Nonattainment-Transitional Analysis

February 2017 Report to the District Community Advisory Council

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TABLE OF CONTENTS

1 – INTRODUCTION AND REGULATORY FRAMEWORK

Development and Adoption of the 2016 Ozone Plan

The 2016 Ozone Plan (2016 Plan) was developed in 2016, and was reviewed by the District Community Advisory Council (CAC) at three separate meetings prior to being recommended for Board adoption in August, 2016. It was adopted by the District's Board of Directors in October, 2016. It is the eighth triennial update to the initial state Air Quality Attainment Plan that was adopted by the District Board in 1991 (other updates were done in 1994, 1998, 2001, 2004, 2007, 2010, and 2013). Each of the Santa Barbara County plan updates have implemented an "every feasible measure" strategy to ensure continued progress toward attainment of the state ozone standards.[1] Since 1992, Santa Barbara County has adopted or amended rules implementing more than 25 control measures aimed at reducing emissions at stationary sources. These measures have substantially reduced ozone precursor pollutants (nitrogen oxides, or NOx, and reactive organic compounds, or ROCs). This strategy has successfully improved the County's air quality so that we now meet the state 1-hour ozone standard. While we have yet to attain the state 8-hour ozone standard, we are getting closer. In order to be designated attainment, air quality measurements must show that both the 1-hour and the 8-hour standards are not violated.

The 2016 Plan addresses the state ozone standard only, and does not address the federal ozone standard. The District is not required to prepare a plan for the federal ozone standard. Table 1-1 provides a summary of the state and federal ambient air quality standards for ozone, and their effective dates.

TABLE 1-1: STATE AND FEDERAL OZONE STANDARDS

Ambient Air Quality Standard	Concentration	Year Adopted	Status for Santa Barbara County
State 1-Hour	0.09 ppm	1988	Nonattainment
State 8-Hour	0.070 ppm	2005	
Federal 8-Hour (old)	0.075 ppm	2008	Attainment
Federal 8-Hour (new)	0.070 ppm	2015	Undetermined[2]

[1] As with many California air districts and pursuant to California Health and Safety Code Section 40914 (b), the District employs an alternative emission reduction strategy that employs "*every feasible measure*" and follows an "*expeditious adoption schedule*".

[2] U.S. EPA is expected to finalize designations for the 2015 federal 8-hour ozone standard by October, 2017; the Air Resources Board has recommended to EPA that Santa Barbara County be designated attainment.

Nonattainment-Transitional Designation and California Clean Air Act Requirements

When the 2016 Plan was adopted in October 2016, the District was designated nonattainment for the state ozone standard. However, the District was aware that this designation might soon change to be nonattainment-transitional. The Board adoption included a commitment to review the 2016 Ozone Plan, and determine whether the control measures scheduled for adoption or implementation within the next three years are needed, if the District's designation were to change to nonattainment-transitional. At this point in time, air quality data for the 2016 ozone season has been transmitted to the Air Resources Board and the data indicate that the District's attainment designation will change to nonattainment-transitional in early 2017[3].

The designation of nonattainment-transitional is described in The California Clean Air Act, as codified in California Health & Safety Code (HSC) Section 40925.5. The full text of HSC Section 40925.5 is included in Attachment 1 to this report. An air district is designated nonattainment-transitional if, during a single calendar year, the state standard is not exceeded more than three times at any monitoring location within the district. Santa Barbara County's air quality data for 2015 have been certified by the state and show that there were only two exceedances during the year. Also, the preliminary air quality data for 2016 indicate that the state standard was not exceeded more than three times at any monitoring location. Therefore, we anticipate that our designation will change to nonattainment-transitional.

What does a designation of nonattainment-transitional mean, in terms of air quality planning and control measure implementation?

This change to a nonattainment-transitional designation means that, prior to implementing new control measures, the District must review the plan and determine whether the stationary source control measures scheduled for adoption or implementation within the next three years are needed to accomplish expeditious attainment of the state ozone standard. And, the District may delay a control measure if it determines that delaying the measure will not slow progress toward achieving or maintaining the state ozone standard.

According to the language in HSC Section 40925.5, actions to delay control measures *shall be reviewed by the district in connection with its next review and revision of its attainment plan pursuant to Section 40925.* Also, should the District choose to implement any of the control measures in the 2016 Plan during the 3-year implemtentation period, another section of the HSC, Section 40930, requires additional analysis and

[3] Conversations with California Air Resources Board staff have indicated that Santa Barbara County's designation will change to nonattainment-transitional and that the official designation will be made by the California Office of Management and Budget in early- to mid-2017.

consideration prior to adopting new control measures. The entirety of HSC Sections 40925.5 and 40930 are included in Attachment 1, for reference.

The most critical language in HSC Section 40930 is from item (b), which requires that *the district shall not adopt any new or more stringent control measure until after preparation, and approval by the district board, of an analysis that does all of the following…*

- *Assesses the costs and benefits of all additional district, state, and federal regulatory actions that would be necessary to achieve attainment of the applicable state ambient air quality standard, taking into account only the additional costs and benefits attributable to achieving the state standard for the remaining three or fewer days each year.*

This report was prepared to provide the additional analysis required by HSC Section 40930, so that the CAC can review the analysis as it considers the options and recommendations for implementation of the control measures listed in the 2016 Plan. Section 2 of this report provides information on air quality, emission inventory, and control measures to be considered. Section 2 includes consideration of the factors listed in HSC Sections 40925.5 and 40930, so that the CAC can make an informed recommendation on next steps. Section 3 includes three options for adjusting the 2016 Plan's control measure implementation schedule. Section 4 includes the District's recommendation, as well as the next steps envisioned for this process to update the 2016 Plan control measure implementation schedule, in compliance with the California Clean Air Act.

