

Staff Report

2018 State Implementation Plan for the Imperial County $12 \mu\text{g}/\text{m}^3$ PM_{2.5} Annual Standard

Release Date: April 27, 2018

Hearing Date: May 25, 2018



This document has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the California Air Resources Board, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

Electronic copies of this document are available for download from the California Air Resources Board's Internet site at:

<http://www.arb.ca.gov/planning/sip/planarea/imperial/imperialsip.htm>

In addition, written copies may be obtained from the Public Information Office, California Air Resources Board, 1001 I Street, 1st Floor, Visitors and Environmental Services Center, Sacramento, California 95814, (916) 322-2990.

For individuals with sensory disabilities, this document is available in Braille, large print, audiocassette or computer disk. Please contact CARB's Disability Coordinator at (916) 323-4916 by voice or through the California Relay Services at 711, to place your request for disability services. If you are a person with limited English and would like to request interpreter services, please contact CARB's Bilingual Manager at (916) 323-7053.

For questions, contact:

Mr. Webster Tasat
Manager, Central Valley Air Quality Planning Section
Phone: (916) 323-4950
Email: webster.tasat@arb.ca.gov

PO Box 2815
Sacramento, California 95814

Or

Ms. Elizabeth Melgoza
Project Lead
Phone: (916) 322-6161
Email: elizabeth.melgoza@arb.ca.gov

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	BACKGROUND.....	2
	A. Current Air Quality and Trends	3
	B. SIP Requirements	5
III.	CLEAN AIR ACT REQUIREMENTS	5
	A. Emission Inventory	6
	B. New District Rules	7
	C. Quantitative Milestones	9
	D. Contingency Measures	9
	E. Transportation Conformity	10
IV.	TECHNICAL DEMONSTRATION OF CROSS-BORDER IMPACTS	10
V.	OTHER CONSIDERATIONS IN IMPERIAL COUNTY	14
	A. Assembly Bill 617	14
	B. Agricultural Burning.....	14
	C. Salton Sea	15
	D. Off-Road Vehicles.....	17
VI.	COLLABORATIVE EFFORTS IN THE BORDER REGION	18
	A. Mexico	18
	B. District.....	22
	C. Community.....	24
VII.	ENVIRONMENTAL IMPACTS.....	24
VIII.	RECOMMENDATION.....	24

APPENDICES

Appendix A: 179B Technical Demonstration

Appendix B: Link to District 2018 PM2.5 Plan

I. INTRODUCTION

California law specifies that the California Air Resources Board (CARB) is the agency responsible for preparing and submitting state implementation plans (SIPs) to the U.S. Environmental Protection Agency (U.S. EPA). In California, local air districts develop and adopt the SIPs while working cooperatively with CARB. Since the State is ultimately responsible for submitting the SIP to U.S. EPA, CARB reviews and approves all SIPs developed by local air districts. If CARB determines the SIP does not meet the requirements set forth in the federal Clean Air Act (Act), CARB may return the SIP to the local air district to address the deficiencies.

In 2015, a portion of Imperial County was designated nonattainment for the 12.0 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} ambient air quality standard (NAAQS or standard) necessitating the need to develop a SIP. This report summarizes CARB's assessment of the Imperial County Air Pollution Control District (District) 2018 PM_{2.5} SIP for the 12.0 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} NAAQS (2018 PM_{2.5} Plan). The 2018 PM_{2.5} Plan relies on a special provision in the Act that enables states to prepare a SIP when transport of international pollution inhibits the ability to demonstrate attainment of the PM_{2.5} standard. The CARB staff reviewed the 2018 PM_{2.5} Plan developed by the District and determined that it met all applicable Act requirements. CARB staff will continue to work with the District and local community groups to develop additional emission reductions beyond the SIP to protect public health.

On April 24, 2018, the District adopted the 2018 PM_{2.5} Plan to address the annual 12.0 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standard for the Imperial County PM_{2.5} nonattainment area. The nonattainment area represents a portion of Imperial County that includes the most populated area of the county, including the cities of Brawley, El Centro, and Calexico. The Act requires the U.S. EPA to designate as nonattainment an area that violates the NAAQS and nearby areas that may contribute to the violation. In establishing the PM_{2.5} nonattainment area for Imperial County, U.S. EPA recognized the unique features and characteristics of the area and determined the boundaries based on multiple factors including air quality, emissions data, population, local meteorology, and geography/topography. Figure 1 shows the PM_{2.5} nonattainment area in Imperial County.

As a result of ongoing State and local control programs, PM_{2.5} air quality has improved throughout Imperial County in recent years. Monitors located in the cities of El Centro and Brawley record PM_{2.5} design values that are well below the standard. However, the Calexico monitor, located within one mile of the international border with Mexicali, Mexico, remains above the annual standard. Due to its proximity to the international border, Calexico is impacted daily by pollution from Mexicali. The highest PM_{2.5} concentrations in the Imperial County PM_{2.5} nonattainment area occur at Calexico in the winter months, typically during stagnant weather conditions when the predominant airflow is from the south. These days often coincide with wintertime holiday celebrations in Mexico where the use of bonfires and refuse burning, along with firework displays, are commonplace.

The Act includes a specific provision for areas located next to an international border that allows states to take into consideration the impacts of cross border transport of pollutants on their attainment status. The 2018 PM2.5 Plan demonstrates that emissions in the Imperial County PM2.5 nonattainment area would be at a level sufficient to attain the annual PM2.5 standard in 2021 absent the impact of emissions from Mexicali, Mexico. Areas impacted by cross border pollution must still comply with requirements in the Act to demonstrate that appropriate actions have been taken to reduce local emissions and their air quality impact. For Imperial County, the SIP must include certain requirements and SIP elements for a moderate nonattainment area.

CARB staff continues to work with the District, U.S. EPA, representatives from Mexico's environmental agencies, and local community groups in efforts to improve air quality along the border region. For example, the Border 2020 Program is a multi-agency cooperative effort to improve environmental conditions, including air quality, along the Calexico-Mexico border. CARB's Heavy Duty Vehicle Inspection Program is another focused effort to improve border air quality. Heavy duty vehicles are periodically inspected at border crossings in Calexico to ensure that these vehicles entering the State meet California's strict vehicle emission standards.

Efforts by the District to enhance the dissemination of information about air quality in Imperial County are ongoing. An air quality and health information website notifies residents by email or cell phone when the levels of air pollutants are forecasted to be unhealthy in Imperial County. Residents may also download the free mobile app (Imperial Valley Air Quality) which sends alerts and notifications of the forecasted and current air quality in the region directly to user's mobile phones. The District also leads a "no burn" campaign that provides radio and television broadcasts to help educate residents in both Imperial County and Mexicali about the air quality impact from open burning. The District will continue these efforts as well as evaluate the potential for additional measures to improve air quality in the region.

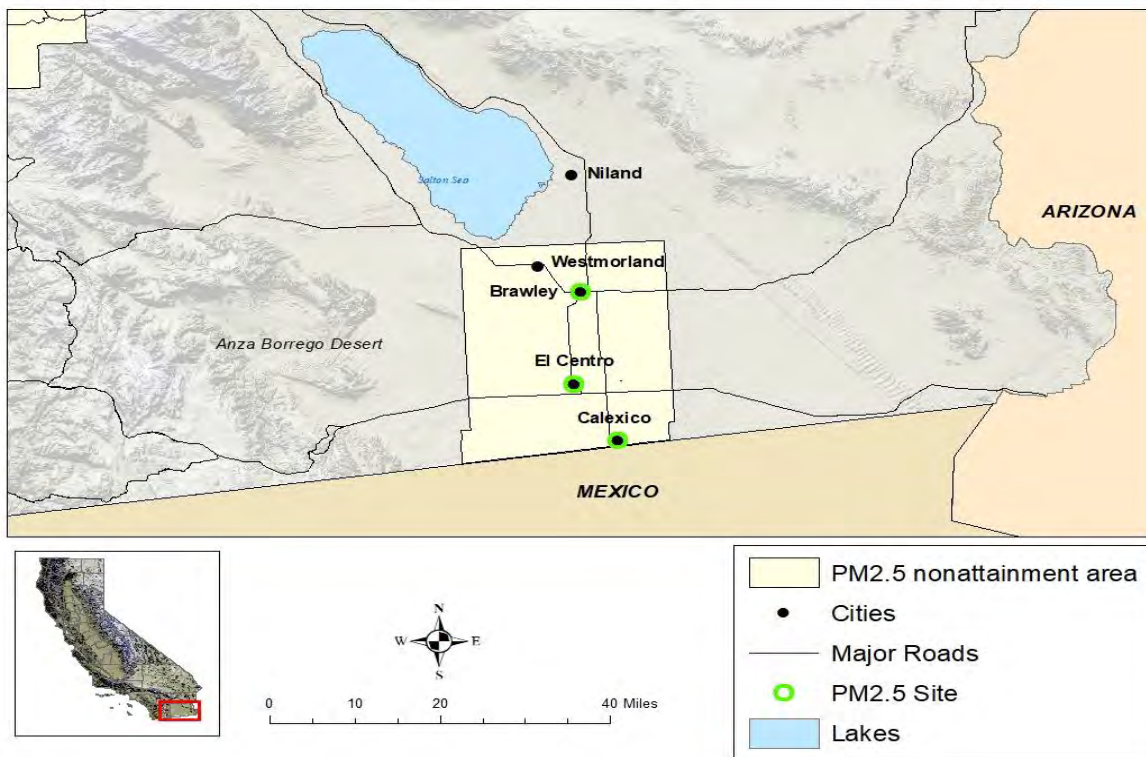
Among the efforts in Imperial County to evaluate emission sources or activities that may potentially contribute to elevated levels of PM2.5 at the community level, the Imperial County Community Air Monitoring Project was launched in 2016. The purpose of this 4-year project is to establish a community air monitoring network for researchers while providing air quality information useful to local residents. The project is coordinated through a collaborative effort by the California Environmental Health Tracking Program with Comite Civico del Valle, a local environmental health advocacy group, and the University of Washington. The monitoring network consists of 40 low-cost air quality sensors that measure PM2.5 and PM10 throughout Imperial County. Although the technology of these air sensors is still evolving and work is on-going to establish the accuracy of their measurements, these sensors enable local residents the ability to collect information on PM levels in their community and provides valuable information on the spatial and temporal variability in air quality in their neighborhoods.

