2.0 THE 2002 KANSAS CITY OZONE MAINTENANCE PLAN

2.1 ADMINISTRATIVE REQUIREMENTS

2.1.1 LEGAL AUTHORITY

The Missouri Air Conservation Commission is granted legal authority to develop and implement regulations regarding air pollution under section 643.050 of the Revised Statutes of Missouri.

2.1.2 PUBLIC HEARING NOTICE AND CERTIFICATION

The department's Air Pollution Control Program is required to announce a public hearing, at least 30 days prior to holding such hearing. This was accomplished by announcements submitted to newspapers at least 30 days prior to the public hearing which occurred on June 28, 2002. Attached in Appendix F is the public hearing notice along with certification of publication of the public notice for the entire Maintenance Plan. Attached in Appendix J is the public hearing notice along with certification of publication of the public notice for the revision of the Mobile Budgets from the new forecasts .

2.1.3 COMMENTS, RESPONSES, AND EXPLANATIONS OF CHANGE

Attached in Appendix G are the department's Air Pollution Control Program's responses to comments received during the open public comment period on this plan. The comment period was open until seven days after the Public Hearing that occurred on June 28, 2002. The department's Air Pollution Control Program is required to respond to all comments received. Attached in Appendix K is the comments and responses on the revised budget.

2.1.4 MACC ADOPTION CERTIFICATION

Attached in Appendix H is the MACC adoption certification to demonstrate approval by the commission of the entire Maintenance plan. Attached in Appendix L is the MACC adoption certificate for the revised Budgets and inventory. Attached in Appendix M is the final EPA approval of 2002 Kansas City Maintenance Plan.

2.2 DEMONSTRATION OF CONTINUED ATTAINMENT

2.2.1 DEMONSTRATION OF DECREASING INVENTORY VALUES

The area wide VOC emissions inventory for 1989 that attained the NAAQS standard for ozone, less a margin for safety, is 236,872 kg/day (260.6 tons per day). In 2000, the area wide VOC emissions were projected to be 186,557 kg/day (205.2 tons per day), a decrease of 50,315 kg/day (55.4 tons per day). Given the margin, the EPA concluded that VOC emissions will remain below the action level through the year 2002.

In 1999, the area wide VOC emissions were 253.6 tons per ozone season day (osd). In 2012, emissions are projected to be 221.7 tons per osd (biogenic emissions not counted). The projection of the 2012 maintenance plan emissions demonstrates the area will maintain the ozone standard for the next ten years, i.e. through 2012. However, some parts of the country show increases in ozone levels over the last ten years, due largely to increased NOx emissions and weather conditions favorable to ozone formation according to the National Air Quality and Emissions Trends Report in 1999. These increases appear to be explained by weather conditions more conducive to ozone formation (i.e., higher summer temperatures and drier conditions) in 1999 relative to 1990 paired with increased NOx emissions in many of the affected states. NOx are emitted from motor vehicles, power plants, and other sources of combustion and natural sources including lightening and biological process in soil.

VOC emissions will remain below the action level for the next ten years. NOx emissions levels are reviewed to provide more assurance for remaining in compliance. Since increases in NOx emissions and the associated changes in atmospheric chemistry could result in violations of the ozone standard. The 1999 NOx emissions are 424.2 tons per ozone day and the projected 2012 NOx emissions are 373.5 tons per ozone day. The analysis shows no increase in NOx emissions through the life of the maintenance plan. Therefore, with VOC emissions below the action level and with NOx emissions not increasing, the area will be in attainment for the next ten years.

2.2.2 CONTROL MEASURES

The Plan shows, without adding any new control measures to the KCMA, ozone precursor emissions will be reduced between 2000 and 2012. These reductions will be realized through a combination of already adopted control measures and programs affecting mobile sources, stationary sources, and transportation systems. The KCMA will rely on the State and Federal control measures and programs contained in the plan to demonstrate maintenance of the one-hour ozone standard through 2012. These control measures and programs are listed below:

2.2.2.1 DEPARTMENT'S AIR POLLUTION CONTROL PROGRAM CONTROL MEASURES

Reference for Code of State Regulations	Title of State Regulation
10 CSR 10-2.040	Maximum Allowable Emission of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating

Reference for Code of State Regulations	Title of State Regulation
10 CSR 10-2.080*	Emission of Visible Air Contaminants From Internal Combustion Engines.
10 CSR 10-2.090**	Incinerators
10 CSR 10-2.100	Open Burning Restrictions
10 CSR 10-2.150	Time Schedule for Compliance
10 CSR 10-2.205	Control of Emissions From Aerospace Manufacture and Rework Facilities
10 CSR 10-2.210	Control of Emissions from Solvent Metal Cleaning
10 CSR 10-2.215	Control of Emissions from Solvent Cleanup Operations
10 CSR 10-2.220	Liquefied Cutback Asphalt Paving Restricted
10 CSR 10-2.230	Control of Emissions From Industrial Surface Coating Operations
10 CSR 10-2.260	Control of Petroleum Liquid Storage, Loading, and Transfer
10 CSR 10-2.280	Control of Emissions From Perchloroethylene Dry Cleaning Installations
10 CSR 10-2.290	Control of Emissions From Rotogravure and Flexographic Printing Facilities
10 CSR 10-2.300	Control of Emissions From the Manufacturing of Paints, Varnishes, Lacquers, Enamels and Other Allied Surface Coating Products
10 CSR 10-2.310	Control of Emissions From the Application of Underbody Deadeners
10 CSR 10-2.320	Control of Emissions From the Production of Pesticides and Herbicides
10 CSR 10-2.330	Control of Gasoline Reid Vapor Pressure
10 CSR 10-2.340	Control of Emissions From Lithographic Printing Facilities
10 CSR 10-2.360	Control of Emissions From Bakery Ovens.
10 CSR 10-2.390	Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws

*In process of being rescinded from State regulations and replaced with 10 CSR10-6.220.

**Rescinded from State regulations in 1991, but still in SIP.

2.2.2.2 FEDERAL CONTROL MEASURES

This list contains the Federal motor vehicle emissions control measures that were in effect as of May 22, 2002, the date of the Public Notice and which were relied on in the mobile emissions projection calculations using MOBILE6.

Tier 1

Heavy Duty Diesel rule starting mid-year 1991

National Low Emission Vehicles (mid-year-1997 for New England States and mid-year 2001 for USA)

Onboard Refueling Vapor Recovery (ORVR) (phase in with 40% of mid-year-1998)

Tier II

Heavy Duty Diesel rule starting with mid-year 2004

Heavy Duty Diesel rule starting with mid-year 2007

The department's Air Pollution Control Program will maintain all of the control measures listed in this section to ensure maintenance of the one-hour ozone NAAQS. Revisions to the control measures included in the maintenance plan will be submitted to the EPA for inclusion in the Missouri State Implementation Plan. The revisions will be accompanied with documentation showing that such a change will not interfere with maintenance of the NAAQS. The department's Air Pollution Control Program has the necessary resources to enforce any violation of its rules or permit provisions and intends to continue enforcing all rules or permit provisions that relate to the emission of ozone precursors in the KCMA.