2 – AIR QUALITY, EMISSION INVENTORY AND CONTROL MEASURE DATA

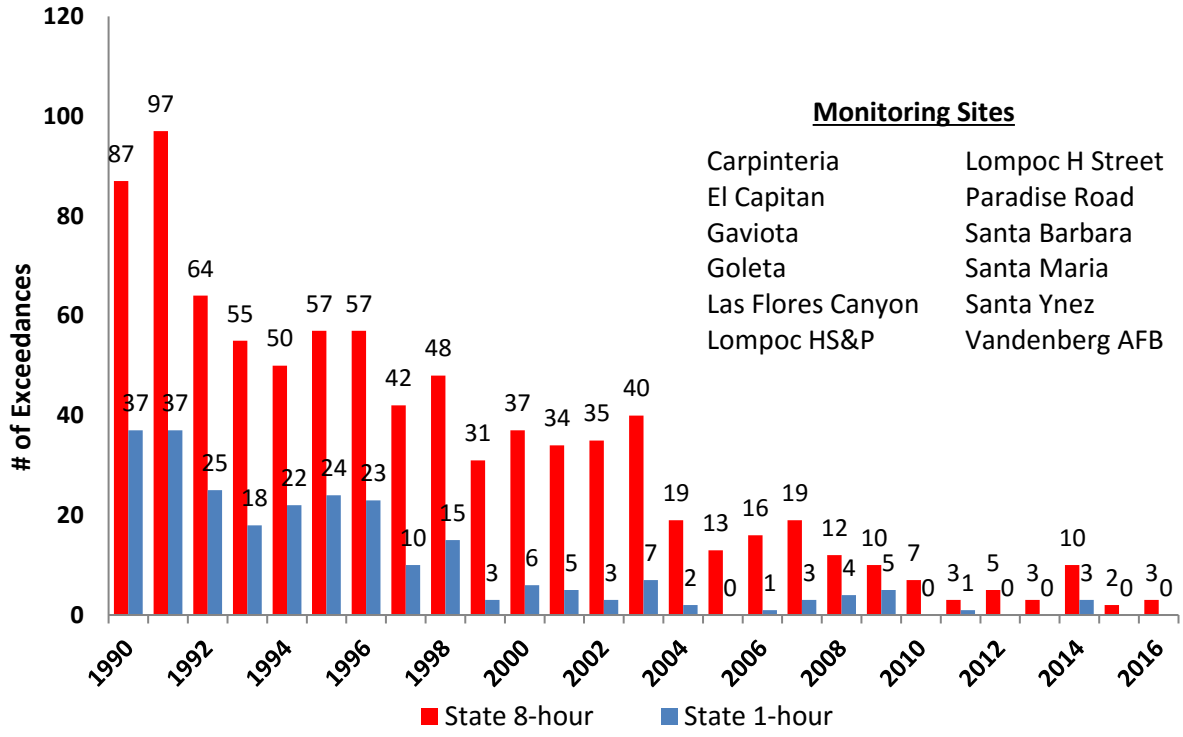
Ozone Concentrations in Santa Barbara County

The 2016 Plan includes a comprehensive review of air quality data and trends for Santa Barbara County.

Figure 2-1 below demonstrates the long-term downward trend in ozone levels at all of the monitoring sites in Santa Barbara County, from 1990 to 2016. In 2015, two 8-hour exceedance days occurred, and in 2016, three 8-hour exceedance days occurred,[4] leading to the anticipated change in designation from nonattainment to nonattainment-transitional.

FIGURE 2-1: 8-HOUR AND 1-HOUR OZONE EXCEEDANCE TRENDS

SANTA BARBARA COUNTY, 1990-2016



Although there has been a downward trend overall, there are still several monitoring stations that measure ozone levels above the state 8-hour standard. Table 2-1 shows the number of

[4] 2016 ozone data are preliminary and subject to review and approval by the California Air Resources Board.

ozone exceedance days per year at each monitoring station. Some of the monitoring stations with the highest readings (e.g., Paradise Road and Las Flores Canyon) are located in areas that are sparsely populated.

TABLE 2-1: SANTA BARBARA COUNTY EXCEEDANCE DAYS AND LOCATIONS, 2007-2016

	Number of Days > State 8-Hour Standard									
Monitor Location	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Las Flores Canyon	11	3	7	4	2	4	1	4	2	1
Paradise Road	9	2	5	6	3	2	2	1	0	1
Carpinteria	2	4	7	3	1	1	1	7	0	0
El Capitan	1	0	0	1	1	0	0	1	0	2
Vandenberg AFB	3	2	0	1	0	0	1	3	0	0
Santa Barbara	1	0	1	0	1	0	0	3	0	1
Goleta	0	0	1	0	1	0	0	3	0	1
Gaviota - Nojoqui	0	0	0	0	2	0	0	2	0	0
Santa Ynez	2	3	0	1	1	0	0	0	0	0
Lompoc HS&P	0	1	0	0	2	0	1	1	0	0
Lompoc H St.	0	1	0	0	0	0	0	1	0	0
Santa Maria	0	0	0	0	0	0	0	0	0	0
*Total Exceedance Days**	**19**	**12**	**10**	**7**	**3**	**5**	**3**	**10**	**2**	**3**

* *Total Exceedance Days* indicates the number of days within a year where an exceedance was measured in at least one monitoring location in Santa Barbara County.

