POLLUTION CONTROL DIVISION

ANNUAL REPORT 2003

Metro Public Health Dept
Nashville/Davidson County

Mayor of Metropolitan Government of

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.

TABLE OF CONTENTS

1. LIST OF TABLES

2. LIST OF FIGURES

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 2003.

The purpose and objective of the Division of Pollution Control 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 2003 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 91.5% of the total 2003 particulate emissions. Dust from paved roads accounts for 83.2% of the total 2003 PM_{10} emissions. Figure 2 shows that fuel combustion accounts for approximately 86.9% of the total 2003 sulfur dioxide emissions. Figure 3 shows that the on-road and non-road mobile source emissions account for 84.3% of the total 2003 nitrogen dioxide emissions. Figure 4 shows that 96.9% of the 2003 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 63.3% of the total 2003 volatile organic compound emissions, and approximately 13.1% 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 eleven (11) years.

In 2003 an annual hazardous air pollutant emission inventory was completed. The 2003 Davidson County Hazardous Air Pollutant Emission Inventory is shown in Table III.

During 2003, the Engineering Section reviewed plans and specifications for 32 new and/or modified stationary sources and issued the following permits:

Construction Permits:	38
Operating Permits:	548

In addition to the above permits, 147 permits were issued for asbestos removal and 15 burning permits using an air curtain destructor were issued. Revenue generated from the issuance of permits in 2003 was $477,284.84.

During 2003 this agency observed the following compliance source tests:

4	Particulate
5	Nitrogen Oxides
2	Volatile Organic Compound
3	Carbon Monoxide
1	Dioxin/furan
1	Sulfur dioxide
2	Hydrogen chloride

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 (4) applications in 1996 and eleven (11) applications during 1997. During that time, two (2) more sources became subject to the Part 70 Operating Permit Program. These two applications were received in 1998. All seventeen (17) applications were reviewed and determined to be complete. Five (5) Part 70 Operating Permits were issued in 1997, six (6) were issued in 1998, and three (3) were issued in 1999. The remaining three (3) permits were issued in 2000. The following facilities have received Part 70 Operating Permits. OMC-Stratos Boats closed shortly after their Part 70 Operating Permit was issued. Therefore, there are currently sixteen (16) facilities operating in Davidson County with Part 70 Operating Permits. 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	Opryland USA
70-0039	Vanderbilt University
70-0040	Visteon Corporation
70-0042	Vought Aircraft Industries, Inc.
70-0045	Bruce Hardwood Flooring, LLC
70-0050	Nashville Thermal Transfer Corporation
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	Bordeaux Landfill
70-0241	Vanderbilt University Medical Center
70-0255	MM Nashville Energy

6. EMISSION INVENTORY

TABLE I
2003 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	5.7	0.0
Bulk Gasoline Terminals	0.0	0.0	0.0	0.0	0.0	3.0	0.0	15.7	0.0	277.6
Bulk Gasoline Plants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	0.0
Tank Truck Unl. (Stage I)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	203.9	0.0
Vehicle Refuel. (Stage II)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	163.5	0.0
Tank Trucks in Transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.5	0.0
SUBTOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.0**	**0.0**	**15.7**	**420.4**	**277.6**
TOTAL AREA + POINT	0.0		0.0		3.0		15.7		698.0	
INDUSTRIAL PROCESSES										
Adhesives	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0
Aerospace	0.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.7	33.7
Misc. Metal Products	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	26.1	40.5
Inorganic Chemical Mfg.	0.0	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.1
Organic Chemical Mfg.	0.0	54.1	0.0	0.0	0.0	2.6	0.0	3,926.5	0.0	812.6
Textile Mfg.	1.7	24.2	0.0	0.1	0.0	19.6	0.0	5.0	1.2	12.6
Rubber Tire Mfg.	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0
Plastic Products Mfg.	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	3.1	31.5
Fiberglass Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	17.8
Wood Products Mfg.	0.6	14.2	0.0	0.0	0.0	0.0	0.0	0.0	26.5	195.4
Clay & Glass	7.9	125.4	0.0	170.7	0.0	846.8	0.0	15.2	1.6	32.7
Mineral Products	58.1	97.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asphalt Plants	14.1	20.6	3.9	28.8	10.8	19.1	42.6	90.6	7.8	16.0
Paint Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3
Food & Agriculture	6.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.5
Primary/Sec. Metals	2.1	0.0	0.8	0.0	0.3	0.0	2.2	0.0	0.5	0.0
Fabric/Vinyl Coating	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
Large Appliance Coating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.7
Ship Building	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	**92.6**	**354.8**	**4.7**	**199.6**	**11.1**	**888.1**	**44.7**	**4,037.3**	**73.0**	**1,383.4**
TOTAL AREA + POINT	447.4		204.4		899.2		4,082.0		1,456.4	

TABLE I (continued)
2003 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

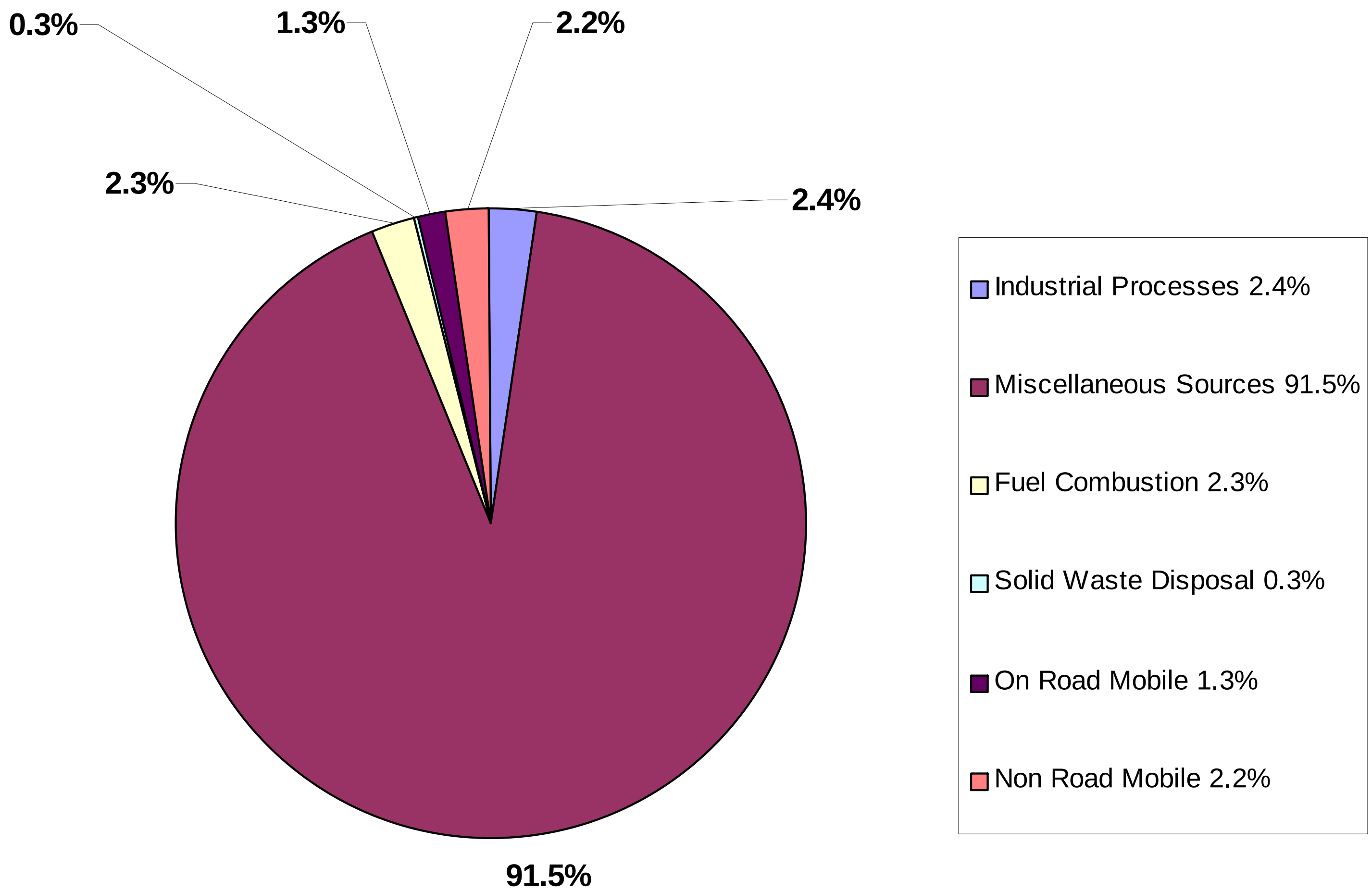
STATIONARY SOURCES—TONS PER YEAR										
	PARTICULATE		SULFUR DIOXIDE		NITROGEN DIOXIDE		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
NON-IND. SURFACE COAT.										
Architectural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,062.7	0.0
Auto Refinishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	617.6	0.0
Traffic Markings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	134.4	0.0
SUBTOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1,814.7**	**0.0**
TOTAL AREA + POINT	0.0		0.0		0.0		0.0		1,814.7	
OTHER SOLVENT USE										
Cold Cleaners (exc. Perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,053.9	0.0
Degreas. (exc. Cold clean.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Graphic Arts	0.4	0.5	0.0	0.0	0.3	3.9	0.3	3.5	67.7	151.7
Dry Cleaning (exc. Perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0
Cons./Comm. Solv. Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,774.1	0.0
SUBTOTAL	**0.4**	**0.5**	**0.0**	**0.0**	**0.3**	**3.9**	**0.3**	**3.5**	**2,898.6**	**153.0**
TOTAL AREA + POINT	0.8		0.0		4.3		3.7		3,051.6	
MISC. SOURCES										
Pesticide Application	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	521.1	0.0
Landfills	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	14.4
Scrap and Waste Material	8.1	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	15,304.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brake and Tire Wear	189.7									
Construction Projects	1,232.7	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	16,807.2	16.0	0.0	0.0	0.0	0.0	0.0	1.1	521.1	14.4
TOTAL AREA + POINT	16823.2		0.0		0.0		1.1		535.5	
FUEL COMBUSTION										
Residential	180.4	0.0	52.1	0.0	493.1	0.0	1,145.8	0.0	841.5	0.0
Commercial/Institutional	6.1	22.9	3.2	840.1	113.4	784.7	79.4	485.8	8.2	26.3
Industrial	0.0	213.7	0.0	7,599.9	0.0	1,727.5	0.0	168.7	0.0	62.0
Stationary Internal Comb.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	**186.5**	**236.6**	**55.3**	**8,440.0**	**606.5**	**2,512.1**	**1,225.2**	**654.5**	**849.7**	**88.3**
TOTAL AREA + POINT	423.1		8,495.3		3,118.7		1,879.7		938	
SOLID WASTE DISPOSAL										
Incinerators	1.3	0.0	0.6	0.0	0.9	0.0	0.3	0.0	0.1	0.0
POTW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6	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)	36.0	0.0	0.0	0.0	0.3	0.0	237.0	0.0	33.4	0.0
Forest & Grass Fires	14.3	0.0	0.0	0.0	0.0	0.0	90.4	0.0	13.4	0.0
SUBTOTAL	51.6	0.0	0.6	0.0	1.3	0.0	327.8	0.0	75.6	0.0
TOTAL AREA + POINT	51.6		0.6		1.3		327.8		75.6	
TOTAL STATIONARY SOURCES	17,138.2	607.9	60.6	8,639.7	619.2	3,407.2	1,597.9	4,712.1	6,605.9	1,916.8
TOTAL STA. AREA + POINT	17,746.1		8,700.3		4,026.4		6,310.0		8,522.7	