2.3 TRACKING PLAN'S PROGRESS & INVENTORY PROVISION

2.3.1 TRACKING THE PLAN'S PROGRESS

2.3.1.1 TRACKING METHODS

The primary tracking plan for the KCMA consists of continuous ozone monitoring. The ongoing regional transportation planning process carried out by the MARC, in coordination with the KDHE, the department's Air Pollution Control Program, and EPA, will serve as another means of tracking mobile source VOC and NOx precursor emissions into the future. Since revisions to the region's transportation improvement programs are prepared every two years, and must go through a transportation conformity finding, this process will be used to periodically review progress toward meeting the VMT and mobile source emissions projections in this maintenance plan.

Specifically, the Kansas City ozone-monitoring network consists of six monitors. Two monitors, in Liberty and Watkins Mill Park, are placed downwind, assuming winds are predominantly from the southwest, to record peak afternoon readings. Two monitors are placed in populated areas, at Rocky Creek (previously located at Worlds of Fun) and Kansas

City International Airport (KCI). One monitor is placed upwind, at Richards Gebaur Air Force Base (AFB), to monitor ozone transport from outside the area. The final monitor is in downtown Kansas City, Kansas, in Wyandotte County.

The Kansas City Missouri Health Department maintains the monitors at Rocky Creek and KCI. The department's Air Pollution Control Program operates the Liberty and Watkins Mill Park monitors. The monitor in Kansas City, Kansas is operated by the Wyandotte County Department of Air Quality. The monitor at Worlds of Fun was moved to a new site called Rocky Creek early 2002. It is now located at 13131 NE 169th Highway, Kansas City, MO 64141- Clay County.

2.3.1.2 AMBIENT AIR MONITORING

The Clean Air Act Amendments of 1977 established the NAAQS for ozone as 0.12 parts per million (ppm). A single monitor is allowed to experience an average of one exceedance of the standard each year over a three-year period. The fourth exceedance in a three-year period is considered a violation of the ozone standard. An ozone reading of higher than 0.125 ppm is considered an exceedance as it is rounded to 0.13 ppm. It is a misunderstanding to consider a value of 0.124 ppm as an exceedance for it is not interpreted as an exceedance. Because the standard is 0.12 ppm, a value must be 0.125 or higher in order to be counted as an exceedance. This is due to the rounding convention of the standard. It is important to understand the rounding convention when evaluating the data. Upon reviewing the data that generated Table 2, it was common to see values between 0.12 and 0.124 that are not counted as exceedances because of the rounding convention.

The number of ozone exceedances during the ozone seasons from 1991 through 2001 is listed in Table 1. The numbers of exceedances are reported by monitor. All exceedances must come from the same monitor; exceedances are not summed across monitors. The states of Kansas and Missouri along with the EPA conducted a monitoring network review during 2000. The department's Air Pollution Control Program has made recommendations to change the monitoring network to relocate and add monitors. These changes to the network are intended to allow for enhanced regional location and diverse meteorological condition coverage.

The KCMA has experienced seven exceedances of the ozone standard since 1997. Five of these exceedances occurred in 1998. The Liberty site had two exceedances and Watkins Mill Park sites (Lawson) experienced one exceedance in 1998. The Wyandotte site in Kansas registered two exceedances and the KCI Airport site had one exceedance in 1998. The KCI Airport and the Richards Gebaur AFB monitors each experienced an exceedance during the 2000 ozone season. During 1999 and 2001, none of the monitoring sites in the maintenance plan area recorded exceedances of the NAAQS.

The value of the exceedances for the time period 1982 to 2001, from the first highest to the fourth highest exceedance for each year, are found in Table 2. The exceedances range from 0.13 to 0.17 ppm, with the majority being in the 0.13 to 0.14 range.

Table 1 Ozone Exceedances by Year in KC Maintenance Area

Maintenance Monitors Site Address	Year of Ozone Monitoring (April 1st to October 31st)										
Missouri	1991	92	93	94	95	96	97	98	99	00	01
Liberty-Hwy 33 and County Hwy	0	0	1	0	3	0	1	2	0	0	0
Lawson-Watkins Mill State Park Road	0	0	0	0	3	0	0	1	0	0	0
Kansas City-49th and Winchester Worlds of Fun	0	0	0	0	2	0	0	0	0	0	0
Kansas City-Richards Gebaur AFB	1	0	0	0	0	0	0	0	0	1	0
Kansas City-11500 N. 71 Hwy Kansas City International Airport	0	1	0	0	1	0	1	1	0	1	0
Kansas	1991	92	93	93	95	96	97	98	99	00	01
Wyandotte County Ann Avenue	0	0	1	0	0	1	0	1	0	0	0
Total	1	1	2	0	9	1	2	5	0	2	0

The monitor at Liberty has historically been the source of violations. This monitoring site recorded violations in the three-year periods 1982 through 1985, 1983 through 1986, 1986 through 1988, 1993 through 1995 and 1995 through 1997. The Worlds of Fun monitoring site experienced a violation in the monitoring period from 1986 through 1988.

Table 2 Ozone Exceedances by Monitor in the KCMA

Monitor Location	Year	1st High	2nd High	3rd High	4th High	Total
Richards Gebaur AFB (Jackson County)	1982					0
	1983					0
	1984	0.15*				1
	1985					0
	1986					0
	1987					0
	1988					0
	1989					0
	1990					0
	1991	0.13				1
	1992					0
	1993					0
	1994					0
	1995					0
	1996					0
	1997					0
Richards Gebaur South (Jackson County)	1998					0
	1999					0
	2000					1
	2001	0.15				0

*Parts Per Million

Monitor Location	Year	1st High	2nd High	3rd High	4th High	Total
County Home Road Liberty, MO (Clay County)	1982					0
	1983	0.14*	0.13	0.13		3
	1984	0.17	0.14	0.14		3
	1985					0
	1986	0.13				1
	1987					0
	1988	0.15	0.15	0.13		3
	1989					0
	1990					0
	1991					0
	1992					0
	1993	0.13				1
	1994					0
	1995	0.16	0.13	0.13		3
	1996					0
	1997	0.13				1
	1998	0.14	0.13			2
	1999					0
	2000					0
	2001					0

Table 2 Ozone Exceedances by Monitor in the KCMA (cont.)

Monitor Location	Year	1st High	2nd High	3rd High	4th High	Total
Watkins Mill Park (Clay County)	1982					0
	1983					0
	1984	0.16*	0.13	0.13		3
	1985					0
	1986					0
	1987					0
	1988	0.17	0.15	0.14		3
	1989					0
	1990					0
	1991					0
	1992					0
	1993					0
	1994					0
	1995	0.16	0.13	0.13		3
	1996					0
	1997					0
	1998	0.13				1
	1999					0
	2000					0
	2001					0

*Parts Per Million

Monitor Location	Year	1st High	2nd High	3rd High	4th High	Total
Worlds of Fun Kansas City, MO (Clay County)	1982					0
	1983					0
	1984					0
	1985					0
	1986	0.13*	0.13			2
	1987	0.13				1
	1988	0.14	0.13			2
	1989					0
	1990	0.13				1
	1991					0
	1992					0
	1993					0
	1994					0
	1995	0.13	0.13			2
	1996					0
	1997					0
	1998					0
	1999					0
	2000					0
	2001					0

Table 2 Ozone Exceedances by Monitor in the KCMA (cont.)