Emission Inventory for Ozone Precursor Pollutants

Ozone pollution occurs in the presence of the precursor pollutants nitrogen oxides (NOx) and reactive organic compounds (ROC), as well as heat and sunlight. Each triennial update to our ozone plan includes an inventory of the ozone precursor pollutants NOx and ROC. Table 3-1 includes the emission inventory for the 2016 Plan base year (2012), and forecast years 2025 and 2035. This inventory includes sources that are within our air district's regulatory control (stationary sources), as well as sources that are generally outside of our local control (area-wide sources and mobile sources). Data for the 2016 Plan emission inventory was compiled by both the air district (for regulated stationary sources as well as some area-wide sources) and the California Air Resources Board (ARB, for some area-wide sources and mobile sources). In order to ascertain the "growth" in emissions over time, growth profiles were developed and were applied to the 2012 base year data to project future year emissions. Also, in order to adjust for the emission reductions that are expected to occur due to existing regulations being implemented over time, control profiles were developed and were applied to the base year data to project future year emission decreases. These growth profiles do not estimate emission reductions from any new regulations which may be adopted between now and 2035.

TABLE 2-2: ROC AND NOX EMISSION FORECASTS (TONS PER DAY)[5]

Source Category	2012		2025		2035	
	ROC	NOx	ROC	NOx	ROC	NOx
Stationary Sources	11.51	5.35	11.90	5.15	13.59	5.25
Area-wide Sources	12.62	0.46	11.09	0.30	11.44	0.27
On-Road Vehicles	4.88	9.44	1.81	2.65	1.61	2.11
Other Mobile [6]	3.22	6.83	2.18	4.51	1.93	3.83
Marine Shipping	2.13	49.50	4.14	39.36	6.09	36.24
Total	**34.37**	**71.58**	**32.06**	**51.96**	**35.67**	**47.69**

Upon closer examination of Table 2-2, the following generalizations can be made about the emission forecasts, and where and why the largest amount of emission reductions are anticipated to occur:

- Stationary source NOx emissions are estimated to remain fairly stable, despite anticipated growth in some industrial sectors. Stationary source ROC emissions are expected to increase slightly due to additional solvent and coating use from expanding businesses. For the Santa Barbara County oil and gas production sector, a growth factor of 1.0 was used. This is discussed further in the 2016 Plan.
- Area-wide source emissions are anticipated to remain fairly stable; some statewide consumer product regulations will reduce ROC emissions, and population growth will increase ROC emissions. NOx emissions will be reduced slightly over time by phasing in newer, cleaner combustion equipment at residential sources (per District Rule 352, amended in 2011).
- On-road vehicle measures, including better emission controls, greater fuel efficiency, and increasing use of zero emission vehicles, are expected to greatly reduce both NOx and ROC emissions. A certain amount of turnover in the vehicle fleet is assumed, and is critical to accommodate the newer, cleaner vehicles required by California's Zero Emission Vehicle (ZEV) Regulation and Truck and Bus Regulation.
- Other mobile equipment emissions of both NOx and ROC are expected to decline as a result of the Air Resources Board's in-use regulation of offroad equipment, which includes construction and other mobile equipment.
- Marine shipping emissions, although they occur offshore of Santa Barbara county, are a very large component of the NOx emission inventory and can potentially move onshore and affect local ozone concentrations. NOx emissions are anticipated to decrease as federal and international requirements for cleaner burning engines cause the vessel

[5] Includes emissions occurring both onshore and in the Outer Continental Shelf (OCS).
[6] Marine Shipping emissions have been broken-out of the Other Mobile category in this table.

fleet to become cleaner. However, there is a long lag time for the fleet to turn over. And, ROC emissions are expected to increase due to an increase in vessel activity and fuel consumption.

HSC Section 40925.5 requires that, when determining whether the stationary source control measures scheduled for adoption or implementation within the next three years are needed to accomplish expeditious attainment, the following factors should be considered:

- Effect of adopted ***and proposed*** motor vehicle controls
- Effect of adopted ***and proposed*** area source controls
- Turnover of the vehicle fleet
- Impact of measures previously adopted by the district which are in the process of being implemented
- Impact of measures previously adopted by the state board which are in the process of being implemented
- Impact of measures previously adopted by the EPA which are in the process of being implemented
- Other significant factors that influence emission trends

By applying both the growth profiles and the control profiles described above to the inventory data to estimate future year emissions, and using the best available emission estimates for mobile sources provided by ARB in consultation with EPA, this inventory reflects all of the changes in emissions that are anticipated due to ***adopted*** control measures.

As indicated in bold above, HSC Section 40925.5 also requires consideration of ***proposed*** motor vehicle and area source controls. The District is aware of a wide variety of State proposals (both regulatory and voluntary/incentive-based) that would reduce mobile and area source emissions of ozone precursors. For example, they may involve providing infrastructure for zero emission vehicles, reducing "vehicle miles traveled" (VMT), reducing greenhouse gas emissions at residential, commercial, industrial, municipal and agricultural sources, improving energy efficiency, or increasing the use of renewable energy. Specific examples of such proposals or voluntary measures (subject to funding availability) are:

- The Air Resources Board is developing a regulation involving Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities; this regulation may result in additional ROC reductions above and beyond currently adopted measures.

