EXECUTIVE SUMMARY

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BACKGROUND

Clean air is a valuable and essential resource which affects many aspects of our daily lives. It is vital to our health and welfare, to the local agricultural economy, and to the aesthetic beauty and quality of life enjoyed by county residents. Unfortunately, it is a resource that is all too often taken for granted.

National and state air quality standards have been adopted to protect public health, vegetation, materials and visibility. State standards for ozone and fine particulate matter (PM_{10}) are currently exceeded in San Luis Obispo County. As a result, the state Air Resources Board (ARB) has designated the county a nonattainment area for these pollutants. The California Clean Air Act (CCAA) requires the development of plans to achieve and maintain the state ozone standard by the earliest practicable date. Updates to these plans must be performed every three years until attainment is reached. The San Luis Obispo County Air Pollution Control District (District) is the agency charged with developing and updating the attainment plan for this county.

The 2001 Clean Air Plan (CAP or Plan) is the third update to the 1991 CAP adopted by the Air Pollution Control District Board in January, 1992. The 1991 Plan contained a comprehensive set of control measures designed to reduce ozone precursor emissions from a wide variety of stationary and mobile sources. The 1995 CAP was an extensive update of the 1991 Plan, but with fewer control strategies recommended for adoption in response to changes in State law. This 2001 CAP, similar to the 1998 CAP, is primarily a continuation of the 1995 Plan and proposes no new control measures for adoption. Ongoing implementation of the control measures adopted through previous plans is expected to bring the county into attainment of the State ozone standard within a three year timeframe.

Ozone, a primary constituent of smog, is formed in the lower atmosphere through complex chemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NOx) in the presence of sunlight. Because of this relationship, ROG and NOx are often referred to as ozone "precursors". Ozone can cause such effects as damage to vegetation and cracking of rubber when present in relatively low concentrations. Exposure to higher concentrations can adversely impact public health by directly affecting the lungs, causing respiratory irritation and changes in lung function. Recent health effects studies have established that long-term exposure to ozone can result in permanent lung damage to children and adults, causing loss of respiratory capacity.

The stringency of the emission controls required to attain the ozone standard is based on the severity of the nonattainment problem. The CCAA classifies nonattainment areas as moderate, serious, severe or extreme depending on the concentration and frequency of ozone measurements exceeding the state standard. San Luis Obispo County is designated a moderate nonattainment area for ozone. As a result, the CCAA requires that the 2001 Plan include the following components:

- Application of Best Available Control Technology, and a District permitting program designed to allow no net increase in emissions from new or modified stationary sources which emit or have the potential to emit 25 tons per year or more of nonattainment pollutants or their precursors.
- Application of Best Available Retrofit Control Technology to existing sources which emit 5 tons or more per day, or 250 tons or more per year; application of Reasonably Available Control Technology for all other existing emission sources

- Implementation of reasonably available transportation control measures sufficient to substantially reduce the growth rate of motor vehicle trips and miles traveled.

- Development of control programs for area sources and indirect sources of emissions.

- Sufficient control strategies to achieve at least a 5% per year reduction in both ROG and NOx emissions countywide, averaged every consecutive 3-year period, with at least a 20% overall reduction in both pollutants compared to 1991 emission levels.

- Preparation of annual progress reports for submittal to ARB, with a comprehensive plan update every three years until attainment is reached.

The 2001 Clean Air Plan for San Luis Obispo County is designed to meet these requirements.

EXISTING AIR QUALITY

Ozone levels are measured continuously at six different monitoring locations in the county. Concentrations approaching or exceeding the state standard are observed more frequently at some sites than others; most recent exceedances of the state ozone standard in the county have been measured at monitoring stations in Paso Robles or Atascadero. In the period 1989 through 1999, 61 days during which the state one-hour standard was exceeded have been measured at one or more locations in the north county. In that same period, only seven days exceeding that standard have been measured in coastal and/or southern areas of the county.

Although such variability is natural, the analysis of several long-term trend indicators all show the same dichotomy: ozone air quality in the coastal and southern areas of the county appears to be improving while air quality in the north county is declining. This may be due, in part, to long term changes in meteorology intensifying the differences in coastal vs. inland climate patterns. Changes in patterns and levels of local emissions may also be a significant contributor to this trend. For instance, population and business growth in the North County is occurring at nearly three times the average rate countywide, bringing with it a corresponding increase in local emissions. Transport of pollutant-laden air from the San Joaquin Valley and Bay Area may also play a significant role, both in the high variation of measured ozone levels from one year to the next, and in the apparent declining air quality trend in the last decade. The Central Coast Ozone Study was conducted by the Air Resources Board in the summer of 2000. When the final analysis is completed it should allow for a better understanding of ozone transport throughout California. Further study is still needed to provide a more definitive answer.