II. BACKGROUND

The Imperial County PM2.5 nonattainment area is an agricultural region located in the southeast corner of California that shares its southern border with Mexicali, Mexico.

Most of the population, commercial activity, and farming operations occur in the PM2.5 nonattainment area, comprising approximately one-fourth the width of the county. The nonattainment area includes the three largest cities in Imperial County - Brawley, El Centro, and Calexico. Each of these cities are similar in size with populations of 25,000 to 43,000 people. A map of Imperial County, the boundaries of the PM2.5 nonattainment area, and the Mexico border area is shown in Figure 1.

Figure 1. Imperial County and the PM2.5 Nonattainment Area



The nonattainment area contains relatively few major industrial sources, with unpaved road dust and fugitive windblown dust emissions representing the largest emission sources. Other significant emission sources in the nonattainment area consist of off-road vehicles, farming operations, and managed burning and disposal.

In contrast, the city of Mexicali, with a population of nearly 700,000, has a large number of industrial, mobile, and area sources. These sources are generally subject to less stringent emission regulations than those in California. As a consequence, emissions from comparable source categories in Mexicali are significantly higher than in the Imperial County PM2.5 nonattainment area for nitrogen oxides (NO_x), sulfur oxides (SO_x), reactive organic gases (ROG) and ammonia (NH₃).

A. Current Air Quality and Trends

The Imperial County nonattainment area is bordered by mountain ranges to the west, east, and southwest. These ranges act as barriers and channel airflow within the Imperial and Mexicali Valleys. Mountain valleys often enhance the formation of temperature inversions and result in little or no mixing of trapped pollutants. This is

common in the Imperial Valley, particularly near the international border on nights with light winds. Inversions often occur over multiple days during the winter months resulting in high PM_{2.5} concentrations. The geography, topography, climate, and similar meteorology throughout the area does not restrict airflow between the Imperial and Mexicali Valleys which results in a shared airshed for the region.

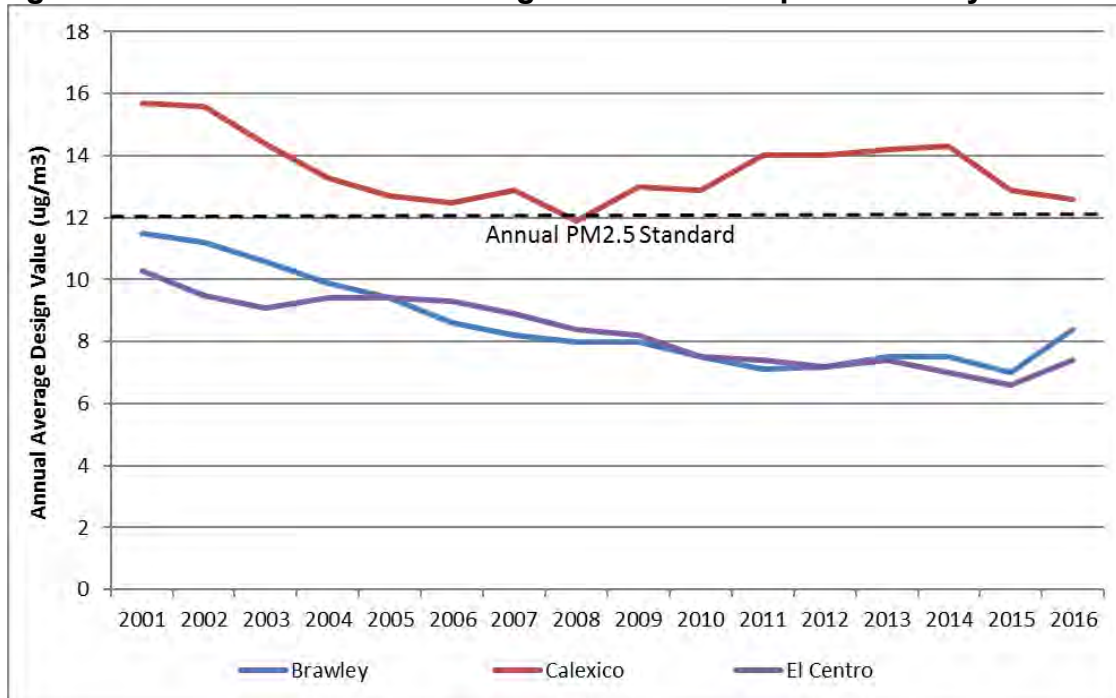
Despite the challenges that Imperial County's geography, topography, meteorology, climate, and proximity to Mexico pose for air quality, the combined efforts of State and local control programs have resulted in improved air quality in the region. The State or Local Air Monitoring Stations (SLAMS) make up the ambient air quality monitoring sites that are operated by State or local agencies for the primary purpose of comparison to the NAAQS. Within the Imperial County PM_{2.5} nonattainment area, the District operates PM_{2.5} monitors at stations in Brawley and El Centro, and CARB operates a station in Calexico near the Mexico international border. A map of these monitoring stations is shown in Figure 1. Except for the monitor in Calexico, concentrations recorded at PM_{2.5} monitors in Imperial County currently comply with the 12.0 µg/m³ annual PM_{2.5} standard.

The metric used for determining if an area attains the PM_{2.5} standard is called the design value. To reduce year-to-year variability, design values are based on a three-year annual average. In 2016, the Calexico annual PM_{2.5} design value was 12.6 µg/m³, almost twice the design values from monitors located in Brawley and El Centro (7.4 µg/m³ and 8.4 µg/m³, respectively) (Figure 2). Since the emission sources and magnitudes are similar between Calexico, El Centro, and Brawley, we would assume that the Calexico design value should be in line with the annual design values at El Centro and Brawley, if not for the impact from Mexicali emissions.

Since 2001, air quality in Imperial County has improved. The trend in the PM_{2.5} annual design value at Calexico has improved significantly over the past few years. In 2001, the annual average at the Calexico monitor was 15.7 µg/m³. In 2016, the annual average at Calexico decreased 20 percent to 12.5 µg/m³. These reductions are generally due to CARB's mobile source control program and the District's increasingly stringent rules on stationary and area sources, especially on sources of windblown dust.

It is worth noting that the annual design value increased at Calexico from 2011-2014 due to three samples collected in 2011 and 2012 (October 15, 2011, March 31, 2012, and May 25, 2012) being included in the design value calculation. CARB deemed these samples to be invalid and not representative since collocated monitors showed substantially lower concentrations. U.S. EPA requested that these three samples be included as part of the design value calculation. In addition, the El Centro and Brawley design values increased in 2016 due to a few high PM_{2.5} values caused by wind events that caused the PM_{2.5} annual average values at these two sites to increase.

Figure 2. 2001-2016 Annual Average DVs for the Imperial County PM2.5 NA



* PM2.5 monitoring began in Imperial County in 1999; 2001 reflects the 1999-2001 design value year.

** The 2015 design value shown above is 12.9 $\mu\text{g}/\text{m}^3$ and does not include data from the SPM that was included in 2015 at Calexico. AQS includes data from the SPM in quarters 1 and 4 of 2015, which results in a design value of 13.1 $\mu\text{g}/\text{m}^3$.

