CHAPTER 7

FEDERAL MAINTENANCE PLAN

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7. FEDERAL MAINTENANCE PLAN

7.1 INTRODUCTION

This 2007 Clean Air Plan (2007 Plan) is being prepared by the Santa Barbara County Air Pollution Control District (APCD) to satisfy the provisions of the Federal Act that apply to our current classification as a maintenance area for the federal 8-hour ozone standard.

On April 30, 2004, the federal Environmental Protection Agency (USEPA) designated and classified areas for the federal 8-hour ozone standard. Santa Barbara County was designated as an attainment/unclassifiable area for this standard with the designation becoming effective on June 15, 2004[1]. The USEPA also promulgated regulations implementing the federal 8-hour ozone standard. Areas such as Santa Barbara County – i.e., those which are designated attainment/unclassifiable for the federal 8-hour standard *and* which are also subject to an approved maintenance plan for the federal 1-hour ozone standard under Section 175A of the Federal Act - are required to submit a 10-year maintenance plan under Section 110(a)(1) of the Federal Act. This 10-year maintenance plan must demonstrate maintenance of the federal 8-hour ozone standard until 2014 and is to be submitted to USEPA as a State Implementation Plan revision no later than three years after the effective date of an area's 8-hour ozone designation. Consequently Santa Barbara County must submit its Section 110(a)(1) maintenance plan no later than June 15, 2007.

The USEPA in 2005 issued guidance for states in preparing maintenance plans required under section 110(a) (1) [2], The five required plan components and how this 2007 Plan addresses those components are discussed in sections 7.2 to 7.6 (in those sections, the text in *italics* describe the required plan components).

7.2 ATTAINMENT INVENTORY

The attainment inventory should be based on actual "typical summer day' emissions of volatile organic compounds and nitrogen oxides with the base year being either 2001, 2002 or 2003.

As documented in Chapter 3, the 2002 planning inventory for ROC and NO_x fulfills this requirement.

7.3 MAINTENANCE DEMONSTRATION

The maintenance plan must demonstrate how the area will remain in compliance with the 8-hour standard for a ten year period following the effective date of designation as unclassifiable/attainment. At a minimum the plan must project attainment for 2014. One method of showing attainment is to demonstrate that the future levels of ozone precursor emissions will not exceed the level of ozone precursor emissions sufficient to attain the 8-hour standard.

[1] USEPA revoked the 1-hour federal ozone standard one year after the effective date of the designation for the federal 8-hour ozone standard. Thus for Santa Barbara County, the 1-hour federal ozone standard was revoked on June 15, 2005.

[2] Memorandum from Lydia N. Wegman, Director, Air Quality Strategies and Standards Division, USEPA to Air Division Directors, Regions I-IX, May 20, 2005.

Chapters 3 presents NO_x and ROC planning emission inventories for the base year 2002 and Chapter 6 shows these inventories for the future years 2010, 2015 and 2020. The inventories are divided into two geographic regions, ***Santa Barbara County*** and the ***Outer Continental Shelf (OCS)***. The Santa Barbara County emission inventory encompasses all onshore sources of air pollution within Santa Barbara County and the State Tidelands (three miles from the shoreline). The OCS emission inventory includes pollution sources 25 miles beyond the State Tidelands boundary offshore Santa Barbara County.

As illustrated in Figure 7-1, NO_x emissions in Santa Barbara County decline in a continuous fashion from 41.21 ~~40.69~~ tons/day in 2002 to 28.01 ~~27.85~~ tons/day in 2015 and to 23.12 ~~23.17~~ in 2020. Similarly, ROC emissions decrease from 40.84 ~~38.44~~ tons/day (2002) to 36.86 ~~36.63~~ tons/day (2015) and to 34.51 ~~35.81~~ tons/day by 2020. This trend results from reductions in on-road mobile sources and implementation of the State Act's every feasible measure requirement. NO_x and ROC emissions from OCS sources shown in Figure 7-2 however, increase from 2002 through 2020. ROC emissions grow from 3.88 ~~3.29~~ tons/day (2002) to 4.25 ~~3.77~~ tons/day (2015) to 4.53 ~~4.05~~ tons/day in 2020. NO_x emissions more than double from 2002 to 2020 (39.26 ~~37.38~~ to 77.35 ~~77.23~~ tons/day) and 2015 emissions are at 66.52 ~~66.42~~ tons/day.