TABLE I (continued)
2003 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

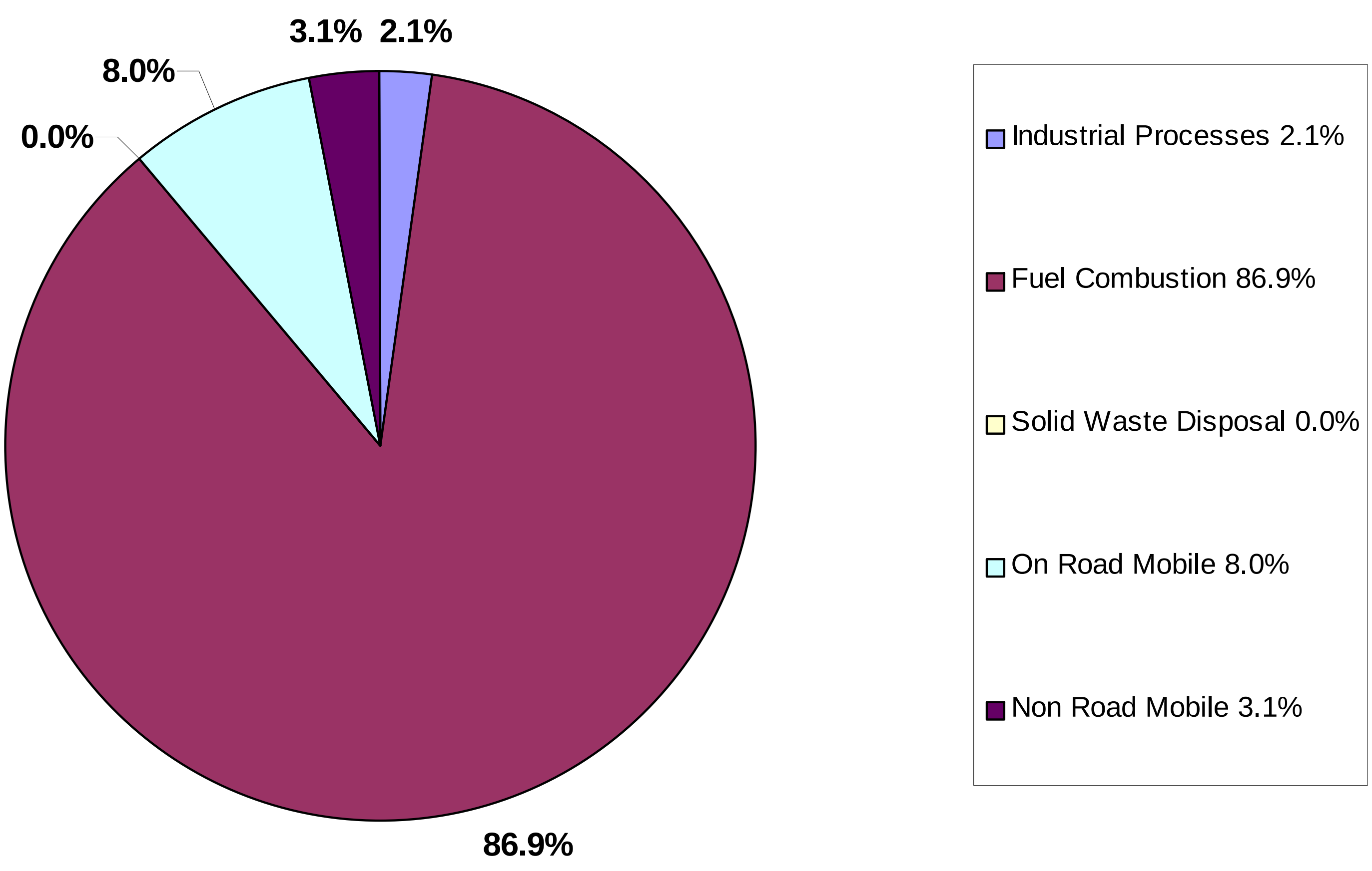
MOBILE SOURCES—TONS PER YEAR										
	PARTICULATE		SULFUR DIOXIDE		NITROGEN DIOXIDE		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
ON-ROAD MOBILE*										
LDV	67.7	0.0	474.7	0.0	6,368.1	0.0	101,415.5	0.0	7,734.5	0.0
LDT1	14.5	0.0	106.7	0.0	1,599.1	0.0	26,834.8	0.0	1,697.6	0.0
LDT2	3.3	0.0	21.6	0.0	477.7	0.0	7,693.7	0.0	602.1	0.0
HDV	160.5	0.0	174.2	0.0	8,402.3	0.0	4,572.7	0.0	493.5	0.0
MC	0.2	0.0	0.2	0.0	27.3	0.0	236.4	0.0	40.7	0.0
SUBTOTAL	**246.1**	**0.0**	**777.5**	**0.0**	**16,874.6**	**0.0**	**140,753.1**	**0.0**	**10,568.3**	**0.0**
TOTAL AREA + POINT	246.1		777.5		16,874.6		140,753.1		10,568.3	
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	40.5	0.0	25.5	0.0	533.5	0.0	1,529.0	0.0	210.1	0.0
Commercial Marine	0.0	0.0	6.0	0.0	75.8	0.0	22.3	0.0	10.0	0.0
All Other Non-road	350.6	0.0	229.8	0.0	3,587.4	0.0	53,360.6	0.0	3,918.6	0.0
SUBTOTAL	**403.8**	**0.0**	**298.6**	**0.0**	**4,711.2**	**0.0**	**54,984.5**	**0.0**	**4,169.0**	**0.0**
TOTAL AREA + POINT	403.8		298.6		4,711.2		54,984.5		4,169.0	
TOTAL MOBILE SOURCES	649.9	0.0	1,076.1	0.0	21,585.8	0.0	195,737.6	0.0	14,737.4	0.0
TOTAL MOBILE AREA + POINT	649.9		1,076.1		21,585.8		195,737.6		14,737.4	
TOTAL STATIONARY + MOBILE	**17,788.2**	**607.9**	**1,136.8**	**8,639.7**	**22,205.0**	**3,407.2**	**197,335.5**	**4,712.1**	**21,343.3**	**1,916.8**
GRAND TOTAL AREA + POINT	18,396.0		9,776.4		25,612.2		202,147.6		23,260.0	

*There has been a significant change in the reported on-road mobile source emissions from 2002 to 2003. On-road mobile source emissions are calculated using an EPA computer model called MOBILE6. This model has undergone several changes since its inception over 20 years ago. With each change comes a change in emissions. This change is due partly to changing vehicle technologies and partly due to EPA better understanding how to construct a computer model to best estimate "real world" on-road mobile emissions. The results of running the MOBILE6 model for 2003 are significantly different than those obtained with MOBILE5 in 2002. For the first time, the model generated particulate and sulfur dioxide emission factors. Previously, this had to be done using EPA emission factors outside of the MOBILE5 model. Nitrogen dioxide emission factors were significantly lower in 2003 using MOBILE6. Carbon monoxide almost doubled from 2002 to 2003 due to changes in the model. Volatile Organic Compound emissions also increased significantly from 2002 to 2003 due to changes in the model. In reality, actual emissions have improved slightly due to better vehicle technologies, and increased slightly due to more vehicle miles traveled. Even though some of the numbers have changed significantly, it is due mostly to a change in EPA's recommended computer model and slightly due to improving vehicle technologies. There has not been a significant change in "real world" emissions.

