

Appendix C
Description of Technical Revisions to the
8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets

8-hour Ozone SIP Transportation Conformity Budgets Methodology

ARB is proposing to update the transportation conformity budgets applicable to the federal 8-hour ozone standard for the South Coast and San Joaquin Valley that will ensure that the impact of on-road emissions will be consistent with the attainment demonstration in future years. These updates account for the action taken by the Board in December 2010 to amend the truck and bus regulations to include better data and improvements to the emissions inventory, and reflect the current rulemaking calendar. Appendix A provides the SIP revision.

The federal Clean Air Act requires metropolitan planning organizations (MPOs) to demonstrate that their regional transportation plans (RTPs) and transportation improvement programs (TIP) are consistent with progress toward and attainment of federal air quality standards. MPOs use modeling to estimate regional emissions based on projected motor vehicle travel on the region's road and transit facilities.

The level of emissions for on-road motor vehicles, such as cars, trucks, and buses, consistent with SIP progress and attainment, are called "Transportation Conformity Budgets." For conformity, projected emissions from highway and transit use must be less than or equal to the budget. Budgets are developed during the air quality planning process in consultation with ARB, regional air districts, U.S. EPA, the U.S. Department of Transportation, and MPOs and provide for public review and comment.

The conformity budgets use the SIP on-road mobile source inventory which includes an updated heavy duty diesel truck and bus inventory that reflects the 2010 truck and bus regulatory amendments. This adjustment reflects the difference between the baseline SIP on-road motor vehicle emissions inventory from EMFAC2007 and the new truck and bus inventory that incorporates the impacts of both the recession and final regulations. The ton per day change in emissions is incorporated as a line item adjustment to the updated transportation conformity budgets (see "State Strategy Adjustments" line item in Tables C-1 and C-2 below).

Methodologically, the State Strategy Adjustments line item is then subtracted from the baseline SIP on-road motor vehicle emissions inventory from EMFAC2007. Importantly, the SIP baseline emissions inventory used to develop the transportation conformity budgets continues to be based on the activity data (e.g. vehicle miles travelled) provided by the MPOs included in the SIPs.

This line item approach to account for State Strategy reductions is consistent with the approach used to develop the originally submitted budgets. The transportation conformity budget development worksheets are included in Tables C-1 and C-2 below, with the proposed SIP budgets found in Appendix A.

Line-Item Adjustments in 8-hour Ozone Conformity Budgets for South Coast and San Joaquin Valley

The following section describes the line-item adjustments used in the existing transportation conformity budgets (as adopted in 2007) as well as those in the revised budgets ARB staff is proposing today.

Line-Item Adjustments in the Existing 8-hour Ozone SIP Budgets (Adopted 2007)

EMFAC2007 Baseline, covering 2008, 2011, 2014, 2017, 2020, and 2023 for South Coast and San Joaquin Valley

Line-Item Adjustments To Baseline For Measures Adopted Prior To December 2006

(Referred to as “Adjustments to Baseline” in Budgets,
adjustments included in applicable years)

South Coast and San Joaquin Valley

- Heavy Duty Diesel Truck (HDDT) Chip Reflash
- HDDT Public Fleet and Solid Waste Rules
- HDDT Idling Rule
- AB 1493 GHG Standards
- On-Road Portion of Carl Moyer Program

San Joaquin Valley Only

- District Rule 9310 – School Buses

Line-Item Adjustments for Proposed SIP Measures

(Referred to as “State Strategy Reductions” in Budgets,
adjustments included in applicable years)

South Coast and San Joaquin Valley

- All Smog Check Improvements (Low Pressure Evap, Cutpoints, Annual Insp. for Older, Annual Insp. for High Mileage, Motorcycles, Lt. Duty Diesels)
- HDDT In-Use Rule
- Reformulated Gasoline
- Expanded Vehicle Retirement

South Coast Only

- AB 923 High Emitter

San Joaquin Valley Only

- Indirect Source Rule

Line-Item Adjustments in the Proposed New Budgets

EMFAC2007 Baseline, covering 2011, 2014, 2017, 2020, and 2023 for South Coast and San Joaquin Valley

**Line-Item Adjustments to Baseline for Measures
Adopted Prior to December 2006**

(Referred to as “Adjustments to Baseline” in Budgets,
adjustments included in applicable years)