Figure 7-3 illustrates the combined Santa Barbara County and OCS emissions. While total ROC emissions decline from 44.72 ~~41.74~~ tons/day in 2002 to 39.16 ~~40.40~~ tons/ day in 2015 and even further to 39.04 ~~39.9~~ tons/day in 2020, increases in NO_x emissions from marine vessels will overwhelm stationary source and on-road motor vehicle NO_x reductions and show a dramatic increase due to the impact of growth in marine shipping emissions. Total NO_x emissions increase by about 25% ~~29%~~ from 2002 to 2020 (80.46 ~~78.07~~ to 100.48 ~~100.4~~ tons/day).

When we examine the milestone year 2014 (see Figure 7-3), total ROC emissions are 39.51 ~~40.74~~ tons/day or 5.21 ~~1.00~~ ton/day less than in 2002 (44.72 ~~41.74~~ tons/day), our baseline year. Total NO_x emissions are at 93.64 ~~93.41~~ tons/day or 13.18 ~~15.34~~ tons/day greater than in 2002 (80.46 ~~78.07~~ tons/day). As NO_x emissions from onshore and State Tidelands sources are projected to decline linearly from 2002 through 2020 (Figure 7-1), this would suggest that 2014 marine vessel NO_x emissions need to be reduced by approximately 17 ~~20~~ % in order for Santa Barbara to demonstrate continued maintenance of the 8-hour standard in 2014. Finally, even we were to implement all our contingency measures (see Section 7-4 and Table 4-3) were to be implemented, the NO_x reductions would be less than 0.1 tons/day.

The impact of marine vessel NO_x emission is shown even more dramatically in Figure 7-4. When marine vessel emissions are not included, NOx emissions will decline steady from 2002 (42.99 ~~40.69~~ tons/day) to 2020 (24.91 ~~23.17~~ tons/day). With increasing difficulty in obtaining added reductions from onshore sources, further reductions will clearly need to come from controlling marine shipping activities in order to meet air quality goals. This clearly indicates that additional action from the USEPA and ARB is required.

As discussed in Chapter 6, the International Maritime Organization has been examining available and developing methods for reducing NOx emissions from large marine vessels and future Annex VI NOx emission limits. While these limits are only recommendations based on current and developing technologies, future emissions have been calculated to determine emission benefits should the proposed emission standards be adopted. As shown in Figure 7-5, NOx emissions based on proposed limits would be significantly lower than current estimates for the years 2012 through 2020. In the year 2012, one year after the proposed limits would be initiated, NOx emissions are calculated to be 44.11 tons per year if the proposed NOx limits were adopted. This is about 3 tons per day less than current NOx emission forecasts for 2012. By 2020, the proposed NOx limits would provide a NOx reduction of about 28 tons per day less than the current forecast.

It is important to note that increases in NO_x emissions from marine shipping activities may not directly correlate to increases in ozone levels in Santa Barbara County since potential impacts are highly dependent on meteorological conditions. In fact, air quality has been improving in Santa Barbara County while marine vessel transits and emissions have been increasing over the last several years. To fully understand the impacts of marine vessel emissions on county-wide ozone levels, however, would require the use of photochemical modeling techniques. This would allow for an evaluation of potential impacts from all sources of ozone precursors (ROC and NO_X), both onshore and offshore, and would also provide an assessment of the relative contribution of impacts from marine vessel emissions on ozone concentrations. Since the resources and expertise required to perform photochemical modeling are beyond our capabilities, we must defer the need for such an exercise to the discretion of USEPA and ARB.

7.4 AMBIENT AIR QUALITY MONITORING

The State should continue to operate air quality monitors in accordance with 40 CFR 58 to verify maintenance of the 8-hour standard. Any modifications to the ambient monitoring network should be accomplished through close consultation with the EPA Regional office.

Santa Barbara County's ambient monitoring network is discussed in Chapter 2. Monitoring is conducted by the ARB, APCD and industry sources. Monitors operated by the ARB and APCD are part of the State and Local Air Monitoring System while monitors operated by industry, at the direction of the APCD, are called Prevention of Significant Deterioration stations. Methods and procedures used in monitoring follow guidelines prescribed by the ARB and the USEPA.

