POLLUTION CONTROL DIVISION

ANNUAL REPORT 2005

PROMOTING & PROTECTING HEALTH

Metro Public Health Dept

Nashville/Davidson County

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Nashville & Davidson County

The Honorable Bill Purcell

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The Metro Public Health Department is committed to providing health protection, promotion and information products to everyone in Nashville so they can enjoy healthy living free from disease, injury and disability.

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3. INTRODUCTION

The 1990 Clean Air Act Amendments state, "The prevention and control of air pollution at its source is a primary responsibility of state and local governments." Chapter 10.56 of the Metropolitan Code of Laws charges the Metropolitan Board of Health with the responsibility of adopting, promulgating, and enforcing such rules and regulations as necessary to achieve and maintain such levels of air quality as will protect human health and safety, and to the greatest degree practical, prevent injury to plant life and property and foster the comfort and convenience of the inhabitants of the Metropolitan Government area. This report covers the activities conducted by the Metro Public Health Department, Pollution Control Division in carrying out these responsibilities for the calendar year 2005.

The purpose and objective of the Pollution Control Division (PCD) is to protect and enhance the quality of ambient air in Metropolitan Nashville and Davidson County so as to protect the public health and welfare of the population.

4. ENGINEERING ACTIVITIES

Table I and Figures 1 through 5, present the 2005 annual emission inventory for five criteria pollutants (particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, and volatile organic compounds).

Figure 1 shows that miscellaneous sources account for 93% of the total 2005 particulate emissions. Dust from paved roads accounts for 82% of the total 2005 PM_{10} emissions. Figure 2 shows that fuel combustion accounts for approximately 87% of the total 2005 sulfur dioxide emissions. Figure 3 shows that the on-road and non-road mobile source emissions account for 86% of the total 2005 nitrogen dioxide emissions. Figure 4 shows that 99% of the 2005 carbon monoxide emissions are contributed by on-road and non-road mobile sources. Figure 5 shows that on-road and non-road mobile sources account for approximately 63% of the total 2005 volatile organic compound emissions, and approximately 14% is contributed by other solvent usage including degreasing, graphic arts, and consumer/commercial solvents.

Table II and Figure 6, are a comparison of Nitrogen Dioxide and Volatile Organic Compound emissions for the past 13 years.

The 2005 Davidson County Hazardous Air Pollutant Emission Inventory is shown in Table III.

During 2005, the Engineering Section reviewed plans and specifications for 57 new and/or modified stationary sources and issued the following permits:

Construction Permits:	63
Operating Permits:	506

In addition to the above permits, 249 permits were issued for asbestos removal and 20 burning permits using an air curtain destructor were issued. Revenue generated from the issuance of permits in 2005 was $699,527.44.

During 2005 this agency observed the following compliance source tests:

1	Nitrogen Oxides
5	Volatile Organic Compound
2	Hydrogen chloride
1	Particulate
1	Total selected metals
54	Pressure-decay tests on gasoline dispensing facilities

5. PART 70 OPERATING PERMIT PROGRAM

On October 13, 1993, the Metropolitan Board of Health adopted Regulation No. 13, "Part 70 Operating Permit Program." Subsequently, EPA granted full approval to the Metro Public Health Department, Pollution Control Division's Part 70 Operating Permit Program. All affected facilities were required to submit Part 70 Operating Permit Applications to the Pollution Control Division within twelve months of the effective date of March 15, 1996. The Pollution Control Division received four applications in 1996 and eleven applications during 1997. During that time, two more sources became subject to the Part 70 Operating Permit Program. These two applications were received in 1998. All seventeen applications were reviewed and determined to be complete. Five Part 70 Operating Permits were issued in 1997, six were issued in 1998, and three were issued in 1999. The remaining three permits were issued in 2000. OMC-Stratos Boats closed shortly after their Part 70 Operating Permit was issued. Therefore, there are currently sixteen facilities operating in Davidson County with Part 70 Operating Permits. All of these facilities have renewed their Part 70 Operating Permit at least one time. In 2005, Gibson USA expanded operations and became subject to the Part 70 Operating Permit Program. They will receive a Part 70 Operating Permit in early 2007. The following facilities currently maintain Part 70 Operating Permits:

Permit Number	**Facility Name**
70-0002	E.I. du Pont de Nemours and Co.
70-0025	Gaylord Opryland Resort and Convention Center
70-0039	Vanderbilt University
70-0040	Automotive Components Holdings
70-0042	Vought Aircraft Industries, Inc.
70-0045	Armstrong Hardwood Flooring Company
70-0050	Metro District Energy System
70-0074	Ouimet Corporation
70-0081	U.S. Smokeless Tobacco Manufacturing, LP
70-0120	Peterbilt Motors Company
70-0133	Gibson Fiberglass
70-0141	Whirlpool Corporation
70-0154	Aqua Bath Company
70-0189	Metro Public Works - Bordeaux Landfill
70-0241	Vanderbilt University Medical Center
70-0255	MM Nashville Energy

6. EMISSION INVENTORY

TABLE I
2005 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

STATIONARY SOURCES—TONS PER YEAR										
	PARTICULATE		SULFUR DIOXIDE		NITROGEN DIOXIDE		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
TRANS. & MKT. OF VOC										
VOL Storage & Handling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0
Bulk Gasoline Terminals	0.0	0.0	0.0	0.0	0.0	10.4	0.0	24.5	18.9	244.2
Bulk Gasoline Plants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0
Tank Truck Unl. (Stage I)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	220.7	0.0
Vehicle Refuel. (Stage II)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.3	0.0
Tank Trucks in Transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.4	0.0
SUBTOTAL	0.0	0.0	0.0	0.0	0.0	10.4	0.0	24.5	422.8	244.2
TOTAL AREA + POINT	**0.0**		**0.0**		**10.4**		**24.5**		**667.0**	
INDUSTRIAL PROCESSES										
Adhesives	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1
Aerospace	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	6.8	30.3
Misc. Metal Products	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	35.2	159.4
Inorganic Chemical Mfg.	0.0	21.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Organic Chemical Mfg.	0.0	55.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	230.5
Textile Mfg.	5.8	18.6	0.0	0.0	8.2	0.0	6.9	0.0	9.2	25.2
Rubber Tire Mfg.	1.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	2.3	13.7
Plastic Products Mfg.	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	5.6	28.7
Fiberglass Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0
Wood Products Mfg.	1.2	12.4	0.0	0.0	0.0	0.0	0.0	0.0	37.4	221.0
Clay & Glass	10.0	128.5	0.0	162.7	0.0	860.1	0.0	15.7	0.6	55.5
Mineral Products	77.9	85.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asphalt Plants	14.7	20.1	12.9	15.9	6.9	8.7	44.5	88.4	14.1	12.0
Paint Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	14.5
Food & Agriculture	4.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.2
Primary/Sec. Metals	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fabric/Vinyl Coating	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.9
Large Appliance Coating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.7
Ship Building	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	117.1	345.5	13.0	178.6	15.0	868.8	51.4	104.1	122.7	945.6
TOTAL AREA + POINT	**462.2**		**191.6**		**883.9**		**155.4**		**1068.2**	

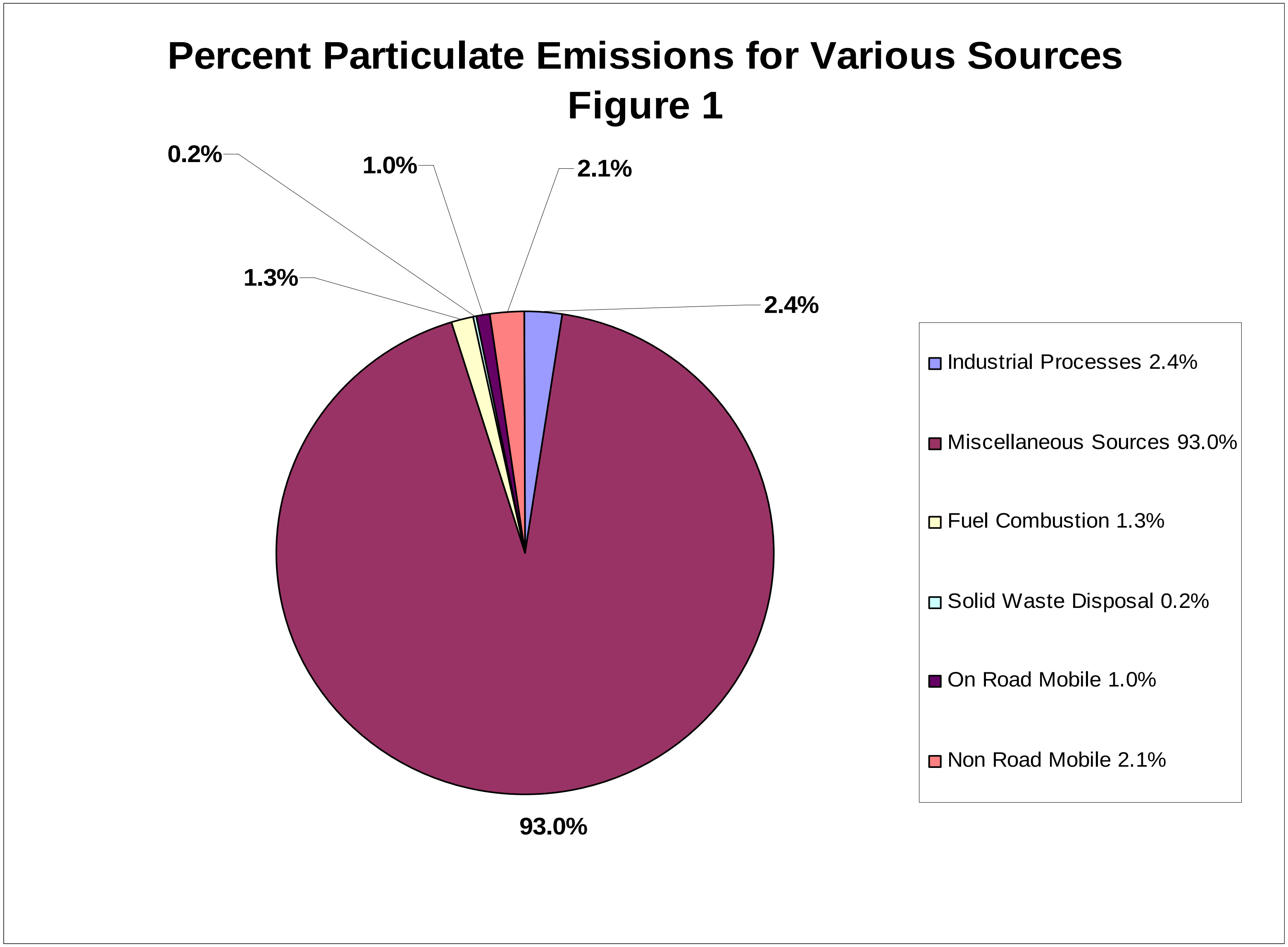
TABLE I (continued)
2005 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

STATIONARY SOURCES—TONS PER YEAR										
	PARTICULATE		SULFUR DIOXIDE		NITROGEN DIOXIDE		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
NON-IND. SURFACE COAT.										
Architectural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,093.9	0.0
Auto Refinishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	695.0	0.0
Traffic Markings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	122.7	0.0
SUBTOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1911.6	0.0
TOTAL AREA + POINT	**0.0**		**0.0**		**0.0**		**0.0**		**1911.6**	
OTHER SOLVENT USE										
Cold Cleaners (exc. Perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,084.8	0.0
Degreas. (exc. Cold clean.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Graphic Arts	0.0	0.2	0.0	0.0	6.0	0.4	3.9	2.6	97.8	149.9
Dry Cleaning (exc. Perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0
Cons./Comm. Solv. Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,826.1	0.0
SUBTOTAL	**0.0**	**0.2**	**0.0**	**0.0**	**6.0**	**0.4**	**3.9**	**2.6**	**3,012.5**	**151.3**
TOTAL AREA + POINT	**0.2**		**0.0**		**6.4**		**6.5**		**3,163.8**	
MISC. SOURCES										
Pesticide Application	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	536.4	0.0
Landfills	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3
Scrap and Waste Material	13.7	18.7	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Biogenic (PCBEIS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dust From Paved Roads	15,717.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brake and Tire Wear	184.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction Projects	1,745.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agricultural Tilling	72.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	**17,733.2**	**18.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**536.6**	**13.3**
TOTAL AREA + POINT	**17,751.9**		**0.0**		**0.0**		**0.0**		**549.9**	
FUEL COMBUSTION										
Residential	153.9	0.0	39.8	0.0	422.0	0.0	975.6	0.0	717.2	0.0
Commercial/Institutional	7.5	20.4	5.4	932.1	124.6	703.8	111.4	404.2	9.6	26.4
Industrial	0.2	70.5	0.0	4,686.8	2.2	1,064.6	0.6	159.4	0.1	12.6
Stationary Internal Comb.	1.0	1.1	1.1	1.1	14.9	15.8	3.5	3.4	0.9	1.3
SUBTOTAL	162.7	92.0	46.3	5,620.0	563.6	1,784.2	1,091.0	567.1	727.8	40.3
TOTAL AREA + POINT	**254.6**		**5666.3**		**2347.8**		**1658.0**		**768.0**	
SOLID WASTE DISPOSAL										
Incinerators	1.0	0.0	0.2	0.0	1.7	0.0	0.2	0.0	0.1	0.0
POTW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3	0.0
TSDF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Structure Fires (including auto/truck fires)	28.3	0.0	0.0	0.0	0.3	0.0	176.1	0.0	25.1	0.0
Forest & Grass Fires	2.8	0.0	0.0	0.0	0.1	0.0	18.5	0.0	2.7	0.0
SUBTOTAL	32.1	0.0	0.2	0.0	2.1	0.0	194.8	0.0	55.2	0.0
TOTAL AREA + POINT	**32.1**		**0.2**		**2.1**		**194.8**		**55.2**	
TOTAL STATIONARY SOURCES	**18,045.1**	**456.4**	**59.5**	**5,798.6**	**586.7**	**2,663.9**	**1,341.0**	**698.3**	**6,789.1**	**1,394.6**
TOTAL STA. AREA + POINT	**18,501.5**		**5,858.1**		**3,250.6**		**2,039.3**		**8,183.7**	

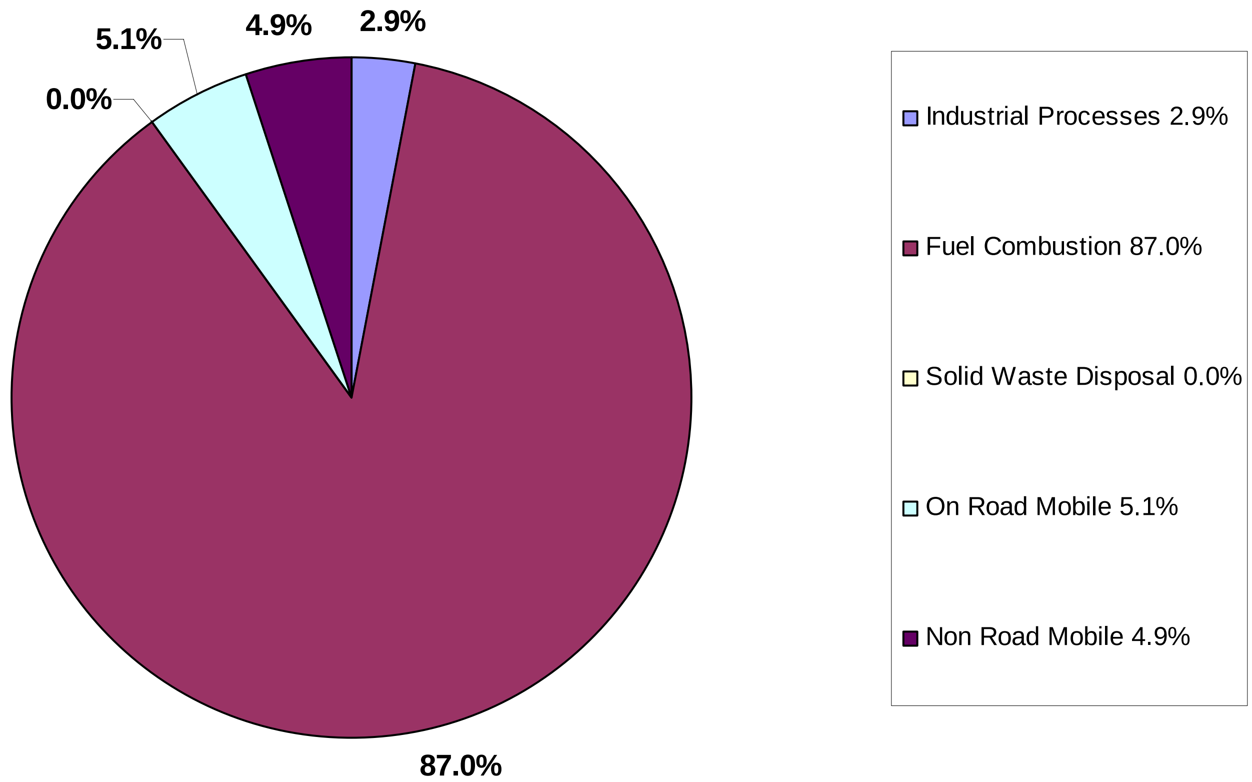
TABLE I (continued)
2005 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