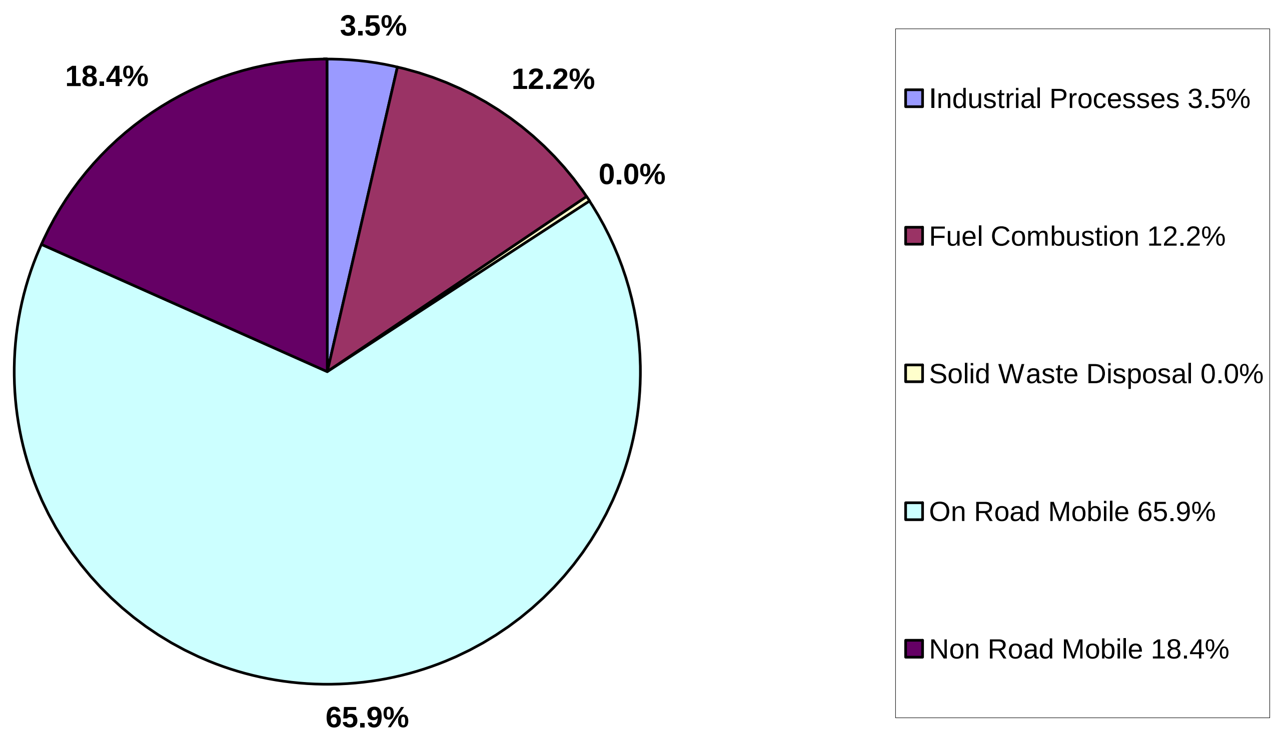
Percent Particulate Emissions for Various Sources
Figure 1

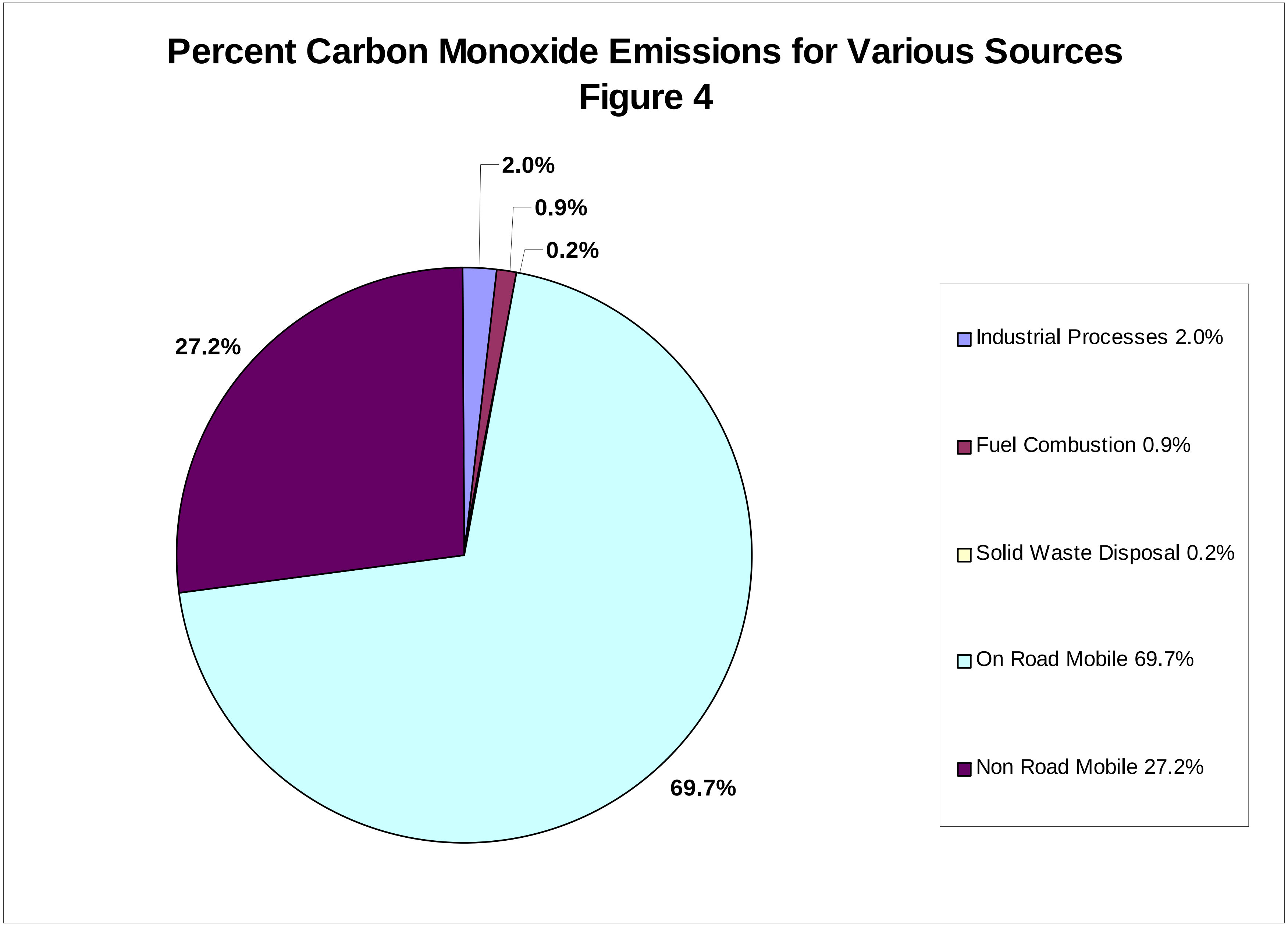


Percent Sulfur Dioxide Emissions for Various Sources
Figure 2



Percent Nitrogen Dioxide Emissions for Various Sources
Figure 3




Percent Carbon Monoxide Emissions for Various Sources
Figure 4
2.0%
0.9%
0.2%
27.2%
69.7%
Industrial Processes 2.0%
Fuel Combustion 0.9%
Solid Waste Disposal 0.2%
On Road Mobile 69.7%
Non Road Mobile 27.2%

