
Updated 1-Hour Ozone Attainment Demonstration

Public Workshop
September 20, 2018

South Coast Air Quality Management District
21865 Copley Dr
Diamond Bar, CA 91765



South Coast
Air Quality Management District

2016 Air Quality Management Plan (AQMP)

- Adopted by SCAQMD's Governing Board in March 2017
- 2016 AQMP addressed five National Ambient Air Quality Standards (NAAQS) exceeded in South Coast Air Basin:
 - 2008 8-hour Ozone - 75 ppb
 - 1997 8-hour Ozone - 80 ppb
 - **1979 1-hour Ozone - 120 ppb**
 - 2012 Annual PM2.5 - 12 $\mu\text{g}/\text{m}^3$
 - 2006 24-hour PM2.5 - 35 $\mu\text{g}/\text{m}^3$



South Coast Ozone and PM_{2.5} Air Quality Standards and Classifications

Standard	Concentration	Classification	Attainment Year
2008 8-hour Ozone	75 ppb	Extreme	2031
2012 Annual PM _{2.5}	12 µg/m ³	Moderate/Serious	2021/2025
2006 24-hour PM _{2.5}	35 µg/m ³	Serious	2019
1997 8-hour Ozone	80 ppb	Extreme	2023
1979 1-hour Ozone	120 ppb	Extreme	2022



Attainment Demonstration

- South Coast Air Basin is currently classified as non-attainment of the 1979 1-hour ozone standard
 - Must show attainment by 2/26/2023
 - All the required emission reductions need to be in place by 12/31/2022
- The level of emissions under the 'business-as-usual' scenario is not low enough to show attainment by 2022
- Additional emission reductions were estimated from potential control measures to show attainment in 2022
- The attainment demonstration is the modeling and technical analysis required by EPA to show how the standard will be attained



1-hour Ozone Attainment Demonstration in 2016 AQMP

- Emissions inventory based on the version released by CARB to the District in October 2016
- Attainment strategy based on control measures developed for attainment of the 1979 8-hour ozone standard, with attainment deadline of 2023
- Control Strategy
 - SCAQMD's Stationary and Mobile Source Control Measures
 - CARB's 2016 SIP strategy
 - Defined measures (regulatory and incentive-based)
 - Undefined measures ("Further Deployment of Cleaner Technologies") allowed under the CAA Section 182(e)(5)

Reasons for Updating the 1-hour Ozone Attainment Demonstration

- Consistency with the final 2016 AQMP emissions inventory released by CARB to the District in November 2016 (used in 8-hour ozone and PM2.5 attainment demonstrations)
- To address the CAA requirements for undefined measures
 - If attainment demonstration relies on 182(e)(5) measures, the State needs to submit enforceable commitments to develop and adopt contingency measures if the anticipated technologies do not achieve planned reductions
 - Such contingency measures are required to be submitted to EPA no later than 3 years before attainment deadline, January 1st, 2019



Updates Incorporated in New 1-hour Ozone Attainment Demonstration

- Emissions Inventory
 - Updated to be consistent with the final emissions inventory included in 2016 AQMP
- Attainment Strategy
 - Removed CARB's SIP strategies including both defined measures and undefined 182(e)(5) measures – reductions no longer needed
 - Included SCAQMD's stationary and mobile source measures only
- Air Quality Modeling
 - Reflect updated emissions inventory and attainment strategy



Updated Baseline Inventories

		Year 2012		Year 2022	
		Oct 2016 Version	Nov 2016 Version	Oct 2016 Version	Nov 2016 Version
Annual Average (tons/day)					
VOC		470.20	470.11	362.73	362.32
NOX		541.37	539.81	297.93	290.42
Summer Planning (tons/day)					
VOC		499.72	499.63	383.07	382.66
NOX		523.97	522.40	294.33	286.83

- The final version of the emission inventory in 2016 AQMP (Nov 2016) included 7.5 tons per day of less NOX emissions in 2022 compared to Oct 2016 version; VOCs similar in both versions