- The Air Resources Board is developing a Target 2030 Scoping Plan that is expected to lay out a number of proposals to further reduce greenhouse gases across many sectors (including area sources) statewide. In many instances, these efforts may lead to reductions in NOx and/or ROC emissions from both mobile and area sources.

- Voluntary vehicle retirement programs, such as the District's Old Car Buy Back Program, and other incentive programs such as California's Clean Vehicle Rebate Program and Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) Program, can help to accelerate fleet turnover so that cleaner cars and trucks come into use.

These ***proposed*** measures were not specifically quantified in the 2016 Plan emission inventory and future year projections. But, if they are implemented, they can be expected to further reduce NOx and ROC emissions. However, there is no guarantee that these measures will be implemented, since at this point they are either proposals or voluntary programs that are subject to funding availability, and are not legislative or regulatory mandates. It is expected they will reduce NOx emissions more than ROC emissions.

Stationary Source Control Measures Included in the 2016 Ozone Plan

The 2016 Plan identified six different stationary source control measures that were considered feasible and cost-effective to implement during the 3-year plan period, 2017 to 2019. These stationary source control measures focus on achieving both NOx reductions and ROC reductions by promoting the use of ultra-low NOx burners and low-ROC solvents. To ensure that the District proposed the most feasible measures for Santa Barbara County, staff performed the following when creating the 2016 Ozone Plan Implementation schedule:

1) Compared the District's rules to rules currently adopted by other California air districts;
2) Reviewed new staff reports and guidance documents on any recent or upcoming revisions to other air district, ARB, and EPA rules; and
3) Considered the magnitude of the emissions reductions as well as the cost-effectiveness of the measures.

The implementation schedule was developed with these criteria in mind, and target adoption dates were set for each measure. All of the measures were found to have a cost-effectiveness similar to those measures previously adopted by Santa Barbara County Air Pollution Control District. The 2016 Ozone Plan implementation schedule, the associated cost-effectiveness of each measure, estimated number of facilities/units affected by the measures, and the emission reductions estimated to be achieved are included in Attachment 2 of this report. Following is a more in-depth discussion of the process and reasoning for the stationary source control measures in the 2016 Ozone Plan.

Cost-Effectiveness and Feasibility of Measures

As part of the 2016 Plan adoption, the NOx control measures from the prior plan (the 2013 Clean Air Plan) were reevaluated to assess whether they were still considered cost-effective and feasible. This involved looking at regulations and air pollution control guidance from other air districts, the Air Resources Board, and the U.S. EPA, and determining whether there was any new information or technology that would necessitate a change to the control measure. New information related to equipment or installation costs was considered. In addition, the current Santa Barbara County inventory of permitted and permit-exempt equipment, and their usage amounts, were examined. Staff compiled updated information on equipment and installation costs, and made reasonable assumptions for the operational life of the units, ongoing maintenance, testing and material costs, and the units' average operational load.

After examining this information more carefully, staff determined that the units with the highest pollution control costs were those that required a retrofit. In addition, the highest cost units were generally larger units that were run at very low operational loads or were only utilized for relatively short durations during the year. Staff determined that by eliminating the retrofit requirement, especially for the larger, low-usage units, the control measure becomes much more cost-effective. Also, if the measure requires lower emission standards for new units only (as opposed to retrofits), it becomes more feasible for businesses because they can plan for the additional cost at the time that a unit is replaced or newly acquired. Thus, the cost-effectiveness values for the NOx control measures in 2016 Ozone Plan decreased significantly from those in the 2013 Clean Air Plan.

In summary, the NOx control measures that had previously required retrofit of existing combustion equipment were tailored instead to only apply to new or modified equipment. Table 2-3 below provides the revised cost-effectiveness values for all six of the stationary source control measures in the 2016 Plan. As stated earlier, these values are also included in the tables in Attachment 2 to this report.

TABLE 2-3: CONTROL MEASURE COST-EFFECTIVENESS

2016 Ozone Plan Stationary Source Control Measures	Cost-Effectiveness ($/Ton)
NOx reductions Revised Rule 360 - Boilers, Water Heaters, and Process Heaters (0.075 - 2 MMBtu/hr)	$2,800 to $11,300
NOx reductions Revised Rule 361 - Boilers, Steam Generators, and Process Heaters (2 - 5 MMBtu/hr)	$13,100 to $17,300
NOx reductions Revised Rule 342 - Boilers, Steam Generators, and Process Heaters (5+ MMBtu/hr)	$8,700 to $21,000
ROC reductions Revised Rule 321 - Solvent Cleaning Machines and Solvent Cleaning	$0 to $1,000
ROC reductions Revised Rule 351 - Surface Coating of Wood Products	$1,000 to $2,000
ROC reductions Revised Rule 354 - Graphic Arts	$1,000 to $3,100

Anticipated Emission Reductions

Together, the NOx control measures in the 2016 Plan were estimated to result in approximately 0.1 tons per day of emission reductions. Compared to the emission inventory presented in Table 2-2, these emission reductions would result in approximately a 2% decrease in the NOx emissions from stationary sources.

Similar to the NOx measures, the ROC control measures were also reevaluated as part of the 2016 Plan process to ensure that they were still feasible. The ROC control measures would require various industries to use solvents with an ROC content of 25 grams/liter (g/L), or less. Together, the ROC control measures in the 2016 Plan were estimated to result in approximately 0.29 tons per day of emission reductions, or approximately a 2.5% decrease in the ROC emissions from stationary sources.