7.5 CONTINGENCY PLAN

The State must develop a contingency plan that at a minimum will ensure that any violation of the 8-hour standard is promptly corrected. The contingency plan should ensure that the contingency measures are adopted expeditiously once they are triggered. The trigger for implementing contingency measures should, at a minimum, be upon a monitored violation of the 8-hour ozone standard.

Chapter 4 addresses the emission control measures proposed by the APCD as contingency measures. As discussed in Chapter 4, the *proposed* 2007 Plan control measures (Table 4-3) will serve as contingency measures to satisfy this federal requirement. While Table 4-3 also provides an adoption schedule, should a violation of the federal 8-hour ozone standard occur earlier than the adoption dates shown, the APCD will commence adoption of these contingency measures within 24 months of the recorded violation.

7.6 VERIFICATION OF CONTINUED ATTAINMENT

The maintenance plan should indicate how the State will track the progress of the maintenance plan. States should develop interim emission projections to show a trend analysis for maintenance of the standard.

Every three years we are required by the State Act (Health and Safety Code sections 40924 and 40925) to update our clean air plan to attain the state 1-hour ozone standard. Each of the following elements is updated from the previous update:

- Local air quality information

- Emission inventory and future emission estimates
- Every feasible control measure

We will use these triennial updates to track the progress of the maintenance plan.

7.7 CONFORMITY

Conformity for the federal 1- and 8-hour ozone standards no longer applies to Santa Barbara County. Areas such as Santa Barbara County, which were never designated nonattainment for the 8-hour ozone standard and which are not obligated to develop a maintenance plan under Section 175(A) of the Federal Act, are not subject to conformity for the 8-hour standard. Additionally, since the 1-hour ozone standard has been revoked, conformity for that standard no longer applies.

7.8 CONCLUSION

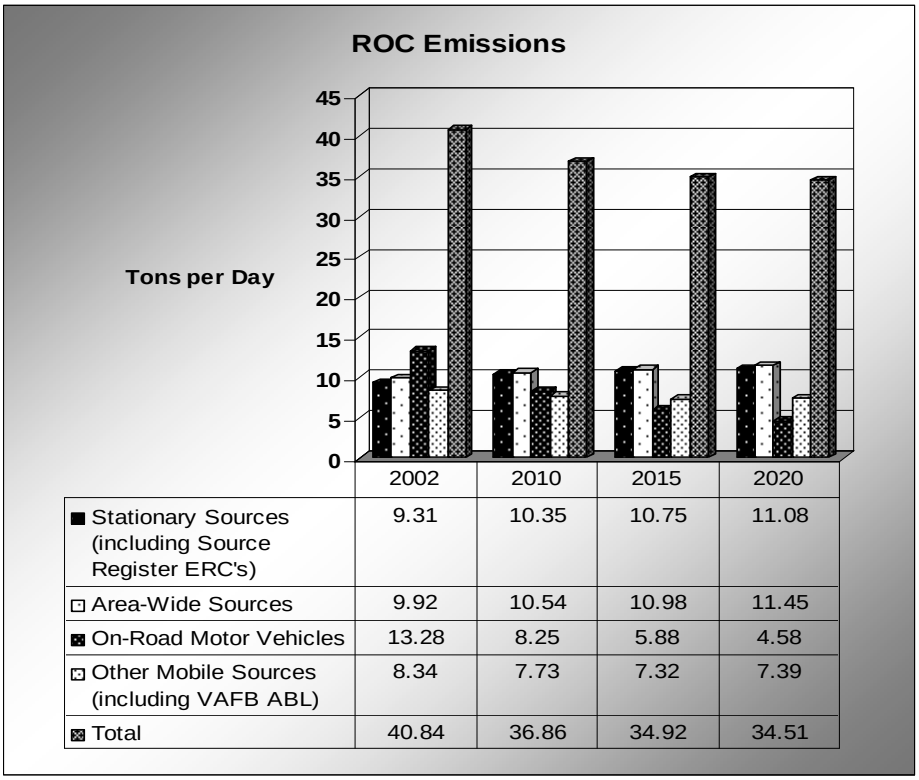
This chapter addresses USEPA's requirements for maintenance plans prepared pursuant to Section 110(a)(1) of the Federal Act. As discussed, emissions of both NO_x and ROC from onshore sources and those in the State Tidelands in 2014 are predicted to be lower than the base year 2002. However when NO_x emissions from marine vessels in the Outer Continental Shelf are added to those from onshore and State Tideland sources, NO_x emissions in 2014 will be over 15 tons/day greater than those in 2002. With increasing difficulty in obtaining added reductions from onshore sources, further reductions will clearly need to come from controlling marine shipping activities in order to meet air quality goals. This clearly indicates that additional action from the USEPA and ARB is required.