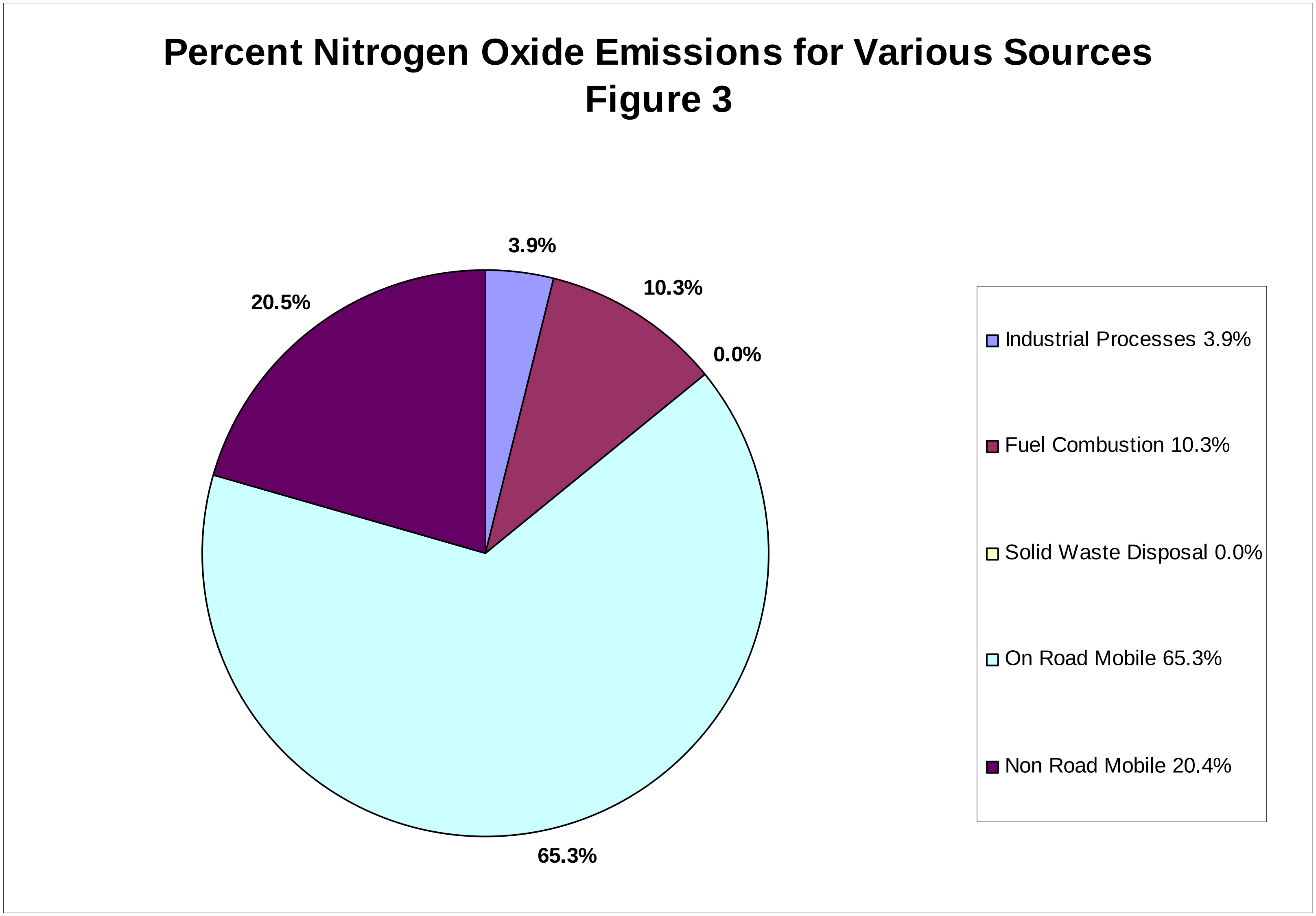
MOBILE SOURCES—TONS PER YEAR										
	PARTICULATE		SULFUR DIOXIDE		NITROGEN DIOXIDE		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
ON-ROAD MOBILE										
LDV	32.8	0.0	128.8	0.0	5,278.8	0.0	85,866.8	0.0	6,614.7	0.0
LDT1	8.4	0.0	35.5	0.0	1,366.3	0.0	22,151.9	0.0	1,409.0	0.0
LDT2	2.8	0.0	11.1	0.0	421.7	0.0	6,670.7	0.0	534.1	0.0
HDV	150.2	0.0	159.5	0.0	7,749.1	0.0	4,166.6	0.0	436.2	0.0
MC	0.4	0.0	0.2	0.0	28.5	0.0	246.8	0.0	41.6	0.0
SUBTOTAL	194.6	0.0	335.1	0.0	14,844.3	0.0	119,102.9	0.0	9,035.7	0.0
TOTAL AREA + POINT	**194.6**		**335.1**		**14,844.3**		**119,102.9**		**9,035.7**	
NON-ROAD MOBILE*										
Railroad Locomotives	12.7	0.0	37.3	0.0	514.5	0.0	72.6	0.0	30.4	0.0
Aircraft	37.3	0.0	29.2	0.0	583.5	0.0	1,610.2	0.0	208.8	0.0
Commercial Marine	0.0	0.0	6.3	0.0	79.5	0.0	23.4	0.0	10.4	0.0
All Other Non-road	348.7	0.0	248.1	0.0	3,470.7	0.0	64,448.7	0.0	4,740.9	0.0
SUBTOTAL	398.7	0.0	320.9	0.0	4,648.2	0.0	66,154.9	0.0	4,990.4	0.0
TOTAL AREA + POINT	**398.7**		**320.9**		**4,648.2**		**66,154.9**		**4,990.4**	
TOTAL MOBILE SOURCES	**593.3**	**0.0**	**656.0**	**0.0**	**19,492.5**	**0.0**	**185,257.8**	**0.0**	**14,026.1**	**0.0**
TOTAL MOBILE AREA + POINT	**593.3**		**656.0**		**19,492.5**		**185,257.8**		**14,026.1**	
TOTAL STATIONARY + MOBILE	**18,638.4**	**456.4**	**715.4**	**5,798.6**	**20,079.2**	**2,663.9**	**186,598.9**	**698.3**	**20,815.2**	**1,394.6**
GRAND TOTAL AREA + POINT	**19,094.8**		**6,514.0**		**22,743.1**		**187,297.1**		**22,209.8**	

*Historically, the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine) were calculated without the use of an EPA approved computer model. EPA developed the NONROAD model in 2004. This became the recommend method of calculating the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine). The latest version of this model, NONROAD2005, was used to calculate the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine) for this emissions inventory. Particulate, sulfur dioxide and nitrogen dioxide emissions remained basically unchanged. However, due to changes in the way the model calculates carbon monoxide (CO) and volatile organic compound emissions (VOC), the 2005 calculated emissions are approximately 23% higher for CO and 31% higher for VOC. Just as with the changes in the on-road mobile emissions, the "real world" emissions have not changed significantly. It is EPA's opinion that the NONROAD2005 model better estimates non-road mobile emissions.

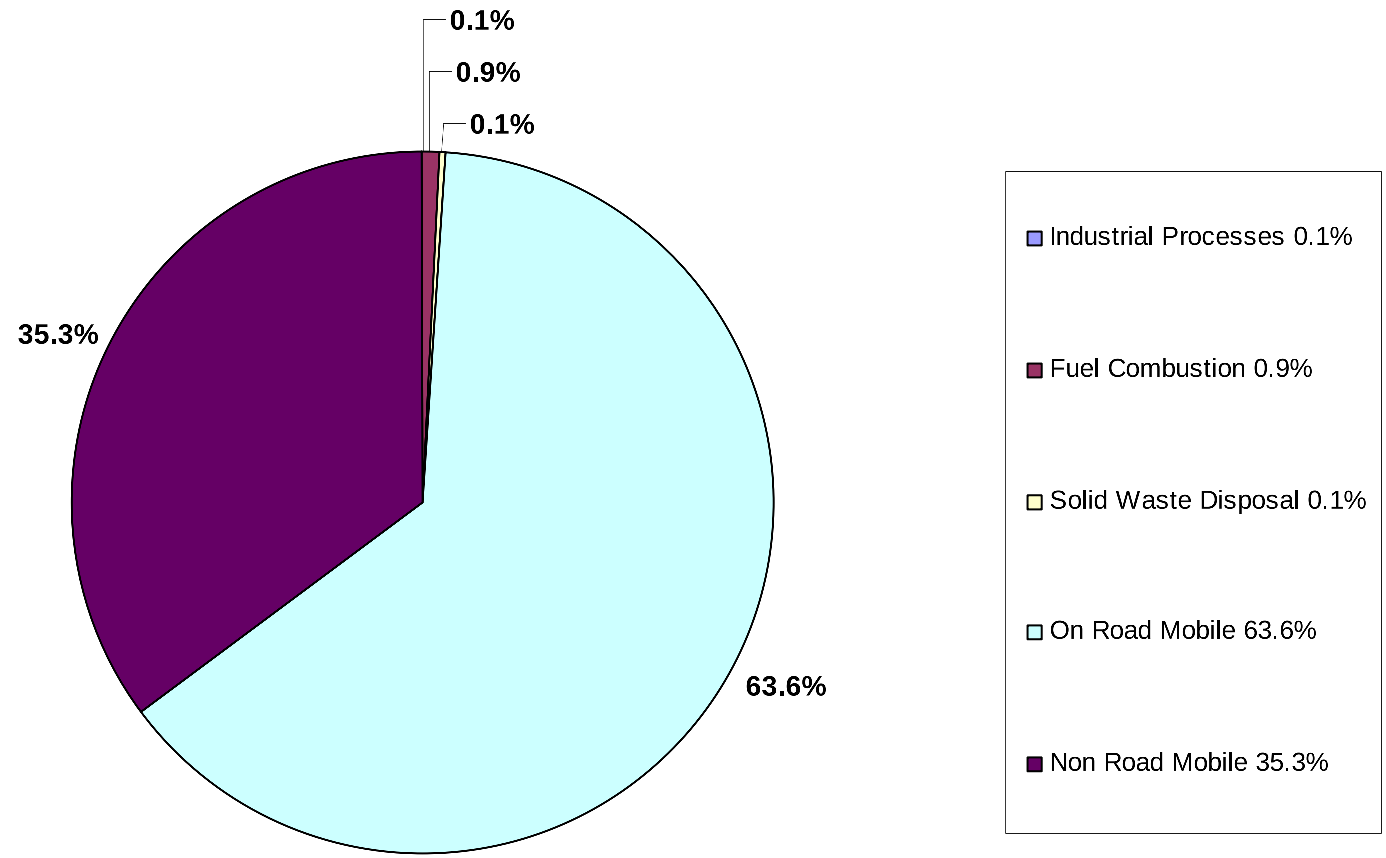

Percent Particulate Emissions for Various Sources
Figure 1
0.2%
1.0%
2.1%
1.3%
2.4%
93.0%
Industrial Processes 2.4%
Miscellaneous Sources 93.0%
Fuel Combustion 1.3%
Solid Waste Disposal 0.2%
On Road Mobile 1.0%
Non Road Mobile 2.1%

Percent Sulfur Dioxide Emissions for Various Sources
Figure 2




Percent Nitrogen Oxide Emissions for Various Sources
Figure 3
3.9%
10.3%
0.0%
20.5%
65.3%
Industrial Processes 3.9%
Fuel Combustion 10.3%
Solid Waste Disposal 0.0%
On Road Mobile 65.3%
Non Road Mobile 20.4%

Percent Carbon Monoxide Emissions for Various Sources
Figure 4



Percent Volatile Organic Compound Emissions for Various Sources

Figure 5

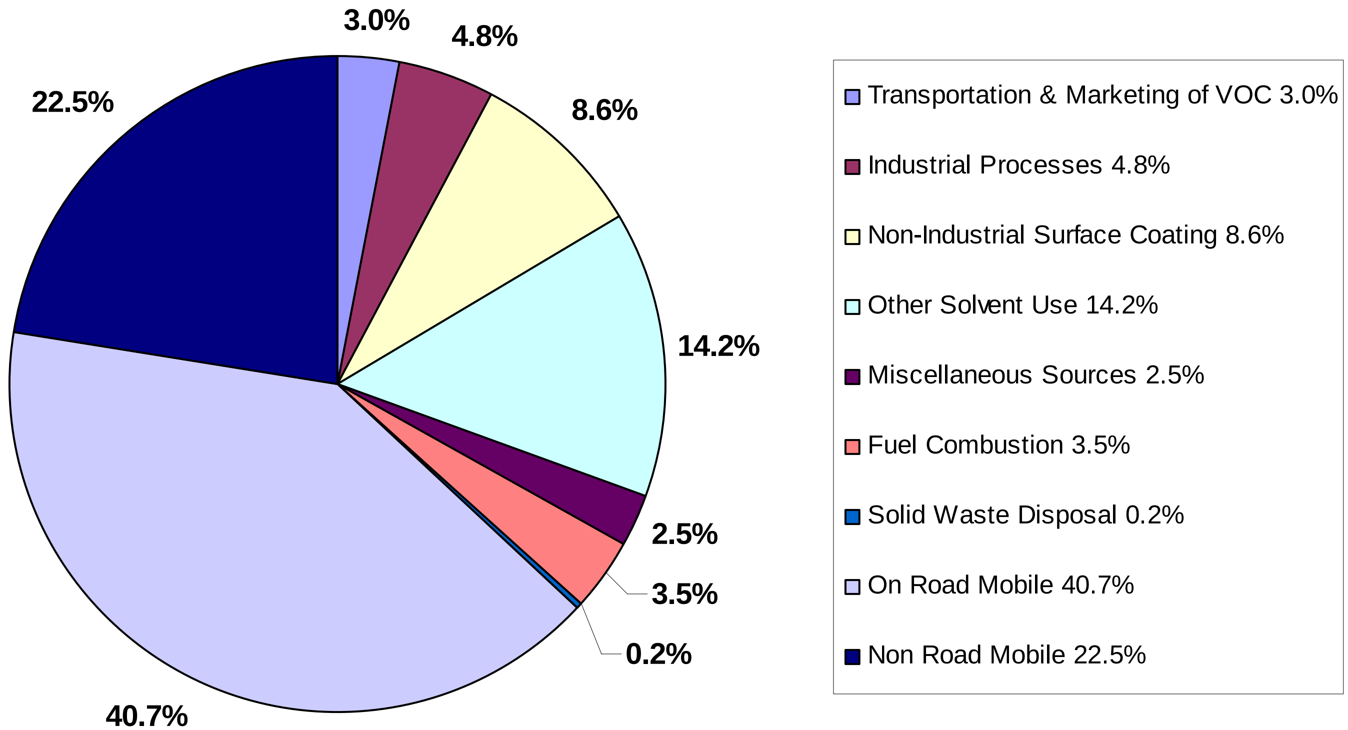


TABLE II
1993 - 2005 Annual Comparison of Nitrogen Dioxide and Volatile Organic Compound Emissions

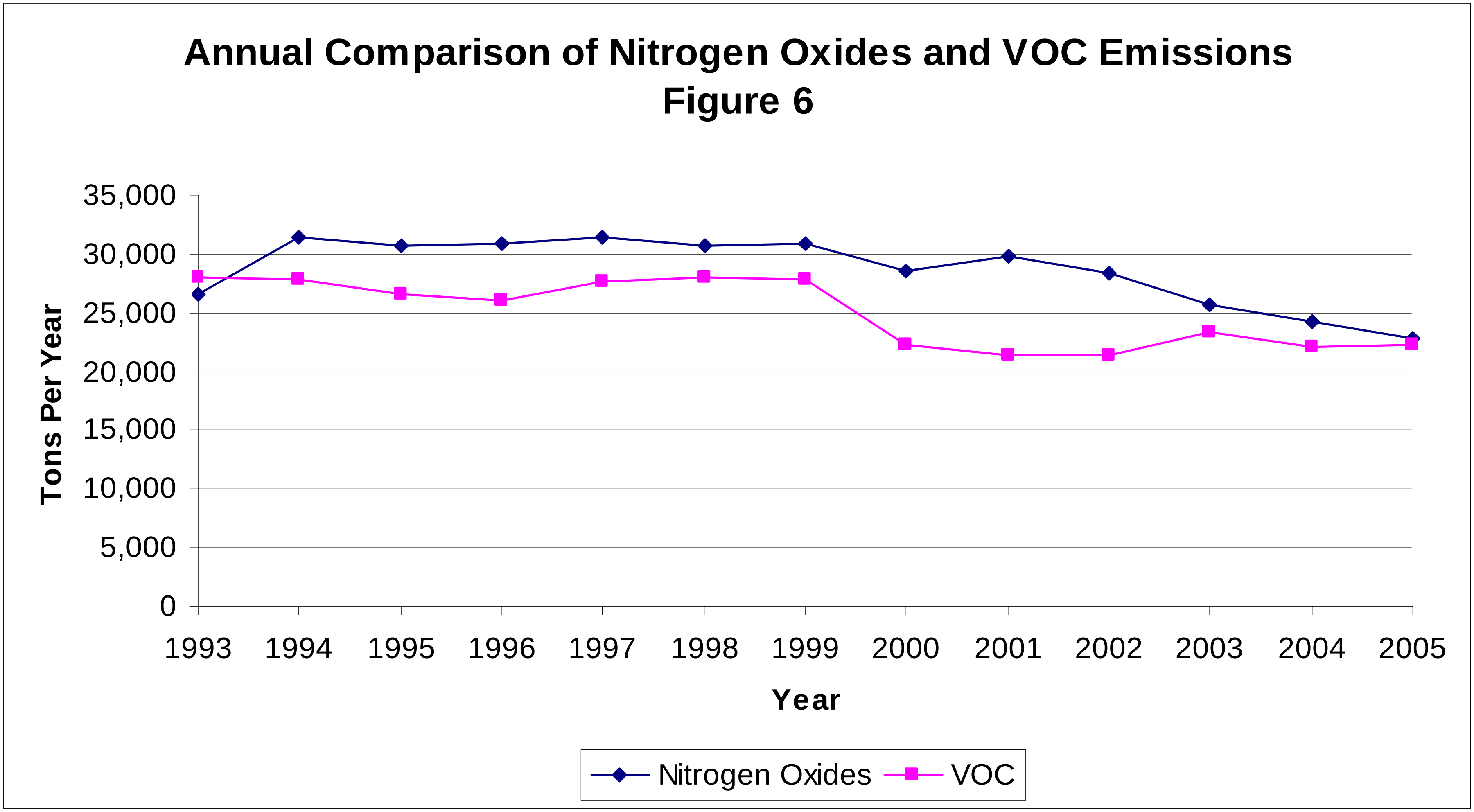
Nitrogen Dioxide (Tons/Year)