Updated Attainment Strategy

- Relies on SCAQMD's stationary and mobile source measures only
 - 86% of 2023 emission reductions from SCAQMD's control measures assumed for 2022.
- Removed CARB's SIP strategy measures
 - CARB's defined measures (i.e., small off-road engines)
 - CARB's 182(e)(5) measures - "Further Deployment of Cleaner Technologies"
 - Eliminates need for 182(e)(5) contingency measures



SCAQMD Measures with Full Implementation by 2022

Control Measure	Description
CMB-02	Emission reductions from replacement with zero or near-zero NOx appliances in commercial and residential applications
CMB-03	Emission Reductions from non-refinery Flares
CMB-04	Emission reductions from restaurant burners and residential cooking
FUG-01	improved leak detection and repair
CTS-01	Further emission reductions from coatings, solvents, adhesives, and sealants
BCM-10	Emission reductions from greenwaste composting
MOB-10	Extension of the SOON provision for construction/industrial equipment

SCAQMD Measures with full Implementation by 2023

Control Measure	Description
ECC-02	Co-Benefits from existing residential and commercial building energy efficiency measures
ECC-03	Additional enhancements in reducing existing residential building energy use
CMB-01	Transition to zero and near-zero emission technologies for stationary sources
MOB-11	Extended exchange program
MOB-14	Emission reductions from incentive programs



Anticipated Emission Reductions for SCAQMD Measures

Implementation	Measure	VOC (tpd)	NOX (tpd)
2020	CMB-02		1.0
	CMB-03	0.4	1.4
	BCM-10	1.5	
	CTS-01	1.0	
2022	CMB-04		0.8
	FUG-01	2.0	
	MOB-10		2.0
2023*	MOB-11		2.5
	MOB-14		9.5
	ECC-02	0.1	0.3
	ECC-03	0.1	1.0
	CMB-01	1.0	2.1
Total		6.1	20.6

*86 percent of 2023 reductions assumed for 2022.



Updated Air Quality Modeling

- Modeling platform is identical to the one used in 2016 AQMP for 8-hour ozone standards
- Performance evaluation of 2012 base year in the 2016 AQMP is still valid and it is not revised. Evaluation includes:
 - Meteorological modeling
 - Ozone modeling
 - Ozone episode analysis
 - 1-hour ozone demonstration methodology
 - 1-hour ozone isopleths