Monitor Location	Year	1st High	2nd High	3rd High	4th High	Total
KC International Airport	1982					0
Kansas City, MO	1983					0
(Platte County)	1984	0.13*	0.13			2
	1985					0
	1986					0
	1987					0
	1988					0
	1989					0
	1990	0.14				1
	1991					0
	1992					0
	1993					0
	1994					0
	1995	0.13				1
	1996					0
	1997	0.13				1
	1998	0.13				1
	1999					0
	2000	0.13				1
	2001					0

*Parts Per Million

Monitor Location	Year	1st High	2nd High	3rd High	4th High	Total
619 Ann Ave.	1982					0
Kansas City, KS	1983	0.13*				1
(Wyandotte County)	1984					0
	1985					0
	1986	0.15	0.14			2
	1987	0.13				1
	1988					0
	1989	0.14				1
	1990					0
	1991					0
	1992					0
	1993	0.13				1
	1994					0
	1995					0
	1996	0.13				1
	1997					0
	1998	0.14				1
	1999					0
	2000					0
	2001					0

Table 2 Ozone Exceedances by Monitor in the KCMA (cont.)

Monitor Location	Year	1st High	2nd High	3rd High	4th High	Total
Total Monitors	1982					0
	1983					4
	1984					9
	1985					0
	1986					5
	1987					2
	1988					8
	1989					1
	1990					2
	1991					1
	1992					1
	1993					2
	1994					0
	1995					9
	1996					1
	1997					2
	1998					5
	1999					0
	2000					2
	2001					0

Design values are used as indicators of air quality. The higher the design value implies poorer the air quality. Each monitor in the Kansas City area has a design value and the entire KCMA has a design value. A monitor's design value is defined as the ozone concentration that would only be expected to be exceeded once per year on average over a three-year period. A monitor's design value is the "fourth highest ozone concentration value" recorded in the past three years. The design value is an indicator of the expected ozone value for the area. This design value is not determined based on any other monitor's "fourth highest ozone concentration value."

The design value for the maintenance area is the maximum "fourth highest ozone concentration value" of all the individual monitors for the maintenance area. The maintenance area's design value is the highest individual monitor design value for each three-year monitor period. Attainment or nonattainment status is determined by the individual air monitor with the highest design value for a three-year period. If the individual air monitor site has no more than one exceedance per year on average, it has attained the NAAQS for ozone. Note that a site exceeds the NAAQS if its fourth highest value is at least 125 parts per billion (ppb), which is the effective level of the standard. Section 181 of the Clean Air Act Amendments describes the areas designated as nonattainment for ozone. They are classified as marginal, moderate, serious, severe, and extreme, based on area design values. From 1996 through September 30, 2001, the design values were below the value established in the amendments to the CAA for classifying the area as marginal nonattainment area. Table 3 contains a listing of the design values for the KCMA for the time periods from 1982 through 2001.

Table 3 Ozone Design Values for the KCMA

3-Year Time Period	Maintenance Area Design Value)
1982 through 1984	0.14*
1983 through 1985	0.14
1984 through 1986	0.13
1985 through 1987	0.12
1986 through 1988	0.13
1987 through 1989	0.12
1988 through 1990	0.12
1989 through 1991	0.11
1990 through 1992	0.11
1991 through 1993	0.11
1992 through 1994	0.11
1993 through 1995	0.13
1994 through 1996	0.12
1995 through 1997	0.13
1996 through 1998	0.12
1997 through 1999	0.12
1998 through 2000	0.12
1999 through 2001	0.12

(* In Parts Per Million)

2.3.1.3 EXPECTED EXCEEDANCES/MISSING DATA

In addition to recorded exceedances, a region is allowed an average of one expected exceedance per year over a three-year period. An expected exceedance can occur when a monitor has missing data. Missing data is the result from a malfunction at a monitor, incorrect calibration standards, or acts of nature.

The EPA will look at the day prior to the missing data and the day following to determine if the highest recorded ozone reading for each day is 75% of the ozone standard. If both days meet the 75% test then the "missing" data can be discounted.

The KCMA has had "missing" data problems twice in recent history. The Liberty monitoring site experienced a period of 32 days in 1988, and the Worlds of Fun monitoring site missed 45 days in 1990. In both cases, the EPA was able to discount the episode as a violation of the standard through additional analysis. The KCMA has not experienced any extended period of "missing" data since the 1990 episode, but Kansas City has had equipment malfunctions the last two years that resulted in extended (longer than one day) periods of no data. In all cases, the missing data was discounted.

2.3.2 PROVISION FOR EMISSION INVENTORY UPDATES

An emission inventory is an itemized list of emission estimates for sources of air pollution in a given area, for a specified time period. The inventory is divided into stationary sources (point, area and biogenic) and mobile sources. The department's Air Pollution Control Program realizes the importance of a quality up-to-date emissions inventory in planning for air quality. Therefore, the department's Air Pollution Control Program commits to updating the emissions inventory to enable tracking of emission levels for the KCMA every three

years for the next ten years or the life of this plan. This emissions inventory update will include point, area, mobile and biogenic emission revisions.

2.4 EMISSION INVENTORY AND MOTOR VEHICLE BUDGETS

2.4.1 EMISSION INVENTORY

The base year for the new inventory is 1999. No violations of the one-hour ozone standard occurred during the 1998-1999 period. The region was in compliance with the one-hour ozone standard.

An ozone emissions inventory was prepared for the KCMA for calendar year 1999. The inventory addresses emissions of VOC, NOx, and carbon monoxide (CO) from point, area, on-road mobile, and off-road mobile sources. VOC emissions from biogenic sources are also addressed. The complete KCMA inventory includes emissions from Johnson and Wyandotte counties in Kansas and Clay, Jackson, and Platte counties in Missouri. This report covers the Missouri counties in the KCMA only.

The objectives of the inventory are to support the revision of the KCMA maintenance plan as required by CAA Section 175A(b) and to provide emissions data for transportation planning in the KCMA. In addition, the inventory may be used in future regional ozone modeling applications.

Emissions were also projected to year 2012 to provide the basis for establishing new motor vehicle emissions budgets. 1999 emissions are reported as actual annual emissions in tons per year and actual summer weekday emissions in pounds or tons per osd. Projected emissions are reported as pounds per osd or tons per osd.

The 1999 KCMA emissions inventory was a cooperative effort among MARC, KDHE, the department's Air Pollution Control Program, and EPA Region VII. MARC coordinated the effort and developed the on-road and off-road mobile source emissions estimates for the five-county area. The department's Air Pollution Control Program developed the point, area, and biogenic source emissions estimates for Clay, Jackson, and Platte counties (See Appendix C). KDHE prepared the point, area, and biogenic source emissions estimates for Johnson and Wyandotte counties. KDHE also developed locomotive emissions estimates for the two Kansas counties. EPA Region VII drafted the inventory preparation plan.