7.9 IMPLICATION OF SOUTH COAST AQMD V. EPA COURT DECISION

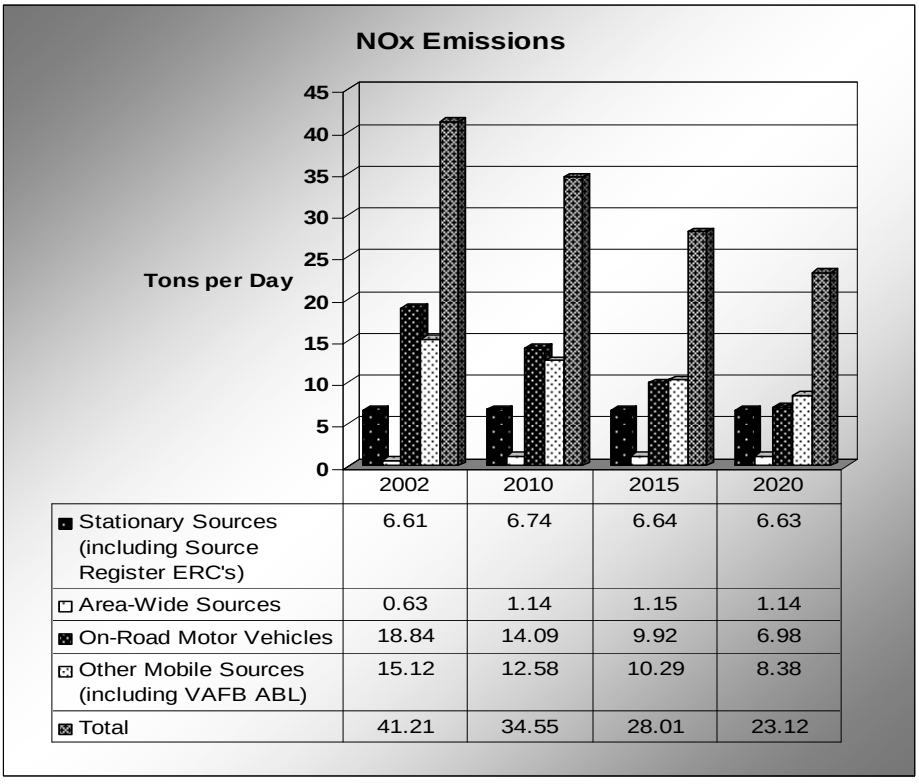
On December 22, 2006, the United States Circuit Court of Appeals for the District of Columbia ("Court") handed down its decision on the case *South Coast Air Quality Management District v. EPA* (No.04-1200). The Court struck down portions of USEPA's regulation implementing the federal 8-hour ozone standard. USEPA petitioned the Court on March 22, 2007 for a rehearing and clarification of the decision but has yet to issue any further guidance except to "strongly encourage the (USEPA) Regional Offices to work with the States to continue to develop 8-hour ozone SIPs"[3] . Consequently, this 2007 Plan will still follow the aforementioned 2005 guidance with one cautionary note concerning conformity. As discussed in Section 7.7, the 2005 USEPA guidance stated that areas such as Santa Barbara County are not subject to conformity for the 8-hour standard. However, USEPA is uncertain whether this is still valid in light of the decision.

[3] Memorandum from William Wehrum, Acting Assistant Administrator, to EPA Regional Administrators, Regions I-IX, March 19, 2007.