The anticipated emission reductions for each of the control measures are included in the tables included in Attachment 2.

Impact of Control Measures on Santa Barbara County Businesses

As discussed previously, the NOx control measures that had previously required retrofits (units subject to Rules 361 and 342) were revised so that they no longer required retrofits. This reduced the economic impact of the control measures, particularly for larger units with low or

seasonal usage. Currently, the three NOx control measures that are included in the 2016 Plan only require more stringent pollution controls when they are initially purchased, or when they are replaced or modified.

It should be noted that the majority of the ROC reductions in the 2016 Plan were from Rule 354, Graphic Arts. The graphic arts businesses in Santa Barbara County are not currently subject to District permit requirements; therefore, the District does not currently have recent emission information from these sources, such as the amounts and types of ROC materials used. The data that was used to estimate the emission reductions from this business sector will need to be updated to further this rule development project and reaffirm the cost-effectiveness and feasibility of the control measure. Also, the District notes that implementing the Rule 354 control measure may require some portion of the graphic arts businesses in the county to obtain permits for the first time. Since some of these are small businesses, this may result in administrative challenges and costs for both the businesses and the District.

In summary and as discussed above, all of the control measures in the 2016 Plan were found to be feasible and cost-effective based on available information. The cost-effectiveness estimates in the 2016 Plan (included in Attachment 2 to this report) were calculated based on the incremental (additional) costs to implement the control measures, above and beyond the cost to comply with existing requirements. This is consistent with the requirements of HSC Section 40930(b)(1), which requires that the District, prior to adopting any new control measures, "*assess the costs and benefits of all additional district, state, and federal regulatory actions that would be necessary to achieve attainment of the applicable state ambient air quality standard, taking into account only the additional costs and benefits attributable to achieving the state standard for the remaining three or fewer days each year.*" Therefore, the cost-effectiveness assessment in the 2016 Plan is consistent with the cost-effectiveness methodology described in HSC Section 40930(b)(1).

It should also be noted that the goal of implementing these control measures is to not only achieve ***attainment*** of the state ozone standard, but to also ***maintain*** the standard. If some measures are not implemented, and the District's monitoring stations start to measure ozone concentrations that are above the 8-hour standard, the designation may shift back to nonattainment, which may then necessitate additional or stricter control measures for stationary sources.

A Case for Focusing on NOx Reductions

As mentioned previously, ozone pollution occurs in the presence of precursor pollutants ROC and NOx, as well as heat and sunlight. Other physical conditions can also increase the likelihood of ozone formation – such as wind patterns, topography, and the presence of temperature inversions or other factors that increase stagnation/reduce atmospheric mixing. Different regions in California experience high ozone concentrations due to the presence of precursor pollutants and other unique physical characteristics. Some of the air basins in California with the most elevated and persistent ozone pollution, such as the South Coast Air Quality Management District and the San Joaquin Valley Air Pollution Control District, are required to prepare comprehensive studies, conduct photochemical modeling, and commit to adopting stringent control measures as part of their air quality planning efforts. In the process of preparing their air quality plans, some districts have discovered through photochemical modeling that NOx emission reductions are more critically needed (as opposed to ROC emission reductions) to achieve ozone reductions and attainment of ozone air quality standards.

There is a large body of research that supports the understanding that reducing NOx emissions can be more critical to reducing ozone formation than ROC reductions. In regions with relatively low NOx concentrations and higher ROC concentrations, ozone is found to increase with increasing NO_x, and changes little in response to increasing ROC. This is considered a NOx-sensitive, or NOx-limited, regime. In NOx-saturated conditions (also called an ROC-sensitive regime), ozone levels decrease with increasing NO_x and increase with increasing ROC.[7] Air districts and the Air Resources Board have conducted extensive photochemical modeling for different regions throughout the state, and have characterized the amounts of NOx reductions versus ROC reductions needed to reduce ozone levels in those regions. Following is a summary of some of those efforts.

The South Coast Air Quality Management District has used the Community Multiscale Air Quality (CMAQ) state-of-the-science photochemical model and has found that for some areas, NOx reductions alone will achieve the necessary reductions in ozone levels. However, in other areas a combination of both ROC and NOx reductions will achieve the necessary reductions in ozone levels. Based on their analysis, they have concluded that a NOx-reductions-only approach can lead to attainment (of the federal ozone standard) and would involve the fewest amount of tons reduced. However, such an approach may lead to elevated ozone levels in some areas during the interim years leading up to attainment. An ROC-reductions-only approach was not able to achieve attainment; furthermore, in order to reduce ROC emissions in this scenario many of the ROC-emitting sectors would need to reformulate products and would

[7] Silman, Dr. Sanford, *Overview: Tropospheric Ozone, Smog and Ozone-NOx-VOC Sensitivity*, www-personal.umich.edu/~sillman/Sillman-webOZONE.pdf

take many years to achieve widespread use. A combined approach was found to require more tons reduced overall, but also provided co-benefits in terms of particulate matter, toxic air pollutants, and greenhouse gas emission reductions. Ultimately, the recommended approach for their most recent air quality planning effort is to focus on NOx-heavy controls, with strategic and tiered VOC reductions.[8]

The San Joaquin Valley Air Pollution Control District also used the CMAQ model, as well as other studies, to examine whether their air basin was NOx-limited. The conclusion summarized in their 2016 Ozone Plan is that most of the air basin is already or will soon be in a NOx-limited situation. A UC Berkeley study also corroborated this finding and concluded that *NOx controls will be immediately and incrementally more effective than corresponding ROC controls in lowering the Valley's ozone levels.*[9]

As stated previously, the Santa Barbara County Air Pollution Control District, as part of the South Central Coast Air Basin, is currently in attainment of the federal ozone air quality standard, and is not required to conduct photochemical modeling to ascertain the estimated amounts of ROC and NOx reductions required to reduce ozone concentrations to achieve attainment of air quality standards. However, based on the extensive research on atmospheric chemistry and the conclusions of studies done by other California air districts, we believe that focusing on reductions of NOx, as opposed to ROCs, is more critical to reducing ozone pollution in Santa Barbara County.