Percent Volatile Organic Compound Emissions for Various Sources
Figure 5

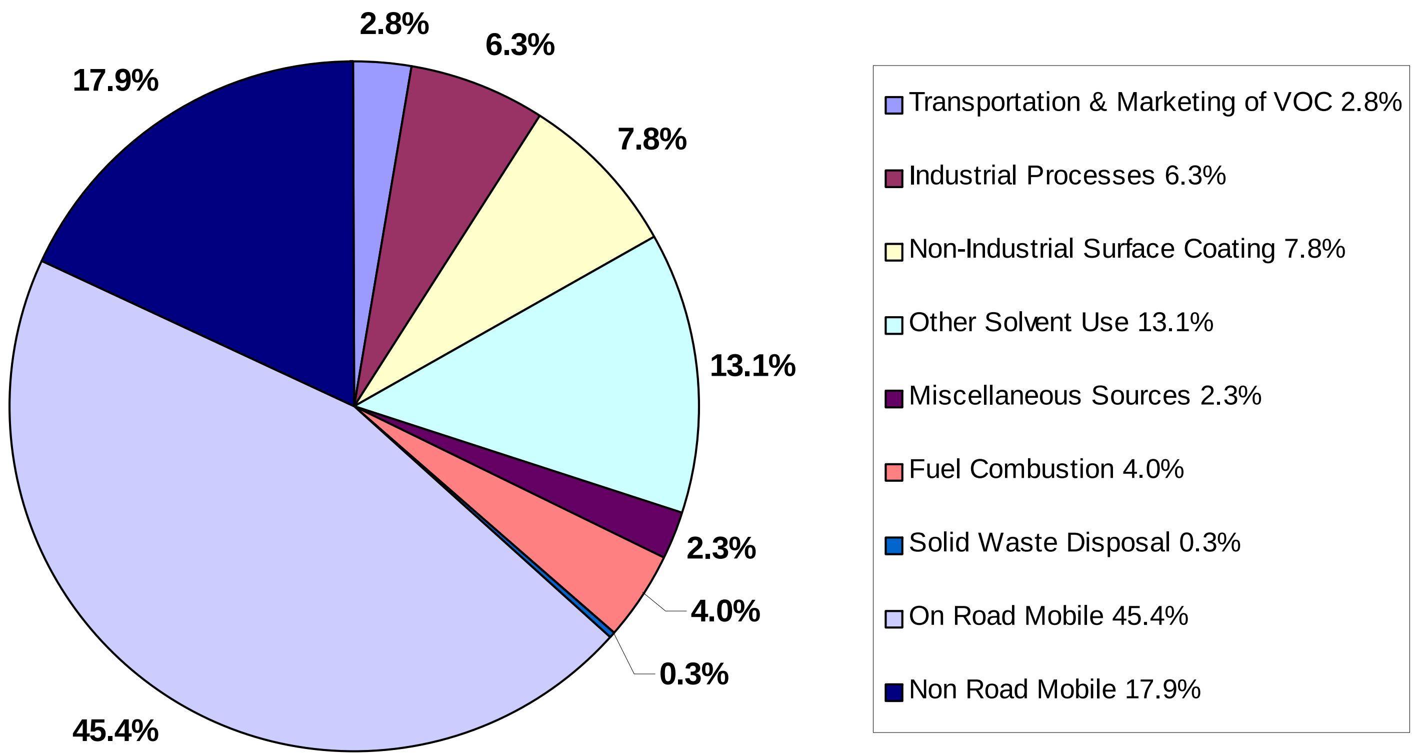


TABLE II
1993 - 2003 Annual Comparison of Nitrogen Dioxide and Volatile Organic Compound Emissions

Nitrogen Dioxide (Tons/Year)

Source Category	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Trans. & Mkt. of VOC	0	0	0	6	4	5	5	5	6	4	3
Industrial Processes	1,801	1,674	1,307	1,765	2,146	1,877	1,914	1,672	1,365	898	899
Other Solvents	0	0	0	0	8	0	0	0	3	0	4
Miscellaneous	0	0	16	28	28	6	8	2	7	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
Solid Waste Disposal	572	480	459	452	457	501	458	460	404	144	1
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*
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
TOTAL	**26,644**	**31,399**	**30,647**	**30,865**	**31,499**	**30,677**	**30,836**	**28,575**	**29,778**	**28,308**	**25,612**

Volatile Organic Compounds (Tons/Year)

Source Category	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Trans. & Mkt. of VOC	1,787	1,490	883	729	683	696	691	676	633	660	651
Industrial Processes	2,032	1,666	1,730	2,651	2,185	2,579	1,868	1,675	1,976	1,516	1,456
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
Other Solvents	3,145	2,837	2,844	2,747	2,760	2,752	2,749	3,004	2,999	3,033	3,052
Miscellaneous	236	233	204	572	569	507	498	511	519	531	536
Fuel Combustion	5,477	5,556	5,563	5,639	5,679	5,716	5,780	1,250	827	883	938
Solid Waste Disposal	252	224	235	196	128	157	113	101	98	90	76
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*
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
TOTAL	**28,053**	**27,799**	**26,482**	**25,967**	**27,666**	**28,016**	**27,798**	**22,247**	**21,290**	**21,296**	**23,260**

*There has been a significant change in the reported on-road mobile source emissions from 2002 to 2003. On-road mobile source emissions are calculated using an EPA computer model called MOBILE6. This model has undergone several changes since its inception over 20 years ago. With each change comes a change in emissions. This change is due partly to changing vehicle technologies and partly due to EPA better understanding how to construct a computer model to best estimate "real world" on-road mobile emissions. The results of running the MOBILE6 model are significantly different than those obtained with MOBILE5. For the first time, the model generated particulate and sulfur dioxide emission factors. Previously, this had to be done using EPA emission factors outside of the MOBILE5 model. Nitrogen dioxide emission factors were significantly lower in 2003 using MOBILE6. Carbon monoxide almost doubled from 2002 to 2003 due to changes in the model. Volatile Organic Compound emissions also increased significantly from 2002 to 2003 due to changes in the model. In reality, actual emissions have improved slightly due to better vehicle technologies, and increased slightly due to more vehicle miles traveled. Even though some of the numbers have changed significantly, it is due mostly to a change in EPA's recommended computer model and slightly due to improving vehicle technologies. There has not been a significant change in "real world" emissions.

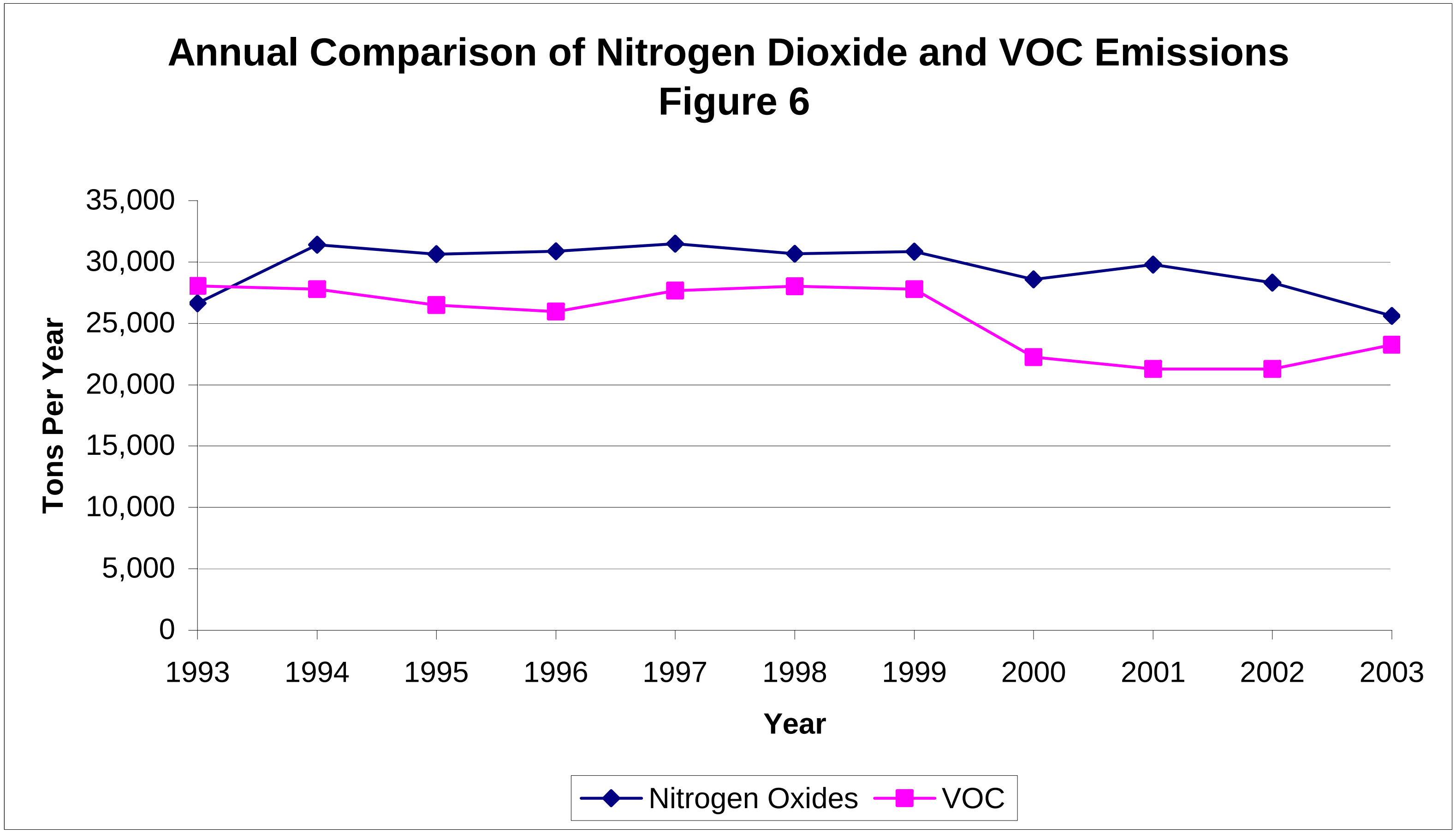

Annual Comparison of Nitrogen Dioxide and VOC Emissions
Figure 6
Tons Per Year
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Year
Nitrogen Oxides
VOC