Source Category	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Trans. & Mkt. of VOC	0	0	0	6	4	5	5	5	6	4	3	7	10
Industrial Processes	1,801	1,674	1,307	1,765	2,146	1,877	1,914	1,672	1,365	898	899	890	884
Other Solvents	0	0	0	0	8	0	0	0	3	0	4	5	6
Miscellaneous	0	0	16	28	28	6	8	2	7	0	0	0	0
Fuel Combustion	2,711	3,012	2,626	3,251	3,331	3,023	2,866	3,063	3,118	3,074	3,119	2,565	2,348
Solid Waste Disposal	572	480	459	452	457	501	458	460	404	144	1	2	2
On-Road Mobile	17,550	21,691	21,771	20,940	21,216	20,754	21,001	18,548	19,669	19,218	16,875	16,114	14,844
Non-Road Mobile	3,994	4,544	4,464	4,423	4,309	4,511	4,585	4,825	5,207	4,965	4,711	4,657	4,648
TOTAL	**26,644**	**31,399**	**30,647**	**30,865**	**31,499**	**30,677**	**30,836**	**28,575**	**29,778**	**28,308**	**25,612**	**24,248**	**22,743**

Volatile Organic Compounds (Tons/Year)

Source Category	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Trans. & Mkt. of VOC	1,787	1,490	883	729	683	696	691	676	633	660	651	677	667
Industrial Processes	2,032	1,666	1,730	2,651	2,185	2,579	1,868	1,675	1,976	1,516	1,456	1,344	1,068
Non-Ind. Surface Coating	1,930	2,436	2,182	1,951	1,898	1,920	1,973	1,999	1,885	1,804	1,815	1,845	1,912
Other Solvents	3,145	2,837	2,844	2,747	2,760	2,752	2,749	3,004	2,999	3,033	3,052	3,101	3,164
Miscellaneous	236	233	204	572	569	507	498	511	519	531	536	545	550
Fuel Combustion	5,477	5,556	5,563	5,639	5,679	5,716	5,780	1,250	827	883	938	767	768
Solid Waste Disposal	252	224	235	196	128	157	113	101	98	90	76	110	55
On-Road Mobile	9,621	10,044	9,646	8,770	9,150	9,412	9,852	8,557	8,292	8,227	10,568	9,909	9,036
Non-Road Mobile	3,573	3,313	3,196	2,713	4,615	4,257	4,274	4,475	4,063	4,552	4,169	3,869	4,990
TOTAL	**28,053**	**27,799**	**26,482**	**25,967**	**27,666**	**28,016**	**27,798**	**22,247**	**21,290**	**21,296**	**23,260**	**22,167**	**22,210**

Historically, the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine) were calculated without the use of an EPA approved computer model. EPA developed the NONROAD model in 2004. This became the recommend method of calculating the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine). The latest version of this model, NONROAD2005, was used to calculate the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine) for this emissions inventory. Nitrogen dioxide emissions remained basically unchanged. However, due to changes in the way the model calculates VOC, the 2005 calculated emissions are approximately 31% higher than in 2004 for VOC. Just as with the changes in the on-road mobile emissions, the “real world” emissions have not changed significantly. It is EPA’s opinion that the NONROAD2005 model better estimates non-road mobile emissions.



Annual Comparison of Nitrogen Oxides and VOC Emissions
Figure 6
Tons Per Year
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Year
Nitrogen Oxides
VOC

TABLE III
2005 Davidson County Hazardous Air Pollutant Emission Inventory

POLLUTANT	CAS #	TPY
1,1,2,2-Tetrachloroethane	79-34-5	0.051
1,1,2-Trichloroethane	79-00-5	0.086
1,3-Butadiene	106-99-0	35.324
1,3-Dichloropropene	542-75-6	48.214
1,4-Dichlorobenzene	106-46-7	25.122
1,4-Dioxane	123-91-1	3.853
2,2,4-Trimentylpentane	540-84-1	69.892
2-Chloroacetophenone	532-27-4	0.001
2-Nitropropane	79-46-9	0.001
4-4'-Methylenediphenyl diisocyanate	101-68-8	0.003
Acetaldehyde	75-07-0	157.536
Acetophenone	98-86-2	3.978
Acrolein	107-02-8	8.500
Acrylonitrile	107-13-1	0.092
Aniline	62-53-3	0.011
Arsenic	00-00-0	0.002
Benzene	71-43-2	396.259
Benzyl chloride	100-44-7	0.120
Biphenyl	92-52-4	4.990
Bis (2-ethyl hexyl) phthlate	117-81-7	1.104
Bromoform	75-25-2	0.004
Carbon disulfide	75-15-0	0.099
Carbon tetrachloride	56-23-5	0.040
Carbonyl sulfide	463-58-1	0.011
Chlorine	7782-50-5	2.635
Chlorobenzene	108-90-7	21.589
Chloroform	67-66-3	0.498
Chromium compounds	00-00-0	0.173
Cobalt compounds	00-00-0	0.011
Cumene	98-82-8	1.710
Cyanide compounds	00-00-0	0.420
Dibenzofurans	132-64-9	0.002
Dibutyl phthalate	84-74-2	0.145
Diethanolamine	111-42-2	0.440
Dimethyl formamide	68-12-2	3.451
Dimethyl sulfate	77-78-1	0.005
Ethyl chloride	75-00-3	2.461
Ethylbenzene	100-41-4	62.556
Ethylene dichloride	107-06-2	0.457
Ethylene glycol	107-21-1	39.739
Ethylene oxide	75-21-8	4.676
Ethylidine dichloride	75-34-3	0.060
Formaldehyde	50-00-0	129.632
Glycol ethers	00-00-0	15.666
Hexamethylene 1,6-diisocyanate	822-06-0	1.005

TABLE III (continued) 2005 Davidson County Hazardous Air Pollutant Emission Inventory		
POLLUTANT	**CAS #**	**TPY**
Hexane	110-54-3	193.743
Hydrochloric acid	7647-01-0	120.412
Hydrogen fluoride	7664-39-3	14.990
Hydroquinone	123-31-9	0.023
Isophorone	78-59-1	0.383
Lead compounds	00-00-0	0.055
Magnesium	00-00-0	0.760
Manganese compounds	00-00-0	0.054
Methanol	67-56-1	318.341
Methyl bromide	74-83-9	66.923
Methyl chloride	74-87-3	2.199
Methyl chloroform	71-55-6	116.855
Methyl hydrazine	60-34-4	0.027
Methyl isobutyl ketone	108-10-1	16.874
Methyl methacrylate	80-62-6	0.338
Methyl tert-butyl ether	1634-04-4	18.651
Methylene chloride	75-09-2	36.872
m-Xylene	108-38-3	80.431
Naphthalene	91-20-3	25.414
Nickel compounds	00-00-0	0.084
o-Toluidine	95-53-4	0.001
o-Xylene	95-47-6	41.445
Phenol	108-95-2	0.554
Phthalic anhydride	85-44-9	0.765
Polycyclic organic matter	00-00-0	0.960
Propionaldehyde	123-38-6	7.589
Propylene dichloride	78-87-5	0.005
Propylene oxide	75-56-9	0.291
p-Xylene	106-42-3	8.760
Quinone	106-51-4	0.054
Selenium compounds	00-00-0	0.090
Styrene	100-42-5	31.563
Tetrachloroethylene	127-18-4	64.650
Toluene	108-88-3	406.901
Trichloroethylene	79-01-6	31.718
Triethylamine	121-44-8	2.469
Trimethylbenzene	95-63-6	0.009
Vinyl acetate	108-05-4	0.462
Vinyl chloride	75-01-4	0.163
Vinylidene chloride	75-35-4	0.005
Xylene	1330-20-7	243.061
Total of All Hazardous Air Pollutants	**2,897.568 Tons Per Year**	

7. FIELD ENFORCEMENT ACTIVITIES

Field enforcement includes two main areas of compliance activities: (1) Inspection of stationary sources; and (2) Citizen complaint investigation. All stationary sources are inspected annually. These inspections include a physical tour of the facility, checking of air pollution control equipment, fuel usage, emissions, recordkeeping, and general facility conditions. Citizen complaints are investigated to determine if there is a valid air pollution problem and, if so, appropriate action is taken. During 2005 this agency conducted:

1368 inspections of stationary air pollution sources;
387 inspections of asbestos removal sites;
129 indoor air quality inspections;
194 complaint investigations; and
Observed 54 pressure-decay tests on gasoline dispensing facilities.

During 2005, this agency issued 97 notices of violation and ten consent agreements resulting in the collection of a total of $26,266 in penalties.

8. MONITORING ACTIVITIES

During 2005 this agency operated ten air monitoring sites in Davidson County. Figure 7 shows the location of each of these sites. The addresses and pollutants monitored are shown in Table IV. All ambient air monitoring is conducted in strict accordance with Federal guidelines. A list of the National Ambient Air Quality Standards for all criteria pollutants is presented in Table V.

Particulate matter is measured at six sites. Three sites measure PM_{10}, and three sites measure $PM_{2.5}$. Two of the PM_{10} sites (Trevecca College and McCann Elementary School) are manual, where PM_{10} is measured by operating a selective size inlet sampler (SSI), and the filters are removed for weighing. A continuous PM_{10} site is operated at the Lentz Public Health Center to aid in the generation of a daily Air Quality Index (AQI). Fine particulate ($PM_{2.5}$) samplers are operating at Lockeland Middle School, Hillwood High School and Wright Middle School. Two manual monitors, one continuous monitor (used for AQI purposes) and a speciation monitor are in operation at Lockeland. One manual monitor is operating at Hillwood, and a continuous monitor was installed in November, 2005. One manual monitor is operating at Wright.

Carbon monoxide is measured by continuous monitors at Hume Fogg High School and Douglas Community Center. Ozone is measured by continuous monitors at East Health Center and Percy Priest Dam. The East Health center also houses a continuous sulfur dioxide monitor and a continuous nitrogen oxide/nitrogen dioxide monitor.

During the pollen season, March through October, the PCD operates a Durham sampler measuring pollen. The Durham sampler is located on the roof of the Metro Public Health Department parking garage at 311 23rd Avenue North.

The daily Air Quality Index (AQI) and pollen count are made available to the public by calling (615) 340-0488 and on the Metro Public Health Department's website which can be found at http://healthweb.nashville.gov.

Following Table V is a discussion of the Ambient Air Quality contaminant concentrations measured in Davidson County during 2005.

LOCATION OF AIR MONITORING SITES
Figure 7

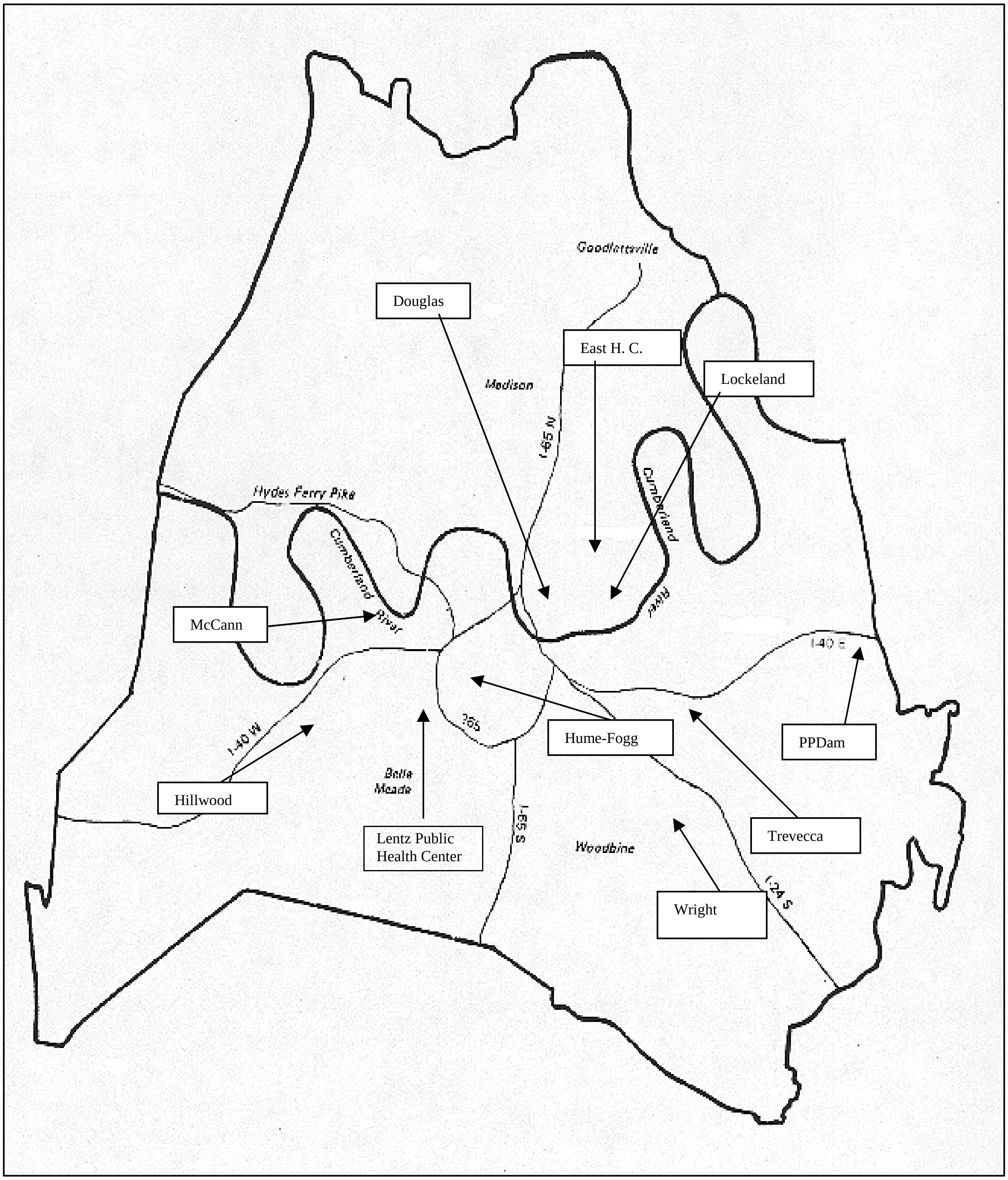


TABLE IV AIR MONITORING SITE LOCATION & CLASSIFICATION					
Site No.	**Address**	**UTM Coordinates**		**Land Use**	**Pollutants Sampled**
47-037-0002	Trevecca Nazarene College 333 Murfreesboro Road	522.1	3999.9	CC-C	PM_{10}**
47-037-0011	East Nashville Health Center 1015 East Trinity Lane	522.9	4006.7	CC-R	SO_2*, NO_2**, Ozone*
47-037-0021	Hume-Fogg Magnet School 700 Broadway	519.7	4001.7	CC-C	CO*
47-037-0023	Lockeland Middle School 101 South Seventeenth St.	523.5	4003.5	CC-R	$PM_{2.5}$**
47-037-0024	McCann School 1300 56th Avenue North	513.1	4002.0	CC-R, I	PM_{10}**
47-037-0025	Wright Middle School 180 McCall Street	523.9	3995.1	S-R	$PM_{2.5}$**
47-037-0026	Percy Priest Dam	533.9	4000.7	Background	Ozone**
47-037-0031	Douglas Park 210 North Seventh St.	521.3	4003.6	CC-R	CO*
47-037-0036	Hillwood High School 400 Davidson Road	511.4	3997.1	S-R	$PM_{2.5}$**
AQI Site	Lentz Public Health Center 311 23rd Avenue North	517.3	4000.6	CC-C	PM_{10}
Land Use Terms CC-Center City S-Suburban I-Industrial C-Commercial R-Residential		Monitor Classification *NAMS-National Air Monitoring Stations **SLAMS-State/Local Air Monitoring Stations			

TABLE V NATIONAL AMBIENT AIR QUALITY STANDARDS*						
CONTAMINANTS	**PRIMARY STANDARD**			**SECONDARY STANDARD**		
	CONCENTRATION		**AVERAGE INTERVAL**	**CONCENTRATION**		**AVERAGE INTERVAL**
	µg/m^3	**PPM**		**µg/m^3**	**PPM**	
PM_{10}	50 150		AAM 24-HR	50 150		AAM 24-HR
$PM_{2.5}$	15 65		AAM 24-HR	15 65		AAM 24-HR
Sulfur Dioxide	80 365	0.03 0.14	AAM 24-HR 3-HR	1,300	0.5	3-HR
Carbon Monoxide	40,000 10,000	35.0 9.0	1-HR 8-HR	No secondary standard		
Ozone	235 157	0.12 0.08	1-HR 8-HR	235 157	0.12 0.08	1-HR 8-HR
Nitrogen Dioxide	100	0.053	AAM	100	0.05	AAM
Lead	1.5		QA	1.5		QA
AAM – Annual Arithmetic Mean QA – Quarterly Average						

*On July 17, 1997, EPA revised the ozone standard by phasing out and replacing the 1-hour standard with an 8-hour standard to protect against longer exposure periods. Subsequently, the 1-hour standard was revoked in many areas across the United States, including Davidson County. Compliance with the new 8-hour ozone standard is attained at each monitoring site if the 3-year average of the annual fourth highest daily maximum is less than or equal to 0.08 ppm. The 8-hour ozone standard was challenged in Federal court, and returned to EPA for various clarifications. In the interim, the 1-hour ozone standard was reinstated. During 2003, the problems with the 8-hour ozone standard were resolved. Currently, Nashville and the Middle Tennessee areas are under the requirements of our original 1-hour ozone maintenance plan and the voluntary Early Action Compact for 8-hour ozone.

Continuous ozone monitors are operating at East Health Center and Percy Priest Dam.