B. SIP Requirements

The Imperial County PM2.5 nonattainment area was designated as nonattainment by U.S. EPA in 2014, and subsequently classified as moderate in 2015, requiring a SIP submittal by October of 2016. The 2018 PM2.5 Plan was developed under the provisions of section 179B of the Act that allows consideration of the impact of international cross border transport of pollutants. Under this provision, the Act does not require states to develop an attainment strategy addressing pollutants that originate from beyond the United States borders. The 2018 PM2.5 Plan includes a comprehensive technical analysis of these cross border impacts, and a demonstration that the Calexico monitor would have attained the 12.0 $\mu\text{g}/\text{m}^3$ annual PM2.5 standard in 2021, absent these international emissions from Mexicali. The 2018 PM2.5 Plan also addresses Act requirements to demonstrate that appropriate local actions have been taken to reduce emissions and provide ongoing public health protection.

III. CLEAN AIR ACT REQUIREMENTS

The required SIP elements in the 2018 PM2.5 Plan include an emissions inventory of sources in the nonattainment area; Reasonable Available Control Measures/Reasonable Available Control Technology (RACM/RACT) demonstration; Additional Reasonable Measures (ARM); Reasonable Further Progress (RFP); Quantitative Milestones in 2019 and 2022, contingency measures in case the area fails

to meet RFP; transportation conformity budgets; and a technical demonstration of cross border impacts.

A. Emission Inventory

An emission inventory consists of a systematic listing of the sources of air pollutants with an estimate of the amount of pollutants from each source and source category over a given period of time. A SIP must contain base year and future year forecasts for all pollutants identified as contributing to PM2.5 concentrations. The base year inventory is an essential element of the plan that forms the basis for all future year projections and establishes the emission levels against which progress in emission reductions will be measured.

U.S. EPA regulations establish general guidelines for selecting an inventory base year. Based on those guidelines, CARB and the District selected 2012 as the base year for the 2018 PM2.5 Plan. In addition to a base year inventory, U.S. EPA regulations require future year inventory projections for specific milestone years. 2019 and 2022 were the inventory years used to address quantitative milestone requirements, and 2021 was the inventory year used to demonstrate attainment of the annual PM2.5 standard. Emission inventories for each of these years were developed for PM2.5, NOx, SOx, ROG and ammonia.

Figures 3 and 4 below show the percent that major source categories contribute to the PM2.5 and NOx emissions in the Imperial County PM2.5 nonattainment area in 2012. Area sources make up over 85 percent of the PM2.5 emissions in the Imperial County PM2.5 nonattainment area, mainly from unpaved road dust, fugitive windblown dust, and managed burning and disposal. More than 85 percent of the NOx emissions in the Imperial County PM2.5 nonattainment area are from mobile sources.

Figure 3. PM2.5 Major Source Categories Percent Contribution (2012)

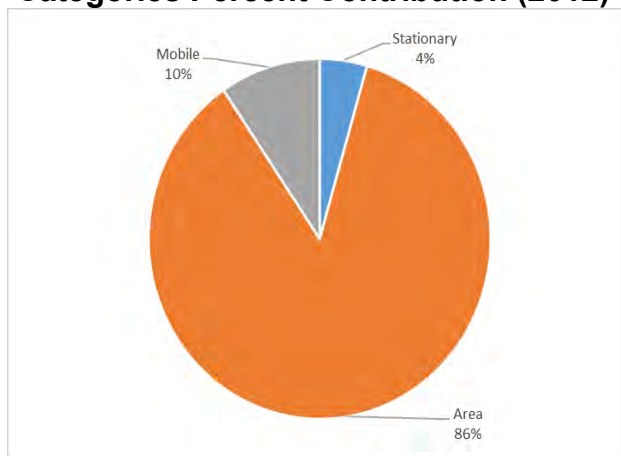
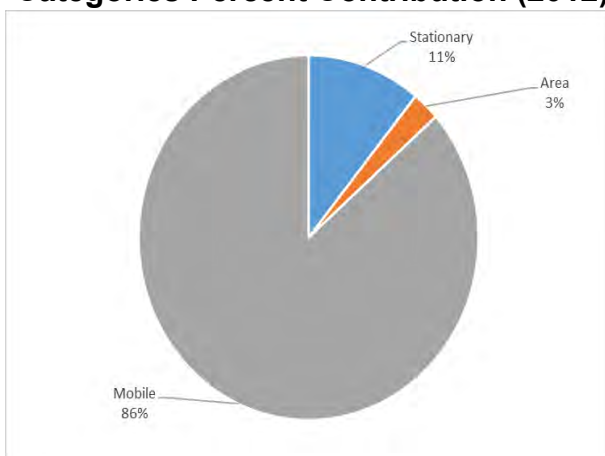


Figure 4. NOx Major Source Categories Percent Contribution (2012)



CARB and the District have developed a comprehensive emissions inventory for the 2018 PM2.5 Plan. The inventory includes a category-by-category review and update using the most recent information available on emissions-generating activities and anticipated population and economic growth in the region. A summary of the emissions

inventory along with additional information on the inventory methodologies can be found in Chapter 3 of the District's 2018 PM2.5 Plan.

B. New District Rules

The Act requires that moderate nonattainment areas implement RACM)/RACT for significant emission sources within the nonattainment area. There are currently no major stationary sources of PM2.5 in the Imperial County PM2.5 nonattainment area. However, at the suggestion of the U.S. EPA, the District evaluated the emissions from the top PM2.5 stationary sources in the region and assessed RACT for them. The District determined the stationary sources located within the nonattainment area had a RACT level of control.

For RACM, the District evaluated the adequacy of its control measures on area sources of direct PM2.5 by reviewing the U.S. EPA Office of Air Quality Planning and Standards' Menu of Control Measures (MCM). The MCM is a list that provides a broad set of emission reduction measures for different pollutants and source types. Each control measure was then evaluated against existing District rules that address the same sources. From this analysis, it was determined that the District needed to implement a control measure for New Source Performance Standards (NSPS) for residential wood combustion. Thus, new measures addressing this source are part of the 2018 PM2.5 Plan.

In addition, U.S. EPA guidance requires the District to evaluate additional reasonable measures that could be implemented any time after the four-year period following designation through the end of the sixth calendar year after designation. Based on this guidance, the District identified a control measure to curtail residential wood combustion when 24-hour averaged PM2.5 concentrations are forecasted to exceed 35 $\mu\text{g}/\text{m}^3$ at Calexico as an ARM. The District also identified ARM related to sources of NOx and NH3 although the 2018 PM2.5 Plan deemed these PM2.5 precursors as not significant. While the comprehensive precursor demonstration has indicated that these PM2.5 precursors do not have a significant impact on PM2.5 levels causing nonattainment in Imperial County, the District is committed to the continued improvement of air quality in the region and thus is presenting rules related to these additional sources and pollutants as part of this 2018 PM2.5 Plan.

Table 1, on the next page, lists the control measures the District plans to pursue followed by a detailed explanation of each ARM measure.

Table 1. District Proposed Control Measures for the 2018 PM2.5 Plan

Measure Type	Measure Title	Adoption Year / Implementation Year	Pollutant	Implementing Agency
RACM	Wood Burning Fireplaces and Wood Burning Heaters – NSPS Certification	2018 / 2019 ^[a]	PM _{2.5}	ICAPCD
ARM	Wood Burning Fireplaces and Wood Burning Heaters– Curtailment	2018 / 2020	PM _{2.5}	ICAPCD
ARM	Boilers, Steam Generators, and Process Heaters	2019 / 2020	NO _x	ICAPCD
ARM	Biosolids, Animal Manure, and Poultry Litter Composting Operations	2019 / 2020	NH ₃	ICAPCD
ARM	Residential Water Heaters	2019 / 2020	NO _x	ICAPCD

Proposed Wood Burning Fireplaces and Wood Burning Heaters Rule-Curtailment

The District is proposing a new rule to implement a control measure that would prohibit/curtail the combustion of wood or solid-fuel products in any wood-burning device in the city of Calexico during a curtailment period. The curtailment period would be defined as any period so declared to the public by the Air Pollution Control Officer when 24-hour averaged PM_{2.5} levels are forecast to exceed 35 µg/m³ at the Calexico monitor. This rule would be adopted in or before December 2018 and implementation would begin in 2020. Prior to implementation, the District plans to develop and identify a source of funding for an incentive program for Calexico residents to purchase devices that may operate during mandated curtailment, such as gaseous-fueled devices.