BASELINE EMISSIONS INVENTORY

Effective control strategies cannot be developed without an understanding of the type and number of emission sources contributing to the air quality problem. An emissions inventory is a comprehensive description of the sources of air pollution in a given region and a quantitative estimate of their emissions. In cooperation with ARB, the District updates its emissions inventory every few years to incorporate recent emissions data and to account for any changes in emission calculation methods. A comprehensive update was performed for the District's 1991 emissions inventory. The 2001 CAP uses this inventory as the reference year for forecasting future year emissions.

The reference year emissions inventory contains estimates of emissions which occurred in calendar year 1991, categorized by various source classifications. Two different reporting formats are used in this document. An annual inventory is presented which summarizes emissions of all pollutants in units of tons per year for each source category. This is the method typically used by the District for most reporting purposes. For attainment planning, however, the CCAA requires that the inventory be adjusted to reflect seasonal variations in emissions. This "planning inventory" is designed to more accurately represent emissions that occur during the ozone season (May through October), when violations of the standard are more likely to occur. The

planning inventory reports emissions in units of tons per day and includes data for only the pollutants ROG and NOx, the primary precursors of ozone.

Total emissions of ROG countywide were calculated at 40.4 tons per day for the 1991 planning inventory (14,480 tons annually). Figure ES-1 shows that about 56% of daily ROG emissions are attributable to on-road vehicles, primarily automobiles. Other mobile sources, such as off-road vehicles and mobile equipment, contribute another 15% of these emissions. Solvent use, cleaning and surface coatings, and petroleum related activities constitute most of the remaining ROG emissions.

During 1991, total NOx emissions countywide were estimated to be 49.9 tons per day (16,166 tons of NOx annually). As shown in Figure ES-1, on-road vehicles and stationary fuel combustion sources are the most significant NOx generators, with contributions totaling over 73% of the daily NOx emissions in 1991. Most of the remaining NOx emissions were produced by other mobile sources.

CONTROL MEASURES

No new control measures are proposed for adoption in this Clean Air Plan that were not contained in previous Plans. A thorough evaluation of all recommended control measures was performed prior to adoption of those plans; all but one of those measures has been implemented to date. Thus, evaluation of control measures for this update primarily involved an analysis of emission reductions achieved by measures already implemented since 1991, and potential reductions expected from the one measure remaining to be adopted from the 1998 CAP. Several measures recommended for deferral/contingency in 1998 CAP are also recommended for continued deferral in this Plan. One measure previously recommended for deferral has been deleted in this Plan.

Following are examples of the primary emission control techniques used by many of the control measures described in this Plan:

- Vapor Recovery: Many of the ROG controls rely on the capture and recovery of vapors from industrial and commercial operations and equipment.

- Solvent Content Reduction: A reduction in the amount of reactive organic gases contained in paints, cleaning solvents and other products will reduce evaporative emissions from these sources.

- Improved Transfer Efficiency: Improved methods in the application of coatings (paints, primers, and other finishes) to various surfaces can substantially reduce ROG emissions from these sources.

- Improved Fuel Combustion: Adjusting fuel/air mixtures, retarding engine timing, use of low-NOx burners and other improvements in fuel burning can substantially reduce emissions of NOx from combustion sources.

- Fuel-Switching or Electrification: Retrofitting of gasoline or diesel burning internal combustion engines to burn cleaner fuels, or replacement with electric motors, can significantly reduce emissions of NOx and ROG from selected stationary sources.

- Chemical or Catalytic Reduction: Injection of ammonia or urea during combustion processes or the use of catalysts in the combustion exhaust stream can promote reactions which substantially reduce NOx emissions from large combustion sources.

- Reduced Vehicle Use: Use of carpooling, public transit, compressed work weeks, bicycling and other methods to reduce the number of trips made by private auto will reduce NOx, ROG and PM_{10} emissions throughout the region.