Figure 7-1
Santa Barbara County Onshore ROC & NO_x Emissions

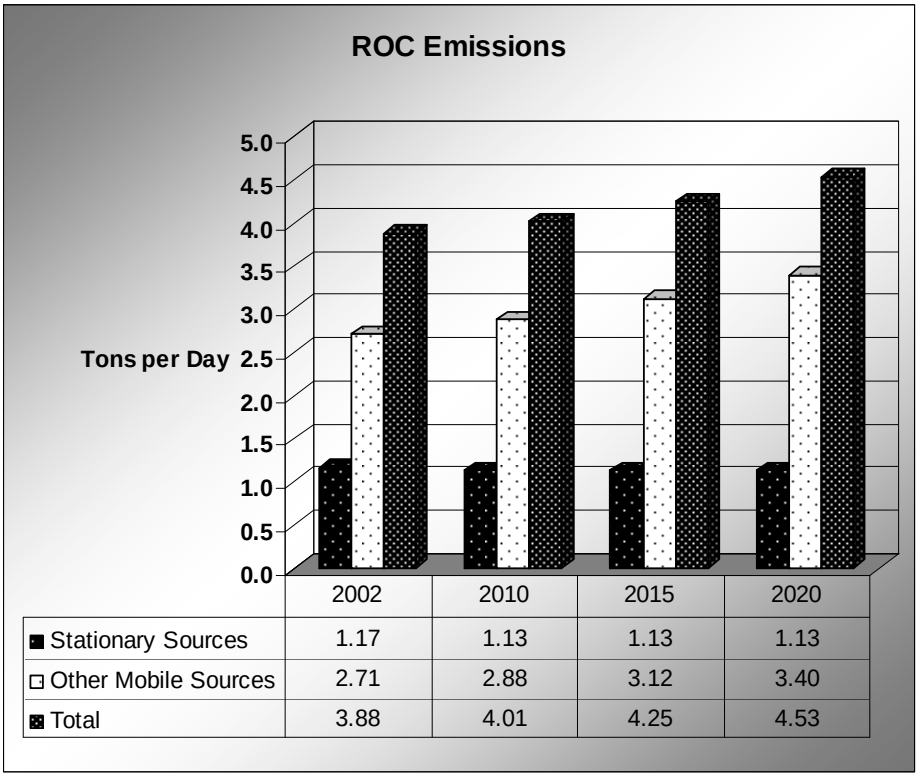


	2002	2010	2015	2020
Stationary Sources (including Source Register ERC's)	9.31	10.35	10.75	11.08
Area-Wide Sources	9.92	10.54	10.98	11.45
On-Road Motor Vehicles	13.28	8.25	5.88	4.58
Other Mobile Sources (including VAFB ABL)	8.34	7.73	7.32	7.39
Total	40.84	36.86	34.92	34.51