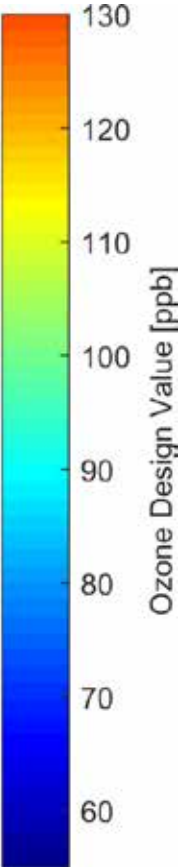
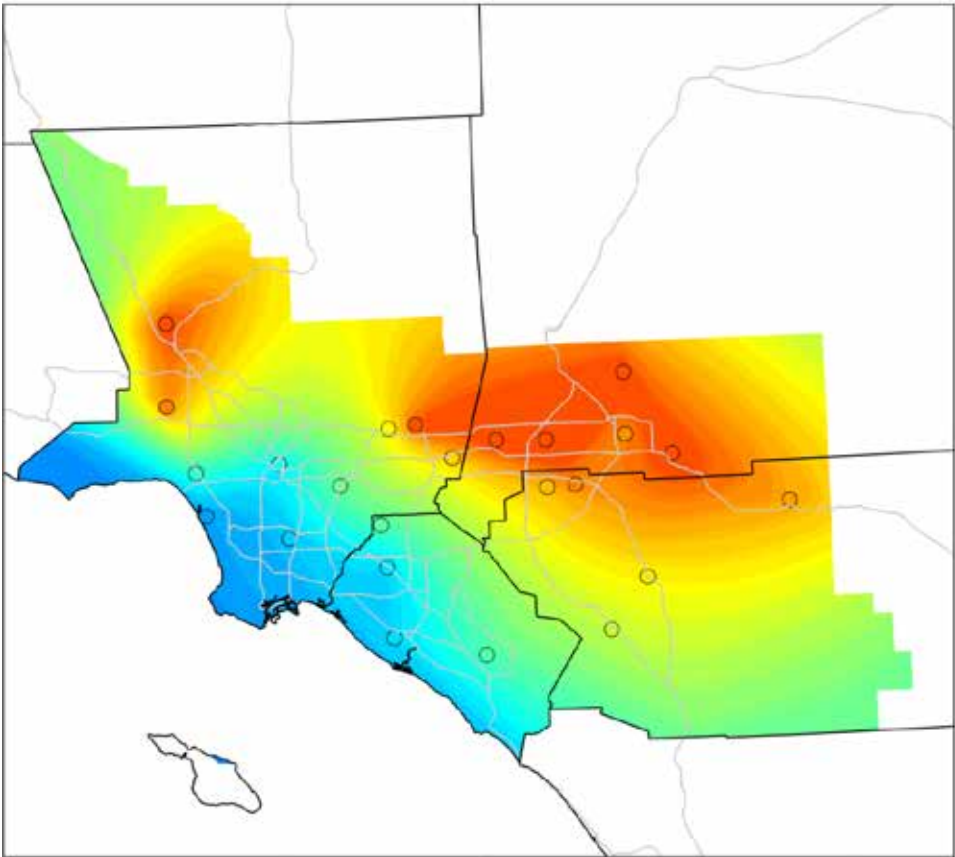
Future 1-Hour Ozone Design Values

Station	2012 5-Year Weighted Design Value	2016 AQMP	
		2022 Baseline	2022 Attainment
Azusa	112	104	102
Crestline	132	120	119
Fontana	138	125	123
Glendora	132	121	120
Lake Elsinore	108	93	92
Perris	114	108	106
Pomona	117	103	102
Redlands	133	120	119
Reseda	125	105	104
Riverside	124	109	107
San Bernardino	123	107	105
Santa Clarita	132	110	108
Upland	135	122	120

