

**Transportation Conformity Budget State Implementation Plan Update**  
**For the**  
**Eastern Kern 2017 Ozone Attainment Plan**

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## I. BACKGROUND

Section 176(c) of the Federal Clean Air Act (CAA) establishes transportation conformity requirements to ensure that transportation activities do not interfere with air quality progress. The CAA requires that transportation plans, programs, and projects that obtain federal funds or approvals *conform to* applicable state implementation plans (SIP) before being approved by a Metropolitan Planning Organization (MPO). Conformity to a SIP means that proposed activities must not:

- (1) Cause or contribute to any new violation of any standard,
- (2) Increase the frequency or severity of any existing violation of any standard in any area, or
- (3) Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Analysis included in the development of a SIP includes the region's total emissions inventory from all sources for purposes of demonstrating Reasonable Further Progress (RFP)<sup>1</sup>, and attainment<sup>2</sup>. The portion of the total emissions inventory from on-road highway and transit vehicles in these analyses becomes the "motor vehicle emissions budget."<sup>3</sup> Budgets are set for each criteria pollutant or its precursors, for each RFP milestone year and the attainment year. Subsequent transportation plans and programs produced by transportation planning agencies are required to conform to the SIP by demonstrating that the emissions from the proposed plan, program, or project do not exceed the budget levels established in the applicable SIP.

## II. REQUIREMENTS FOR DEMONSTRATING CONFORMITY

The Kern County Council of Governments (Kern COG), the MPO in Kern County, prepares a long range regional transportation plan (RTP) at least every four years and a short range funding program, or regional transportation improvement program (RTIP), every two years. The contents of the RTP and RTIP are outlined in Titles 23 and 49 of the Federal Code of Regulations and applicable sections of state transportation planning law.

Before adopting the RTP/RTIP, Kern COG prepares regional emissions analysis using the proposed plan and program as specified in the federal conformity regulation and compares those emissions to the emission budgets in the SIP. The MPO may

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<sup>1</sup> RFP is defined as annual incremental reductions in emissions of the relevant air pollutant for ensuring attainment of the applicable National Ambient Air Quality Standard by the region's attainment year (i.e., 2020).

<sup>2</sup> Attainment is achieved when: "3-year average" of "annual 4th highest daily maximum" 8-hour average O<sub>3</sub> concentration, called "Design Value", is no greater than 0.075 ppm

<sup>3</sup> Federal transportation conformity regulations are found in 40 CFR Part 51, subpart T – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. of the Federal Transit Laws. Part 93, subpart A of this chapter was revised by the EPA in the August 15, 1997 Federal Register.

determine the RTP/RTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity determination also signifies that the MPO has met other transportation conformity requirements such as interagency consultation and financial constraint.

### III. UPDATED CONFORMITY BUDGETS FOR THE 75 PPB 8-HOUR OZONE STANDARD IN THE EASTERN KERN COUNTY OZONE NONATTAINMENT AREA

In June 2016, U.S. Environmental Protection Agency (U.S. EPA) reclassified the Eastern Kern County as Moderate for the federal 2008 75 parts per billion (ppb) 8-hour ozone standard. On July 27, 2017, the Governing Board of the Eastern Kern Air Pollution Control District (District) approved the Eastern Kern 2017 Ozone Attainment Plan (2017 Ozone Plan), which requested to classify the area as Serious, demonstrated attainment of the 75 ppb 8-hour ozone standard in 2020 (Serious area deadline), and contained the transportation conformity budgets for the 2020 attainment year. On September 28, 2017, the California Air Resources Board (CARB or Board), held a public meeting and approved the 2017 Ozone Plan and subsequently submitted to U.S. EPA for approval. To support its approval, U.S. EPA has requested CARB update the 2017 Ozone Plan's transportation conformity budgets for the attainment year 2020. This SIP revision provides the updated transportation conformity budgets.

The updated transportation conformity budgets are developed using the California motor vehicle emissions model (EMFAC)<sup>4</sup> and activity data from the MPO. The emissions are calculated by applying EMFAC2014<sup>5</sup> emission rates to the VMT and speed distribution from the 2017 FSTIP (Federal Statewide Transportation Improvement Program) adopted by Kern COG in September 2016. The results are then rounded up to the nearest tenth of a ton. Summer average daily emissions are used in the 2017 Ozone Plan consistent with the time of the year when high levels occur. Consequently, conformity budgets have been framed in terms of summer average daily emissions for 2020. The updated budgets do not reflect any additional control measures or strategies and are consistent with the adopted Plan's emissions inventory and attainment demonstration.

The updated transportation conformity budgets also include a safety margin to allow for additional emissions that can be accommodated in the reasonable further progress (RFP) and attainment demonstrations. Federal conformity rules allows for the creation of a safety margin in an emissions budget.<sup>6</sup> A safety margin is determined based on the difference between projected emissions and the emissions necessary to demonstrate progress or attainment. For this updated budget for the 2017 Ozone

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<sup>4</sup> EMFAC Software and Technical Support Documentation <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac>

<sup>5</sup> U.S. EPA approved EMFAC2014 for use in transportation conformity and SIPs in December 2015. <https://www.regulations.gov/docket?D=EPA-R09-OAR-2015-0779>

<sup>6</sup> 40 CFR 93.101 and 93.118(e)(4)(vi)

Plan, a safety margin of 0.2 tons per day of reactive organic gases (ROG) and oxides of nitrogen (NOx) emissions is estimated based on the amount of excess emissions able to be accommodated in the RFP demonstration as shown in Table 1.