TABLE III 2003 Davidson County Hazardous Air Pollutant Emission Inventory		
POLLUTANT	**CAS #**	**TPY**
1,1,2,2-Tetrachloroethane	79-34-5	0.058
1,1,2-trichloroethane	79-00-5	0.099
1,3-Butadiene	106-99-0	67.692
1,3-Dichloropropene	542-75-6	46.841
1,4-Dichlorobenzene	106-46-7	24.414
1,4-Dioxane	123-91-1	16.863
2,2,4-Trimentylpentane	540-84-1	53.834
2-Nitropropane	79-46-9	0.001
4,4'Methylenediphenyl Diisocyanate	101-68-8	0.004
Acetaldehyde	75-07-0	126.914
Acetophenone	98-86-2	3.124
Acrolein	107-02-8	12.008
Acrylic acid	79-10-7	0.020
Acrylonitrile	107-13-1	0.106
Arsenic	00-00-0	0.044
Benzene	71-43-2	677.689
Benzyl Chloride	100-44-7	0.102
Biphenyl	92-52-4	16.795
Bis (2-Ethyl Hexyl) Phthlate	117-81-7	0.842
Bromoform	75-25-2	0.001
Carbon Disulfide	75-15-0	0.084
Carbon Tetrachloride	56-23-5	0.044
Carbonyl Sulfide	463-58-1	0.010
Chlorine	7782-50-5	2.830
Chlorobenzene	108-90-7	21.077
Chloroform	67-66-3	0.500
Chromium	00-00-0	0.168
Cobalt	00-00-0	0.991
Cumene	98-82-8	1.685
Cyanide	00-00-0	0.377
Dibenzofurans	132-64-9	0.002
Dibutyl Phthalate	84-74-2	0.162
Diethanolamine	111-42-2	0.548
Dimethyl Formamide	68-12-2	3.352
Dimethyl Sulfate	77-78-1	0.001
Ethyl Chloride	75-00-3	2.392
Ethylbenzene	100-41-4	69.390
Ethylene Dichloride	107-06-2	0.545
Ethylene Glycol	107-21-1	35.281
Ethylene Oxide	75-21-8	4.574
Ethylidine Dichloride	75-34-3	0.065
Formaldehyde	50-00-0	196.703
Glycol ether	00-00-0	36.836
Hexamethylene 1,6-Diisocyanate	822-06-0	0.032
Hexane	110-54-3	190.879
Hydrochloric Acid	7647-01-0	298.167

TABLE III (continued) 2003 Davidson County Hazardous Air Pollutant Emission Inventory		
POLLUTANT	**CAS #**	**TPY**
Hydrogen Fluoride	7664-39-3	37.238
Hydroquinone	123-31-9	0.068
Isophorone	78-59-1	0.365
Lead	00-00-0	0.281
Magnesium	00-00-0	1.330
Manganese	00-00-0	0.933
Methanol	67-56-1	431.950
Methyl Bromide	74-83-9	87.577
Methyl Chloride	74-87-3	2.032
Methyl chloroform	71-55-6	113.548
Methyl Ethyl Ketone	78-93-3	74.435
Methyl Hydrazine	60-34-4	0.025
Methyl Isobutyl Ketone	108-10-1	23.725
Methyl Methacrylate	80-62-6	0.356
Methyl tert-butyl ether	1634-04-4	19.765
Methylene Chloride	75-09-2	36.132
m-Xylene	108-38-3	64.258
Naphthalene	91-20-3	26.556
Nickel	00-00-0	0.107
o-Xylene	95-47-6	74.063
Phenol	108-95-2	0.553
Phosphine	7803-51-2	0.118
Phthalic Anhydride	85-44-9	0.679
Polycyclic Organic Matter	00-00-0	0.053
Propionaldehyde	123-38-6	7.808
Propylene Dichloride	78-87-5	0.006
Propylene Glycol	57-55-6	0.770
Propylene Oxide	75-56-9	0.319
p-Xylene	106-42-3	24.410
Quinone	106-51-4	0.060
Selenium	00-00-0	0.160
Styrene	100-42-5	47.337
Tetrachloroethylene	127-18-4	67.886
Toluene	108-88-3	420.337
Trichloroethylene	79-01-6	32.631
Triethylamine	121-44-8	2.406
Trimethylbenzene	95-63-6	0.002
Vinyl Acetate	108-05-4	0.420
Vinyl chloride	75-01-4	0.147
Vinylidene Chloride	75-35-4	0.005
Xylene	1330-20-7	275.668
Total of All Hazardous Air Pollutants		**3,790.668 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 2003 this agency conducted:

1,429 inspections of stationary air pollution sources;
315 inspections of asbestos removal sites;
176 indoor air quality inspections;
223 complaint investigations; and
Observed 40 pressure-decay tests on gasoline dispensing facilities.

During 2003, this agency issued 133 notices of violation and eleven (11) consent agreements resulting in the collection of $140,615.00 in penalties.

8. MONITORING ACTIVITIES

During 2003 this agency operated 10 aerometric stations. Five (5) of these stations are manual, where PM_{10} is measured by operating a selective size inlet sampler (SSI). During 2001, a new PM_{10} site was added at the Lentz Public Health Center to aid in the generation of a daily Air Quality Index (AQI). Total suspended particulate (TSP) sampling was suspended December 31, 1998 due to the standard being revoked by EPA. Beginning January 1, 1999, fine particulate ($PM_{2.5}$) samplers were installed at one existing site (Lockeland School) and at two new sites (Hillwood High School and Wright Middle School). During 2001, a continuous $PM_{2.5}$ monitor was added to the Lockeland site. In 2002, a $PM_{2.5}$ speciation monitor began operation at the existing Lockeland site. This agency also operated two continuous carbon monoxide, two continuous ozone, one continuous sulfur dioxide and one continuous nitrogen oxides/nitrogen dioxide analyzers. All ambient air monitoring is conducted in strict accordance with Federal guidelines. The locations of these aerometric stations are shown in Figure 7 and a listing of the addresses is given in Table IV. A list of the National Ambient Air Quality Standards for all criteria pollutants is presented in Table V. During the pollen season, March through October, this agency 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 and pollen count is 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.org.

Following Table V is a discussion of the Ambient Air Quality contaminant concentrations measured in Davidson County during 2003.