*The EPA revised the primary and secondary particulate matter standards by changing the form of the existing 24-hour and annual particulate matter standards for particles 10 micrometers in diameter (PM_{10}) or smaller. Compliance with the 24-hour standard is attained when the 3-year average of the annual 99th percentile of the 24-hour monitored concentrations are less than or equal to 150 $\mu g/m^3$. Compliance with the annual standard is attained when the annual arithmetic mean is less than or equal to 50 $\mu g/m^3$.

*The EPA established 24-hour and annual standards for "fine" particles ($PM_{2.5}$ or particles 2.5 micrometers in diameter or smaller). Compliance with the 24-hour standard is attained when the 3-year average of the annual 98th percentile of 24-hour monitored concentrations is less than or equal to 65 $\mu g/m^3$. Compliance with the annual standard is attained when the 3-year average of the annual arithmetic mean is less than or equal to 15 $\mu g/m^3$. The new $PM_{2.5}$ standard was also challenged in Federal court. During 2003, the problems with the $PM_{2.5}$ standard were resolved. Nashville and the Middle Tennessee area were designated attainment with the $PM_{2.5}$ standard in 2004.

Ambient monitoring for $PM_{2.5}$ began January 1, 1999. The ambient network was installed and sampling began as planned. However, due to equipment and software problems from the manufacturer, the data collected for most of 1999 is questionable as to its validity. Sampler and software modifications were performed in September, 1999, and we are confident of the validity of the data generated after that date. Therefore, the $PM_{2.5}$ data generated beginning in October, 1999 are presented in this report.

Fine particulate ($PM_{2.5}$) monitors are operating at Lockeland Middle School, Hillwood High School and Wright Middle School. Two manual monitors, one continuous monitor (used for AQI purposes) and a speciation monitor are in operation at Lockeland. One manual monitor is operating at Hillwood, and a continuous monitor was installed in November, 2005. One manual monitor is operating at Wright.

PARTICULATE MATTER

The air pollution called “particulate matter” includes airborne pollutants of materials such as dust, soot, pollen, aerosols, etc. Particulates range in diameter from 0.005 to 250 microns. There are many sources of particulate matter that includes both natural and anthropogenic (man-made).

PM_{10} and $PM_{2.5}$ focus on those particles with aerodynamic diameters smaller than 10 micrometers and 2.5 micrometer respectively, which are likely to be responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract. Particulate matter has a negative effect on breathing and respiratory systems. It aggravates existing respiratory and cardiovascular disease. The elderly, children and people with chronic pulmonary or cardiovascular disease, or asthma are especially sensitive to the effects of particulate matter.

The concentration of particulate matter in the ambient air ($\mu g/m^3$) is computed by measuring the mass of the particulate matter collected and the volume of air sampled. For determining the average concentrations of particulate matter, a 24-hour sampling period is used. After sampling for 24 hours, the filter is removed and returned to the laboratory where it is allowed to equilibrate and is weighed.

The Pollution Control Division operates two sites equipped with manual, intermittent PM_{10} monitors, one site with a continuous PM_{10} monitor. The PCD also operates three sites equipped with manual $PM_{2.5}$ monitors. Two of the three $PM_{2.5}$ sites have continuous $PM_{2.5}$ monitors operating.

Tables VI and VII present a summary of the measured PM_{10} concentrations during 2005. This data shows that the ambient air quality standard for PM_{10} was not exceeded in 2005. Tables VIII and IX and Figures 8 and 9 compare the PM_{10} concentrations for the past 15 years. Tables X, XI, XII and XIII present a summary of the 2005 $PM_{2.5}$ data. Figures 10 and 11 summarize the maximum 24 hour and annual average $PM_{2.5}$ concentrations for the last calendar quarter of 1999, and the years 2000 - 2005. Figure 10 shows that Nashville and Davidson County is in compliance with the maximum 24 hour $PM_{2.5}$ concentration. Figure 11 shows that based on the 2003 - 2005 data, Davidson County will comply with the annual average $PM_{2.5}$ National Ambient Air Quality Standard. In order to determine compliance with the annual $PM_{2.5}$ standard, the monitor data from the Hendersonville site (Sumner County) will be spatially averaged with the Davidson County data. Data from all four sites will be averaged, and if the 3-year average of the annual arithmetic mean is less than or equal to 15 $\mu g/m^3$, the Middle Tennessee area will attain the $PM_{2.5}$ standard. For the period of 2003 - 2005, the Middle Tennessee area is in compliance with the annual NAAQS for $PM_{2.5}$.

TABLE VI
2005 SUMMARY OF PM_{10} ($\mu G/M^3$)

SITE LOCATION	Trevecca	McCann
Number of Observations	57	56
Maximum 24-Hr Concentration	62	59
Date of Maximum Concentration	9/13	9/13
2nd Maximum 24-Hr Concentration	56	50
Date of 2nd Maximum 24-Hr. Concentration	9/7	9/7
Annual Arithmetic Mean	25	28
Number of Exceedance of 24-Hr Standard	0	0

TABLE VII
2005 QUARTERLY COMPARISON OF PM_{10} ARITHMETIC MEAN ($\mu G/M^3$)

Site Location	1st	2nd	3rd	4th	Annual
Trevecca	18	26	34	23	25
McCann	20	30	35	28	28

TABLE VIII
1991 – 2005 24-HOUR MAXIMUM PM_{10} CONCENTRATIONS ($\mu G/M^3$)

Site Location	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Trevecca	73	61	83	73	69	61	76	70	68	81	60	47	51	45	62
East*	70	55	57	63	64	64	54	50	52	63	46	49	42	*	*
Lockeland*	76	58	72	63	65	55	51	53	55	61	46	56	56	*	*
McCann	76	65	79	85	70	76	65	56	60	79	61	53	58	47	59

TABLE IX
1991 – 2005 ANNUAL AVERAGE PM_{10} CONCENTRATIONS ($\mu G/M^3$)

Site Location	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Trevecca	35	31	32	32	34	33	34	32	31	33	30	22	25	24	25
East*	31	30	27	28	27	24	25	25	24	27	24	21	23	*	*
Lockeland*	32	28	28	25	27	26	23	25	24	26	24	24	24	*	*
McCann	38	33	36	36	35	30	30	28	27	30	29	24	27	25	28

* Due to the density of PM_{10} monitoring sites in Davidson County and the history of the Davidson County PM_{10} values being well below the NAAQS for PM_{10}, the Environmental Protection Agency recommended that the monitors at East and Lockeland be taken out of service on June 30, 2003. Therefore, these monitors were permanently taken out of service in 2003.

TABLE X
2005 SUMMARY OF $PM_{2.5}$ ($\mu G/M^3$)

SITE LOCATION	Lockeland (POC1)	Lockeland (POC2)	Wright	Hillwood
Number of Observations	334	83	121	348
Maximum 24-Hr Concentration	58.6	36.6	38.5	54.3
Date of Maximum Concentration	12/20	9/13	9/10	9/2
2nd Maximum 24-Hr Concentration	46.5	28.2	36.7	42.6
Date of 2nd Maximum 24-Hr. Concentration	6/25	6/21	9/13	7/30
Annual Arithmetic Mean	15.0	13.6	14.2	13.6
Number of Exceedances of 24-Hr Standard	0	0	0	0

TABLE XI
2005 QUARTERLY COMPARISON OF $PM_{2.5}$ ARITHMETIC MEAN ($\mu G/M^3$)

Site Location	1st	2^{nd}	3^{rd}	4^{th}	Annual
Lockeland (POC1)	12.51	15.29	18.28	14.03	14.97
Lockeland (POC2)	11.60	13.97	15.75	12.78	13.63
Wright	12.05	13.17	18.42	13.34	14.20
Hillwood	10.87	12.97	18.01	12.13	13.55

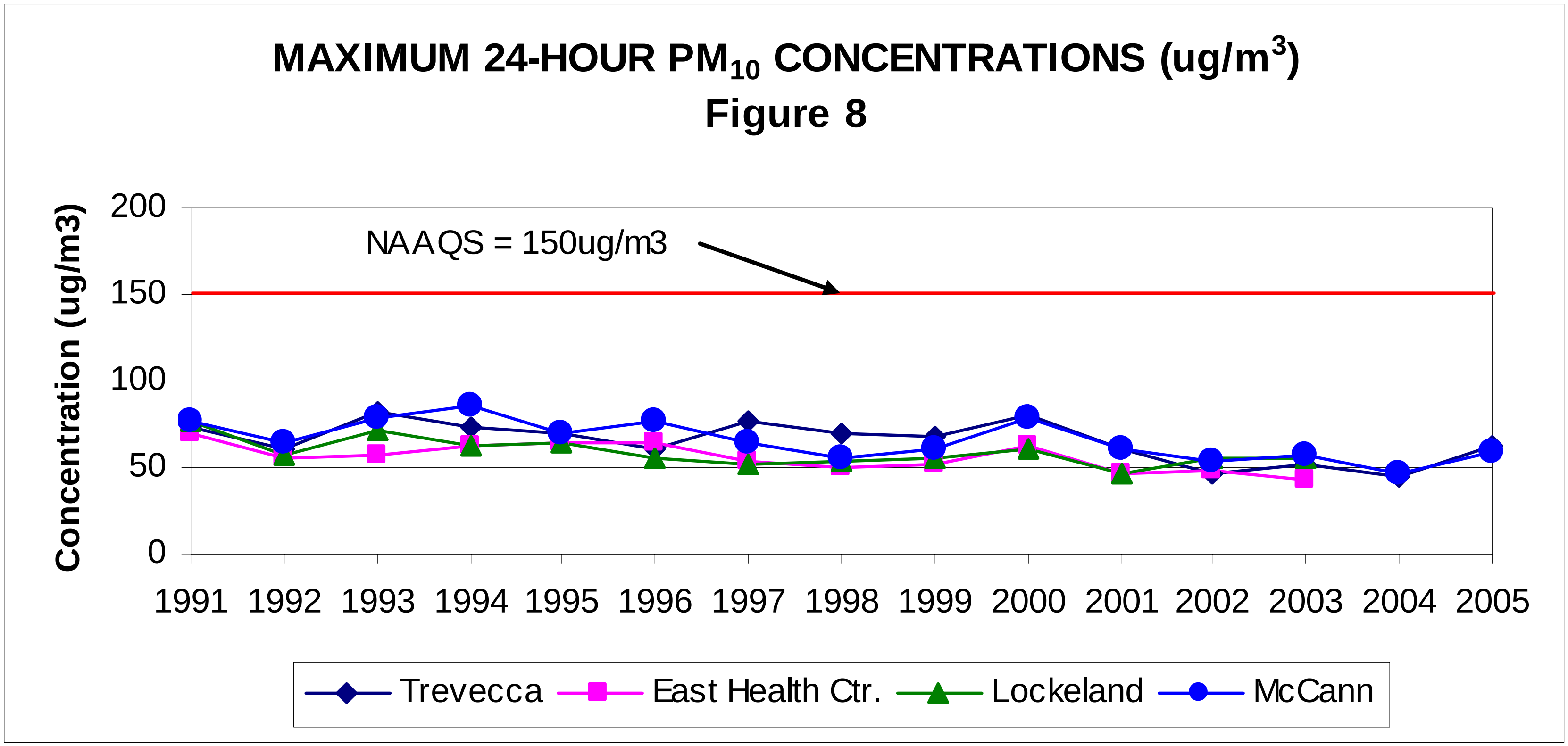
TABLE XII
1999 - 2005 24-HOUR MAXIMUM $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)

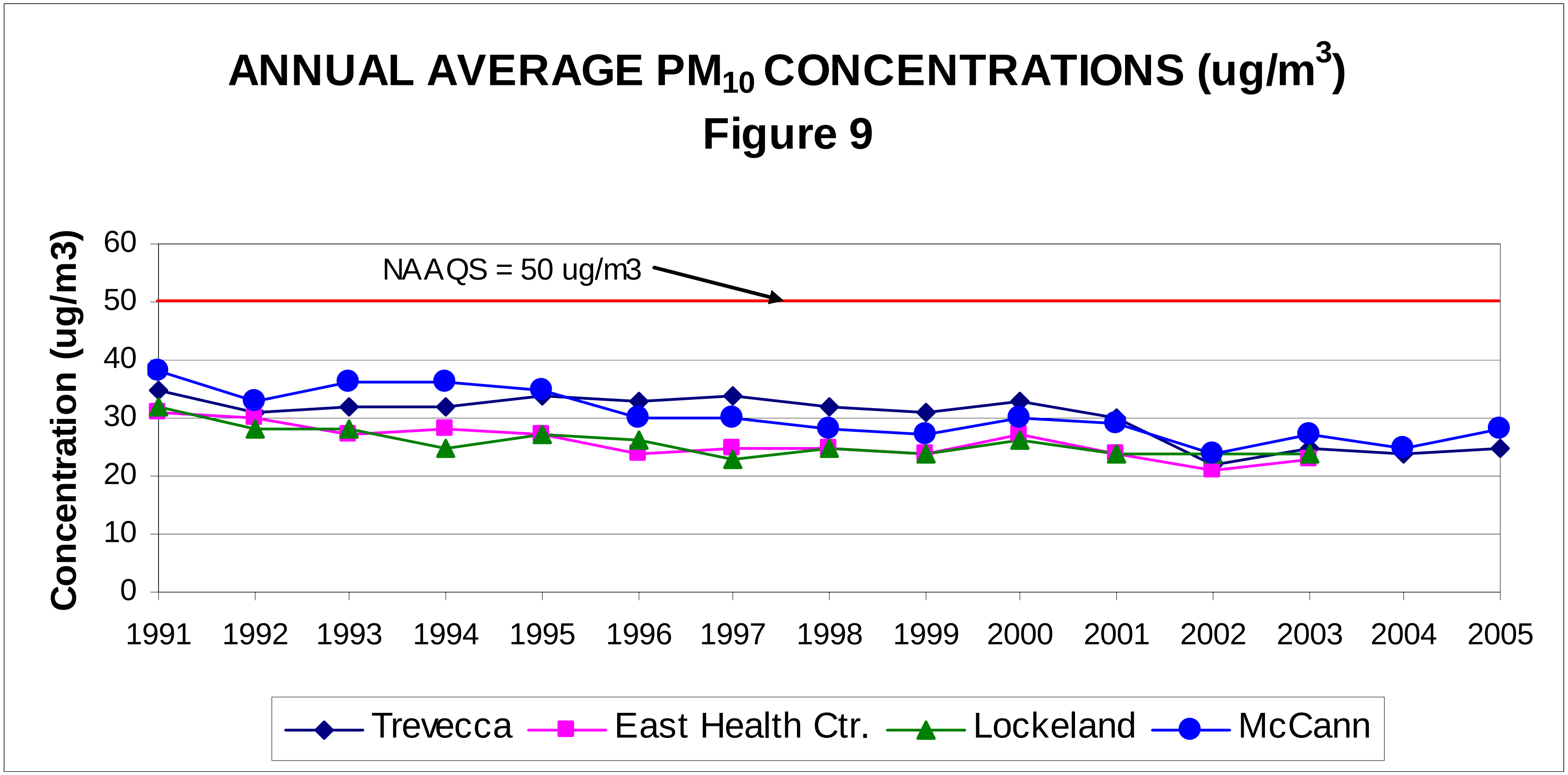
Site Location	1999	2000	2001	2002	2003	2004	2005
Lockeland (POC1)	55.8	42.3	38.2	39.8	42.3	36.6	58.6
Lockeland (POC2)	55.7	40.8	37.0	32.6	39.0	30.4	36.6
Wright	34.0	52.4	33.4	32.8	42.4	31.4	38.5
Hillwood	58.2	38.6	35.5	35.7	42.1	33.9	54.3

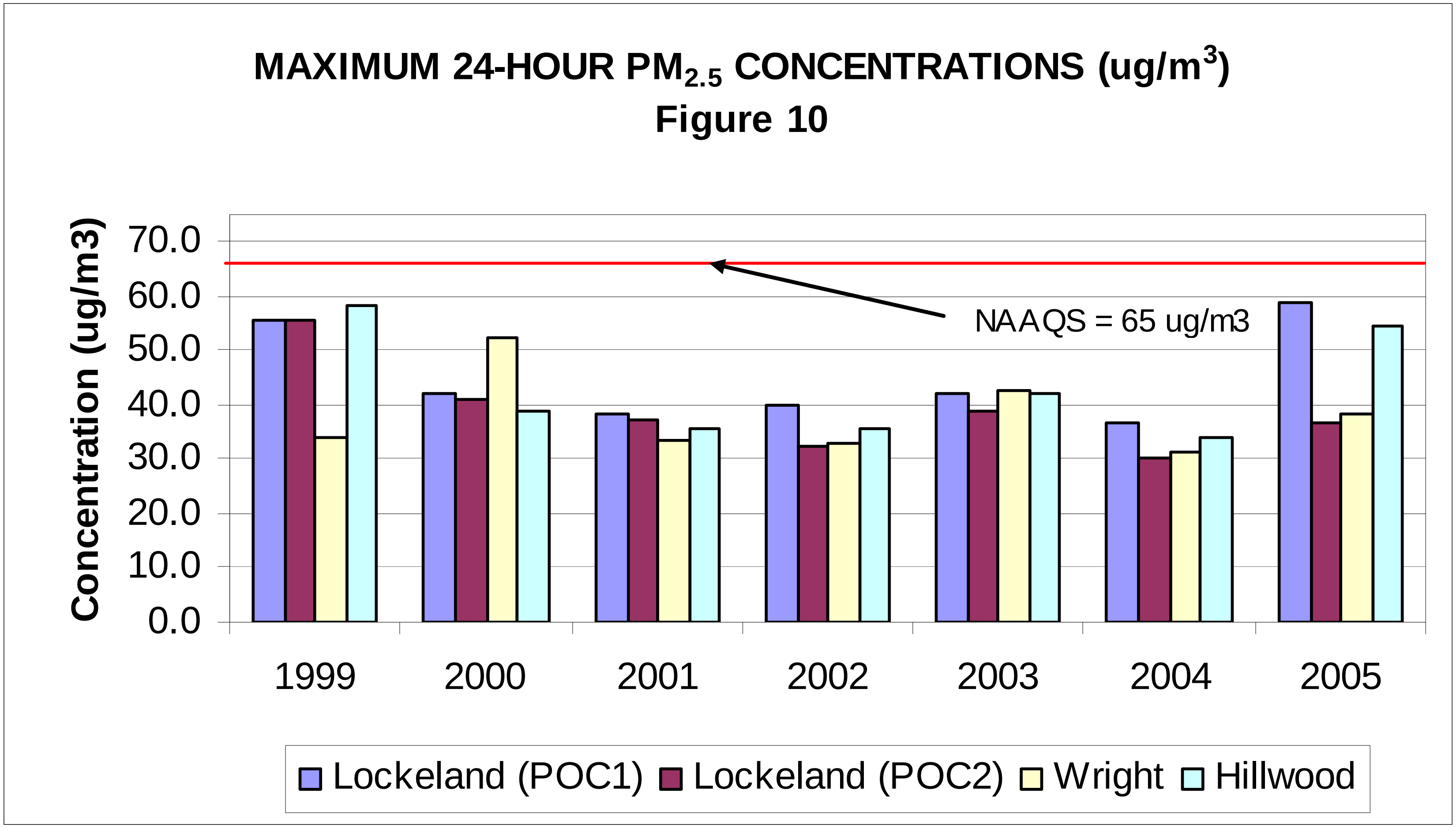
TABLE XIII
2001 - 2005 ANNUAL AVERAGE $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)

