterials feeding onto highways, is also mostly in "Fair" condition. However, this pavement is deteriorating rapidly, where 7.2% of pavement in "Good" or "Fair" condition became "Poor" over the course of a single year.

The last 10 years of California Local Streets and Roads reports for our region show that countywide pavement conditions have largely fallen, except for Sutter and Yuba county agencies.¹ The region has managed to prevent average PCI's from falling into Poor or Failed conditions.

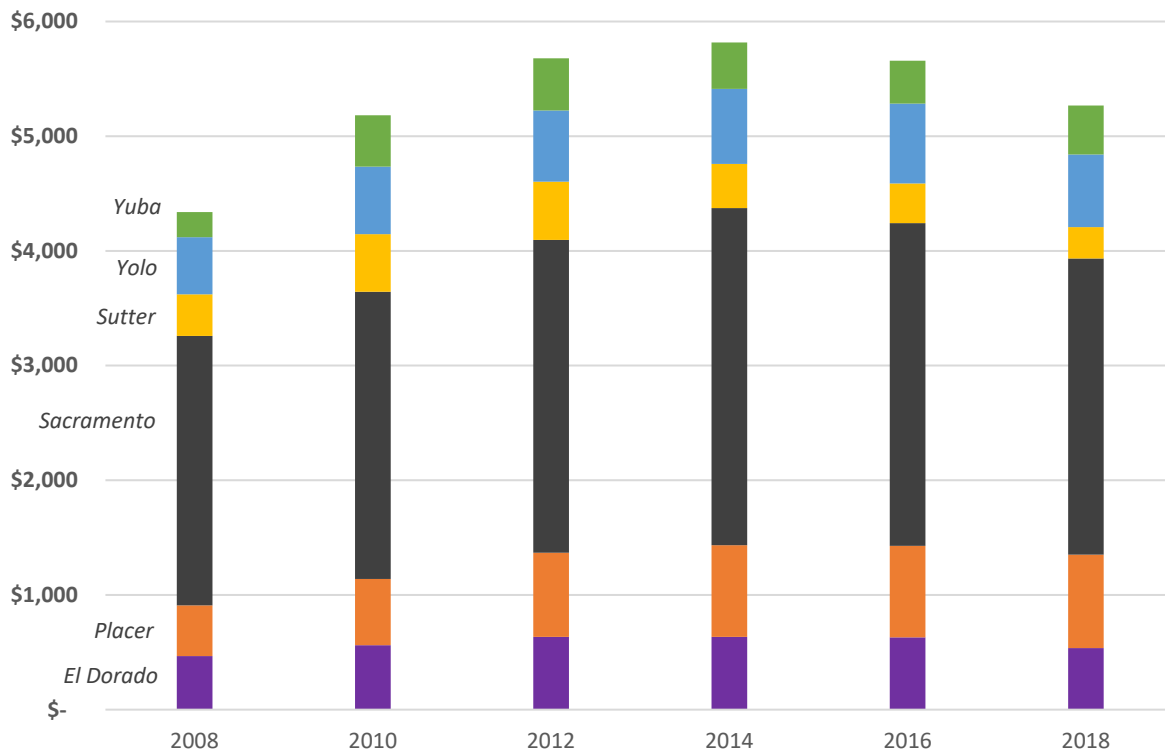
Figure 8 - Local Streets and Roads Pavement Condition Indices (PCI)
2008 to 2018 by County in the Sacramento Region



¹ California Statewide Local Streets and Roads Needs Assessments, 2008 - 2018,,
<https://www.cacities.org/Member-Engagement/Professional-Departments/Public-Works-Officers-Department/California-Statewide-Local-Streets-and-Roads-Needs.aspx>, accessed August 2019.

As pavement conditions fall, costs to maintain pavement go up, but by how much? If you had 10 years to invest the right amount of money to avoid expensive road reconstruction costs of failed pavement, how much money would you need? 10-year pavement rehabilitation and reconstruction needs for the Sacramento Region in 2018 is over \$5.2 billion, while peaking in 2014 at \$5.8 billion.¹

Figure 9 - 2008-2018 Local Streets and Road
10-year Pavement Needs (in millions) for the Sacramento Region



This is the cost to reach what the Assessment describes as “Best Management Practices.”

In order to use taxpayer money wisely, it makes more sense to preserve and maintain roads in good condition than to wait and repair or replace them when they deteriorate or fail. The costs developed in this study are based on achieving a roadway pavement condition called Best Management Practices (BMP). At this condition level, preventive maintenance treatments (i.e., slurry seals, chip seals, thin overlays) are most cost-effective. In addition to costing less, preventive maintenance interferes less with commerce and the public’s mobility and is more environmentally friendly than rehabilitation or reconstruction.¹⁵

About 30 percent, or \$11.6 billion, of the expenditures in the project list go to maintaining and rehabilitating the nearly 30 thousand lane miles of roads and highways in the region.

¹ California Statewide Local Streets and Roads Needs Assessments, 2008 - 2018, <https://www.cacities.org/Member-Engagement/Professional-Departments/Public-Works-Officers-Department/California-Statewide-Local-Streets-and-Roads-Needs.aspx>, accessed August 2019.

Example projects include:

- Caltrans District 3, “I-80 Pavement Rehabilitation B”, \$343 million
- Caltrans District 3, “US 50 Pavement Rehabilitation/Bridge Improvements”, \$278 million
- Caltrans District 3, “I-80 Kingvale Pavement Rehabilitation”, \$93 million

The plan also includes over \$3.9 billion to rehabilitate both local and Caltrans maintained bridges throughout the region, not including bridge capacity and expansion projects.

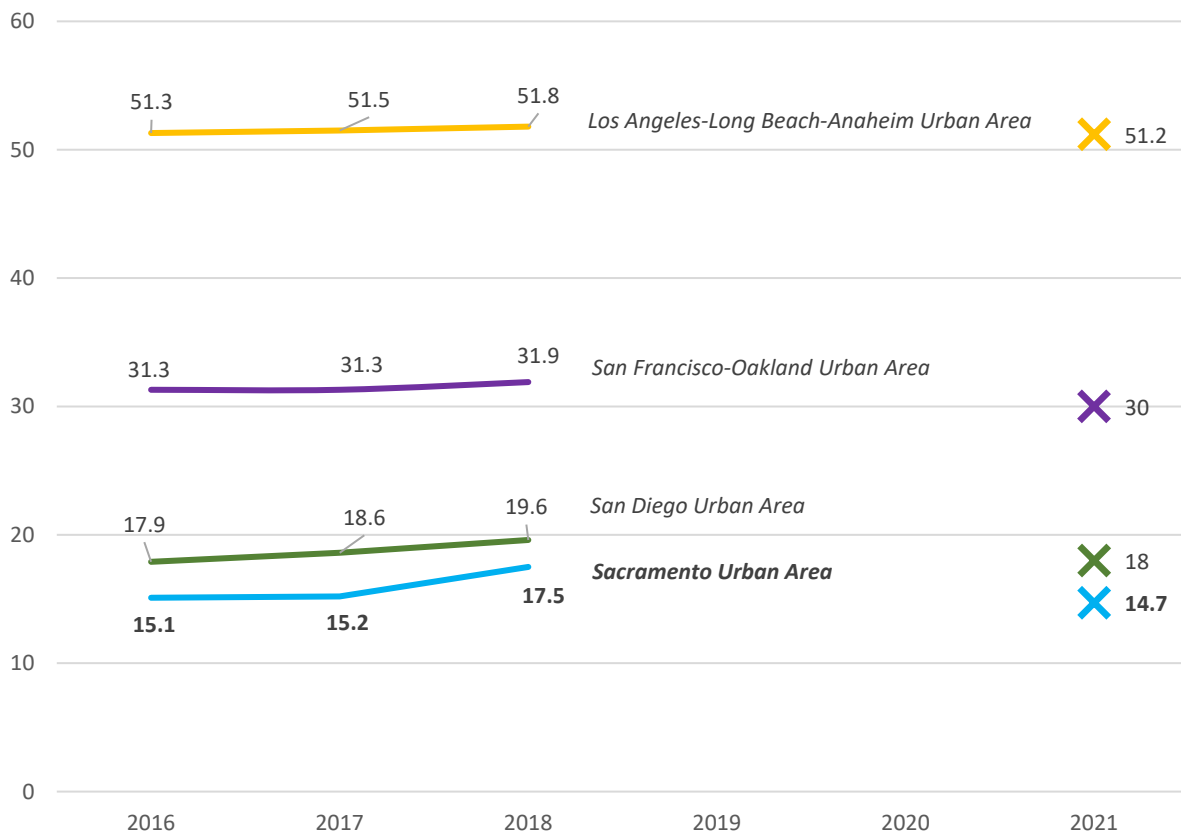
Example projects include:

- City of Sacramento, “I St. Bridge Replacement”, \$172 million
- Caltrans District 3, “SR 51 Bridge Deck Replacement”, \$164 million
- El Dorado County, “Mt. Murphy Rd/South Fork American River Bridge Replacement”, \$32 million

System Performance Management (PM3: Freight movement, congestion, emissions and reliability)

Stuck in rush hour traffic going below the speed limit? How many minutes or hours do you think drivers do that in urban areas? In 2018, the National Performance Management Research Data set (NPMRDS) uses “big data” to calculate how the average commuter in the Sacramento Urban Area spent a total of 15.2 hours that year delayed in rush hour traffic (or about 3.5 minutes of delay per day per 261 work days in a year).¹ SACOG supports meeting this statewide target of reducing excessive delay, currently at 1% after 4 years for 2018. This sets a target for the Sacramento Urbanized area of 14.7 hours of delay.

Figure 10 - Annual Hours of Peak-hour Excessive Delay (PHED) Per Capita for Urbanized Areas in Sacramento, San Francisco, San Diego and Los Angeles with 4-year targets

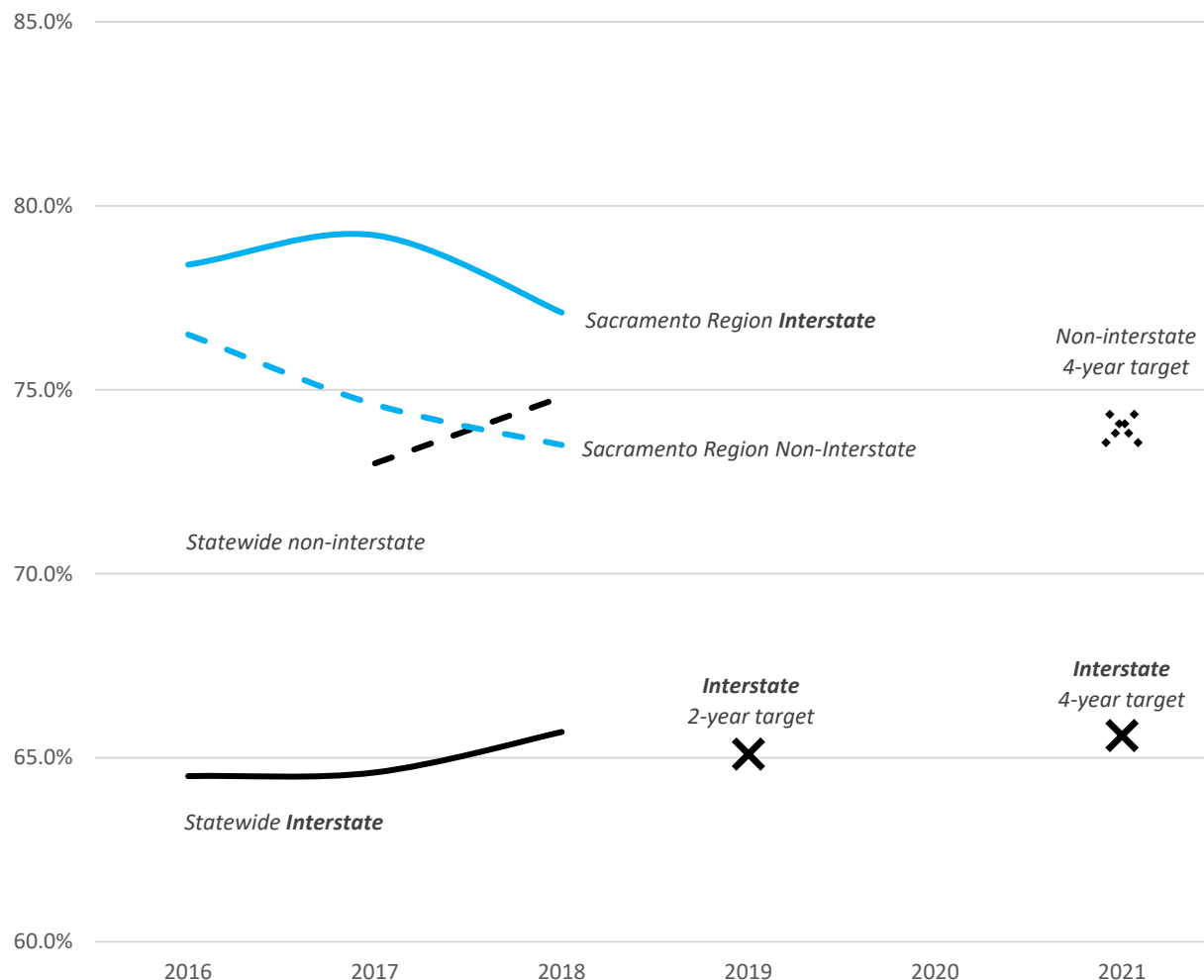


SACOG staff have spot checked the NPMRDS source data and calculations for the Sacramento Urban Area and believe that while the dataset is a useful tool for identifying delayed locations and the length of a delayed segment of highway, staff found multiple locations where the traffic count numbers used for the PHED metric differed significantly from local count data, resulting in inaccurate PHED estimates. SACOG staff plan to continue to work with NPMRDS data managers to improve the dataset’s accuracy, using their online reporting tools.

¹ National Performance Management Research Data Set (NPMRDS) Analytics Tool
<https://nprmrs.ritis.org/analytics>

Other targets include increasing the reliability of travel. Imagine someone is planning a trip. They might leave earlier to account for the possibility of unusually bad traffic or collisions (the 80th percentile) instead of typical conditions (the 50th percentile) to make sure they arrive on time. Every mile each person traveled under typical conditions is a reliable person-mile traveled. SACOG supports the statewide target of increasing the percent of reliable person-miles traveled by 1% by 2022, (currently 64% for interstates and 73% for non-interstates in 2017). The interstate system in the Sacramento Region remains more reliable at 77.1% than the statewide average of 65.7% in 2018.¹ However, the non-interstate system in the Sacramento Region appears slightly less reliable at 73.5% than the state overall at 74.8%. Again, SACOG staff continue to review the data behind the NPMRDS to improve the accuracy of these calculations.

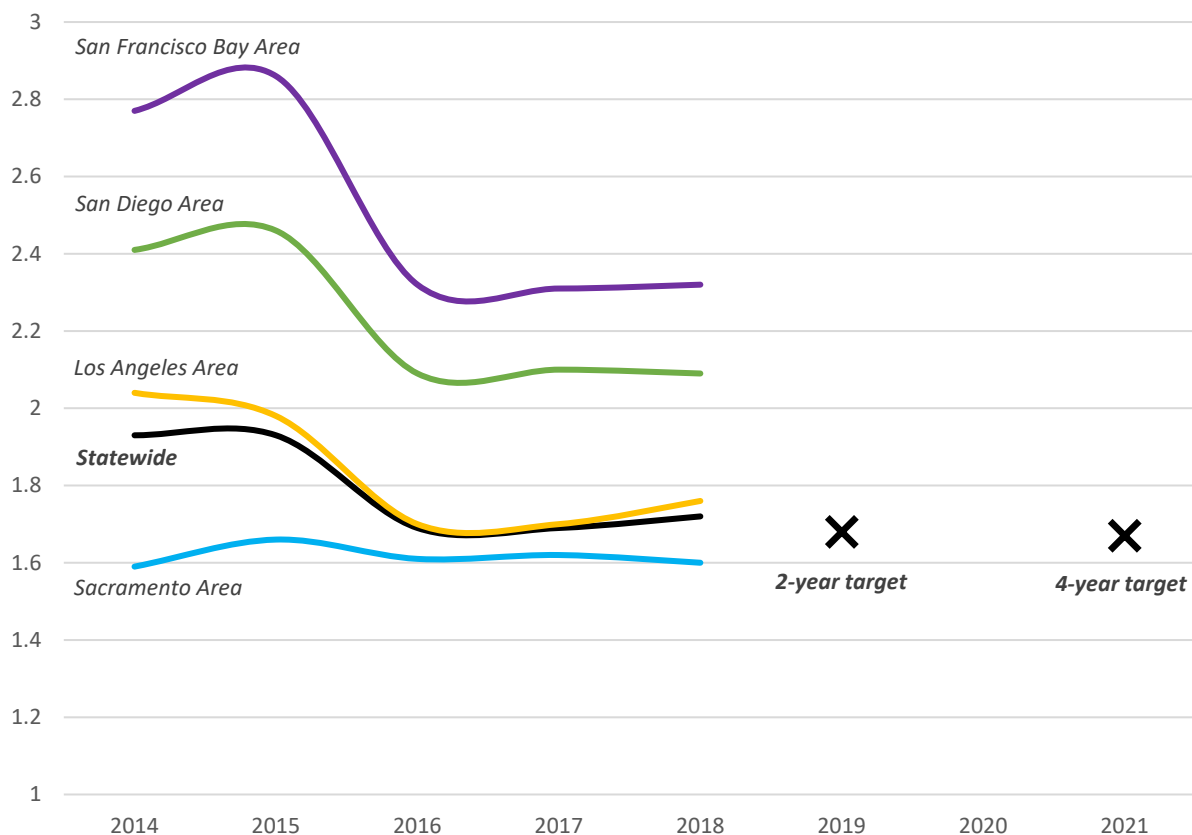
Figure 11 - 2016-2018 Percent of Reliable Person-Miles Traveled in the Sacramento Region vs State, interstate and non-interstate systems with 2-year and 4-year targets



¹ National Performance Management Research Data Set (NPMRDS) Analytics Tool
<https://npmrds.ritis.org/analytics>

Freight reliability is calculated in a similar way, but instead of focusing on hours of delay in rush hour traffic, the Truck Travel Time Reliability is a ratio of greatly delayed truck travel times (95th percentile) divided by typical travel times (50th percentile). A ratio of 1.00 (1/1) would tell you that the worst travel times are the same as the typical travel times. A ratio of 2.00 would tell you that the worst travel times are twice as bad as typical travel times. The chart below shows NPMRDS Truck Travel Time Reliability Indices on interstates for the Sacramento Region have remained relatively stable between 1.60-1.62, which currently meets the 2-year and 4-year state targets of 1.68 and 1.76, respectively.¹

Figure 12 - 2016-2018 Reliable Truck Travel Time (Ratio of Delay/Typical) in the Sacramento Region vs State, on the interstate and non-interstate systems with 2-year and 4-year targets



Roughly 20 percent, or \$6.9 billion, of the expenditures in the project list go to road and highway capital improvements, including road widenings and new roads in growth areas, carpool and managed facilities on highways, and connections for local access to new development areas. The road expansion projects included in the MTP/SCS add about 1,000 lane miles to the regional road and highway system and are phased to align with the forecasted growth in homes and jobs. Of the 1,000 additional lane miles in the plan, more than two-thirds of the system expansion investments occur on existing roads and highways, with the remaining one-third going to new roads that serve new growth in both infill and greenfield areas.

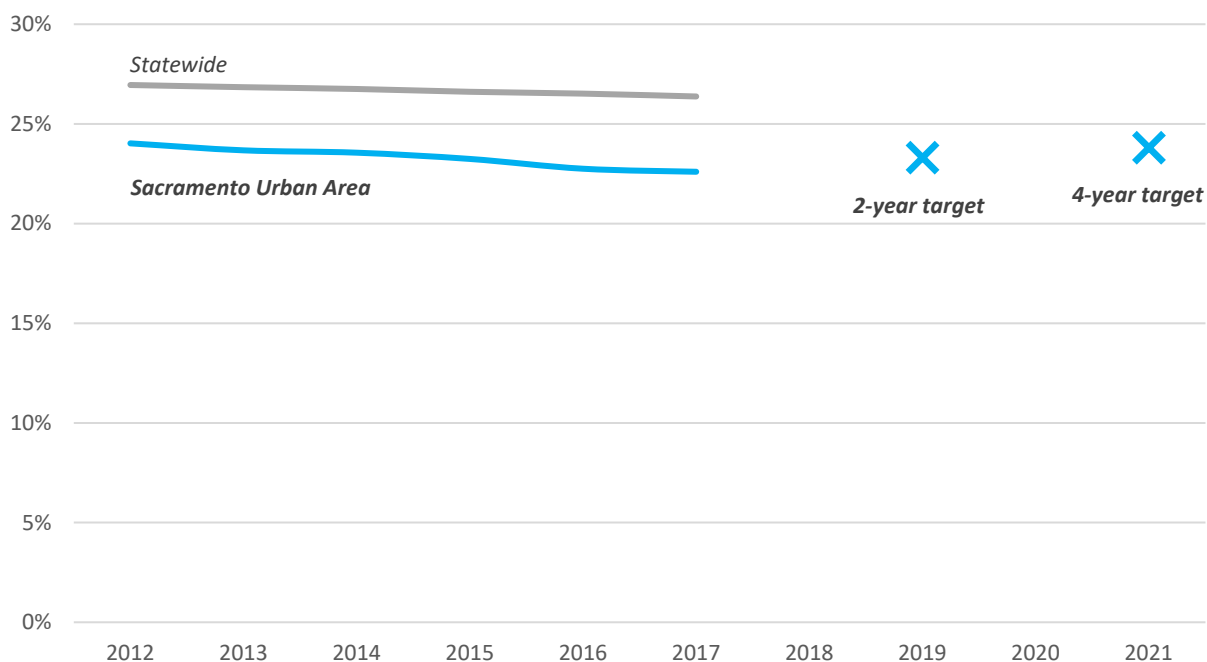
¹ National Performance Management Research Data Set (NPMRDS) Analytics Tool
<https://nprmrs.ritis.org/analytics>

Example projects include:

- Caltrans District 3, “Managed lanes on I-5, I-80, SR 99 and Business 80” - \$1 billion combined
- Caltrans District 3, “State Route 51 (Capital City) Corridor Improvements: J St to Arden” - \$483 million
- City of West Sacramento, “Broadway Bridge”, \$255 million
- PCTPA, “I-80/SR 65 Interchange Improvements Phase 2”, \$250 million
- City of Sacramento, “Lower American River Crossing”, \$150 million
- City of West Sacramento, “Enterprise Crossing”, \$125 million

Other performance targets include increasing the percentage of non-single occupancy vehicle travel (e.g., walk, bike, transit, carpool, etc.) by 1%, from 22.8% to 23.8%, by 2022. ¹

Figure 13 - 2012-2017 Percent of Non-Single Occupant Vehicles (SOVs) in the Sacramento Urban Area vs State,1 with 2-year and 4-year targets



About 30 percent, or \$10.1 billion, of the total plan budget goes to operating and expanding transit service. The plan emphasizes more commuter and fixed-route bus services, modeled to increase regional bicycle, walk, or transit person trips per capita from 0.41 trips per capita to 0.50 trips per capita, a 23.28%.

Example projects include:

- Sacramento Regional Transit District, “Green Line: MOS2 Township 9 to North Natomas Town Center (CON)”, \$390 million

¹ U.S. Census Bureau, 2012-2017 American Community Survey 5-Year Estimates

- Sacramento Regional Transit District, “Hi-bus infrastructure”, \$368 million
- City of Sacramento, “Sacramento Intermodal Transportation Facility - Phase 3”, \$225 million
- Capitol Corridor JPA, “Sacramento to Roseville Third Main Track - Phase 2”, \$195 million
- Sacramento Regional Transit District, “Gold Line Frequency and Service Enhancements”, \$195 million
- SACOG, “Sacramento-West Sacramento Downtown/Riverfront Streetcar Project (Phase 1)”, \$194 million
- PCTPA, “Placer County - Bus Rapid Transit Capital”, \$83 million
- Sacramento Regional Transit District, “Light Rail Low Floor Station Conversions - Gold Line”, \$50 million
- Sacramento Regional Transit District, “Circulator Bus/Microtransit Expansion Vehicles”, \$9.8 million

The final 16 percent, or \$5.3 billion, of the plan include investments in road and highway operational and safety improvements, bicycle and pedestrian facilities, and programs such as transportation demand management (TDM) and community design funding to encourage smart-growth development projects. These expenditures also include pilot funding from the state for the Green Means Go Program, designed to lower greenhouse gases by accelerating infill development, reducing vehicle trips, and facilitating faster electric vehicle deployment.

Example projects include:

- City of Sacramento, “Central City Specific Plan Multi-modal improvements”, \$165 million
- City of Sacramento, “River District Transportation Improvements”, \$120 million
- City of Rancho Cordova, “Zinfandel Complex Improvements - Phase2”, \$46 million
- City of Roseville, “Bicycle Master Plan Class I Trail Buildout”, \$45 million
- Yuba County, “Marysville Road Bicycle Lane Project”, \$18 million
- City of Citrus Heights, “Saybrook/Misty Creek I-80 Pedestrian/bicycle overpass”, \$15 million

Many projects that rehabilitate local streets and roads also plan for the mobility of all users as complete street projects. The MTP/SCS makes provisions for the inclusion of complete streets by including lump sums in the project list for bicycle, pedestrian, and roadway improvements that can improve a roadway’s accessibility to all users and through policies and strategies that encourage complete streets considerations whenever feasible.

Example projects include:

- City of Citrus Heights, “Auburn Blvd Complete Streets (phases 2-5)”, \$106 million combined
- City of Rancho Cordova, “Complete Streets Rehabilitation - Sunrise Blvd”, \$35 million
- City of Sacramento, “Broadway Complete Street Phase I & 2”, \$8 million
- Sacramento County, “Folsom Boulevard Complete Street Improvements, Phase 1”, \$5 million

Emissions Reductions by Applicable Pollutants under the CMAQ Program

The investments cited in the 2018 Sacramento Urbanized Area Congestion Mitigation and Air Quality Improvement Program Performance Plan, for the baseline performance period report 2018-2021, contribute to meeting the statewide targets for Total Emissions Reductions by Applicable Pollutants under the CMAQ Program: VOC (kg/day), CO (kg/day), NO_x (kg/day), PM₁₀ (kg/day), and PM_{2.5} (kg/day).