South Coast and San Joaquin Valley

- AB 1493 GHG Standards
- On-Road Portion of Carl Moyer Program

San Joaquin Valley Only

- District Rule 9310 – School Buses

Adjustments Now Included in New Heavy Duty Diesel Truck Model

(Included in “State Strategy Adjustments” in Budgets,
adjustments included in applicable years)

South Coast and San Joaquin Valley

- New HDDT Inventory
- HDDT Recession Impacts
- HDDT In-Use Rule
- HDDT Chip Re-flash
- HDDT Public Fleet and Solid Waste Rules
- HDDT Idling Rule

Line-Item Adjustments for Adopted SIP Measures

(Included in “State Strategy Adjustments” in Budgets,
adjustments included in applicable years)

South Coast and San Joaquin Valley

- Smog Check Improvements (Low Pressure Evap, Cutpoints,
Lt. Duty Diesels, Smoke Test)
- Reformulated Gasoline

San Joaquin Valley

- Employee Based Trip Reduction Rule

Appendix C – Description of Technical Revisions to the
8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets

Table C-1
South Coast Air Basin
Ozone Transportation Conformity Emission Budget Worksheets*
(Summer Season – tpd)

South Coast Air Basin	ROG					NOx				
	2011	2014	2017	2020	2023	2011	2014	2017	2020	2023
Baseline Emissions (EMFAC 2007 Default)	176.0	150.1	131.1	117.0	106.1	367.7	299.9	243.5	200.2	171.8
Adjustments for Adopted State and Local On-road Measures	-0.3	-0.6	-0.9	-1.1	-1.5	-1.4	-1.4	-1.0	-0.1	-0.1
State Strategy - On-road Reductions	-4.5	-14.2	-11.5	-8.5	-6.2	-38.9	-22.3	-18.8	-15.6	-31.9
SUM	171.2	135.2	118.8	107.4	98.4	327.5	276.3	223.6	184.5	139.8
Proposed Budget	172	136	119	108	99	328	277	224	185	140

*Budgets are rounded up to the nearest ton.

Appendix C – Description of Technical Revisions to the
8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets

Table C-2
San Joaquin Valley Air Basin
Ozone Transportation Conformity Emission Budget Worksheets*
(Summer Season – tpd)

Proposed 2011 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	15.62	51.87	15.76	86.69	3.34	17.28	3.68	13.11	6.20	31.38	12.13	37.28	9.00	24.06	9.26	22.41
Existing Measures:																
Local Reductions	0.00	0.03	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.02	0.00	0.02
State Reductions	0.01	0.10	0.01	0.12	0.00	0.03	0.00	0.02	0.01	0.05	0.01	0.08	0.01	0.05	0.01	0.04
New/Proposed Measures:																
Local Reductions	0.15	0.05	0.10	0.04	0.02	0.01	0.02	0.01	0.04	0.02	0.12	0.04	0.09	0.03	0.07	0.03
State Reductions	1.20	15.51	3.01	36.29	0.57	6.62	0.36	3.85	1.14	11.45	0.95	12.57	0.46	7.15	0.41	6.42
Total	14.27	36.17	12.63	50.22	2.74	10.62	3.30	9.23	5.01	19.85	11.06	24.56	8.45	16.81	8.77	15.90
Budget*	14.3	36.2	12.7	50.3	2.8	10.7	3.4	9.3	5.1	19.9	11.1	24.6	8.5	16.9	8.8	16.0

*Budgets are rounded up to the nearest tenth ton (0.1).

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Proposed 2014 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	13.04	40.67	13.56	70.77	2.75	13.53	3.04	10.53	5.07	24.61	10.19	30.08	7.54	18.71	7.76	17.84
Existing Measures:																
Local Reductions	0.00	0.05	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.02	0.00	0.05	0.00	0.03	0.00	0.03
State Reductions	0.01	0.10	0.01	0.12	0.00	0.03	0.00	0.02	0.01	0.05	0.01	0.08	0.01	0.05	0.01	0.04
New/Proposed Measures:																
Local Reductions	0.29	0.27	0.21	0.19	0.05	0.04	0.05	0.04	0.09	0.08	0.24	0.23	0.17	0.16	0.14	0.13
State Reductions	2.10	10.30	3.68	27.76	0.69	4.56	0.56	2.80	1.33	7.84	1.63	9.31	1.02	4.60	0.99	4.48
Total	10.64	29.95	9.66	42.65	2.00	8.89	2.43	7.66	3.64	16.62	8.31	20.42	6.34	13.86	6.62	13.16
Budget*	10.7	30.0	9.7	42.7	2.1	8.9	2.5	7.7	3.7	16.7	8.4	20.5	6.4	13.9	6.7	13.2

*Budgets are rounded up to the nearest tenth ton (0.1).

