Nonattainment-Transitional Analysis

February 2017 Report to the District Community Advisory Council

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February 8, 2017

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Presentation Overview

- Air Quality in Santa Barbara County
- Nonattainment-Transitional Designation
- Emission Inventory Data
- Control Measures in the 2016 Plan
- Range of Options for CAC Consideration
- Staff Recommendation and Next Steps
- Questions, Discussion, CAC Recommendation

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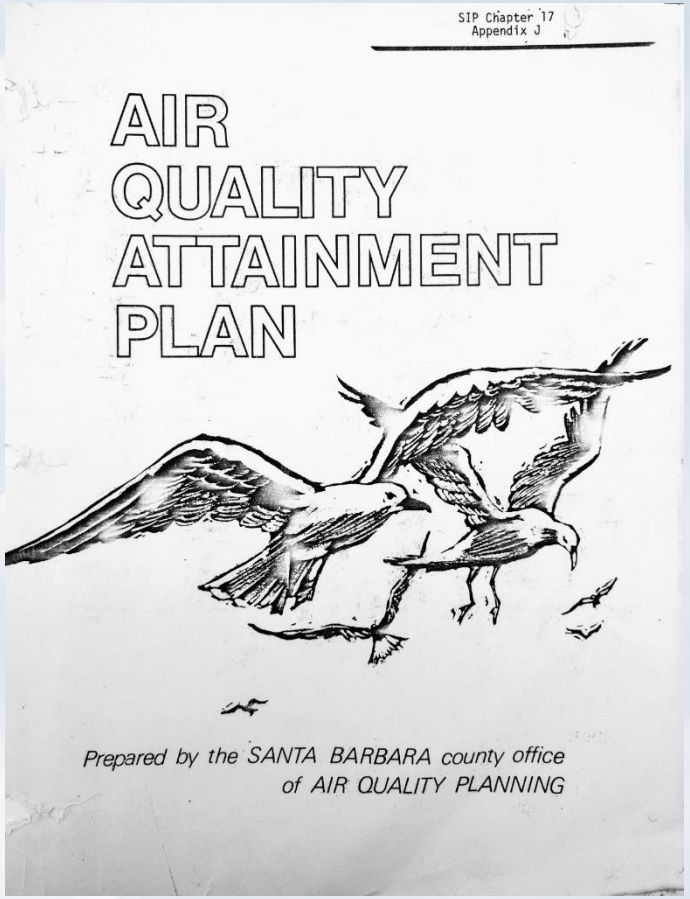
Ozone Air Quality in SB County

- Historically, District was nonattainment for both state and federal ozone standards
- Developed numerous attainment plans, triennial update schedule
- **Federal standard:** expect to be attainment, later this year
- **State standard:** Continuous decline in measured values, but 8-hr standard is still exceeded under certain conditions



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Air Quality Data

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

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Nonattainment-Transitional

- The 2016 Ozone Plan was developed as required by the California Clean Air Act
- Identified a schedule for implementing additional control measures to attain and maintain the ozone standard
  - Feasible
  - Cost-effective
  - Expeditious schedule
- Based on recent ozone concentrations, we will be designated nonattainment-transitional (finalized in early- to mid-2017)
- Requires us to re-evaluate the implementation schedule for control measures in the 2016 Ozone Plan (CA HSC 40925.5)
  - Additional analysis if/when new control measures are adopted (CA HSC 40930)

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Emission Inventory and Projections

- The 2016 Ozone Plan includes both historical and future projected emissions from a 2012 “base year”
- Ozone precursors ROC and NOx
- Includes all adopted measures
- Reflects growth in population, industrial/commercial activities where appropriate
- Does not include proposed measures

