REVISIONS TO THE STATE IMPLEMENTATION PLAN (SIP) FOR THE CONTROL OF OZONE AIR POLLUTION

EIGHT-HOUR OZONE MAINTENANCE PLAN FOR THE VICTORIA COUNTY OZONE ATTAINMENT AREA

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LIST OF ACRONYMS

ACT -- Alternative Control Techniques
AF -- Air-to-Fuel
AIM – architectural and industrial maintenance
AIRS – Aerometric Information Retrieval System
APU -- Auxiliary Power Units
ARPDB -- Acid Rain Program Data Base
ATCM – Airborne Toxic Control Measure
auto-GC -- Automated Gas Chromatograph
BACT -- Best Available Control Technology
BCCA-AG -- Business Coalition for Clean Air-Appeal Group
BMP -- Best Management Practices
BPA -- Beaumont-Port Arthur
Btu/hr -- British Thermal Units per Hour
Btu/scf -- British Thermal Units per Square Cubic Feet
CAE -- Cetane Additive Enhanced Diesel Fuel
CAIR -- Clean Air Interstate Rule
CAMx -- Comprehensive Air Model with Extensions
CARB -- California Air Resources Board
CBD -- Houston's Central Business District
CFR -- Code of Federal Regulations
CMAQ -- Congestion Mitigation and Air Quality
CO -- Carbon Monoxide
CTG -- Control Technique Guidelines
DECS -- Diesel Emission Control Strategy
DERC -- Discrete Emission Reduction Credits
DFW -- Dallas-Fort Worth
DPM -- Diesel Particulate Matter
DRRP -- Diesel Risk Reduction Program
DV -- Design Value
DVc -- Current Design Value
DVf -- Future Design Value
EAC -- Early Action Compact
EDMS -- Emissions and Dispersion Modeling System
E-GRID-2007 -- Emissions and Generation Resource Integrated Database
EE/RE -- Energy Efficiency/Renewable Energy
EGAS -- Economic Growth Analysis System
EGF -- Electric Generating Facilities
EGU -- Electric Generating Units
EI -- Emissions Inventory
ELP – El Paso
EPA -- United States Environmental Protection Agency
EPS3 -- Emissions Processing System, version 3
ERC -- Emission Reduction Credits
ERCOT -- Electric Reliability Council of Texas
ESAD -- Emission Specification for Attainment Demonstration

ESL -- Energy Systems Laboratory, the Texas A&M University System
F -- Fahrenheit
FAA -- Federal Aviation Administration
FCAA -- Federal Clean Air Act
FCV -- Fuel Cell Vehicle
FGR -- Flue Gas Recirculation
FHWA -- Federal Highway Administration
FR -- Federal Register
FT -- Fischer-Tropsch Diesel Fuel
GIS -- Geographic Information System
GloBEIS -- Global Biosphere Emissions and Interactions System
gpm -- Gallons per Minute
GTM -- Gross Ton Mile
GVWR – Gross Vehicle Weight Rating
HAP -- Hazardous Air Pollutant
HARC -- Houston Advanced Research Center
HDT -- Heavy-Duty Truck
HECT -- Highly-Reactive Volatile Organic Compound Emissions Cap and Trade Program
HGB -- Houston-Galveston-Brazoria
H-GAC -- Houston-Galveston Area Council
HOV -- High Occupancy Vehicle
hp -- Horsepower
HPMS -- Highway Performance Monitoring System
HRVOC -- Highly-Reactive Volatile Organic Compound
HSC -- Houston Ship Channel
IC -- Internal Combustion
ICI -- Industrial, Commercial, and Institutional
IECC -- International Energy Conservation Code
I/M -- Inspection and Maintenance
km -- Kilometer
K_Vs -- Vertical Exchange Coefficient
LAER -- Lowest Achievable Emission Rate
lb/MMBtu -- Pound per Million British Thermal Units
LDAR -- Leak Detection and Repair
LDIR -- Light Detection and Ranging
LDEQ -- Louisiana Department of Environmental Quality
LDGV -- Light-Duty Gasoline Vehicle
LDT -- Light-Duty Truck
LDV -- Light-Duty Vehicle
LED -- Low Emission Diesel
LEV -- Low Emission Vehicle
LEV II -- California's Low Emission Vehicle II Program
LIRAP -- Low Income Repair and Assistance Program
LNB -- Low Nitrogen Oxides (NO_X) Burners
LNC -- Low Nitrogen Oxides (NO_X) Combustors
LNG -- Liquefied Natural Gas
LTO -- Landing and Take-Off
MACT -- Maximum Achievable Control Technology
Mcf -- Thousand Cubic Feet
MCR -- Mid-Course Review
MDPV -- Medium-Duty Passenger Vehicle

MECT -- Mass Emissions Cap and Trade Program
MM5 -- Fifth Generation Meteorological Model
MMBtu/hr -- Million British Thermal Units per Hour
MMcf -- Million Cubic Feet
MMS -- Minerals Management Service
MOA -- Memorandum of Agreement
MON -- Miscellaneous Organic National Emission Standards for Hazardous Air Pollutants (NESHAP)
mph -- Miles per Hour
MVEB -- Motor Vehicle Emissions Budget
MW -- Megawatts
MY -- Model Year
NAAQS -- National Ambient Air Quality Standard
NEGU -- Non-Electric Generating Units
NEI -- National Emissions Inventory
NESHAP -- National Emission Standards for Hazardous Air Pollutants
ng/J -- Nanogram per Joule
NLEV – National Low Emission Vehicle
NMIM -- National Mobile Inventory Model
NOAA -- National Oceanic and Atmospheric Administration
NO_X -- Nitrogen Oxides
NO_y -- Nitrogen Species
NSCR -- Non-Selective Catalytic Reduction
NTRD -- New Technology Research and Development Program
O_3 -- Ozone
OGV -- Ocean-Going Vessel
OTC – Ozone Transport Commission
PAYD -- Pay As You Drive
PBL -- Planetary Boundary Layer
PCA – Principle Component Analysis
PEI -- Periodic Emissions Inventory
PERP -- Portable Engine Registration Program
PiG -- Plume-in-Grid
PM -- Particulate Matter
$PM_{2.5}$ -- Particulate Matter less than 2.5 microns
ppb -- Parts Per Billion
ppbC -- Parts Per Billion Carbon
ppbv -- Parts Per Billion by Volume
ppm -- Parts Per Million
PSCF -- Potential Source Contribution Factors
PSDB -- Point Source Database
psia -- Pounds per Square Inch Absolute
PUC -- Public Utility Commission
RACT -- Reasonably Available Control Technology
RACM -- Reasonably Available Control Measure
RFP -- Reasonable Further Progress
RMSE -- Root Mean Square Error
ROP -- Rate-of-Progress
RRF -- Relative Reduction Factor
SB -- Senate Bill
SCAQMD -- South Coast Air Quality Management District

scfm -- Square Cubic Feet per Minute
SCR -- Selective Catalytic Reduction
SEP -- Supplemental Environmental Programs
SETPMTC -- Southeast Texas Photochemical Modeling Technical Committee
SIC -- Standard Industrial Classification
SIP -- State Implementation Plan
SNCR -- Selective Non-Catalytic Reduction
SOV -- Single Occupancy Vehicle
STP -- Surface Transportation Program
SWCV -- Solid Waste Collection Vehicle
TAC -- Texas Administrative Code
TACB -- Texas Air Control Board
TCAA -- Texas Clean Air Act
TCEQ -- Texas Commission on Environmental Quality (commission)
TCM -- Transportation Control Measure
TDM -- Travel Demand Model
TERP -- Texas Emission Reduction Plan
TexAQS 2000 -- Texas Air Quality Study 2000
TexAQS II -- Texas Air Quality Study 2006
TKE -- Turbulent Kinetic Energy
TNMHC -- Total Nonmethane Hydrocarbon
TNRCC -- Texas Natural Resource Conservation Commission
tpd -- Tons Per Day
tpy -- Tons Per Year
TSE -- Truck Stop Electrification
TTI -- Texas Transportation Institute
TUC -- Texas Utility Code
TxDOT -- Texas Department of Transportation
TxLED -- Texas Low Emission Diesel
USC -- United States Code
VMEP -- Voluntary Mobile Source Emissions Reduction Program
VMT -- Vehicle Miles Traveled
VOC -- Volatile Organic Compound
VRU -- Vapor Recovery Unit
ZEB -- Zero Emission Bus
ZEV -- Zero Emissions Vehicle