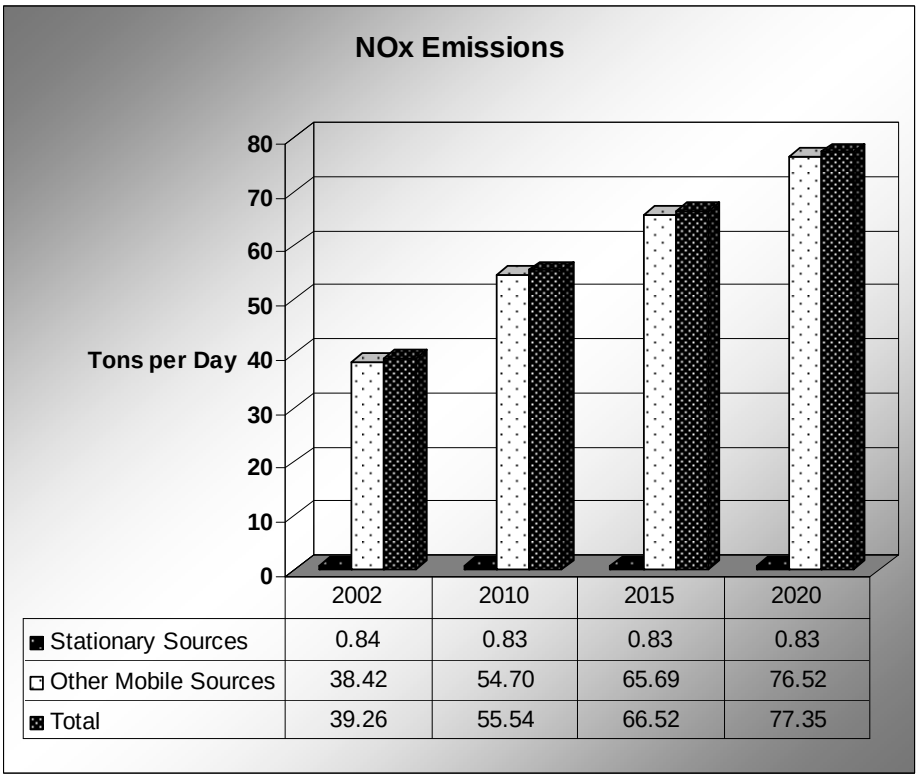


	2002	2010	2015	2020
Stationary Sources (including Source Register ERC's)	6.61	6.74	6.64	6.63
Area-Wide Sources	0.63	1.14	1.15	1.14
On-Road Motor Vehicles	18.84	14.09	9.92	6.98
Other Mobile Sources (including VAFB ABL)	15.12	12.58	10.29	8.38
Total	41.21	34.55	28.01	23.12

Figure 7-2
OCS ROC & NO_x Emissions

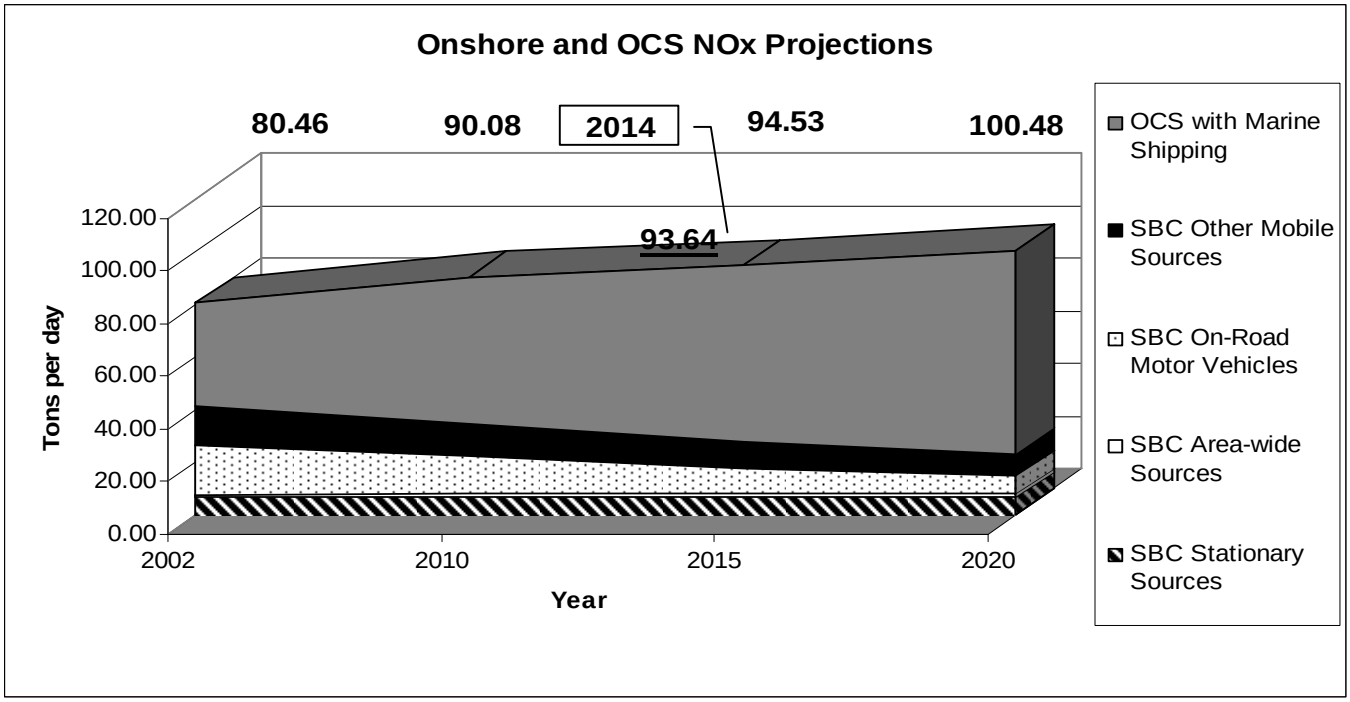


	2002	2010	2015	2020
Stationary Sources	1.17	1.13	1.13	1.13
Other Mobile Sources	2.71	2.88	3.12	3.40
Total	3.88	4.01	4.25	4.53