Proposed Boilers, Steam Generators, and Process Heaters Rule

The District is proposing a new rule that will limit NO_x emissions from boilers, steam generators, and process heaters rated 0.075 million British thermal units per hour (MMBtu/hr) to less than 5.0 MMBtu/hr. The new rule would affect emissions under the Manufacturing and Industrial and Service and Commercial subcategories, part of the Fuel Combustion Category, in the emission inventory. The new proposed Boiler, Steam Generators, and Process Heaters Rule will limit NO_x emissions to less than or equal to 20 parts per million (ppm) of NO_x emissions (at 3 percent oxygen [O₂] dry). The limit will apply to new and replacement units rated 0.075 MMBtu/hr to less than 5.0 MMBtu/hr. It is estimated the rule would be adopted in the year 2019 and implemented in 2020.

Proposed Biosolids, Animal Manure, and Poultry Litter Composting Operations Rule

The District is proposing a new rule that would regulate biosolids, animal manure, and poultry litter composting operations. Specifically, facilities would be required to follow

water management procedures to control ammonia emissions. The new rule would affect emissions under the Composting Solid Waste category in the emissions inventory. Imperial County composting operations largely involve the composting of animal manure, which comes from the county's large confined feedlot operations. It is estimated the rule would be adopted in the year 2019 and implemented in 2020.

Proposed Residential Water Heater Rule

The District is proposing a new rule that would limit NO_x emission rates from new residential water heaters rated less than 75,000 Btu/hr. Specifically, the proposed rule would limit NO_x emissions to 15 ppm (at 3 percent O₂ dry). The new rule would affect emissions classified under the category known as Residential Fuel Combustion – Natural Gas – Water Heater. It is estimated the rule would be adopted in the year 2019 and implemented by January 1, 2020.

C. Quantitative Milestones

SIPs must provide for steady progress in reducing emissions during the years leading to attainment. These interim reductions are known as quantitative milestones. With a base year of 2012, the quantitative milestone years are 2019 and 2022. Emissions are provided in these years for directly-emitted PM_{2.5} emissions. With already adopted and proposed control measures, PM_{2.5} emissions are projected to decrease from 2012 to 2021 within the Imperial County PM_{2.5} nonattainment area. The quantitative milestones for the 2018 PM_{2.5} Plan involve two new Imperial County rules designed to implement additional control measures and further reduce emissions of PM_{2.5}.

The District plans to adopt a NSPS certification rule that would apply to wood burning fireplaces and wood burning heaters. This rule would require new wood burning fireplaces and wood burning heaters to comply with NSPS certification requirements in effect at the time of installation. The District also plans to adopt a curtailment program for wood burning fireplaces and wood burning heaters which would prohibit residential wood burning in the city of Calexico on days forecasted to exceed 35 µg/m³ at the Calexico air monitor. Once these rules are implemented, PM_{2.5} reductions will occur, leading to decreased PM_{2.5} concentrations in Calexico. The adoption and implementation of these rules serves as a quantifiable way for measuring progress towards the 2019 and 2022 quantitative milestone requirements.

D. Contingency Measures

Contingency measures are a required element of a nonattainment area SIP and provide additional emission reductions in the event the area fails to meet RFP. If the District fails to meet RFP, within 60 days of U.S. EPA making a determination in the Federal Register the District will lower the curtailment threshold from 35 µg/m³ to 30 µg/m³ and the curtailment will apply to the entire county when air quality is forecasted to be unhealthy.

The District also commits to lower the applicability threshold for open rural areas subject to District Rule 804 (Open Areas). Currently, District Rule 804 requires dust control on

rural areas over three acres. If Imperial fails to meet RFP, the rural area threshold will be lowered to include rural areas down to 1000 square feet. This lowering of the applicability threshold would impose dust controls on an additional 529 rural acres in the Imperial County PM2.5 nonattainment area. The benefits of these two contingency measures collectively exceed the required one year of emission reductions (0.063 tons per day) and follow U.S. EPA's current guidance on contingency measures.

E. Transportation Conformity

Under Section 176(c) of the Act, transportation activities that receive federal funding must ensure that transportation emissions do not interfere with an area's air quality progress. Section 176 of the Act requires that transportation plans, programs, and projects conform to an area's plan before being approved by a metropolitan planning organization. In order for transportation emissions to conform to a plan, the 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.

The portion of the total emissions inventory allocated to highway and transit vehicles in the emission inventory is the motor vehicle emissions budget. The 2018 PM2.5 Plan establishes nonattainment area-level on-road mobile exhaust and municipal unpaved road dust emissions. Motor vehicle emission budgets were established for PM2.5 in the baseline year of 2012 and the milestone years of 2019 and 2022 using Southern California Association of Governments (SCAG) motor vehicle activity data and EMFAC2014 (CARB's most current mobile source emission inventory model).

IV. TECHNICAL DEMONSTRATION OF CROSS-BORDER IMPACTS

Section 179B of the Act for international border areas indicates that a SIP "...shall be approved by the Administrator if—(1) [the implementation plan meets all applicable requirements other than the attainment demonstration requirement], and (2) the submitting state establishes...that the implementation plan...would be adequate to attain and maintain the...NAAQS by the attainment date, but for emissions emanating from outside of the United States."¹ U.S. EPA guidance issued in 1994 therefore indicated that those border areas that provide a technical justification of attainment, but for emissions from foreign sources, are relieved of certain planning requirements including development of an attainment demonstration.² U.S. EPA guidelines identify the types of information that may be used in evaluating the impact of emissions from outside the U.S. on nonattainment areas. States may use one or more of the identified approaches based on specific circumstances and available data.

¹ Clean Air Act Amendments of 1990: Public Law 101-549.

² See 59 FR 42000-42002 (August 16, 1994).

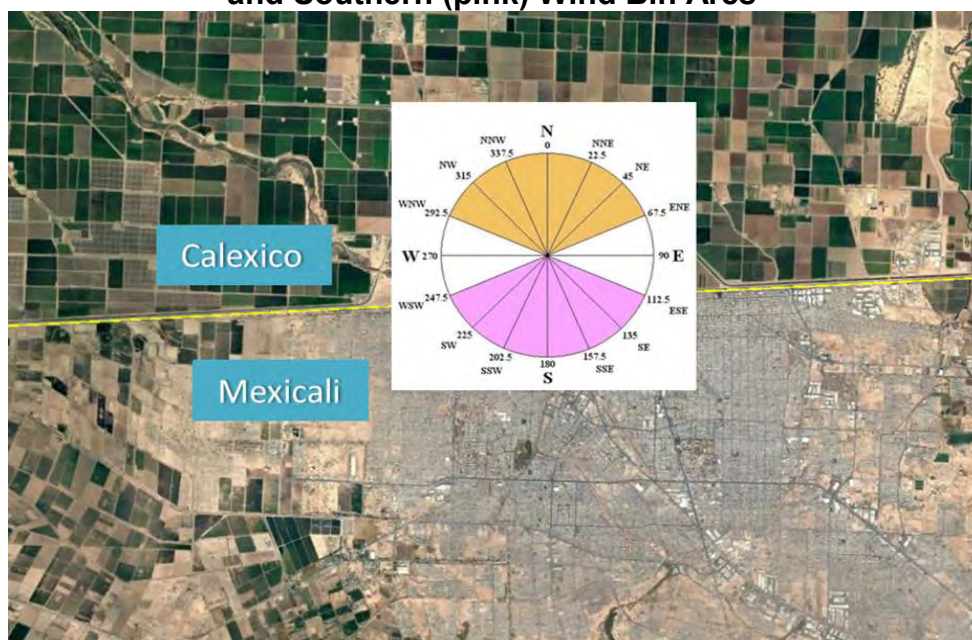
CARB staff examined the available monitoring, emissions, and meteorology data from Calexico, other Imperial County monitoring sites, and Mexicali. Guideline techniques were applied to evaluate the impacts of emissions emanating from Mexicali and Imperial County on attainment of the 12.0 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standard.

Staff first compared the area, population, and emissions data for Mexicali and the Imperial County nonattainment area. Mexicali has more than four times the population of the entire nonattainment area and more than 18 times the population of Calexico. Emissions from Mexicali are significantly higher than those in the Imperial County PM_{2.5} nonattainment area. For example, direct PM_{2.5} emissions in Mexicali are more than 50 percent higher than the level of direct PM_{2.5} emissions in the Imperial County PM_{2.5} nonattainment area, and NO_x emissions are more than three times higher than comparable emissions in the Imperial County PM_{2.5} nonattainment area.

The most recent, verifiable emissions inventory for Mexicali is from 2005 and does not include all of the emissions sources to fairly compare to the emissions in the Imperial County PM_{2.5} nonattainment area. Windblown dust emissions, for example, are a major source of PM_{2.5} in the Imperial County PM_{2.5} nonattainment area but windblown dust and state point source emissions of PM_{2.5} are missing from the 2005 Mexicali emissions inventory. If windblown dust emissions and state point source emissions in Mexicali were included in the 2005 Mexicali emissions inventory, it is anticipated Mexicali would contribute a much higher share of overall PM_{2.5} emissions to the total airshed.