Both ROG and NOx emission reductions are needed to meet the RFP reduction targets. The NOx substitution is used on a percentage basis to cover any percentage shortfall in ROG reduction. Table 1 shows the required percentage of incremental emissions reductions for demonstrating RFP, while including the transportation conformity safety margins (0.2 tpd ROG and NOx), transportation conformity rounding margins<sup>7</sup> (0.05 tpd ROG and 0.04 tpd NOx), and banked emission reduction credits<sup>8</sup> of (0.04 tpd ROG and 0.12 tpd NOx). This has resulted in 0.1 percent reduction in NOx in the 2020 attainment year in excess of the amount needed to meet requirements. The table below was developed in accordance with all applicable and currently available U.S. EPA-published guidance and demonstrates that Eastern Kern County meets the RFP targets for the 75 ppb 8-hour ozone standard. As such, these updated transportation conformity budgets do not interfere with demonstrating progress.

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<sup>7</sup> The transportation conformity budgets are rounded upwards to the nearest tenth of a ton.

<sup>8</sup> Emission reduction credits are achieved by using technologies or strategies, used by a State for meeting emission reduction requirements in its RFP or attainment demonstration.

Table 1. Eastern Kern 75 ppb 8-hour Ozone Reasonable Further Progress Demonstration including Transportation Conformity Safety Margins

Year	ROG		
	2011	2017	2020
Baseline ROG*	8.6	7.2	6.9
Transportation Conformity Safety Margin		--	0.20
Transportation Conformity Rounding Margin		--	0.05
Baseline ROG + Safety Margin + Rounding Margin		7.2	7.1
Required % change since 2011 (ROG or NOx)		18%	27%
Target ROG Level		7.0	6.3
Apparent Shortfall (-)/ Surplus (+) in ROG		-0.1	-0.9
Apparent Shortfall (-)/ Surplus (+) in ROG, %		-1.4%	-10.0%
ROG Shortfall previously provided by NOx Substitution, %		0%	1.4%
Actual ROG shortfall (-)/ surplus (+), %		-1.4%	-8.6%
Year	NOx		
	2011	2017	2020
Baseline NOx*	31.0	28.1	27.6
Transportation Conformity Safety Margin		--	0.20
Transportation Conformity Rounding Margin		--	0.04
Baseline NOx + Safety Margin + Rounding Margin		28.1	27.9
Change in NOx since 2011		2.8	3.1
Change in NOx since 2011, %		9.2%	10.1%
NOx reductions since 2011 already used for ROG substitution through last milestone year, %		0%	1.4%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		9.2%	8.7%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		1.4%	8.6%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		7.8%	0.1%
Total shortfall for RFP		0%	0%
RFP Met?		YES	YES

\*Year 2020 projections include ERC balances as of June 2017 (0.04 tpd ROG, 0.12 tpd NOx) Note: numbers may not add up due to rounding

The Eastern Kern County modeled design value (DV) for the 2020 attainment year is 74 parts per billion (ppb) which is 1.9 ppb less than what is required to demonstrate attainment of the 75 ppb 8-hour ozone standard (Table 2). Each ppb of DV change represents 0.34 tons per day (tpd) of total ROG and NOx emissions (3.0 tpd/8.7 ppb). Subsequently, the 1.9 ppb difference between the modeled and meeting the standard represents 0.65 tpd of total ROG and NOx emissions (0.34 tpd/ppb X 1.9 ppb) This analysis shows that the Eastern Kern County attainment demonstration can accommodate the increase of 0.49 tpd in total NOx and ROG emissions. Therefore, these budgets do not cause or contribute to any violation or delay timely attainment of the 75 ppb 8-hour ozone standard in Eastern Kern County.

Table 2 Eastern Kern County Design Values, Emissions and Transportation Conformity Safety Margin (Mojave ozone monitoring site)

	2012	2020	2012-2020 Reductions	Total ROG and NOx Emission Reductions	2020 Safety Margins	Total 2020 Safety Margins
DV (ppb)	82.7	74.0	8.7	--		
ROG (tpd)	8.2	6.7	1.5	3.0	0.25	0.49
NOx (tpd)	29.9	28.4	1.5		0.24	

Table 3 below provides the updated transportation conformity budgets. CARB staff developed these updated budgets in consultation with the Kern COG, the District, and U.S. EPA.

Table 3. Transportation Conformity Budgets\* for the 2008 Ozone standard in the Eastern Kern ozone nonattainment area

Eastern Kern Ozone NAA (tons per summer day)	2020	
	ROG	NOx
Baseline Emissions	1.05	3.36
Safety margin	0.2	0.2
Total	1.25	3.56
<b>Conformity Budget</b>	<b>1.3</b>	<b>3.6</b>

\* Budgets calculated with EMFAC2014 using Kern COG 2016 RTP activity. Budgets are rounded to the nearest tenth of a ton.

### III. STAFF RECOMMENDATION

CARB staff has reviewed the transportation conformity budgets in this update to the 2017 Ozone Plan and has concluded that they meet the Clean Air Act requirements. The transportation conformity budgets are consistent with the 2017 Ozone Plan's emission inventories and the 2020 attainment demonstration for the 75 ppb ozone standard. Therefore, staff recommends that the Board approve this update to the *Transportation Conformity Budgets for the 2017 Ozone Attainment Plan* as a revision to the California SIP.