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) designated and classified areas for the eight-hour ozone National Ambient Air Quality Standards (NAAQS) with an effective date of June 15, 2004 (69 FR 23858). Victoria County was classified attainment for the eight-hour ozone standard. However, in 1990, Victoria County was designated nonattainment based on incomplete data for the one-hour ozone standard. In July 1994, the Texas Natural Resource Conservation Commission (TNRCC), now the Texas Commission on Environmental Quality (TCEQ), submitted a redesignation petition and maintenance plan State Implementation Plan (SIP) revision to the EPA. On May 8, 1995, the EPA redesignated Victoria County as attainment of the one-hour ozone standard and required a maintenance plan be submitted in eight years. The one-hour maintenance plan was submitted to the EPA on February 5, 2003; the EPA approved the plan on January 3, 2005.

The EPA's Phase I Implementation Rule for the eight-hour ozone standard requires areas like Victoria County that were designated as attainment for the eight-hour ozone NAAQS and attainment for the one-hour ozone NAAQS with an approved maintenance plan to submit a maintenance plan for the eight-hour ozone NAAQS that must be consistent with Section 110(a)(l) of the Federal Clean Air Act (FCAA). (69 FR 23951)

Under 40-CFR 51.905(a)(3) and (4), States must submit Section 110(a)(1) maintenance plans no later than 3 years after the effective date of the area's eight-hour ozone NAAQS designation. For Victoria County, June 15, 2004, is the effective date, therefore, the Section 110(a)(1) eight-hour ozone maintenance plan must be submitted no later than June 15, 2007. Guidance issued by the EPA on May 20, 2005, further specifies that states include the following components in the maintenance plan:

- attainment inventory;
- maintenance demonstration;
- ambient air quality monitoring;
- contingency plan; and
- verification of continued attainment.

With this SIP revision, the TCEQ is submitting an eight-hour ozone maintenance plan that will ensure the County of Victoria remains in attainment of the eight-hour ozone NAAQS.

Local governments and other interested parties in the Victoria area will continue implementing programs that have proved effective in maintaining healthy air quality to assure that the area continues to maintain its attainment status for the eight-hour ozone standard. The maintenance plan is the appropriate mechanism and allows individual communities the flexibility to pursue emission reduction strategies most appropriate for their circumstances.

CHAPTER 1: GENERAL

1.1 BACKGROUND

1.1.1 Purpose of Plan

The purpose of this State Implementation Plan (SIP) revision is to submit an eight-hour ozone maintenance plan that will ensure Victoria County remains in attainment of the eight-hour ozone standard. In addition, the Texas Commission on Environmental Quality (TCEQ) is submitting evidence showing that Victoria County is measuring ozone concentration well below 125 parts per billion (ppb), the basis for compliance with the former one-hour ozone standard which equates to 0.12 parts per million (ppm).

1.1.2 One-Hour Ozone History in Victoria County

Victoria County was originally designated nonattainment for ozone in the *Federal Register* dated March 3, 1978 (43 FR 8962). This designation was based on six weeks of U.S. Environmental Protection Agency (EPA) contractor-collected data at two sites from September 24, 1977 to November 7, 1977. The EPA changed the one-hour ozone standard to 0.12 ppm in January 1979. Victoria County ozone data was re-examined under the new standard and the EPA determined that Victoria County had exceeded the new standard on one occasion.

The 1990 Federal Clean Air Act (FCAA) Amendments authorized the EPA to designate areas failing to meet the ozone National Ambient Air Quality Standards (NAAQS) as nonattainment and to classify them according to severity. Victoria County was designated as an "Incomplete or No Data Ozone Nonattainment Area" on November 15, 1990, and the county retained its prior one-hour ozone nonattainment designation by operation of law. The FCAA Amendments required unclassifiable nonattainment areas with incomplete or no data to collect three consecutive years of monitored data and to reach attainment by November 15, 1995. Victoria County completed three consecutive years of monitoring on May 2, 1994, with a design value of 0.10 ppm, below the 0.12 ppm standard.

The general elements required for maintenance plans in incomplete data areas, such as Victoria County, were stated in a May 17, 1994, EPA letter from Dr. A. Stanley Meiburg, EPA Region 6 Director of the Air, Pesticides, and Toxics Division to Ms. Beverly Hartsock, Deputy Executive Director, Office of Air Quality, Texas Natural Resource Conservation Commission (predecessor agency to the TCEQ). The letter stated that incomplete data areas with ozone design values that are less than 85 percent of the ozone standard can be relieved of certain maintenance plan requirements. Eighty-five percent of the ozone standard is 0.106 ppm, therefore, Victoria County qualified for relief. On July 27, 1994, the TCEQ submitted a redesignation petition and maintenance plan SIP revision to the EPA. On May 8, 1995, the EPA redesignated Victoria County as attainment of the one-hour ozone standard.

The FCAA, Section 175A(b) requires the state to submit a subsequent maintenance plan eight years after redesignation. The eight-year deadline for submittal was May 8, 2003. The state adopted a maintenance plan on February 5, 2003, and submitted the plan to the EPA on February 18, 2003. The EPA approved the maintenance plan revision on January 3, 2005.

1.1.3 Eight-hour Ozone in Victoria County

The EPA's Phase I Implementation Rule requires areas like Victoria County to submit a maintenance plan for the eight-hour ozone NAAQS that must be consistent with Section 110(a)(l) of the FCAA (69 FR 23951). Under 40-CFR 51.905(a)(3) and (4), states must submit Section 110(a)(1) maintenance plans no later than three years after the effective date of the area's eight-

hour ozone NAAQS designation. June 15, 2004, was the effective date of eight-hour ozone designations, therefore, the Section 110(a)(1) eight-hour ozone maintenance plan must be submitted no later than June 15, 2007.

1.1.3.1 Maintenance Plan Components

The EPA-issued guidance[1] specifies that states must include the following components in the maintenance plan:

- Attainment inventory;
- Maintenance demonstration;
- Ambient air quality monitoring;
- Contingency plan; and
- Verification of continued attainment.

1.2 PUBLIC HEARING INFORMATION

The commission held a public hearing at the following time and location:

DATE	TIME	LOCATION
October 17, 2006	1:30 p.m.	700 Main Center, Room 204 Victoria, Texas

No oral comments were received at the hearing. The comment period ended on October 23, 2006, at 5:00 p.m. One written comment was received from the EPA. The response to comments has been attached to this document.

Copies of the adopted SIP revision and all appendices can be obtained from the TCEQ's web site at http://www.tceq.state.tx.us/implementation/air/sip/sipplans.html or upon request to:

Texas Commission on Environmental Quality
Air Quality Division
P. O. Box 13087
Mail Code 206
Austin, Texas 78711-3087
Re: Victoria Maintenance Plan Information

1.3 SOCIAL AND ECONOMIC CONSIDERATIONS

This revision is a continuation of the existing maintenance plan as required by the FCAA and no new control strategies have been incorporated into this revision. Therefore, there are no additional social or economic costs associated with this revision.

1.4 FISCAL AND MANPOWER RESOURCES

The state has determined that its fiscal and manpower resources are adequate and will not be adversely affected through implementation of this plan.