During the current performance period (2018-2021), 59 projects are expected to obligate CMAQ funds. A list of these projects is provided in the table below, and includes a description of how each project is anticipated to contribute towards achieving the performance targets for traffic congestion and on-road mobile source emissions.

Since the statewide baseline conditions reflect CMAQ funded projects that first obligated CMAQ funds between 2014 and 2017, the projects listed in Figure B only reflect CMAQ funded projects during the 2018-2021 performance period.

FHWA notes that reporting emissions benefits for each CMAQ project is not required but “could discuss relevant estimates of emissions reductions in order to demonstrate how the projects will contribute to the relevant targets.” SACOG estimates and records CMAQ project emissions benefits as directed by the California Air Resources Board’s (ARB) 2005 guidance document, “Methods to Find the Cost-Effectiveness of Funding Air Quality Projects for Evaluating Motor Vehicle Registration Fee Projects and CMAQ Projects.” The emissions benefits calculated focus on VOC, NO_x, PM₁₀ and PM_{2.5} criteria pollutants. SACOG does not include estimates of CO emissions benefits at this time, but may do so in the future for traffic signal synchronization projects. The ARB guidance notes that “CO is a localized pollutant and not a regional pollution problem” where CMAQ projects are usually “funded primarily to reduce regional ozone and PM₁₀ and have little impact on localized CO hot spots.” The Air Resources Board does note that “signal coordination projects, however, may be targeted at specific CO hot spots in CO nonattainment areas” and that “reporting CO emission reductions should be limited to targeted projects located in CO nonattainment or maintenance areas.”

Table 4 - Description of Projects in CMAQ Performance Plan for 2018-2021 Performance Period

Title	Lead Agency	1st CMAQ Obligation Year	VOC Benefit kg/day	CO benefit kg/day	NOx Benefit kg/day	PM10 Benefit kg/day	PM2.5 Benefit kg/day	Traffic Congestion Benefit? Peak-hour Excessive Delay	Traffic Congestion Benefit? Non-SOV Mode Share
Bell Road at I-80 Roundabouts	Placer County	2019	0.25		0.19		0.01	Yes	
CNG Bus	Placer County	2018	*	*	*	*	*	Yes	Yes
Cook Riolo Road Pathway	Placer County	2018	0.04		0.02	0.01	0.01		Yes
D W Babcock School Access Improvements	City of Sacramento	2019	0.05		0.03	0.01	0.01		Yes
Downtown Pedestrian Bridge	City of Roseville	2018	0.18		0.11		0.04		Yes
Dry Creek Greenway Trail	City of Roseville	2021	0.09		0.07		0.03		Yes
El Dorado County Fleet Electrification - EV Infrastructure	El Dorado County	2019	0.14		0.15	0.06	0.06		
El Dorado County Fleet Electrification/Hybrid	El Dorado County	2019	0.14		0.15	0.06	0.06		
El Dorado Hills Boulevard Class 1 Trail	El Dorado County	2019	0.08		0.04	0.02	0.02		Yes
El Dorado Trail - Missouri Flat Road Bike/Pedestrian Overcrossing	El Dorado County	2019	0.07		0.04	0.02			Yes
El Dorado Trail Ext. - Los Trampas Dr to Halcon Rd	El Dorado County	2018	0.01						Yes
Fair Oaks Boulevard Improvements, Phase 3	Sacramento County	2019	0.05		0.04	0.02	0.02		Yes

Title	Lead Agency	1st CMAQ Obligation Year	VOC Benefit kg/day	CO benefit kg/day	NOx Benefit kg/day	PM10 Benefit kg/day	PM2.5 Benefit kg/day	Traffic Congestion Benefit? Peak-hour Excessive Delay	Traffic Congestion Benefit? Non-SOV Mode Share
Florin Creek Trail/SOFA Bike & Pedestrian Improvements	Sacramento County	2018	0.01						Yes
Folsom Blvd Complete Streets Phase 5 (Bradshaw to Horn)	City of Rancho Cordova	2020	*	*	*	*	*		Yes
Folsom Blvd. Complete Streets Rehabilitation	City of Sacramento	2018	0.13		0.1	0.06			Yes
Folsom Blvd./Power Inn Rd. Intersection (Ramona Ave Phase I)	City of Sacramento	2018	0.05		0.04	0.02	0.02	Yes	
Folsom Cottage Sidewalk Infill	Sacramento County	2018	1.27		0.77	0.13			Yes
Folsom/Placerville Rail Trail	City of Folsom	2019	0.04		0.03	0.01	0.01		Yes
Franklin Ave. Pedestrian Improvements	City of Yuba City	2019	0.1		0.06	0.02	0.02		Yes
Franklin Cycle Track	City of Sacramento	2019	0.02		0.01	0.01	0.01		Yes
Garfield Ave. Bike Lanes and Pedestrian Connectivity Project	Sacramento County	2018	0.03		0.07	0.01			Yes
Hazel Avenue Sidewalk Improvements	Sacramento County	2018	0.07		0.05	0.02	0.02		Yes
Highway 49 Sidewalk Gap Closure	PCTPA	2018	0.06		0.04		0.01		Yes
I-80 HOV Across the Top	Caltrans D3	2018	67		62	55		Yes	Yes
Laguna Creek Trail and Bruceville Rd Sidewalks	City of Elk Grove	2020	0.08		0.06	0.04	0.04		Yes

Title	Lead Agency	1st CMAQ Obligation Year	VOC Benefit kg/day	CO benefit kg/day	NOx Benefit kg/day	PM10 Benefit kg/day	PM2.5 Benefit kg/day	Traffic Congestion Benefit? Peak-hour Excessive Delay	Traffic Congestion Benefit? Non-SOV Mode Share
Lake Natoma Trail – Gap Closure	City of Folsom	2018	0.01		0.01				Yes
Lincoln Boulevard Streetscape Improvements Project Phase 3	City of Lincoln	2020	0.08		0.05	0.02	0.02		Yes
Live Oak Community Trail Segment 4	City of Live Oak	2019	0.01		0.01				Yes
Mariposa Safe Routes to School Phase 3	City of Citrus Heights	2018	0.01						Yes
Martis Valley Trail	Placer County	2018	0.01		0.01				Yes
Meadowview Rd. Streetscape Phase 1	City of Sacramento	2019	*	*	*	*	*		Yes
Merrychase and Country Club Drive Bicycle and Pedestrian Improvements	El Dorado County	2019	0.04		0.03	0.01	0.01		Yes
Nevada Street Pedestrian & Bicycle Facilities	City of Auburn	2019	0.03		0.02				Yes
New York Creek Trail East - Phase 2	El Dorado County	2018	0.02		0.01				Yes
Oak Street Extension of Miners Ravine Trail	City of Roseville	2020	0.05		0.04		0.01		Yes
Pacific St at Rocklin Road Roundabout	City of Rocklin	2020	0.26		0.21		0.01	Yes	
Placer County Congestion Management Program	PCTPA	2019	11.44		11.59		5.54		Yes
Placer County Freeway Service Patrol	PCTPA	2021	5.62		2.25		0.34	Yes	

Title	Lead Agency	1st CMAQ Obligation Year	VOC Benefit kg/day	CO benefit kg/day	NOx Benefit kg/day	PM10 Benefit kg/day	PM2.5 Benefit kg/day	Traffic Congestion Benefit? Peak-hour Excessive Delay	Traffic Congestion Benefit? Non-SOV Mode Share
Placerville Drive Bicycle and Pedestrian Facilities	City of Placerville	2019	0.08		0.04	0.02	0.02		Yes
S. Auburn St. & I-80 Roundabout	City of Colfax	2018	0.05		0.05		0.01	Yes	
SECAT Program Phase 3	SMAQMD	2018	9		236	21			
Silva Valley Parkway at Harvard Way Intersection Improvements	El Dorado County	2018	0.03		0.02			Yes	
Silva Valley Pkwy Class I/II Bike Path - Harvard Wy to Green Valley Rd	El Dorado County	2018	0.02		0.01				Yes
South Sacramento Parkway Trail - West	City of Sacramento	2019	0.12		0.07	0.02	0.02		Yes
Spare the Air Phase 2	SMAQMD	2018	0.2		0.2				
Spare the Air Phase 3	SMAQMD	2021	0.2		0.2				
Sycamore Park Phase 2 and 3 Bicycle and Pedestrian Overpass	City of West Sacramento	2018	0.02		0.01	0.01	0.01		Yes
Sycamore Trail/Westacre and Bryte Bicycle Routes	City of West Sacramento	2018	0.12		0.06	0.03	0.03		Yes
Town Center Implementation Plan Improvements Phase 4	Town of Loomis	2019	0.03		0.02	0.01	0.01		Yes
Transportation Demand Management (TDM) Phase 3	SACOG	2020	0.54		0.5				Yes
Two Rivers Trail Phase II	City of Sacramento	2019	0.02		0.02	0.02			Yes

Title	Lead Agency	1st CMAQ Obligation Year	VOC Benefit kg/day	CO benefit kg/day	NOx Benefit kg/day	PM10 Benefit kg/day	PM2.5 Benefit kg/day	Traffic Congestion Benefit? Peak-hour Excessive Delay	Traffic Congestion Benefit? Non-SOV Mode Share
Washington Bl/All America City Bl Roundabout	City of Roseville	2020	*	*	*	*	*	Yes	
Washington Blvd/Andora Undercrossing Improvement Project	City of Roseville	2020	0.9		0.51	0.16		Yes	
Washington Boulevard Bikeway and Pedestrian Pathways Project	City of Roseville	2020	0.63		0.45	0.49			Yes
West Main Street Bicycle/Pedestrian Mobility and Safety Improvements	City of Woodland	2018	0.05		0.03	0.01	0.01		Yes
West Woodland SRTS	City of Woodland	2018	0.05		0.04	0.01	0.01		Yes
Western Placerville Interchange (Ray Lawyer Drive Park and Ride Lot)	El Dorado County Transit	2018	0.63		0.45	0.49		Yes	
Western Placerville Interchanges Phase 2	City of Placerville	2018	0.03		0.02			Yes	

Transit Asset Management Planning

In order to comply with provisions of federal MAP-21 legislation, transit agencies must develop a Transit Asset Management (TAM) plan. FTA defines transit asset management as “the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation.” TAM plans must include an inventory of agency assets, including vehicles, facilities and other capital assets; an assessment of the condition of those inventoried assets; and a prioritized list of investments to improve a “state of good repair.”

Below is a summary of the transit plans the MTP/SCS that inform the MTP/SCS.

SACOG Region Short Range Transit Plans, Long Range Transit Plans, and Comprehensive Operational Analyses:

1. Auburn Transit SRTP – 2018-2025 available here: <http://pctpa.net/transit/2018-auburn-transit-short-range-transit-plan/>
2. El Dorado County Transit SRTP/LRTP (Draft) – A draft of the most recent SRTP/LRTP was presented to the El Dorado County Transit Board on November 7, 2019. The draft document covers 2018-2023 for the SRTP, and 25 years for the LRTP 2018-2043. The draft can be found at <https://eldoradotransit.com/board-meeting/november-7-2019/>.
3. Placer County Transit SRTP – 2018-2025 available here: <http://pctpa.net/transit/2018-placer-county-transit-short-range-transit-plan/>
4. Rio Vista (Solano County) SRTP – Fys 2015-16 to 2024-25. This SRTP is included because the Rio Vista Delta Breeze bus service provides bus services to the City of Isleton in Sacramento County. The SRTP is available here: <https://sta.ca.gov/wp-content/uploads/2019/07/3.-SRTP-City-of-Rio-Vista-Section.pdf>
5. South County Transit/Link SRTP - 2017-2021 available here: https://www.sacog.org/sites/main/files/file-attachments/sacramento_county_srtp_final.pdf?1529445085
6. Yolo County Transportation District (Yolobus) SRTP – 2014-2021 available here: http://yolobus.com/pdf/YCTD_SRTP_FY_2014-2021_final_reduced.pdf
7. City of Davis SRTP (Unitrans + Davis Community Transit) – Fys 2014-15 to 2020-21 available here: <https://unitrans.ucdavis.edu/media/uploads/2017/10/18/city-of-davis-final-draft-srtp.pdf>
8. City of Elk Grove Transit (e-tran) Comprehensive Operational Analysis – 2018-2022 available here: https://www.elkgrovecity.org/UserFiles/Servers/Server_109585/File/Departments/eTran/04_12_2017_StaffReport.pdf
9. Roseville Transit SRTP – 2018-2025 available here: <http://pctpa.net/transit/2018-roseville-transit-short-range-transit-plan/>
10. Sacramento Regional Transit has multiple planning documents including: SRTP – 2012-2022, Strategic Plan – 2015-2022, SacRT Forward system modernization, etc. All Sacramento RT planning documents can be found at <http://www.sacrt.com/aboutrt/RTPlanning.aspx>
11. Western Placer Consolidated Transportation Services Agency (WPCTSA) SRTP – 2018-2025 available here: <http://pctpa.net/transit/2018-wpctsa-short-range-transit-plan/>

Yuba-Sutter Transit SRTP – 2016-2021 available here:
https://www.yubasuttertransit.com/files/6fd6b2518/Yuba+Sutter+SRTP+2015+Final+Plan_optimized.pdf

The inventory of transit vehicles below compiles the existing transit fleet information from the collection of TAMs in the SACOG region.

Revenue Vehicles 10.3.2018

As of 2018-10-03 11:19:19 • Generated by Darcy Groom

Filtered By

Show: All assets

Asset: Record Type equals Vehicles

Asset Category contains Revenue

Asset: Owner Name ↑	Asset: ID	Asset Class	Name	Vehicle Make	Vehicle Model	Year	Length	Primary Mode	Secondary Mode	In Service Date	Age	Odometer	Asset Class U/B	Port U/B	Replacement Value	End of Useful Life	Replacement Date	Project Year	Project Year Replacement Value
Auburn Transit	AS-000176	BU - Bus	1R-103	Ford	Glaval Cut-away	2011	26	MB - Bus		2/11/2011	7.65	116001	14	FALSE	USD 72,000.00	3/7/2025	2/7/2025	2020	USD 0.00
Auburn Transit	AS-000175	BU - Bus	1R-102	Ford	Glaval Cut-away	2011	26	MB - Bus		2/11/2011	7.65	119048	14	FALSE	USD 72,000.00	3/7/2025	2/7/2025	2020	USD 0.00
Auburn Transit	AS-000174	BU - Bus	1R-101	Ford	Glaval Cut-away	2011	26	MB - Bus		2/11/2011	7.65	126561	14	FALSE	USD 72,000.00	3/7/2025	2/7/2025	2020	USD 0.00
Auburn Transit	AS-000173	BU - Bus	1R-99	Eldorado National	XHF	2016	30	MB - Bus		3/20/2016	2.59	33716	14	FALSE	USD 420,000.00	2/28/2030	2/28/2030	2020	USD 0.00
Auburn Transit	AS-000172	BU - Bus	1R-98	Freightliner	Glaval	2017	30	MB - Bus		9/7/2014	4.07	2548	14	FALSE	USD 168,000.00	9/3/2028	9/3/2028	2020	USD 0.00
Davis Community Transit	AS-000121	BU - Bus	556	FORD	E-450	2013	22	DR - Demand Response		6/19/2013	5.29	104639	14	FALSE	USD 71,000.00	6/16/2027	6/16/2027	2020	USD 0.00
Davis Community Transit	AS-000120	BU - Bus	555	FORD	E-450	2013	22	DR - Demand Response		6/21/2013	5.29	105763	14	FALSE	USD 71,000.00	6/18/2027	6/18/2027	2020	USD 0.00
Davis Community Transit	AS-000123	BU - Bus	559	FORD	E-350	2018	20	DR - Demand Response		4/24/2018	0.44	7437	14	FALSE	USD 71,000.00	4/20/2032	4/20/2032	2020	USD 0.00
Davis Community Transit	AS-000122	BU - Bus	557	FORD	E-450	2016	22	DR - Demand Response		1/29/2016	2.68	53826	14	FALSE	USD 71,000.00	1/25/2030	1/25/2030	2020	USD 0.00
East County	AS-000446	BU - Bus	81310	Freightliner	Glaval Legacy	2017	40	CB - Commuter Bus		11/30/2017	0.84	64410	14	FALSE		11/27/2031	11/27/2031	2020	USD 0.00
El Dorado County Transit Authority	AS-000242	BR - Over-the-road bus	1009	MCJ	D4500	2010	45	CB - Commuter Bus		4/23/2010	8.45	333431	15	FALSE	USD 564,000.00	4/18/2030	4/18/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000241	BR - Over-the-road bus	1008	MCJ	D4500	2010	45	CB - Commuter Bus		4/23/2010	8.45	298073	15	FALSE	USD 564,000.00	4/18/2030	4/18/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000240	BR - Over-the-road bus	1007	MCJ	D4500	2010	45	CB - Commuter Bus		4/23/2010	8.45	356193	15	FALSE	USD 564,000.00	4/18/2030	4/18/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000239	BR - Over-the-road bus	1006	MCJ	D4500	2010	45	CB - Commuter Bus		4/23/2010	8.45	380017	15	FALSE	USD 564,000.00	4/18/2030	4/18/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000244	BR - Over-the-road bus	1401	MCJ	D4500	2014	45	CB - Commuter Bus		2/5/2014	4.66	153619	15	FALSE	USD 564,000.00	1/31/2034	1/31/2034	2035	USD 830,165.87
El Dorado County Transit Authority	AS-000243	BR - Over-the-road bus	1202	MCJ	D4500	2012	45	CB - Commuter Bus		7/19/2012	6.21	197206	15	FALSE	USD 564,000.00	7/14/2032	7/14/2032	2031	USD 757,988.02
El Dorado County Transit Authority	AS-000238	BR - Over-the-road bus	1005	MCJ	D4500	2010	45	CB - Commuter Bus		1/13/2010	8.73	277724	15	FALSE	USD 564,000.00	1/8/2030	1/8/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000237	BR - Over-the-road bus	1004	MCJ	D4500	2010	45	CB - Commuter Bus		1/13/2010	8.73	295713	15	FALSE	USD 564,000.00	1/8/2030	1/8/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000236	BR - Over-the-road bus	1003	MCJ	D4500	2010	45	CB - Commuter Bus		1/13/2010	8.73	328636	15	FALSE	USD 564,000.00	1/8/2030	1/8/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000235	BR - Over-the-road bus	1002	MCJ	D4500	2010	45	CB - Commuter Bus		1/13/2010	8.73	330740	15	FALSE	USD 564,000.00	1/8/2030	1/8/2030	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000234	BR - Over-the-road bus	1001	MCJ	D4500	2010	45	CB - Commuter Bus		12/14/2009	8.81	368156	15	FALSE	USD 564,000.00	12/9/2029	12/9/2029	2029	USD 724,287.64
El Dorado County Transit Authority	AS-000228	BU - Bus	0605	BBB	Excel 45	2006	40	CB - Commuter Bus	MB - Bus	2/28/2006	12.6	186032	14	FALSE	USD 565,000.00	2/25/2020	2/25/2020	2019	USD 577,995.00
El Dorado County Transit Authority	AS-000227	BU - Bus	0604	BBB	Excel 45	2006	40	CB - Commuter Bus	MB - Bus	12/19/2005	12.8	194223	14	FALSE	USD 565,000.00	12/16/2019	12/16/2019	2019	USD 577,995.00
El Dorado County Transit Authority	AS-000266	BU - Bus	1703	GL	Low Floor	2017	35	MB - Bus		5/2/2017	1.42	54098	14	FALSE	USD 525,000.00	4/29/2031	4/29/2031	2031	USD 705,573.96
El Dorado County Transit Authority	AS-000265	BU - Bus	1702	GL	Low Floor	2017	35	MB - Bus		5/2/2017	1.42	52310	14	FALSE	USD 525,000.00	4/29/2031	4/29/2031	2031	USD 705,573.96
El Dorado County Transit Authority	AS-000264	BU - Bus	1701	GL	Low Floor	2017	35	MB - Bus		5/2/2017	1.42	45029	14	FALSE	USD 525,000.00	4/29/2031	4/29/2031	2031	USD 705,573.96
El Dorado County Transit Authority	AS-000233	BU - Bus	0610	BBB	Excel 37	2006	35	CB - Commuter Bus	MB - Bus	1/2/2006	12.75	326018	14	FALSE	USD 565,000.00	1/4/2020	1/4/2020	2020	USD 591,288.89
El Dorado County Transit Authority	AS-000232	BU - Bus	0609	BBB	Excel 37	2006	35	CB - Commuter Bus	MB - Bus	1/7/2006	12.75	385546	14	FALSE	USD 565,000.00	1/4/2020	1/4/2020	2020	USD 591,288.89
El Dorado County Transit Authority	AS-000231	BU - Bus	0608	BBB	Excel 37	2006	35	CB - Commuter Bus	MB - Bus	1/7/2006	12.75	259519	14	FALSE	USD 565,000.00	1/4/2020	1/4/2020	2020	USD 591,288.89
El Dorado County Transit Authority	AS-000230	BU - Bus	0607	BBB	Excel 37	2006	35	CB - Commuter Bus	MB - Bus	1/5/2006	12.75	304112	14	FALSE	USD 565,000.00	1/2/2020	1/2/2020	2020	USD 591,288.89
El Dorado County Transit Authority	AS-000229	BU - Bus	0606	BBB	Excel 37	2006	35	CB - Commuter Bus	MB - Bus	1/5/2006	12.75	242856	14	FALSE	USD 565,000.00	1/2/2020	1/2/2020	2020	USD 591,288.89
El Dorado County Transit Authority	AS-000226	BU - Bus	0603	BBB	Excel 45	2006	40	CB - Commuter Bus	MB - Bus	12/12/2006	12.82	246667	14	FALSE	USD 565,000.00	12/9/2019	12/9/2019	2019	USD 577,995.00
El Dorado County Transit Authority	AS-000225	BU - Bus	0602	BBB	Excel 45	2006	40	CB - Commuter Bus	MB - Bus	12/20/2005	12.79	280022	14	FALSE	USD 565,000.00	12/17/2019	12/17/2019	2019	USD 577,995.00
El Dorado County Transit Authority	AS-000224	BU - Bus	0601	BBB	Excel 45	2006	40	CB - Commuter Bus	MB - Bus	12/20/2005	12.79	226503	14	FALSE	USD 565,000.00	12/17/2019	12/17/2019	2019	USD 577,995.00
El Dorado County Transit Authority	AS-000269	BU - Bus	1704	GL	Low Floor	2017	35	MB - Bus		5/2/2017	1.42	52094	14	FALSE	USD 525,000.00	4/29/2031	4/29/2031	2031	USD 705,573.96
El Dorado County Transit Authority	AS-000268	BU - Bus	1705	GL	Low Floor	2017	35	MB - Bus		5/2/2017	1.42	53508	14	FALSE	USD 525,000.00	4/29/2031	4/29/2031	2031	USD 705,573.96
El Dorado County Transit Authority	AS-000267	BU - Bus	1704	GL	Low Floor	2017	35	MB - Bus		5/2/2017	1.42	42539	14	FALSE	USD 525,000.00	4/29/2031	4/29/2031	2031	USD 705,573.96
El Dorado County Transit Authority	AS-000256	CU - Cutaway bus	1604	FRO	F550	2016	32	DR - Demand Response		11/29/2016	1.84	48726	10	FALSE	USD 110,000.00	11/27/2026	11/27/2026	2026	USD 131,946.46
El Dorado County Transit Authority	AS-000255	CU - Cutaway bus	1603	FRO	F550	2016	32	DR - Demand Response		11/10/2016	1.9	51097	10	FALSE	USD 110,000.00	11/8/2026	11/8/2026	2026	USD 131,946.46
El Dorado County Transit Authority	AS-000254	CU - Cutaway bus	1602	FRO	F550	2016	32	DR - Demand Response		11/29/2016	1.84	55142	10	FALSE	USD 110,000.00	11/27/2026	11/27/2026	2026	USD 131,946.46
El Dorado County Transit Authority	AS-000253	CU - Cutaway bus	1601	FRO	F550	2016	32	DR - Demand Response		11/29/2016	1.84	32146	10	FALSE	USD 110,000.00	11/27/2026	11/27/2026	2026	USD 131,946.46
El Dorado County Transit Authority	AS-000263	CU - Cutaway bus	0903	CMD	Kodiak	2009	32	MB - Bus		2/17/2010	8.63	222503	10	FALSE	USD 110,000.00	2/15/2020	2/15/2020	2019	USD 112,530.00
El Dorado County Transit Authority	AS-000262	CU - Cutaway bus	0902	CMD	Kodiak	2009	32	MB - Bus		1/11/2009	9.73	243820	10	FALSE	USD 110,000.00	1/11/2019	1/11/2019	2019	USD 112,530.00
El Dorado County Transit Authority	AS-000261	CU - Cutaway bus	0901	CMD	Kodiak	2009	32	MB - Bus		12/27/2008	9.77	258092	10	FALSE	USD 110,000.00	12/25/2018	12/25/2018	2019	USD 112,530.00
El Dorado County Transit Authority	AS-000260	CU - Cutaway bus	0704	CMD	Kodiak	2007	32	MB - Bus		8/25/2007	11.12	357081	10	TRUE	USD 110,000.00	8/22/2017	8/22/2017	2019	USD 112,530.00
El Dorado County Transit Authority	AS-000259	CU - Cutaway bus	0703	CMD	Kodiak	2007	32	MB - Bus		8/25/2007	11.12	298427	10	TRUE	USD 110,000.00	8/22/2017	8/22/2017	2019	USD 112,530.00
El Dorado County Transit Authority	AS-000258	CU - Cutaway bus	1607	FRO	F550	2016	32	DR - Demand Response		11/29/2016	1.84	49472	10	FALSE	USD 110,000.00	11/27/2026	11/27/2026	2026	USD 131,946.46
El Dorado County Transit Authority	AS-000257	CU - Cutaway bus	1605	FRO	F550	2016	32	DR - Demand Response		11/29/2016	1.84	59313	10	FALSE	USD 110,000.00	11/27/2026	11/27/2026	2026	USD 131,946.46
El Dorado County Transit Authority	AS-000271	CU - Cutaway bus	1201	INT	Navistar	2012	35	DR - Demand Response		6/26/2012	6.27	139039	10	FALSE	USD 115,000.00	6/24/2022	6/24/2022	2019	USD 117,645.00