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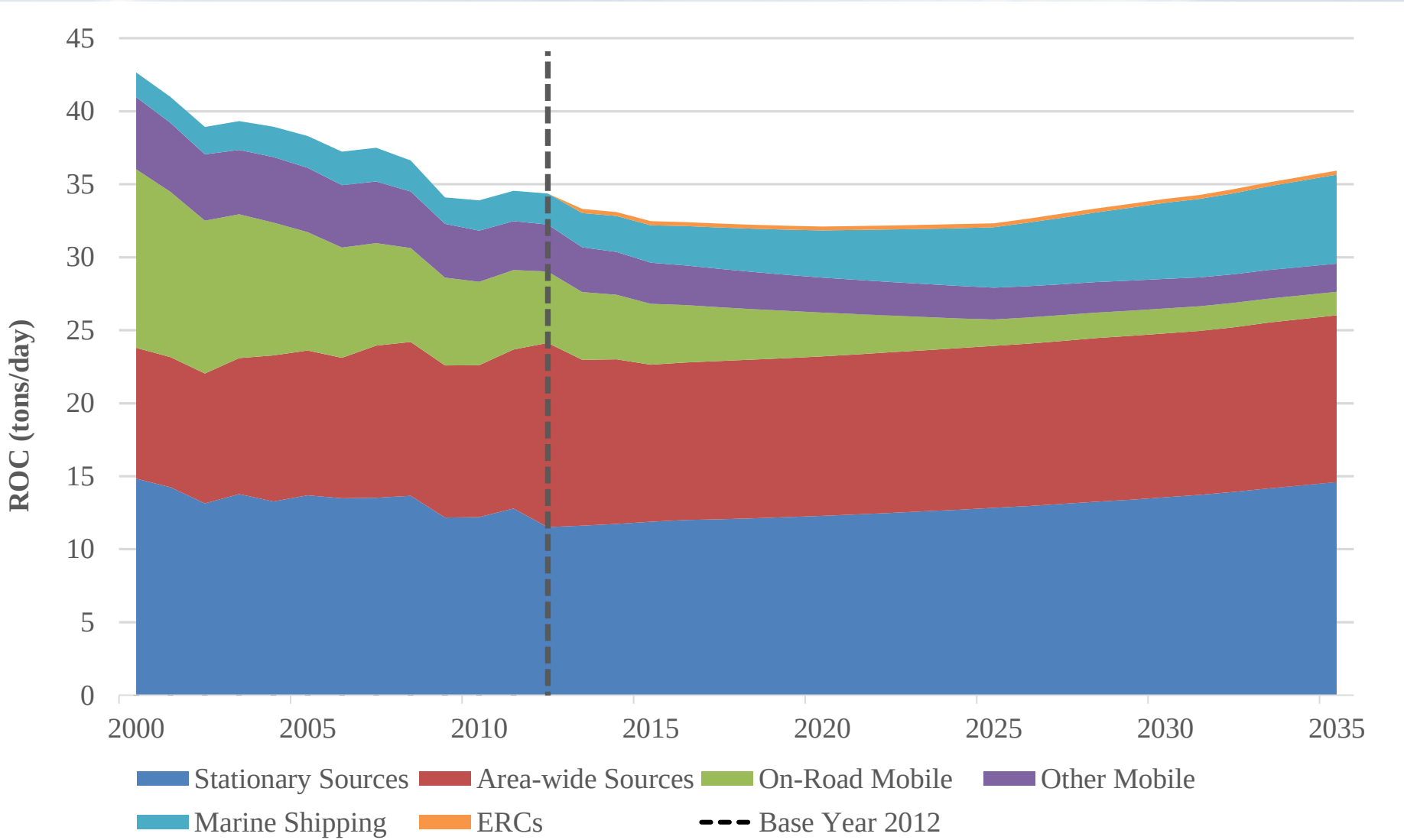
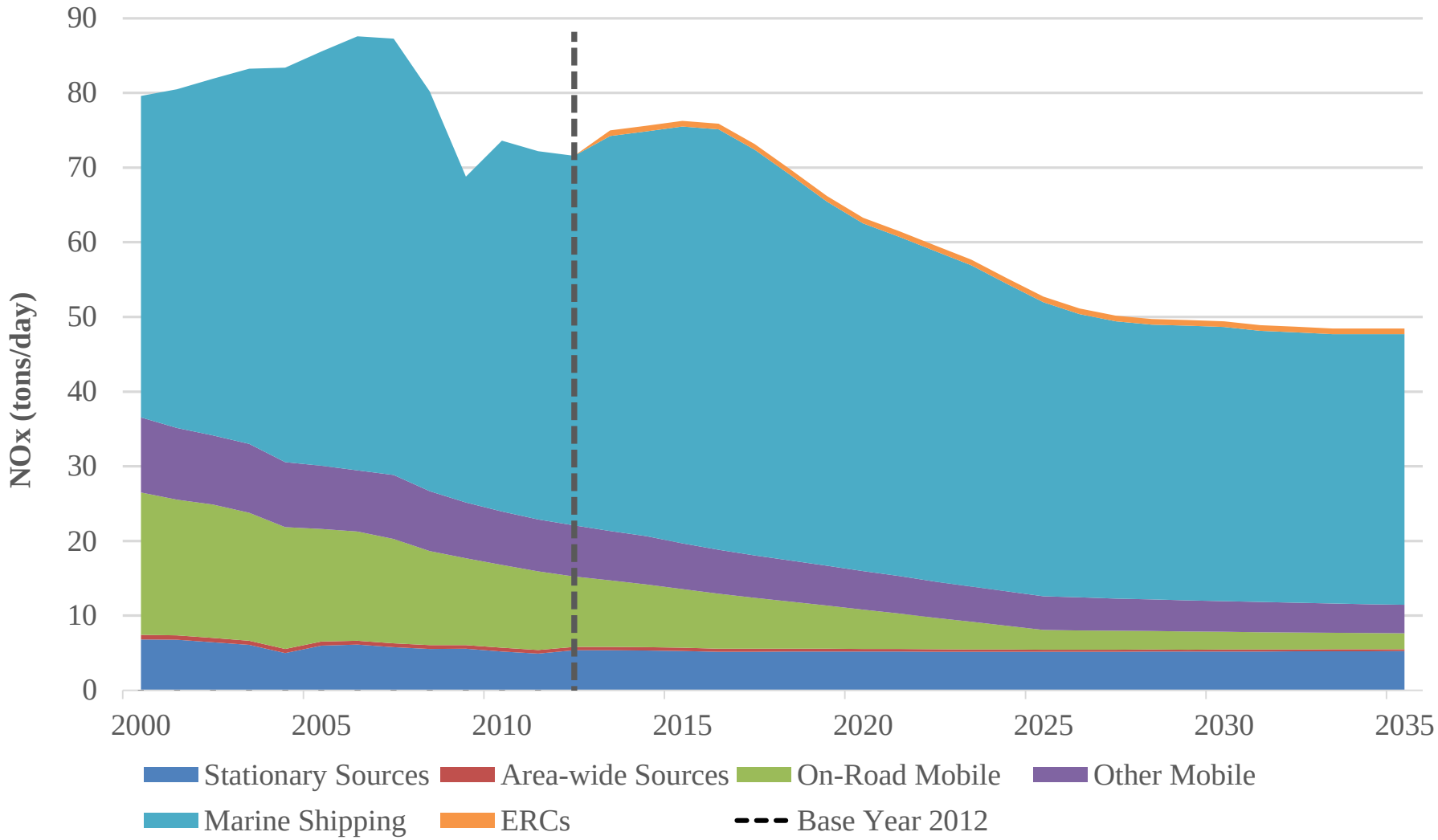
ROC Emission Inventory