[1] EPA Memorandum: *Maintenance Plan Guidance Document for Certain 8-hour Ozone Areas Under Section 110(a)(1) of Clean Air Act*; (May 20, 2005)

CHAPTER 2: ATTAINMENT EMISSIONS INVENTORY

2.1 OVERVIEW

The attainment inventory is based on the volatile organic compounds (VOC) and nitrogen oxides (NO_X) emissions of an actual typical summer day. The attainment emission inventory base year is 2002. The 1990 Federal Clean Air Act (FCAA) Amendments, require that emissions inventories (EI) be prepared for ozone nonattainment areas. Because ozone is photochemically produced in the atmosphere when VOCs are mixed with NO_X in the presence of sunlight, the Texas Commission on Environmental Quality (TCEQ) must compile information on the sources of these precursor pollutants. EI must identify the source types present in an area, the amount of each pollutant emitted, and the types of processes and control devices employed at stationary sources or other source categories. The EI provides data for a variety of air quality planning tasks, including establishing baseline emission levels, calculating reduction targets, control strategy development for achieving the required emission reductions, emission inputs into air quality simulation models, and tracking actual emission reductions against the established emissions growth and control budgets. The total VOC and NO_X emissions inventory for an area is summarized from the estimates developed for four general categories of emissions sources, which are each explained in Sections 3.2.1 through 3.2.4. Summaries of the 2002 VOC and NO_X emissions by source type are provided in Table 2-1: *Summary of VOC Emissions in Victoria County by Source Type* and Table 2-2: *Summary of* NO_X *Emissions in Victoria County by Source Type.*

Table 2-1: Summary of VOC Emissions in Victoria County by Source Type (2002)
Eight-Hour Ozone Maintenance Evaluation Year 2002

Source Category	VOC tons per average ozone season day
Area	6.28
On-road Mobile	3.29
Non-road Mobile	1.21
Point	2.60
Total	13.38

Table 2-2: Summary of NO_X Emissions in Victoria County by Source Type (2002)
Eight-Hour Ozone Maintenance Evaluation Year 2002

Source Category	NO_X tons per average ozone season day
Area	2.56
On-road Mobile	11.26
Non-road Mobile	2.23
Point	13.00
Total	29.05

CHAPTER 3: MAINTENANCE DEMONSTRATION

3.1 GENERAL

The maintenance plan must demonstrate that the Victoria County area will remain in attainment of the eight-hour ozone standard for the ten-year period following the date of designation. The maintenance demonstration is satisfied if the state demonstrates that future volatile organic compounds (VOC) and nitrogen oxides (NO_X) emission levels are not expected to result in exceedances of the National Ambient Air Quality Standards (NAAQS). The effective date for Victoria County's attainment designation was June 15, 2004, meaning maintenance must be demonstrated through 2014.

3.2 FUTURE EMISSIONS AND VERIFICATION OF CONTINUED ATTAINMENT

In order to track the progress of the maintenance plan, the Texas Commission on Environmental Quality (TCEQ) will continue to periodically update the emissions inventory (EI). In addition to the EI for 2002, the emission inventory base year, and the last year of the maintenance plan, 2014, interim years of 2004 and 2010 were selected to show a trend analysis for maintenance of the eight-hour ozone NAAQS. Tables 3-1: *Summary of VOC Emissions in Victoria County by Source Type* and 3-2: *Summary of* NO_X *Emissions in Victoria County by Source Type* depict the EIs that will be used to compare against 2002, to ensure compliance with the eight-hour ozone NAAQS. The trend analysis shows an overall decrease in NO_X and VOC emissions for Victoria County and thus shows continued attainment through the end of the ten-year period following designation under the eight-hour standard.

Table 3-1: Summary of VOC Emissions in Victoria County by Source Type (2004, 2010, and 2014)
Eight-Hour Ozone Maintenance Evaluation Years 2004, 2010, and 2014
VOC (tons per average ozone season day)

Source Category	VOC (tons per average O_3 season day)		
	2004	2010	2014
Area	6.31	6.85	7.23
On-road Mobile	2.71	1.78	1.40
Non-road Mobile	1.00	0.64	0.57
Point	3.10	3.30	3.60
Total	13.12	12.57	12.8

Table 3-2: Summary of NO_X Emissions in Victoria County by Source Type (2004, 2010, and 2014)
Eight-Hour Ozone Maintenance Evaluation Years 2004, 2010, and 2014
NO_X (tons per average ozone season day)

Source Category	NO_X (tons per average O_3 season day)		
	2004	2010	2014
Area	2.65	2.90	3.07
On-road Mobile	9.72	4.86	2.90
Non-road Mobile	2.02	1.77	1.51
Point	15.00	16.00	17.00
Total	29.39	25.53	24.48

3.2.1 Area Sources

Area sources of emissions are those that fall below the point source reporting levels and that are too numerous or too small to identify individually. Area sources are commercial, small-scale industrial, and residential categories that use materials or operate processes that generate emissions. Area sources are divided into two groups characterized by the emission mechanism: hydrocarbon evaporative emissions or fuel combustion emissions. Examples of hydrocarbon evaporative emission sources include: printing operations, industrial coatings, degreasing solvents, house paints, leaking underground storage tanks, and gasoline service station underground tank filling and vehicle refueling operations. Fuel combustion emission sources include stationary source fossil fuel combustion at residences and businesses, vehicle or equipment operations, outdoor burning, structural fires, and wildfires.

Area source emission calculations are estimated as county-wide totals rather than as individual source emissions. These emissions, with some exceptions, may be calculated by multiplication of an established, U.S. Environmental Protection Agency (EPA) approved, emission factor (emissions per unit of activity) by the appropriate activity or activity surrogate responsible for generating emissions. Actual activity data is used when available. Examples include gallons of gasoline sold in a county, amount of printer ink used, number of wildfire acres burned, and amount of oil and natural gas produced. When actual activity data is unavailable, surrogates are used. These surrogates include total county population and employment data by industry type. Often actual activity data is available only at the state or national level and must be adapted to the county level using an appropriate surrogate.

The 2002 Periodic Emissions Inventory (PEI) was the starting point for the area source 2002 EI for Victoria County. PEI categories and emissions were reviewed and subsequently updated with current methodologies and local activity data when it was available. Major efforts were made to locate appropriate activity data. Specific categories were updated using information and data that represent 2002 activities. For other categories, emissions were grown from the 1999 EI to 2002 using the EPA's EGAS growth factors. Use of these various methodologies resulted in the 2002 area source EI being compiled from several sources of data, including work from various contracts, TCEQ research, and the EPA's National Emissions Inventory.

For those area source categories affected by TCEQ rules, rule effectiveness factors were applied to the baseline or uncontrolled emissions. These factors address the efficiency of the controls and the percentage of the category's population affected by the rule. The area source EIs for future years 2004, 2010, and 2014 were compiled using the EGAS growth factors. The EGAS contains individual growth factors for each category and for each forecasting year. This is the EPA standard and accepted method for developing future year EIs.

Quality assurance of area source emissions involves ensuring that the activity data used for each separate category is current and valid. Data such as current population figures, fuel usage, and material usage were updated and EPA guidance on emission factors was used. Other routine efforts such as checking calculations for errors and conducting reasonableness and completeness checks were implemented.

3.2.2 On-Road Mobile Sources

On-road mobile sources consist of automobiles, trucks, motorcycles, and other motor vehicles traveling on public roadways. Combustion-related emissions are estimated for vehicle engine exhaust, and evaporative hydrocarbon emissions are estimated for the fuel tank and other evaporative leak sources on the vehicle. The vehicle types are distributed into calculation bins based upon fuel usage (gasoline and diesel), vehicle weight, and vehicle emission standard classifications (cars, light trucks, and heavy trucks). The resulting 28 vehicle types are summarized in Table 3-3, *MOBILE6 Vehicle Classifications*.