Asset: Owner Name	Asset: ID	Asset Class	Name	Vehicle Make	Vehicle Model	Model Year	Vehicle Length	Primary Mode	Secondary Mode	In Service Date	Age	Odometer	Asset Class UBL	Post UBL	Replacement Value	End of Useful Life	Replacement Date	Project Year	Project Year Replacement Value
Elk Grove	AS-000319	BU - Bus	776	New Flyer	CALFLR	2010	40	CB - Commuter Bus	MB - Bus	9/1/2010	8.09	263324	12	FALSE	USD 630,000.00	8/28/2024	8/28/2024	2027	USD 630,000.00
Elk Grove	AS-000318	BU - Bus	775	New Flyer	CALFLR	2010	40	CB - Commuter Bus	MB - Bus	9/1/2010	8.09	275604	12	FALSE	USD 630,000.00	8/28/2024	8/28/2024	2026	USD 630,000.00
Elk Grove	AS-000317	BU - Bus	774	New Flyer	CALFLR	2010	40	CB - Commuter Bus	MB - Bus	9/1/2010	8.09	281726	12	FALSE	USD 625,000.00	8/28/2024	8/28/2024	2026	USD 625,000.00
Elk Grove	AS-000306	BU - Bus	563	Orion	VII	2008	40	CB - Commuter Bus	MB - Bus	11/1/2008	9.93	323661	12	FALSE	USD 600,000.00	10/29/2022	10/29/2022	2019	USD 600,000.00
Elk Grove	AS-000305	BU - Bus	562	Orion	VII	2008	40	CB - Commuter Bus	MB - Bus	11/1/2008	9.93	349616	12	FALSE	USD 600,000.00	10/29/2022	10/29/2022	2021	USD 600,000.00
Elk Grove	AS-000304	BU - Bus	561	Orion	VII	2008	40	CB - Commuter Bus	MB - Bus	11/1/2008	9.93	304918	12	FALSE	USD 600,000.00	10/29/2022	10/29/2022	2021	USD 600,000.00
Elk Grove	AS-000303	BU - Bus	560	Orion	VII	2008	40	CB - Commuter Bus	MB - Bus	11/1/2008	9.93	312008	12	FALSE	USD 600,000.00	10/29/2022	10/29/2022	2019	USD 600,000.00
Elk Grove	AS-000302	BU - Bus	559	Orion	VII	2008	40	CB - Commuter Bus	MB - Bus	11/1/2008	9.93	317527	12	FALSE	USD 600,000.00	10/29/2022	10/29/2022	2019	USD 600,000.00
Elk Grove	AS-000219	CU - Cutaway bus	819	El Dorado	Aerotech	2012	25	DR - Demand Response		3/1/2012	6.59	146176	5	TRUE	USD 120,000.00	2/27/2022	2/27/2022	2019	USD 120,000.00
Elk Grove	AS-000218	CU - Cutaway bus	818	El Dorado	Aerotech	2012	25	DR - Demand Response		3/1/2012	6.59	134968	5	TRUE	USD 120,000.00	2/27/2022	2/27/2022	2019	USD 120,000.00
Elk Grove	AS-000217	CU - Cutaway bus	817	El Dorado	Aerotech	2012	25	DR - Demand Response		3/1/2012	6.59	185950	5	TRUE	USD 120,000.00	2/27/2022	2/27/2022	2019	USD 120,000.00
Elk Grove	AS-000216	CU - Cutaway bus	816	El Dorado	Aerotech	2012	25	DR - Demand Response		3/1/2012	6.59	194467	5	TRUE	USD 120,000.00	2/27/2022	2/27/2022	2019	USD 120,000.00
Elk Grove	AS-000215	CU - Cutaway bus	815	El Dorado	Aerotech	2012	25	DR - Demand Response		3/1/2012	6.59	189165	5	TRUE	USD 120,000.00	2/27/2022	2/27/2022	2019	USD 120,000.00
Elk Grove	AS-000223	CU - Cutaway bus	840	Starcraft	Allstar	2016	23	DR - Demand Response		4/1/2017	1.51	31863	5	FALSE	USD 120,000.00	3/30/2027	3/30/2027	2021	USD 120,000.00
Elk Grove	AS-000222	CU - Cutaway bus	839	Starcraft	Allstar	2016	23	DR - Demand Response		4/1/2017	1.51	40368	5	FALSE	USD 120,000.00	3/30/2027	3/30/2027	2022	USD 120,000.00
Elk Grove	AS-000339	CU - Cutaway bus	828	General Coach	Crusader	2006	21	DR - Demand Response		6/30/2006	12.27	142011	5	TRUE	USD 120,000.00	6/27/2016	6/27/2016	2019	USD 120,000.00
Elk Grove	AS-000338	CU - Cutaway bus	827	General Coach	Crusader	2006	21	DR - Demand Response		6/30/2006	12.27	165606	5	TRUE	USD 120,000.00	6/27/2016	6/27/2016	2019	USD 120,000.00
Elk Grove	AS-000214	CU - Cutaway bus	814	El Dorado	Aerotech	2012	25	DR - Demand Response		3/1/2012	6.59	196665	5	TRUE	USD 120,000.00	2/27/2022	2/27/2022	2019	USD 120,000.00
Folsom Stage Line	AS-000119	BU - Bus	1223	El Dorado National	Easy Rider II	2016	32	MB - Bus		6/1/2016	2.34	61005	14	FALSE	USD 529,000.00	5/29/2030	5/29/2030		USD 0.00
Folsom Stage Line	AS-000117	BU - Bus	1195	El Dorado National	Easy Rider II	2015	32	MB - Bus		8/13/2015	3.14	83261	14	FALSE		8/9/2029	8/9/2029		USD 0.00
Folsom Stage Line	AS-000116	BU - Bus	1194	El Dorado National	Easy Rider II	2015	32	MB - Bus		8/13/2015	3.14	81155	14	FALSE		8/9/2029	8/9/2029		USD 0.00
Folsom Stage Line	AS-000115	BU - Bus	1155	El Dorado National	Easy Rider II	2015	32	MB - Bus		1/29/2015	3.71	63146	14	FALSE		1/15/2029	1/15/2029		USD 0.00
Folsom Stage Line	AS-000114	BU - Bus	1153	El Dorado National	Easy Rider II	2015	32	MB - Bus		1/19/2015	3.71	78499	14	FALSE		1/15/2029	1/15/2029		USD 0.00
Folsom Stage Line	AS-000111	CU - Cutaway bus	1230	Chevy	Aerotech 220	2014	23	DR - Demand Response	MB - Bus	6/6/2014	4.33	57671	10	FALSE		6/3/2024	6/3/2024		USD 0.00
Folsom Stage Line	AS-000110	CU - Cutaway bus	1149	Chevy	Aerotech 220	2014	23	DR - Demand Response	MB - Bus	6/6/2014	4.33	57197	10	FALSE		6/3/2024	6/3/2024		USD 0.00
Folsom Stage Line	AS-000109	CU - Cutaway bus	1148	Chevy	Aerotech 220	2014	23	DR - Demand Response	MB - Bus	6/6/2014	4.33	62502	10	FALSE		6/3/2024	6/3/2024		USD 0.00
Folsom Stage Line	AS-000108	CU - Cutaway bus	1147	Chevy	Aerotech 220	2014	23	DR - Demand Response	MB - Bus	6/6/2014	4.33	70780	10	FALSE		6/3/2024	6/3/2024		USD 0.00
Folsom Stage Line	AS-000113	CU - Cutaway bus	1152	Chevy	Aerotech 220	2014	23	DR - Demand Response	MB - Bus	12/12/2014	3.81	67723	10	FALSE		12/9/2024	12/9/2024		USD 0.00
Folsom Stage Line	AS-000112	CU - Cutaway bus	1151	Chevy	Aerotech 220	2014	23	DR - Demand Response	MB - Bus	12/12/2014	3.81	14799	10	FALSE		12/9/2024	12/9/2024		USD 0.00
Placer County Transit	AS-004844	BR - Over-the-road bus	1603	MCi	D4500	2010	45	CB - Commuter Bus		2/1/2010	8.67	280474	14	FALSE	USD 575,000.00	1/29/2024	1/29/2024		USD 0.00
Placer County Transit	AS-004843	BR - Over-the-road bus	1602	MCi	D4500	2010	45	CB - Commuter Bus		2/1/2010	8.67	239556	14	FALSE	USD 575,000.00	1/29/2024	1/29/2024		USD 0.00
Placer County Transit	AS-004842	BR - Over-the-road bus	1601	MCi	D4500	2010	45	CB - Commuter Bus		2/1/2010	8.67	243876	14	FALSE	USD 575,000.00	1/29/2024	1/29/2024		USD 0.00
Placer County Transit	AS-004845	BR - Over-the-road bus	1604	MCi	D4500	2010	45	CB - Commuter Bus		2/1/2010	8.67	267602	14	FALSE	USD 575,000.00	1/29/2024	1/29/2024		USD 0.00
Placer County Transit	AS-004846	BR - Over-the-road bus	1605	MCi	D4500	2010	45	CB - Commuter Bus		2/1/2010	8.67	217396	14	FALSE	USD 575,000.00	1/29/2024	1/29/2024		USD 0.00
Placer County Transit	AS-004879	BU - Bus	3314	NABI	LF	2009	40	MB - Bus		1/21/2016	2.7	135414	14	FALSE	USD 555,000.00	1/17/2030	1/17/2030		USD 0.00
Placer County Transit	AS-004878	BU - Bus	1519	Gillie	LF	2015	40	MB - Bus		1/21/2016	2.7	192180	14	FALSE	USD 555,000.00	1/17/2030	1/17/2030		USD 0.00
Placer County Transit	AS-004877	BU - Bus	1518	Gillie	LF	2015	40	MB - Bus		1/21/2016	2.7	207658	14	FALSE	USD 555,000.00	1/17/2030	1/17/2030		USD 0.00
Placer County Transit	AS-004876	BU - Bus	1517	Gillie	LF	2015	40	MB - Bus		1/21/2016	2.7	201801	14	FALSE	USD 555,000.00	1/17/2030	1/17/2030		USD 0.00
Placer County Transit	AS-004875	BU - Bus	1516	Gillie	LF	2015	40	MB - Bus		1/21/2016	2.7	180756	14	FALSE	USD 555,000.00	1/17/2030	1/17/2030		USD 0.00
Placer County Transit	AS-004869	BU - Bus	422	Orion	V	2007	35	MB - Bus		3/15/2005	13.72	742251	14	FALSE	USD 540,000.00	3/12/2019	3/12/2019		USD 0.00
Placer County Transit	AS-004868	BU - Bus	1737	Gillie	LF	2017	35	MB - Bus		3/29/2018	0.52	2019	14	FALSE	USD 540,000.00	3/25/2032	3/25/2032		USD 0.00
Placer County Transit	AS-004867	BU - Bus	1736	Gillie	LF	2017	35	MB - Bus		3/29/2018	0.52	2695	14	FALSE	USD 82,000.00	3/25/2032	3/25/2032		USD 0.00
Placer County Transit	AS-004852	BU - Bus	1515	Gillie	Allstar	2015	35	MB - Bus		1/26/2016	2.69	154626	14	FALSE	USD 540,000.00	1/22/2030	1/22/2030		USD 0.00
Placer County Transit	AS-004851	BU - Bus	1514	Gillie	Allstar	2015	35	MB - Bus		1/26/2016	2.69	151508	14	FALSE	USD 540,000.00	1/22/2030	1/22/2030		USD 0.00
Placer County Transit	AS-004850	BU - Bus	1513	Gillie	Allstar	2015	35	MB - Bus		1/26/2016	2.69	175133	14	FALSE	USD 540,000.00	1/22/2030	1/22/2030		USD 0.00
Placer County Transit	AS-004874	BU - Bus	630	Orion	V	2006	40	MB - Bus		11/1/2006	11.93	573082	14	FALSE	USD 555,000.00	10/28/2020	10/28/2020		USD 0.00
Placer County Transit	AS-004873	BU - Bus	629	Orion	V	2006	40	MB - Bus		11/1/2006	11.93	228112	14	FALSE	USD 555,000.00	10/28/2020	10/28/2020		USD 0.00
Placer County Transit	AS-004872	BU - Bus	628	Orion	V	2006	40	MB - Bus		11/1/2006	11.93	232211	14	FALSE	USD 555,000.00	10/28/2020	10/28/2020		USD 0.00
Placer County Transit	AS-004871	BU - Bus	627	Orion	V	2006	40	MB - Bus		11/1/2006	11.93	33916	14	FALSE	USD 555,000.00	10/28/2020	10/28/2020		USD 0.00
Placer County Transit	AS-004870	BU - Bus	425	Orion	V	2004	35	MB - Bus		1/15/2005	13.72	246775	14	FALSE	USD 540,000.00	1/12/2019	1/12/2019		USD 0.00
Placer County Transit	AS-004859	BU - Bus	1726	Gillie	LF	2017	35	MB - Bus		7/14/2017	1.22	50816	14	FALSE	USD 540,000.00	7/11/2031	7/11/2031		USD 0.00
Placer County Transit	AS-004858	BU - Bus	1725	Gillie	LF	2017	35	MB - Bus		7/14/2017	1.22	53447	14	FALSE	USD 540,000.00	7/11/2031	7/11/2031		USD 0.00
Placer County Transit	AS-004857	BU - Bus	1724	Gillie	LF	2017	35	MB - Bus		7/14/2017	1.22	31817	14	FALSE	USD 540,000.00	7/11/2031	7/11/2031		USD 0.00
Placer County Transit	AS-004883	BU - Bus	1728	Gillie	LF	2017	40	MB - Bus		6/16/2017	1.3	88479	14	FALSE	USD 555,000.00	6/13/2031	6/13/2031		USD 0.00
Placer County Transit	AS-004882	BU - Bus	1727	Gillie	LF	2017	40	MB - Bus		6/16/2017	1.3	90902	14	FALSE	USD 555,000.00	6/13/2031	6/13/2031		USD 0.00
Placer County Transit	AS-004881	BU - Bus	3315	NABI	LF	2009	40	MB - Bus		9/8/2016	2.07	71866	14	FALSE	USD 555,000.00	9/5/2030	9/5/2030		USD 0.00
Placer County Transit	AS-004880	BU - Bus	3315	NABI	LF	2009	40	MB - Bus		9/8/2016	2.07	142436	14	FALSE	USD 555,000.00	9/5/2030	9/5/2030		USD 0.00
Placer County Transit	AS-004849	BU - Bus	1512	Gillie	LF	2015	35	MB - Bus		1/23/2016	2.7	184526	14	FALSE	USD 540,000.00	1/19/2030	1/19/2030		USD 0.00
Placer County Transit	AS-004848	BU - Bus	1511	Gillie	LF	2015	35	MB - Bus		1/21/2016	2.7	178725	14	FALSE	USD 540,000.00	1/17/2030	1/17/2030		USD 0.00
Placer County Transit	AS-004847	BU - Bus	1510	Gillie	LF	2015	35	MB - Bus		1/18/2016	2.89	18604	14	FALSE	USD 540,000.00	1/16/2030	1/16/2030		USD 0.00
Placer County Transit	AS-004866	CU - Cutaway bus	1735	Starcraft	Allstar	2017	25	DR - Demand Response		2/1/2018	0.67	11090	10	FALSE	USD 82,000.00	1/30/2028	1/30/2028		USD 0.00
Placer County Transit	AS-004865	CU - Cutaway bus	1734	Starcraft	Allstar	2017	25	DR - Demand Response		2/1/2018	0.67	12361	10	FALSE	USD 82,000.00	1/30/2028	1/30/2028		USD 0.00
Placer County Transit	AS-004864	CU - Cutaway bus	1733																

Owner Name	Asset ID	Asset Class	Name	Vehicle Model	Vehicle Model Year	Vehicle Length	Primary Mode	Secondary Mode	In Service Date	Age	Odometer	Asset Class ULB	Past ULB	Replacement Value	End of Useful Life	Replacement Date	Project Year	2020	Project Year Replacement Value
Owner Transit	AS-000002	CU - Cutaway bus	11-460	ARBOC	Spirit of Mobility	2011	26	DR - Demand Response	MB - Bus	4/11/2012	6.48	120063	14	FALSE	4/8/2026	4/8/2026	2019		USD 167,444.64
Sacramento Regional Transit	AS-001010	CBS Bus - Coach/17 El Dorado	1203	El Dorado	AERO ELITE 320	0			2/17/2012	6.63	122962	14	FALSE	2/13/2026	2/13/2026	2019			USD 0.00
Sacramento Regional Transit	AS-001019	CBS Bus - Coach/17 El Dorado	1202	El Dorado	AERO ELITE 320	0			2/14/2012	6.64	135358	14	FALSE	2/10/2026	2/10/2026	2019			USD 0.00
Sacramento Regional Transit	AS-001018	CBS Bus - Coach/17 El Dorado	1201	El Dorado	AERO ELITE 320	0			2/9/2012	6.65	133535	14	FALSE	2/5/2026	2/5/2026	2019			USD 0.00
Sacramento Regional Transit	AS-001021	CBS Bus - Coach/17 El Dorado	1204	El Dorado	AERO ELITE 320	0			2/17/2012	6.63	124308	14	FALSE	2/13/2026	2/13/2026	2019			USD 0.00
Sacramento Regional Transit	AS-001025	CBS Bus - Coach/17 El Dorado	1202	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	32677	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001024	CBS Bus - Coach/17 El Dorado	1201	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	31246	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001023	CBS Bus - Coach/17 El Dorado	1206	El Dorado	AERO ELITE 320	0			2/22/2012	6.62	135630	14	FALSE	2/18/2026	2/18/2026	2019			USD 0.00
Sacramento Regional Transit	AS-001022	CBS Bus - Coach/17 El Dorado	1205	El Dorado	AERO ELITE 320	0			2/23/2012	6.61	130044	14	FALSE	2/19/2026	2/19/2026	2019			USD 0.00
Sacramento Regional Transit	AS-001029	CBS Bus - Coach/17 El Dorado	1606	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	30304	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001028	CBS Bus - Coach/17 El Dorado	1605	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	22710	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001027	CBS Bus - Coach/17 El Dorado	1604	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	28119	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001026	CBS Bus - Coach/17 El Dorado	1603	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	22068	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001030	CBS Bus - Coach/17 El Dorado	1607	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	26755	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001034	CBS Bus - Coach/17 El Dorado	1611	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	15483	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001033	CBS Bus - Coach/17 El Dorado	1610	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	29296	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001032	CBS Bus - Coach/17 El Dorado	1609	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	30789	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001031	CBS Bus - Coach/17 El Dorado	1608	El Dorado	AERO ELITE 320	0			10/1/2015	3.01	31928	14	FALSE	9/27/2029	9/27/2029	2019			USD 0.00
Sacramento Regional Transit	AS-001037	CBS Bus - Coach/5 Ford	2902	Ford	STARCRAT	0			4/27/2009	9.44	184093	7	TRUE	4/25/2016	4/25/2016	2019			USD 0.00
Sacramento Regional Transit	AS-001036	CBS Bus - Coach/5 Ford	2908	Ford	STARCRAT	0			4/27/2009	9.44	170720	7	TRUE	4/25/2016	4/25/2016	2019			USD 0.00
Sacramento Regional Transit	AS-001040	CBS Bus - Coach/5 Ford	2908	Ford	STARCRAT	0			4/28/2009	9.44	168583	7	TRUE	4/26/2016	4/26/2016	2019			USD 0.00
Sacramento Regional Transit	AS-001039	CBS Bus - Coach/5 Ford	2907	Ford	STARCRAT	0			4/28/2009	9.44	179476	7	TRUE	4/26/2016	4/26/2016	2019			USD 0.00
Sacramento Regional Transit	AS-001038	CBS Bus - Coach/5 Ford	2905	Ford	STARCRAT	0			4/27/2009	9.44	175943	7	TRUE	4/25/2016	4/25/2016	2019			USD 0.00
Sacramento Regional Transit	AS-001035	CBS Bus - Coach/5 Ford	2702	Ford	STARCRAT	0			4/1/2008	10.51	137605	7	TRUE	3/31/2015	3/31/2015	2019			USD 0.00
Sacramento Regional Transit	AS-000763	LU - Light Rail - Siemens	01002	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000747	LU - Light Rail - Siemens	01014	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000746	LU - Light Rail - Siemens	01026	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000745	LU - Light Rail - Siemens	01015	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000744	LU - Light Rail - Siemens	01016	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000743	LU - Light Rail - Siemens	01015	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000736	LU - Light Rail - Siemens	01022	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000735	LU - Light Rail - Siemens	01023	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000737	LU - Light Rail - Siemens	01008	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000734	LU - Light Rail - Siemens	01007	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000733	LU - Light Rail - Siemens	01006	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000728	LU - Light Rail - Siemens	01019	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000732	LU - Light Rail - Siemens	01005	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000731	LU - Light Rail - Siemens	01004	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000730	LU - Light Rail - Siemens	01021	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000729	LU - Light Rail - Siemens	01003	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000762	LU - Light Rail - Siemens	01036	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		6/25/1991	27.29		25	TRUE	USD 5,258,696.00	6/18/2016	6/18/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000761	LU - Light Rail - Siemens	01001	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000760	LU - Light Rail - Siemens	01035	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		6/25/1991	27.29		25	TRUE	USD 5,258,696.00	6/18/2016	6/18/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000759	LU - Light Rail - Siemens	01034	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		6/25/1991	27.29		25	TRUE	USD 5,258,696.00	6/18/2016	6/18/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000758	LU - Light Rail - Siemens	01033	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		4/19/1991	27.48		25	TRUE	USD 5,258,696.00	4/12/2016	4/12/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000757	LU - Light Rail - Siemens	01031	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		4/27/1991	27.54		25	TRUE	USD 5,258,696.00	3/20/2016	3/20/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000756	LU - Light Rail - Siemens	01029	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		2/8/1991	27.67		25	TRUE	USD 5,258,696.00	2/12/2016	2/12/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000755	LU - Light Rail - Siemens	01030	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/27/1991	27.54		25	TRUE	USD 5,258,696.00	3/20/2016	3/20/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000754	LU - Light Rail - Siemens	01017	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		1/11/1991	27.75		25	TRUE	USD 5,258,696.00	1/5/2016	1/5/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000753	LU - Light Rail - Siemens	01028	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		2/5/1991	27.68		25	TRUE	USD 5,258,696.00	1/30/2016	1/30/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000752	LU - Light Rail - Siemens	01032	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		6/3/1991	27.35		25	TRUE	USD 5,258,696.00	5/27/2016	5/27/2016	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000751	LU - Light Rail - Siemens	01009	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000750	LU - Light Rail - Siemens	01013	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000749	LU - Light Rail - Siemens	01012	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000748	LU - Light Rail - Siemens	01025	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000742	LU - Light Rail - Siemens	01018	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000741	LU - Light Rail - Siemens	01014	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000740	LU - Light Rail - Siemens	01024	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000739	LU - Light Rail - Siemens	01020	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000738	LU - Light Rail - Siemens	01011	SDU - Siemens Mass Transit Division	U2A	80	LU - Light Rail		3/12/1987	31.58		25	TRUE	USD 5,258,696.00	3/5/2012	3/5/2012	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000739	LU - Light Rail - CAF	01036	CAF - Construcciones y Auxiliar de Ferrocarriles (CAF)	U2D	84	LU - Light Rail		4/17/2004	14.42		25	FALSE	USD 5,258,696.00	5/1/2029	5/1/2029	2019		USD 5,379,646.01
Sacramento Regional Transit	AS-000798	LU - Light Rail - CAF	01035	CAF - Construcciones y Auxiliar de Ferrocarriles (CAF)	200	84	LU - Light Rail		4/30/2004	14.44		25	FALSE	USD 5,258,696.00	4/24/2029	4/24/2029	2019		USD 0.0