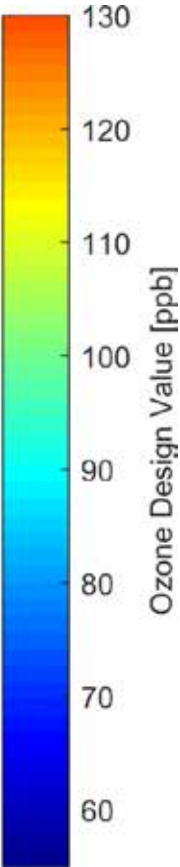
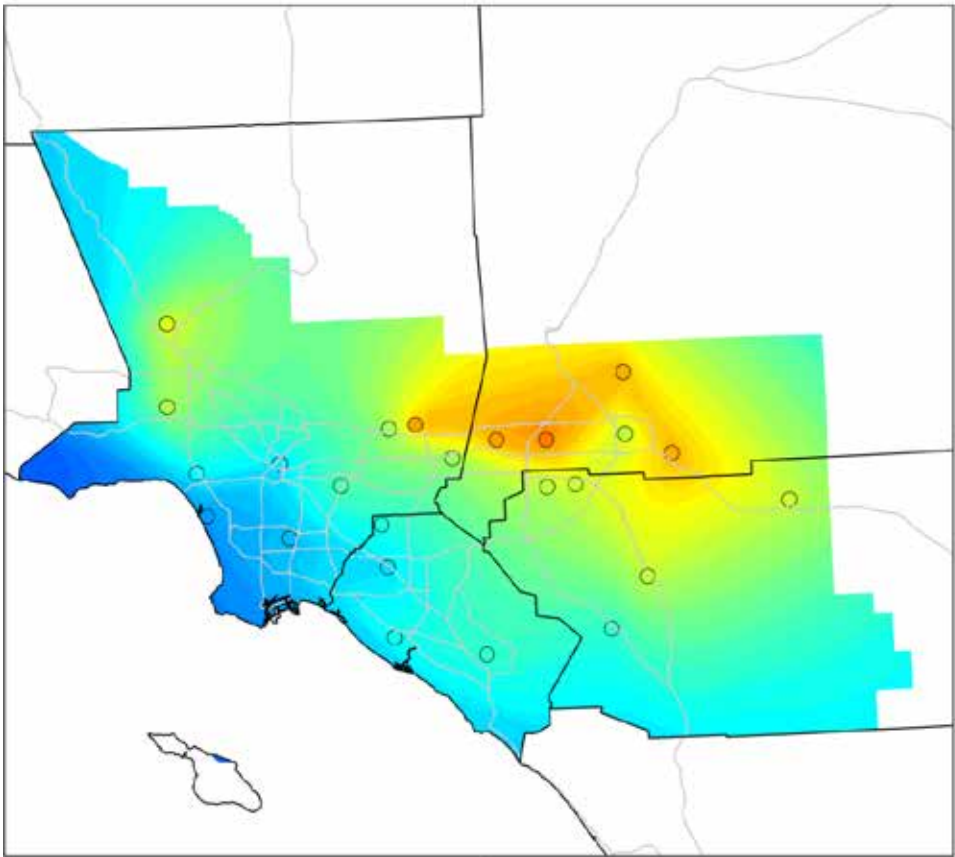