Table 3-3: MOBILE6 Vehicle Classifications

Number	Abbreviation	Vehicle Classification Description
1	LDGV	Light-Duty Gasoline Vehicles (Passenger Cars)
2	LDGT1	Light-Duty Gasoline Trucks 1 (0-6,000 lbs. GVWR, 0-3,750 lbs. LVW)
3	LDGT2	Light-Duty Gasoline Trucks 2 (0-6,000 lbs. GVWR, 3,751-5,750 lbs. LVW)
4	LDGT3	Light-Duty Gasoline Trucks 3 (6,001-8,500 lbs. GVWR, 0-5,750 lbs. ALVW)
5	LDGT4	Light-Duty Gasoline Trucks 4 (6,001-8,500 lbs. GVWR, greater than 5,751 lbs. ALVW)
6	HDGV2b	Class 2b Heavy-Duty Gasoline Vehicles (8,501-10,000 lbs. GVWR)
7	HDGV3	Class 3 Heavy-Duty Gasoline Vehicles (10,001-14,000 lbs. GVWR)
8	HDGV4	Class 4 Heavy-Duty Gasoline Vehicles (14,001-16,000 lbs. GVWR)
9	HDGV5	Class 5 Heavy-Duty Gasoline Vehicles (16,001-19,500 lbs. GVWR)
10	HDGV6	Class 6 Heavy-Duty Gasoline Vehicles (19,501-26,000 lbs. GVWR)
11	HDGV7	Class 7 Heavy-Duty Gasoline Vehicles (26,001-33,000 lbs. GVWR)
12	HDGV8a	Class 8a Heavy-Duty Gasoline Vehicles (33,001-60,000 lbs. GVWR)
13	HDGV8b	Class 8b Heavy-Duty Gasoline Vehicles (>60,000 lbs. GVWR)
14	LDDV	Light-Duty Diesel Vehicles (Passenger Cars)
15	LDDT12	Light-Duty Diesel Trucks 1and 2 (0-6,000 lbs. GVWR)
16	HDDV2b	Class 2b Heavy-Duty Diesel Vehicles (8,501-10,000 lbs. GVWR)
17	HDDV3	Class 3 Heavy-Duty Diesel Vehicles (10,001-14,000 lbs. GVWR)
18	HDDV4	Class 4 Heavy-Duty Diesel Vehicles (14,001-16,000 lbs. GVWR)
19	HDDV5	Class 5 Heavy-Duty Diesel Vehicles (16,001-19,500 lbs. GVWR)
20	HDDV6	Class 6 Heavy-Duty Diesel Vehicles (19,501-26,000 lbs. GVWR)
21	HDDV7	Class 7 Heavy-Duty Diesel Vehicles (26,001-33,000 lbs. GVWR)
22	HDDV8a	Class 8a Heavy-Duty Diesel Vehicles (33,001-60,000 lbs. GVWR)
23	HDDV8b	Class 8b Heavy-Duty Diesel Vehicles (>60,000 lbs. GVWR)
24	MC	Motorcycles (Gasoline)
25	HDGB	Gasoline Buses (School, Transit and Urban)
26	HDDBT	Diesel Transit and Urban Buses
27	HDDBS	Diesel School Buses
28	LDDT34	Light-Duty Diesel Trucks 3 and 4 (6,001-8,500 lbs. GVWR)

To estimate emissions from the 28 vehicle types, an emission rate per unit activity, or emission factor, and the activity level for each vehicle type must be determined. Both the emission factors and the activity level for on-road mobile vehicles may be estimated at various levels of temporal and spatial specificity. The level of specificity is generally determined based upon the final use of the inventory. Since the primary use of the Victoria County inventory is to confirm future emission level trends and no particular photochemical modeling will be performed using the inventories, the inventories were developed spatially at the county-wide level of detail using Highway Performance Monitoring System (HPMS) facility types rather than a roadway link network. The activity was temporally allocated to hourly time periods for purposes of speed calculation and emission estimations. The emission factors were developed using the newest version of the EPA's on-road mobile emission factor model, MOBILE6.2.03, released November 2003. To the extent that local data was available, inputs to MOBILE6.2.03 were modified to

reflect those inputs. For the Victoria County inventories, information concerning local fuel parameters, meteorological conditions, and fleet characteristics were obtained and processed for input into MOBILE6.2.03. All inventory development methods used are consistent with the EPA guidelines for development of on-road mobile source inventories for use in State Implementation Plans (SIP).

The Victoria County on-road mobile source emission inventories were developed under a TCEQ contract with the Texas Transportation Institute (TTI). A summary of the emission inventory development results is presented in Table 3-4: *On-Road Mobile Source, Summer-Weekday[1] Emissions Inventory Summary*. The final contract report documenting all activities performed to develop the inventories and the emission results is provided as *Appendix A: Development and Production of On-road Mobile Source Emissions Inventories for Victoria County: 2002, 2004, 2010, and 2014*. All electronic files associated with the inventory development and results are available at the public TCEQ FTP site, f*tp://ftp.tnrcc.state.tx.us/pub/OEPAA/TAD/Modeling/Mobile_EI/*.

Table 3-4: On-Road Mobile Source, Summer-Weekday[1] Emissions Inventory Summary

Year	VMT (miles/day)	Speed (mph)	VOC (tons/day)	NO_X
2002	2,633,141	39.2	3.29	11.26
2004	2,581,761	39.5	2.71	9.72
2010	2,800,537	39.3	1.78	4.86
2014	2,951,083	39.2	1.40	2.90

[1] Based on average June through August, Monday through Friday activity estimates and average June through August 2002 Victoria Regional Airport meteorological data.
Source: Development and Production of On-road Mobile Source Emissions Inventories for Victoria County: 2002, 2004, 2010, and 2014. Texas Transportation Institute, October 2005.

3.2.3 Non-Road Mobile Sources

Non-road mobile categories include aircraft, railroad locomotives, recreational vehicles and boats, and a broad range of equipment from 600-horsepower engines in the construction equipment class to one-horsepower string trimmers in the lawn and garden class. For all non-road mobile categories except aircraft, locomotives, and commercial marine vessels the EPA NON-ROAD model is used to calculate emissions. This model generates emissions for over 200 individual types of equipment for the following classes:

- Agricultural
- Commercial
- Construction
- Industrial/Oilfield
- Lawn and Garden
- Logging
- Railway Maintenance
- Recreational
- Recreational Marine

Activity data in the NON-ROAD model used to calculate emissions include the equipment count, horsepower ranges, and fuel types. The model produces emissions for every county in the state,

using default activity data pro-rated from national data to the state and county levels using appropriate surrogates. Operating the model with all of the default surrogates in place is acceptable, however, the EPA encourages states to update the model with local, county-level data based on surveys and other relevant information. Local, county-level data is incorporated into the NON-ROAD model as it becomes available to the TCEQ.

The latest NON-ROAD model, version 2004, was used to develop the Victoria County 2002 non-road EI. Recent surveys and local data have improved Texas' use of the model. Improvements to the following classes include the major VOC and NO_X non-road mobile categories: construction, lawn and garden, oilfield, and recreational marine.

Emissions from commercial and military aircraft are calculated using the Emissions and Dispersion Modeling System (EDMS) model which uses actual recorded landing/takeoff (LTO) data and aircraft types to generate emissions. Smaller aircraft emissions are calculated using the EPA's emission factors and applicable LTO data.

Emissions from locomotives are based on fuel use and track mileage. Individual railroad lines were surveyed for actual data to use in emissions calculation. These surveys and discussions with the railroad lines are ongoing with the intent to continue to improve the locomotive EI.

The future years 2004, 2010, and 2014 EIs for non-road mobile sources were also developed by the NON-ROAD model. The model produces future year EIs routinely, and the most recent version contains future estimated activities and rules that will have an effect on the emissions. Projected LTO data was used to develop the future years for aircraft and ground support EIs, and railroad activity was projected to future years using previous year surveys and data collected from the railroad lines.