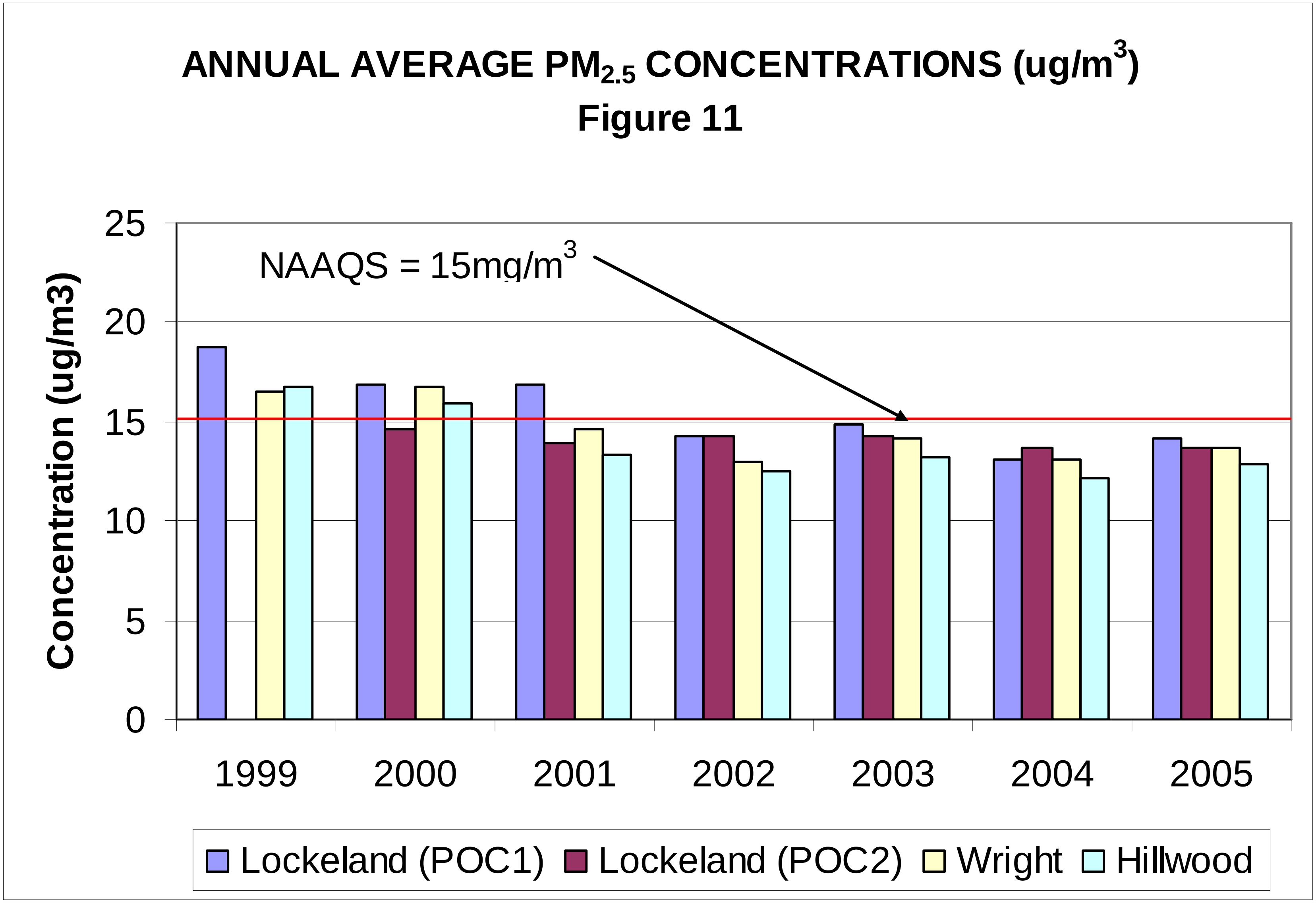
Site Location	2001	2002	2003	2004	2005	LATEST 3 YEAR AVERAGE
Lockeland (POC1)	15.2	na	na	13.1	15.0	14.1
Lockeland (POC2)	na	13.7	14.3	13.2	13.6	13.7
Wright	14.6	na	na	13.1	14.2	13.7
Hillwood	13.4	na	na	12.1	13.6	12.9
Sumner County	14.2	12.9	13.4	12.8	14.8	13.7
Spatial Avg. of Valid Monitors	14.3	13.3	13.9	12.8	14.4	13.6

According to the Environmental Protection Agency, there were quality assurance problems with the data generated by the Lockeland POC1 monitor during 2002 and 2003. We believe the data to be good data representative of the $PM_{2.5}$ concentrations at the Lockeland site. However, due to EPA's ruling, the data from the collocated site at Lockeland (the POC2 site) will be substituted for the primary site's (POC1) data for 2002 and 2003. Also, for determination of compliance with the National Ambient Air Quality Standards (NAAQS), the data from the Sumner County monitor operated by the State of Tennessee will be spatially averaged with the three sites in Davidson County. For the three year period of 2003 - 2005, the Middle Tennessee area was in attainment with the $PM_{2.5}$ NAAQS.


MAXIMUM 24-HOUR PM_{10} CONCENTRATIONS (ug/m^3)
Figure 8
NAAQS = 150ug/m3
Concentration (ug/m3)
200
150
100
50
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Trevecca
East Health Ctr.
Lockeland
McCann


ANNUAL AVERAGE PM10 CONCENTRATIONS (ug/m3)
Figure 9
Concentration (ug/m3)
0
10
20
30
40
50
60
NAAQS = 50 ug/m3
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Trevecca
East Health Ctr.
Lockeland
McCann


MAXIMUM 24-HOUR PM2.5 CONCENTRATIONS (ug/m3)
Figure 10
Concentration (ug/m3)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
NAAQS = 65 ug/m3
1999
2000
2001
2002
2003
2004
2005
Lockeland (POC1)
Lockeland (POC2)
Wright
Hillwood


ANNUAL AVERAGE PM2.5 CONCENTRATIONS (ug/m3)
Figure 11
NAAQS = 15mg/m3
Concentration (ug/m3)
0
5
10
15
20
25
1999
2000
2001
2002
2003
2004
2005
Lockeland (POC1)
Lockeland (POC2)
Wright
Hillwood

LEAD

The traditional major sources of ambient lead are from the combustion of leaded gasoline, and the manufacture of lead storage batteries. During 1997, the Metro Public Health Department operated high-volume samplers at two sites. Samples were taken every 6th day on the same schedule as the PM_{10} samplers. The filters were analyzed for suspended lead. Table XIV is a summary of the suspended lead concentrations measured in 1997. This data shows that the Ambient Air Quality Standard of 1.5 μg/m^3 averaged on a calendar quarter was not exceeded in 1997. The maximum calendar quarter concentration measured over the six years previous to 1997 was 0.10 μg/m^3. This data indicates that ambient lead concentrations are relatively insignificant. Based on low monitored lead levels and EPA guidance, ambient monitoring for lead was discontinued in Nashville and Davidson County on December 31, 1997.

TABLE XIV
1997 QUARTERLY COMPARISON OF LEAD, ARITHMETIC MEAN (μG/M^3)

SITE	1ST	2ND	3RD	4TH	ANNUAL
MHDA—1400 8th Avenue North	0.06	0.06	0.06	0.06	0.06
NES—1214 Church Street	0.08	0.07	0.07	0.07	0.07

SULFUR DIOXIDE

Sulfur dioxide is a heavy, pungent, colorless gas that combines easily with water vapor to form sulfuric acid. The major health concerns associated with exposure to sulfur dioxide include effects on breathing, respiratory illness, alterations in the lungs' defenses, and aggravation of existing cardiovascular disease. Sulfur dioxide was measured at East Health Center (site 0011) during 2005. Table XV presents a summary of this data. The data shows that the annual arithmetic mean, the 24-hour average or the 3-hour average standards of 0.03 ppm, 0.14 ppm and 0.5 PPM respectively were not violated in 2005. The main source of sulfur dioxide in Metropolitan Nashville and Davidson County is from fuel combustion.

TABLE XV
2005 SULFUR DIOXIDE (PPM), SITE 247-037-0011, EAST HEALTH CENTER

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
No. of Observations	738	668	736	715	738	714	743	739	685	742	716	740	8674
Arithmetic Mean	0.002	0.002	0.002	0.001	0.002	0.002	0.003	0.002	0.002	0.003	0.003	0.005	0.003
Highest 24-Hr Conc.	0.006	0.006	0.007	0.005	0.004	0.005	0.01	0.006	0.005	0.007	0.007	0.019	0.019
Date of Highest 24-Hr Conc.	1/16	2/4	3/21	4/15	5/31	6/29	7/30	8/4	9/4	10/29	11/21	12/20	12/20
2nd Highest 24-Hr Conc.	0.005	0.005	0.004	0.004	0.004	0.005	0.007	0.006	0.004	0.006	0.007	0.013	0.013
Date of 2nd Highest 24-Hr Conc.	1/14	2/23	3/3	4/14	5/17	6/19	7/31	8/3	9/5	10/12	11/20	12/19	12/19
Highest 3-Hr Conc.	0.015	0.015	0.012	0.012	0.014	0.015	0.025	0.01	0.014	0.018	0.014	0.04	0.04
Date of Highest 3-Hr Conc.	1/14	2/4	3/21	4/15	5/5	6/29	7/30	8/21	9/4	10/12	11/21	12/20	12/20
2nd Highest 3-Hr Conc.	0.012	0.012	0.011	0.007	0.009	0.009	0.014	0.008	0.01	0.016	0.013	0.022	0.025
Date of 2nd Highest 3-Hr Conc.	1/16	2/3	3/3	4/14	5/7	6/19	7/3	8/2	9/27	10/29	11/20	12/19	7/30
Annual or 3-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE

Air is composed of approximately 78% nitrogen and 21% oxygen. When combustion occurs at high temperatures, such as in automobile engines and in other fossil fuel combustion, nitrogen combines with oxygen to form several different gaseous compounds collectively known as oxides of nitrogen (NO_x). Of these, nitrogen dioxide (NO_2) and nitric oxide (NO) are the most important from an air pollution standpoint. Nitrogen dioxide can irritate the lungs and lower resistance to respiratory infections. Nitrogen dioxide contributes to the formation of ozone through a chemical reaction with volatile organic compounds in the presence of sunlight. On-road mobile sources emitted 65% of the nitrogen dioxide emissions in 2005 with light duty cars and trucks responsible for 31% of the total nitrogen dioxide emissions.

Nitrogen dioxide was measured at East Health Center (site 0011) during 2005. Table XVI presents a summary of this data and shows that the annual arithmetic mean standard of 0.05 PPM for nitrogen dioxide was not violated in 2005.

TABLE XVI
2005 NITROGEN DIOXIDE (PPM), SITE 247-037-0011, EAST HEALTH CENTER

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
No. of Observations	739	669	727	714	736	714	739	738	704	737	714	739	8670
Arithmetic Mean	0.015	0.018	0.017	0.019	0.018	0.016	0.013	0.017	0.018	0.02	0.018	0.016	0.017
Highest 24-Hr Conc.	0.028	0.027	0.026	0.029	0.029	0.026	0.02	0.031	0.026	0.038	0.031	0.027	0.038
Date of Highest 24-Hr Conc.	1/20	2/12	3/29	4/4	5/11	6/25	7/8	8/4	9/9	10/18	11/2	12/20	10/18
2nd Highest 24-Hr Conc.	0.026	0.027	0.026	0.028	0.028	0.025	0.018	0.026	0.025	0.036	0.03	0.027	0.036
Date of 2nd Highest 24-Hr Conc.	1/25	2/26	3/3	4/19	5/7	6/23	7/6	8/11	9/30	10/19	11/18	12/22	10/19
No. of 24-Hour Conc													
0.0 - 0.049	31	28	31	30	31	30	31	31	30	31	30	31	365
0.050 - 0.089	0	0	0	0	0	0	0	0	0	0	0	0	0
0.090 - 0.129	0	0	0	0	0	0	0	0	0	0	0	0	0
0.130 - 0.169	0	0	0	0	0	0	0	0	0	0	0	0	0

OZONE

Ozone (O_3) is an unstable, pungent gas in the stratosphere, about ten miles above the earth, which protects us by shielding us from the sun's ultraviolet rays. Tropospheric ozone at the earth's surface has a different effect. It is an eye, nose and throat irritant. It can lower a person's resistance to infection, cause shortness of breath, and over time could damage the lungs. It is also harmful to plants and animals.

Ozone is not released directly from sources. It is produced by a complex series of chemical reactions called photochemical oxidation involving the reaction of nonmethane hydrocarbons and nitrogen dioxide in the presence of heat and sunlight. Ozone is a seasonal problem occurring normally from April through September when warm, sunny weather is abundant. High ozone levels occur in the afternoon after the temperature has risen and the precursors have had time to react. The major sources of volatile organic compounds include various types of industrial processes, surface coating, solvent usage, fuel combustion and automobiles. Tables XVII and XVIII are summaries of the 1-hour ozone concentrations for 2005. The data shows that the one-hour NAAQS of 0.12 ppm was not exceeded in 2005. The maximum one-hour average concentration of 0.104 ppm was measured at Percy Priest Dam (site 0026) on June 25, 2005. Table XXI compares the measured ozone concentration for the past several years.

TABLE XVII
2005 OZONE (PPM), DAILY MAXIMUM 1-HOUR AVERAGE VALUES, SITE 247-037-0011, EAST HEALTH CENTER

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
No. of Observations	743	670	736	700	724	712	741	741	710	739	719	744	8679
Highest 1-Hr Conc.	0.034	0.044	0.054	0.07	0.079	0.083	0.078	0.079	0.079	0.071	0.049	0.033	0.083
Date of Highest Conc.	1/23	2/14	3/25	4/16	5/12	6/25	7/23	8/4	9/11	10/18	11/12	12/28	6/25
2nd Highest 1-Hr Conc.	0.033	0.042	0.052	0.069	0.074	0.079	0.073	0.074	0.077	0.065	0.042	0.031	0.079
Date of 2nd Highest Conc.	1/24	2/13	3/29	4/17	5/7	6/22	7/24	8/6	9/21	10/20	11/4	12/27	5/12
3rd Highest 1-Hr Conc.	0.032	0.039	0.052	0.063	0.074	0.078	0.071	0.073	0.074	0.061	0.041	0.029	0.079
Date of 3rd Highest Conc.	1/1	2/6	3/30	4/19	5/11	6/24	7/9	8/11	9/10	10/4	11/3	12/16	6/22
4th Highest 1-Hr Conc.	0.031	0.039	0.051	0.062	0.073	0.071	0.067	0.07	0.072	0.059	0.041	0.028	0.079
Date of 4th Highest Conc.	1/17	2/18	3/21	4/9	5/18	6/29	7/25	8/3	9/9	10/19	11/6	12/23	8/4
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 1-Hr Concentrations													
0.000 - 0.044	743	670	697	585	534	582	581	617	584	682	716	744	7735
0.045 - 0.084	0	0	39	115	190	130	160	124	126	57	3	0	944
0.085 - 0.124	0	0	0	0	0	0	0	0	0	0	0	0	0
0.125 - 0.164	0	0	0	0	0	0	0	0	0	0	0	0	0
0.165 - 0.204	0	0	0	0	0	0	0	0	0	0	0	0	0
0.205 - 0.404	0	0	0	0	0	0	0	0	0	0	0	0	0
0.405 - 0.504	0	0	0	0	0	0	0	0	0	0	0	0	0
0.505 - 0.604	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XVIII
2005 OZONE (PPM), DAILY MAXIMUM 1-HOUR AVERAGE VALUES, SITE 247-037-0026, PERCY PRIEST DAM