Spatial Projections of 1-hour Ozone Design Values

2012 Observed 5-Year 1-hr O3 DV

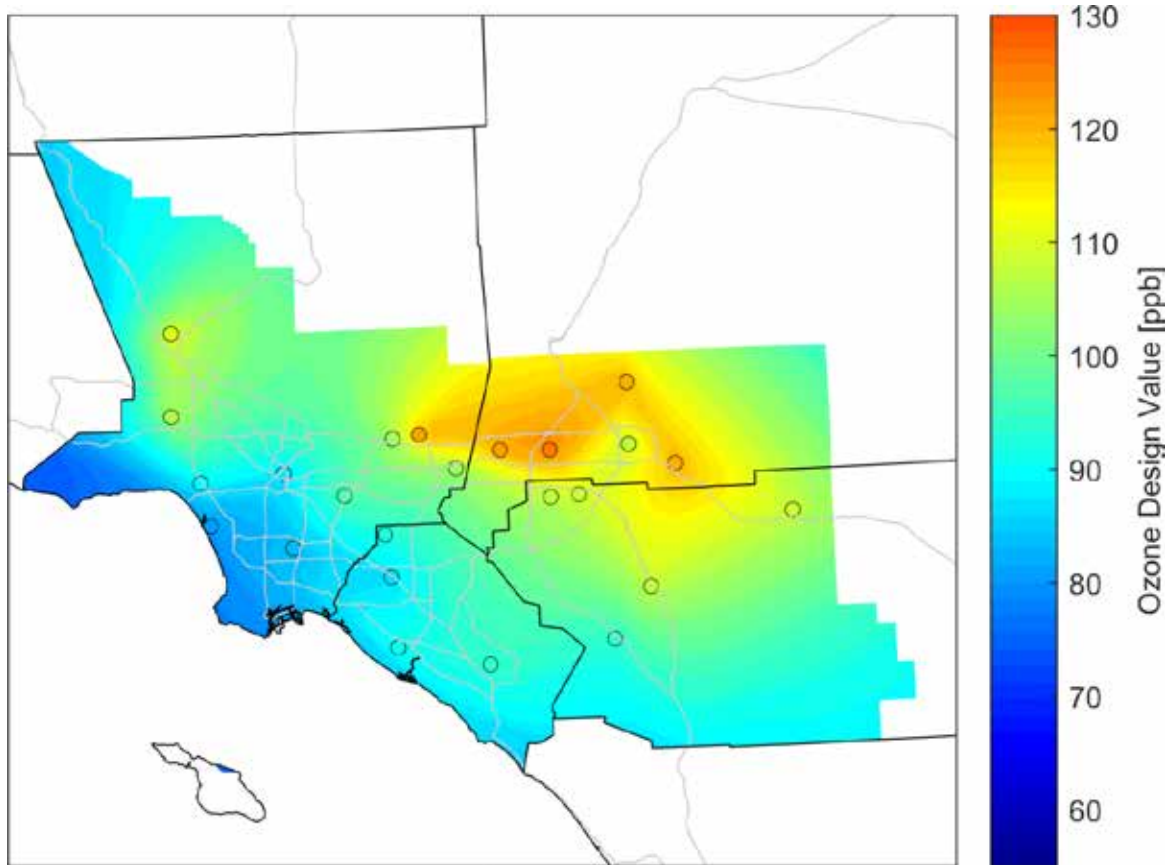


2022 Predicted Baseline 1-hr O3 DV

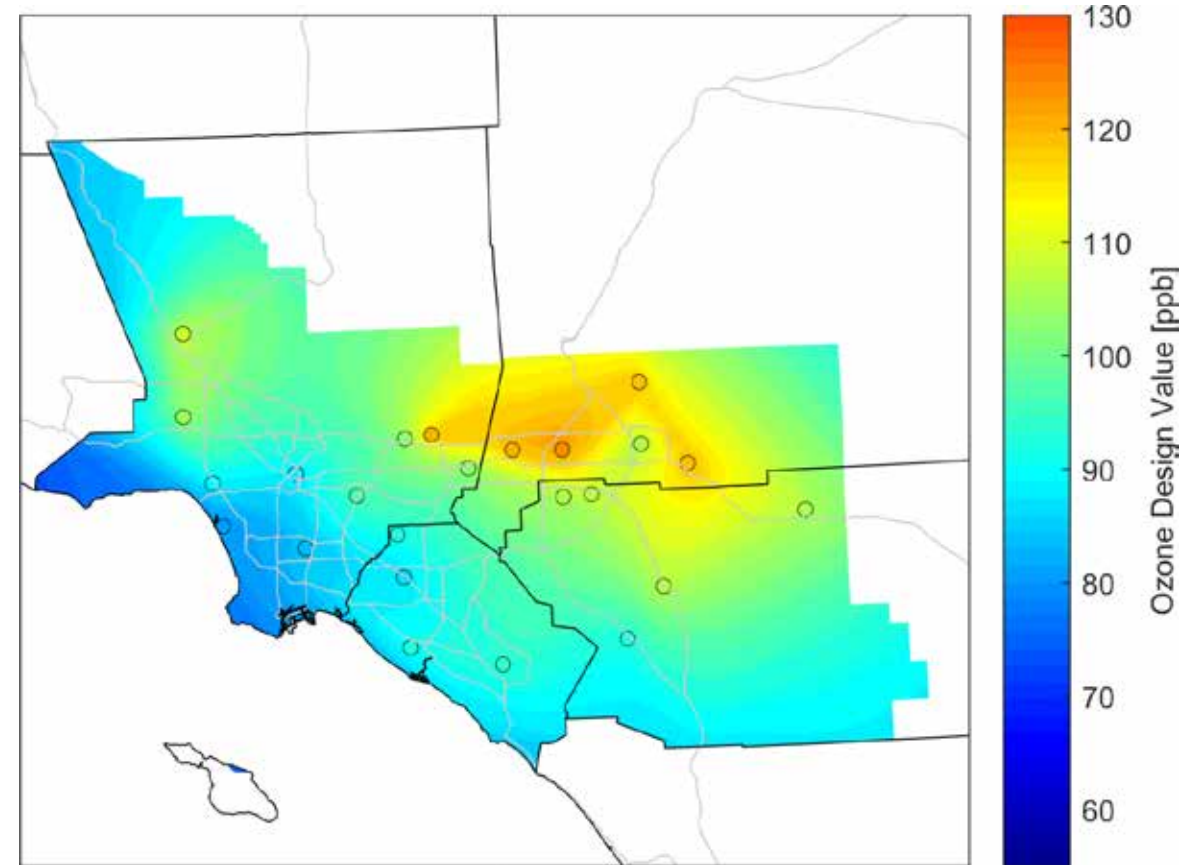


Spatial Projections of 1-hour Ozone Design Values

2022 Predicted Baseline 1-hr O3 DV



2022 Predicted Controlled 1-hr O3 DV



Sensitivity Analysis for Weight of Evidence

Scenario	Measures Included
Sensitivity Case 1	Attainment demonstration + concurrent VOC emission reductions from measures MOB-10, MOB-11, MOB-14, CMB-02 and CMB-04
Sensitivity Case 2	Sensitivity Case 1 + CARB's Proposed Measure for Small Off-Road Engines
Sensitivity Case 3	Control Measure MOB14 (existing mobile source incentive projects only) + Control Measure MOB11 (extended exchange program for lawn and garden equipment)
Sensitivity Case 4	Measures listed in Sensitivity Case 1 + CARB's control measures for Locomotives and OGV At-Berth



Concurrent VOC Reductions not Included in Attainment Demonstration (Case 1)

Implementation	Measure	VOC (tpd)	NOX (tpd)
2020	CMB-02	0.1*	1.0
	CMB-03	0.4	1.4
	BCM-10	1.5	
	CTS-01	1.0	
2022	CMB-04	0.1*	0.8
	FUG-01	2.0	
	MOB-10	0.2*	2.0
2023*	MOB-11	5.0*	2.5
	MOB-14	0.7*	9.5
	ECC-02	0.1	0.3
	ECC-03	0.1	1.0
	CMB-01	1.0	2.1
Total		12.2	20.6

*Concurrent VOC emission reductions not included in attainment demonstration due to uncertainties in estimating the emissions.



*86 percent of 2023 reductions assumed for 2022