The ozone season daily emissions are presented in tons per osd because of the magnitude of the numbers; elsewhere in this document, ozone season day emissions are in units of pounds per osd. An emission inventory lists all sources of specific air pollutants in a given area and the amount of each source emits. The two main or most important pollutants that lead to the formation of ground-level ozone are VOC and NOx. An Ozone emissions inventory was prepared for the KCMA for calendar year 1999. The inventory addresses emissions of VOC, NOx and CO from point, area, on-road mobile and off-road mobile sources.

Area sources are small, stationary sources that do not emit large amounts of pollution but are very numerous. Examples include dry cleaners, printers, bakeries, and automobile

painting and repair shops. Consumers that consume household items that contain VOC and NOx are an area source.

Point sources are large industrial pollution emitters and power plants. On-road mobile sources include cars and light trucks, as well as medium and heavy-duty commercial trucks. Off-road mobile sources include aircraft, railroad locomotives, watercraft, construction, and agricultural equipment.

VOC emissions from biogenic sources are also addressed. The complete KCMA inventory includes emissions from Johnson and Wyandotte counties in Kansas and Clay, Jackson and Platte counties in Missouri.

The 1999 emissions are reported as actual annual emissions in tons per year and actual summer weekday emissions in pounds per OSD. 2012 emissions projections are reported as pounds per osd. EPA Region VII drafted the inventory preparation plan.

Table 4 1999 and 2012 VOC, NOx & CO Emissions for MO

Source of Emissions	1999 Daily Emissions (tons/osd)			2012 Daily Emissions (tons/osd)		
	VOC	NOx	CO	VOC	NOx	CO
On-road Mobile*						
Off-road Mobile	21.6	54.9	286.4	12.9	45.5	354.5
Biogenic	73.05	-------	-------	73.05	------	-------
Area	43.1	13.0	5.3	54.3	13.8	5.5
Point	15.9	107.2	9.7	24.6	148.2	14.0
Total	153.65	175.1	301.4	164.85	207.5	374.0

* Due to model limitations, on-road mobile emissions are not broken out into individual counties for 1999 and 2012.

Table 5 1999 and 2012 VOC, NOx & CO Emissions for KS

Source of Emissions	1999 Daily Emissions (Tons/osd)			2012 Daily Emissions (Tons/osd)		
	VOC	NOx	CO	VOC	NOx	CO
On-road Mobile*						
Off-road Mobile	21.4	54.0	288.0	11.8	40.5	357.3
Biogenic	40.8	-------	-------	-------	-------	-------
Area	46.8	10.3	19.6	57.9	12.2	22.2
Point	12.3	31.9	4.6	14.8	39.0	5.3
Total	121.3	96.2	312.2	84.5	91.7	384.8

* Due to model limitations, on-road mobile emissions are not broken out into individual counties for 1999 and 2012.

Table 6 1999 and 2012 VOC, NOx & CO Emissions for KCMA

Source of Emissions	1999 Daily Emissions (Tons/OSD)			2012 Daily Emissions (Tons/OSD)		
	VOC	NOx	CO	VOC	NOx	CO
On-road Mobile*	92.3	152.9	1092.4	45.5	74.2	579.0
Off-road Mobile	43.0	108.9	574.4	24.7	86.0	711.8
Biogenic	113.85	-------	-------	113.85	-------	-------
Area	89.9	23.3	24.9	112.1	26.0	27.7
Point	28.3	139.1	14.3	39.4	187.2	19.3
Total	367.35	424.2	1706.0	335.55	373.4	1337.8

2.4.1.1 MOBILE SOURCE EMISSIONS

On January 29, 2002, the EPA released the MOBILE6 motor vehicle emissions model. EPA guidance issued along with the model grants a two-year grace period before use of the MOBILE6 model is required in the State Implementation Plan development. The 2002 revision of the Kansas City Maintenance Plan used MOBILE6 in the development of the mobile budgets in the plan. The 2002 revision of the Kansas City Maintenance Plan did not use MOBILE5 and MOBILE5B to develop the budgets or for any projection of mobile emissions. The two-year grace period does not apply to this plan as only MOBILE6 was used in the development of the Kansas City Maintenance Plan. Appendix D contains the parameters chosen for operation of MOBILE6 and for the calculation of emission projections. The MOBILE6 inputs are: default vehicle age distribution; 7.2 RVP fuel assumed in 1999; 7.0 RVP fuel assumed in 2012; refueling emissions not included (inventoried separately as area source). The draft NONROAD model that was released in June 2001 in support of the 2007 heavy-duty vehicle rule was used to generate 1999 and 2012 emissions estimates for all off-road mobile source categories covered in the non-road model.

The CAAA mandated the EPA to study and regulate emissions from off-road mobile sources. Section 213(a) of the CAAA required the EPA to conduct a study to determine if emissions from off-road engines and vehicles cause or significantly contribute to air pollution. The non-road study was completed in 1991. The EPA constructed two sets of emissions inventories for the entire country and for 19 ozone non-attainment areas and for 16 carbon monoxide non-attainment areas. The local areas were selected to represent a variety of demographic and geographic regions, as well as the major air pollution problems in the nation.

2.4.1.2 BIOGENIC EMISSIONS

Biogenic sources are those of natural sources which result from some sort of biological activity. Vegetation such as forest plants, urban trees, shrubs, agricultural crops, and other plants is the predominant, biological activity of VOC. These biogenic emissions are emitted as the plant transpires, mostly during the daylight hours.

In the past, the impacts of biogenic VOC were not considered when ozone control strategies to limit emissions of either NOx or VOC were developed. However, the importance of biogenic VOC emissions in an ozone inventory became apparent in some regions when the biogenic VOC emission estimates were compared to the anthropogenic VOC emission estimates (Chameides et al., 1988).

Biogenic emission estimates for the United States have been reported at 30,860,000 tons of VOC per year and 346,000 tons of NOx per year (Novak et al., 1993). This is in comparison to estimates of 21,090,000 tons of anthropogenic VOC and 23,550,000 tons of anthropogenic NOx , estimated for 1990 (EPA, 1994). Isoprene, one of the major constituents of biogenic emissions, is very photoreactive, making biogenic emissions an even more important source of VOC. Because of the interaction between NOx and VOC in terms of atmospheric ozone levels, biogenic emissions should be included in any inventory, which will be used to predict or to monitor atmospheric ozone levels. Inclusion of biogenic emissions is essential for photochemical air quality modeling.

The Biogenic Emissions Inventory System (BEIS-2) is the preferred method for air quality models using biogenic estimates, because it is the most scientifically advanced model for estimating biogenic ozone precursors. It can be used with several air quality models, and it estimates emissions of soil NOx, which can be an important source in many rural areas. The Personal Computer version Biogenic Emissions Inventory System (PCBEIS2.2) is the preferred method when an emission estimate is needed for reporting purposes only. The Biogenic Model for Emissions (BIOME) model, the collection of local data for use in any of these models, and BEIS, the precursor of BEIS-2, are alternative methods.