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
No. of Observations	744	667	665	702	738	710	742	730	698	667	720	744	8527
Highest 1-Hr Conc.	0.039	0.046	0.071	0.079	0.087	0.104	0.093	0.101	0.091	0.066	0.059	0.042	0.104
Date of Highest Conc.	1/1	2/14	3/30	4/17	5/7	6/25	7/24	8/4	9/13	10/4	11/12	12/27	6/25
2nd Highest 1-Hr Conc.	0.038	0.045	0.062	0.075	0.083	0.096	0.085	0.088	0.085	0.063	0.057	0.04	0.101
Date of 2nd Highest Conc.	1/23	2/6	3/29	4/16	5/11	6/29	7/25	8/3	9/9	10/31	11/3	12/28	8/4
3rd Highest 1-Hr Conc.	0.038	0.045	0.058	0.075	0.083	0.09	0.077	0.082	0.082	0.061	0.054	0.039	0.096
Date of 3rd Highest Conc.	1/25	2/20	3/25	4/18	5/12	6/22	7/1	8/6	9/20	10/20	11/7	12/23	6/29
4th Highest 1-Hr Conc.	0.037	0.044	0.055	0.074	0.081	0.083	0.077	0.08	0.08	0.06	0.053	0.034	0.093
Date of 4th Highest Conc.	1/13	2/13	3/21	4/19	5/18	6/24	7/3	8/16	9/11	10/18	11/4	12/24	7/24
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 1-Hr Concentrations													
0.000 - 0.044	744	661	600	534	483	518	515	567	537	591	674	744	7168
0.045 - 0.084	0	6	65	168	252	176	225	156	158	76	46	0	1328
0.085 - 0.124	0	0	0	0	3	16	2	7	3	0	0	0	31
0.125 - 0.164	0	0	0	0	0	0	0	0	0	0	0	0	0
0.165 - 0.204	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XIX 2005 OZONE (PPM), DAILY MAXIMUM 8-HOUR AVERAGE VALUES, SITE 247-037-0011, EAST HEALTH CENTER													
MONTH	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**ANNUAL**
No. of Observations	744	672	738	710	734	720	744	744	711	744	720	744	8725
Highest 8-Hr Avg. Conc.	0.031	0.04	0.049	0.063	0.068	0.074	0.07	0.067	0.064	0.059	0.041	0.031	0.074
Date of Highest Conc.	1/23	2/14	3/30	4/17	5/7	6/25	7/23	8/4	9/10	10/18	11/12	12/28	6/25
2nd Highest 8-Hr Avg. Conc.	0.029	0.034	0.047	0.061	0.065	0.071	0.068	0.065	0.063	0.051	0.037	0.028	0.071
Date of 2nd Highest Conc.	1/27	2/20	3/25	4/16	5/6	6/22	7/24	8/3	9/11	10/4	11/4	12/27	6/22
3rd Highest 8-Hr Avg. Conc.	0.028	0.033	0.045	0.058	0.063	0.071	0.064	0.06	0.062	0.051	0.036	0.023	0.071
Date of 3rd Highest Conc.	1/13	2/17	3/31	4/18	5/8	6/24	7/9	8/5	9/8	10/20	11/6	12/23	6/24
4th Highest 8-Hr Avg. Conc.	0.027	0.032	0.044	0.055	0.062	0.066	0.06	0.059	0.061	0.048	0.035	0.021	0.070
Date of 4th Highest Conc.	1/17	2/13	3/12	4/4	5/12	6/23	7/8	8/6	9/6	10/19	11/13	12/11	7/23
No. of 8-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 1-Hr Concentrations													
0.000 - 0.064	744	672	738	710	731	704	736	741	711	744	720	744	8695
0.065 - 0.084	0	0	0	0	3	16	8	3	0	0	0	0	30
0.085 - 0.104	0	0	0	0	0	0	0	0	0	0	0	0	0
0.105 - 0.124	0	0	0	0	0	0	0	0	0	0	0	0	0
0.125 - 0.374	0	0	0	0	0	0	0	0	0	0	0	0	0
Greater Than 0.374	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XX 2005 OZONE (PPM), DAILY MAXIMUM 8-HOUR AVERAGE VALUES, SITE 247-037-0026, PERCY PRIEST DAM													
MONTH	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**ANNUAL**
No. of Observations	744	666	662	697	744	712	744	731	695	663	720	744	8522
Highest 8-Hr Avg. Conc.	0.035	0.044	0.054	0.072	0.079	0.094	0.074	0.074	0.077	0.057	0.054	0.039	0.094
Date of Highest Conc.	1/1	2/14	3/29	4/17	5/7	6/25	7/3	8/4	9/13	10/31	11/12	12/27	6/25
2nd Highest 8-Hr Avg. Conc.	0.035	0.043	0.054	0.07	0.076	0.081	0.074	0.072	0.074	0.056	0.051	0.039	0.081
Date of 2nd Highest Conc.	1/23	2/20	3/30	4/19	5/18	6/22	7/24	8/3	9/9	10/20	11/3	12/28	6/22
3rd Highest 8-Hr Avg. Conc.	0.033	0.041	0.051	0.069	0.072	0.079	0.073	0.068	0.07	0.054	0.049	0.036	0.079
Date of 3rd Highest Conc.	1/25	2/6	3/25	4/16	5/8	6/24	7/25	8/11	9/11	10/4	11/4	12/23	5/7
4th Highest 8-Hr Avg. Conc.	0.032	0.04	0.05	0.067	0.069	0.078	0.071	0.062	0.066	0.052	0.046	0.033	0.079
Date of 4th Highest Conc.	1/13	2/13	3/21	4/18	5/6	6/29	7/9	8/12	9/10	10/30	11/13	12/24	6/24
No. of 8-Hr Exceedances	0	0	0	0	0	1	0	0	0	0	0	0	1
No. of 1-Hr Concentrations													
0.000 - 0.064	744	666	662	677	713	670	713	720	681	663	720	744	8373
0.065 - 0.084	0	0	0	20	31	38	31	11	14	0	0	0	145
0.085 - 0.104	0	0	0	0	0	4	0	0	0	0	0	0	4
0.105 - 0.124	0	0	0	0	0	0	0	0	0	0	0	0	0
0.125 - 0.374	0	0	0	0	0	0	0	0	0	0	0	0	0
Greater Than 0.374	0	0	0	0	0	0	0	0	0	0	0	0	0

Tables XIX and XX are summaries of the maximum 8-hour average ozone concentrations for 2005. The maximum eight-hour average concentration of 0.094 ppm was measured at Percy Priest Dam (site 0026) on June 25, 2005. The data shows that this was the only day during 2005 when the 8-hour average ozone was greater than 0.084 ppm. The 8-hour ozone NAAQS is the three year average of the annual fourth highest 8-hour value. Therefore, the 8-hour ozone standard was not violated in Davidson County during 2005. Table XXI compares the 1-hour daily maximum ozone concentrations from 1980 through 2005 at East Health Center and Percy Priest Dam. Table XXII compares the 8-hour ozone concentrations for the past nine years.

TABLE XXI

1980 - 2005 ANNUAL COMPARISON OF 1-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)

SITE 247-037-0011 EAST HEALTH CENTER

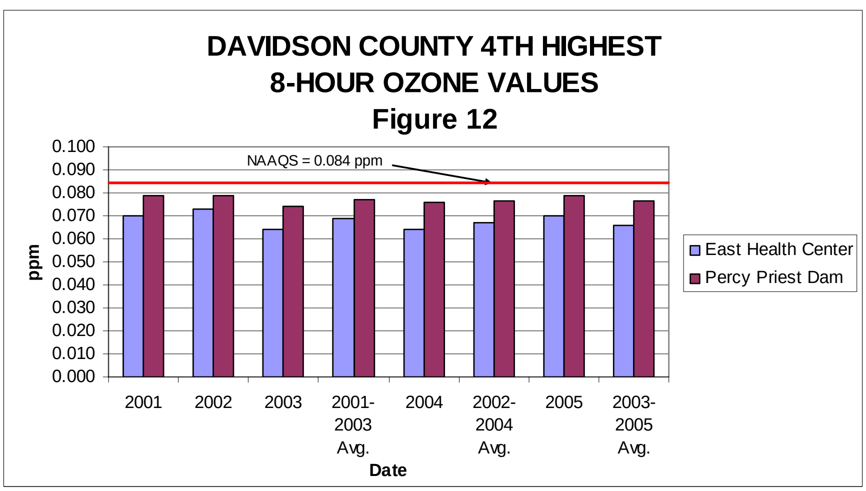
YEAR	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Highest 1-Hr. Conc.	0.130	0.095	0.110	0.135	0.120	0.090	0.105	0.105	0.145	0.100	0.110	0.095	0.090	0.105	0.090	0.110	0.100	0.130	0.114	0.117	0.104	0.088	0.087	0.085	0.084	0.083
2nd Highest 1-Hr. Conc.	0.130	0.095	0.105	0.120	0.100	0.085	0.095	0.090	0.130	0.095	0.105	0.075	0.080	0.100	0.090	0.105	0.100	0.125	0.105	0.116	0.091	0.083	0.087	0.076	0.076	0.079
3rd Highest 1-Hr. Conc.	0.130	0.090	0.105	0.115	0.085	0.080	0.085	0.090	0.125	0.090	0.100	0.075	0.080	0.100	0.090	0.100	0.095	0.110	0.102	0.107	0.085	0.083	0.086	0.073	0.074	0.079
4th Highest 1-Hr. Conc.	0.130	0.090	0.095	0.115	0.085	0.080	0.080	0.090	0.120	0.085	0.095	0.070	0.075	0.090	0.090	0.100	0.095	0.110	0.101	0.101	0.084	0.079	0.085	0.073	0.073	0.079
No. of 1-Hr. Exceedances	5	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
No. of Days Std. Exceeded	4	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0

SITE 247-037-0026 PERCY PRIEST DAM

YEAR	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Highest 1-Hr. Conc.	0.100	0.085	0.070	0.095	0.115	0.075	0.085	0.115	0.130	0.085	0.115	0.105	0.105	0.100	0.105	0.115	0.125	0.120	0.141	0.129	0.109	0.106	0.100	0.092	0.096	0.104
2nd Highest 1-Hr. Conc.	0.090	0.075	0.065	0.090	0.100	0.075	0.085	0.095	0.130	0.080	0.100	0.095	0.095	0.090	0.095	0.110	0.110	0.100	0.120	0.123	0.106	0.100	0.097	0.091	0.091	0.101
3rd Highest 1-Hr. Conc.	0.090	0.065	0.060	0.090	0.085	0.070	0.085	0.095	0.125	0.080	0.095	0.095	0.080	0.090	0.080	0.110	0.105	0.095	0.112	0.120	0.103	0.094	0.090	0.086	0.087	0.096
4th Highest 1-Hr. Conc.	0.090	0.065	0.055	0.090	0.080	0.070	0.080	0.090	0.120	0.075	0.085	0.095	0.080	0.090	0.080	0.110	0.100	0.095	0.111	0.118	0.099	0.088	0.087	0.084	0.085	0.093
No. of 1-Hr. Exceedances	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0	0
No. of Days Std. Exceeded	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0

TABLE XXII 1997 – 2005 ANNUAL COMPARISON OF 8-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)									
SITE 247-037-0011 EAST HEALTH CENTER									
YEAR	1997	1998	1999	2000	2001	2002	2003	2004	2005
Highest 8-hour average concentration	0.104	0.095	0.103	0.084	0.078	0.076	0.078	0.071	0.074
2nd highest 8-hour average concentration	0.098	0.092	0.102	0.081	0.076	0.075	0.066	0.065	0.071
3rd highest 8-hour average concentration	0.098	0.092	0.090	0.075	0.074	0.073	0.065	0.065	0.071
4th highest 8-hour average concentration	0.097	0.089	0.088	0.072	0.070	0.073	0.064	0.064	0.070
No. of days 8-hour standard exceeded	8	4	9	0	0	0	0	0	0
SITE 247-037-0026 PERCY PRIEST DAM									
YEAR	1997	1998	1999	2000	2001	2002	2003	2004	2005
Highest 8-hour average concentration	0.102	0.107	0.101	0.096	0.097	0.082	0.085	0.082	0.094
2nd highest 8-hour average concentration	0.087	0.100	0.100	0.085	0.093	0.082	0.082	0.077	0.081
3rd highest 8-hour average concentration	0.087	0.093	0.098	0.085	0.079	0.079	0.075	0.077	0.079
4th highest 8-hour average concentration	0.086	0.091	0.098	0.084	0.079	0.079	0.074	0.076	0.079
No. of days 8-hour standard exceeded	4	12	15	3	2	0	1	0	1

The data in Table XXII shows that there was one day during 2005 when the highest 8-hour average ozone concentration was greater than 0.084 ppm. Compliance with the 8-hour average ozone NAAQS is achieved when the 3-year average of the annual fourth highest value is less than 0.085 ppm. The Davidson County 3-year average (2003, 2004 and 2005) at the Percy Priest Dam site is 0.076. Therefore, Davidson County is attaining the new, more stringent 8-hour ozone NAAQS. Figure 12 illustrates that Davidson County has not monitored a violation of the 8-hour ozone NAAQS since its inception.



The Middle Tennessee ozone nonattainment area, which includes Davidson, Sumner, Rutherford, Williamson, and Wilson Counties, was reclassified to attainment for the 1-hour ozone NAAQS on October 30, 1996. The area is currently operating under an existing 1-hour ozone maintenance plan. Designation for the Middle Tennessee area for the 8-hour ozone standard occurred in April, 2004. The area was designated nonattainment for 8-hour ozone with the requirements being deferred as long as the Early Action Compact milestones are met. A deferral of 8-hour ozone nonattainment requirements is currently in place until December 31, 2006.

Table XXIII shows the highest ozone values measured in the Middle Tennessee area during the 3-year period of 2003 through 2005. Compliance with the 1-hour standard is achieved by measuring less than one (1.0) exceedance per year averaged over the most recent three (3) year period. Compliance with the new, more stringent 8-hour standard is achieved when the three (3) year average of the annual fourth highest 8-hour ozone value is less than 0.085 ppm. During that time, none of the ozone monitors in the Middle Tennessee area measured a violation of the original 1-hour NAAQS or the new, more stringent 8-hour NAAQS.

TABLE XXIII
2002 - 2005 SUMMARY OF THE HIGHEST 1-HOUR AVERAGE AND 8-HOUR AVERAGE OZONE CONCENTRATIONS IN THE MIDDLE TENNESSEE AREA

SITE NUMBER & LOCATION	YEAR	MAXIMUM CONCENTRATIONS								NO. OF DAYS > STANDARD	
		1st 1-Hr.	1st 8-Hr.	2nd 1-Hr.	2nd 8-Hr.	3rd 1-Hr.	3rd 8-Hr.	4th 1-Hr.	4th 8-Hr.	1-Hr.	8-Hr.
247-037-0011 East Health Center-Davidson	2003	0.085	0.078	0.076	0.066	0.073	0.065	0.073	0.064	0	0
	2004	0.084	0.071	0.076	0.065	0.074	0.065	0.073	0.064	0	0
	2005	0.083	0.074	0.079	0.071	0.079	0.071	0.079	0.070	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-037-0026 Percy Priest Dam-Davidson	2003	0.092	0.085	0.091	0.082	0.086	0.075	0.084	0.074	0	1
	2004	0.096	0.082	0.091	0.077	0.087	0.077	0.085	0.076	0	0
	2005	0.104	0.094	0.101	0.081	0.096	0.079	0.093	0.079	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-149-0101* Eagleville-Rutherford	2003	0.090	0.087	0.089	0.080	0.089	0.077	0.088	0.076	0	1
	2004	0.098	0.088	0.079	0.074	0.078	0.072	0.078	0.070	0	1
	2005	0.099	0.092	0.089	0.082	0.088	0.082	0.088	0.079	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-165-0007* Old Hickory Dam-Sumner	2003	0.100	0.095	0.096	0.086	0.096	0.086	0.094	0.086	0	5
	2004	0.095	0.084	0.093	0.080	0.092	0.079	0.088	0.078	0	0
	2005	0.110	0.097	0.100	0.090	0.095	0.086	0.094	0.083	0	3
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-165-0101* Cottontown-Sumner	2003	0.098	0.078	0.091	0.078	0.089	0.075	0.085	0.074	0	0
	2004	0.104	0.083	0.099	0.078	0.093	0.078	0.091	0.076	0	0
	2005	0.105	0.087	0.092	0.080	0.089	0.079	0.087	0.078	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-187-0106* Fairview-Williamson	2003	0.091	0.088	0.091	0.083	0.090	0.082	0.086	0.080	0	1
	2004	0.081	0.074	0.081	0.073	0.079	0.073	0.079	0.072	0	0
	2005	0.087	0.079	0.086	0.077	0.084	0.076	0.084	0.076	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-189-0103* Cedars of Lebanon-Wilson	2003	0.099	0.089	0.090	0.081	0.089	0.079	0.089	0.079	0	1
	2004	0.098	0.080	0.089	0.079	0.083	0.072	0.082	0.071	0	0
	2005	0.101	0.087	0.091	0.082	0.090	0.081	0.090	0.081	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**

*OPERATED BY THE STATE OF TENNESSEE--DIVISION OF AIR POLLUTION CONTROL

CARBON MONOXIDE

Carbon monoxide is a colorless, odorless gas that is a product of incomplete combustion. The major source of carbon monoxide is the internal combustion engine, particularly the automobile. Carbon monoxide enters the bloodstream and reduces oxygen delivery to the body's organs and tissues. The method used for measuring carbon monoxide is a non-dispersive infrared method. During 2005, carbon monoxide was measured at two sites: one in the downtown area, Hume Fogg Magnet School (site 0021); and one in an urbanized neighborhood, Douglas Park (site 0031). The Donelson Library site (site 0028) was taken out of service at the end of 2002 due to continuing compliance with the carbon monoxide NAAQS. Tables XXIV through XXVI present a summary of the carbon monoxide data for 2005. This data shows that the National Ambient Air Quality Standard was not violated at any site during 2005.