LOCATION OF AIR MONITORING SITES
Figure 7

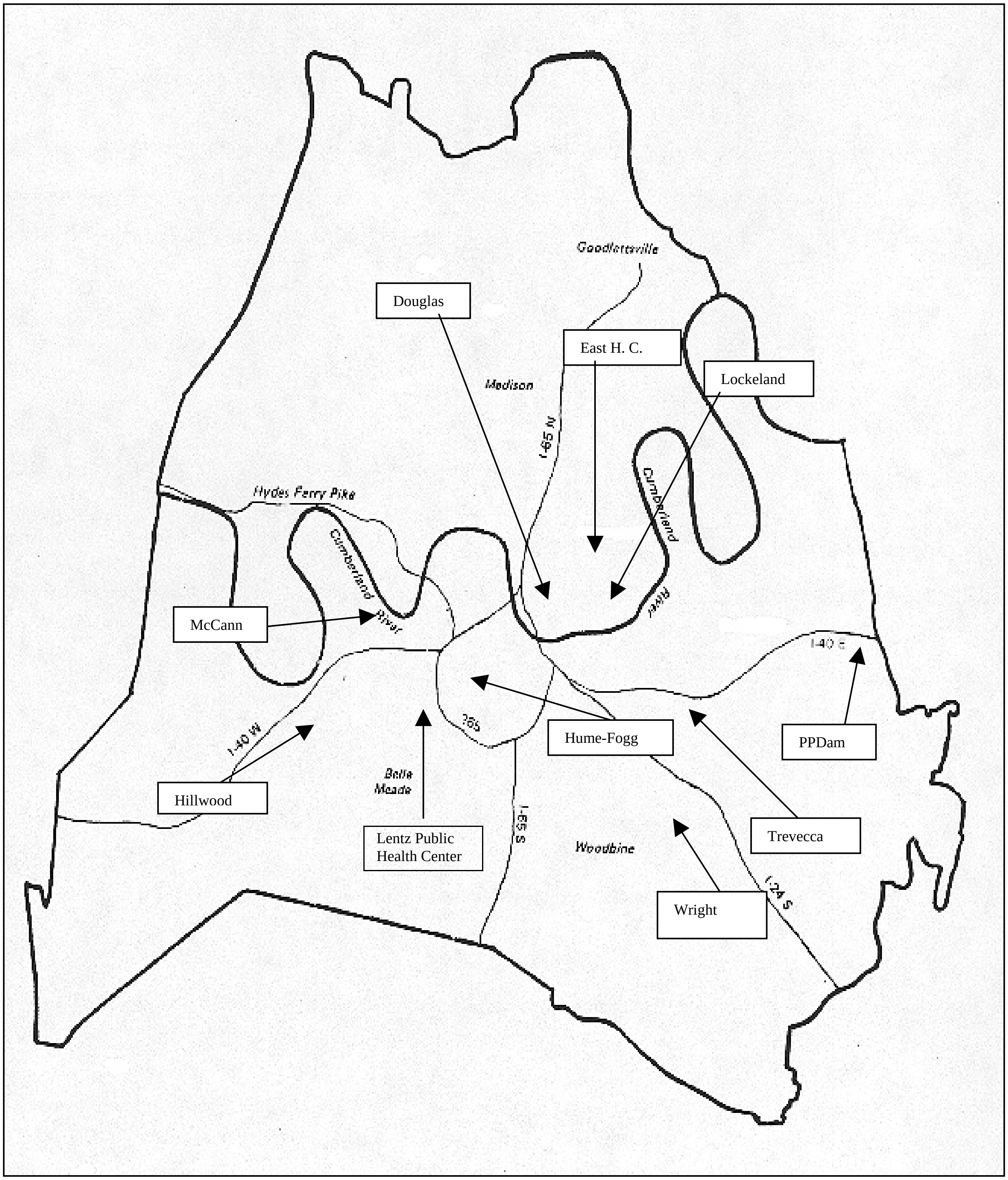


TABLE IV AIR MONITORING SITE LOCATION & CLASSIFICATION					
Site No.	**Address**	**UTM Coordinates**		**Land Use**	**Pollutants Sampled**
47-037-0002	Trevecca Nazarene College 333 Murfreesboro Road	522.1	3999.9	CC-C	PM_{10}**
47-037-0011	East Nashville Health Center 1015 East Trinity Lane	522.9	4006.7	CC-R	SO_2*, NO_2**, Ozone*, PM_{10}**
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_{10}**, $PM_{2.5}$**
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**
	$\mu g/m^3$	**PPM**		**$\mu g/m^3$**	**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 area are under the requirements of our original 1-hour ozone maintenance plan and preparing for the State Implementation Plan submittal to satisfy the next Early Action Compact milestone due December 31, 2004.

*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 three-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. Designations are expected during 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 more confident of the validity of the data generated after that date. Therefore, the $PM_{2.5}$ data generated beginning October, 1999 through 2003 are presented in this report. A continuous $PM_{2.5}$ monitor became operational in December, 2000. This monitor is used primarily to aid in the generation of the daily Air Quality Index.

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.

In 2003, the Pollution Control Division operated four (4) sites equipped with PM_{10} samplers and three (3) sites equipped with $PM_{2.5}$ samplers. Tables VI and VII present a summary of the measured PM_{10} concentrations during 2003. This data shows that the ambient air quality standard for PM_{10} was not exceeded in 2003. Tables VIII and IX and Figures 8 and 9 compare the PM_{10} concentrations for the past 13 years. Tables X, XI, XII and XIII present a summary of the 2003 $PM_{2.5}$ 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 - 2003. 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 2001 - 2003 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 μg/m^3, the Middle Tennessee area will attain the $PM_{2.5}$ standard. For the period of 2001 - 2003, the Middle Tennessee area is in compliance with the annual NAAQS for $PM_{2.5}$.

TABLE VI
2003 SUMMARY OF PM_{10} (μG/M^3)

SITE LOCATION	Trevecca	East*	Lockeland*	McCann
Number of Observations	58	27	30	59
Maximum 24-Hr Concentration	51	42	56	58
Date of Maximum Concentration	7/20	6/26	4/15	7/20
2nd Maximum 24-Hr Concentration	48	40	42	56
Date of 2nd Maximum 24-Hr. Concentration	4/15	4/15	5/9	4/15
Annual Arithmetic Mean	25	23	24	27
Number of Exceedance of 24-Hr Standard	0	0	0	0

TABLE VII
2003 QUARTERLY COMPARISON OF PM_{10} ARITHMETIC MEAN (μG/M^3)

Site Location	1st	2nd	3rd	4th	Annual
Trevecca	23	28	32	19	25
East*	19	26	NA	NA	23
Lockeland*	19	29	NA	NA	24
McCann	23	28	36	19	27

TABLE VIII
1991 - 2003 24-HOUR MAXIMUM PM_{10} CONCENTRATIONS (μG/M^3)

Site Location	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Trevecca	73	61	83	73	69	61	76	70	68	81	60	47	51
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

TABLE IX
1991 – 2003 ANNUAL AVERAGE PM_{10} CONCENTRATIONS (μG/M^3)

Site Location	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Trevecca	35	31	32	32	34	33	34	32	31	33	30	22	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

- 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, and the data in the PM_{10} tables for these two sites represents the first six months of 2003.

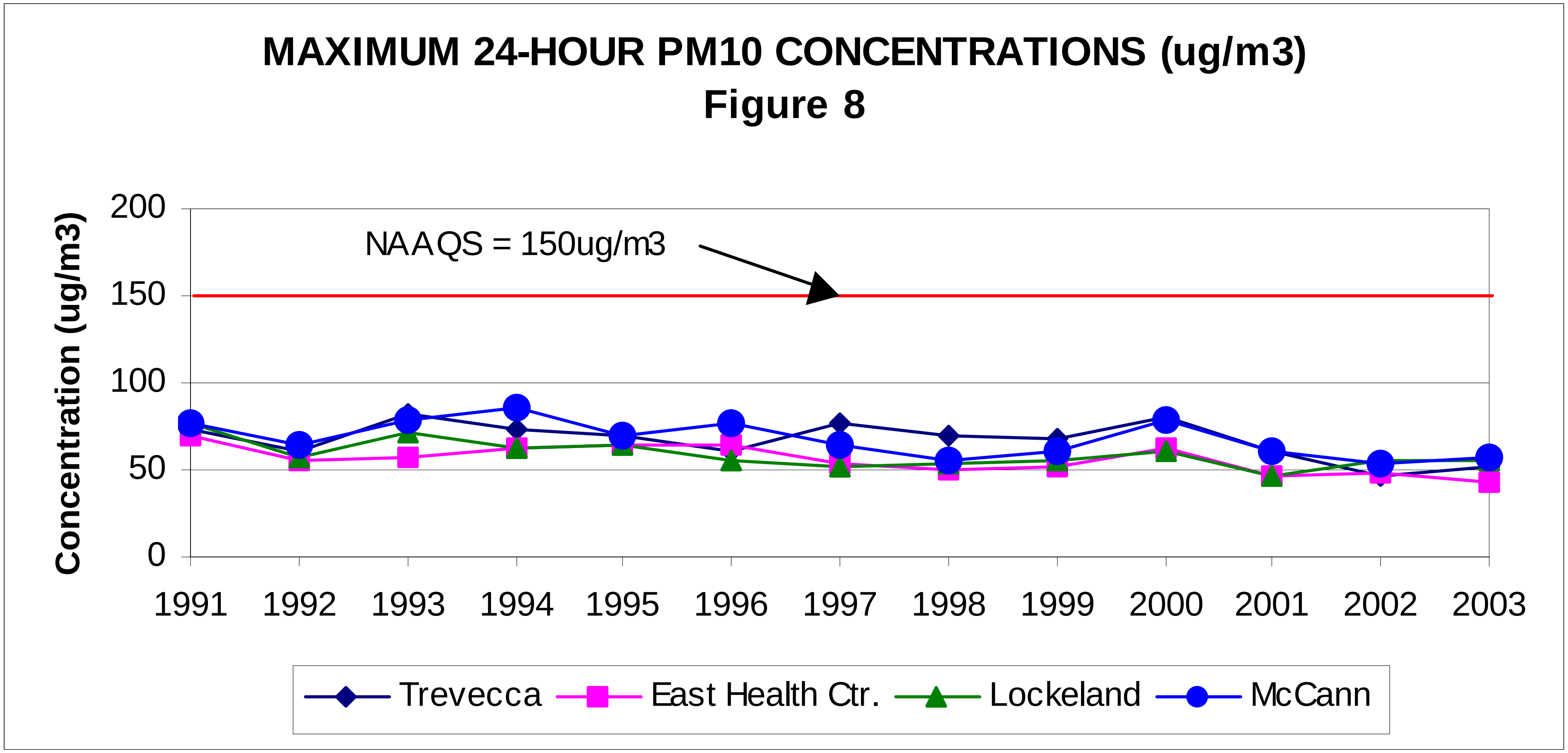
TABLE X 2003 SUMMARY OF $PM_{2.5}$ (μG/M^3)				
SITE LOCATION	**Lockeland (POC1)**	**Lockeland (POC2)**	**Wright**	**Hillwood**
Number of Observations	297	70	96	340
Maximum 24-Hr Concentration	42.3	39.0	42.4	42.1
Date of Maximum Concentration	7/20	7/20	7/20	7/20
2nd Maximum 24-Hr Concentration	36.5	32.7	32.2	40.4
Date of 2nd Maximum 24-Hr. Concentration	8/25	8/25	8/19	9/11
Annual Arithmetic Mean	14.97	14.24	14.71	13.56
Number of Exceedances of 24-Hr Standard	0	0	0	0