The Personal Computer version of the Biogenic Emissions Inventory System (BEIS 2.3) allows users to estimate hourly emissions of biogenic VOC and soil NOx emissions for any county in the contiguous United States. This system was developed by EPA Office of Research and Development via collaboration between the National Risk Management Research Laboratory, Emissions and Modeling Branch and the National Exposure Research Laboratory, Atmospheric Modeling Division. BEIS 2.3 has been written in C++/JAVA to allow better operability with current PC operating systems and to take advantage of more recent approaches in object-oriented programming. BEIS 2.3 uses the same emission factors and land use data as PCBEIS 2.2 and should produce very similar results.

Meteorological data for air temperature and cloud cover was incorporated specifically for the Kansas City area covering Jackson County. The biogenic emissions for the Kansas counties in the KCMA are 40.8 tons per ozone season day. The biogenic emissions for the Missouri counties in the KCMA are 73.05 tons per ozone season day. Combined, all counties in the KCMA have total biogenic emissions of 113.05 tons per ozone season day. (See Tables 4, 5 and 6)

2.4.1.3 AREA SOURCE EMISSIONS

The area source inventory (see Appendix B and C) is reported in terms of VOC emissions for the Missouri Counties in the KCMA, the Kansas Counties in the KCMA, and the entire KCMA. These totals are shown in tables 4 and 5, and 6 respectively.

The area source inventory includes small point sources, those sources with less than ten tons of actual emissions, as well as sources not reported in the point source description. Examples of sources included in the area source emissions include, but are not limited to: printing presses, dry cleaning facilities, degreasing operations, incinerators, and painting operations. The individual area source categories are compared to their respective point source categories to eliminate double counting of VOC emissions.

The area source inventory was prepared using 1999 as a base year. The 1999 inventory was evaluated for rule effectiveness using the criteria outlined by the EPA. The area source categories included in this inventory were identified based on a review of the previous area source inventory done for the region and judgement based on knowledge of population and types of emissions sources in Johnson and Wyandotte counties (see reference 1). EPA guidance regarding the expected magnitude of VOC, NOx, and CO emissions from area source categories was also considered (see reference 2). The area source categories expected to emit the most significant amounts of VOC, NOx, and CO were given the highest priority in this inventory.

For many of the area source categories, emissions estimation methodologies outlined in the *Emissions Inventory Improvement Program* (EIIP) documents were followed. In some cases, a methodology given in the EIIP was impractical due to the quality of data available or the level of effort required for data collection. An alternate methodology was then chosen or developed based on the available data.

Because some area source methodologies estimate emissions from all sources within the category, emissions already listed in the point source inventory may be double-counted. In the development of the area source inventory for Johnson and Wyandotte counties, emissions from point sources were subtracted from the area source emissions where it could be determined that the two inventories overlapped (see Appendix B).

Emissions estimates for several of the area source categories were calculated using population as a surrogate for activity. The 1999 population estimates were obtained from the U.S. Census Bureau (see reference 3). The 2000 and 2012 population forecasts are from MARC policy-based, long-range population forecasts (see reference 4). Since the MARC forecast is done in ten-year increments, the 2012 forecast was interpolated from the 2010 and 2020 forecasts. In cases where population was used as a basis for the emissions projections, the forecast for calendar year 2000 was used as the base year because it is the base year of MARC population forecast.

2.4.1.4 POINT SOURCE EMISSIONS

Point source emissions are collected each year, in **Missouri**, via the Emission Inventory Questionnaire (EIQ). All facilities in Missouri that have the potential to emit more than 40 tons of VOC per year are required to submit an EIQ. Facilities with less than 10 tons of actual VOC emissions per year are included in the area source inventory.

Missouri's portion of the 1999 point source inventory for the KCMA includes Jackson County, Platte County, and Clay County (see Appendix C). The report in Appendix C includes CO, NOx, and VOC emissions from point sources in the three county areas as reported by the facility. The inventory data was obtained from the EIQs. EIQs are submitted on an annual basis by point sources to report air pollutant emissions from processes within the facility. The completed EIQs are submitted to the Kansas City Health Department or the department's Air Pollution Control Program depending on location. The department's Air Pollution Control Program compiles the local data and the submitted data into a database. The department's Air Pollution Control Program performs the overall quality assurance/quality compliance.

The Missouri portion of the KCMA inventory consists of point sources that emitted VOC, NOx, and CO in the three county areas. The data was obtained from the department's Air Pollution Control Program Emission Inventory System (moeis) database. The information in Appendix C is based on the EIQ information data entered into the department's Air Pollution Control Program's database, including the EIQs submitted to the Kansas City Health Department.

2.4.1.4.1 APCP Point Source Emissions Calculation Method

The actual annual emissions reported were used to calculate an ozone season daily emission rated based on the percentage of operating time during the summer months of June through August. The following equation was used:

1999 osd emissions = (1999 annual emissions) x (2,000 lbs/1 ton) x (Summer operating %/Days of operation)

Emissions projections for calendar year 2012 were performed using the Department of Commerce's Bureau of Economic Analysis (BEA) growth factors. BEA factors were derived for each Source Classification Code (SCC) and county combination using EPA Economic Growth Analysis System (EGAS) v4.0 software. Growth of emissions was normalized to the 1999 inventory base year because EGAS v4.0 has a base year of 1996. The following equation was used for the emissions projections:

2012 osd emissions = (1999 osd emissions) x (2012 growth factor/1999 growth factor)

Below is an example calculation showing the manner in which the **1999** NOx Emissions are calculated for a Point Source. This example is for a **Missouri** facility that emitted 8.259 tons of NOx in 1999. The facility operated seven days per week in 1999, during this quarter 18% of the facility's annual operations occurred.

1999 osd emissions = (8.259 tons NOx/yr.) x (2,000 lbs/1 ton) x (0.18/(7 days/week x 13 weeks/ozone season))

= 32.7 lbs. NOx/osd

Below is an example calculation showing the manner in which the **2012** NOx Emissions are calculated for a Point Source. A facility located in Jackson county with two-digit SIC 20 emits 262.4 lbs. NOx/osd. BEA growth factors for SIC 20 in Jackson county are 1.0621 and 1.4241 for 1999 and 2012 respectively.

2012 OSD emissions = (262.4 lbs. NOx/osd) x (1.4241/1.0621)

= 352 lbs. NOx/OSD

Appendix B summarizes 1999 and 2012 annual and ozone season daily VOC, NOx, and CO emissions from point sources by two-digit Standard Industrial Classification (SIC) code and county.