TABLE XXIV
2005 CARBON MONOXIDE (PPM), SITE 247-037-0021, HUME FOGG MAGNET SCHOOL

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
No. of Observations	742	669	740	716	740	716	742	740	715	742	715	740	8717
Highest 1-Hr Conc.	2.6	3.1	3.1	2.4	3.3	2.1	1.7	1.9	2.6	2.5	3.3	2.6	3.3
Date of Highest Conc.	1/1	2/4	3/28	4/9	5/12	6/2	7/4	8/12	9/12	10/20	11/18	12/21	5/12
2nd Highest 1-Hr Cond.	2.6	2.8	2.8	2.3	2.7	2.1	1.7	1.8	2.5	2.5	3.1	2.4	3.3
Date of 2nd Highest 1-Hr Conc.	1/31	2/14	3/29	4/16	5/12	6/3	7/13	8/4	9/11	10/30	11/8	12/21	11/18
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr Conc.	2.1	2.1	2.3	1.6	2.1	1.7	1.2	1.5	2	2	2.6	1.8	2.6
Date of Highest 8-Hr Conc.	1/31	2/6	3/29	4/17	5/12	6/4	7/13	8/12	9/10	10/30	11/8	12/22	11/8
2nd Highest 8-Hr Conc.	1.9	2	2	1.5	1.6	1.4	1.2	1.5	2	1.6	2.4	1.7	2.4
Date of 2nd Highest 8-Hr Conc.	1/29	2/15	3/28	4/10	5/8	6/2	7/21	8/16	9/11	10/19	11/3	12/6	11/3
No. of 8-Hr Exceedance	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 8-Hr Concentration													
0 - 4.9	744	672	744	720	744	720	744	744	720	744	720	744	8760
5.0 - 8.9	0	0	0	0	0	0	0	0	0	0	0	0	0
9.0 - 12.9	0	0	0	0	0	0	0	0	0	0	0	0	0
13.0 - 16.9	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XXV
2005 CARBON MONOXIDE (PPM), SITE 247-037-0031, DOUGLAS PARK

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
No. of Observations	742	669	739	717	739	716	741	738	716	741	715	741	8714
Highest 1-Hr Conc.	3.1	4.2	3.4	2.9	2.8	2.1	1.7	1.7	2.2	3.3	3.3	4	4.2
Date of Highest Conc.	1/26	2/5	3/28	4/9	5/11	6/3	7/24	8/31	9/19	10/30	11/18	12/6	2/5
2nd Highest 1-Hr. Conc.	2.9	4.1	3.4	2.8	2.6	2	1.6	1.6	2	3.2	3.3	3.9	4.1
Date of 2nd Highest 1-Hr. Conc.	1/20	2/4	3/28	4/8	5/11	6/3	7/24	8/31	9/19	10/29	11/20	12/6	2/4
No. of 1-Hr. Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr. Conc.	2.3	3.4	2.7	2.3	2.2	1.6	1.3	1	1.5	2.9	2.9	3.2	3.4
Date of Highest 8-Hr. Conc.	1/20	2/5	3/29	4/10	5/12	6/4	7/25	8/4	9/20	10/30	11/8	12/7	2/5
2nd Highest 8-Hr. Conc.	2.2	3.2	2.3	1.8	1.8	1.3	1.2	1	1.5	2.2	2.5	3	3.2
Date of 2nd Highest 8-Hr. Conc.	1/25	2/6	3/4	4/4	5/11	6/24	7/24	8/20	9/22	10/29	11/3	12/6	2/6
No. of 8-Hr Exceedance	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 8-Hr Conc.													
0 - 4.9	744	672	744	720	744	720	744	738	720	744	720	744	8754
5.0 - 8.9	0	0	0	0	0	0	0	0	0	0	0	0	0
9.0 - 12.9	0	0	0	0	0	0	0	0	0	0	0	0	0
13.0 - 16.9	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XXVI 2005 SUMMARY OF CARBON MONOXIDE CONCENTRATIONS (PPM)			
SITE	**HUME FOGG**	**DOUGLAS PARK**	**ANNUAL**
Highest 1-Hr Conc.	3.3	4.2	4.2
2nd Highest 1-Hr Conc.	3.3	4.1	4.1
Highest 8-Hr Conc.	2.6	3.4	3.4
2nd Highest 8-Hr Conc.	2.4	3.2	3.2
No. of 1-Hr Exceedances	0	0	0
No. of 8-Hr Exceedances	0	0	0
No. of Days 8-Hr Exceedances	0	0	0

Tables XXVII, XXVIII and XXIX, and Figures 13 and 14, show a comparison of the concentrations of carbon monoxide over the past several years. This data shows that the 8-hour NAAQS of 9.0 PPM has not been violated since 1989.

TABLE XXVII
1981 – 2005 ANNUAL COMPARISON CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0021 HUME FOGG MAGNET SCHOOL																									
YEAR	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Highest 1-Hr Conc.	16.5	23.0	17.0	19.5	16.0	15.0	14.0	12.5	11.0	9.5	7.5	8.5	11.0	9.0	7.5	6.0	7.5	6.9	7.9	5.7	5.0	4.9	5.4	3.9	3.3
2nd Highest 1-Hr Conc.	16.0	22.5	16.5	17.0	14.0	15.0	12.0	11.0	11.0	8.0	7.5	8.0	8.5	9.0	7.0	5.5	7.0	5.8	7.6	5.7	4.8	4.8	4.9	3.9	3.3
Highest 8-Hr Conc.	12.9	17.9	11.6	10.8	8.9	9.9	9.3	8.0	8.8	7.8	5.3	6.3	7.0	6.3	6.5	4.4	5.8	4.9	6.2	3.9	3.7	3.7	3.9	2.7	2.6
2nd Highest 8-Hr Conc.	10.3	15.6	10.8	10.1	7.8	9.5	8.2	7.8	7.6	5.8	4.9	5.8	8.5	5.4	4.8	4.1	5.1	4.6	5.2	3.6	3.7	3.5	3.0	2.7	2.4
No. of 1-Hr Exceedances of the Standard (35PPM)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 8-Hr Exceedances of the Standard (9PPM)	4	6	20	8	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of Days 8-Hr. Standard Exceeded (Standard = 9PPM)	3	5	20	8	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XXVIII
1982 - 2002 ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0028 DONELSON LIBRARY*

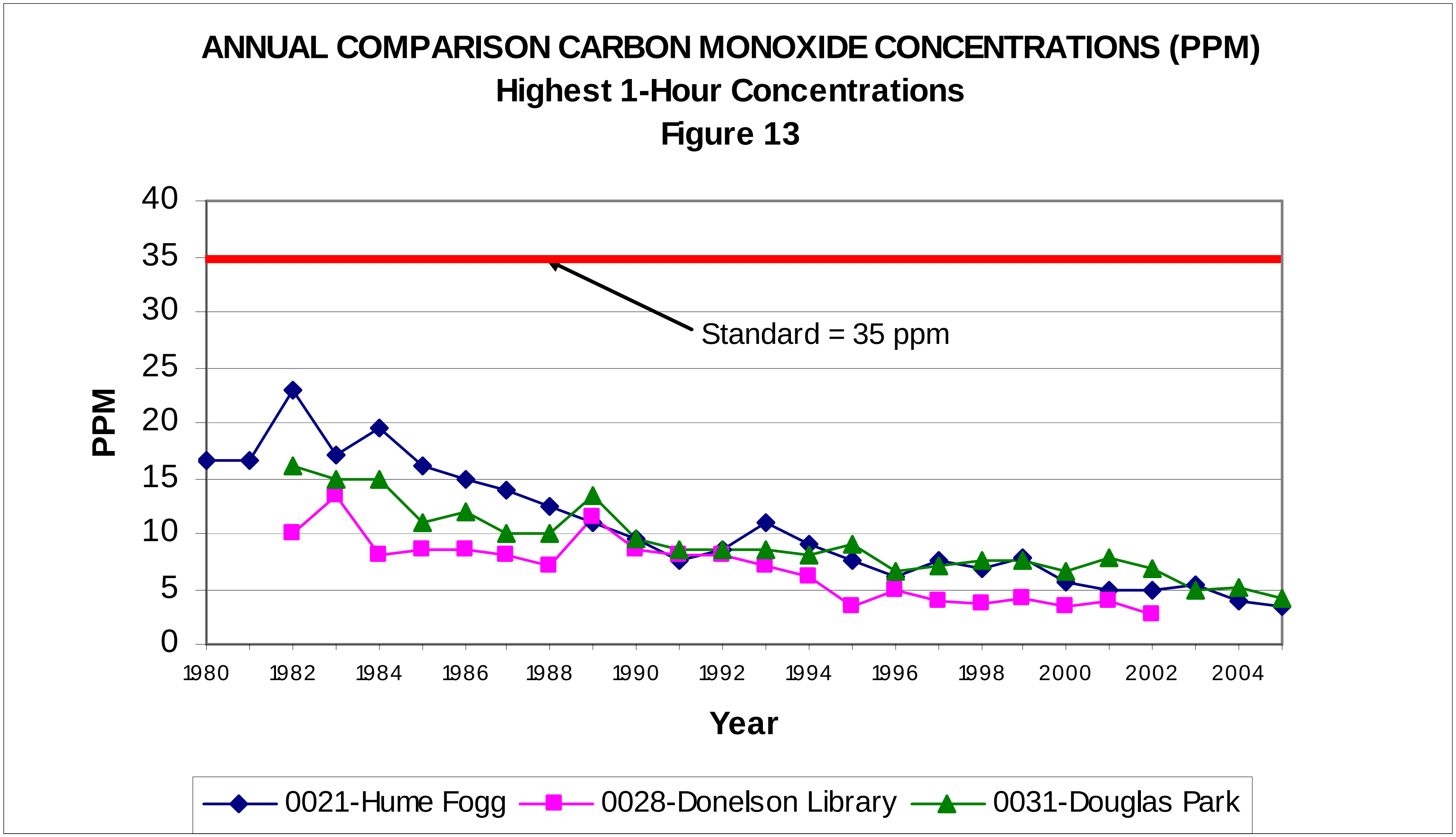
YEAR	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Highest 1-Hr Conc.	10.0	13.5	8.0	8.5	8.5	8.0	7.0	11.5	8.5	8.0	8.0	7.0	6.0	3.5	5.0	4.0	3.6	4.1	3.5	3.9	2.7
2nd Highest 1-Hr Conc.	9.5	8.0	7.5	7.0	6.5	8.0	7.0	7.0	7.5	6.5	7.0	6.8	5.5	3.0	4.5	4.0	3.4	4.0	3.4	3.5	2.6
Highest 8-Hr Conc.	6.1	9.5	6.6	4.1	6.3	4.4	6.1	5.6	5.6	5.5	4.4	5.8	4.1	2.8	2.7	2.9	3.1	3.6	3.0	2.8	2.2
2nd Highest 8-Hr Conc.	5.9	4.9	6.2	3.8	5.8	4.1	4.5	5.6	4.3	3.4	4.4	5.4	3.1	2.4	2.5	2.8	2.8	2.6	2.4	2.7	1.8
No. of 1-Hr Exceedances of the Standard (35PPM)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 8-Hr Exceedances of the Standard (9PPM)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of Days 8-Hr. Standard Exceeded (Standard = 9PPM)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

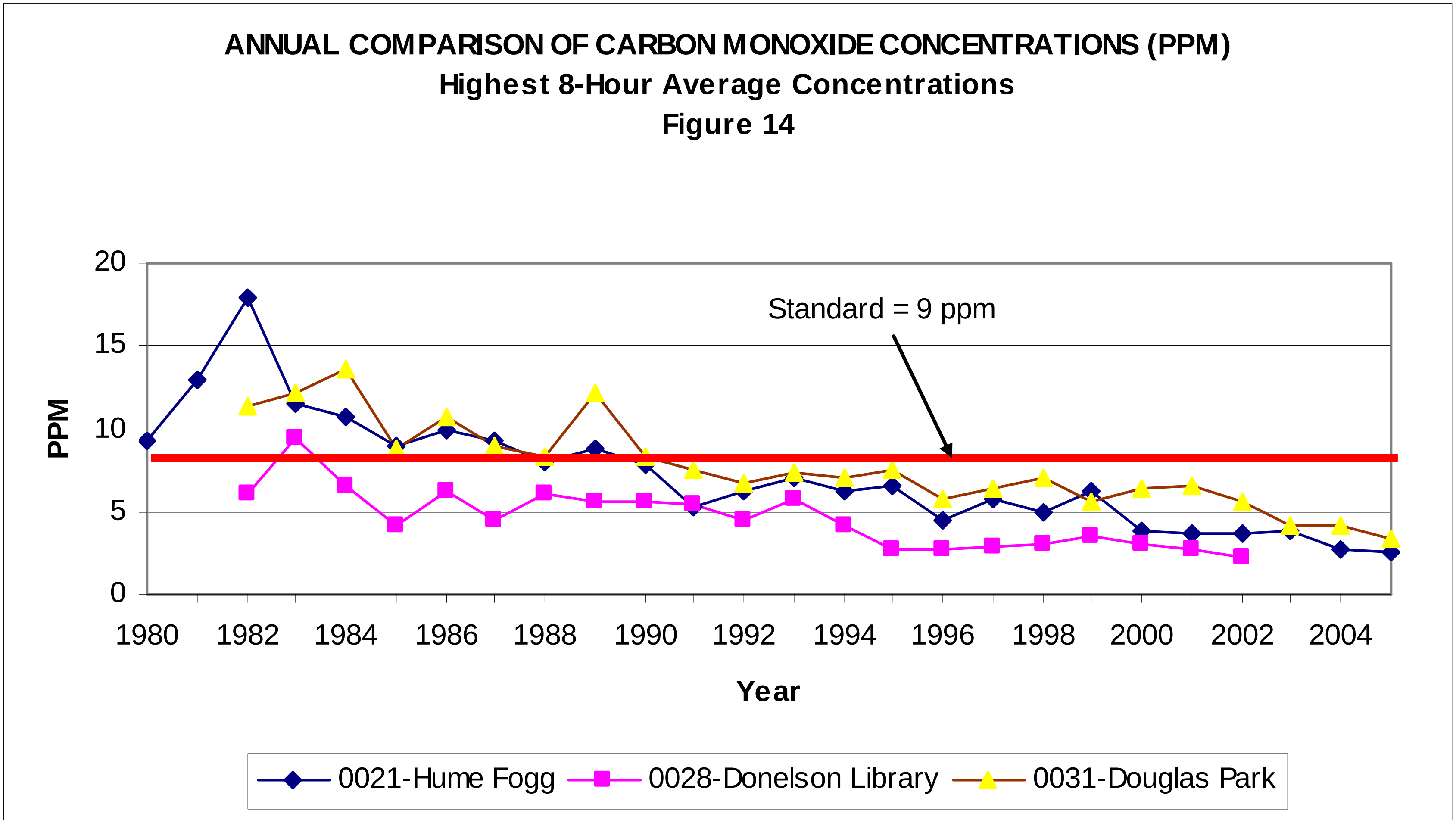
*Donelson Library site was taken out of service in 2002.

TABLE XXIX
1982 - 2005 ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0031 DOUGLAS PARK

YEAR	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Highest 1-Hr Concentration	16.0	15.0	15.0	11.0	12.0	10.0	10.0	13.5	9.5	8.5	8.5	8.5	8.0	9.0	6.5	7.0	7.5	7.5	6.7	7.7	6.9	4.9	5.1	4.2
2nd Highest 1-Hr	12.5	13.5	15.0	10.0	12.0	9.0	9.5	12.5	9.0	8.5	8.0	8.5	8.0	8.5	6.0	7.0	7.2	7.2	6.7	7.1	6.2	4.9	5.1	4.1
Highest 8-Hr Concentration	11.4	12.1	13.6	8.8	10.8	8.9	8.3	12.1	8.4	7.6	6.8	7.4	7.1	7.6	5.8	6.4	7.0	5.6	6.4	6.6	5.3	4.2	4.2	3.4
2nd Highest 8-Hr	10.6	10.7	13.3	7.1	10.2	8.1	7.0	8.3	7.7	6.2	6.4	7.3	7.1	7.3	5.0	6.3	6.1	5.3	5.6	5.7	5.0	3.6	3.8	3.2
No. of 1-Hr Exceedances of the Standard (35PPM)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 8-Hr Exceedances of the Standard (9PPM)	5	7	17	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of Days 8-Hr. Standard Exceeded (Standard=9PPM)	5	6	16	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0


ANNUAL COMPARISON CARBON MONOXIDE CONCENTRATIONS (PPM)
Highest 1-Hour Concentrations
Figure 13
Standard = 35 ppm
PPM
40
35
30
25
20
15
10
5
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
Year
0021-Hume Fogg
0028-Donelson Library
0031-Douglas Park


ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS (PPM)
Highest 8-Hour Average Concentrations
Figure 14
Standard = 9 ppm
PPM
0
5
10
15
20
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
Year
0021-Hume Fogg
0028-Donelson Library
0031-Douglas Park

AIR QUALITY INDEX

The Air Quality Index (AQI) is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. The AQI focuses on health effects you may experience within a few hours or days after breathing polluted air.

The AQI for Nashville and Davidson County, Tennessee is reported by the Metro Public Health Department, Air Pollution Control Division. The reported AQI is the maximum value for the previous day from midnight to midnight. It incorporates the measured concentrations of five pollutants: carbon monoxide, ozone, sulfur dioxide, $PM_{2.5}$ and PM_{10}. For each of these pollutants, EPA has established national air quality standards to protect public health. Ground-level ozone and airborne particles are the two pollutants that pose the greatest threat to human health in this country.

The AQI is updated daily, Monday through Friday, at approximately 9:00 A.M. In addition to this website, a daily recorded update of the AQI can be obtained by calling (615) 340-0488 or 340-2187 and on the Metro Public Health Department's website which can be found at http://healthweb.nashville.gov. Table XXX summarizes the daily AQI for 2005.

Think of the AQI as a yardstick that runs from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health concern. For example, an AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value over 300 represents hazardous air quality.

An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy-at first for certain sensitive groups of people, then for everyone as AQI values get higher.

The purpose of the AQI is to help you understand what local air quality means to your health. To make it easier to understand, the AQI is divided into six categories:

Air Quality Index (AQI) Values	**Levels of Health Concern**	**Colors**
When the AQI is in this range:	***...air quality conditions are:***	***...as symbolized by this color:***
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

Each category corresponds to a different level of health concern. The six levels of health concern and what they mean are:

- **"Good"** The AQI value for your community is between 0 and 50. Air quality is considered satisfactory, and air pollution poses little or no risk.