Staff also evaluated the relationship between wind direction and the resulting PM_{2.5} concentrations at Calexico. This analysis paired hourly wind direction data with hourly PM_{2.5} data to determine what the average PM_{2.5} impact was from winds that came from the north (Imperial County) versus winds that came from the south (Mexicali) (Figure 5). To determine the appropriate wind direction splits, the compass degrees were split into 16 equal sized bins and assigned as having a northern or southern component. The analysis showed that when the winds came from north, the average PM_{2.5} concentration measured at Calexico was under the annual PM_{2.5} standard at 11.7 $\mu\text{g}/\text{m}^3$. However, when the winds came from the south, the average PM_{2.5} measured concentration at Calexico increased to 20.2 $\mu\text{g}/\text{m}^3$. In addition, winds from the north occurred much more frequently (44 percent) than winds from the south (23 percent) yet the southern winds still had the strongest impact on annual PM_{2.5} levels at Calexico.

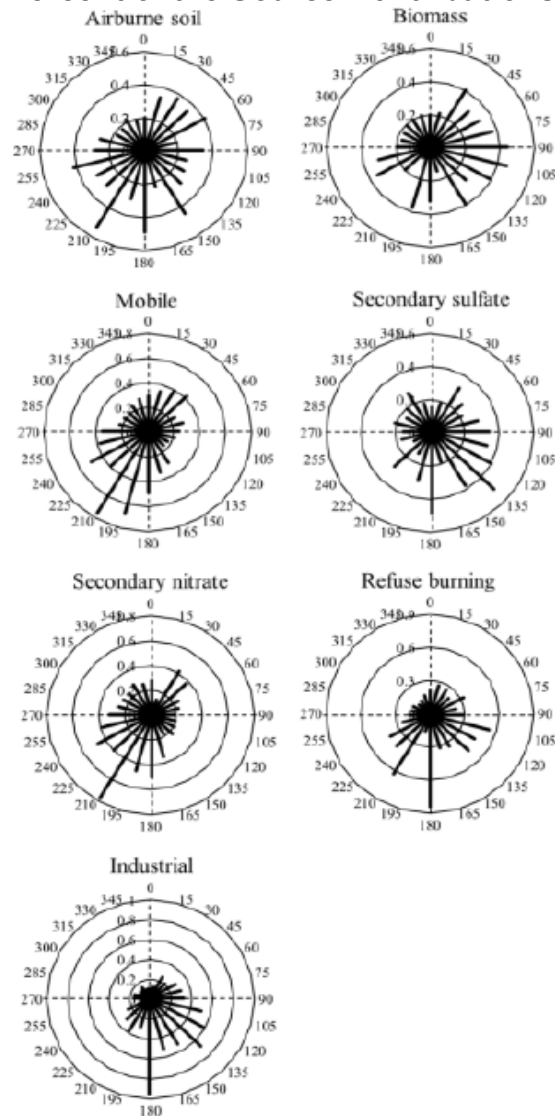
Figure 5. Compass Display of the Northern (orange) and Southern (pink) Wind Bin Arcs



Staff evaluated the chemical composition collected at CARB’s Calexico air monitoring site to help identify the type of emissions that result in elevated PM_{2.5} levels. The chemical composition of the PM_{2.5} particles at Calexico indicated that combustion, such as produced from motor vehicles or wood and waste burning, is a major source of emissions. The analysis also indicated that elements such as chromium, lead, and zinc, normally measured at very low levels throughout Imperial County and the rest of the State were significantly higher at the Calexico air monitoring site. The potential sources of these elements include the combustion of refuse or other non-biomass materials and industry that does not exist in the Imperial County PM_{2.5} nonattainment area. Further evaluation of the correlations between wind direction and these source signatures indicated that the origin of these pollutants was south-southeast of the monitoring site in the direction of the border and Mexicali.

Staff conducted various analyses using monitoring data, meteorological conditions, and emissions in the border region to evaluate the impacts of emissions emanating from Mexicali on attainment of the annual PM_{2.5} standard in Imperial County. Staff assessed Calexico speciation data and conducted a source apportionment analysis which tied speciation data to sources that are present in both the Imperial County PM_{2.5} nonattainment area and Mexicali. This apportionment method enabled a hypothetical calculation of the annual PM_{2.5} design value if Mexicali sources were excluded from consideration. This analysis identified seven major sources of pollution (airborne soil, biomass burning, mobile, secondary sulfate, secondary nitrate, refuse burning, and industrial) that impact the Calexico site, with the source direction for the majority of these sources from Mexicali or the border crossing area (Figure 6).

Figure 6. Conditional Probability Function Plots for the Highest 25 Percent of the Source Contributions



Air quality modeling demonstrated that the annual average PM_{2.5} design value would be 11.7 $\mu\text{g}/\text{m}^3$ at the Calexico PM_{2.5} monitor in 2021 if emissions from Mexicali were reduced or eliminated. Considered together with air quality data and meteorological influences, the analyses in Appendix A of the 2018 PM_{2.5} Plan demonstrate that, in 2021, the Imperial County PM_{2.5} nonattainment area would attain the annual PM_{2.5} standard of 12.0 $\mu\text{g}/\text{m}^3$ in the absence of emissions from Mexico.

Together with the proximity of Calexico to Mexicali, analysis of the emission inventory for the Imperial County PM_{2.5} nonattainment area and Mexicali, analysis of the meteorological conditions (wind speed and wind direction) at Calexico, and the chemical composition of samples at Calexico and other monitoring sites, the available evidence supports the international cross-border impact of Mexicali emissions on the Imperial County PM_{2.5} nonattainment area required under the Act.

V. OTHER CONSIDERATIONS IN IMPERIAL COUNTY

A. Assembly Bill 617

Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017) provides a new community-focused action framework to improve air quality and reduce exposure to criteria air pollutants and toxic air contaminants in communities most impacted by air pollution. The bill recognizes that while California has seen tremendous improvement in air quality, some communities still suffer greater impacts and will require special attention along with accelerated action. AB 617 builds on the foundation of existing programs, providing additional tools to target actions in communities that bear the greatest burdens. Specifically the legislation sets out a framework that includes:

- Community-level air quality monitoring;
- A State strategy and community emissions reduction programs;
- Expedited schedule for the installation of the cleanest controls on industrial facilities
- Enhanced requirements for the reporting of emissions data including increased penalty provisions for polluters; and
- Grants to local community groups to support active engagement in developing solutions for their communities.

To implement AB 617, CARB has established the Community Air Protection Program (Program). The legislation sets out an ambitious implementation schedule, and CARB must set the overall direction of the Program by October 1, 2018. This includes identifying impacted communities, establishing the criteria for air monitoring and local emissions reduction programs, and developing statewide strategies for reducing emissions. The local air districts also have specific roles and responsibilities and successful implementation will require strong collaboration between CARB and the air districts, as well as with local communities.

B. Agricultural Burning

Imperial County residents have raised concerns about the level of agricultural burning that occurs in Imperial County and the impact it may have on their health. Agricultural burning is a source of PM_{2.5} emissions that can have localized impacts in the Imperial County PM_{2.5} nonattainment area. After crops are harvested, the fields and stubble are burned to prepare for the next planting. This burning helps prevent the spread of plant diseases and controls weeds and other pests. Title 17 of the California Code of Regulations (Title 17) provides agricultural and prescribed burning guidelines for each area in California with the goal of minimizing public health impacts. Title 17 specifically requires the District to have rules in place that minimize smoke from agricultural burning.³ Title 17 also identifies the meteorological criteria for regulation of agricultural and prescribed burning by air basin in order to minimize smoke impacts.

³ *Smoke Management Guidelines for Agricultural and Prescribed Burning*. Title 17 of the California Code of Regulations, Subchapter 2, March 14, 2001.

On a daily basis, the District reviews meteorological reports from various airport operators, the National Weather Service, State fire agencies, and CARB to help determine whether the day is a “burn day”. Burn/no burn days are declared for the entire county. The District uses a detailed map of Imperial County to ensure that burns are allocated correctly for minimal-to-no smoke impacts on the public. Daily burn authorizations specify the amount, timing, and location of each burn event. The burn authorization system considers the following factors before declaring a burn day: (1) air quality; (2) meteorological conditions expected during burning, including wind speeds and directions at the surface and aloft, and atmospheric stability; (3) types and amounts of materials to be burned; (4) location and timing of materials to be burned; (5) locations of nearby smoke sensitive areas (schools, residential neighborhoods, etc.); and (6) smoke from all burning activities, including burning in neighboring air districts or regions which may affect the District or region.