Asset Owner Name ^	Asset ID	Asset Class	Name	Vehicle Make	Vehicle Model	Model Year	Vehicle Length	Primary Mode	Secondary Mode	In Service Date	Age	Odometer	Asset Class UBL	Post UBL	Replacement Value	End of Useful Life	Replacement Date	Project Year	Project Year Replacement Value
Sacramento Regional Transit	AS-000819	LR - Light Rail - UTOC	#316	UTD - UTOC Inc.		1986	88	LR - Light Rail		12/21/2015	2.79		25	FALSE	USD 5,258,696.00	12/14/2040	12/14/2040		USD 0.00
Sacramento Regional Transit	AS-000818	LR - Light Rail - UTOC	#315	UTD - UTOC Inc.		1986	88	LR - Light Rail		2/10/2017	1.64		25	FALSE	USD 5,258,696.00	2/4/2042	2/4/2042		USD 0.00
Sacramento Regional Transit	AS-000824	LR - Light Rail - UTOC	#321	UTD - UTOC Inc.		1986	88	LR - Light Rail		9/9/2016	2.07		25	FALSE	USD 5,258,696.00	9/3/2041	9/3/2041		USD 0.00
Sacramento Regional Transit	AS-000823	LR - Light Rail - UTOC	#320	UTD - UTOC Inc.		1986	88	LR - Light Rail		2/10/2017	1.64		25	FALSE	USD 5,258,696.00	2/4/2042	2/4/2042		USD 0.00
Sacramento Regional Transit	AS-000817	LR - Light Rail - UTOC	#314	UTD - UTOC Inc.		1986	88	LR - Light Rail		9/11/2015	3.06		25	FALSE	USD 5,258,696.00	9/4/2040	9/4/2040		USD 0.00
Sacramento Regional Transit	AS-000816	LR - Light Rail - UTOC	#313	UTD - UTOC Inc.		1986	88	LR - Light Rail		9/25/2016	2.11		25	FALSE	USD 5,258,696.00	8/19/2041	8/19/2041		USD 0.00
Sacramento Regional Transit	AS-000815	LR - Light Rail - UTOC	#312	UTD - UTOC Inc.		1986	88	LR - Light Rail		8/27/2015	3.1		25	FALSE	USD 5,258,696.00	8/20/2040	8/20/2040		USD 0.00
Sacramento Regional Transit	AS-000814	LR - Light Rail - UTOC	#311	UTD - UTOC Inc.		1986	88	LR - Light Rail		12/6/2016	1.82		25	FALSE	USD 5,258,696.00	11/30/2041	11/30/2041		USD 0.00
Sacramento Regional Transit	AS-000813	LR - Light Rail - UTOC	#310	UTD - UTOC Inc.		1986	88	LR - Light Rail		10/12/2015	2.98		25	FALSE	USD 5,258,696.00	10/5/2040	10/5/2040		USD 0.00
Sacramento Regional Transit	AS-000887	BU - Bus - Orion	2857	Orion	7.501	2008				6/27/2008	10.27	367547	14	FALSE		6/24/2022	6/24/2022		USD 0.00
Sacramento Regional Transit	AS-000886	BU - Bus - Orion	2856	Orion	7.501	2008				7/7/2008	10.25	375387	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000885	BU - Bus - Orion	2855	Orion	7.501	2008				7/7/2008	10.25	385696	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000884	BU - Bus - Orion	2854	Orion	7.501	2008				6/6/2008	10.33	374440	14	FALSE		6/3/2022	6/3/2022		USD 0.00
Sacramento Regional Transit	AS-000883	BU - Bus - Orion	2853	Orion	7.501	2008				6/2/2008	10.34	376989	14	FALSE		5/30/2022	5/30/2022		USD 0.00
Sacramento Regional Transit	AS-000867	BU - Bus - Orion	2837	Orion	7.501	2008				5/27/2008	10.36	370459	14	FALSE		5/24/2022	5/24/2022		USD 0.00
Sacramento Regional Transit	AS-000866	BU - Bus - Orion	2836	Orion	7.501	2008				6/2/2008	10.34	362234	14	FALSE		5/30/2022	5/30/2022		USD 0.00
Sacramento Regional Transit	AS-000865	BU - Bus - Orion	2835	Orion	7.501	2008				5/16/2008	10.39	381656	14	FALSE		5/13/2022	5/13/2022		USD 0.00
Sacramento Regional Transit	AS-000864	BU - Bus - Orion	2834	Orion	7.501	2008				5/12/2008	10.4	378596	14	FALSE		5/9/2022	5/9/2022		USD 0.00
Sacramento Regional Transit	AS-000863	BU - Bus - Orion	2833	Orion	7.501	2008				5/12/2008	10.4	373395	14	FALSE		5/9/2022	5/9/2022		USD 0.00
Sacramento Regional Transit	AS-000832	BU - Bus - Orion	2802	Orion	7.501	2008				3/24/2008	10.53	366820	14	FALSE		3/21/2022	3/21/2022		USD 0.00
Sacramento Regional Transit	AS-000831	BU - Bus - Orion	2801	Orion	7.501	2008				8/14/2008	10.14	371152	14	FALSE		8/11/2022	8/11/2022		USD 0.00
Sacramento Regional Transit	AS-000830	BU - Bus - Orion	2605	Orion	7.704	2005				9/8/2005	12.08	326796	14	FALSE		9/4/2020	9/4/2020		USD 0.00
Sacramento Regional Transit	AS-000829	BU - Bus - Orion	2604	Orion	7.701	2005				9/8/2006	12.08	330430	14	FALSE		9/4/2020	9/4/2020		USD 0.00
Sacramento Regional Transit	AS-000828	BU - Bus - Orion	2603	Orion	7.701	2005				9/17/2006	12.05	334844	14	FALSE		9/13/2020	9/13/2020		USD 0.00
Sacramento Regional Transit	AS-000847	BU - Bus - Orion	2817	Orion	7.501	2008				4/25/2008	10.45	373617	14	FALSE		4/22/2022	4/22/2022		USD 0.00
Sacramento Regional Transit	AS-000846	BU - Bus - Orion	2816	Orion	7.501	2008				4/8/2008	10.49	379655	14	FALSE		4/5/2022	4/5/2022		USD 0.00
Sacramento Regional Transit	AS-000845	BU - Bus - Orion	2815	Orion	7.501	2008				4/28/2008	10.44	373472	14	FALSE		4/25/2022	4/25/2022		USD 0.00
Sacramento Regional Transit	AS-000844	BU - Bus - Orion	2814	Orion	7.501	2008				4/16/2008	10.47	367806	14	FALSE		4/13/2022	4/13/2022		USD 0.00
Sacramento Regional Transit	AS-000843	BU - Bus - Orion	2813	Orion	7.501	2008				4/30/2008	10.43	382120	14	FALSE		4/27/2022	4/27/2022		USD 0.00
Sacramento Regional Transit	AS-000882	BU - Bus - Orion	2852	Orion	7.501	2008				6/6/2008	10.33	379328	14	FALSE		6/3/2022	6/3/2022		USD 0.00
Sacramento Regional Transit	AS-000881	BU - Bus - Orion	2851	Orion	7.501	2008				5/20/2008	10.38	375621	14	FALSE		5/17/2022	5/17/2022		USD 0.00
Sacramento Regional Transit	AS-000880	BU - Bus - Orion	2850	Orion	7.501	2008				6/1/2008	10.35	359309	14	FALSE		5/29/2022	5/29/2022		USD 0.00
Sacramento Regional Transit	AS-000879	BU - Bus - Orion	2849	Orion	7.501	2008				7/14/2008	10.23	380090	14	FALSE		7/11/2022	7/11/2022		USD 0.00
Sacramento Regional Transit	AS-000878	BU - Bus - Orion	2848	Orion	7.501	2008				5/30/2008	10.35	371001	14	FALSE		5/27/2022	5/27/2022		USD 0.00
Sacramento Regional Transit	AS-000877	BU - Bus - Orion	2847	Orion	7.501	2008				6/9/2008	10.32	373982	14	FALSE		6/6/2022	6/6/2022		USD 0.00
Sacramento Regional Transit	AS-000876	BU - Bus - Orion	2846	Orion	7.501	2008				5/30/2008	10.35	371936	14	FALSE		5/27/2022	5/27/2022		USD 0.00
Sacramento Regional Transit	AS-000875	BU - Bus - Orion	2845	Orion	7.501	2008				6/5/2008	10.34	372155	14	FALSE		6/3/2022	6/3/2022		USD 0.00
Sacramento Regional Transit	AS-000874	BU - Bus - Orion	2844	Orion	7.501	2008				5/30/2008	10.35	374493	14	FALSE		5/27/2022	5/27/2022		USD 0.00
Sacramento Regional Transit	AS-000873	BU - Bus - Orion	2843	Orion	7.501	2008				5/30/2008	10.35	377802	14	FALSE		5/27/2022	5/27/2022		USD 0.00
Sacramento Regional Transit	AS-000912	BU - Bus - Orion	2882	Orion	7.501	2008				7/25/2008	10.2	379725	14	FALSE		7/22/2022	7/22/2022		USD 0.00
Sacramento Regional Transit	AS-000911	BU - Bus - Orion	2881	Orion	7.501	2008				7/24/2008	10.2	380584	14	FALSE		7/20/2022	7/20/2022		USD 0.00
Sacramento Regional Transit	AS-000910	BU - Bus - Orion	2880	Orion	7.501	2008				7/17/2008	10.22	372361	14	FALSE		7/14/2022	7/14/2022		USD 0.00
Sacramento Regional Transit	AS-000909	BU - Bus - Orion	2879	Orion	7.501	2008				7/22/2008	10.21	378759	14	FALSE		7/19/2022	7/19/2022		USD 0.00
Sacramento Regional Transit	AS-000908	BU - Bus - Orion	2878	Orion	7.501	2008				7/25/2008	10.22	370552	14	FALSE		7/22/2022	7/22/2022		USD 0.00
Sacramento Regional Transit	AS-000903	BU - Bus - Orion	2873	Orion	7.501	2008				7/7/2008	10.25	367223	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000907	BU - Bus - Orion	2877	Orion	7.501	2008				7/14/2008	10.23	380352	14	FALSE		7/11/2022	7/11/2022		USD 0.00
Sacramento Regional Transit	AS-000906	BU - Bus - Orion	2876	Orion	7.501	2008				7/14/2008	10.23	373508	14	FALSE		7/11/2022	7/11/2022		USD 0.00
Sacramento Regional Transit	AS-000905	BU - Bus - Orion	2875	Orion	7.501	2008				7/7/2008	10.25	375379	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000904	BU - Bus - Orion	2874	Orion	7.501	2008				7/14/2008	10.23	389751	14	FALSE		7/11/2022	7/11/2022		USD 0.00
Sacramento Regional Transit	AS-000892	BU - Bus - Orion	2862	Orion	7.501	2008				7/7/2008	10.25	377068	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000891	BU - Bus - Orion	2861	Orion	7.501	2008				6/24/2008	10.28	377212	14	FALSE		6/21/2022	6/21/2022		USD 0.00
Sacramento Regional Transit	AS-000890	BU - Bus - Orion	2860	Orion	7.501	2008				7/7/2008	10.25	376211	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000888	BU - Bus - Orion	2858	Orion	7.501	2008				7/7/2008	10.25	385056	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000889	BU - Bus - Orion	2859	Orion	7.501	2008				7/7/2008	10.25	377297	14	FALSE		7/4/2022	7/4/2022		USD 0.00
Sacramento Regional Transit	AS-000827	BU - Bus - Orion	2602	Orion	7.701	2005				9/14/2006	12.06	344087	14	FALSE		9/10/2020	9/10/2020		USD 0.00
Sacramento Regional Transit	AS-000826	BU - Bus - Orion	2601	Orion	7.701	2005				9/17/2006	12.05	335710	14	FALSE		9/13/2020	9/13/2020		USD 0.00
Sacramento Regional Transit	AS-000917	BU - Bus - Orion	2887	Orion	7.501	2008				7/25/2008	10.2	375163	14	FALSE		7/22/2022	7/22/2022		USD 0.00
Sacramento Regional Transit	AS-000916	BU - Bus - Orion	2886	Orion	7.501	2008				9/4/2008	10.08	365482	14	FALSE		9/1/2022	9/1/2022		USD 0.00
Sacramento Regional Transit	AS-000915	BU - Bus - Orion	2885	Orion	7.501	2008				8/14/2008	10.14	378642	14	FALSE		8/11/2022	8/11/2022		USD 0.00
Sacramento Regional Transit	AS-000914	BU - Bus - Orion	2884	Orion	7.501	2008				7/22/2008	10.21	378325	14	FALSE		7/19/2022	7/19/2022		USD 0.00
Sacramento Regional Transit	AS-000913	BU - Bus - Orion	2883	Orion	7.501	2008				7/25/2008	10.2	378701	14	FALSE		7/22/2022	7/22/2022		USD 0.00
Sacramento Regional Transit	AS-000825	BU - Bus - Orion	2305	Orion	7.501	2003				1/28/2004	14.69	404249	14	TRUE		1/24/2018	1/24/2018		USD 0.00
Sacramento Regional Transit	AS-000857	BU - Bus - Orion	2827	Orion	7.501	2008				5/19/2008	10.38	372967	14	FALSE		5/16/2022	5/16/2022		USD 0.00
Sacramento Regional Transit	AS-000856	BU - Bus - Orion	2826	Orion	7.501	2008				4/30/2008	10.43	376883	14	FALSE		4/27/2022	4/27/2022		USD 0.00
Sacramento Regional Transit	AS-000855	BU - Bus - Orion	2825	Orion	7.501	2008				4/30/2008	10.43	377750	14	FALSE		4/27/2022	4/27/2022		USD 0.00
Sacramento Regional Transit	AS-000854	BU - Bus - Orion	2824	Orion	7.501	2008				5/7/2008	10.41	379253	14	FALSE		5/4/2022	5/4/2022		USD 0.00
Sacramento Regional Transit	AS-000853	BU - Bus - Orion	2823	Orion	7.501	2008				4/28/2008	10.44	381600	14	FALSE		4/25/2022	4/25/2022		USD 0.00
Sacramento Regional Transit	AS-000921	BU - Bus - Orion	2891	Orion	7.501	2008				9/10/2008	10.07	375508	14	FALSE					

Asset Owner Name ^	Asset ID	Asset Class	Name	Vehicle Make	Vehicle Model	Model Year	Vehicle Length	Primary Mode	Secondary Mode	In Service Date	Age	Odometer	Asset Class UBL	Post UBL	Replacement Value	End of Useful Life	Replacement Date	Project Year	Project Year Replacement Value
Sacramento Regional Transit	AS-000975	BU - Bus - Gilling	1554	Gilling	GZ70102N4	2015				6/3/2016	2.33	21630	14	FALSE		5/31/2030	5/31/2030		USD 0.00
Sacramento Regional Transit	AS-000974	BU - Bus - Gilling	1553	Gilling	GZ70102N4	2015				5/23/2016	2.35	24554	14	FALSE		5/20/2030	5/20/2030		USD 0.00
Sacramento Regional Transit	AS-000973	BU - Bus - Gilling	1552	Gilling	GZ70102N4	2015				5/23/2016	2.36	24154	14	FALSE		5/20/2030	5/20/2030		USD 0.00
Sacramento Regional Transit	AS-000972	BU - Bus - Gilling	1551	Gilling	GZ70102N4	2015				5/23/2016	2.36	24513	14	FALSE		5/20/2030	5/20/2030		USD 0.00
Sacramento Regional Transit	AS-000923	BU - Bus - Gilling	1502	Gilling	GZ70102N4	2015				3/27/2015	3.52	50630	14	FALSE		3/23/2029	3/23/2029		USD 0.00
Sacramento Regional Transit	AS-000922	BU - Bus - Gilling	1501	Gilling	GZ70102N4	2015				4/6/2015	3.5	51658	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-000951	BU - Bus - Gilling	1530	Gilling	GZ70102N4	2015				5/13/2015	3.39	73635	14	FALSE		5/9/2029	5/9/2029		USD 0.00
Sacramento Regional Transit	AS-000950	BU - Bus - Gilling	1529	Gilling	GZ70102N4	2015				5/13/2015	3.39	77700	14	FALSE		5/9/2029	5/9/2029		USD 0.00
Sacramento Regional Transit	AS-000985	BU - Bus - Gilling	1564	Gilling	GZ70102N4	2015				8/24/2016	2.11	11083	14	FALSE		8/21/2030	8/21/2030		USD 0.00
Sacramento Regional Transit	AS-000986	BU - Bus - Gilling	1565	Gilling	GZ70102N4	2015				8/24/2016	2.11	10836	14	FALSE		8/21/2030	8/21/2030		USD 0.00
Sacramento Regional Transit	AS-001001	BU - Bus - Gilling	1580	Gilling	GZ70102N4	2015				9/22/2016	2.03	7726	14	FALSE		9/19/2030	9/19/2030		USD 0.00
Sacramento Regional Transit	AS-000949	BU - Bus - Gilling	1528	Gilling	GZ70102N4	2015				4/30/2015	3.43	75829	14	FALSE		4/26/2029	4/26/2029		USD 0.00
Sacramento Regional Transit	AS-000948	BU - Bus - Gilling	1527	Gilling	GZ70102N4	2015				4/30/2015	3.43	80483	14	FALSE		4/26/2029	4/26/2029		USD 0.00
Sacramento Regional Transit	AS-000947	BU - Bus - Gilling	1526	Gilling	GZ70102N4	2015				4/30/2015	3.43	76772	14	FALSE		4/26/2029	4/26/2029		USD 0.00
Sacramento Regional Transit	AS-001000	BU - Bus - Gilling	1579	Gilling	GZ70102N4	2015				9/14/2016	2.05	7977	14	FALSE		9/11/2030	9/11/2030		USD 0.00
Sacramento Regional Transit	AS-000999	BU - Bus - Gilling	1578	Gilling	GZ70102N4	2015				9/14/2016	2.05	7598	14	FALSE		9/11/2030	9/11/2030		USD 0.00
Sacramento Regional Transit	AS-000998	BU - Bus - Gilling	1577	Gilling	GZ70102N4	2015				9/8/2016	2.07	5841	14	FALSE		9/5/2030	9/5/2030		USD 0.00
Sacramento Regional Transit	AS-000997	BU - Bus - Gilling	1576	Gilling	GZ70102N4	2015				9/9/2016	2.07	7529	14	FALSE		9/6/2030	9/6/2030		USD 0.00
Sacramento Regional Transit	AS-000984	BU - Bus - Gilling	1563	Gilling	GZ70102N4	2015				6/27/2016	2.27	18329	14	FALSE		6/24/2030	6/24/2030		USD 0.00
Sacramento Regional Transit	AS-000983	BU - Bus - Gilling	1562	Gilling	GZ70102N4	2015				6/27/2016	2.27	20330	14	FALSE		6/24/2030	6/24/2030		USD 0.00
Sacramento Regional Transit	AS-000982	BU - Bus - Gilling	1561	Gilling	GZ70102N4	2015				6/27/2016	2.27	14197	14	FALSE		6/24/2030	6/24/2030		USD 0.00
Sacramento Regional Transit	AS-000931	BU - Bus - Gilling	1510	Gilling	GZ70102N4	2015				4/6/2015	3.5	70378	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-000930	BU - Bus - Gilling	1509	Gilling	GZ70102N4	2015				3/27/2015	3.52	74010	14	FALSE		3/23/2029	3/23/2029		USD 0.00
Sacramento Regional Transit	AS-000929	BU - Bus - Gilling	1508	Gilling	GZ70102N4	2015				4/6/2015	3.5	77448	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-000928	BU - Bus - Gilling	1507	Gilling	GZ70102N4	2015				3/27/2015	3.52	76564	14	FALSE		3/23/2029	3/23/2029		USD 0.00
Sacramento Regional Transit	AS-000927	BU - Bus - Gilling	1506	Gilling	GZ70102N4	2015				3/27/2015	3.52	69085	14	FALSE		3/23/2029	3/23/2029		USD 0.00
Sacramento Regional Transit	AS-000996	BU - Bus - Gilling	1575	Gilling	GZ70102N4	2015				9/8/2016	2.07	7815	14	FALSE		9/5/2030	9/5/2030		USD 0.00
Sacramento Regional Transit	AS-000995	BU - Bus - Gilling	1574	Gilling	GZ70102N4	2015				9/7/2016	2.07	3198	14	FALSE		9/4/2030	9/4/2030		USD 0.00
Sacramento Regional Transit	AS-000994	BU - Bus - Gilling	1573	Gilling	GZ70102N4	2015				8/31/2016	2.09	8453	14	FALSE		8/28/2030	8/28/2030		USD 0.00
Sacramento Regional Transit	AS-000993	BU - Bus - Gilling	1572	Gilling	GZ70102N4	2015				8/31/2016	2.09	9795	14	FALSE		8/28/2030	8/28/2030		USD 0.00
Sacramento Regional Transit	AS-000992	BU - Bus - Gilling	1571	Gilling	GZ70102N4	2015				8/31/2016	2.09	8765	14	FALSE		8/28/2030	8/28/2030		USD 0.00
Sacramento Regional Transit	AS-000956	BU - Bus - Gilling	1535	Gilling	GZ70102N4	2015				4/25/2016	2.44	28069	14	FALSE		4/22/2030	4/22/2030		USD 0.00
Sacramento Regional Transit	AS-000952	BU - Bus - Gilling	1531	Gilling	GZ70102N4	2015				3/25/2016	2.53	23946	14	FALSE		3/22/2030	3/22/2030		USD 0.00
Sacramento Regional Transit	AS-000955	BU - Bus - Gilling	1534	Gilling	GZ70102N4	2015				4/25/2016	2.44	28534	14	FALSE		4/22/2030	4/22/2030		USD 0.00
Sacramento Regional Transit	AS-000954	BU - Bus - Gilling	1533	Gilling	GZ70102N4	2015				4/25/2016	2.44	30164	14	FALSE		4/22/2030	4/22/2030		USD 0.00
Sacramento Regional Transit	AS-000953	BU - Bus - Gilling	1532	Gilling	GZ70102N4	2015				4/25/2016	2.44	24665	14	FALSE		4/22/2030	4/22/2030		USD 0.00
Sacramento Regional Transit	AS-000981	BU - Bus - Gilling	1559	Gilling	GZ70102N4	2015				6/14/2016	2.3	20524	14	FALSE		6/13/2030	6/13/2030		USD 0.00
Sacramento Regional Transit	AS-000980	BU - Bus - Gilling	1552	Gilling	GZ70102N4	2015				6/15/2016	2.3	20767	14	FALSE		6/12/2030	6/12/2030		USD 0.00
Sacramento Regional Transit	AS-000979	BU - Bus - Gilling	1558	Gilling	GZ70102N4	2015				6/14/2016	2.3	22213	14	FALSE		6/11/2030	6/11/2030		USD 0.00
Sacramento Regional Transit	AS-000978	BU - Bus - Gilling	1557	Gilling	GZ70102N4	2015				6/6/2016	2.33	22686	14	FALSE		6/3/2030	6/3/2030		USD 0.00
Sacramento Regional Transit	AS-000977	BU - Bus - Gilling	1556	Gilling	GZ70102N4	2015				6/9/2016	2.33	21056	14	FALSE		6/3/2030	6/3/2030		USD 0.00
Sacramento Regional Transit	AS-000970	BU - Bus - Gilling	1549	Gilling	GZ70102N4	2015				5/23/2016	2.36	14136	14	FALSE		5/20/2030	5/20/2030		USD 0.00
Sacramento Regional Transit	AS-000971	BU - Bus - Gilling	1550	Gilling	GZ70102N4	2015				5/23/2016	2.36	22442	14	FALSE		5/20/2030	5/20/2030		USD 0.00
Sacramento Regional Transit	AS-000967	BU - Bus - Gilling	1546	Gilling	GZ70102N4	2015				5/17/2016	2.38	20291	14	FALSE		5/14/2030	5/14/2030		USD 0.00
Sacramento Regional Transit	AS-000969	BU - Bus - Gilling	1548	Gilling	GZ70102N4	2015				5/17/2016	2.38	19674	14	FALSE		5/14/2030	5/14/2030		USD 0.00
Sacramento Regional Transit	AS-000968	BU - Bus - Gilling	1547	Gilling	GZ70102N4	2015				5/17/2016	2.38	22503	14	FALSE		5/14/2030	5/14/2030		USD 0.00
Sacramento Regional Transit	AS-000961	BU - Bus - Gilling	1540	Gilling	GZ70102N4	2015				5/5/2016	2.41	22174	14	FALSE		5/2/2030	5/2/2030		USD 0.00
Sacramento Regional Transit	AS-000960	BU - Bus - Gilling	1539	Gilling	GZ70102N4	2015				5/5/2016	2.41	27706	14	FALSE		5/2/2030	5/2/2030		USD 0.00
Sacramento Regional Transit	AS-000959	BU - Bus - Gilling	1538	Gilling	GZ70102N4	2015				5/2/2016	2.42	18613	14	FALSE		4/29/2030	4/29/2030		USD 0.00
Sacramento Regional Transit	AS-000958	BU - Bus - Gilling	1537	Gilling	GZ70102N4	2015				5/16/2016	2.38	27200	14	FALSE		5/13/2030	5/13/2030		USD 0.00
Sacramento Regional Transit	AS-000957	BU - Bus - Gilling	1536	Gilling	GZ70102N4	2015				4/26/2016	2.44	31362	14	FALSE		4/23/2030	4/23/2030		USD 0.00
Sacramento Regional Transit	AS-000941	BU - Bus - Gilling	1520	Gilling	GZ70102N4	2015				4/6/2015	3.5	77114	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-000940	BU - Bus - Gilling	1519	Gilling	GZ70102N4	2015				4/6/2015	3.5	75229	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-000939	BU - Bus - Gilling	1518	Gilling	GZ70102N4	2015				4/6/2015	3.5	69263	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-000938	BU - Bus - Gilling	1517	Gilling	GZ70102N4	2015				4/6/2015	3.5	32928	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-000937	BU - Bus - Gilling	1516	Gilling	GZ70102N4	2015				4/6/2015	3.5	67174	14	FALSE		4/2/2029	4/2/2029		USD 0.00
Sacramento Regional Transit	AS-001252	BU - Bus - Gilling	1586	Gilling	GZ70102N4	2015				9/23/2016	2.03	7747	14	FALSE		9/20/2030	9/20/2030		USD 0.00
Sacramento Regional Transit	AS-001006	BU - Bus - Gilling	1585	Gilling	GZ70102N4	2015				9/23/2016	2.03	7501	14	FALSE		9/20/2030	9/20/2030		USD 0.00
Sacramento Regional Transit	AS-001005	BU - Bus - Gilling	1584	Gilling	GZ70102N4	2015				9/23/2016	2.03	6566	14	FALSE		9/20/2030	9/20/2030		USD 0.00
Sacramento Regional Transit	AS-001004	BU - Bus - Gilling	1583	Gilling	GZ70102N4	2015				9/23/2016	2.03	6742	14	FALSE		9/20/2030	9/20/2030		USD 0.00
Sacramento Regional Transit	AS-001003	BU - Bus - Gilling	1582	Gilling	GZ70102N4	2015				9/22/2016	2.03	7642	14	FALSE		9/19/2030	9/19/2030		USD 0.00
Sacramento Regional Transit	AS-001002	BU - Bus - Gilling	1581	Gilling	GZ70102N4	2015				9/22/2016	2.03	7781	14	FALSE		9/19/2030	9/19/2030		USD 0.00
Sacramento Regional Transit	AS-001010	BU - Bus - Gilling	1590	Gilling	GZ70102N4	2015				10/3/2016	2	6848	14	FALSE		9/30/2030	9/30/2030		USD 0.00
Sacramento Regional Transit	AS-001009	BU - Bus - Gilling	1589	Gilling	GZ70102N4	2015				10/3/2016	2	7480	14	FALSE		9/30/2030	9/30/2030		USD 0.00
Sacramento Regional Transit	AS-001008	BU - Bus - Gilling	1588	Gilling	GZ70102N4	2015				10/3/2016	2	6798	14	FALSE		9/30/2030	9/30/2030		USD 0.00
Sacramento Regional Transit	AS-001007	BU - Bus - Gilling	1587	Gilling	GZ70102N4	2015				9/29/2016	2.01	7461	14	FALSE		9/26/2030	9/26/2030		USD 0.00
Sacramento Regional Transit	AS-001015	BU - Bus - Gilling	1595	Gilling	GZ70102N4	2015				10/12/2016	1.98	3283	14	FALSE		10/9/2030	10/9/2030		USD 0.00
Sacramento Regional Transit	AS-001014	BU - Bus - Gilling	1594	Gilling	GZ70102N4	2015				10/10/2016	1.98	6031	14	FALSE		10/7/2030	10/7/2030		USD 0.00
Sacramento Regional Transit	AS-001013	BU - Bus - Gilling	1593	Gilling	GZ70102														