- **"Moderate"** The AQI for your community is between 51 and 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.

- **"Unhealthy for Sensitive Groups"** When AQI values are between 101 and 150, members of sensitive groups may experience health effects. This means they are likely to be affected at lower levels than the general public. For example, people with lung disease are at greater risk from exposure to ozone, while people with either lung disease or heart disease are at greater risk from exposure to particle pollution. The general public is not likely to be affected when the AQI is in this range.

- **"Unhealthy"** Everyone may begin to experience health effects when AQI values are between 151 and 200. Members of sensitive groups may experience more serious health effects.

- **"Very Unhealthy"** AQI values between 201 and 300 trigger a health alert, meaning everyone may experience more serious health effects.

- **"Hazardous"** AQI values over 300 trigger health warnings of emergency conditions. The entire population is more likely to be affected.

EPA has assigned a specific color to each AQI category to make it easier for people to understand quickly whether air pollution is reaching unhealthy levels in their communities. For example, the color orange means that conditions are "unhealthy for sensitive groups," while red means that conditions may be "unhealthy for everyone," and so on.

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0-50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51-100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101-150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151-200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201-300	Health alert: everyone may experience more serious health effects.
Hazardous	> 300	Health warnings of emergency conditions. The entire population is more likely to be affected.

TABLE XXX 2005 AQI SUMMARY		
Range	**Number of Days**	**% of Total Days**
Good	185	51%
Moderate	169	46%
Unhealthy for Sensitive Groups	11	3%

The PCD has established a performance goal (Air Quality Key Results Measure) of Nashville's air being in the good or moderate range according to EPA's AQI on 97% of the days of the year. The calculation method simply involves counting the number of days during a calendar year that the air quality in Nashville is in the good or moderate range and then dividing that total by 365. Based on the 2005 data, Nashville's air was in the good or moderate range on 97% of the days according to EPA's AQI. Therefore, the PCD achieved its performance goal in 2005.

The Davidson County maximum AQI in 2005 was on December 20, 2005 when the $PM_{2.5}$ concentration reached 58.6 $\mu g/m^3$ at the Lockeland monitoring site. This data was flagged as an outlier by the Pollution Control Division monitoring staff. Based on their evaluation of the data, there was insufficient cause to totally invalidate the data. However, this value was significantly higher than the values seen at our other $PM_{2.5}$ monitors on that day in Davidson County. The 58.6 $\mu g/m^3$ concentration resulted in a reported AQI of 137.

AIR QUALITY FORECASTING

In cooperation with the Tennessee Department of Environment and Conservation, Air Pollution Control Division and the Tennessee Valley Authority, the PCD participates in the issuance of a daily air quality forecast. This forecast is issued to alert the Middle Tennessee area of the probable maximum ozone and particulate matter ($PM_{2.5}$) concentration on the next day. An Air Quality Action Day is called when the predicted ozone or $PM_{2.5}$ air quality for the next day is forecast to be in the unhealthy for sensitive groups (or higher) category. The intent is to notify those people that might be affected by the next day's air quality so that they have the opportunity to make adjustments to minimize their exposure to ozone and particulate matter ($PM_{2.5}$) air pollution. It also provides the opportunity for area residents and businesses to alter their activities to minimize their impact on air quality in the Middle Tennessee area.

The PCD is an active member of the regional Clean Air Partnership (CAP) of Middle Tennessee. The CAP directs the Air Quality Action Day program. This program continues to develop, promoting the use of local air quality forecasts to induce voluntary behavior changes that improve air quality and protect the health of sensitive individuals.

Progress to date includes introductory meetings and continued relationships with weather staff at each of the local TV news stations, development and continued support of the CAP of Middle Tennessee's www.cleanairpartnership.info website and quarterly newsletter, participation in the Nashville Earth Day Festival from 2003 through 2005, and on-camera interviews aired on local TV news programs following the first Air Quality Action Days in 2005. Planned activities include promoting air quality curriculum materials for use in area public and private schools, partnering with area schools and businesses interested in developing air quality projects as part of the Tennessee Pollution Prevention Partnership program and contributing to the AirShare Television series produced by the Clean Air Partnership of Williamson County.

The daily air quality forecast is made available to the public by the PCD by calling (615) 340-0488 and on the Metro Public Health Department's website which can be found at http://healthweb.nashville.gov.

POLLEN

Pollen is a small, spherical shaped grain which is produced by plants and is necessary for plant fertilization. Each plant has its own pollinating season which tends to be fairly constant from year to year. In this region, trees generally pollinate from around the first of March through May, grass from the first of March until killing frost and ragweed in the fall. The actual amount of pollen in the air, at any given time, depends on the weather conditions, as well as total amount of pollen produced.

Pollen is measured using a Durham pollen sampler. Pollen is collected on a microscope slide which has been smeared with a light coating of white petroleum jelly or silicone grease. The slide is exposed for 24 hours and then returned to the laboratory where it is stained with a few drops of Calberia's staining solution. The pollen on the slide is read with a microscope on low power (10X). Five scans across the stained area are counted, and the pollen count is computed as the number of grains of pollen per square centimeter. The following is used for the pollen count:

0 to 5 Pollen Grains/cm^2	Slight
6 to 15 Pollen Grains/cm^2	Moderate
16 to 25 Pollen Grains/cm^2	Heavy
Greater than 25 Pollen Grains/cm^2	Extremely Heavy

TABLE XXXI
2005 POLLEN COUNT SUMMARY

Range	Number of Days	% of Total Days
Slight	71	41%
Moderate	54	31%
Heavy	12	7%
Extremely Heavy	37	21%

Table XXXI gives a summary of the 2005 pollen season. The maximum daily pollen count for Nashville during 2005 was 1666 grains/cm^2 measured April 5, 2005, due to the combination of cedar, maple and pine.

A daily update of the Pollen Count can be found on the website at http://healthweb.nashville.gov or by calling the recorded message at (615) 340-0488.

9. INDOOR AIR QUALITY

According to comparative risk studies performed by EPA and its Science Advisory Board, indoor air pollution has been ranked among the top five environmental risks to public health. Children may be especially vulnerable to these health effects. EPA estimates that indoor levels of many pollutants are typically 2-5 times, and occasionally more than 100 times, higher than outdoor levels. These levels are of particular concern because it is estimated that most people spend 90% of their time indoors.

The Pollution Control Division is presently operating an Indoor Air Quality (IAQ) program at the Metro Public Health Department. Currently, there are no regulations directly addressing non-occupational indoor air quality. This is a voluntary program that seeks to provide information, diagnostic services (when possible) and suggestions in hopes of increasing the public's knowledge of IAQ and decrease the health effects associated with poor indoor air quality. The IAQ program provides support and expertise to address the indoor air quality concerns of residences (homes, apartments, etc.), schools, childcare facilities, and public facilities. For indoor air quality issues relating to the workplace, the Tennessee Occupational Safety and Health Administration (TOSHA) is responsible for the health and safety of employees at commercial and industrial establishments.

During 2005, 129 on-site indoor air quality investigations were conducted. There were many more telephone calls from the community seeking information and guidance on how to correct a particular situation or how to improve their indoor air quality. Complaints and requests for assistance have been received from homeowners, renters, students, parents and staff at public and private schools, church members, parents and staff at daycare centers and employees and employers at commercial and industrial facilities.

Recently, there has been growing concern over mold in the indoor environment. News stories have focused on numerous health concerns reportedly caused by exposure to mold. The most common (documented) symptom is an allergic reaction. At this time, there is still much to learn about what other health effects can actually be directly related to mold exposure. Since there are no regulatory limits for mold in the home or work environment, the best advice is as follows: If you suspect you have a mold problem, look for a source of moisture. Moisture control is the key to mold control. Microbials need a source of moisture and a source of food to grow and multiply. Before successful remediation can take place, the source of moisture must be eliminated or the problem can reoccur. In most cases, mold can be removed from surfaces with soap and water and the surfaces sanitized with a weak bleach solution. Once mold begins to grow in insulation or wallboard the only way to deal with the problem is by removal and replacement. If you have an extensive amount of mold and believe you can not manage the cleanup on your own, you may want to contact a professional who has experience in remediation of mold in homes and other buildings.

There are many other sources of indoor air pollution that may be present in the home. Combustion sources such as oil, gas, kerosene, coal, wood, and tobacco products can produce pollutants such as carbon monoxide, nitrogen dioxide, and particulates. Organic chemicals are widely used as ingredients in many household products. Paints, varnishes, and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing, and hobby products. All these products can release volatile organic compounds while being used. Biological contaminants such as mold and mildew, dust mites, pet dander and cockroaches can trigger asthma and allergic reactions. By monitoring the relative humidity, increasing ventilation, and routinely cleaning the home, contact with many biological contaminants can be reduced.

Indoor pollution sources that release gases or particles into the air are the primary cause of indoor air quality problems in homes. Inadequate ventilation can increase indoor pollutant levels by not bringing in enough outdoor air to dilute emissions from indoor sources and by not carrying indoor air pollutants out of the home. High temperature and humidity levels can also increase concentrations of some pollutants. Controlling these aspects of the indoor environment will help decrease exposure to most indoor air pollutants.

10. VEHICLE INSPECTION PROGRAM

The Federal Clean Air Act as amended mandates a Vehicle Inspection Program in non-attainment areas that could not demonstrate attainment of the National Ambient Air Quality Standard for carbon monoxide and ozone by December 31, 1982. The allowable emission standards for various vehicle types and ages are listed in Table XXXII. Davidson County could not demonstrate attainment by December 31, 1982; therefore, a 5-year extension was requested to demonstrate attainment of the National Ambient Air Quality Standard for carbon monoxide and ozone. This extension was granted based on Davidson County implementing a Vehicle Inspection Program by January 1, 1982. Failure to implement this mandatory vehicle inspection program could result in sanctions including federal highway funds, air program funds and a construction moratorium.

Carbon monoxide (CO) is a colorless, odorless gas that is a product of incomplete combustion. The major source of carbon monoxide is light duty gasoline powered vehicles. Ozone (O_3) is a colorless, pungent gas that is produced by the reaction of sunlight with hydrocarbon and nitrogen oxides. A major source of hydrocarbons and nitrogen oxides is the light duty gasoline powered vehicles.

This section describes the results of Davidson County's Vehicle Inspection Program for the period of January 1, 2005 through December 31, 2005.

VEHICLE INSPECTION PROGRAM DESCRIPTION

The Metropolitan Code of Nashville and Davidson County, Chapter 10.56, "Air Pollution Control," Section 10.56.240, "Internal Combustion Engines," authorizes the Metropolitan Board of Health to develop and implement a vehicle inspection maintenance program. On May 31, 1981, the Metropolitan Board of Health adopted the Metro Public Health Department, Division of Pollution Control's, Regulation No. 8, "Regulation of Emissions From Light-Duty Motor Vehicles Through Mandatory Vehicle Inspection and Maintenance Program," which provides for a vehicle inspection program for all light duty vehicles manufactured from 1975 through current model year with a maximum gross vehicle weight of 8500 pounds or less. The only exceptions are diesel or electric powered light duty vehicles and motorcycles. This regulation was approved by the Metropolitan Council of Nashville and Davidson County May 17, 1983, Resolution No. R83-1471. The program approved by the Metropolitan Council is a centralized program operated by a contractor. On April 1, 2005, the Vehicle Inspection Program changed the test weight of vehicles from 8,500 pounds Gross Vehicle Weight Rate (GVWR) to include vehicles up to 10,500 pounds GVWR. The program also added diesel powered vehicles.

The Davidson County Vehicle Inspection Program requires all light duty gasoline vehicles to be inspected annually. Vehicles found to have excessive emissions must be repaired, retested and must pass the emissions test prior to being issued a Davidson County wheel tax license.

The Davidson County Vehicle Inspection Program uses an idle test procedure. The vehicles are tested at idle RPM with the transmission in neutral or park. If the vehicle fails to pass this test, a high RPM Precondition is used and the vehicle is given a second idle test. A vehicle does not fail the initial test unless it fails both idle tests. A licensed vehicle inspector licensed by the Metro Public Health Department must make all inspections.

The Vehicle Inspection Program became mandatory January 1, 1985. Before the owner of a light duty vehicle can purchase the Davidson County wheel tax license, they must show proof that the vehicle has met the allowable tailpipe emission standards of the Vehicle Inspection Program.

Effective December 1, 1994, the program was changed to require all gasoline vehicles, 1975 and newer, to go through the Vehicle Inspection Program. The program was further expanded to require a visual three-point anti-tampering inspection. This includes the gas cap, gasoline inlet restrictor and catalytic converter.

In August, 2001, the Metropolitan Council adopted Resolution No. RS 2001-716 to allow all 1996 and newer vehicles to receive an onboard diagnostic (OBD) test for emissions compliance. The OBD testing started

April 1, 2002. This test consists of two types of examinations. There is a visual check of the dashboard check engine light (malfunction indicator light or mil) and an electronic examination of the OBD computer itself.

Table XXXII
Maximum Idle Speed Allowable Emissions
During Idle Speed Test

	Carbon Monoxide %		Hydrocarbon (PPM)	
Vehicle Model Year	LIGHT DUTY VEHICLES LESS THAN OR EQUAL TO 6000 LBS. GVWR	LIGHT DUTY VEHICLES GREATER THAN 6000 LBS. GVWR	LIGHT DUTY VEHICLES LESS THAN OR EQUAL TO 6000 LBS. GVWR	LIGHT DUTY VEHICLES GREATER THAN 6000 LBS. GVWR
1975	5.0	6.5	500	750
1976	5.0	6.5	500	750
1977	5.0	6.5	500	750
1978	4.0	6.0	400	600
1979	4.0	6.0	400	600
1980	3.0	4.5	300	400
1981 & Newer	1.2	4.0	220	400

VEHICLE INSPECTION PROGRAM OPERATING STATISTICS

During 2005, the Davidson County Vehicle Inspection Program performed 597,693 emission inspections. Compared to the 563,864 inspections done during 2004, there was an increase of 33,829 inspections. The significant increase in inspections was due to the first full year of diesel powered light duty vehicles and heavy duty gasoline vehicles.

VEHICLE INSPECTION PASS AND FAIL RATES

In 2005, a total of 597,693 vehicles were tested. The 2005 overall pass rate was 87.6%, and the fail rate was 9.4%. The 2004 fail rate was 10%.

The initial inspection fail rates rounded to the nearest percent by year since the program start-up are contained in Table XXXIII.

TABLE XXXIII INITIAL EMISSION INSPECTION FAIL RATE	
YEAR	**FAIL RATE**
1986	18%
1987	16%
1988	14%
1989	12%
1990	11%
1991	9%
1992	7%
1993	7%
1994	7%
1995	10%
1996	9%
1997	8%
1998	8%
1999	7%
2000	6%
2001	6%
2002	10%
2003	11%
2004	10%
2005	9%

The most reasonable explanation for the decreasing fail rates from 1986 - 1994 is that affected vehicles are being better maintained and many gross polluters have been taken out of service. Encouraging motorists to maintain their vehicles is an essential goal of the program.

Also, note that the fail rate went up beginning in 1995 after years of decline. This is due to the adding of a three-point anti-tampering inspection into the program in 1995. Again, the increase in the 2002 and after fail rate was due to the addition of OBD testing on 1996 and newer vehicles.

This data shows that the Davidson County Vehicle Inspection Program is effective in reducing tailpipe emissions from light duty vehicles.

VEHICLE INSPECTION PROGRAM QUALITY ASSURANCE

The Metro Public Health Department Vehicle Inspection Staff is also assigned the duty of auditing all emission inspection facilities in the Davidson County program. The program has six test centers as seen in Table XXXIV.

TABLE XXXIV TEST CENTER LOCATIONS DAVIDSON COUNTY	
Station 1	501 Craighead Street
Station 2	3494 Dickerson Road
Station 3	715 Gallatin Road North, Madison
Station 4	3363 Stoners Bend Drive
Station 5	1317 Antioch Pike
Station 6	7008 West Belt Drive

The audit involves review of inspection facility records and compliance with administrative requirements and tests of emission inspection equipment to ensure that the equipment is operating in accordance with all federal and local requirements. Audits are conducted twice a month on all inspection facilities. Gas analyzer audits involve tests to ensure that the gas analyzers are measuring criterion gases (i.e., hydrocarbons, carbon monoxide and carbon dioxide) accurately. During 2005, there were 391 gas analyzer audits on 13 gas analyzers used by the test centers. Also, there were 37 undercover activities conducted on contractor inspection facilities.

VEHICLE INSPECTION PROGRAM ENFORCEMENT

During 2005, various enforcement activities were carried out to ensure compliance with the vehicle inspection program. The staff issued 364 Notices of Violation or Citations.

Due to the enforcement efforts of the staff, the Davidson County Vehicle Inspection Program has a 98% compliance rate. The compliance rate of a vehicle inspection program is the percentage of vehicles in a fleet that ultimately receives a certificate of compliance after testing and any needed repair. Overall, the data shows that the Davidson County Vehicle Inspection Program is effective in reducing tailpipe emissions from light duty vehicles, since the dirty vehicles are being identified and repaired.

11. OTHER POLLUTION CONTROL DIVISION ACTIVITIES

During 2005, the staff attended 120 EPA workshops or training courses. Semi-annually in 2005, the State of Tennessee Visible Emission Evaluation School certified three environmentalists and one engineer to conduct visible emissions evaluations. The staff made two presentations.

In addition to the ambient monitoring activities previously presented, the Pollution Control Division Laboratory performed analysis on 60 samples for asbestos and eleven other particulate matter samples.

During 2005, this agency's revenue included:

$699,527.44	Operating Permits and Emission-based fees
$ 26,266.00	Penalties
$ 12,312.50	Fines
$984,181.60	Vehicle Inspection Program

Prepared by Fred Huggins
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