- New Source Review: New or modified sources requiring District permits must apply Best Available Control Technology; larger sources must also offset (reduce emissions at another source) all remaining ROG and NOx emissions from the proposed facility.

- Indirect Source Review: A series of proposed land use planning strategies and ongoing project review through the California Environmental Quality Act (CEQA) will reduce the increase in emissions from new commercial and residential development.

As stated above, all but one of the control strategies described in this Plan has already been implemented. Adoption of a District rule for this measure will occur in early Spring 2002. These controls, combined with measures implemented by ARB, are expected to reduce over 5 tons per day of ROG emissions by the year 2003, with NOx reductions projected at over 12 tons per day.

EMISSION FORECASTS

Emission forecasts are estimates of future year emissions. These estimates are developed by examining the effects of economic growth, existing regulations, and proposed control measures on future year emission inventories. The resulting projections can be used for a variety of purposes, including modeling of future air quality, assessing the effectiveness of proposed control measures, analyzing new source impacts, and tracking future progress in reducing emissions.

The 1991 planning inventory was used to generate ROG and NOx emission forecasts for the years 1997, 2000, 2003, 2006 and 2015. Figures ES-2 and ES-3 present a comparison between the emission reduction targets set by ARB, and the future ROG and NOx emission levels projected after implementation of this Plan. As shown in Figure ES-2, the 40.1 tons/day of total ROG emissions in 1991 are projected to decline steadily to about 27.7 tons/day in the year 2015 by implementing the ROG controls described in this Plan. This represents an overall reduction of about 32% compared to ROG emissions in 1991. As shown in the graph, this reduction will more than meet the targets set by the ARB, thus providing a buffer for contingencies.

Figure ES-3 compares the projected future NOx emissions after CAP implementation to the ARB emission reduction goals for our area. As shown in this chart, implementing the proposed NOx controls will provide a substantial decrease in NOx emissions through the year 2015, with a peak reduction of nearly 16 tons/day expected within that timeframe. This represents a 34% reduction in NOx emissions overall compared to 1991 levels. As shown in the graph, this reduction also exceeds the targets established by the CCAA.

The emission reductions shown in these charts will result primarily from already implemented controls on motor vehicles, electric utilities and other fuel combustion, the petroleum industry, and various types of solvent use. Emissions from stationary and area-wide sources are expected to be reduced approximately 64% for NOx but will remain static for ROG, compared to 1991 levels. Emissions from mobile sources are expected to decline 47% for ROG and 20% for NOx compared to 1991 emission levels. It is interesting to note that stationary source NOx reductions overshadow mobile source NOx reductions while the opposite is true for ROG, where mobile source reductions are significantly greater than those expected from stationary sources. This further supports the need to realize reductions from both source types to achieve the overall balance required to reduce ozone levels throughout the county.

FUTURE AIR QUALITY

As described earlier, the ARB has determined that an overall 20% reduction in ROG and NOx emissions from 1991 levels is necessary to attain the state ozone standard in this county. State law establishes December 31, 1997, as the attainment deadline for moderate nonattainment areas. Failure to meet the deadline could result in the District's severity classification and control requirements being 'bumped up' to that of a serious nonattainment area. To do so, ARB must determine that such action would substantially increase our ability to attain the standard by the earliest practical date.

Figures ES-2 and ES-3 compare the projected emission reductions from implementing the Plan to the emission reduction targets established by the State. As shown in this chart, reductions achieved by 1997 from measures already implemented have exceeded the 20% minimum reduction targets for both ROG and NOx emission sources. However, attainment of the State ozone standard has not yet been accomplished. In evaluating the reasons for this it is important to note that ARB's estimate of emission reductions needed to meet the standard was provided in the form of guidance, and is based on photochemical modeling analyses conducted elsewhere in California. Because the reduction estimate is generic in nature, it provides no guarantee of actually attaining the standard once the reductions are achieved. Thus, the 20% reduction goal provides a minimum target to aim for, rather than an absolute demonstration of attainment.

ARB has determined that a bump-up to ‘serious’ nonattainment is not appropriate; their reasons include the potential influence of upwind pollutant transport from areas outside the county, and the substantial emission reductions already achieved by District implementation of adopted control strategies. Although the 2001 CAP proposes no new control measures, Figures ES-2 and ES-3 show emissions of ROG and NOx continuing to decline substantially through the year 2015. These reductions are due to ongoing implementation and enforcement of adopted measures by the District, as well as the introduction of progressively cleaner cars and continual turnover in the vehicle fleet. Thus, attainment of the State ozone standard is expected in the near term.