Proposed 2017 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	11.18	32.41	11.67	55.71	2.31	10.52	2.59	8.54	4.21	19.24	8.64	23.57	6.50	14.76	6.70	14.35
Existing Measures:																
Local Reductions	0.00	0.13	0.00	0.09	0.00	0.02	0.00	0.02	0.00	0.04	0.00	0.11	0.00	0.08	0.00	0.06
State Reductions	0.01	0.07	0.01	0.09	0.00	0.02	0.00	0.02	0.00	0.03	0.01	0.06	0.01	0.03	0.01	0.03
New/Proposed Measures:																
Local Reductions	0.20	0.22	0.14	0.16	0.03	0.04	0.03	0.04	0.06	0.07	0.18	0.19	0.12	0.13	0.10	0.11
State Reductions	1.68	9.42	2.85	23.78	0.51	3.83	0.45	2.68	1.01	6.72	1.27	7.70	0.81	4.01	0.81	4.09
Total	9.29	22.57	8.66	31.60	1.76	6.62	2.10	5.79	3.13	12.38	7.18	15.51	5.56	10.51	5.79	10.06
Budget*	9.3	22.6	8.7	31.7	1.8	6.7	2.2	5.8	3.2	12.4	7.2	15.6	5.6	10.6	5.8	10.1

*Budgets are rounded up to the nearest tenth ton (0.1).

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Proposed 2020 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	9.64	25.94	10.36	44.65	2.00	8.49	2.28	7.22	3.63	15.70	7.49	18.57	5.70	11.86	5.96	11.88
Existing Measures:																
Local Reductions	0.00	0.11	0.00	0.08	0.00	0.02	0.00	0.02	0.00	0.04	0.00	0.10	0.00	0.06	0.00	0.05
State Reductions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New/Proposed Measures:																
Local Reductions	0.27	0.18	0.19	0.13	0.04	0.03	0.04	0.03	0.09	0.06	0.24	0.16	0.16	0.10	0.13	0.09
State Reductions	1.15	7.96	2.01	19.39	0.36	3.20	0.34	2.55	0.70	5.79	0.89	5.94	0.58	3.34	0.60	3.68
Total	8.21	17.69	8.16	25.06	1.60	5.24	1.90	4.62	2.84	9.82	6.36	12.38	4.96	8.35	5.23	8.05
Budget*	8.3	17.7	8.2	25.1	1.7	5.3	2.0	4.7	2.9	9.9	6.4	12.4	5.0	8.4	5.3	8.1

*Budgets are rounded up to the nearest tenth ton (0.1).

Proposed 2023 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	9.08	22.89	9.44	37.62	1.81	7.29	2.13	6.49	3.32	13.80	7.20	16.67	5.23	10.19	5.44	10.24
Existing Measures:																
Local Reductions	0.00	0.10	0.00	0.07	0.00	0.02	0.00	0.02	0.00	0.03	0.00	0.09	0.00	0.06	0.00	0.05
State Reductions	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
New/Proposed Measures:																
Local Reductions	0.25	0.15	0.18	0.10	0.04	0.02	0.04	0.02	0.08	0.05	0.22	0.13	0.15	0.09	0.12	0.07
State Reductions	0.88	9.15	1.43	18.86	0.26	3.34	0.27	2.92	0.53	6.33	0.71	6.52	0.43	3.65	0.46	3.93
Total	7.95	13.49	7.83	18.58	1.51	3.91	1.81	3.53	2.71	7.38	6.26	9.92	4.65	6.39	4.85	6.19
Budget*	8.0	13.5	7.9	18.6	1.6	4.0	1.9	3.6	2.8	7.4	6.3	10.0	4.7	6.4	4.9	6.2

*Budgets are rounded up to the nearest tenth ton (0.1).