NOx Emission Inventory



Control Measures in the 2016 Plan

- Stationary source control measures
  - Three focused on NOx reductions in combustion units
  - Three focused on ROC reductions from solvents and coatings
- Existing permit program, BACT and offset requirements, and adopted rules remain in place

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Control Measures

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

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Options for Consideration

Staff identified three options:

1. Stay with the implementation schedule in the 2016 Ozone Plan
2. Proceed with NOx measures only; shift ROC measures to contingency status
3. Delay all measures until next plan cycle (2019)

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Option 1: 2016 Plan Schedule

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.	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)**

Option 2: NOx 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)
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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: Shift all measures 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	-	-	-
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				Totals:	-	-

The Case for NOx Reductions

- Both ROC and NOx are involved in ozone formation
- Extensive photochemical modeling has been done in California air basins
- In “NOx-limited” air basins, NOx reductions are more effective at reducing ozone
- Examples: South Coast, San Joaquin Valley

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Staff Recommendation – Option 2

- Modeling in other regions has shown that reducing NOx is critical to reducing ozone.
- Additional NOx reductions will help ensure that we attain and maintain the ozone standard.
- 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.

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Recommendation for Option 2 (cont'd)

- The NOx measures involve long-term investments in cleaner combustion technology, so that anticipated reductions will continue to occur (in most cases, for decades).
- Other state and federal "proposals" may reduce ozone precursors; however, there are no assurances that they will be implemented.
- The federal ozone standard is now set at a similar level as the state; help avoid a situation where both the state and federal standards are exceeded in the future.

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Next Steps

- Questions and Discussion
- CAC recommendation
- Bring to District Board, along with justification document for recommended action

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