The District’s Rule 701 prohibits agricultural burning on any day declared to be a no-burn day by CARB, a fire control agency, or the District’s Air Pollution Control Officer. Residents may report illegal agricultural burning to the District enforcement office. If the burn is deemed to be illegal, the District will conduct an inspection to obtain information on the violation and fines will be assessed on the landowner. Rule 701 also specifies the type of waste material that is allowed for burning, along with appropriate drying times, and the hours when burning may be conducted.

The District’s Rule 701 additionally requires that when a burn permit is applied for in which burning is within 1.5 miles of a residential area (three or more contiguous, inhabited dwellings), rural school, or adjacent to heavily traveled roads, an inspector must be present prior to, and at the time of ignition, and must give approval before the burn may be started. In addition, beginning in 2010, as part of the District’s Good Neighbor Policy (Policy 37), farmers who conduct burning must notify and advise nearby neighbors (within a half mile) of a potential burn.⁴ Overall, agricultural burning has been reduced 75 percent since 2003 in Imperial County.⁵

C. Salton Sea

Imperial County residents have raised concerns about future air quality in Imperial County as Salton Sea water levels decline due to the cessation of mitigation water flows. As the surface level of the Salton Sea drops over the next three decades, the lakebed – or playa – will become exposed and become a potential new source of PM_{2.5} in the north part of Imperial County. Unless prevented or controlled, windblown PM_{2.5} could reverse some of the air quality gains proposed in the 2018 PM_{2.5} Plan. To address this, CARB has been collaborating with other State, as well as federal and local agencies since 2003 in the monitoring, planning, and control of particulate matter (PM) emissions at the Salton Sea.

CARB staff were instrumental in the design and construction of a six-station network of shoreline PM and meteorological monitoring stations at the Salton Sea in 2009. These

⁴ *Good Neighbor Policy-Neighbor Notification and Traffic Re-Routing Procedures for Agricultural Burning*. Policy No. 37. <https://www.arb.ca.gov/smp/District/imp2010.pdf>. April 7, 2010.

⁵ Imperial County Air Pollution Control District agricultural burn reports (2003-2017)

stations collect baseline air quality data and serve as an early warning system for changes in exposed playa dust emissivity. The continuous hourly data collected since February 2010 provide a rich database for assessment of air quality impacts and development of mitigation measures by researchers and regulatory agencies alike.

By requirement of the 2003 water transfer agreement, the Imperial Irrigation District (IID) has been the principal agency involved in Salton Sea windblown dust research and control measure testing for the past 15 years. The 2003 water transfer agreement allowed California to reduce diversions from the Colorado River and secure water for population growth in coastal regions, over the next 75 years. The agreement also provided a path for mitigation of adverse environmental impacts resulting from flow reductions to the Salton Sea. Using funds pooled by the water agencies involved in the transfer, IID has retained a team of air quality consultants who participate in control measure research and testing at Owens Lake to conduct similar activities at the Salton Sea. CARB staff is closely reviewing and advising a team of air quality consultants retained by the IID on technical aspects of windblown dust research at the Salton Sea. Research results are shared with the District, the South Coast Air Quality Management District, local environmental justice groups, and the Science and Air Quality Committees of the Governor's Salton Sea Task Force.

Analysis of the collected air quality monitoring data around the Salton Sea has shown that current high PM10 concentrations during high wind events are due to emissions from disturbed soil sources almost due west of communities near the Salton Sea. The windblown dust emissions from the playa will infrequently be transported south to Westmorland and Brawley. Niland, near the southeast corner of the Sea, is downwind of exposed playa during high wind events, but the hourly PM10 peaks recorded on high wind days at Niland and two nearby shoreline stations shows little relationship between the hourly profiles at the three locations.

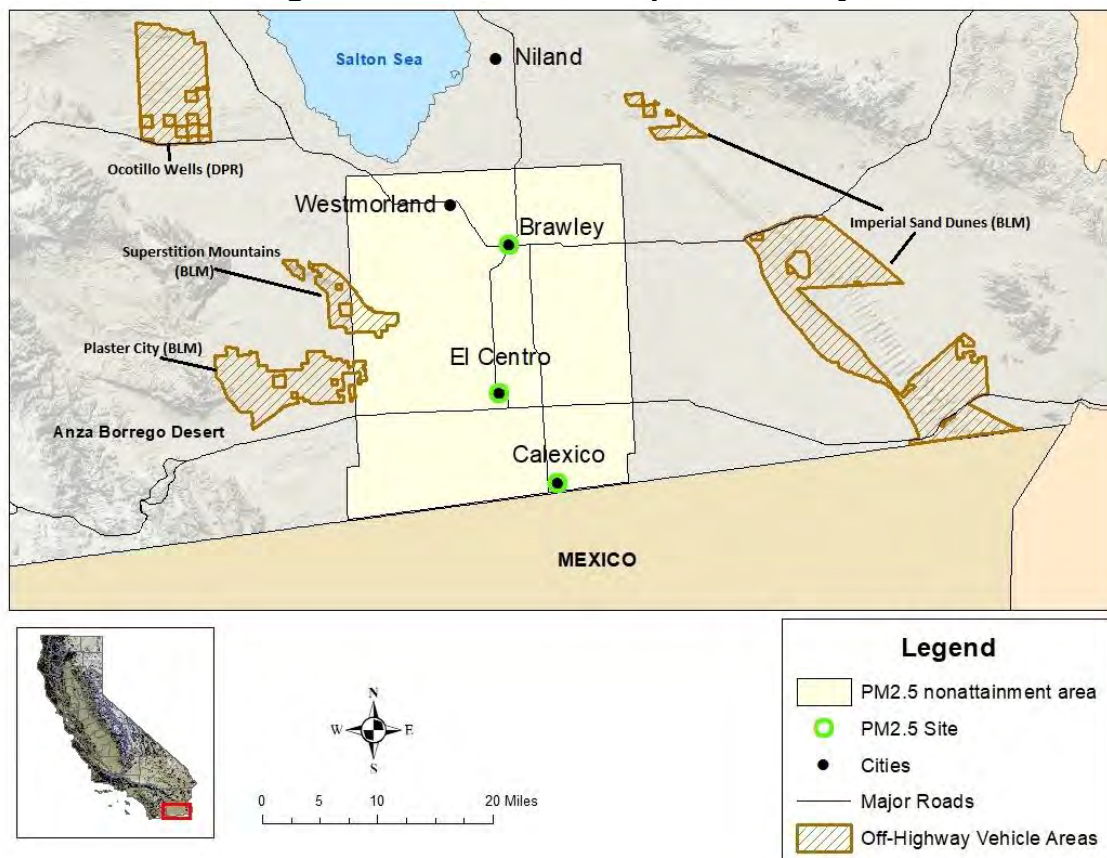
In the past two years, new dust plume visualization systems have been utilized for ongoing analyses of playa emissions. These new systems include 360-degree images recorded during daylight hours at elevated locations at Red Hill Bay and Anza Borrego Desert State Park, as well as captured by new GOES-R geostationary satellites. This system is useful in identifying windblown dust source areas and dust plume density and trajectory. The team of air quality consultants has been researching the design, control effectiveness, and costs of alternative playa dust control measures since 2013. Information from this research includes a three-year lag between the playa first becoming exposed and the onset of windblown dust generation. Addition of the analysis indicates deep tilling can be a near-term control measure that requires the use of no water.

CARB staff will continue collaborative efforts with IID in playa dust control research and testing activities. Staff will also continue to communicate the findings and implications of these research activities to the affected air quality agencies and the many community groups concerned about future Salton Sea emissions. These research activities will help establish the most effective controls to mitigate playa dust.

D. Off-Road Vehicles

Imperial County residents have raised concerns about how off-road recreational vehicles (OHV) impact the PM10 and PM2.5 air quality in Imperial County. PM2.5 emissions from off-road recreational vehicles (OHV) contributes approximately eight percent of the PM2.5 emissions in the Imperial County PM2.5 nonattainment area. The Bureau of Land Management (BLM) and Department of Parks and Recreation (DPR) are the only land managers of OHV-use areas on public lands in Imperial County. BLM and DPR have jurisdiction over five OHV-use areas in Imperial County, totaling over 209,000 acres of land. DPR manages Ocotillo Wells and Heber Dunes which encompass 38,660 and 340 acres, respectively. BLM manages the majority of the OHV-use areas in Imperial County. OHV-use areas under BLM management are the Imperial Sand Dunes, Plaster City, and Superstition Mountain which cover 127,416, 28,240, and 14,723 acres of land in Imperial County, respectively. The Imperial Sand Dunes contain the largest mass of sand dunes in California, covering an area more than 40 miles long and averaging 5 miles in width. Figure 7 displays the OHV areas in relation to the Imperial County PM2.5 nonattainment area.