Asset: Owner Name ^	Asset: ID	Asset Class	Name	Vehicle Make	Vehicle Model	Model Year	Vehicle Length	Primary Mode	Secondary Mode	In Service Date	Age	Odometer	Asset Class UBL	Past ULB	Replacement Value	End of Useful Life	Replacement Date	Project Year	Project Year Replacement Value
Unintrams	AS-000150	BU - Bus	4088	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	213634	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000135	BU - Bus	4085	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	224990	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000134	BU - Bus	4004	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	243446	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000167	BU - Bus	4176	ORION	ORION V	2006	40	MB - Bus		5/3/2007	11.43	182223	12	FALSE	USD 550,000.00	4/30/2019	4/30/2019		USD 0.00
Unintrams	AS-000166	BU - Bus	4175	ORION	ORION V	2006	40	MB - Bus		5/14/2007	11.4	174965	12	FALSE	USD 550,000.00	5/11/2019	5/11/2019		USD 0.00
Unintrams	AS-000126	BU - Bus	3123	AEC	RT	1950	35	MB - Bus		6/11/1978	40.37	223612	12	TRUE	USD 997,000.00	5/28/1992	5/28/1992		USD 0.00
Unintrams	AS-000127	BU - Bus	4735	AEC	RT	1954	35	MB - Bus		6/11/1978	40.37	355066	12	TRUE	USD 997,000.00	5/28/1992	5/28/1992		USD 0.00
Unintrams	AS-000155	BU - Bus	4093	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	228478	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000154	BU - Bus	4092	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	213753	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000125	BU - Bus	2819	AEC	RT	1949	35	MB - Bus		10/11/1975	43.04	214604	12	TRUE	USD 997,000.00	9/27/1989	9/27/1989		USD 0.00
Unintrams	AS-000124	BU - Bus	742	AEC	RT	1948	35	MB - Bus		6/11/1978	40.37	302553	12	TRUE	USD 997,000.00	5/28/1992	5/28/1992		USD 0.00
Unintrams	AS-000169	BU - Bus	4177	ORION	ORION V	2006	40	MB - Bus		5/16/2007	11.39	169253	12	FALSE	USD 550,000.00	5/13/2019	5/13/2019		USD 0.00
Unintrams	AS-000168	BU - Bus	4177	ORION	ORION V	2006	40	MB - Bus		7/21/2007	11.21	193785	12	FALSE	USD 550,000.00	7/18/2019	7/18/2019		USD 0.00
Unintrams	AS-000163	BU - Bus	4172	ORION	ORION V	2005	40	MB - Bus		3/21/2006	12.55	229790	12	TRUE	USD 550,000.00	3/14/2018	3/14/2018		USD 0.00
Unintrams	AS-000162	BU - Bus	4171	ORION	ORION V	2005	40	MB - Bus		3/20/2006	12.55	227963	12	TRUE	USD 550,000.00	3/17/2018	3/17/2018		USD 0.00
Unintrams	AS-000147	BU - Bus	4083	NEWFLYER	CADFLR	2009	40	MB - Bus		6/3/2009	9.34	228469	12	FALSE	USD 550,000.00	5/31/2021	5/31/2021		USD 0.00
Unintrams	AS-000146	BU - Bus	4082	NEWFLYER	CADFLR	2009	40	MB - Bus		6/3/2009	9.34	226667	12	FALSE	USD 550,000.00	5/31/2021	5/31/2021		USD 0.00
Unintrams	AS-000129	BU - Bus	8186	ALEXANDER DENNIS	ENVIRO 500	2009	40	MB - Bus		2/18/2010	8.63	189339	12	FALSE	USD 997,000.00	2/15/2024	2/15/2024		USD 0.00
Unintrams	AS-000128	BU - Bus	8185	ALEXANDER DENNIS	ENVIRO 500	2009	40	MB - Bus		3/12/2010	8.57	158702	12	FALSE	USD 997,000.00	3/8/2024	3/8/2024		USD 0.00
Unintrams	AS-000161	BU - Bus	4099	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	202095	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000153	BU - Bus	4091	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	215983	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000152	BU - Bus	4090	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	218978	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000145	BU - Bus	4081	NEWFLYER	CADFLR	2009	40	MB - Bus		6/3/2009	9.34	226137	12	FALSE	USD 550,000.00	5/31/2021	5/31/2021		USD 0.00
Unintrams	AS-000144	BU - Bus	4080	NEWFLYER	CADFLR	2009	40	MB - Bus		6/3/2009	9.34	223746	12	FALSE	USD 550,000.00	5/31/2021	5/31/2021		USD 0.00
Unintrams	AS-000143	BU - Bus	4079	NEWFLYER	CADFLR	2009	40	MB - Bus		6/3/2009	9.34	211284	12	FALSE	USD 550,000.00	5/31/2021	5/31/2021		USD 0.00
Unintrams	AS-000142	BU - Bus	4012	NEWFLYER	XM40	2016	40	MB - Bus		12/16/2016	1.8	47970	12	FALSE	USD 550,000.00	12/13/2028	12/13/2028		USD 0.00
Unintrams	AS-000157	BU - Bus	4095	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	222689	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000156	BU - Bus	4094	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	214619	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000141	BU - Bus	4011	NEWFLYER	XM40	2016	40	MB - Bus		12/16/2016	1.8	54536	12	FALSE	USD 550,000.00	12/13/2028	12/13/2028		USD 0.00
Unintrams	AS-000140	BU - Bus	4010	NEWFLYER	XM40	2016	40	MB - Bus		12/16/2016	1.8	48420	12	FALSE	USD 550,000.00	12/13/2028	12/13/2028		USD 0.00
Unintrams	AS-000137	BU - Bus	4007	NEWFLYER	XM40	2014	40	MB - Bus		4/1/2014	4.51	107103	12	FALSE	USD 550,000.00	3/29/2026	3/29/2026		USD 0.00
Unintrams	AS-000136	BU - Bus	4006	NEWFLYER	XM40	2014	40	MB - Bus		4/1/2014	4.51	108329	12	FALSE	USD 550,000.00	3/29/2026	3/29/2026		USD 0.00
Unintrams	AS-000133	BU - Bus	4003	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	226613	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000132	BU - Bus	4002	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	224999	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000131	BU - Bus	4001	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	226261	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000130	BU - Bus	4000	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	218632	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000165	BU - Bus	4174	ORION	ORION V	2005	40	MB - Bus		4/10/2006	12.49	236274	12	TRUE	USD 550,000.00	4/7/2018	4/7/2018		USD 0.00
Unintrams	AS-000164	BU - Bus	4173	ORION	ORION V	2005	40	MB - Bus		3/21/2006	12.55	223787	12	TRUE	USD 550,000.00	3/18/2018	3/18/2018		USD 0.00
Unintrams	AS-000159	BU - Bus	4097	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	220048	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000158	BU - Bus	4096	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	219120	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000149	BU - Bus	4087	NEWFLYER	CADFLR	2009	40	MB - Bus		11/24/2009	8.86	223834	12	FALSE	USD 550,000.00	11/21/2021	11/21/2021		USD 0.00
Unintrams	AS-000148	BU - Bus	4084	NEWFLYER	CADFLR	2009	40	MB - Bus		6/3/2009	9.34	238710	12	FALSE	USD 550,000.00	5/31/2021	5/31/2021		USD 0.00
Unintrams	AS-000139	BU - Bus	4008	NEWFLYER	XM40	2016	40	MB - Bus		12/16/2016	1.8	48246	12	FALSE	USD 550,000.00	12/13/2028	12/13/2028		USD 0.00
Unintrams	AS-000138	BU - Bus	4008	NEWFLYER	XM40	2014	40	MB - Bus		4/1/2014	4.51	111516	12	FALSE	USD 550,000.00	3/29/2026	3/29/2026		USD 0.00
Unintrams	AS-000171	CU - Cutaway Bus	2070	ELDORADO	E-450	2004	30	MB - Bus		12/23/2004	13.79	70021	10	TRUE	USD 150,000.00	12/21/2014	12/21/2014		USD 0.00
Unintrams	AS-000170	CU - Cutaway Bus	2062	FORD	240 AEROTECH	2008	30	MB - Bus		8/30/2002	16.1	79005	10	TRUE	USD 150,000.00	8/27/2012	8/27/2012		USD 0.00
Yolo County Transportation District	AS-000522	AO - Automobile	808	Ford	Escape	2008	8	AO - Automobile		8/1/2007	11.18	44832	8	TRUE	USD 573,406.57	7/30/2015	7/30/2015		USD 0.00
Yolo County Transportation District	AS-000521	AO - Automobile	807	Ford	Escape	2008	8	AO - Automobile		7/1/2007	11.27	34872	8	TRUE	USD 27,866.30	6/29/2015	6/29/2015		USD 0.00
Yolo County Transportation District	AS-000527	AO - Automobile	806	Honda	Civic	2004	8	TRUE		2/1/2005	13.68	29014	8	TRUE	USD 22,752.34	1/30/2013	1/30/2013		USD 0.00
Yolo County Transportation District	AS-000431	BR - Over-the-road bus	5704	MCI	D4500	2009	45	MB - Bus		12/31/2009	8.76	334807	12	FALSE	USD 573,406.57	12/28/2021	12/28/2021		USD 0.00
Yolo County Transportation District	AS-000430	BR - Over-the-road bus	5703	MCI	D4500	2009	45	MB - Bus		1/25/2010	8.69	372108	12	FALSE	USD 573,406.57	1/22/2022	1/22/2022		USD 0.00
Yolo County Transportation District	AS-000429	BR - Over-the-road bus	5702	MCI	D4500	2009	45	MB - Bus		11/15/2009	8.89	391150	12	FALSE	USD 573,406.57	11/12/2021	11/12/2021		USD 0.00
Yolo County Transportation District	AS-000428	BR - Over-the-road bus	5701	MCI	D4500	2009	45	MB - Bus		11/9/2009	8.9	392066	12	FALSE	USD 573,406.57	11/6/2021	11/6/2021		USD 0.00
Yolo County Transportation District	AS-000436	BR - Over-the-road bus	5706	MCI	D4500	2009	45	MB - Bus		1/4/2010	8.75	364994	12	FALSE	USD 573,406.57	1/1/2022	1/1/2022		USD 0.00
Yolo County Transportation District	AS-000435	BR - Over-the-road bus	5705	MCI	D4500	2009	45	MB - Bus		1/17/2010	8.63	369211	12	FALSE	USD 573,406.57	2/14/2022	2/14/2022		USD 0.00
Yolo County Transportation District	AS-000426	BU - Bus	1807	Gillig	G270102N4	2018	40	MB - Bus		4/1/2018	0.51	4588	12	FALSE	USD 573,406.57	3/29/2030	3/29/2030		USD 0.00
Yolo County Transportation District	AS-000425	BU - Bus	1806	Gillig	G270102N4	2018	40	MB - Bus		4/1/2018	0.51	1600	12	FALSE	USD 573,406.57	3/29/2030	3/29/2030		USD 0.00
Yolo County Transportation District	AS-000424	BU - Bus	1805	Gillig	G270102N4	2018	40	MB - Bus		4/1/2018	0.51	3912	12	FALSE	USD 573,406.57	3/29/2030	3/29/2030		USD 0.00
Yolo County Transportation District	AS-000423	BU - Bus	1804	Gillig	G270102N4	2018	40	MB - Bus		4/1/2018	0.51	70806	12	FALSE	USD 573,406.57	3/29/2030	3/29/2030		USD 0.00
Yolo County Transportation District	AS-000422	BU - Bus	1803	Gillig	G270102N4	2018	40	MB - Bus		4/1/2018	0.51	213	12	FALSE	USD 573,406.57	3/29/2030	3/29/2030		USD 0.00
Yolo County Transportation District	AS-000396	BU - Bus	737	ORION	V	2005	40	MB - Bus		2/8/2006	12.66	391064	12	TRUE	USD 573,406.57	2/5/2018	2/5/2018		USD 0.00
Yolo County Transportation District	AS-000395	BU - Bus	736	ORION	VII	2003	40	MB - Bus		10/24/2003	14.95	744912	12	TRUE	USD 573,406.57	10/21/2015	10/21/2015		USD 0.00
Yolo County Transportation District	AS-000394	BU - Bus	735	ORION	VII	2003	40	MB - Bus											

Asset: Owner Name	Asset: ID	Asset Class	Name	Vehicle Make	Model Year	Vehicle Length	Primary Mode	Secondary Mode	In Service Date	Age	Odometer	Asset Class ULB	Past ULB	Replacement Value	End of Useful Life	Replacement Date	Project Year	Project Year Replacement Value
Yolo County Transportation District	AS-000439	CJ - Cutaway bus	1623	El Dorado	Aero	2016	27	DR - Demand Response		12/17/2015	2.8	104861	7	FALSE	USD 128,008.00	12/15/2022	12/15/2022	USD 0.00
Yolo County Transportation District	AS-000438	CJ - Cutaway bus	1622	El Dorado	Aero	2016	27	DR - Demand Response		12/9/2015	2.82	93842	7	FALSE	USD 128,008.00	12/17/2022	12/17/2022	USD 0.00
Yolo County Transportation District	AS-000437	CJ - Cutaway bus	1621	El Dorado	Aero	2016	27	MB - Bus		12/9/2015	2.82	91340	7	FALSE	USD 128,008.00	12/17/2022	12/17/2022	USD 0.00
Yolo County Transportation District	AS-000445	CJ - Cutaway bus	1629	El Dorado	Aero	2016	27	DR - Demand Response		1/21/2016	2.7	82205	7	FALSE	USD 128,008.00	1/19/2023	1/19/2023	USD 0.00
Yolo County Transportation District	AS-000444	CJ - Cutaway bus	1628	El Dorado	Aero	2016	27	DR - Demand Response		12/18/2015	2.79	92347	7	FALSE	USD 128,008.00	12/16/2022	12/16/2022	USD 0.00
Yolo County Transportation District	AS-000443	CJ - Cutaway bus	1627	El Dorado	Aero	2016	27	DR - Demand Response		12/18/2015	2.79	100758	7	FALSE	USD 128,008.00	12/16/2022	12/16/2022	USD 0.00
Yuba-Sutter Transit	AS-000502	BU - Bus	3236	Gillig	35D0	2014	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	136054	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000506	BU - Bus	3240	Gillig	35D0	2014	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	148505	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000505	BU - Bus	3239	Gillig	35D0	2014	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	153561	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000504	BU - Bus	3238	Gillig	35D0	2014	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	137061	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000503	BU - Bus	3237	Gillig	35D0	2014	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	136110	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000516	BU - Bus	5705	MCi	D4500	2012	45	CB - Commuter Bus		11/1/2012	5.92	231917	14	FALSE	USD 600,000.00	10/29/2026	10/29/2026	USD 0.00
Yuba-Sutter Transit	AS-000515	BU - Bus	5704	MCi	D4500	2012	45	CB - Commuter Bus		11/1/2012	5.92	230276	14	FALSE	USD 600,000.00	10/29/2026	10/29/2026	USD 0.00
Yuba-Sutter Transit	AS-000514	BU - Bus	5703	MCi	D4500	2010	45	CB - Commuter Bus		5/1/2010	8.43	315255	14	FALSE	USD 600,000.00	4/27/2024	4/27/2024	USD 0.00
Yuba-Sutter Transit	AS-000513	BU - Bus	5702	MCi	D4500	2010	45	CB - Commuter Bus		5/1/2010	8.43	344175	14	FALSE	USD 600,000.00	4/27/2024	4/27/2024	USD 0.00
Yuba-Sutter Transit	AS-000512	BU - Bus	5701	MCi	D4500	2010	45	CB - Commuter Bus		5/1/2010	8.43	341804	14	FALSE	USD 600,000.00	4/27/2024	4/27/2024	USD 0.00
Yuba-Sutter Transit	AS-000486	BU - Bus	2722	NABI/Opus	Opus 35D0	2008	30	MB - Bus	CB - Commuter Bus	1/1/2009	9.76	257828	14	FALSE	USD 500,000.00	12/30/2018	12/30/2018	USD 0.00
Yuba-Sutter Transit	AS-000485	BU - Bus	2721	NABI/Opus	Opus 35D0	2008	30	MB - Bus	CB - Commuter Bus	1/1/2009	9.76	267648	14	FALSE	USD 500,000.00	12/30/2018	12/30/2018	USD 0.00
Yuba-Sutter Transit	AS-000511	BU - Bus	4156	Blue Bird	Xcel-102	2006		CB - Commuter Bus		8/1/2006	12.18	392052	14	FALSE	USD 600,000.00	7/29/2016	7/29/2016	USD 0.00
Yuba-Sutter Transit	AS-000510	BU - Bus	4155	Blue Bird	Xcel-102	2006		CB - Commuter Bus		8/1/2006	12.18	472689	14	FALSE	USD 600,000.00	7/29/2016	7/29/2016	USD 0.00
Yuba-Sutter Transit	AS-000509	BU - Bus	4153	Blue Bird	Xcel-102	2006		CB - Commuter Bus		7/1/2006	12.27	448709	14	FALSE	USD 600,000.00	6/28/2016	6/28/2016	USD 0.00
Yuba-Sutter Transit	AS-000508	BU - Bus	4152	Blue Bird	Xcel-102	2006		CB - Commuter Bus		7/1/2006	12.27	493151	14	FALSE	USD 600,000.00	6/28/2016	6/28/2016	USD 0.00
Yuba-Sutter Transit	AS-000507	BU - Bus	4151	Blue Bird	Xcel-102	2006		CB - Commuter Bus		8/1/2006	12.18	440813	14	FALSE	USD 600,000.00	7/29/2016	7/29/2016	USD 0.00
Yuba-Sutter Transit	AS-000501	BU - Bus	3235	Gillig	35D0	2013	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	144327	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000500	BU - Bus	3234	Gillig	35D0	2013	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	159009	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000499	BU - Bus	3233	Gillig	35D0	2013	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	158537	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000498	BU - Bus	3232	Gillig	35D0	2013	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	151255	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000497	BU - Bus	3231	Gillig	35D0	2013	35	MB - Bus	CB - Commuter Bus	1/1/2014	4.76	142610	14	FALSE	USD 500,000.00	12/29/2027	12/29/2027	USD 0.00
Yuba-Sutter Transit	AS-000491	BU - Bus	3161	NABI/Opus	Opus 34D0	2008	35	MB - Bus	CB - Commuter Bus	1/1/2009	9.76	235461	14	FALSE	USD 500,000.00	12/30/2018	12/30/2018	USD 0.00
Yuba-Sutter Transit	AS-000490	BU - Bus	2727	NABI/Opus	Opus 29SD	2008	30	MB - Bus	CB - Commuter Bus	6/1/2009	9.35	258557	14	FALSE	USD 500,000.00	5/30/2019	5/30/2019	USD 0.00
Yuba-Sutter Transit	AS-000489	BU - Bus	2725	NABI/Opus	Opus 29SD	2008	30	MB - Bus	CB - Commuter Bus	1/1/2009	9.76	274773	14	FALSE	USD 500,000.00	12/30/2018	12/30/2018	USD 0.00
Yuba-Sutter Transit	AS-000488	BU - Bus	2724	NABI/Opus	Opus 29SD	2008	30	MB - Bus	CB - Commuter Bus	1/1/2009	9.76	264059	14	FALSE	USD 500,000.00	12/30/2018	12/30/2018	USD 0.00
Yuba-Sutter Transit	AS-000487	BU - Bus	2723	NABI/Opus	Opus 29SD	2008	30	MB - Bus	CB - Commuter Bus	1/1/2009	9.76	265995	14	FALSE	USD 500,000.00	12/30/2018	12/30/2018	USD 0.00
Yuba-Sutter Transit	AS-000496	BU - Bus	3230	Gillig	35D0	2013	35	MB - Bus	CB - Commuter Bus	12/1/2013	4.84	131431	14	FALSE	USD 500,000.00	11/28/2027	11/28/2027	USD 0.00
Yuba-Sutter Transit	AS-000495	BU - Bus	3165	NABI/Opus	Opus 34D0	2008	35	MB - Bus	CB - Commuter Bus	2/1/2009	9.67	287432	14	FALSE	USD 500,000.00	1/30/2019	1/30/2019	USD 0.00
Yuba-Sutter Transit	AS-000494	BU - Bus	3164	NABI/Opus	Opus 34D0	2008	35	MB - Bus	CB - Commuter Bus	2/1/2009	9.67	270967	14	FALSE	USD 500,000.00	1/30/2019	1/30/2019	USD 0.00
Yuba-Sutter Transit	AS-000493	BU - Bus	3163	NABI/Opus	Opus 34D0	2008	35	MB - Bus	CB - Commuter Bus	1/1/2009	9.76	265364	14	FALSE	USD 500,000.00	12/30/2018	12/30/2018	USD 0.00
Yuba-Sutter Transit	AS-000492	BU - Bus	3162	NABI/Opus	Opus 34D0	2008	35	MB - Bus	CB - Commuter Bus	2/1/2009	9.67	251269	14	FALSE	USD 500,000.00	1/30/2019	1/30/2019	USD 0.00
Yuba-Sutter Transit	AS-000517	BU - Bus	5706	MCi	D4500	2012	45	CB - Commuter Bus		11/1/2012	5.92	238237	14	FALSE	USD 600,000.00	10/29/2026	10/29/2026	USD 0.00
Yuba-Sutter Transit	AS-000471	CJ - Cutaway bus	1672	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	214356	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000470	CJ - Cutaway bus	1671	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	218546	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000469	CJ - Cutaway bus	1670	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	229846	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000484	CJ - Cutaway bus	1686	Chevy/Glaval	Titani 1 4500	2014		DR - Demand Response	MB - Bus	3/1/2014	4.59	125409	10	FALSE	USD 95,000.00	2/17/2022	2/17/2022	USD 0.00
Yuba-Sutter Transit	AS-000483	CJ - Cutaway bus	1685	Chevy/Glaval	Titani 1 4500	2014		DR - Demand Response	MB - Bus	3/1/2014	4.59	122223	10	FALSE	USD 95,000.00	2/17/2022	2/17/2022	USD 0.00
Yuba-Sutter Transit	AS-000482	CJ - Cutaway bus	1684	Chevy/Glaval	Titani 1 4500	2014		DR - Demand Response	MB - Bus	2/1/2014	4.67	115045	10	FALSE	USD 95,000.00	1/30/2022	1/30/2022	USD 0.00
Yuba-Sutter Transit	AS-000481	CJ - Cutaway bus	1683	Chevy/Glaval	Titani 1 4500	2014		DR - Demand Response	MB - Bus	2/1/2014	4.67	129272	10	FALSE	USD 95,000.00	1/30/2022	1/30/2022	USD 0.00
Yuba-Sutter Transit	AS-000480	CJ - Cutaway bus	1682	Chevy/Glaval	Titani 1 4500	2014		DR - Demand Response	MB - Bus	2/1/2014	4.67	122167	10	FALSE	USD 95,000.00	1/30/2022	1/30/2022	USD 0.00
Yuba-Sutter Transit	AS-000479	CJ - Cutaway bus	1681	Chevy/Glaval	Titani 1 4500	2014		DR - Demand Response	MB - Bus	2/1/2014	4.67	126104	10	FALSE	USD 95,000.00	1/30/2022	1/30/2022	USD 0.00
Yuba-Sutter Transit	AS-000478	CJ - Cutaway bus	1679	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	197670	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000477	CJ - Cutaway bus	1678	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	220763	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000476	CJ - Cutaway bus	1677	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	181027	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000475	CJ - Cutaway bus	1676	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	213260	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000474	CJ - Cutaway bus	1675	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	202814	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000473	CJ - Cutaway bus	1674	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	206484	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00
Yuba-Sutter Transit	AS-000472	CJ - Cutaway bus	1673	Chevy/Starcraft	All-Star 4500	2010		DR - Demand Response	MB - Bus	3/1/2010	8.6	212534	10	FALSE	USD 95,000.00	2/17/2018	2/17/2018	USD 0.00

2020 RTP Performance

This section describes how implementing the MTP/SCS would result in changes to the region. Regional model outputs are summarized by the following topics with some related to PM2 and PM3 metrics.

- Land Use Patterns
- Housing Mix
- Access to Employment Activities
- Road and highway System (Related to PM2)
- Transit System (Related to PM3)
- Travel Choice and Traffic (Related to PM3)
- Vehicle Miles of Traveled
- Greenhouse Gas Emissions (Related to PM3)

Land Use Patterns

The MTP/SCS includes growth in a variety of communities throughout the region to provide residents with choices on where to live and work. The land use forecast assumes 64 percent of new homes will occur in infill areas, which are characterized in the MTP/SCS as Established Communities and Center and Corridor Communities. By 2040, the MTP/SCS forecasts that more homes, 17 percent of all homes compared to 12 percent in 2016, will be in Center & Corridor Communities where residents access to the greatest mix of amenities, jobs, and transportation options.

Table 5 – Share of Homes by Community Type

Performance Metric	2016 Baseline	Change (2016-2040)	By 2040
Share of homes in Center & Corridor Communities <i>(percent of total homes in region)</i>	113,880 12%	86,661 33%	200,541 17%
Share of homes in Established Communities <i>(percent of total homes in region)</i>	712,012 77%	81,365 31%	793,377 67%
Share of homes in Developing Communities <i>(percent of total homes in region)</i>	20,793 2%	89,313 34%	110,106 9%
Share of homes in Rural Residential Communities <i>(percent of total homes in region)</i>	74,438 8%	2,789 1%	77,227 7%
Total Homes	921,123	260,128	1,181,251

Housing Mix

The region has most of its homes today in large-lot, single-family products (60 percent in 2016). The MTP/SCS plans to provide a greater diversity of homes for future residents by increasing the number of small-lot and attached housing available throughout the region. To achieve more housing choices by 2040, the MTP/SCS forecasts 74 percent of new homes over the next 20 years to be small-lot or attached products.

Table 6 – Share of Homes, Rural Residential/Large Lot vs. Small Lot/Attached Homes

Performance Metric	2016 Baseline	Change (2016-2040)	By 2040
Share of homes in rural residential and large-lot single-family homes <i>(percent of total homes in region)</i>	553,334 60%	+68,580 26%	621,914 53%
Share of homes in small-lot single-family or attached homes <i>(percent of total homes in region)</i>	367,789 40%	191,548 74%	559,337 47%

Access to Employment Activities

Access, in this instance, means the number of activities a person can reach within a given travel time and mode. Improved access to jobs correlates strongly with lower vehicle miles traveled. Access can be increased in two ways: 1) improving travel speeds, and increasing the area one can reach within 30 minutes; 2) putting more activities closer to homes through more focused growth. The MTP/SCS affects both, through more infill and compact development, reduction of congestion on key corridors for drivers, and improvements to transit service to reduce transit travel times.

The MTP/SCS also greatly improves access to jobs from environmental justice areas. Environmental Justice areas are places in region with concentrations of lower income and/or minority residents, single-parent households, elderly residents, non-English speaking residents, residents with less than high school degrees, and disabled residents.

Table 7 – Access to Jobs from Homes by 30-minute Drive and Transit Times and from Environmental Justice Areas

Performance Metric	2016 Baseline	Change (2016-2040)	By 2040
Jobs within 30-minute drive of homes	377,257	109,539	486,796
Jobs within 30-minute transit of homes	4,829	17,534	22,362
Jobs within 30-minute drive of homes in environmental justice areas	457,670	150,943	608,612
Jobs within 30-minute transit of homes in environmental justice areas	6,670	25,872	32,542

Average VMT per worker to jobs centers captures both trip length and mode of travel. Average VMT per worker can be reduced by shortening the commute, or by shifting more travel into non-vehicle modes like biking or walking. The MTP/SCS shortens commutes, by improving jobs-housing ratios, and enhances non-vehicle and transit modes to jobs centers.