Design Value Sensitivity to Emission Reductions

Scenario	Emission Reductions		Design Value	
	VOC (tpd)	NOX (tpd)	Design Value (ppb)	1-h O ₃ Reduction per ton (ppb/ton)
Attainment Demonstration	6.1	20.6	123.5	0.07
Sensitivity case 1	12.2	20.6	123.0	0.07
Sensitivity case 2	15.7	20.9	122.6	0.08
Sensitivity case 3	5.5	7.3	124.5	0.07
Sensitivity case 4	15.9	25.4	122.4	0.07



Summary

- The updated analysis successfully demonstrates and reaffirms attainment of the 1-hour ozone standard by 2022
- The emissions inventory is updated to be consistent with the final emissions inventory used for the 8-hour ozone and PM2.5 standards attainment demonstrations included in the 2016 AQMP
- The attainment demonstration relies only on SCAQMD's stationary and mobile source measures
- Emission reductions from CARB's SIP strategies including both defined and undefined measures are no longer needed in this updated attainment demonstration



Next Steps

- Comments Due - October 8, 2018
- SCAQMD Mobile Source Committee Presentation – October 19, 2018
- SCAQMD's Governing Board Public Hearing - November 2, 2018
- CARB's Governing Board meeting - December 13-14, 2018
- Submittal to U.S. EPA - By end of December 2018

Public Comments

The public is requested to provide comments, documents, or other information relevant to the draft updated 1-hour attainment demonstration by **Oct, 8 2018** by email or mail to:

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