	2002	2010	2015	2020
Stationary Sources	0.84	0.83	0.83	0.83
Other Mobile Sources	38.42	54.70	65.69	76.52
Total	39.26	55.54	66.52	77.35

Figure 7-3
Santa Barbara County and OCS NO_x and ROC Emissions Forecast



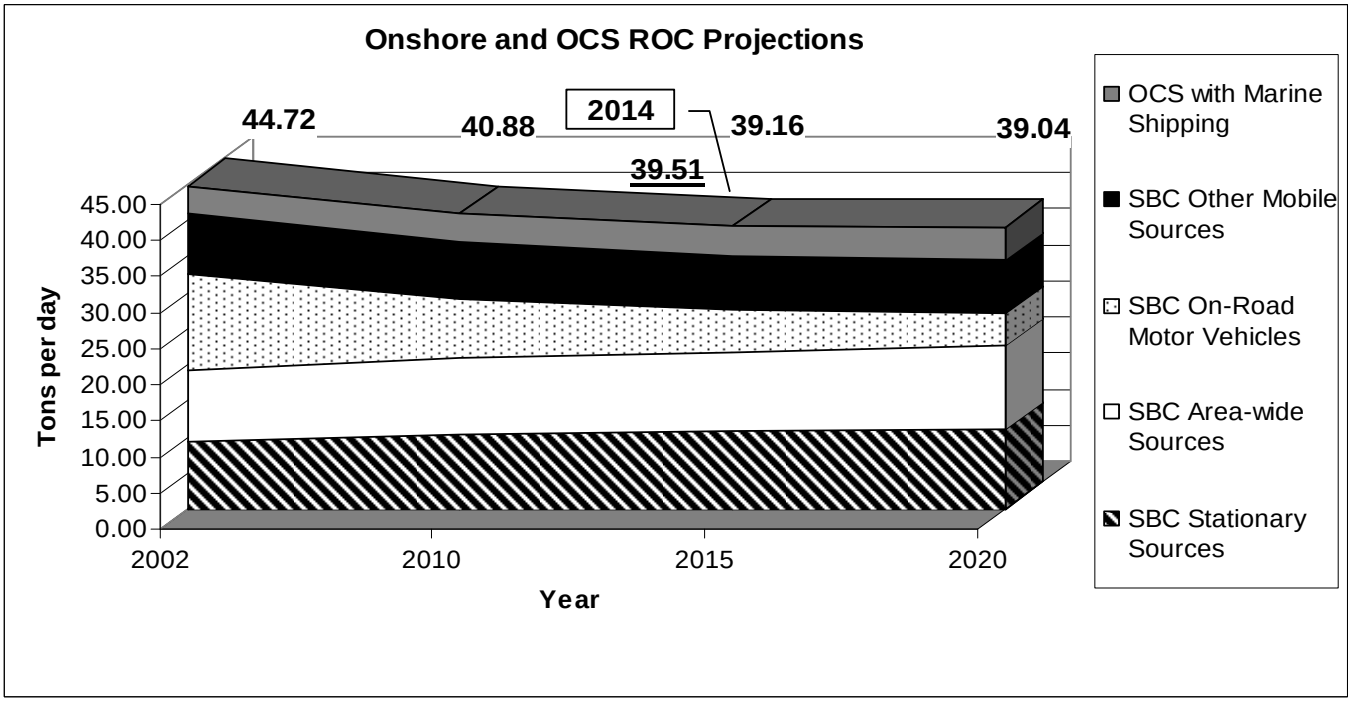


Figure 7-4
Santa Barbara County and OCS NO_x Emissions Forecast
Marine Vessels Excluded