Quality assurance procedures for non-road mobile source emissions rely mainly upon the quality of data used for each separate category. Data such as local equipment population figures and fuel usage routinely change annually. Sources of this information were contacted during the inventory development for updates. Using the current EPA NON-ROAD and EDMS models ensures that updates to equipment types, horsepower ranges, and results from applicable rules are applied to the emissions. Other routine efforts such as checking calculations for errors and conducting reasonableness and completeness checks were implemented.

3.2.4 Stationary Point Sources

Stationary point source emissions and industrial process operating data are collected annually from sites that meet the reporting requirements of 30 Texas Administrative Code §101.10. To collect emissions and industrial process operating data for these plants, the TCEQ mails Emissions Inventory Questionnaires (EIQs) to all sources identified as meeting reporting requirements. Companies are required to report emissions data for all emission generating units and emission points, the type, and, for a representative sample of sources, the calculations used to determine the emissions reported. Information also requested in the EIQ are: process equipment descriptions; operation schedules; emissions control devices currently in use; abatement device control efficiency; and stack parameters such as location, height, and exhaust gas flow rate. All data submitted via the EIQ is then subjected to quality assurance procedures and entered into an electronic data base. Additional information is available upon request from the Industrial Emissions and Assessment Section of the TCEQ's Air Quality Division. The evaluation years 2004, 2010, and 2014 EIs for area sources were compiled using the Economic Growth Analysis System (EGAS) growth factors. The EGAS contains individual growth factors for each category and for each forecasting year.

3.2.5 Biogenic Sources

Biogenic sources include pine and oak forests, crops, and lawn grass that produce VOC emissions such as isoprene, monoterpene, and alpha-pinene. In addition, nitric oxide emissions are produced by soils. The EPA, using the latest Biogenic Emissions Inventory System (BEIS) model, provided the 2002 biogenic EI to the states. Data used in the model includes vegetation types and land use from satellite imaging, field biomass surveys, and emission factors for plant species.

The EPA guidance excludes biogenic emissions from the baseline and future inventories, and thus this submittal does not consider biogenics. However, biogenic emissions are necessary to determine the overall emissions profile of an area and therefore are required for air quality modeling.

3.3 CONTROL STRATEGIES

To address the significant air quality concerns under the one-hour ozone NAAQS and the potential challenges imposed by the eight-hour ozone NAAQS, the TCEQ and the EPA have developed strategies to reduce NO_X and VOC emissions. These strategies will help reduce ozone levels in the Victoria area. The following are descriptions of the strategies.

3.3.1 National Volatile Organic Compound Emission Standards for Consumer Products

Federal rules regulating the VOC content of consumer products are codified in 40 CFR 59 Subpart C. These rules were promulgated in 1998. Since that time, rules requiring stricter VOC limits have been adopted in California and in the Ozone Transport Commission (OTC) states. The EPA is working to amend the federal rules based on the OTC model rule. Proposal is scheduled for April 2007, with promulgation in November 2007 and compliance by January 2009. A study conducted by Principle Component Analysis (PCA) Services, Inc. for the Houston Advanced Research Center (HARC) under project H54 estimated that such a rule would reduce VOC emissions from consumer products by approximately 14.6% from baseline levels.

3.3.2 National Organic Compound Emission Standards for Architectural Coatings

Federal rules regulating the VOC content of architectural and industrial maintenance (AIM) coatings are codified in 40 CFR 59 Subpart D. These rules were promulgated in 1998. Since that time, rules requiring stricter VOC limits have been adopted in California and in the OTC states. The EPA is working to amend the federal rules based on the OTC model rule. Proposal of these rules is scheduled for April 2007, with promulgation in November 2007 and compliance by January 2009. A study conducted by PCA Services, Inc. for HARC under project H54 estimated that such a rule would reduce VOC emissions from AIM coatings by approximately 30% from baseline levels.

3.3.3 National Low Emission Vehicle (NLEV) Program/Tier 2 Engine and Fuel Standards

Automobile manufacturers made a commitment through the NLEV program to introduce cleaner cars. This commitment along with improvements in gasoline quality, combined with the advanced vehicle technology, was to assist areas in achieving their overall air quality goals by reducing NO_X emissions. The federal Tier 2 car and truck standards that have even more stringent emission standards than NLEVs, were phased in for all onroad and nonroad vehicles and equipment beginning with the 2004 model year.

3.3.4 Stage I Vapor Recovery

The commission adopted the Stage I vapor recovery rule on June 30, 1999, to reduce VOC emissions. These rules apply to approximately 7,000 gasoline stations in the Beaumont-Port Arthur (BPA), El Paso (ELP), Houston-Galveston-Brazoria (HGB), and Dallas-Fort Worth (DFW) areas, and across 95 counties in east and central Texas including Victoria County. The vapor recovery rules regulate the filling of gasoline storage tanks at gasoline stations by tank trucks. To comply with Stage I requirements, a vapor balance system is typically used to capture the vapors from the gasoline storage tanks that would otherwise be displaced to the atmosphere as these tanks are filled with gasoline. The captured vapors are routed back to the tanker truck and processed by a vapor control system when the tanker truck is subsequently refilled at a gasoline terminal or gasoline bulk plant and handled in an appropriate manner. The effectiveness of Stage I vapor recovery rules depends on the captured vapors being: (1) effectively contained within the gasoline tanker truck during transit; and (2) controlled when the transport vessel is refilled at a gasoline terminal or gasoline bulk plant.

3.3.5 Cleaner Gasoline

Low Reid Vapor Pressure (RVP) gasoline is fuel that is refined to have a lower evaporation rate and lower volatility than conventional gasoline. This gasoline also reduces the evaporative emissions generated during vehicle refueling and therefore decreases the emissions of volatile organic compounds (VOC).

The Regional Low RVP Gasoline program requires low RVP gasoline in 95 central and eastern Texas counties during the summer months. The program, which began May 1, 2000, requires that all gasoline sold from retail gasoline-dispensing facilities within the affected counties have a maximum RVP of 7.8 pounds per square inch (psi) from June 1 through October 1 of each year. Gasoline suppliers are required to supply low RVP gasoline to the affected counties from May 1 through October 1 of each year.

3.3.6 Texas Low Emission Diesel (TxLED)

This rule reduces emissions of NO_X and other pollutants from diesel-powered motor vehicles and non-road equipment operating within 110 counties in the eastern half of Texas including Victoria County and the BPA, DFW, and HGB eight-hour ozone nonattainment areas. The rule was originally adopted by the commission in December 2000, and was revised in March 2005 and April 2006. TxLED rules require that diesel fuel produced for delivery and ultimate sale to the consumer must contain less than ten percent by volume aromatic hydrocarbons and must have a cetane number of 48 or greater. Some compliance options are allowed. TxLED implementation dates were October 31, 2005, for producers and importers; December 15, 2005, for bulk distribution facilities; and January 31, 2006, for retail fuel dispensing outlets, wholesale bulk purchasers, consumer facilities, and all other affected persons.

3.3.7 Portable Fuel Container Rule

A statewide portable fuel container rule was adopted by the commission on October 27, 2004, to reduce VOC emissions. The rule establishes design criteria for “no-spill” portable fuel containers and portable fuel container spouts based in large part on the California Air Resources Board (CARB) standards. Effective December 31, 2005, these rules limit the type of portable fuel containers and portable fuel container spouts sold, offered for sale, manufactured, and/or distributed in Texas. Fuel released into the environment can lead to the contamination of both air and water. This rule ensures that portable fuel containers manufactured under these standards will release a smaller amount of fuel as the result of spillage and evaporation.

3.3.8 Texas Emission Reduction Plan (TERP)

In 2001, the 77th Texas Legislature passed Senate Bill 5 which established the Texas Emission Reduction Plan (TERP). The TERP includes incentive grants programs to reduce emissions of NO_X from internal combustion engines on mobile sources. Eligible grant projects include fleet expansions with cleaner engines, replacements of old vehicles and equipment, repower of old engines, and on-vehicle and on-site infrastructure for idle reduction, electrification, and delivery of alternative fuels.