Minor Technical Revisions to the PM2.5 SIP Transportation Conformity Budgets

ARB has adopted the April 2011 revisions to the PM2.5 SIP transportation conformity budgets for the South Coast and San Joaquin Valley. ARB staff is now proposing the following minor technical revisions to the PM2.5 SIP transportation conformity budgets:

- Remove the benefits for indirect source review (ISR) from the adjustments to the San Joaquin Valley PM2.5 conformity budgets based on U.S. EPA's recent May 9, 2011 action regarding Rule 9510 in the San Joaquin Valley. The San Joaquin Valley Air Pollution Control District adopted Rule 9510 ISR, which was intended to regulate facilities which attract or may attract mobile sources of air pollution. The benefit that the Air District included from the rule in the 2008 PM2.5 SIP will be removed for the conformity budget calculation.
- Remove the benefits for AB 923 (Firebaugh, 2004) from the adjustments to the South Coast PM2.5 conformity budgets. AB 923 expanded the types of emissions covered by the Carl Moyer program to include additional emissions of particulate matter and reactive organic gases from defined covered sources in the State. The South Coast Air Quality Management District included benefits from AB 923 as one of the SIP strategy reductions in its 2007 Air Quality Management Plan. The Air District's latest SIP revision in April 2011 did not include the benefits from AB 923. ARB is adjusting the conformity budgets to be consistent with the Air District action.
- Correct data entry errors in the budget calculations for the South Coast and San Joaquin Valley.

The transportation conformity budget development worksheets are included in Tables C-3 and C-4, below.

Appendix C – Description of Technical Revisions to the
8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets

Table C-3
South Coast Air Basin
PM2.5 Transportation Conformity Emission Budget Worksheets*
(Annual Average – Tons per Day)

South Coast Air Basin	2012			2014		
	ROG	NOx	PM2.5	ROG	NOx	PM2.5
Baseline Inventory	162.6	350.8	17.5	146.1	305.7	17.2
Re-entrained Road Dust (Paved)	--	--	18.8	--	--	19.0
Re-entrained Road Dust (Unpaved)	--	--	1.0	--	--	1.0
Road Construction Dust	--	--	0.2	--	--	0.2
State Strategy Adjustments	-8.7	-23.7	-1.4	-13.6	-15.1	-2.8
Adjustments to Baseline	-0.4	-1.4	-0.1	-0.6	-1.4	-0.2
Budgets	154	326	37	132	290	35

*Budgets are rounded up to the nearest ton.

Appendix C – Description of Technical Revisions to the
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Table C-4
San Joaquin Valley Air Basin
PM2.5 Transportation Conformity Emission Budget Worksheets*
(Annual Average – tpd)

County Subarea		2012		2014	
		PM2.5	NOx	PM2.5	NOx
Fresno	Baseline Inventory	1.82	47.82	1.65	40.60
	State Strategy Adjustments	0.36	11.99	0.56	9.07
	Adjustments to Baseline	0.01	0.16	0.02	0.22
	Budgets	1.5	35.7	1.1	31.4
Kern (SJV)	Baseline Inventory	2.98	81.58	2.63	70.28
	State Strategy Adjustments	1.14	32.46	1.44	26.29
	Adjustments to Baseline	0.01	0.23	0.01	0.28
	Budgets	1.9	48.9	1.2	43.8
Kings	Baseline Inventory	0.59	16	0.51	13.52
	State Strategy Adjustments	0.20	5.47	0.26	4.20
	Adjustments to Baseline	0.00	0.05	0.00	0.06
	Budgets	0.4	10.5	0.3	9.3
Madera	Baseline Inventory	0.5	12.30	0.46	10.62
	State Strategy Adjustments	0.12	3.14	0.17	2.55
	Adjustments to Baseline	0.00	0.05	0.01	0.07
	Budgets	0.4	9.2	0.3	8.1
Merced	Baseline Inventory	1.19	29.15	1.05	24.67
	State Strategy Adjustments	0.40	9.37	0.50	7.16
	Adjustments to Baseline	0.01	0.11	0.01	0.14
	Budgets	0.8	19.7	0.6	17.4
San Joaquin	Baseline Inventory	1.39	35.24	1.29	30.27
	State Strategy Adjustments	0.36	10.73	0.46	8.58
	Adjustments to Baseline	0.01	0.11	0.01	0.14
	Budgets	1.1	24.5	0.9	21.6
Stanislaus	Baseline Inventory	0.84	22.25	0.76	18.69
	State Strategy Adjustments	0.16	5.58	0.23	4.04
	Adjustments to Baseline	0.00	0.06	0.00	0.07
	Budgets	0.7	16.7	0.6	14.6
Tulare	Baseline Inventory	0.75	20.87	0.69	17.88
	State Strategy Adjustments	0.13	5.19	0.21	4.05
	Adjustments to Baseline	0.00	0.07	0.01	0.10
	Budgets	0.7	15.7	0.5	13.8

*Budgets are rounded up to the nearest tenth ton (0.1).