Implementation of the Plan will also have beneficial effects on other types of air pollution. For instance, in addition to being precursors to ozone, ROG and NOx emissions can also cause the formation of fine particles (PM_{10}) in the atmosphere. These particles can cause adverse health impacts and contribute to reduced visibility. Limiting emissions of ROG and NOx to reduce ozone concentrations will therefore provide a corresponding decrease in secondary PM_{10} formation and should also improve regional visibility. Also, reducing vehicle use through transportation controls will reduce the generation of suspended dust caused by vehicle travel on paved and unpaved roads, a major source of PM_{10}. Thus, measures which reduce vehicle trips and miles traveled will also provide a reduction in direct PM_{10} emissions.

Emissions of 'greenhouse gases' and 'toxic air contaminants' will also be reduced by implementing this Plan. Greenhouse gases trap heat in the earth's atmosphere and can alter global weather patterns if they continue to increase in concentration. Toxic air contaminants are of concern due to their suspected ability to cause long-term health effects such as cancer, reproductive damage and/or other problems. Many of the control measures in this Plan will help reduce emissions and ambient concentrations of both types of pollutants.

THE TASKS AHEAD

Implementation of the 2001 Clean Air Plan relies on a multilevel partnership between the public, private industry and various government agencies. At the federal level, the EPA and other agencies are charged with reducing emissions from federally controlled sources, such as airplanes. The ARB bears primary

responsibility for controlling emissions from motor vehicles, fuels and consumer products at the state level. The District is the regional agency charged with the overall development and implementation of the Plan, as well as adopting and enforcing emission controls for industries, indirect sources, and some mobile sources. Most of the identified control measures have already been adopted as District rules. At the local level, city and county governments, the San Luis Obispo Council of Governments, and local and regional transportation agencies play an important role. These entities are responsible for implementation and oversight of most of the transportation control measures and land use planning strategies.

Successful implementation of this Plan also requires the understanding and support of the private sector and the general public. Some of the control measures may require lifestyle changes by individuals and economic investment by the business community. A well planned public information and education program is essential to increase awareness of local issues and to emphasize the importance of individual, group, and community efforts towards improving and preserving the air quality of San Luis Obispo County.

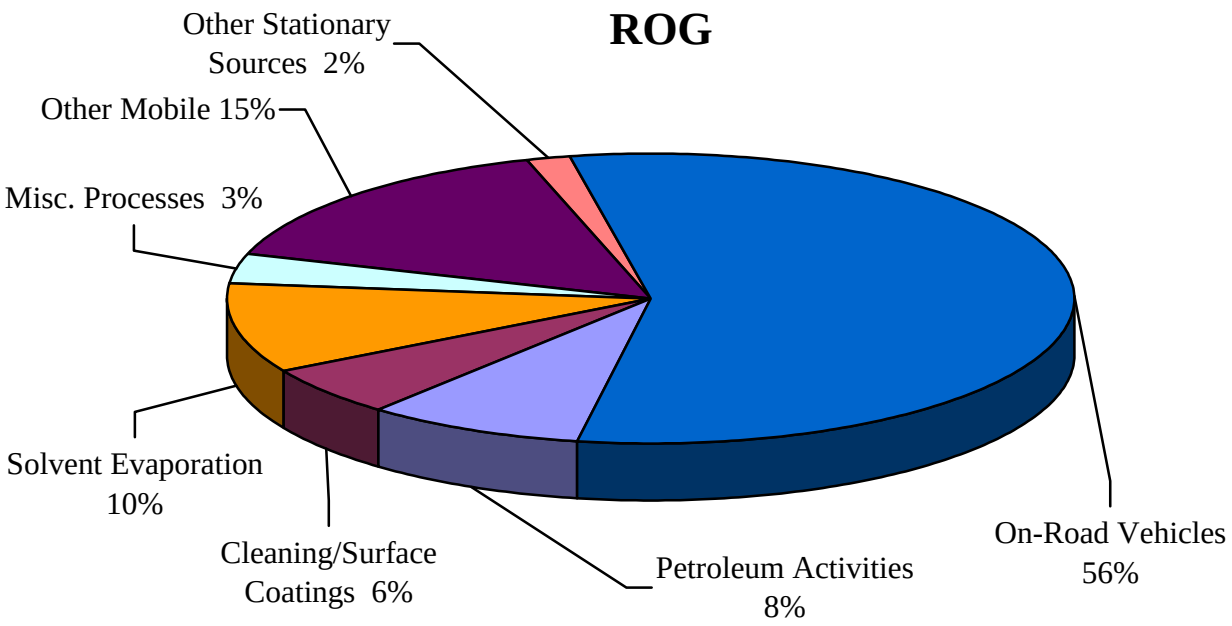
The District has endeavored to make development and adoption of the Plan a public process. The 2001 Clean Air Plan for San Luis Obispo County is the result of these efforts.