[8] South Coast Air Quality Management District, *2016 AQMP White Paper (October 2015):VOC Controls*, www.aqmd.gov/docs/default-source/Agendas/aqmp/white-paper-working-groups/wp-voc-revdf.pdf?sfvrsn=2

[9] San Joaquin Valley Air Pollution Control District, June 16, 2016*: Appendix H: Modeling Attainment Demonstration, 2016 Plan for the 2008 8-Hour Ozone Standard*, Pg. H-41, www.valleyair.org/Air_Quality_Plans/Ozone-Plan-2016/h.pdf.

3 – OPTIONS FOR CONSIDERATION

Because the District's ozone designation is expected to change to nonattainment-transitional in the first half of 2017, the District must evaluate the 2016 Ozone Plan and assess whether the proposed control measures are necessary to ***achieve and maintain*** the state ozone standard. According to HSC 40925.5, if the District determines that some of the measures aren't necessary, those measures should either be delayed or shifted to contingency measures. As required by HSC Section 40930 and as discussed in Section 1 of this report, the District must do an analysis and provide a justification before any new control measures are adopted. District staff considered a range of options to meet these requirements. This report presents three different options for consideration by the Community Advisory Council.

Option 1 - Maintain Implementation Schedule in the 2016 Ozone Plan

After considering the control measure implementation schedule and the need for additional control measures required to achieve and maintain the state ozone standard, the District could conclude that the original, adopted implementation schedule should be followed for the 2016 Plan period (2017 to 2019). As discussed in Section 2 of this report, all of the control measures were found to be cost-effective and feasible. However, prior to implementing any control measures (i.e., developing or revising the rules that will require the emission reductions), the District would have to do the analysis required by HSC Section 40930 to demonstrate that each control measure is necessary to achieve (and maintain) attainment of the state ozone standard. This option would be less work at the outset, but it's expected that District staff would need to do a more comprehensive analysis and justification, which may involve more CAC meetings and consideration, and District Board consideration with each control measure implementation cycle. The original adoption schedule is included in Attachment 2 to this report.

Option 2 – Revise Implementation Schedule - Proceed with NOx Measures Only

The 2016 Ozone Plan includes both NOx and ROC control measures. As discussed in Section 2 of this report, we believe that NOx reductions would be more effective at reducing ozone levels and achieving attainment of the ozone standard. And, the NOx control measures in particular were revised from the prior plan (the 2013 Clean Air Plan) so that they would be cost-effective and would be less of a burden to businesses, since they no longer require retrofits to existing equipment. This option proposes to implement the three NOx control measures that were proposed for implementation during this plan cycle (2017-2019), and hold off on implementing the three ROC control measures. The ROC control measures would be shifted to contingency measures. During the next triennial update, as required by HSC 40925.5 (g), the District would need to review this decision and action, and determine whether the measures should remain as

contingency measures. Also, as required by HSC Section 40925.5(f), district actions may be disapproved by the Air Resources Board within 90 days if it finds that the actions will delay expeditious attainment of the state ozone standard. As discussed in Section 2 of this report, additional proposals at the state and federal levels may help to reduce ozone precursor emissions (mostly NOx) from mobile and area sources. See the revised schedule associated with this option, in Attachment 2.

Option 3 – Revise Implementation Schedule - Delay Implementation of All Control Measures

This option would involve revising the implementation schedule and shifting all six of the stationary source control measures in the 2016 Plan to contingency measures. A decision to proceed with this option is built on the premise that additional stationary source control measures are not needed to attain (and maintain) the state ozone standard. This option would assert that all of the control measures that have been adopted previously, and the additional reductions anticipated in the mobile and area source categories, would be enough to continue the downward trend in ozone concentrations. As discussed previously, the district has not performed air quality modeling to ascertain whether the projected ozone precursor emission inventory, accounting for growth in businesses and population countywide, would result in ozone concentrations at or below the state ozone standard. As required by HSC Section 40925.5(f), district actions may be disapproved by the Air Resources Board within 90 days if it finds that the actions will delay expeditious attainment of the state ozone standard. Attachment 2 to this report includes a revised control measure implementation schedule for this option – which essentially indicates that all of the measures will be shifted to contingency measures.