Figure 7. OHV Areas in Imperial County



The District Rule 800 (General Requirements for Control of Fine Particulate Matter) includes requirements for OHV areas. Under Rule 800, BLM and DPR must submit a Dust Control Plan (DCP) to the District for review and approval that lays out the controls on these OHV use areas. After District comments are incorporated into the DCP, the

District shall transmit the DCP to CARB and U.S. EPA for 45-day review and comment. BLM and DPR must implement all final DCP elements within six months of submittal and update the DCP every two calendar years. The DCP must include a summary of the total miles of paved and unpaved roads with 50 or more average vehicle trips per day, including the length and level of usage of each road. The DCP must also explain the plans for control of PM10 emissions from these roads. From June 15-August 15, BLM and DPR are required to submit a separate DCP to the District for approval in order to hold off-road events and/or competitions. The DCP shall include specific fugitive dust control measures and demonstrate that all control measures, including the requirements of Rule 800, can be implemented and enforced.

BLM and DPR are required to submit a recreational DCP to the District when off-road events and/or competitions take place. On each day of an off-road event and/or competition, in which 50 average vehicle daily trips per day will occur on an unpaved road segment or unpaved traffic area, BLM and DPR shall limit the visible dust emissions to 20 percent opacity and comply with the requirements of a stabilized unpaved road by application of various dust control measures (i.e., watering, restricting access, speed limit restriction, chemical dust suppressants).

During holiday weekends with increased OHV activity, BLM and DPR control road dust on the main entry roads by water application. In addition, a 15 mile per hour speed limit is enforced and posted on these aggregate roads. To deter illegal motorized recreation, route markers and signage identifying restricted use areas are maintained. BLM law enforcement rangers actively patrol illegal off-roading in undesignated areas to deter off-route illegal recreational use on these lands and will issue citations when illegal use is found. In addition, if any new OHV use areas are established within Imperial County that have PM10 emissions of 70 tons per year or above, the public agency must demonstrate in a federal- and/or state-required environmental assessment that these emissions would not cause or contribute to any new violations of any PM10 NAAQS in the area.

BLM and DPR have submitted complete DCP in 2013 and 2016 to the District that outline the measures they have taken and will continue to take to reduce PM10 emissions from OHV areas in the County. These DCP have been approved by the District and the requirements of Rule 800 will continue to be enforced by the District on these OHV use areas.

VI. COLLABORATIVE EFFORTS IN THE BORDER REGION

A. Mexico

Border 2020

The District, CARB, and the U.S. EPA are working together with Mexican federal, state, and local air quality agencies on many fronts to identify and implement programs that will improve air quality in the border region. In 2012, the U.S. and Mexico signed the Border 2020 Program, which is a joint effort between U.S. EPA, Secretariat of Environment and Natural Resources (SEMARNAT), Baja California's Environmental

Protection Agency (SPA), CARB, the District, and other agencies to improve the border environment by cleaning the air, water, hazardous waste generators, and ensuring emergency preparedness along the U.S.-Mexico border region.

The Border 2020 Program includes the Imperial-Mexicali Air Quality Task Force (AQTF). The AQTF was organized to address issues unique to the border region known as the Mexicali/Imperial air shed, and focuses on reducing air pollution in this area. AQTF membership includes representatives from federal, state and local governments from both sides of the border, as well as representatives from academia, environmental organizations, and the general public. The AQTF meets quarterly, alternating between Imperial County and Mexicali.

The first goal of the Border 2020 Program is to reduce air pollution in the border communities. Emissions from electrical generation and other industrial sources, unpaved roads, diesel trucks, buses and cars, including those idling for long periods of time at ports-of-entry, are significant contributors to the poor air quality along the border. It is important that strategies and solutions to address air pollution along the border are developed and implemented with active participation from the community, as well as local, state, and federal authorities.

- Objective 1: By 2020, in accordance with the North American Free Trade Agreement (NAFTA), promote the reduction of the number of vehicles operating in the border region that do not comply with the respective vehicle emissions standards, and reduce vehicle emissions at ports-of-entry through anti-idling and other feasible reduction measures;
- Objective 2: By 2020, reduce pollutant emissions in order to approach attainment of respective national ambient air quality standards in the Imperial County/Mexicali airshed (and other areas);
- Objective 3: By 2018, maintain effective air monitoring networks and provide real-time access to air quality data in California/Baja California;
- Objective 4: By 2015, support completion of climate action plans in each of the six northern Mexican Border States (as appropriate), and build the necessary capacity to guarantee sustained implementation; and
- Objective 5: By 2020, reduce emissions and associated impacts through energy efficiency and/or alternative/renewable energy projects.

Following is a brief summary of some of the projects in which the District, in conjunction with the AQTF, CARB and U.S. EPA, participated in to address or evaluate emissions at the border and educate the communities on the impact of air pollution in this region.

Mexicali and Imperial County Educational Media Campaign

Elevated PM_{2.5} levels at the Calexico monitoring station occur during the months of December and January. It is during these months when continual stagnant conditions with light winds dominate the airshed. These conditions, coupled with the tradition in Mexicali of burning wood, tires, etc. for warmth during cold nights, lead to violations of the PM_{2.5} standards in Calexico.

The U.S. EPA, and the Border Environmental Cooperation Commission (BECC), the District and the Imperial Valley-Mexicali AQTF, through the Border 2020 program, have been funding a “no burn” radio and television Environmental Educational Media Campaign (Campaign) to help educate the Mexicali community concerning the impacts from open burning on the regional air quality and public health. The Campaign encourages a “no burn” mentality and promotes awareness for the wellbeing of the region’s health and environment. The District is the lead agency for this Campaign, and the Secretariat of the State of Baja California is focused on the media portion of the project. The objectives of the radio and television Campaign are to:

- Educate the community regarding the status of air quality in the region and the consequences of open burning of tires, wood, fireworks, etc.;
- Educate young adults with the goal of creating environmental advocates who care for and respect the environment;
- Raise public awareness around the serious consequences of open burning of tires, wood, fireworks, etc. on regional air quality;
- Work towards creating a “no burn” mentality; and
- Improve community leadership involvement.

The Campaign is focused on days that are likely to violate the federal health standard for air quality, traditionally during the holiday season in December and January. Therefore, the media transmissions are aired in phases to capture the periods of highest pollution. There are three audience profiles the Campaign targets: children in kindergarten to sixth grade, young adults in junior high to high school, and the general public. The first step of the Campaign targeted the education of the health and air quality impacts resulting from the burning of fireworks, tires, and wood. The affected community can then begin to understand the long-term harm that will continue should these cultural traditional practices not change.

The District started implementing this Campaign in 2011. The Campaign media advertisements are broadcast on the television and radio, and the District is committed to yearly implementation, as funding allows. The Campaign has opened many avenues of communication with Mexicali’s community and it carries tremendous power to educate all audiences.

Mexicali Monitoring (2016-2018)

To better understand emissions occurring in Mexicali and impacting air quality on both sides of the border, CARB and officials from Baja California received U.S. EPA funding to conduct PM_{2.5} monitoring beginning in 2016 at two sites in Mexicali (UABC and COBACH) including chemical speciation. This bi-national, monitoring effort began in April of 2016 and will run through April of 2018. This study will produce high quality information on PM_{2.5} air quality and likely sources in Mexicali. The District is working closely with counterparts in Mexico to develop and implement emission reduction strategies and projects that will improve the air quality in the Mexicali-Imperial region.

At the end of the two years, the monitoring equipment will be donated to the Secretary of Environmental Protection of the State of Baja California. The Secretary of

Environmental Protection will monitor for PM2.5 at Cobach and UABC but speciation will not be continued since the laboratory infrastructure to support analyzing speciated PM2.5 data is not available. CARB will analyze all of the air quality data from this project to assess the main PM2.5 sources and locations of pollution impacting the communities in Mexicali and Calexico.

California-Mexico Memorandum of Understanding

In 2014, the California-Mexico Memorandum of Understanding (MOU) was signed to enhance the cooperation on climate change and the environment between the State of California and the Ministry of Environment and Natural Resources and the National Forestry Commission of the United Mexican States.⁶ The MOU establishes actions related to environmental issues such as climate change, human and environmental health, air quality, wildfires, and transportation between California and Mexico. In addition to other efforts in the MOU, to improve the air quality in these areas, the MOU seeks to: reduce emissions of criteria pollutants, and toxic air contaminants; Increase the cooperation related to air quality along the border, including air quality monitoring, audits of air quality monitoring equipment, the use of specialized equipment and, exchange of technical and policy information on air quality; support new and expanded markets for clean and efficient energy technologies in the industrial, electricity and transportation sectors; reduce vehicle emissions through strengthening vehicle standards, setting common standards, and supporting green freight initiatives; and strengthen technical and institutional capabilities on fire management.