Table 8 - Average Vehicle Miles Traveled per Worker to Jobs Centers

Performance Metric	2016 Baseline	Change (2016-2040)	By 2040
Average vehicle miles traveled per worker to jobs centers	17.4	n/a	15.39

Road and highway System

Increase in lane miles of major roads and highways by about 19 percent compared to 2016. More than two-thirds of this increase is on existing facilities and phased to add capacity as housing and employment growth occur. The MTP/SCS does not include significant road and highway expansion for growth that is anticipated to happen beyond the 20-year period of the plan, but might eventually be needed to accommodate local general plans.

Table 9 - New or Expanded Major Road Lane Miles

Performance Metric	2016 Baseline	Change (2016-2040)	By 2040	Average Lane Miles added per Year
New or Expanded Major Road Lane Miles	6,465	1,258	7,722	52

Transit System

The MTP/SCS doubles transit service hours by 2040 compared to 2016. This service increase comes primarily from commuter and fixed-route buses, with a smaller increment coming from light rail. The transit network in the MTP/SCS emphasizes increased frequencies on productive transit routes near homes to provide faster access to jobs and job centers.

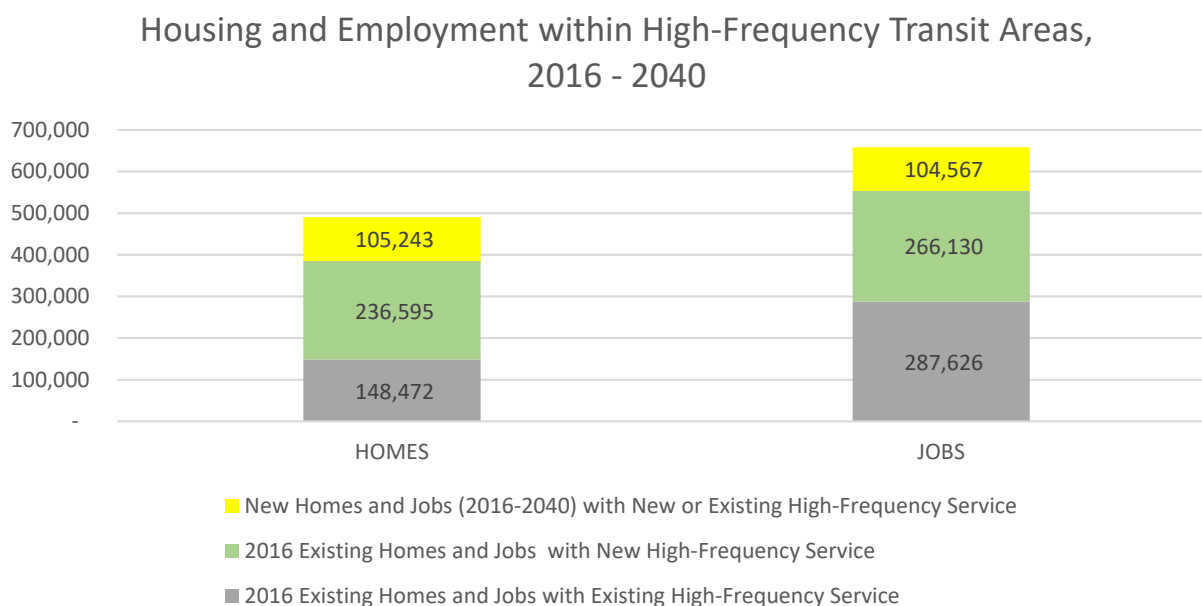
Table 10 - Weekday Transit Revenue Service Hours by Service Type 2016 and 2040 Proposed MTP/SCS

Service Types	2016	2040 MTP/SCS	Change from 2016	
			#	%
Light Rail	301	385	+84	28%
Tram/Streetcar	0	86	+86	N/A
Express Bus	336	826	+490	146%
BRT/Fixed Route Bus	2,962	5,948	+2,986	101%
Shuttle	369	907	+538	146%
Regional Rail	26	57	+31	119%
Regional Total	3,994	8,209	4,215	106%

Population (thousands)	2376.3	2996.8	620.5	26%
Service Hours Per Capita (x 1000)	1.68	2.74	1.1	63%

The numbers of homes and jobs near high-frequency transit service, with vehicles coming at least every 15 minutes, more than double by 2040

Figure 14 - Housing and Employment within High-Frequency Transit Areas, 2016 - 2040



Travel Choice and Traffic

The MTP/SCS provides more opportunities for residents to choose to travel by transit, biking, or walking. This is made possible by developing in a way that allows people to live closer to jobs and amenities and investing in transit, bicycle and pedestrian infrastructure, and programs to encourage options that do not rely on driving.

Table 11 - Non-Auto Mode of Travel for SACOG Region, 2016 and 2040

Performance Metric	2016 Baseline	Change (2016-2040)	By 2040
Share of commute trips by transit, bike or walk to jobs centers	13%	n/a	18%
Mode share for transit, walking and bicycling (percent of all trips)	12%	n/a	14%

Table 12 - Mode of Commute and Non-commute Travel for SACOG Region, 2016 and 2040

Weekday Commute Trips				Weekday Non-Commute Trips			
Mode	2016	2040	Change	Mode	2016	2040	Change
Drive Alone	1,702,550	2,038,695	+336,145	Drive Alone	1,812,523	2,316,096	+503,573
Carpool	383,140	481,265	+98,125	Carpool	3,380,284	4,053,132	+672,848
Transit	32,005	83,676	+51,671	Transit	69,029	165,753	+96,724
Bike	51,161	84,677	+33,516	Bike	158,961	213,462	+54,501
Walk	148,952	227,717	+78,765	Walk	503,336	720,289	+216,953
Other			+598,222	Other	101,289	101,993	+704
Total	2,317,808	2,916,030	598,222	Total	5,924,133	7,468,732	1,544,599
Commute Mode Share				Non-Commute Mode Share			
Drive Alone	73.5%	69.9%	-3.5%	Drive Alone	30.6%	31.0%	+0.4%
Carpool	16.5%	16.5%	-0.0%	Carpool	57.1%	54.3%	-2.8%
Transit	1.4%	2.9%	+1.5%	Transit	1.2%	2.2%	+1.1%
Bike	2.2%	2.9%	+0.7%	Bike	2.7%	2.9%	+0.2%
Walk	6.4%	7.8%	+1.4%	Walk	8.5%	9.6%	+1.1%
Other	n/a	n/a	n/a	Other	1.7%	1.4%	-0.3%
Work At Home Workers							
	51,264	90,021	+38,757				
Total Workers	945,446	1,191,610	+246,164				
% Work At Home Workers	5.4%	7.6%	+2.1%				

The MTP/SCS reduces the amount of travel on heavily congested roadways by 2040 in three ways; 1) targeting capacity investments where traffic bottlenecks occur; 2) providing options to take non-driving modes and reducing vehicle demand during peak travel hours; and 3) providing express lanes in some congested corridors, allowing more travelers access to less congested facilities.

Table 13 provides a tabulation of congested VMT in the SACOG region by household-generated, and all other sources including commercial vehicle and external. Household-generated congested VMT per capita declines a little bit from 2016 to 2040, with a decrease of 1.6 percent. Regional total congested VMT per capita declines from 1.56 in 2016 to 1.53 in 2040, a 2.4 percent decrease.

Table 13 - Congested Vehicle Miles Traveled by Source in SACOG Region 2016 and 2040 MTP/SCS

Variable	2016	2040 MTP/SCS
Weekday Congested VMT (CVMT) by Source		
Household-Generated Commute CVMT ¹	1,575,800	1,894,200
Household-Generated Other CVMT ¹	<u>1,335,600</u>	<u>1,717,976</u>
Total Household-Gen. CVMT ¹	2,911,400	3,612,176
Commute Share of HH-Gen CVMT	54%	52%
Commercial Vehicle/Through-Travel CVMT ²	804,600	961,724
Total CVMT	3,716,000	4,573,900
Per Capita or Per Job Rates		
Population	2,376,300	2,996,800
Household-Generated CVMT per Capita	1.2	1.2
Total CVMT per Capita	1.56	1.53
Percent Changes in CVMT Per Capita or Per Job, compared to 2016		
HH-Generated CVMT per Capita		-1.6%
Total CVMT per Capita		-2.4%

1 Household-generated CVMT is cumulative vehicle travel by residents of the region on roadways which are at-or-above capacity, for their travel within the region. Household-generated CVMT is split into commute and other shares.

2 Commercial vehicle CVMT is cumulative vehicle travel for moving goods, services and freight within the region. It includes commercial travel in passenger vehicles, light trucks, and vans as well as in larger trucks. Externally generated VMT is cumulative vehicle travel from residents outside the region, but who travel to destinations within the region, or travel through the region.

Vehicle Miles Traveled

Table 14 shows VMT by three sources in the region for 2016 and 2040: household-generated, commercial vehicle, and external.

Household-generated, which includes all travel by residents of the region for work, school, shopping and other household purposes, accounts for almost three-quarters of all VMT in all scenarios. Household-generated VMT per capita is projected to decrease from 17.9 miles in 2016 to 16.5 miles by 2040, a decrease of 7.9 percent.

Commute travel includes all travel by workers from home to work and back home, including any intermediate stops for other non-work activities (e.g., to drop off a child at school, to shop, or to attend to personal business). It accounts for about 44% of total household-generated VMT.

Commercial vehicle travel includes vehicles of all types which are transporting services or goods on roadways within the SACOG region. This source of VMT is not just bigger, multi-axle trucks—it includes transportation of services (e.g. office equipment repair, plumbers, home delivery) which may use smaller vans or even passenger vehicles, as well as small-to-medium sized trucks.

Combining all sources of VMT, including external and through travel VMT, forecasted VMT per capita declines from 24.6 miles to 23.3 miles from 2016 to 2040, a 5.3 percent decrease.

Table 14 - Vehicle Miles Traveled by Source in SACOG Region 2016 and 2040 MTP/SCS

Variable	2016	2040 MTP/SCS
Weekday VMT by Source		
Household-Generated Commute VMT ¹	18,879,600	21,668,600
Household-Generated Other VMT ¹	<u>23,700,000</u>	<u>27,810,200</u>
Total Household-Gen. VMT ¹	42,579,600	49,478,800
Commute Share of HH-Gen VMT	44%	44%
Commercial Vehicle VMT ²	9,216,100	11,639,800
Through-Travel VMT ³	6,644,100	8,706,400
Total VMT	58,439,800	69,825,000
Per Capita or Per Job Rates		
Population	2,376,300	2,996,800
Jobs	1,060,700	1,332,300
Household-Generated VMT per Capita	17.9	16.5
Commercial Vehicle VMT per Job	8.7	8.7
Total VMT per Capita	24.6	23.3
Percent Changes in VMT Per Capita or Per Job, compared to 2016		
HH-Generated VMT per Capita		-7.9%
Commercial Vehicle VMT per Job		0.6%
Total VMT per Capita		-5.3%

Source: SACOG, September 2019.

¹ Includes travel by residents of households within the SACOG region, plus travel within the SACOG region by households outside the region. Total household-generated VMT is split into commute (i.e., all VMT generated by workers going from home to work and back, with any stops along the way), and other (all non-commute).

² Commercial vehicle VMT is cumulative vehicle travel for moving goods, services and freight within the region. It includes commercial travel in passenger vehicles, light trucks, and vans as well as in larger trucks.

³ Through-travel VMT is all travel on roadways passing through the SACOG region.

Greenhouse Gas Emissions

The assumptions and indicators described in the MTP/SCS offer the best path to achieving the 19 percent per capita greenhouse gas (GHG) emissions reduction target assigned to SACOG by the California Air Resources Board (CARB). Table 15 provides the bottom line calculation of the GHG reduction, which is subject to review of CARB, upon adoption of the SCS by SACOG. A more detailed breakdown of the GHG reduction is provided below.

Table 15 – SB 375 Greenhouse Gas Emissions Reduction

Performance Metric	2005 Baseline	2040 MTP/SCS	% of Reduction
Weekday passenger vehicle CO2 emissions (percent change per capita from 2005)	23.2	18.9	-19%

The SB 375 GHG emissions reduction target is unique, in that the base year (2005) and horizon year (2035) are different than the base year and horizon year for the proposed MTP/SCS, and the formula for calculating the reduction is very complicated. All aspects of the target are determined by the California Air Resources Board (CARB). Several fundamentals of the calculation are worth noting, though. The calculation is based on vehicle activities forecasted by SACSIM19 travel demand model, with vehicle fleet forecasts and emissions calculated using versions of the state's EMFAC emissions models²⁰. Both models (SACSIM19 and EMAC) are required to calculate the target, with EMFAC being used as a post-process to each SACSIM19 model run needed to calculate the emissions. In short, the MTP/SCS factors generating the GHG reduction can be reasonably approximated, but there is no precise way of calculating the exact contribution of each factor precisely.

Given these limitations, though, there is a strong interest in understanding the connection between the target and specific factors and effects that are included in the proposed MTP/SCS. Table 16 provides an accounting of these factors and effects.

Table 16 --Breakdown of SB 375 GHG Reduction Factors

	Approx. Reduction
<i>MTP/SCS Policy & Program – Related Factors</i>	
Increased Non-SOV Mode Share	6%
Shortened Vehicle Trips	5%
Pricing & Pay-As-You-Go Fees	1-2%
ITS & TSM	+/- 0.5%
Local EV Programs	+/- 0.5%
<i>Exogenous Factors</i>	
Aging Population	2%
Increase in Auto Cost	3%
Total Reduction	+/-19%

Source: SACOG, 2019.

For the factors related to the policies and programs of the MTP/SCS, the approach to estimating the approximate share of the GHG reduction are described below.

- For increased Non-SOV mode share, the trip length and increase in trip rate for transit, bike and walk trips was calculated for year 2005 and year 2035 using the SACSIM19 model, and the increase in person miles traveled by these modes was used to calculate the share for modeled

²⁰ In setting the original SB 375 targets in 2010, CARB was very careful to focus the target on factors related to land use, transportation, and reduction in VMT, rather than changes to the vehicle fleet, power sources, fuels, etc. The fleet and fuel factors were the focus areas of statewide programs. In order to focus SB 375 on land use, transportation and VMT reduction, a special set of emission rates were added to EMFAC, that factor out the changes related to the state fleet and fuel programs, and those rates are used by all MPOs for SB 375 implementation purposes.

travel. To this share was added an off-model increment for transportation demand management programs, and a small share for increased micro-mobility use.

- For shortened vehicle trips, the average trip length for all auto mode trips (SOV and carpool), and the decrease in average trip length was used to calculate a share of GHG reduction.
- For facility pricing, and mileage-based or Pay-As-You-Go (PAYGO) fees, the additional cost of auto travel for both programs was calculated as an average related to a non-priced alternative, and the increment was translated into a VMT impact using a VMT elasticity.
- For ITS and TSM, the impact of more robust deployment of these programs, relative to 2005, were assessed using the “Moving Cooler” document.
- For the impact of local EV deployment programs, which are locally funded programs to increase the rate of EV market penetration within the SACOG region were qualitatively assessed, and translated into percentage change in GHG, over-and-above the much larger state programs.
 - For the last two factors, the technical assumptions and calculations have been reviewed by CARB as part of the 2012 and 2016 Sustainable Community Strategy submissions.

The SB 375 GHG emissions reduction also includes factors that have little to do with the proposed MTP/SCS in terms of implementation. These factors that are largely outside the control of MPOs or their local member agencies are often labeled “exogenous” factors. Two major exogenous factors affecting GHG emissions are:

- Aging population—the share of persons 65-years-or-older is forecasted to increase from 13 percent in 2016 to 21 percent by 2040. Older persons travel less, and generate less VMT and GHG emissions from that travel, than younger persons.
- Increase in auto cost—the basic cost of operating an automobile was forecasted to increase over the timeline of the proposed MTP/SCS, and this increase accounts for a part of the GHG reduction. This increase is based on forecasted cost of fuel, changes to the efficiency of the passenger vehicle fleet, and changes to the non-fuel operating costs like tires, maintenance and repair, averaged to a per-mile cost. This part of the vehicle cost excludes “policy” costs like facility-based pricing, and PAYGO fees.

The fact that a part of the 19 percent GHG reductions is generated by exogenous factors, rather than policies or programs of the MTP/SCS, is not new. When the SB 375 targets were set in 2010, those factors were part of the calculation of the targets, and that fact was re-confirmed when the targets were re-set by CARB in 2018.

The “factors” referenced in Table 16 are driven by many specific policies and actions included in the proposed MTP/SCS. The complex relationship between the many specific policies and actions in the proposed MTP/SCS, and the grouped “factors” for which GHG reductions were approximated above, is provided in Table 17.

Table 17 – MTP/SCS Policies and Actions Contributing to GHG Reduction

2020 MTP/SCS Policy or Action	Shortened Vehicle Trips	Increased Transit, Bike, Walk Trips	Pricing & PAYGO	ITS/TSM	Local EV
<i>Policies</i>					
3--Support more seamless travel through better traveler information for trip planning, reliable service and coordination between operators for transit, shared mobility and other first/last mile connections.		X			
4--Support piloting innovations in new mobility and transit service and programs.		X			
6--Support innovative education and transportation demand management programs covering all parts of the region, to offer a variety of choices to driving alone.		X			
7--Pursue new funding and planning opportunities to support electric vehicle infrastructure and programs for both private vehicles and public transit fleets.					X
8--Support transit agencies looking to secure funds to improve the frequency, span, and coverage of productive transit service.		X			
11-- Initiate a leadership role in testing and piloting roadway pricing mechanisms, such as facility-based tolling and mileage-based fees, in partnership with the state, federal, and local agencies and private sector organizations.			X		

2020 MTP/SCS Policy or Action	Shortened Vehicle Trips	Increased Transit, Bike, Walk Trips	Pricing & PAYGO	ITS/TSM	Local EV
12--Take steps to implement tolling or pricing of specific lanes on major facilities, such as freeways, to improve traffic management, reliability, and operations of those facilities and to help raise funding for the cost of building and maintaining large capital investments.			X	X	
13--New major capital projects on the region's freeways should examine pricing options to both manage demand and provide a financing mechanism for capital costs.			X	X	
14-- Revenues generated from facility-based pricing should be used to build and maintain a regional network of paid express lanes and, where surplus revenue is available, on strategic transit services (e.g. express buses) or other mobility solutions that can reduce vehicle miles traveled and provide multiple travel options along priced corridors.		X			
24--Invest in bicycle and pedestrian infrastructure to encourage healthy, active transportation trips and provide recreational opportunities for residents and visitors.		X			
27--Invest in transportation improvements that improve access to major economic assets and job centers.	X				
28--Prioritize investments in transportation improvements that reduce greenhouse gas emissions and vehicle miles traveled.	X	X	X	X	X
Actions					
Secure funding and implement the Green Means Go Pilot Program to encourage infill development.	X	X			X

2020 MTP/SCS Policy or Action	Shortened Vehicle Trips	Increased Transit, Bike, Walk Trips	Pricing & PAYGO	ITS/TSM	Local EV
Provide data, research, analysis, incentives, and other support to housing-rich communities actively trying to promote job growth and jobs-rich communities to promote housing growth.	X	X			
Develop a Regional Housing Needs Plan with action steps and incentives that put member agencies in a better position to accelerate infill housing production.	X	X			
Continue to provide incentives, tools, and other project support to grow regional jobs and housing. Examples include the Economic Prosperity Plan, Housing Policy Toolkit, SB 375 and SB 743 CEQA streamlining.	X	X			
Continue to provide technical assistance to support urban, suburban, and rural community revitalization. Examples include Civic Lab Year 2, Rural Main Streets Technical Assistance, and the Transit Oriented Development Action Plan.	X	X			
Continue to assist transit and local agencies to find ways to develop, test, and pilot new mobility services such as microtransit, bike share, and other services. Examples include Civic Lab Year 1, bike share, and Citrus Heights microtransit pilot.		X			
Lead a collaborative effort to shape a vision of next generation transit for the region that includes strategies to integrate traditional transit services with new mobility options.		X			
Develop and implement new employer- and residential-based transportation demand management programs. Examples include TDM mini grants for piloting ideas.		X			

2020 MTP/SCS Policy or Action	Shortened Vehicle Trips	Increased Transit, Bike, Walk Trips	Pricing & PAYGO	ITS/TSM	Local EV
Partner with cities and transit operators undergoing updates to transit plans, service changes, and transit-oriented development efforts. Examples include SacRT Forward, Transit Asset Management Planning, and Transit-Oriented Development Action Plan.		X			
Actively support transit agencies in securing funding to improve transit stations and replace aging bus and light rail vehicles. Examples include 2018 SECAT program changes to fund zero-emission buses and transit funding awards from state Senate Bill 1 competitive grant programs.		X			
Work with Caltrans and other local partners to identify options for governance and administration of revenues from facility-based pricing, in coordination with ongoing managed lane studies.			X		
Work with regional partners to develop pilots focused on innovative tolling and PAYGO concepts.			X		
Collaborate with the state and metropolitan planning organizations on efforts to study mileage fees as a replacement to fuel taxes.			X		
Support local agencies in pursuing options to implement new local fees and taxes dedicated to transportation improvements.			X		

Travel Demand Forecasting Model

SACOG utilized its regional travel demand model to compare the proposed MTP/SCS for 2040 conditions to the 2016 baseline conditions. SACOG's primary model is the Sacramento Regional Activity-Based Simulation Model or "SACSIM". SACOG periodically updates and improves SACSIM, and releases versions of the model and data for use by member agencies when the MTP/SCS is adopted, with versions numbered according to the year the version was finalized. SACSIM15 was used for the 2016 MTP/SCS. SACSIM19 was used for the analysis of this proposed MTP/SCS.

Sections below will cover high level descriptions and summaries about model structure, model calibration, validation, sensitivity test, and treatment of travel induced by additional road way capacity. Full model documentation with details about every component of SACSIM19 will be available when 2020 MTP/SCS is adopted in the spring of 2020.

Model Structure

SACSIM includes four sub-models for predicting travel demand. The major sub-model is "DAYSIM," which is an advanced-practice activity-based tour sub-model for predicting household-generated travel. DAYSIM is a demand micro-simulation, which represents travel activities as tours, or series of trips, connecting the activities a person engages in during the course of a normal day. DAYSIM allows for detailed representation of key factors influencing household-generated travel, such as detailed characteristics of land use in the region, age of residents, household income, cost of fuel, and other factors.

SACSIM also includes a more conventional, state-of-practice sub-model for predicting commercial vehicle travel. Two classes of commercial vehicles are modeled: two-axle commercial vehicles, and three-plus-axle commercial vehicles. Two-axle commercial vehicles include a wide range of vehicles, ranging from a passenger vehicle, which might be used to transport a computer repair person and their tools and equipment to an office to perform a repair, to a relatively small truck delivering produce to a restaurant or store. Three-plus-axle commercial vehicles also include a wide array of vehicles, ranging from medium-sized delivery trucks to large, five-axle tractor-trailer combinations. The common element tying these vehicles together is that they are used to transport goods and services, and are not used for personal (household-generated) travel.

SACSIM also includes state-of-practice sub-models for predicting air passenger ground access to the Sacramento International Airport, and for predicting external travel (including travel by residents of the region to locations outside the region, residents outside the region traveling to locations within the region, and travel that goes through the region, but does not stop within the region).

Vehicle or transit passenger trips are assigned to detailed computer representations of the region's highway and transit networks using state-of-practice software and programs. The resulting assignments are used for evaluation of vehicle miles of travel (VMT) on roadways, congested travel on roadways, and travel on the region's transit system.

The analysis period of SACSIM is a “typical weekday.” A typical weekday is intended to represent weekday conditions during a non-summer month (i.e., a time period when most workers are at work, rather than on vacation, and when schools are normally in session). Where annual or other time periods are required, typical weekday estimates of travel are scaled to represent those time periods.

For each round of the MTP/SCS the SACSIM version is adjusted to capture observed travel behaviors. SACSIM also goes through periodical coding updates to address new policy requirements during the planning process. Every new version of SACSIM is then thoroughly inspected over to ensure model performance. SACSIM19 was used for the analysis of this proposed MTP/SCS. SACSIM19 is adjusted to capture observed travel behavior in the MTP/SCS base year (2016 for project). The process of measuring the degree to which the model captures observed travel in the base year is known as “validation”. This step is undertaken in compliance with guidelines provided by the California Transportation Commission. In addition to validation, sensitivity testing is performed to ensure that SACSIM is appropriately sensitive to key factors affecting travel (e.g. cost of travel, household income, age, etc.).

Public Access to Model and Data

The updated SACSIM modeling scripts and data files are made available for review and comment by local member agencies and the transportation consulting community in the following ways:

- SACOG maintains a basic description of the SACSIM on its website for the public at large to get a basic understanding of the model and its uses, and to connect members of the public to SACOG staff members that can provide additional information as needed.
<https://www.sacog.org/modeling>
- SACOG hosted a SACSIM19 users’ conference in January 2019. The conference included a one-day session providing a general overview of the SACSIM19 model, directed at non-modeling planning professionals and representatives of community and advocate groups in the morning session, and a deeper dive into SACSIM19 model functionality for transportation planners and modelers in the afternoon session. Input from the attendees was solicited on the usefulness of the users’ conference as a way of disseminating information on SACSIM19, and on user preferences for improvements to SACSIM19 moving forward.
<https://www.sacog.org/pod/travel-demand-model-user-conference>
- SACOG implemented a formal beta-test process, call for participants announced in November 2018, group starting in January 2019 and ending in March 2019. The beta-test process allowed for early access to the draft SACSIM19 for learning and testing purposes. 10 organizations and firms participated. The beta-test included a one-day training session on SACSIM19, technical support as needed, and bi-weekly teleconferences calls to check in on testing progress and to address questions or issues experienced by the beta testers. More information about beta testing can be found under <https://www.sacog.org/pod/travel-demand-model-beta-testing-group>
- Early release of the SACSIM19 MTP/SCS draft preferred scenario land use and transportation network files, and data files, scripts and executables to local agencies and their consultants, for use in reviewing the MTP/SCS and to provide a baseline for undertaking analysis of local projects. Agencies took advantage of this release of the draft MTP/SCS on projects such as the Placer Sacramento Gateway Plan, Caltrans Managed Lanes studies.