4 – RECOMMENDATION AND NEXT STEPS

Recommendation

The district has considered the three options presented in this report, as well as other options, and recommends proceeding with Option 2, which would involve implementing the NOx control measures and shifting the ROC control measures to contingency measures. This recommendation is based on the following:

- Air quality modeling in other regions in California have shown that reducing NOx emissions is critical to reducing ozone concentrations.
- Although we are not able to determine the precise amount of emission reductions needed to achieve attainment, we believe that additional reductions of NOx emissions will help to ensure that we eventually achieve attainment of the state ozone standards.
- Implementing cost-effective control measures is aligned with our mission to protect public health.
- The NOx control measures have been revised in such a way as to minimize their economic impact on businesses.
- The NOx control measures, by design, involve long-term investments in cleaner combustion technology, and ensure that the anticipated emission reductions will continue to occur for long periods of time (in most cases, for decades).
- Although we are aware of state and federal proposals to implement measures that would reduce mobile and area-wide ozone precursors, many of these proposals are not directed at ozone precursor benefits and there are no assurances that the proposals will be implemented.
- The federal ozone standard, although it differs from the state standard in how designations are determined, is now set at the same level as the state standard. Moving forward with feasible, cost-effective NOx control measures would help avoid a situation where both the state and the federal ozone standard are exceeded in the future.

Next Steps

After consideration and discussion, we expect that the CAC will recommend that the District proceed with one of the options described in this report.

After the CAC makes a recommendation, District staff will prepare a report to the District Board. Any revisions to the implementation schedule will be considered at its next scheduled meeting.

ATTACHMENT 1 – APPLICABLE CALIFORNIA HEALTH & SAFETY CODE SECTIONS

Section 40925.5 Nonattainment-transitional District

The following language is provided verbatim from the *California Health & Safety Code, Division 26, Air Resources; Part 3, Air Pollution Control Districts; Chapter 10, District Plans to Attain State Ambient Air Quality Standards*. Explanatory footnotes have been added to clarify requirements in the context of this report.

(a) A district which is nonattainment for the state ozone standard shall be designated "nonattainment-transitional" by operation of law if, during a single calendar year, the state standard is not exceeded more than three times at any monitoring location within the district.

(b) Any district which is designated nonattainment-transitional under subdivision (a) shall review its plan for attaining the state ozone standard and shall determine whether the stationary source control measures scheduled for adoption or implementation within the next three years by the district are needed to accomplish expeditious attainment or to maintain the state standard following the projected attainment date. In making that determination, the district shall consider air quality trends, the effect of the state's adopted and proposed motor vehicle and area source control programs, turnover of the vehicle fleet, the impact of measures previously adopted by the district, the state board, and the Environmental Protection Agency which are in the process of being implemented, and other significant factors influencing emissions trends.

(c) If a nonattainment-transitional district determines that one or more of the stationary source control measures scheduled for adoption or implementation within the next three years are no longer necessary to accomplish expeditious attainment or to maintain the state standard, the district shall shift those measures to the contingency category.

(d) If a nonattainment-transitional district determines that delaying one or more stationary source control measures will not retard the achievement of the state ozone standard, it may delay that measure.

(e) Subdivisions (c) and (d) shall not apply to any stationary source control measures required by Section 39610. In addition, subdivisions (c) and (d) shall be suspended at any time that the district ceases to qualify for a nonattainment-transitional designation under subdivision (a).[1]

(f) Actions of any district pursuant to this section are effective immediately. The state board may disapprove any action of the district pursuant to this section within 90 days of the action. The state board shall not disapprove district actions pursuant to this section unless it finds that the actions will delay expeditious attainment of the state ozone standard. Actions taken by the state board pursuant to this subdivision are subject to Section 41503.4.

(g) Actions of any district pursuant to subdivisions (c) or (d) shall be reviewed by the district in connection with its next review and revision of its attainment plan pursuant to Section 40925.

Section 40930 Report on number of days district violated state standards; Restrictions on adoption of more stringent control measures

(a) Each district that has adopted a plan pursuant to this chapter shall, on or before January 31 of each year, prepare and submit to the state board a report identifying the number of days during the preceding calendar year that air quality in the district violated each state ambient air quality standard for which the district's status is nonattainment.

(b) For any pollutant for which the report indicates that the applicable state ambient air quality standard was not violated during more than three days during the calendar year at any one or more monitoring locations within the district, the district shall not adopt any new or more stringent control measure until after preparation, and approval by the district board, of an analysis that does all of the following:

> (1) Assesses the costs and benefits of all additional district, state, and federal regulatory actions that would be necessary to achieve attainment of the applicable state ambient air quality standard, taking into account only the additional costs and benefits attributable to achieving the state standard for the remaining three or fewer days each year.
>
> (2) Includes consideration of all of the socioeconomic impacts specified in Section 40728.5.[2]

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[1] HSC Section 39610 pertains to air districts that have been identified by the Air Resources Board as being affected by transported air pollutants from upwind areas outside of the air basin, or air basins whose pollutants affect ozone concentrations in a downwind air basin. Santa Barbara County, as part of the South Central Coast Air Basin, has not been identified for either of those situations.

[2] HSC Section 40728.5 does not apply to air districts with a population of less than 500,000 persons; therefore, this section does not apply to Santa Barbara County.

(3) Identifies, if the district is an upwind district, the benefits of the additional regulatory actions in the district on the air quality in any downwind district, and identifies the costs attributable to those regulatory actions.

(c) The state board shall review the district analyses prepared pursuant to subdivision (b) to ensure expeditious progress towards attainment in both the district that prepared the analysis and any downwind district and to ensure that any resulting action of the district that prepared the analysis does not adversely affect any downwind district.

ATTACHMENT 2 – CONTROL MEASURE IMPLEMENTATION SCHEDULES FOR THE THREE OPTIONS

Three options were discussed in Section 3 of this report. The following tables show the revised control measure implementation schedule for each of the three options.