2.4.1.4.2 KDHE Point Source Emissions Calculation Method

Kansas and Missouri for all practicable purposes used the same calculation methods. Examples are provided of MO and KS calculation methods to demonstrate the slight differences in original data. Kansas point source emissions were taken from KDHE I-Steps emissions inventory database for calendar year 1999 (see reference 5). The reported emissions represent the results from facility surveys of actual annual emissions emitted in 1999. The actual annual emissions were used to calculate an ozone season daily emission rate based on the days of operation and the percentage of operating time during the summer months of June through August. The following equation was used:

1999 OSD emissions = (1999 annual emissions) x (2,000 lbs/1 ton) x (Summer operating %/Days of operation)

Emissions projections for calendar year 2012 were performed using the Department of Commerce's BEA growth factors. BEA factors were derived for each SCC and county combination using EPA EGAS v4.0 software (see reference 6). The BEA growth factors are developed from the EPA model. The growth factors are used in the projection of emissions for the area. Growth of emissions was normalized to the 1999 inventory base year because EGAS v4.0 has a base year of 1996. The following equation was used for the emissions projections:

2012 osd emissions = (1999 osd emissions) x (2012 growth factor/1999 growth factor)

Below is an example calculation showing the manner in which the **1999** NOx Emissions are calculated for a Point Source. This example is for a facility that emitted 8.259 tons of NOx in 1999. The facility operated 65 days from June through August 1999, which represents 18% of the facility's annual operations.

1999 osd emissions = (8.259 tons NOx/yr.) x (2,000 lbs/1 ton) x (0.18/65 days)

= 45.7 lbs. NOx/osd

Below is an example calculation showing the manner in which the **2012** NOx Emissions are calculated for a Point Source. A facility located in **Kansas** Wyandotte county with SCC 10200602 emits 45.7 lbs. NOx/osd. BEA growth factors for SCC 10200602 in Wyandotte county are 1.0162 and 1.1578 for 1999 and 2012, respectively.

2012 osd emissions = (45.7 lbs. NOx/osd) x (1.1578/1.0162)= 52.1 lbs. NOx/osd

2.4.2 NEW MOBILE SOURCE BUDGETS

2.4.2.1 EXISTING MOBILE SOURCE BUDGET

The existing budgets for 2000 and 2010 were calculated in 1995. In that exercise, the 1990 level of emissions was assumed to keep the region in compliance with the one-hour ozone standard and was used as a cap on overall emissions through 2010. The 2010 level of emissions was less than the emissions in 1990, and the difference was quantified as a margin,

which allowed for some growth in emissions from all sectors in 2010. Approximately one-third of the margin, which was the percent of overall emissions contributed by vehicles, was specifically allocated to motor vehicles. The motor vehicle emissions budget was the projected on-road mobile emissions in 2010 (assuming transportation investments through 2010) plus the motor vehicle proportion of the margin (allowing for growth in mobile emissions). A conformity analysis is a demonstration that the regional emissions from proposed transportation projects would not exceed the motor vehicle emissions budgets. The emission inventory provides a basis for establishing new motor vehicle emission budgets, which are used to demonstrate consistency between the region's air quality goals and emissions expected from implementation of transportation plans and programs.

A plan revision submitted by the state in 1995 and approved by EPA (61 FR18251 on April 25, 1996) establishes the current motor vehicle emissions budgets used to ensure that transportation plans conform to the ozone maintenance plan, see 40 CFR 52.1321(e). The current budgets are shown in the following table:

Motor Vehicle Emissions Budget for Conformity Purposes

Compounds	2000 Attainment MVEB for the KCMA
Non-methane hydrocarbons	87,548 kg/summer day (96.3 tpd)
NOx	119,889 kg/summer day (131.9 tpd)

In June 2002, the MARC Board proposed motor vehicle emissions budgets based on updated emissions inventories prepared collaboratively by staff from the Kansas and Missouri State air agencies, MARC, and EPA. The proposed budgets were based on population and employment forecasts adopted by the MARC board in January 1998.

The new budgets incorporate updated planning assumptions and use the MOBILE6 model, which became available in January 2002. The new budgets are set to keep total emissions below their estimated level in 1999 (see Appendix I). The last horizon year of the proposed SIP is 2012.

The mobile budgets are calculated by starting with the on-road mobile 2012 totals for VOC, NOx, and adding an extra amount over and above what is necessary, for safety reasons or to allow for delays. The extra amount is called the margin. The amount of margin to add could be derived using a variety of methods. A simple and easily explained calculation method would help in calculating and communicating the budgets. In the recent past the VOC budget, NOx budgets and margins have been tied together by ratios of reductions between the beginning and last years. The margin for this mobile budget was determined by recognizing the NOx budget has led to conformity issues in the past and coupling the acquired understanding of the regions ozone level, which is thought to be VOC limited. The margin should take into account, that any additional lowering of the VOC margin would have more of an impact to regional air quality than placing tighter constraints on NOx emissions. A method was chosen that would accommodate a lower VOC margin and allow for the NOx emission levels required to maintain conformity and be easy to calculate and communicate.

The amount of margin chosen for this new budget was based on a straight percent of the conformity calculation amounts determined for 2010. The last horizon year for the existing SIP is 2010. The amount of the 2010 conformity emission levels was supplied by MARC and is 89.6 NOx ton/osd and 51.1 VOC ton/osd. A margin of 0.091 of the 2010 NOx and a

margin of 0.07 of the VOC was determined by the inter-agency consultation group process. The 2012 NOx budget from the 1999 budget levels represents a 26.2 percent reduction while the 2012 VOC budget represents a 40 percent reduction. The 1999 mobile emission budgets are 132.4 NOx tons/osd and 91.4 VOC tons/osd while the new 2012 budgets are 97.8 NOx tons/osd and 54.7 VOC tons/osd.

97.8 NOx tons/osd 2012 divided by 132.4 NOx tons/osd 1999 equals 0.738

54.7 VOC tons/osd 2012 divided by 91.4 VOC tons/osd 1999 equals 0.598

(1 minus 0.738) multiplied by 100 equals 26.2 % reduction of NOx from 1999 to 2012

(1 minus 0.598) multiplied by 100 equals 40.2 % reduction of VOC from 1999 to 2012

2.4.2.2 NEW MOBILE SOURCE BUDGET CALCULATIONS

2.4.2.2.1 NOx Calculation

A. NOx projected emission level needed for conformity in 2010 (Provided by MARC).

2010 Total Mobile NOx is 89.6 multiplied by 0.091 equals 8.153 tons/osd NOx margin

89.6 tons/osd x 0.091 = 8.153 tons/osd

B. Add the margin to the 2010 NOx projected mobile emission total

89.6 tons/osd + 8.153 tons/osd = 97.75 or 97.8

2012 Mobile Source NOx Budget: 97.8 tons/osd

2.4.2.2.2 VOC Calculation

A.VOC projected emission level needed for conformity in 2010 (Provided by MARC).

2010 Total Mobile VOC is 51.1 multiplied by 0.07 equals 3.57 tons/osd VOC margin

51.1 tons/osd x 0.07 = 3.57 tons/osd

B. Add the margin to the 2010 VOC projected mobile emission total

51.1 tons/osd + 3.57 tons/osd = 54.67 tons/osd

2012 Mobile Source VOC Budget: 54.7 tons/osd

2.5 CONTINGENCY MEASURES

When selecting control measures to implement in case of a violation of the ozone standard it is important to consider the implementation time frame. A contingency plan needs to contain control measures that can be implemented in a very short time and will demonstrate results quickly. Other control measures, which take substantially more time to be implemented, can also be included as secondary controls. It is important to concentrate on control measures that will achieve results throughout the area. Mobile source control measures are ideal for this reason.