U.S. EPA, CARB, SEMARNAT, SPA, the District, and many other organizations and the public are working together to meet the goals of the MOU to better the air quality in California and Mexico.

Program to Improve Air Quality in Mexicali 2011-2020 (ProAire)

The ProAire program represents a collaborative effort between the federal, State, and municipal governments in Mexico, along with industry and local communities to improve the quality of life in Mexicali and to reduce the risk of exposure to air pollution. This program identifies agricultural burning, paved and unpaved roads, and power generation as the main sources of direct PM2.5 emissions in Mexicali. The program includes the following actions to reduce air emissions in Mexicali:

- Regulating agricultural burning and developing a diagnosis of the current state of agricultural burning in Mexicali in order to establish the meteorological and size conditions under which agricultural burning can be allowed;
- Establishing a model to incentivize reduction of agricultural burning and identifying other alternatives to agricultural burning;

⁶ 2014, July 28. Memorandum of Understanding to Enhance Cooperation on Climate Change and the Environment Between the State of California of the United States of America and the Ministry of Environment and Natural Resources and the National Forestry Commission of the United Mexican States. Retrieved from: https://www.gov.ca.gov/wp-content/uploads/2017/09/7.28_Climate_MOU_Eng.pdf.

- Developing a strategy to reduce particulate emissions from paved and unpaved roads; and
- Establishing agreements with power generation facilities to evaluate the significance of their air emissions on air quality and public health and to identify new actions to reduce and control their air emissions.

As outlined in the programs above, the District has been and will continue to work cooperatively with counterparts from U.S. EPA, CARB, and Mexico to develop emission reductions strategies and projects for air quality improvement at the border and to provide public information and education to border residents.

B. District

Web-Based Air Quality and Health Information Center

The District and CARB, in cooperation with the U.S. EPA, operate a web-based air quality and health information center for Imperial County (available at: <http://www.imperialvalleyair.org>). Through this project, the community is able to take advantage of the real-time air quality data collected by CARB and District-operated monitoring stations, including data for ozone and particulate matter (PM2.5 and PM10). The website allows residents to sign up to receive email, text, or push notifications (via the Imperial Valley Air Quality mobile app) when air quality in the region reaches unhealthy levels. Features of the mobile app include a forecast discussion with related weather information, an explanation of the Air Quality Index (AQI), a “locate me” GPS-based notification, and an identification of the cities where air monitoring stations are located. The overall purpose of this project is to enable schools and after-school programs, as well as other residents and groups in the county, to make informed choices to reduce their exposure to air pollutants. The projects enable them to prepare to use prescribed treatments, such as inhalers, when air pollution reaches levels that could adversely affect their asthma or other respiratory ailments.

AQI Advertisement Campaign

Asthma is a common health issue in Imperial County, with education in daily air quality conditions being a great need for the community. In order to promote air quality awareness and protection, the District established an AQI Advertisement Campaign with the purpose of educating and alerting the community of the daily particulate risk levels. The campaign serves as a visual communication method by utilizing a marquee at a highly trafficked area of the county, the Imperial Valley Mall. The campaign also utilizes local radio and television stations which display and discuss the AQI alerts. The District received funding to contract with Entravision/Univision, a local high-rated and frequently-viewed television station. Viewers will be informed of the air quality forecast, the current AQI, and the AQI website. This information is broadcast twice a day during the morning and evening news. This contract also includes an agreement with a high-rated radio station which announces the AQI, air quality forecast, and Imperial County AQI website three times a day.

Vehicle Idling Emissions Study at Calexico East and Calexico West Ports of Entry (POE)

Reducing emissions of PM and NO_x from idling vehicles at the Calexico East and Calexico West Ports of Entry (POE) is one of the most important air quality challenges facing the Imperial County and Mexicali region. Even with new vehicle tailpipe emission standards taking effect over the next decade, millions of vehicles at the border will continue to emit large amounts of NO_x, PM, and air toxics, which contribute to serious public health problems in the region.

It is important to understand the impacts and to evaluate the amount of air emissions generated by idling vehicles at the Calexico East and Calexico West POE. On behalf of the AQTF, in 2014, the District was selected as a grantee by BECC to study border idling. The District hired a consulting firm to develop an analysis with two essential elements. The first element was to determine the vehicle idling impacts at both POE. The second element, crucial to any air quality improvement program, was the identification of emission reduction strategies that U.S.-Mexican planning agencies could implement at both POE to reduce impacts on the general population. Estimating emissions from idling vehicles and identifying potential control strategies can be helpful in securing organizational support for federal, State, and local governments on both sides of the border. Overall, this project estimated PM and NO_x emissions from northbound idling vehicles waiting at the two POE and identified emission reduction strategies (with accompanying PM and NO_x reductions) that U.S. and Mexican planning agencies could implement at the POE.

The first phase of this study focused on the collection of real-world data to better characterize and understand the emissions associated with and causes of border crossing delays at the POE. The second and third phases of this study focused on estimating seasonal emissions of PM_{2.5}, ROG, and NO_x at the POE under existing (2014) conditions and assuming several strategies to reduce those emissions. In addition, to analyze existing conditions and an idealized no POE delay scenario, seven emission reduction scenarios were studied:

- Phase 1 of the Calexico West POE reconstruction project;
- Phase 2 of the Calexico West POE reconstruction project;
- Use of California fuel in Mexicali;
- A reduction in empty general-purpose truck trips;
- Replacing 10 percent of general-purpose truck trips to FAST truck trips;
- Streamlining commercial crossing by combining the Aduanas and U.S. Customs and Border Protection (CBP) primary inspections; and
- The Section 559 Proposal to expand the Calexico East POE.

The results indicate that border delay accounts for about 63 percent of the ROG emissions, 46 percent of the NO_x emissions, and 53 percent of the PM_{2.5} emissions from northbound vehicles crossing into the United States on an annual basis. The emissions associated with border delay are equivalent to the TOG (Total Organic Gases which ROG is a subset of) emissions from 2,700 passenger vehicles in Imperial County, the NO_x emissions from 4,400 passenger vehicles in Imperial County, and the PM_{2.5}

emissions from 3,450 passenger vehicles in Imperial County. These results provide a sense of the number of privately owned vehicles in Imperial County that would need to be removed from the vehicle fleet in order to achieve the same air quality emissions benefit as addressing border delays.

C. Community

CARB has been involved with the Environmental Group Comité Cívico del Valle Inc. (CCV) on their community monitoring effort which consists of 40 low-cost air quality sensors that measure PM2.5 and PM10 throughout Imperial County. One of these sensors have been collocated with the Calexico station to compare to the regulatory PM2.5 and PM10 measurements. This aides CCV in validating their sensor data as well as to fine tune their calibration algorithm for this monitoring effort. CARB and CCV partnered together to take a proactive role in promoting community science to assess local air quality. The partnership consists of a \$160,000 contract to evaluate and improve the performance of CCV's existing community-led air monitoring network in Imperial Valley.

Other efforts to help assist community efforts have also taken place. In support of the CARB/Department of Pesticide Regulation pesticide study, CCV ran a pesticide field sampling site. CARB staff trained CCV on pesticide sampling in February of 2018 to help out with this effort. CARB also performed an EBAM PM2.5 collocation study in the spring 2016 (5 schools plus border crossing) with Dylos PM sensors to verify the Dylos calibration algorithm.

VII. ENVIRONMENTAL IMPACTS

The California Environmental Quality Act (CEQA) requires that State and local agency projects be assessed for potential environmental impacts. An air quality plan is a "project" that is potentially subject to CEQA requirements. The District found that the 2018 PM2.5 Plan will not result in any potentially significant adverse effects on the environment and released a Negative Declaration on March 11, 2018, which was certified at a public hearing on April 24, 2018.

CARB has determined that its review and approval of the 2018 PM2.5 Plan submitted by the District for inclusion in the California SIP is a ministerial activity by CARB for purposes of CEQA (14 CCR § 15268). A "ministerial" decision is one that involves fixed standards or objective measurements, and the agency has no discretion to shape the activity in response to environmental concerns (14 CCR § 15369; *San Diego Navy Broadway Complex Coalition v. City of San Diego* (2010) 185 Cal.App.4th 924, 934).

VIII. RECOMMENDATION

CARB staff recommends that the Board approve the Imperial County PM2.5 nonattainment area's 2018 PM2.5 Plan as a revision to the California SIP including the technical analysis of the impacts of international transport demonstrating the Imperial

County PM2.5 nonattainment area will attain the 12.0 $\mu\text{g}/\text{m}^3$ annual PM2.5 standard in 2021 absent the impact of these international emissions.