The current funding mechanisms for the TERP program are expected to generate approximately $140 million per fiscal year through August 31, 2010. Approximately $116 million is expected to be appropriated for use in the incentive grants program each year.

As of March 2006, the program has awarded over $322 million for 720 projects, which are estimated to result in NO_X reductions of over 73,000 tons, at an average cost per ton of NO_X reduced of $4,397. In the Victoria County area, the projects funded thus far are projected to result in NO_X reductions of 223.5794 total tons, which equate to 0.1295 tons per day in 2007.

The current TERP funding priorities are aimed at the nonattainment areas. Decisions on future TERP funding for projects in the Victoria area will depend upon the availability of funds and the need for reductions in the priority nonattainment areas under the new eight-hour SIP strategies in those areas.

For information on recent TERP activities, please visit the TERP web site: www.terpgrants.org.

3.3.9 Non-Road Source Control Strategies

The ozone control strategy for the Victoria area includes reductions realized from various federal engine standards for non-road sources.

3.3.9.1 Anticipated Federal Emission Standards on Marine and Railroad Engines

The EPA is considering locomotive and marine diesel engine emission standards modeled after the 2007/2010 clean highway and non-road diesel engine program, with an emphasis on achieving large reductions in particulate matter (PM) emissions as early as possible through the use of advanced emission control technology. These standards, which could apply as early as 2011, would be based on the application of high-efficiency catalytic aftertreatment enabled by the availability of clean diesel fuel with a sulfur content capped at 15 parts per million. The EPA estimated that the 2007/2010 clean highway and non-road diesel engine programs could reduce NO_X and PM by 90 percent. The EPA expects that similar levels of NO_X and PM reductions could be achieved by applying similar technologies to locomotives and marine diesel engines. The EPA is expected to propose the rule in the spring of 2007.

3.3.10 Local Programs

The City of Victoria's air quality program, Air Victoria, is a non-profit organization that works to inform citizens in the Victoria area about air quality issues, promote voluntary compliance with clean air standards, and educate the public about health problems related to air quality. The following are descriptions of these programs.

3.3.10.1 Air Victoria Team

The Air Victoria Team is a cooperative effort of the City of Victoria and the TCEQ to reduce emissions of ozone producing chemicals in the Victoria area. This team consists of more than 40 businesses that agree to comply with best practices for improving air quality and participate in the TCEQ Small Business and Local Government Assistance or Pollution Prevention site visit

program. The program continues to grow as more businesses embrace environmental stewardship and as environmental education results in more participation by businesses and organizations.

3.3.10.2 Ozone Alert System

The ozone alert system provided by the TCEQ is available through the Air Victoria website at http://www.airvictoria.org. The TCEQ provides e-mail alerts for ozone forecasts and ozone warnings for several metropolitan areas throughout Texas, including the Victoria area. Ozone forecasts are made for each day of the ozone season for each forecast area. Ozone warning e-mail notifications are generated automatically about 20 minutes after the hour when the high ozone was measured for that particular area. In addition, the Victoria Advocate weather page (local newspaper with 75,000 readers/day) provides information on signing up for the TCEQ alerts, which are released during ozone season, from May 1 to October 15. Ozone alert advisories are communicated to the community via television, radio, and print media. The Air Victoria team members also display ozone alert flags during alerts.

3.3.10.3 Community Advisory Panel

The Victoria area air quality program is advised by the community advisory panel on outreach and education and by an expert technical advisory committee with regards to modeling and emissions inventory technical work.

3.3.10.4 Public Education

The public education program uses community based social marketing and includes, but is not limited to: public speaking, outdoor advertising, radio, television, print media and publication of informational and educational materials. The program coordinator has an interactive relationship with all schools in the city and works to provide or enhance air quality curriculum and programs in all grade levels.

3.4 EMISSIONS SUMMARY

The 2002 base year and the 2004, 2010, and 2014 future year emissions inventory summaries by source categories for Victoria County are shown in Figures 3-1: *Victoria County VOC Emissions by Major Source* and 3-2, *Victoria County* NO_X *Emissions by Major Source*. Emission totals are shown in Figures 3-3, *Victoria County Total VOC Emissions* and 3-4, *Victoria County Total* NO_X *Emissions*. These figures illustrate that the greatest man-made contribution of VOC is from area sources. For NO_X, the greatest man-made contribution is from point sources. Contributions from biogenic emissions are not included in the summary because the maintenance measures are limited to the reduction of man-made emissions only.

The percentages of emissions by source type for 2002, 2004, 2010, and 2014 are reflected in Table 3-5: *Percentages of VOC Emissions in Victoria County by Source Type* and Table 3-6: *Percentages of* NO_X *Emissions in Victoria County by Source Type*.

Table 3-5: Percentages of VOC Emissions in Victoria County by Source Type
Eight-Hour Ozone Maintenance Evaluation Years 2002, 2004, 2010, and 2014 (See Tables 3-1 and 3-2 for tons per average ozone season day)

Source Category	Evaluation Year			
	2002	2004	2010	2014
Area	46.9%	48.1%	54.5%	56.5%
On-road Mobile	24.6%	20.7%	14.2%	10.9%
Point	19.4%	23.6%	26.2%	28.1%
Non-road Mobile	9.1%	7.6%	5.1%	4.5%

Table 3-6: Percentages of NO_X Emissions in Victoria County by Source Type
Eight-Hour Ozone Maintenance Evaluation Years 2002, 2004, 2010, and 2014

Source Category	Evaluation Year			
	2002	2004	2010	2014
Point	44.7%	51.0%	62.7%	69.4%
On-road Mobile	38.8%	33.1%	19.0%	11.9%
Area	8.8%	9.0%	11.4%	12.5%
Non-road Mobile	7.7%	6.9%	6.9%	6.2%