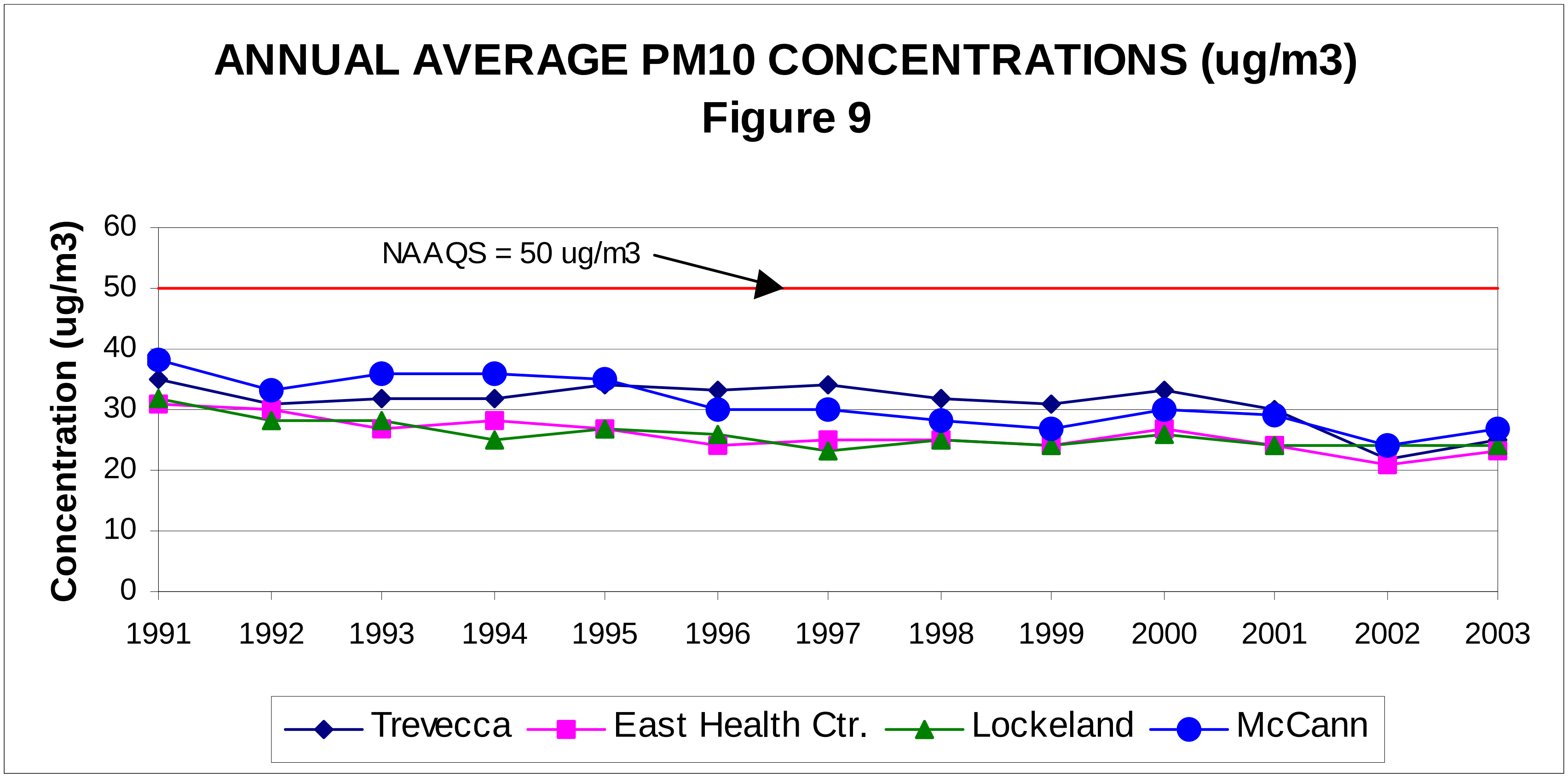
TABLE XI 2003 QUARTERLY COMPARISON OF $PM_{2.5}$ ARITHMETIC MEAN (μG/M^3)					
Site Location	**1st**	**2nd**	**3rd**	**4th**	**Annual**
Lockeland (POC1)	12.79	14.83	19.19	11.83	14.97
Lockeland (POC2)	11.33	15.31	20.40	10.32	14.24
Wright	12.76	14.09	18.99	11.19	14.71
Hillwood	11.62	13.51	18.06	10.61	13.56

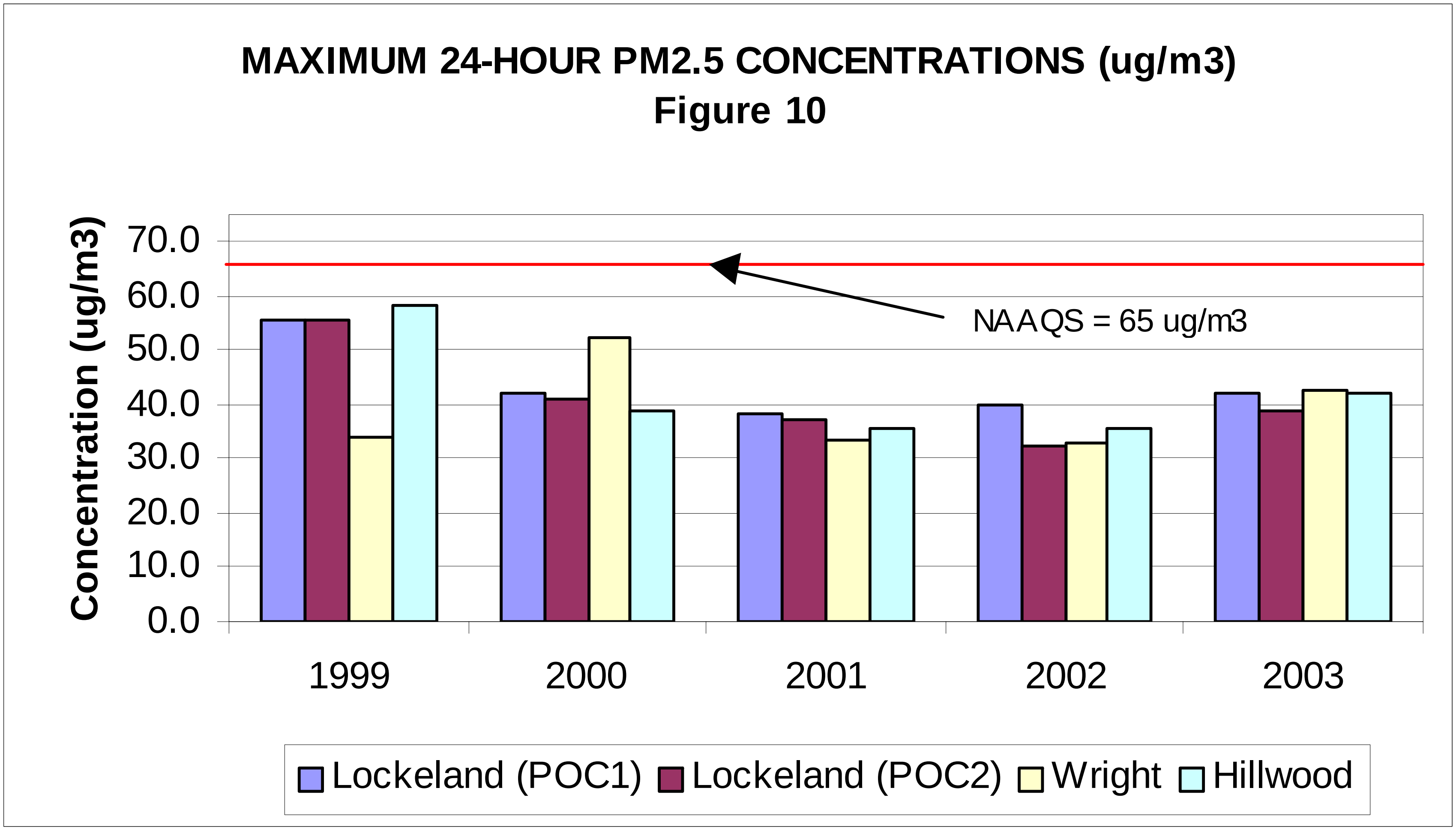
TABLE XII 1999 - 2003 24-HOUR MAXIMUM $PM_{2.5}$ CONCENTRATIONS (μG/M^3)					
Site Location	**1999**	**2000**	**2001**	**2002**	**2003**
Lockeland (POC1)	55.8	42.3	38.2	39.8	42.3
Lockeland (POC2)	55.7	40.8	37.0	32.6	39.0
Wright	34.0	52.4	33.4	32.8	42.4
Hillwood	58.2	38.6	35.5	35.7	42.1