The department's Air Pollution Control Program is obligated under the CAAA to set forth a plan to be implemented upon a violation of the ozone standard in the KCMA. The CAAA requires setting forth a group of specific control measures to be implemented in case of an ozone violation. A pattern of exceedances of the one-hour ozone NAAQS will trigger consideration of contingency measures. However, the only federally enforceable trigger for mandatory implementation of contingency measures shall be a violation of the one-hour ozone NAAQS.

After 2004, the contingency measures are triggered by different levels of corrective responses should the one-hour ozone NAAQS be exceeded or violated, or if emissions in the region increase significantly above current levels. A level 1 response would occur in the event that the ozone NAAQS establishes a pattern of exceedances, or if VOC or NOx emissions increase more than 5% above the levels contained in the attainment year (1999) emission inventory. To facilitate the emissions trends analysis, department's Air Pollution Control Program commits to compiling VOC and NOx emissions inventories every three years for the duration of the maintenance plan. Department's Air Pollution Control Program will coordinate with the state of Kansas and MARC to evaluate the causes of exceedances or the emission trends and to determine appropriate control measures needed to assure continued attainment of NAAQS for ozone.

A Level 2 response would be implemented in the event that a violation of the one-hour ozone NAQQS were to be measured at a monitoring site. In order to select appropriate corrective measures, department's Air Pollution Control Program will work with Kansas and MARC to conduct a comprehensive study to determine the cause of the violation, and the control measures necessary to mitigate the problem. The comprehensive analysis shall examine:

1) The number, location and severity of the ambient ozone concentration;

2) The weather patterns contributing to ozone levels;

3) Potential, contributing emissions sources;

4) The geographic applicability of possible contingency measures;

5) Emission trends, including timeliness of implementation of scheduled control measures;

6) Current and recently identified control technologies; and

7) Air quality contributions from outside the maintenance area.

Contingency measures shall be selected from those listed in the following table or from any other measure deemed appropriate and effective at the time of selection. Control measure selection shall be based upon cost-effectiveness, emission reduction potential,

economic and social considerations, ease of timing of implementation, and other appropriate factors. Implementation of controls shall take place as expeditiously as possible, but no later than 18 months after department's Air Pollution Control Program makes a determination, based on quality-assured ambient data, that a violation of NAAQS has occurred.

Adoption of additional control measures is subject to necessary administrative and legal process. MODNR will solicit input from all interested parties and affected persons in the area prior to selecting appropriate contingency measures. No contingency measures will be implemented without providing the opportunity for full public participation. This process will include publication of notices, an opportunity for public hearing, and other measures required by department's Air Pollution Control Program regulation.

Contingency Plan for the Kansas City One-Hour Ozone Attainment Area

Year	Contingency Measure Trigger	Action to be Taken	List of Contingency Measures
2003 - 2004	Violation occurs anywhere within the maintenance area.	Depending upon the degree and nature of the transgression, the department will begin implementation of control measures sufficient to achieve at least a five-percent reduction in area wide emissions	Statewide NOx rule (MO) Federal Non-road Engine Standards One or more of the following will be considered for implementation: 1) industrial emission offsets of 1.15 to 1; 2) stationary source controls for NOx and VOC; 3) Stage II Vapor Recovery program at gasoline refueling stations; 4) enhanced vehicle emission reductions programs; 5) alternate fuel programs for fleet vehicle operations; 6) vehicle anti-tampering programs; 7) other transportation control measures; 8) vehicle inspection and maintenance program; 9) VOC controls on minor sources, and; 10) The department will further review and evaluate the current VOC rules to see if they need to be tightened, changed or modified.
2005 – 2012	Level I Trigger The KCMA NOx or VOC emissions inventories for 1999 increase more than 5% above the levels included in the 3-year emissions inventories updates. A pattern of monitor exceedances.	MO will work cooperatively with KS to evaluate the exceedances of the 3-year inventory, or determine if adverse emissions trends are likely to continue. If so, the States will determine what and where controls may be required, as well as level of emissions reductions needed, to avoid a violation of the NAAQS. The study shall be completed within 9 months. If necessary, control measures shall be adopted within 18 months of determination.	Point Source Measures NOx SIP Call Phase II (non-utility) Reinstate requirements for Offsets and/or LAER Apply RACT to smaller existing sources Tighten RACT for existing sources covered by EPA CTGs. Expanded geographic coverage of current point source measures MACT controls for industrial sources Other measures to be identified Mobile Source Measures Tier 2 Vehicle Standards and Low Sulfur Fuel Heavy Duty Diesel Standards and Low Sulfur Diesel Fuel TCMs, including, but not limited to, area-wide rideshare programs, telecommuting, transit improvements, and traffic flow improvements. Vehicle Testing (OBDII) California Engine Standards Other measures to be identified Area Source Measures California Architectural/Industrial Maintenance (AIM) California Commercial and Consumer Products Broader geographic applicability of existing measures California Off-road Engine Standards Other measures to be identified
	Level II Trigger A violation of the Ozone NAAQS at any monitoring station in the KCMA.	MO will work cooperatively with KS to conduct a thorough analysis to determine appropriate measures to address the cause of the violation. Analysis shall be completed within 6 months. Selected measures shall be adopted within 18 months and implemented as expeditiously as practicable, taking into consideration the ease of implementation and the technical and economic feasibility of selected measures.	

2.6 PROVISION FOR OPERATION OF MONITORING NETWORK

The department's Air Pollution Control Program commits to continue monitoring ozone levels according to an EPA-approved monitoring plan, as required to ensure maintenance of the ozone NAAQS for the next ten years. Should changes become necessary concerning location of a monitoring station, the department's Air Pollution Control Program will work cooperatively with the EPA to ensure the adequacy of the monitoring network. The department's Air Pollution Control Program will continue to quality assure the monitoring data to meet the requirements of 40 CFR 58. The department's Air Pollution Control Program will continue to enter all data into the AIRS on a timely basis in accordance with federal guidelines.

Control strategies, area growth, and new source configurations have clearly changed the face of ozone formation in the area. Because of the changes, the Kansas City Area State and Local Agencies with the EPA Region VII decided that a review of the area network was of high priority, to determine if the continued network was adequate. Recommendations for network changes were submitted to the EPA on November 6, 2000. A letter from the EPA submitted on February 8, 2001, approved monitoring network changes.