Figure 3-1: Victoria County VOC Emissions by Major Source

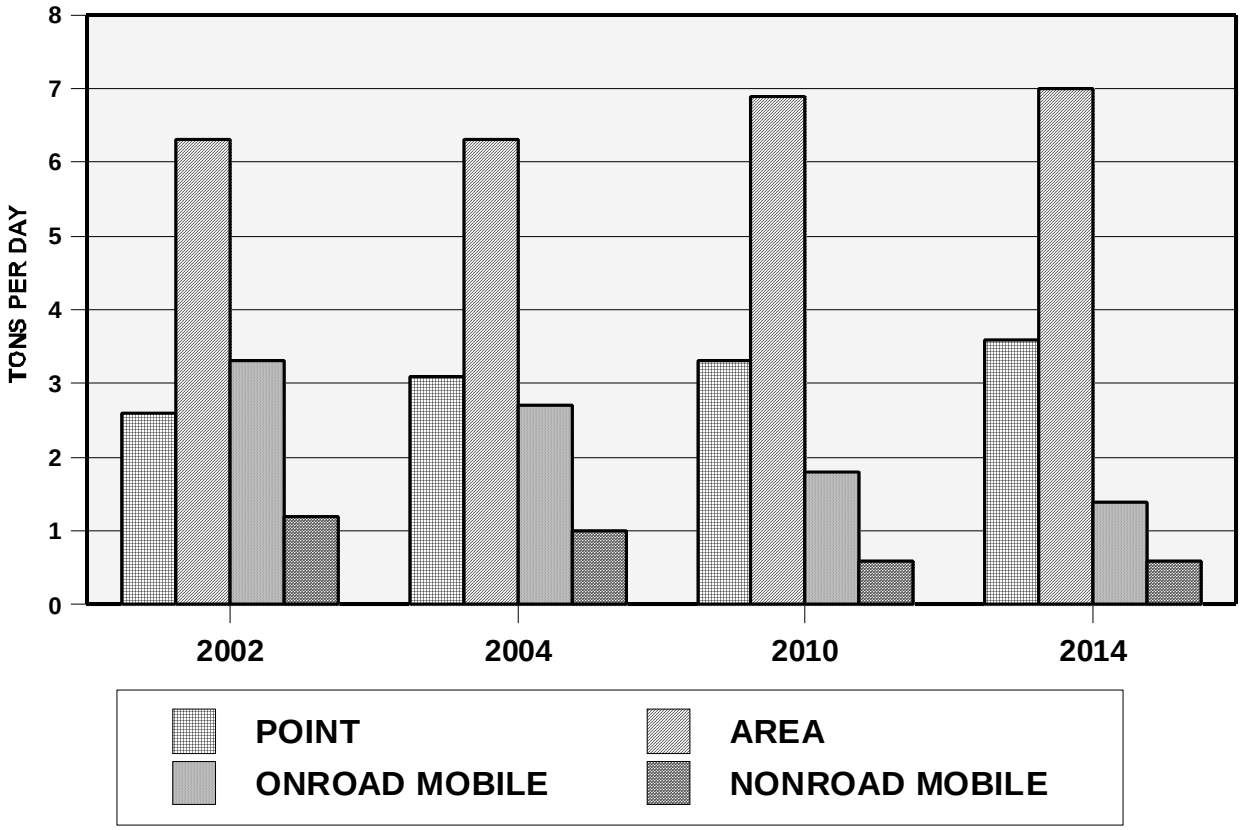


Figure 3-2: Victoria County NOx Emissions by Major Source

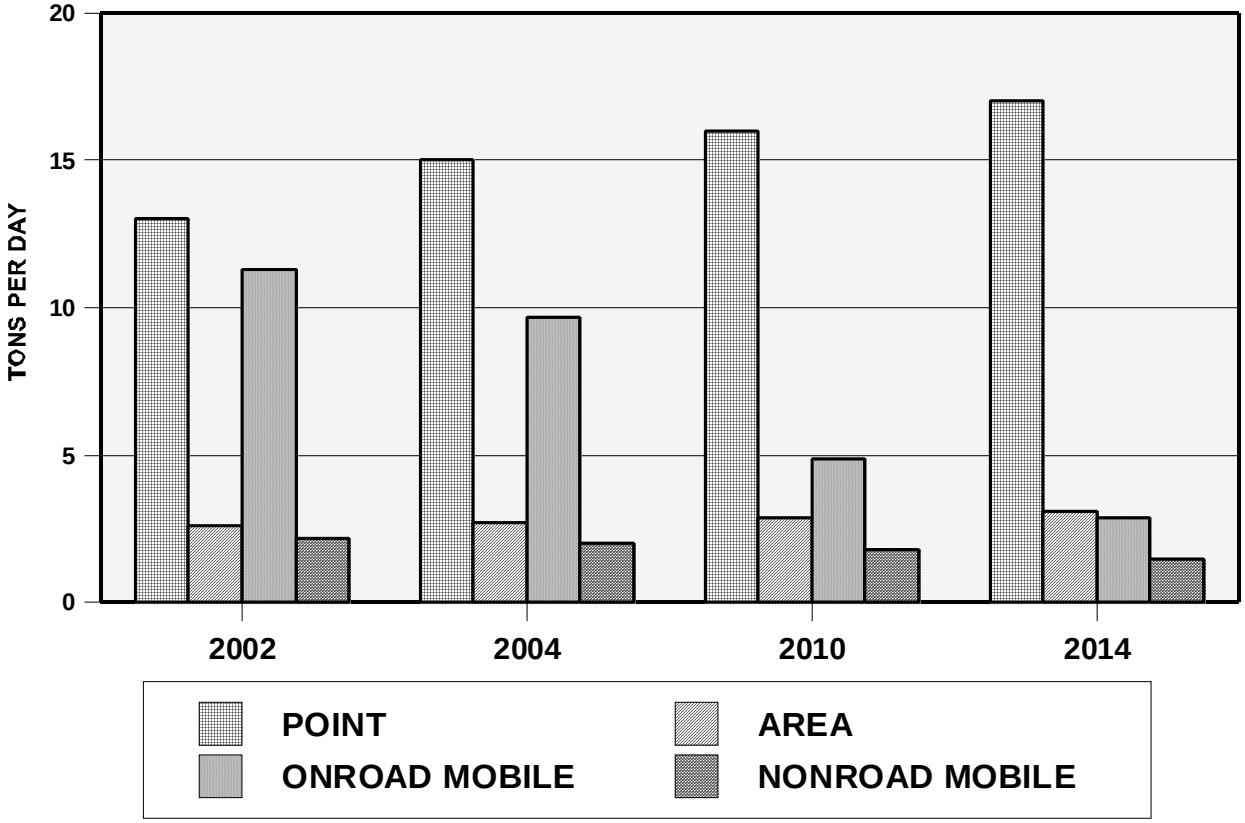


Figure 3-3: Victoria County Total VOC Emissions

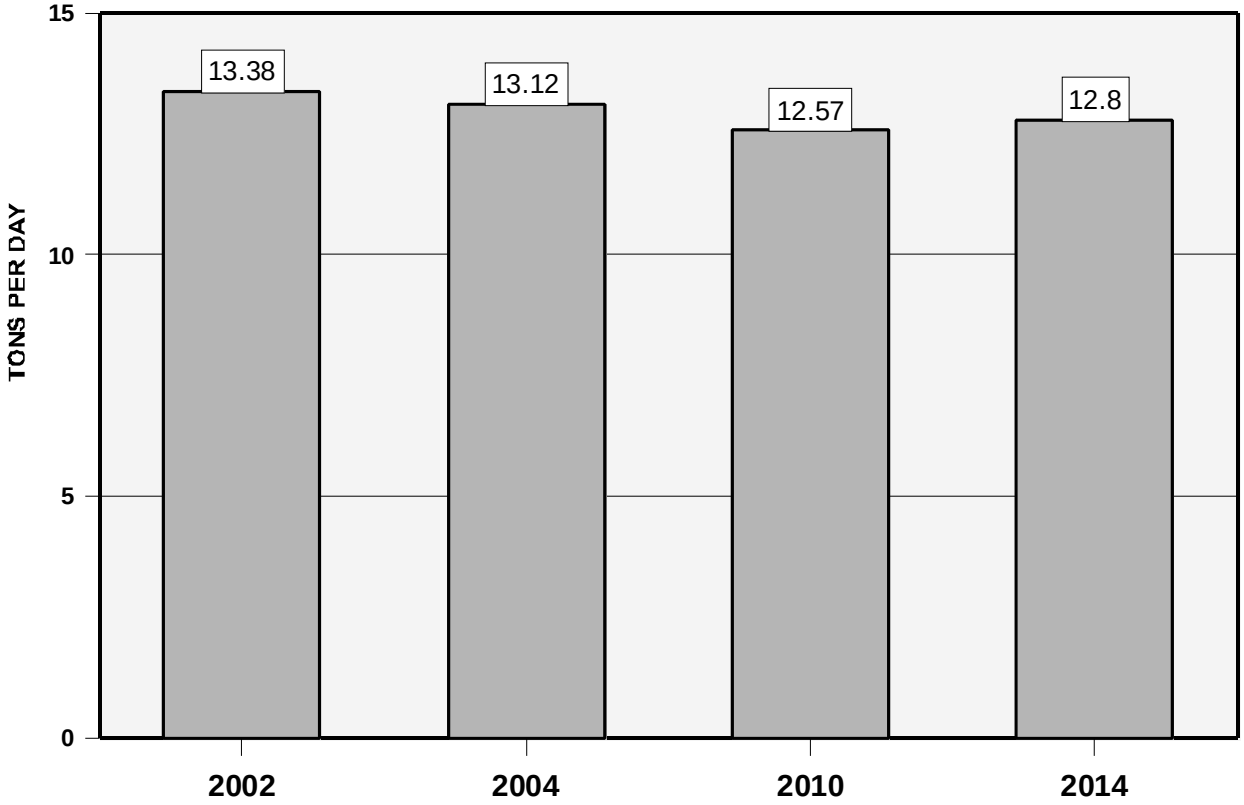
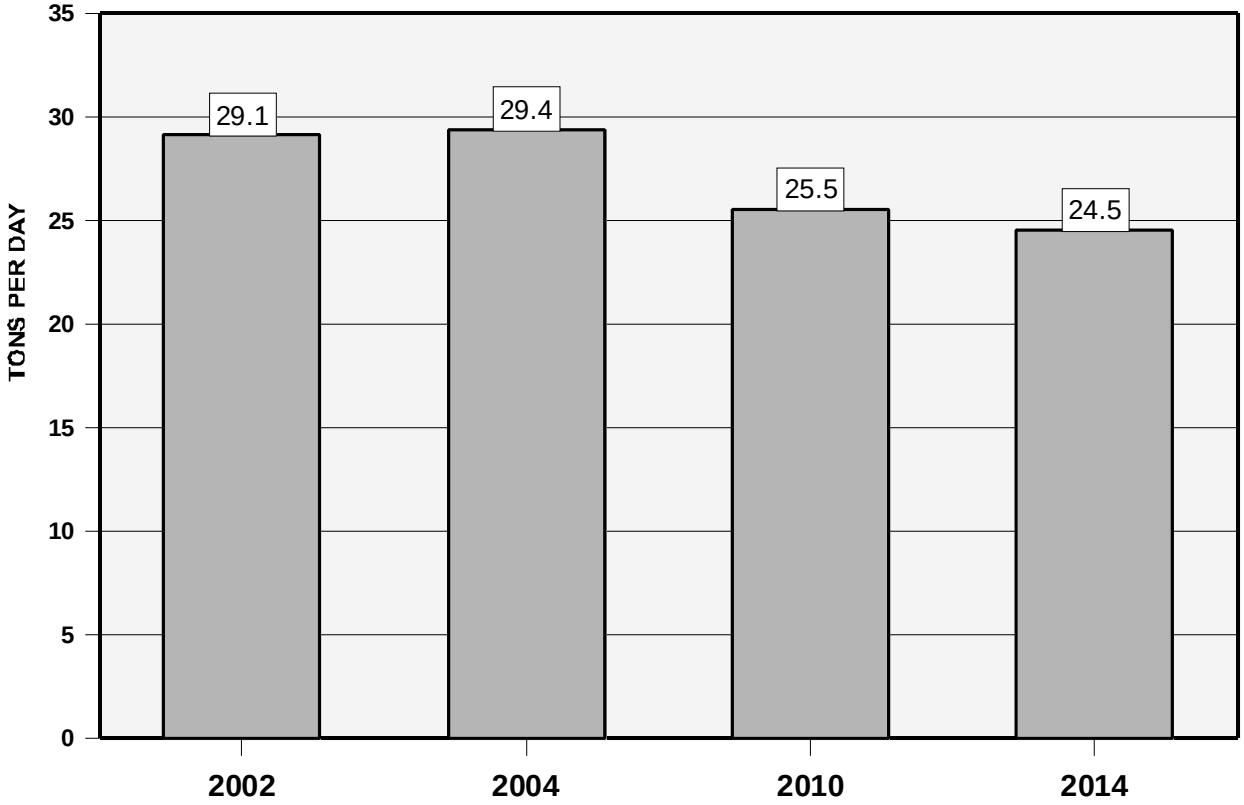


Figure 3-4: Victoria County Total NOx Emissions



CHAPTER 4: MONITORING NETWORK

4.1 GENERAL

The method chosen to verify continued attainment is the ambient air quality monitoring network. The ambient air monitoring site will remain active at the present location during the entire length of the maintenance plan period (2014) or if relocated or removed, will be done with the U.S. Environmental Protection Agency's (EPA) concurrence. This data will be quality controlled and submitted to the EPA's Aerometric Information Retrieval System (AIRS) on a monthly basis. A set of indicators and trigger levels, based on monitoring data, is specified in Section VI.B.10.a.7(e), Contingency Plan.

The Victoria County monitoring network consists of an ambient air monitor located in the City of Victoria (CAMS 87) and is the monitor driving the area's design value. The monitor is managed in accordance with 40 CFR Part 58, to verify the attainment status of the county. The TCEQ commits to keep the monitor in place until the end of the maintenance period (2014). The monitor will be used to detect if and when appropriate levels have been exceeded for contingency measure triggering purposes.

The eight-hour ozone design value based upon data collected from 2003-2005 at the CAMS 87 monitor is 76 parts per billion (ppb). Table 4-1: *Summary of the Design Value of CAMS 87 from 2000-2005*, summarizes the design value of the CAMS 87 monitor from 2000-2005.

Table 4-1: Summary of the Design Value of CAMS 87 from 2000-2005

2000	2001	2002	2003	2004	2005
79ppb	79ppb	76ppb	78ppb	79ppb	76ppb

CHAPTER 5: CONTINGENCY PLAN

5.1 BACKGROUND

Phase I of the U.S. Environmental Protection Agency's (EPA) Eight-Hour Ozone Implementation Rule requires that the Section 110(a)(1) maintenance plan include contingency provisions to promptly correct any exceedances of the National Ambient Air Quality Standards (NAAQS). The contingency plan ensures that the contingency measures are adopted expeditiously if they are triggered. In accordance with the EPA guidance[2], a series of early triggers have been established in order to effectuate appropriate and timely responses to indications of a possible future violation of the NAAQS. Thus, actions may be taken that can avoid a violation and potential redesignation to nonattainment.

5.2 CONTINGENCY MEASURES AND TRIGGER LEVELS