- Modeling changes were presented to ARB staff in discussions related to the proposed technical methodology for assessment of greenhouse gases for implementation of SB 375, pursuant to Section 65080 of the Government Code.

Major Changes between SACSIM15 and SACSIM19

SB 375 has placed an emphasis on enhanced regional transportation and land use modeling and Proposition 84 funds have been awarded to California MPOs to expedite the development and enhancements of their regional transportation and land use modeling tools and methods necessary to comply with SB 375. While many MPOs will focus their initial efforts on enhancements to four-step trip-based models, SACOG is already at the cutting-edge of tour/activity-based models with the Sacramento Activity-Based Travel Simulation Model (SACSIM). As part of the SB 375 model enhancement effort, SACOG has completed a phased multi-year model improvement program. Major changes between SACSIM15 and SACSIM19 are shown in Table 18.

Table 18 – Major Improvements in SACSIM19

Feature	Used for...	SACSIM15	SACSIM19	Change in Modeling
New generation DAYSIM with updated choice models and software structure	Simulation of individual's daily travel activities	Software constraints on number of skims allowed.	Re-estimated choice models; Fully object-originated programming; Shadow pricing to maintain supply/demand of work and school locations	Easy to use & add network skims by modes, VOT classes, time periods; better estimation / forecasting of travel patterns etc
Proximity buffering (# of households, jobs, K12 enrollments, etc within travel distance of each parcel)	Modeling attractiveness of parcels as destinations	-Simple radial buffers ($\frac{1}{4}$ & $\frac{1}{2}$ mile) -Unweighted (i.e. activities at far edge of buffer count same as near edges)	-Buffers based on network distance -Buffers decay weighted—closer activities count more	-Captures linearity of many activities clustered along major arterials -Captures accessibility “shadows” created by freeways, rivers, etc.
Valuation of time (VOT)	-Assessing trade-offs between cost of travel and time of travel -Useful for any model—but necessary to correctly model pricing	-Three levels of VOT, based on household (HH) income range -All members of high income HH have high VOT -All members of low income HH have low VOT	-Distributed VOT -VOT varies for all persons -Higher VOT more likely for high income HH... -...but VOT mixes across HH income -Some high income have low VOT, some low income have high VOT	-Necessary for implementation of pricing -Necessary for fairly capturing equity impacts of pricing -Causes some trade-offs on shorter, slower routes and longer, faster routes

Feature	Used for...	SACSIM15	SACSIM19	Change in Modeling
Transit and Traffic Assignment Time Periods	-Identify peak hour travel -Congestion levels, accessibility, boarding/alighting during peak hours of travel.	4 daily transit periods 4 daily traffic periods (AM,MD,PM,NT)	5 daily transit periods 9 daily traffic periods	-Better control over hourly diurnal flows.
Vehicle Equivalence on Traffic Assignment (weighting trucks more heavily in estimates of congestion)	-Identifying congested segments and bottlenecks -Reflecting higher congestion impact of bigger trucks	No weighting of bigger trucks	-passenger vehicles =1 -smaller commercial vehicles = 1.5 -3+ axle commercial vehicles = 2.0	-Better practice—called out in last peer review -Overall higher congestion levels
Transit sub-modes (rail, commuter bus, standard fixed route bus)	-Reflecting preferences for different types of transit in mode choice	-Transit mode choice only accounts for mode of access (drive vs. walk) -All transit treated generically	-Continue to account for mode of access -Sub-modes allowed as part of mode choice (rail, commuter bus, fixed route bus)	Better balance of transit trips & boardings amongst the sub-modes
Facility-based Pricing	Modeling toll roads, high-occupancy/toll roads, express lanes	n/a	Full suite of options for modeling toll facilities with dynamic tolling and occupancy class exceptions. User settings for minima/maxima tolls, tolling periods, etc.	New functionality, allows for modeling the impact of tolling on travel behavior and on revenue
Pay-As-You-Go Pricing (PAYGO)	Modeling of mileage-based user fees	Limited to single-point auto-operating cost, inclusive of PAYGO. Fixed by time period, geography. Does not affect path-building.	PAYGO added as roadway network variable, captured in path-building and skims. Can vary by time period or geography.	Captures effects of PAYGO more realistically, and affects path-building and skims for auto modes.

Source: SACOG, 2019.

Model Calibration

DAYSIM is the core of SACSIM and is consisted of two modules: long term and short term choices. Both modules are consisted of a series of nested choice models. In operation, given the households' residence, DAYSIM runs long term module first and simulates people's long term choices such as usual work and school locations, and auto ownership, and then run short term choice module such as day pattern, main destination, tour mode, trip mode etc. With this hierarchical or nested choice structure, the lower level choices were affected or constrained by upper choices. For examples:

- Choices of usual locations for work and school affect the choices of work and tour destinations, since the usual locations are the most likely destinations.
- Auto ownership affects both day pattern and tour (and trip) mode choice, by generating auto ownership market segments used in the model.

In SACSIM19, all DAYSIM choice models were re-estimated using the new parcel data, skim data and the expanded 2000 survey. Mode choice models were calibrated to 2018 survey as shown in Table 19.

Table 19 – Mode Share in 2016 Model Comparing to 2018 Household Travel Survey

Mode	2018 HTS	2016 Model
Walk	7.7%	7.8%
Bike	2.3%	2.5%
Carpool	45.5%	45.1%
Drive Alone	42.1%	42.1%
Transit	1.2%	1.2%
Other (School Bus,Taxi etc.)	1.2%	1.2%

Source: SACOG, 2019

Validation of Highway Assignment

Model Validation provides systematic checks to establish a confidence level in a travel demand model. Validation efforts focus on model components used for major performance indicators for forecasting. SACSIM19 validation focuses on highway traffic assignment, transit assignment, and sensitivity testing. SACSIM19 full model documentation will provide thorough information on all model variable components that influence results. The intent of this section is to provide high level validation results to assess SACSIM19 performance. Because SACSIM19 forecasts do not only cover roadway design, but also air quality and conformity analysis, temporal validation was included to assess model relationship to represent multiple time periods.

SACSIM19 traffic count model validation was performed on the highway assignment for the MTP/SCS base year 2016. Twenty-four-hour traffic counts are collected throughout the SACOG region. Since counts come in various temporal resolution, formatting, and collection techniques such as using roadway tube counts, turning movement at intersection, ongoing sensors, or annual monitoring reports, a subset of those counts are processed and used to represent a typical weekday traffic count to

compare with model volumes. Table 20 provides a regional validation summary for SACSIM19 forecasted 2016 traffic volumes compared to CTC recommended guidelines for MPO travel demand models²¹. 2005 SACSIM19 back-cast comparison is also included. The 2005 back-cast serves as both a temporal validation of SACSIM19 and an additional model validation to our air quality and conformity analysis base year. Both 2005 and 2016 are within all guideline statistic performance indicator thresholds.

Table 20 – SACSIM19 and CTC Guidelines on Highway Assignment Validation

Guideline	Threshold	2005	2016
% of Locations w/ Model < Max Deviation	>75%	86%	78%
Correlation Coefficient	> 0.88	0.95	0.97
RMSE for Daily Traffic Assignment	<0.40	0.36	0.38

Source: SACOG, 2019

While these regional guidelines serve an important role for model validation, they are only a partial indication of model performance. Highway facility classification determine how much traffic volume can travel on a given roadway at a point of time. The facility classification determines road capacity levels measured as how many vehicles per hour per lane (vphpl) a facility can sustain operations; this is a major contributor to model performance. Table 21 provides a comparison of forecasted 2016 model volumes to traffic counts by facility type. The table includes comparisons of average weekday volumes.

Table 22 includes SACSIM19 back-cast traffic volume to counts from 2005. This back-cast comparison serves as both the temporal validation of SACSIM19 and the base year for air quality and conformity analysis²². Count locations and quantities vary between 2005 and 2016 due to different collection efforts and available data at that time. Multiple validation tables by functional class also serve as supplementary source of count data for locations of facility types that may have a smaller count samples one year and provide additional model confidence.

²¹ California Transportation Commission, *2017 Regional Guidelines for MPOs*, p.49.

²² *Code of Federal Regulations*, Title 40, Sec.93.122

Table 21 – Weekday Highway Volume Validation By Functional Class of Roadway

Functional Class	No. of Road Sections	Sum of Counts	Sum of Model (if Counted)	Validation Ratio	Avg. Link Error	RMSE
Freeway	371	21,477,673	20,565,616	0.96	0.13	0.18
Expressway	7	88,286	114,724	1.30	0.54	0.63
Major Arterial	571	8,310,889	9,057,658	1.09	0.29	0.38
Minor Arterial	463	4,477,209	4,438,807	0.99	0.30	0.44
Collector	425	1,434,337	1,284,906	0.90	0.53	0.79
Ramp	10	54,413	75,661	1.39	1.05	1.22
Rural Highway	24	148,190	144,000	0.97	0.17	0.20
<u>Rural Art./Coll.</u>	<u>325</u>	<u>1,150,651</u>	<u>1,113,827</u>	<u>0.97</u>	<u>0.37</u>	<u>0.51</u>
Total	2,196	37,141,648	36,795,199	0.99	0.24	0.38

Source: SACOG, 2019

Table 22 – 2005 Weekday Highway Volume Validation by Functional Class of Roadway

Functional Class	No. of Road Sections	Sum of Counts	Sum of Model (if Counted)	Validation Ratio	Avg. Link Error	RMSE
Freeway	189	10,772,487	11,092,769	1.03	0.15	0.22
Expressway	12	353,236	305,954	0.87	0.16	0.34
Major Arterial	296	4,903,641	5,014,035	1.02	0.21	0.28
Minor Arterial	172	1,789,679	1,558,188	0.87	0.29	0.38
Collector	118	630,976	505,006	0.80	0.40	0.56
Ramp	264	1,199,460	1,114,769	0.93	0.53	0.85
Rural Highway	76	325,402	363,834	1.12	0.28	0.40
<u>Rural Art./Coll.</u>	<u>138</u>	<u>511,391</u>	<u>543,470</u>	<u>1.06</u>	<u>0.36</u>	<u>0.49</u>
Total	1,265	20,486,272	20,498,025	1.00	0.22	0.36

Source: SACOG, 2019

Validation of vehicle miles traveled (VMT) by travel demand models to estimates of observed VMT gathered through the Highway Performance Monitoring System (HPMS) is required by federal statute for agencies like SACOG which implement air quality conformity analysis²³. VMT is also identified as an important performance indicator for tracking progress of the SCS.²⁴

This requirement has been more generally applied for validation of travel demand models used for other purposes. For example, validation to HPMS is identified as a key recommended validation task in the FHWA guidance on validation of travel demand models²⁵. That said, there are differences between the VMT estimates developed for HPMS and those estimated using SACSIM19: HPMS is an “annual average” estimate, that is intended to capture the average for 365 days of travel. SACSIM19 is a “typical weekday” estimate, that is intended to capture mid-week days during spring and fall months. In areas with a high percentage of weekend travel (e.g. areas with a high percentage of recreational travel), or in areas with extreme variations in seasonal travel (e.g. areas with a high percentage of seasonal recreational travel, or other seasonal activities like agriculture) the differences between HPMS and SACSIM19 could be significant.

Table 23 reports the comparison of SACSIM19 estimates of VMT to HPMS-sourced estimates. At region level, SACSIM19 estimates line up very closely with HPMS-sourced estimates, with less than two percent difference for each of the validation years (2005, 2016). Additionally, at region level, the changes to total and per capita VMT forecasted by SACSIM19 correspond to the changes observed in HPMS data. Between 2005 and 2016, both HPMS and SACSIM19 data show a decline. HPMS data shows a 2 percent decline in VMT per capita, compared to a SACSIM19 4 percent decline. Both changes are in the correct direction and the correct order of magnitude.

Table 23 – Comparison of Daily Vehicle Miles Traveled Estimates: HPMS and SACSIM19

	2005		2016		Validation Ratio	
County	HPMS ¹	SACSIM	HPMS ¹	SACSIM	2005	2016
El Dorado ²	3,941	4,420	4,095	3,842	1.12	0.94
Placer ²	8,581	9,276	9,161	10,101	1.08	1.10
Sacramento	32,145	32,035	35,652	34,560	1.00	0.97
Sutter	2,374	1,758	2,672	2,228	0.74	0.83
Yolo	5,683	5,151	6,071	5,842	0.91	0.96
Yuba	1,849	1,853	1,928	1,866	1.00	0.97
	54,573	54,493	59,579	58,439	1.00	0.98

²³ Ibid.

²⁴ California Transportation Commission, *2017 Regional Guidelines for MPOs*, p.23.

²⁵ Federal Highway Administration, *Model Validation and Reasonableness Checking Manual*, 2010 edition.
<http://tmip.fhwa.dot.gov/resources/clearinghouse/1397>

Population	2,140		2,376			
VMT per Capita	25.5	25.5	25.1	24.6	1.00	0.98

Source: SACOG, 2019

¹ HPMS estimates of VMT from the Caltrans *California Public Road Data* reports.

² Adjusted from whole county data from El Dorado and Placer Counties to the non-Tahoe-Basin portions.

³ VMT and Population represented in thousand

Validation of Transit Assignment

SACSIM19 changed from SACSIM15 by:

- Adding a transit sub-mode component to skimming and mode choice models. The three sub-modes are light rail, commuter bus, and local bus. This change allows SACSIM19 to better capture the differences between these modes in terms of speed, comfort, etc.
- Creating different transit fares based on a person's age and student status, instead of assuming a flat average fare.
- Splitting the 6pm-11pm evening service period into two separate periods, 6pm-8pm and 8pm-11pm, to better capture differences in transit services between early and later evening.

SACSIM first predicts how many trips people will take on transit, then assigns those trips to routes in the transit network and estimates each route's total boardings. A single trip can entail multiple boardings, e.g., one transit trip that requires one transfer results in two boardings. SACOG staff performed validation tests for both total transit trip share and transit assignment, i.e., how many boardings those trips resulted in, for each transit sub-mode (rail, local bus, and commuter bus).

As shown in Table 19 under model calibration, transit trip share (1.2%) in 2016 model was calibrated to and validated against SACOG's 2018 household travel survey (HTS).

Below, Table 24 summarizes transit assignment validation results. Generally, SACSIM19 overpredicted boardings by about 22 percent for all three transit sub-modes. Although the difference in observed versus modeled boardings is substantial, it does not affect the model's VMT and emissions estimates, which are based on transit trips rather than boardings. And since, as described above, SACSIM19's transit trip share is very close to observed trip share, we consider its VMT and emissions estimates to be reasonable.

Table 24 – Weekday Transit Passenger Boardings and Vehicle Service Hours by Service Type: Comparison of Model to Counts

Service Types	Daily Pass. Boardings			Weekday Vehicle Service Hours		
	Observed	Model (raw)	Validation	Observed	Model	Validation
<i>Year 2016</i>						
Light Rail	41,732	51,189	1.23	301	317	1.05
Fixed Route Bus	73,323	89,533	1.22	3,319	2,663	0.80
Commuter Bus	5,093	6,324	1.24	321	482	1.50
Total	120,148	147,046	1.22	3,940	3,462	0.88

Source: SACOG, September 2019.

Note: Model estimates included only for lines for which observed boardings data were available from operators.

We also validated SACSIM19's estimate of vehicle service hours (VSH) against observed base year VSH. As Table 28 shows, modeled VSH overall was about 12 percent lower than observed VSH. However, this varied by sub-mode, with modeled VSH exceeding observed by only five percent for light rail, significantly exceeding observed VSH for commuter bus by about 50 percent, and falling short of observed local bus VSH by about 20 percent.

Sensitivity Tests

Sensitivity testing measures how sensitive model outputs are to changes in specified model inputs, e.g., the sensitivity of predicted vehicle-miles traveled (VMT) to changes in the assumed per-mile auto operating cost. We quantify sensitivity as the elasticity of the output with respect to the input. Conceptually, elasticity can be defined as:

Elasticity of output with respect to input = percent change in output / percent change in input

E.g., if a 10% increase in auto operating cost led to a 1% decrease in VMT, we would say the elasticity of VMT with respect to auto operating cost is $-0.01/0.1$, or -0.1 .

Using elasticity, we estimated the model's sensitivity to the following inputs with respect to the indicated outputs as shown in Table 25.

Table 25 – List of Variables in Sensitivity Test

Model input variables tested	Model output values checked for sensitivity
Auto operating cost	Total person-trips, vehicle trips, VMT, CVMT, transit person-trips, bike + walk person trips
Transit fare	
Off-street parking price	
Household income	

Where possible, we then compared the model's elasticity to observed elasticities to see if the model's elasticity was similar in magnitude (big vs. small) and direction (negative elasticity value vs. positive value). We considered the model sensitivity for a given input-output relationship to be reasonable if its elasticity was in the same direction and roughly same magnitude as elasticities that have been observed in the real world. Table 26 below is an example showing the elasticity of modeled VMT with respect to each of the tested model inputs compared with the range of observed elasticities for VMT.

Table 26 – List of Variables in Sensitivity Test

Model input variables tested	Modeled elasticity of VMT with respect to input variable	Range of observed elasticities of VMT with respect to input variable
Auto operating cost	-0.135	-0.38 to -0.03
Transit fare	+0.001	Small, positive in sign ¹
Off-street parking price	-0.005	Smaller magnitude than -0.04, negative in sign ²
Household income	+0.12	+0.05 to +0.18

¹None of the studies we reviewed explicitly quantified the relationship between transit fare levels and VMT, but we assumed a modest positive elasticity assuming that as transit fares increase, some riders will choose to drive instead, increasing VMT.

²-0.04 was the lowest sensitivity among the studies we reviewed. However, all studies looked at parking in local areas with generally limited free parking (e.g., downtowns, college campuses, etc.), while our elasticity reflects the entire region, which in most areas has ample free parking. Given the generally available substitute of free parking at a regional level, we suspect changes to parking price will have more modest effects on VMT than those found in the studies we reviewed.

While we were unable to test for all possible input-output combinations, mainly because of a lack of real-world elasticities to compare against, SACSIM’s elasticities were generally reasonable. A more complete description of SACSIM elasticity testing, along with specific findings, will be available in the SACSIM19 model documentation.

Facility-Based and Pay-as-You-Go Pricing Testing

Pricing corridors and a VMT user fee are strategies implemented to meet 2020 MTP/SCS key performance targets. Express lanes along major corridors are included to improve traffic management and reliability throughout the region. A mileage-based or Pay-As-You-Go (PAYGo) fee charge is implemented as a sustainable replacement to the gas tax and manage transportation network efficiently and equitably.

Both corridor pricing and user fee are a new feature to SACSIM19. Around the country, implementation of travel modeling software to capture express lanes, in particular, is recognized as a very complex challenge, so testing of these features is critical. Testing of these new features included sensitivity testing and reasonable-ness checking, based on guidelines provided by state and federal agencies²⁶. In addition to SACOG’s testing, the beta-test group and early release of the draft SACSIM19 software and data files, described above in the “Public Access to the Model and Data” section, provided significant additional critical review of these new features. Testing focused on the high-occupancy/toll (HOT) and

²⁶ Federal Highway Administration, *Model Validation and Reasonableness Checking Manual*, 2010 edition. <http://tmip.fhwa.dot.gov/resources/clearinghouse/1397>

express lanes facility pricing, because those facilities are the major priced facilities included in the proposed MTP/SCS. HOT lanes, for purposes of this document, are conventional, one-lane HOV lanes, which allow priced access to drive alone vehicles or trucks. Express lanes, for purposes of this document, are generally multi-lane facilities that may allow HOV2 or HOV3+ vehicles access at reduced (or no) price, but allows priced access to drive alone vehicles and trucks. SACSIM19 has the capability to model "all-tolled" roadway facilities, however—given that no all-tolled facilities are included in the propose MTP/SCS, testing mainly focused around HOT and express lanes.

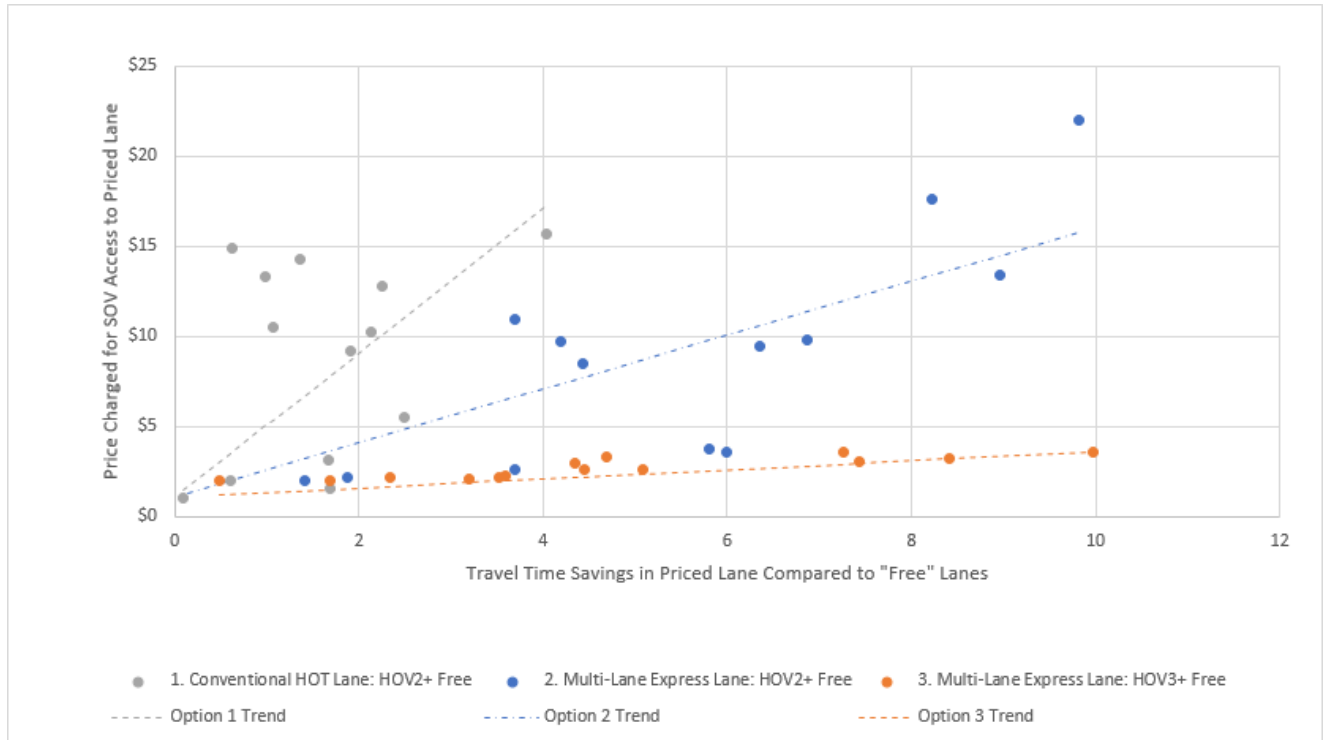
For HOT or express lanes facilities, SACSIM19 pricing software was developed to represent different rules on free versus paid access to HOT or express lanes. The general framework of the software is to iteratively identify a balance point between price of access, based on the rules for access for a given project, that ensures some level of travel time savings for the HOT or express lane, relative to the "free" parallel lanes. Testing focused on two dimensions: sensitivity of price-setting to time savings; and variations on the relationship between price and time savings, based on the rules governing access to the priced facility. Testing results for three options:

- A conventional HOT lane, with HOV2 and HOV3+ vehicles allowed access for free, and drive alone vehicles and trucks accessing for a price. Available capacity for priced access to the HOT lane is the smallest for this option, because in the highest demand corridors, HOV2 and HOV3+ vehicle nearly fill up the lane. In order to limit the number of drive alone vehicles and trucks that can access the facility, the prices may have a drastic increase surge.
- A conventional 2-lane express facility, with HOV2 and HOV3+ vehicles accessing the facility free, and drive alone vehicles and trucks accessing the facility for a price. Because the facility has two lanes per direction, rather than one, there is generally more capacity to offer for priced access, and prices tend to be somewhat lower than the HOT lane option.
- An express lane option that allows free access to HOV3+ vehicles only, and priced access to HOV2 and drive alone vehicles, and trucks. This option prices off many HOV2s, so the amount of capacity available for priced access is the highest of the three options, and the prices tend to be the lowest of the three.

Figure 15 graphically illustrates the results of the of the three test options, across 14 test corridors. Shown in the figure is the comparison of corridor time savings (defined as the number minutes saved in the priced lane, compared to the parallel free lane) and average price charged to access the priced lane (or lanes). For all three options, the expected relationship showing price increasing with time savings offered by the priced facility is evident. The three options differed very widely, and in expected ways, on the magnitude of price and its volatility across the corridors within each option. Option 1, the conventional HOT lane, showed the highest prices (average just under \$10) relative to time saved, largely because in the highest priced corridors, very little-to-no capacity was available to priced access, and virtually all potential users had to be priced off. Table 27 provides option-level tallies, and shows that of users of the HOT lane, only 2 percent paid their way into the lane—98 percent had access for free. At the other end of the spectrum is option 3, the express lane, which allowed free access only to HOV3+ vehicles. This option offered priced access to the largest number of users, and the prices charged were the lowest at under \$3 average, and 50 percent of the users

paying. Option 2 (express lane with free access to HOV2 and HOV3+ vehicles) splits the difference between Options 1 and 3.

Figure 15—Price Versus Time Savings for Three Managed Lane Options



Source: SACOG, 2019.

Table 27 – Managed Lane/Pricing Tests

	Facility Pricing Scenario	Drivers Accessing Time Savings for Free	Drivers Accessing Time Savings with Toll	Travel Time Savings in Priced Lane (minutes)	Average Toll Rate per Mile	Average SOV Toll Facility Price	VMT Accessing Travel Time Savings (thousands)	Percent VMT Accessing Travel Time Savings	Percent VMT Accessing Travel Time Savings and Paying Toll
1	Conventional HOT Lane	HOV2+	SOV, Truck	-1.5	\$0.89	\$9.71	974	21%	2%
2	Multi-Lane Express Lane	HOV2+	SOV, Truck	-5.1	\$0.58	\$9.68	1,170	27%	11%
3	Multi-Lane Express Lane	HOV3+	HOV2, SOV, Truck	-4.7	\$0.36	\$2.89	877	21%	50%

SACOG, 2019

Suggested by one of the beta-testers of the new SACSIM19 pricing features was testing around extreme pricing values. The specific suggestion was to test a range of pricing for access to a facility up to \$100, which is recognized as an unreasonably high price for an actual project. Testing around extreme values is informative for software testing, and not as a potential actual project proposal. A test of this nature was conducted based on change in travel decisions comparing a range in pricing, time of day, and demand of a particular route. Table 28 shows testing along Interstate 80 over the Causeway between Davis and Sacramento. Three scenarios of an all-lane tolled facility are compared at different pricing rates: \$5, \$25, and \$100 dollars. It is important to note that ALL of these pricing rates were set purely for testing purposes, and that actual rates for a proposed express lane project will be the subject of extensive project development work, public input, and policy debate. It is also important to note that the test scenario was based on all-lanes tolling, as opposed to express lanes, where a “free” option always exists. The \$5 dollar rate shows a shift of 31 percent of vehicles use alternative routes. At \$25, almost 90 percent of traffic avoided the facility. At \$100 dollars, the price is so extreme the facility is effectively closed down, and all traffic avoids it. This test shows SACSIM19 highway assignment is sensitive to the level of pricing added to a facility as different persons have a range of valuation of time with respect to their preferred routing choices.