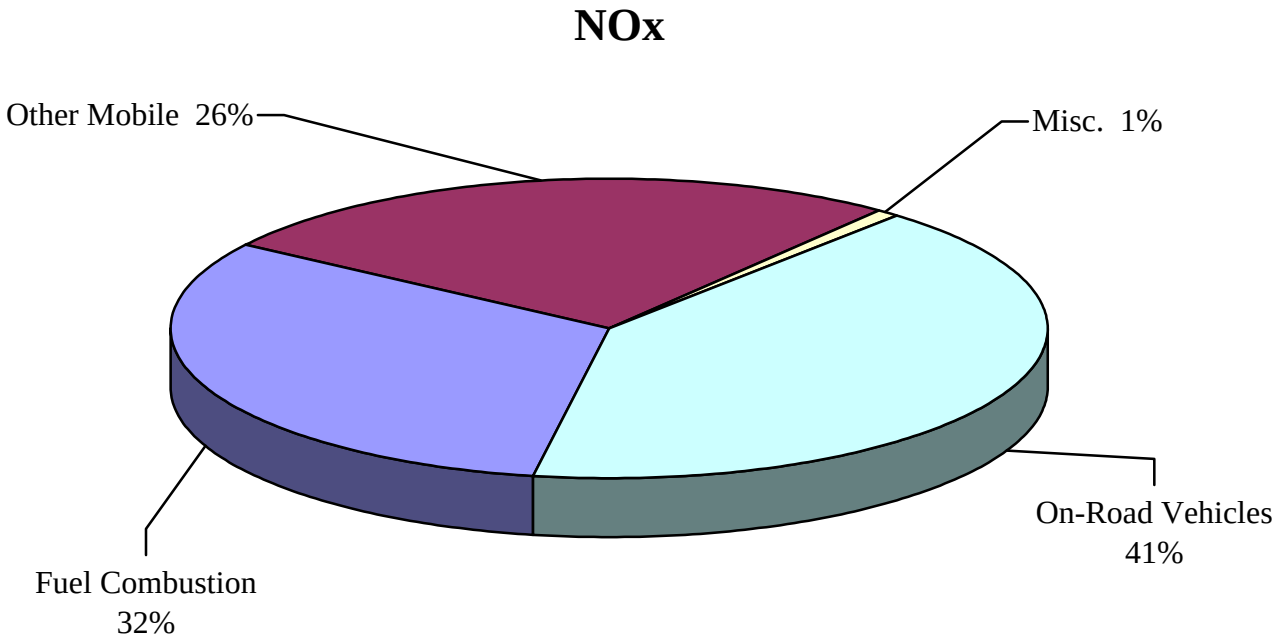
Table ES-1

STATIONARY SOURCE CONTROL MEASURE EVALUATION

#	1991 CAP CONTROL MEASURES	ADOPTED RULE	PROPOSED ADOPTION	DEFER	DELETE
ARB	Phase II Vapor Recovery	X			
R-1	Agricultural Burning	X			
R-3	Architectural Coatings		X		
R-4	Asphalt Roofing Kettles				X
R-5	Bulk Gasoline Loading	X			
R-6	Commercial Degreasing			X	
R-8	Petrol Storage Tank Seals	X			
R-9	Landfill Gas Control	X			
R-10	Marine Vessel Coatings			X	
R-11	Marine Tanker Loading	X			
R-12	Oil/Water Separators	X			
R-13	Non-Ag Open Burning	X			
R-14	Consumer Products (ARB)	X			
R-15	Adhesives/Industrial Coatings			X	
R-17	Sumps	X			
R-18	Wood Furniture Coatings			X	
R-19	Metal Parts Coatings	X			
R-20	Auto Refinishing	X			
R-21	Fugitive Emissions	X			
R-22	Cleaning of Organic Product Storage Tanks			X	
R-23	Cutback Asphalt	X			
R-24	Dry Cleaners	X			
N-1	Coke Calcining	X			
N-2	Commercial Fuel Combustion	X			
N-3	Commercial Marine Vessel Fuel Combustion			X	
N-5	Energy Conservation Measures	X			
N-10	Onshore Drilling Rigs			X	
N-11	Utility Fuel Combustion	X			
N-12	Residential NG Combustion	X			
N-14	Stationary IC Engines	X			
MP-1	Residential Wood Combustion	X			