Analysis tools used in the evaluation included basic statistical rankings of exceedances, design value trends, point source mappings, population, economic and mobile source information, and meteorological wind roses and trajectories. Based upon the examination of the data generated from using the tools, a best network configuration, which characterizes the ozone levels in the Kansas City Metropolitan Area, was obtained. A team of Kansas, the department's Air Pollution Control Program, and EPA staff collected and reviewed data and discussed potential recommendations. The most significant findings for the trajectory and the wind and episode analysis, coupled with the determination of the emissions centroid, is that some parts of the area appeared to be lacking in coverage for potential ozone episodes. The area due north of the centroid is the most predominant wind direction from emission sources and may be of great potential for exceedances. The area, near the Wyandotte-Leavenworth county line is also an area of concern. Precursor emissions in the metropolitan area, which may be affected by winds from the east-southeast, could lead to ozone exceedances in the area. Wind roses from that direction are also significant, as are forward trajectories for high ozone days. The conclusion of the monitoring network review is that one additional site should be located due north of the downtown core about 12-15 miles downwind. The monitoring equipment for this site originated from the current Worlds of Fun monitor site. The moving of Worlds of Fun site to the new site, which is called Rocky Creek, occurred in early 2002. The monitor at Rocky Creek is located at 13131 NE 169th Highway, Kansas City, MO 64141 with coordinates: 39 deg. 19 min 56 sec. NORTH latitude and 94 deg. 34 min 50 sec WEST longitude. Relocation of the Worlds of Fun site to a

second area of poor coverage, equidistant from the Liberty and KCI monitors, and in extreme northern extent of Kansas City, Missouri was necessary. This was due to the predominant wind direction from emission sources due south, and has a greater potential for exceedances. An alternative site was selected and approved by the EPA and KDHE near the City of Leavenworth in Leavenworth County. These locations will serve as maximum concentrations sites for the one-hour ozone NAAQS. The downwind distance from the urban area is critical to achieve the proper atmospheric mixing and allow photochemical reactions time to occur for high ozone concentrations. Based on the current network and past experiences, sites most distant to the north and west will not provide for maximum 1-hour ozone concentrations.

Finally, an additional site in southern Johnson County, Kansas would allow for evaluation of potential near term transport. An evaluation of the effect of local sources on Richards Gebauer Air Force Base would be possible.

Monitoring near Richards Gebauer has shown considerable trends in higher ozone levels, including recent exceedances. Therefore, the monitoring should continue at the site currently being operated. The state of Kansas has assumed the responsibility to install a background site in a location generally upwind of the majority of the area, near the southern Johnson County line. This site is presently under construction. This is expected to be a more suitable site for upwind monitoring for the area. In addition, it will increase the spatial coverage south of a part of the area which is experiencing considerable economic growth and potentially in ozone precursors.

2.7 CONFORMITY

The department's Air Pollution Control Program filed a transportation conformity regulation, 10 CSR 10-2.390 Conformity to State Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws, which became effective on December 30, 1996. This rule implements section 176(c) of the CAA, as amended (42 U.S.C. 7401-7671q.), the related requirements of 23 U.S.C. 109(j) and regulations under 40 CFR part 51 subpart T, with respect to the conformity of transportation plans, programs, and projects which are developed, funded, or approved by the United States Department of Transportation (DOT), and by the metropolitan planning organizations or other recipients of funds under title 23 or the Federal Transit Act (49 U.S.C. 1601 et seq.). This rule sets forth policy, criteria, and procedures for demonstrating and assuring conformity of such activities to the applicable implementation plan, developed and applicable, pursuant to section 100 and Part D of the CAA. Transportation plans, programs, and projects must conform to an implementation plans purpose of eliminating or reducing the severity and number of violations of the NAAQS. Transportation plans, programs and projects must not cause or contribute to any new violation of any standards nor increase the frequency or severity of any existing violations of any standard or any required interim emission reductions or other milestones. This rule applies to the Kansas City ozone maintenance area.

A general conformity regulation (10 CSR 10-6.300 Conformity of General Federal Actions to State Implementation Plans) was filed on January 30, 1996, and became effective on September 30, 1996. This rule implements section 176(c) of the CAA, as amended (42 U.S.C. 7401 et seq.) and regulations under 40 CFR part 51 subpart W, with respect to the

conformity of general federal actions to the applicable implementation plan. Under those authorities, no department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan. This rule applies to all areas in the state of Missouri, which are designated as non-attainment or maintenance for any criteria pollutant or standard for which there is a NAAQS.

A conformity analysis (See List of References #7) is a demonstration that the regional emissions from proposed transportation projects will not exceed the motor vehicle emissions budgets. If the conformity requirements cannot be met, then only certain types of projects may proceed until the requirements can be met. The emission inventory provides a basis for establishing new motor vehicle emission budgets, which are used to demonstrate consistency between the region's air quality goals and emissions expected from implementation of transportation plans and programs.

The Metropolitan and Statewide Planning Regulations that govern MARC's LRTP and TIP require the projects in both documents, for the time periods they cover, to be financially constrained and sufficient in project detail to permit an air quality conformity determination. Projects for both the LRTP and the TIP are analyzed as a group to determine that their projected air quality impacts are lower than a budgeted amount to ensure that the region's air quality is not adversely affected by mobile source pollutants. In the case of the LRTP, the projects are required to be specific within intervals not to exceed ten years. An important limit found in the TIP requires reexamining financial constraint and a new conformity determination if one of the projects listed after the first three years be advanced to one of the first three years. This requires a TIP amendment, which would require reexamining financial constraint and a new conformity determination. The conformity determination for the TIP applies only to the first three years of projects, consistent with the period recognized for federal programming purposes.

The 2020 LRTP was found to conform to the plan prior to its adoption in February of 1999. Conformity of LRTP and TIP must be approved by U.S. Department of Transportation (DOT) in consultation with EPA. DOT approved air quality conformity in February 1999 LRTP update on July 28, 1999, following the governors' of Kansas and Missouri opting in to the federal RFG program for the Kansas City region. Once a subsequent court decision disallowed maintenance areas from opting into the federal RFG program, the air quality conformity of the LRTP was reanalyzed and found to conform by incorporating the 2001 National Low Emission Vehicle (NLEV) Standard. DOT re-approved conformity of the 2020 LRTP on February 14, 2000. The existing FY 2000-2004 TIP as amended was most recently approved by DOT on February 6, 2001.

The following table lists the estimated VOC and NOx emissions for the years 2010 and 2020 for the regional network including those regionally significant capacity projects contained in the FY 2002-2006 TIP and compares them with their respective motor vehicle emissions budgets from the plans. Regionally significant projects in the LRTP beyond the time frame of the TIP are also included in the analysis. All figures are in kilograms per summer day.

Year	Seasonally adjusted VMT/sd	Factored net mobile VOC emissions Kg/sd	VOC Budget Kg/sd	Margin	Factored mobile NOx emissions Kg/sd	NOx Budget Kg/sd	Margin
2010	57,003,000	57,734	82,885	25,151	85,896	120,121	34,225
2020	65,758,000	69,994	82,885	12,891	88,815	120,121	31,306

The conformity analysis clearly indicates that regional motor vehicle emissions of VOC and NOx remain below the budgeted level in the proposed regional plan while accounting for the network anticipated to be operational as a result of roadway capacity projects listed in the 2002 TIP. As such the analysis indicates that the 2002 TIP and the 2020 LRTP are in conformity with the plan.