Table 28 – All Lane Pricing Sensitivity to Extreme Values Test

SACSIM19	DAILY					
	Causeway EB			Causeway WB		
2035	Quantity	Change	% Change	Quantity	Change	% Change
2035 Base	95,242	0	0.00%	95,974	0	0.00%
\$5 Toll, All Time Periods, Mainline & HOV	64,162	-31,080	-32.60%	65,496	-30,478	-31.80%
\$25 Toll, All Time Periods, Mainline & HOV	10,334	-84,908	-89.10%	11,825	-84,149	-87.70%
\$100 Toll, All Time Periods, Mainline & HOV	19	-95,223	-100.00%	16	-95,958	-100.00%

Source: SACOG, 2019.

In addition to corridor pricing, a mileage-based user fee was also tested. Table 29 shows sensitivity testing on different mileage based user fee rates based on time of day and location. A discounted fee was applied for rural areas and off peak hours with less congestion. When the user fee increase, the household VMT and Congested VMT decrease. The orders of magnitude of decrease changes based on the rate showing the model is sensitive to different user fee rates.

Table 29 – User Fee Sensitivity Testing

Scenario	HH VMT % Change from Base	HH Congested VMT % Change from Base
No user fee – Baseline	0.0%	0.0%
1/2 cent peak/off peak rural/urban user fee	-0.3%	-1.9%
2/4 cent peak/off peak rural/urban user fee	-1.5%	-8.2%

SACOG, 2019

Scenarios for Sensitivity Testing only and do not reflect the 2020 MTP/SCS preferred scenario.

Treatment of Travel Induced by Addition of New Roadway Capacity

Research suggests that provision of new roadway capacity, all other things being equal, can itself result in generating additional vehicle travel. This phenomenon is often labeled “induced travel,” and is in reality composed of many different effects. Those effects fall into two general categories:

- Short-term effects--changes in the near term to individual and household travel behavior due to a new or expanded roadway. All of the short-term effects are the result of travel on the new or expanded roadway being faster or more reliable than the prior condition:
 - Driving slightly out of one’s way in order to use a new facility, compared to prior routes;
 - Shifting trips made by walking, biking, transit, or some non-private-vehicle mode to a private vehicle; or
 - Making more trips using a vehicle compared to the prior condition.
- Long-term effects—changes in long-term individual or household choices, or causing new growth and development in areas where options to driving are a few, or where the density and mix of uses require longer-than-average (regional) vehicle trips:
 - An individual deciding to relocate his or her place of residence from an area where lower-than-average vehicle use is required, to an area where higher-than-average vehicle use is required, simply because new roadway capacity makes the move more attractive.
 - A property owner or developer deciding to build in an area where higher-than-average vehicle use is required for future residents, simply because new roadway capacity makes that area more marketable and valuable to future homebuyers.

The proposed MTP/SCS includes policies focused on limiting the potential impact of induced travel. Almost \$9 billion of the \$35 billion budget is anticipated to go to expanding the transportation system. Of this capacity budget, \$6.8 billion will go to road and highway expansion projects, including operational, safety, and multi-modal elements as part of large capital projects. The \$6.8 billion in capacity projects were selected from nominations of over \$12 billion. More than two-thirds of the \$6.8 billion will be invested in existing, rather than new, streets and roads. These investments implement **Policy 18** of the plan, which states that “system expansion investments that are not directly paid for by new development should be focused on fixing major bottlenecks that exist today, and/or incentivize development opportunities in infill areas.”

Screening questions related to project phasing were used to assess the relative need for the \$12 billion in nominated highway capacity projects for the proposed MTP/SCS. The screening questions were also intended to assist in synchronizing roadway capacity investments to areas with significant existing needs, or areas with significant planned growth.⁴⁷ The screening questions included: 1) is there evidence of significant congestion on the roadway, either in the base year or in the planning horizon year?; 2) where a capacity increase is proposed, is the scale of the capacity increase similar to the scale of the growth in demand?; and 3) with the proposed capacity increase in place, is the roadway well-utilized in peak periods in the planning horizon year? The screening process started with a “Discussion Scenario” short list of about \$6 billion in capacity projects, among the \$12 billion in nominated.

For example, if a capacity project was nominated for roadway segment “A,” and there was no evidence of congestion on Segment A in either the base year or the future year, the project was identified for exclusion from the proposed plan. Similarly, if the nominated project for segment “A” was widening from two lanes (one in each direction) to six lanes (three in each direction), the nominated project increased capacity by 200 percent. If the 2040 demand on segment “A” only increased 20 percent, the nominated project was flagged for potential exclusion from the proposed MTP/SCS, or for potential down-scaling of the nominated project. Though it is impossible to boil all project decisions down to a formula, the screening questions did serve as flags for projects that could be excluded. The screening criteria were only one input into decisions on project inclusion—other criteria included safety, project readiness, financial capacity of the sponsoring agency to fund the project, connection of the project to other committed projects in the MTP/SCS, and other factors.

The model’s ability to capture short-term induced travel effects was assessed through simple sensitivity tests, shown on Table 30. The tests were structured to add (or reduce) roadway capacity from a base model run, and assess the changes to model outputs resulting from the changes to roadway capacity. These tests focus on short term effects described above, because the land uses are held constant between the base and test scenarios, and the test effects include only the short term effects. Three changes were assessed: the effect of roadway capacity on travel speed (“Speed w.r.t. Lane Mi” in the table); the effect of speed on VMT (“VMT w.r.t. Speed”); and the effect of roadway capacity on VMT (“VMT w.r.t. Lane Mi”). Elasticity values based on historic research were assembled for each of the effects. For the “primary” effects (the effect of roadway capacity on speed, and the effect of speed on VMT), only one study was found (Cervero, 2002). For the “combined” effect (effect of roadway capacity on VMT), a range of values based on historic research were found (Handy & Boarnet, 2014). Based on the primary effects, the range of calculated elasticities were reasonable. The combined effects fell at the low end of the range based on historic research (+0.06 for the “expand” tests, +0.16 for the “reduce” tests, compared to a range of +0.1 to +0.6).

There are constraints on the ability to represent the effects captured as “short term” effects in the historic research using fixed land use scenario travel models. The travel model tests were based on very large increments in roadway capacity, with completely fixed population, employment, costs, etc.—these are the sorts of test that can be done with a travel model, and cannot be replicated in the real world. For the historic research on induced travel, all factors change, and the ability to control for those changes is based on the availability and quality of year-over-year data. Additionally for the historic research, the year-over-year changes in highway capacity tend to be very small compared to the model tests, which added (or reduced) 6 to 11 percent of major roadway capacity in the tests. For example, the “expand” tests (#1a and #2), 13 to 24 years of roadway capacity increments were added to the “base”. In many cases, capacity is added in locations where little to no demand exists in the “base”, and where the roadways in the “base” are not congested. For these tests, the “elasticities” of speed with respect to roadway capacity are lower, simply because many of the capacity expanded roadways were no faster than the base condition. More nuanced highway capacity increments for the model testing may result in different estimates of sensitivity.

Long term induced travel effects are even more difficult to assess in a travel model than the short term effects, because, as described above, the dynamics of transportation system development, growth, and demographic change that resulted in the observed estimates of induced travel in historic research may be included in the forecasting and project selection that go into the development of the MTP/SCS. Additionally, when comparing change in roadway capacity, growth and VMT over a long span of time,

the effects of many factors that affect VMT must be accounted for (e.g. age, costs of travel, urban form, etc.)—these variables, to differing degrees, were controlled for statistically in historic research and analysis of induced travel. For the testing of short term sensitivity to highway capacity, those factors were taken out of play by holding land use, demographics, costs, etc. constant in the model. To evaluate the long-term effects, these factors, by definition, cannot be held constant.

For purposes on this assessment, the following framework was applied:

1. Major factors affecting VMT, both policy and exogenous, which were assumed to be largely independent of each other (i.e. not highly correlated), were identified. Factors that are highly correlated (i.e. the vary in similar ways) could result in double-counting factors.
2. For each major factor, model inputs corresponding to the factor were assembled for base year (2016) and horizon year (2040), and percentage changes were calculated for each.
3. A range of elasticities, based on historic research, were identified. The primary reference for this was a detailed meta-analysis prepared by Ewing & Cervero (2011), which provided ranges of reasonable values, but also provided details on individual studies to allow identification of specific studies most comparable to the SACSIM19 household generated VMT metric.
4. The range of VMT elasticities for each major factor were applied to the changes in model inputs calculated in step #2 to calculate a range of expected changes based on the elasticities.
5. The elasticity-calculated VMT changes were summed, and compared to the SACSIM forecasted changes. For total household-generated VMT, the expectation on change, all else being equal, would be the change in household population (26%). The elasticity-calculated VMT changes were summed, and added to the population change. For household-generated VMT per capita or per household (the two most common “rate” metrics relevant to the historic research on VMT elasticities), the change in total population is controlled through the rate calculation. For the per capita and per household rates, the elasticity-calculated VMT changes were summed alone.
6. The assessment compares the SACSIM19 forecasted changes to VMT to the range of changes based on the elasticity calculations, with reasonability of the forecasts determined by where the forecasts fall in the range.

Table 31 presents the details of this assessment. Major factors affecting VMT through the 2016-to-2040 forecast period are:

- Regional auto accessibility, quantifying the number of activities (jobs being the most commonly used) within a given travel time. Historic research has consistently shown that increasing auto accessibility correlates significantly with reduced VMT. The theory, in short, is that having more options for activities around a household, members of a household can find more distance-efficient ways of meeting their needs for work, shopping, etc. Regional accessibility is the most powerful of the land use / transportation factors affecting VMT. For purposes of this assessment, the number of jobs within 30 minutes peak period drive time was used. The range of elasticities used for this factor was -0.17 to -0.31.
- Regional transit accessibility, which is definitionally the same as the auto measure, but the travel time is based on transit rather than auto. The change in the regional average transit accessibility for the proposed MTP/SCS is extreme (450%), but is focused on a much smaller area within the region than auto accessibility, and is out-of-scale for the likely variations in

transit accessibility in the historic research—for this reason, the change was bounded to 50% for this assessment. The range of elasticities used for this factor was -0.03 to -0.04.

- Density is also a significant factor in predicting VMT, with historic research consistently showing higher density correlating with lower VMT. The metric used to represent change in density in the SACOG land use forecasts was net residential density (i.e. the number of dwellings divided by the net developed residential acreage). This factor is correlated with accessibility. Defining density using net developed acreage, rather than gross area, helps to minimize this correlation. The change in net residential density was also bounded to 50% to reduce the potential correlation with accessibility. The range of elasticities used for this factor was -0.04 to -0.07.
- The cost of traveling by car also has a significant negative effect on VMT. The per mile cost of auto travel, based on forecasts of costs of gasoline, changes to the efficiency of vehicles, and the changes to variable costs of maintaining a vehicle, increase from about 19 cents per mile to 25 cents per mile over the forecast period. The range of elasticities used for this factor was -0.17 to -0.31.
- Aging is also a significant factor affecting VMT over the forecast period of the proposed MTP/SCS. In general, older persons travel less than younger persons, all else being equal. The percentage of persons aged 65-and-over increases from about 13 percent in 2016 to 21 percent by 2040. Persons 65-and-over travel about 20 percent less than persons younger than 65, and this change was “translated” into an expected change to VMT.
- The final factor affecting VMT considered was induced travel. As discussed above, the change in highway capacity, measured by the number of land miles of arterial-and-above roadways, has been shown through historic research to increase VMT, even controlling for many of the factors discussed above. The range of elasticities used for this analysis was +0.6 to +1.0.

For purposes of summing VMT effects from the factors above, the first five factors are all indirect (i.e. increases cause a decrease in VMT). The induced travel effect is direct (i.e. increases in lane mileage cause an increase in VMT). The “low” end of the range of effects was based on low sensitivity in terms of reducing VMT. For this reason, the “low” end combined the lowest of the indirect effects in absolute value, and the highest induced travel elasticity. For this low end, the potential for reducing VMT through the indirect effects (accessibility, density, cost, aging) is the lowest, and the direct, induced travel effect is the highest (+1.0). The high end of the range combines the reverse (i.e. the highest absolute magnitude indirect effects, and the lowest direct effect). From these calculations, the changes in VMT could be: as high as +24% in total household-generated VMT, and -2% in VMT per capita or per household; or as low as +7% in total VMT, and -19% in per capita or per household VMT. The forecasted changes using SACSIM19 were +16% in total household-generated VMT, -8% in per capita VMT, and -10% in per household VMT. The SACSIM19 forecasts fall in the middle of the range of expected changes based on the elasticity calculations.

Table 30 – SACSIM19 Assessment Results of Short-Term Induced Travel Effects

			Changes (% from Base)			Calculated Elasticities		
Test/Test Factor	Base	Test				Speed	VMT	VMT
			Speed	Lane Miles	VMT	w.r.t. LaneMi	w.r.t. Speed	w.r.t. LaneMi
Test 1a: Expanded Roadway								
Landuse/Populaton	2027	2027	+1.2%	+5.6%	+0.3%	+0.21	+0.26	+0.06
Roadway Network	2027	2040						
Test 1b: Reduced Roadway								
Landuse/Populaton	2027	2027	-2.5%	-5.6%	-0.9%	+0.44	+0.37	+0.16
Roadway Network	2027	2016						
Test 2: Expanded Roadway								
Landuse/Populaton	2016	2016	+3.8%	+11.9%	+1.1%	+0.32	+0.29	+0.09
Roadway Network	2016	2040						
Test 3: Reduced Roadway								
Landuse/Populaton	2040	2040	-5.0%	-10.6%	-1.6%	+0.47	+0.33	+0.16
Roadway Network	2040	2016						
Range of Values from Historic Research						+0.42	+0.24	+0.1 to +0.6

Source: SACOG, 2019.

Table 31 – SACOG Growth Forecasted and SACSIM19 Assessment of Long-Term Induced Travel

Model Input	2016	2040	Difference	% Change/1/	Range of Elasticities ²			Elasticities Applied		
Household Population	2,376,311	2,996,832	+620,521	26%	Low	High	Avg.	Low	High	Avg.
Households	881,799	1,136,599	+254,800	29%						
Other factors affecting VMT:					Low	High	Avg.	Low	High	Avg.
Accessibility (jobs w/in 30' drive)	377,257	486,796	+109,539	+29%						
Transit Accessibility (jobs w/in 30' transit)	4,000	22,000	+18,000	+450%	-0.03	-0.04	-0.03	-2%	-2%	-2%
Density (DU's per net res. Acre)	1.2	2	+0.8	+67%	-0.04	-0.07	-0.05	-2%	-4%	-3%
Aging (% of Pop > 65 yrs)	13%	21%	+8%	+62%	-0.15	-0.25	-0.20	-1%	-2%	-2%
Auto Operating Cost (Yr 2017 cents/mile)	19	25	+6	+32%	-0.13	-0.30	-0.18	-4%	-9%	-6%
Lane Miles of Capacity--Arterial & Above Roadways	8,290	9,275	+985	+12%	+1.00	+0.60	+0.70	+12%	+7%	+8%
Model VMT Outputs								Sum of Applied Elas. /3/		

SACOG Total Weekday Household-Generated VMT	42,580	49,479	+6,899	+16%			
					+24%	+7%	+17%
HG VMT per capita	17.9	16.5	-1.4	-8%	-2%	-19%	-9%
HG VMT per HH	48.3	43.5	-4.8	-10%			

Source: SACOG, 2019

Notes:

¹Bounded to no greater than 50% to match reasonable range of changes

² Range of elasticities based on available meta-studies

Potential Limitations to Travel Demand Model

While the SACSIM model represents ranges from state of practice to advanced practice in travel modeling, travel behavior and the transportation systems are changing quickly in response to emerging trends, new technologies, and different preferences. Some of the new travel options and technologies emerging in the SACOG region are discussed below. Additionally, information about how technology is affecting travel is accumulating over time. Some of these emergent changes that could influence future travel forecasts include:

- Substitution of internet shopping and home delivery for some shopping or meal-related.
- Substitution of telework for commute travel.
- New travel modes and choices:
 - TNCs, car share, bike share, scooter share, and on-demand micro transit have increased the travel options available to travelers in the SACOG region and have contributed to changes in traditional travel demand relationships.
 - Automation of vehicles—both passenger vehicles and commercial vehicles and trucks are evolving to include more automation. Research, development and deployment testing is proceeding on fully AV, for which no human driver would be required, and the vehicle itself can navigate the roadways take people or goods where they need to go. Forecasts of how quickly research and development and deployment testing will transition to fully deployment and marketing of fully AV vary widely both on the pace of the transition, and the market acceptance of fully autonomous operation. More uncertainty exists for the behavioral response to AVs. In terms of impact on the transportation system and the environment, a scenario of concern would be one in which AVs are privately owned, like most vehicles are currently, but the automated function of the vehicles would entice users to travel more.
 - Connected vehicles (CVs)—can communicate wirelessly with its surroundings including other vehicles, bicyclists, pedestrians, roadway infrastructure (i.e., traffic signals, toll facilities, traffic management facilities, etc.) and the internet. The influence that CVs may have is still speculative but includes potential for reductions in collisions and congestion and greater overall network performance optimization.

SACSIM does not explicitly capture the above-mentioned new modes of travel and emerging trends in travel behavior. Through validation of the model to 2016 conditions, the cumulative effect of the new modes and changes are reflected in the resulting travel demand estimates, but the underlying behavioral impact of the modes are not modeled. Significant uncertainties exist at the present time, that prevent explicit modeling of these new modes and emerging trends for the analysis of the proposed MTP/SCS. Future deployment level of new modes of travel are not known. For example, Uber and Lyft have both significantly increased the number of trips they serve, but both continue run large operating losses, and are reliant on venture capital investments to cover the losses. A sustainable business model may require significant changes to services offered and prices charged, both of which could affect the trajectory of use and impact on travel behavior. Similar issues apply to bike share services.

The impact of new modes on individual and household travel behavior is not fully understood, and is the subject of ongoing research. Limitations on accessing utilization data directly from TNC vendors, in particular, is a known issue constraining the ability to fully understand the impact of those services. Regulatory and legislative efforts to address the limits on access are underway in California and elsewhere, but these efforts will take time. Only a few household travel surveys, including the 2018 SHTS, have surveyed TNC use in detail, and the e-assist JUMP bikes were introduced partway through the 2018 SHTS. Other major research studies focused on TNC use, and TNC driver behavior, are just being launched in California, but the data collection has not even started, much less the analysis of the data. Until this sort of research is completed, there is no effective way to incorporate even the known new modes into travel demand models.

SACOG is participating in some of the ongoing monitoring and research on the deployment and impact of new modes of travel, and will incorporate analysis findings related to individual and household travel behavior into later versions of SACSIM.

AV, Shared Mobility & CV Scenario Analysis

SACOG's regional travel forecasting model, SACSIM, can test different scenarios on the market penetration of AVs (i.e. the percentage of households owning an AV) and the degree to which AVs are shared (i.e. "hired" by users like a present-day TNC) as opposed to being owned as private personal/household vehicles. The scenario testing functionality was built based on the following behavioral assumptions regarding AVs and vehicle sharing:

- AVs are likely to reduce the perceived cost of time spent in a vehicle, because travelers in AVs can engage in other activities.
- Owned AVs within a household can be "re-purposed" to serve more residents within the same household (i.e. an owned AV can be used by one worker to get to work, travel with no occupant back to the household and serve another household member's trip).
- AVs in general are likely to reduce the number of vehicles privately owned.

- If AVs are owned and used privately, the fact that a single vehicle can be re-purposed to serve several household members reduces the need for each household member to have his/her own personal vehicle.
- If AVs are not widely owned privately, but are widely available for shared use, households can avoid purchasing a vehicle altogether, or can use a shared AV like a TNC to fill in if a household vehicle is being used by another household member.
- If AVs are widely deployed and widely shared, they will compete with transit, especially for shorter trips.

Five future scenarios have been tested, based three factors:

- AV adoption rate—this is the percentage of privately-owned vehicles that are AVs. Owning AVs within a household has several effects in the modeling. Household AVs are more heavily used (e.g. the same vehicle may drop off one household member at work, and return home to serve another household member going to a different activity, like school). The greater utility of the AV makes owning fewer vehicles possible for some households—but it also results in “zero occupant” vehicle trips.
- Connected vehicle effects on highway capacity--as AVs become more prevalent, highways could potentially operate more efficiently and at higher capacity, by “platooning” of AVs through connected vehicle technology. In the modeling, this factor results in reduced congestion and faster travel speeds.
- TNC (shared vehicle) utilization rate--expressed as the percentage of vehicle trips made using TNCs rather than driving a privately-owned vehicle. In the modeling, this factor results in lower vehicle ownership, and greater reliance on TNCs for shorter trips that may otherwise be served by transit, biking or walking.

There are many other primary and secondary factors and uncertainties not included in these five tests: effects of AVs and TNCs on the market for paid parking; variations in the impact of AVs on the “cost” of time spent in a vehicle; uncertainties on the future costs of AV and TNC use relative to other modes; and other factors.

Table 32 compares the outcomes of the five scenarios described below:

- **Scenario 1** is essentially a “baseline” for these tests, with the future looking essentially like today: no AVs, no CV effects on highway capacity, and very low TNC usage.
- **Scenario 2** assumes a very slow rate of adoption of AVs, with only about 4 percent of privately owned vehicles being AVs. At this low level, the potential effects of CVs on highway capacity would not occur. TNC use in this scenario is high at 9 percent of all personal vehicle trips—though no firm estimates of TNC mode share for all trips exists for other regions, some evidence suggests this is approximately the level of TNC use in San Francisco today. Because the shifts in this scenario are relatively modest, the changes relative to Scenario #1 are also relatively small, and the overall impact of VMT is negligible. The biggest impact is on vehicle ownership, which

drops by about 12 percent compared to Scenario 1.

Table 32 – Comparison of AV/TNC Testing Scenarios

	#1	#2	#3	#4	#5
	Future Looks kind of Like Today	Slow AV Adoption, TNC Share Growing Fast	AV Adoption & TNC Share Growing Slightly Faster	Full AV Adoption, Some CV Effects; TNC Share Growing Fast	Full AV & CV Adoption; TNCs Are Dominant Vehicle Mode
Autonomous Vehicle, Connected Vehicle, TNC Factors					
AV Market Penetration	0%	4%	21%	89%	88%
Connected Vehicle Effects - Roadway Capacity/1/	n/a	n/a	n/a	10% to 20% Increased	20% to 50% Increased
% of Vehicle Trips by TNC Mode	<1%	9%	17%	13%	53%
Outcome Metrics					
	Change from Scenario #1				
Household-Generate VMT (millions)	48.7	+0%	+3%	+16%	+9%
HHG VMT per Capita	17.09	+0%	+3%	+16%	+9%
Bike/Walk Mode Share	11.6%	-7%	-17%	-24%	-59%
Transit Mode Share	1.8%	+2%	-12%	-34%	-66%
Private Auto Mode Share	86.0%	-10%	-17%	-11%	-52%
Vehicles Per Household	1.81	-12%	-20%	-32%	-40%
Roadway VMT (millions)	71.7	+0%	+2%	+13%	+7%
Congested VMT % of Total Roadway VMT	6.4%	+0%	+6%	-30%	-60%

Source: SACOG, 2019.

/1/ For scenario #4 and #5, assumed freeway capacity will be increased more 20% or 50%, while 10% or 20% for all other roadways.

- **Scenario 3** assumes a faster rate of AV adoption (21 percent) and greater willingness to use TNCs (17 percent). For this scenario, no CV highway capacity effects were assumed. The higher reliance on TNCs shifted more trips from bike, walk, and transit. For both AVs and TNCs, the higher rate of zero-occupant trips generated by re-positioning both household AVs and TNC providers resulted in a small increase in VMT compared to scenario 1.

- **Scenario 4** assumes that AVs are owned by nearly all households (89%), but used largely privately, so TNC usage is relatively low (13 percent). In this scenario, AVs are essentially used as chauffeurs by most households, shuttling various household members to different activities, and often dead-heading to serve another household member. At this high level of AV adoption, some of the effects of CVs on highway capacity were assumed, with a 10 to 20 percent increase in capacity relative to Scenario 1. Mode shifts from bike, walk and transit to vehicle modes is greater for this scenario, and household-generated VMT increases by 16 percent compared to Scenario 1. Congestion on the roadways decreases sharply, due to the CV effects.

- **Scenario 5** assumes both high AV adoption, high TNC usage, and the largest CV effects on

highway capacity. The impact on vehicle ownership is the greatest (-40%), and the increased usage of TNCs offsets somewhat the number of zero-occupant vehicle trips—so the increase in VMT (+9%) is lower than Scenario 4.

Take-aways from this testing:

- Testing of three factors (AV market penetration, shared vehicle use, and changes to highway capacity) showed a wide range of potential impact to the MTP/SCS—most of which showed increases in VMT and likely increases in GHG. Only Scenario 2 showed no significant increase in VMT.
- Testing also showed that while the biggest shifts in numbers of trips to TNC modes came from private auto modes, the impacts of the shifts on transit, biking and walking were significant, ranging from a negligible change (Scenario 2) to over 50 percent reduction (Scenario 5).
- There are limitations to the modeling and scenario testing. There is no explicit representation of the supply side, or vehicle side, of AVs, and “deadheading” (AVs that are traveling empty en route to pick up a passenger) are not part of the scenario testing. Until the supply side is represented, additional research could be a way to make scenarios “smarter” and more connected. With scenario testing, modelers provide the inputs and assumptions, so the models can be limited in their results. As a next step, SACOG is exploring how to account for deadhead travel for TNCs in its models.