Figure ES-1
1991 PlANNING EMISSIONS INVENTORY *
San Luis Obispo County





Note: * The Planning Emissions Inventory presents representative daily emissions during ozone season (May through October).

Figure ES-2
FORECAST ROG EMISSIONS COUNTYWIDE

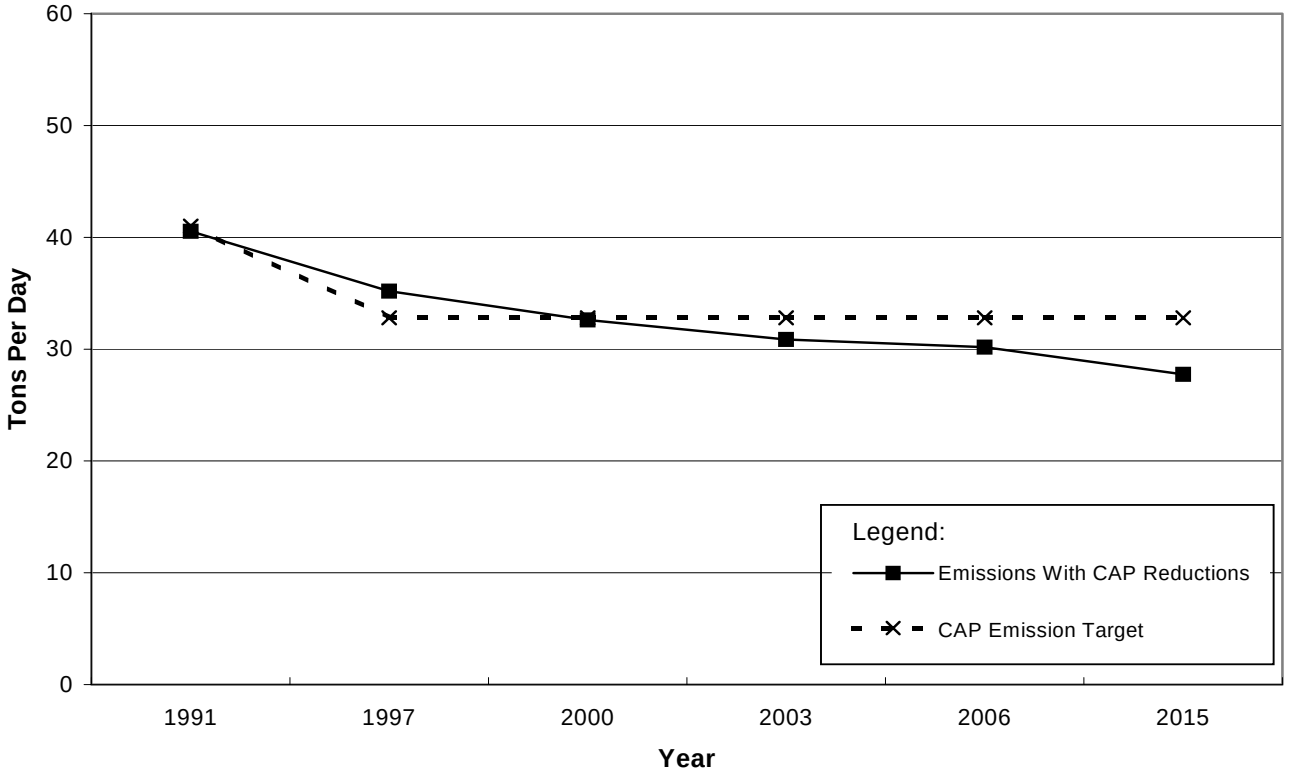


Figure ES-3
FORECAST NOx EMISSIONS COUNTYWIDE