OPTION 1: IMPLEMENTATION SCHEDULE IN THE ADOPTED 2016 OZONE PLAN

Rule	Description	2016 Plan Adoption Schedule	2016 Plan Cost-Effectiveness ($/Ton)	Estimated Number of Units Affected[12]	2016 Plan Emission Reductions, Tons/Day (Tons/Year)	
					ROC	NO_X
360	**Boilers, Water Heaters, and Process Heaters (0.075 - 2 MMBtu/hr)** Revisions to reduce the NOx limits to 20 ppmv at 3% oxygen for newly installed natural gas fired units.	2017	$2,800 to $11,300	1,770	-	0.05 (19.8)
361	**Boilers, Steam Generators, and Process Heaters (2 - 5 MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 12 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	2017	$13,100 to $17,300	160	-	0.03 (10.42)
342	**Boilers, Steam Generators, and Process Heaters (5+ MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 15 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	2017	$8,700 to $21,000	42	-	0.02 (6.36)
321	**Solvent Cleaning Machines and Solvent Cleaning** Revisions to lower the general cleaning ROC limit from 50 grams per liter to 25 g/L.	2018	$0 to $1,000	150	0.02 (6.35)	-
351	**Surface Coating of Wood Products** Revisions to include solvent cleaning provisions at 25 g/L.	2018	$1,000 to $2,000	4	0.001 (0.42)	-
354	**Graphic Arts** Revisions to include solvent cleaning provisions at 25 – 100 g/L and additional requirements for Rotogravure, Flexographic, Lithographic, Letterpress, and Screen Printing operations. Existing facilities would have to be permitted to enforce the rule.	2019	$1,000 to $3,100	75	0.27 (98.21)	-
				Totals:	**0.29 (104.98)**	**0.10 (36.58)**

[12] The boiler rules are listed in terms of "units affected." The solvent rules are listed in terms of "facilities affected."

OPTION 2: REVISED IMPLEMENTATION SCHEDULE, NOX CONTROL MEASURES ONLY

Rule	Description	2016 Plan Adoption Schedule	2016 Plan Cost-Effectiveness ($/Ton)	Estimated Number of Units Affected	2016 Plan Emission Reductions, Tons/Day (Tons/Year)	
					ROC	NO_X
360	**Boilers, Water Heaters, and Process Heaters (0.075 - 2 MMBtu/hr)** Revisions to reduce the NOx limits to 20 ppmv at 3% oxygen for newly installed natural gas fired units.	2017	$2,800 to $11,300	1,770	-	0.05 (19.8)
361	**Boilers, Steam Generators, and Process Heaters (2 - 5 MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 12 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	2017	$13,100 to $17,300	160	-	0.03 (10.42)
342	**Boilers, Steam Generators, and Process Heaters (5+ MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 15 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	2017	$8,700 to $21,000	42	-	0.02 (6.36)
321	**Solvent Cleaning Machines and Solvent Cleaning** Revisions to lower the general cleaning ROC limit from 50 grams per liter to 25 g/L.	Contingency Measure	$0 to $1,000	-	-	-
351	**Surface Coating of Wood Products** Revisions to include solvent cleaning provisions at 25 g/L.	Contingency Measure	$1,000 to $2,000	-	-	-
354	**Graphic Arts** Revisions to include solvent cleaning provisions at 25 – 100 g/L and additional requirements for Rotogravure, Flexographic, Lithographic, Letterpress, and Screen Printing operations. Existing facilities would have to be permitted to enforce the rule.	Contingency Measure	$1,000 to $3,100	-	-	-
				Totals:	**-**	**0.10 (36.58)**

OPTION 3: REVISED IMPLEMENTATION SCHEDULE, ALL CONTROL MEASURES SHIFT TO CONTINGENCY

Rule	Description	2016 Plan Adoption Schedule	2016 Plan Cost-Effectiveness ($/Ton)	Estimated Number of Units Affected	2016 Plan Emission Reductions, Tons/Day (Tons/Year)	
					ROC	NO_X
360	**Boilers, Water Heaters, and Process Heaters (0.075 - 2 MMBtu/hr)** Revisions to reduce the NOx limits to 20 ppmv at 3% oxygen for newly installed natural gas fired units.	Contingency Measure	$2,800 to $11,300	-	-	-
361	**Boilers, Steam Generators, and Process Heaters (2 - 5 MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 12 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	Contingency Measure	$13,100 to $17,300	-	-	-
342	**Boilers, Steam Generators, and Process Heaters (5+ MMBtu/hr)** Revisions to reduce the NOx limits to 9 or 15 ppmv at 3% oxygen for newly installed natural gas fired units. Higher limits for other fuels.	Contingency Measure	$8,700 to $21,000	-	-	-
321	**Solvent Cleaning Machines and Solvent Cleaning** Revisions to lower the general cleaning ROC limit from 50 grams per liter to 25 g/L.	Contingency Measure	$0 to $1,000	-	-	-
351	**Surface Coating of Wood Products** Revisions to include solvent cleaning provisions at 25 g/L.	Contingency Measure	$1,000 to $2,000	-	-	-
354	**Graphic Arts** Revisions to include solvent cleaning provisions at 25 – 100 g/L and additional requirements for Rotogravure, Flexographic, Lithographic, Letterpress, and Screen Printing operations. Existing facilities would have to be permitted to enforce the rule.	Contingency Measure	$1,000 to $3,100	-	-	-
				Totals:	**-**	**-**