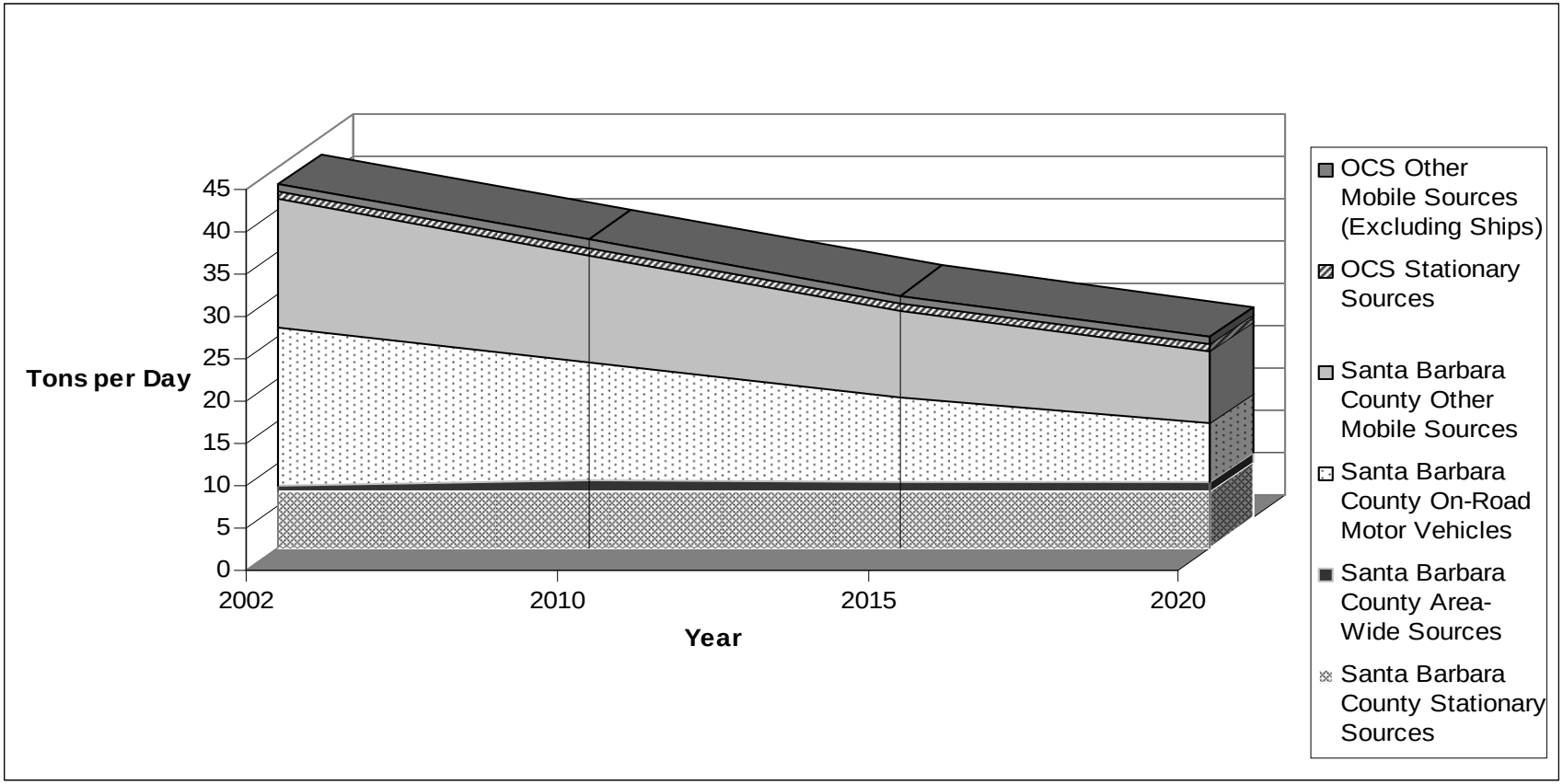


FIGURE 7-5
POTENTIAL MARINE SHIPPING NOX EMISSIONS BASED ON POTENTIAL IMO ANNEX VI REVISIONS
COMPARISON TO CURRENT MARINE SHIPPING NOX EMISSION FORECASTS