If air quality monitoring data indicates three or more eight-hour ozone exceedances within one calendar year, then the Texas Commission on Environmental Quality (TCEQ) will analyze available data regarding the air quality, meteorology, transport, and related activities in the area to determine the cause of the exceedances. The TCEQ will notify the EPA of its findings.

If the area monitors an eight-hour ozone three-year average at or above 82 parts per billion (ppb), the local ozone advisory staff will institute a voluntary program with industry to reschedule, revise, or curtail activities during ozone advisory days. This program will be developed and available within 30 days after notification by the TCEQ that the contingency measure will be required. This program will be implemented as expeditiously as practicable, but no later than 24 months after the TCEQ's notification that the contingency measure is needed.

If the area monitors an eight-hour ozone three-year average at or above 83 ppb, the TCEQ will work with the City of Victoria and the local Air Victoria Team to implement various voluntary control measures that may include:

- increasing the number of businesses notified on Ozone Action Days substantially;
- increasing the number of public announcements about ozone; and
- other voluntary control measures as identified in a letter from the City of Victoria, dated December 11, 2006 (Appendix B: *City of Victoria voluntary control measures*).

In addition, any previous efforts to reduce ozone may need to be retained. This program will be developed and available within 30 days after notification by the TCEQ that the contingency measure will be required. This program will be implemented as expeditiously as practicable, but no later than 24 months.

Implementing voluntary emissions reduction measures usually require changes in personal or business behavior. Public awareness, notification, and education programs, as well as federal measures, are critical to achieving the goal of maintaining the eight-hour ozone standard. The exceedance triggers identified above and the proactive steps to be taken are expected to be sufficient to minimize exceedances and prevent violations of the eight-hour standard. However, if the area monitors an eight-hour ozone three-year average at or above 85 ppb, and if the TCEQ determines the cause of the violation can be controlled within the state's jurisdiction through regulatory actions, then the TCEQ will take prompt and appropriate action, within 24 months, to identify and develop appropriate regulations or other quantifiable, permanent, and enforceable measures to reduce the ozone levels to the extent necessary to bring the design value below

[2] EPA Memorandum: *Maintenance Plan Guidance Document for Certain 8-hour Ozone Areas Under Section 110(a)(1) of Clean Air Act*; pages 8-9(May 20, 2005)

85 ppb. The Victoria area may also be expected to voluntarily implement some additional local control measures.