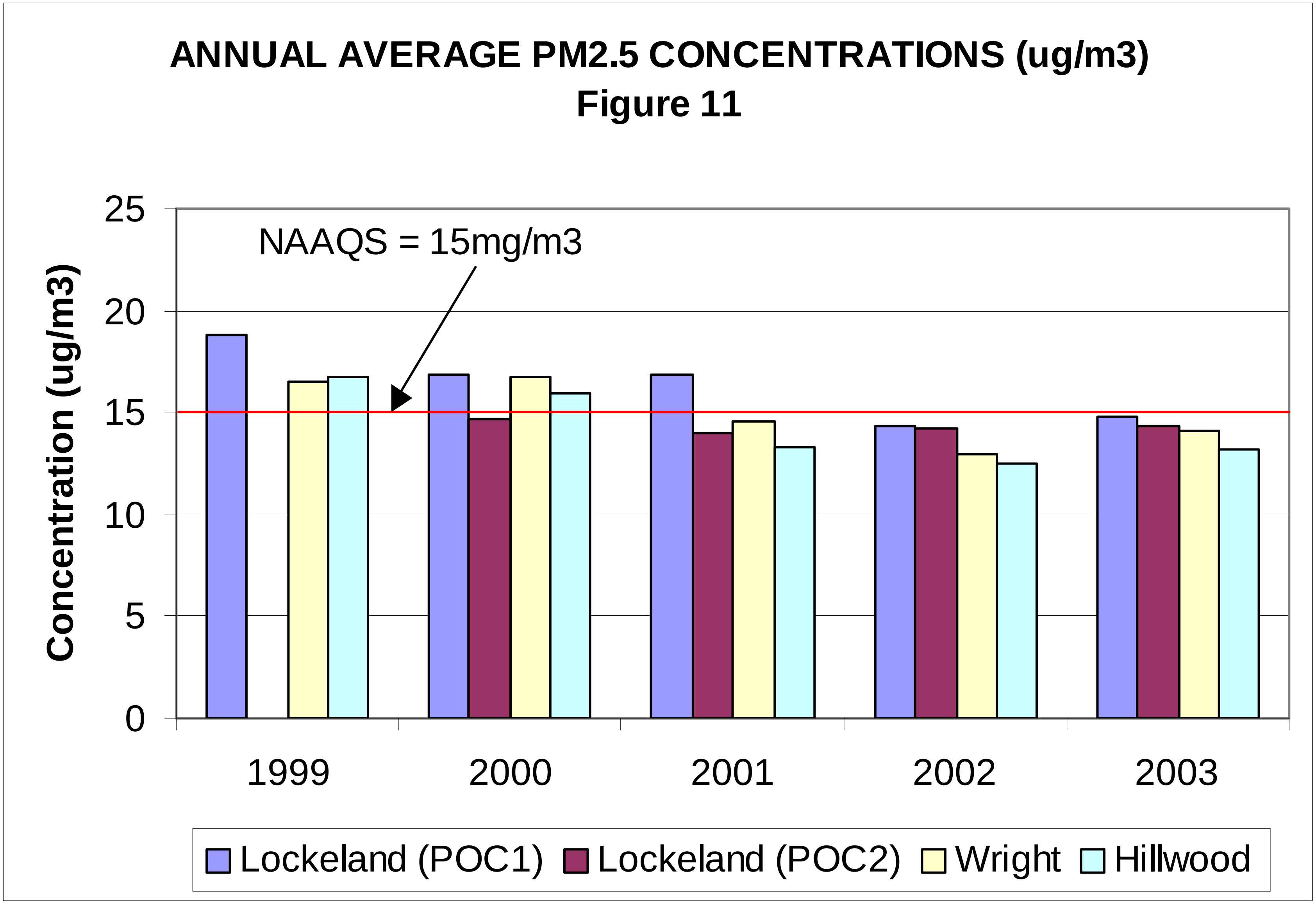
TABLE XIII 2001 - 2003 ANNUAL AVERAGE $PM_{2.5}$ CONCENTRATIONS (μG/M^3)				
Site Location	**2001**	**2002**	**2003**	**3 YEAR AVG.**
Lockeland (POC1)	15.2	na	na	15.2
Lockeland (POC2)	na	13.7	14.3	14.0
Wright	14.6	na	na	14.6
Hillwood	13.4	na	na	13.4
Sumner County	14.2	12.9	13.4	13.5
Spatial Avg. of Valid Monitors	14.3	13.3	13.9	13.7

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 3 year period of 2001 - 2003, the Middle Tennessee area will be in attainment with the $PM_{2.5}$ NAAQS.


MAXIMUM 24-HOUR PM10 CONCENTRATIONS (ug/m3)
Figure 8
Concentration (ug/m3)
200
150
100
50
0
NAAQS = 150ug/m3
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Trevecca
East Health Ctr.
Lockeland
McCann


ANNUAL AVERAGE PM10 CONCENTRATIONS (ug/m3)
Figure 9
NAAQS = 50 ug/m3
Concentration (ug/m3)
0
10
20
30
40
50
60
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
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
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
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 (2) 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 $\mu g/m^3$ averaged on a calendar quarter was not exceeded in 1997. The maximum calendar quarter concentration measured over the six (6) years previous to 1997 was 0.10 $\mu g/m^3$. 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 ($\mu G/M^3$)

SITE	1^{ST}	2^{ND}	3^{RD}	4^{TH}	ANNUAL
MHDA—1400 8^{th} 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 2003. 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 2003. The main source of sulfur dioxide in Metropolitan Nashville and Davidson County is from fuel combustion.

TABLE XV
2003 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	741	667	741	709	738	718	739	737	714	735	717	737	8693
Arithmetic Mean	0.004	0.003	0.003	0.002	0.002	0.003	0.003	0.004	0.003	0.004	0.005	0.003	0.003
Highest 24-Hr Conc.	0.010	0.009	0.009	0.006	0.004	0.006	0.009	0.012	0.008	0.010	0.009	0.008	0.012
Date of Highest 24-Hr Conc.	1/24	2/5	3/14	4/13	5/23	6/21	7/20	8/24	9/7	10/20	11/9	12/12	8/24
2nd Highest 24-Hr Conc.	0.010	0.007	0.006	0.004	0.004	0.006	0.008	0.007	0.007	0.008	0.008	0.008	0.010
Date of 2^{nd} Highest 24-Hr Conc.	1/22	2/28	3/9	4/14	5/31	6/28	7/19	8/18	9/6	10/30	11/20	12/2	10/20
Highest 3-Hr Conc.	0.019	0.015	0.025	0.011	0.009	0.012	0.012	0.026	0.024	0.014	0.019	0.015	0.026
Date of Highest 3-Hr Conc.	1/24	2/5	3/10	4/23	5/27	6/5	7/19	8/24	9/7	10/6	11/9	12/12	8/24
2nd Highest 3-Hr Conc.	0.018	0.015	0.018	0.010	0.008	0.012	0.012	0.017	0.016	0.013	0.015	0.015	0.025
Date of 2^{nd} Highest 3-Hr Conc.	1/22	2/18	3/14	4/13	5/3	6/28	7/20	8/19	9/6	10/19	11/6	12/13	3/10
Annual or 3-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN OXIDE

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 66% of the nitrogen dioxide emissions in 2003 with light duty gasoline cars and light duty gasoline trucks responsible for 33% of the total nitrogen dioxide emissions.

Nitrogen dioxide was measured at East Health Center (site 0011) during 2003. 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 2003.

TABLE XVI
2003 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	736	666	743	708	734	718	735	719	567	31	716	736	7809
Arithmetic Mean	0.006	0.005	0.009	0.010	0.003	0.002	0.001	0.012	0.008	0.027	0.016	0.014	0.008
Highest 24-Hr Conc.	0.011	0.021	0.036	0.023	0.017	0.009	0.002	0.018	0.020	0.037	0.027	0.021	0.037
Date of Highest 24-Hr Conc.	1/13	2/13	3/11	4/1	5/13	6/22	7/13	8/21	9/11	10/30	11/3	12/27	10/30
2nd Highest 24-Hr Conc.	0.009	0.018	0.031	0.019	0.013	0.008	0.002	0.018	0.018	0.024	0.027	0.020	0.036
Date of 2nd Highest 24-Hr Conc.	1/15	2/8	3/31	4/3	5/14	6/23	7/14	8/25	9/3	10/31	11/14	12/31	3/11
No. of 24-Hour Conc													
0.0 - 0.049	31	28	31	30	31	30	31	31	25	2	30	31	331
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 includes 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 2003. The data shows that the old National Ambient Air Quality one-hour standard of 0.12 ppm was not exceeded in 2003. The maximum one-hour average concentration of 0.092 ppm was measured at Percy Priest Dam (site 0026) on April 14, 2003. Table XXI compares the measured ozone concentration for the past several years.

TABLE XVII
2003 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	742	670	742	710	737	719	740	736	719	737	716	741	8709
Highest 1-Hr Conc.	0.039	0.047	0.059	0.072	0.069	0.085	0.073	0.069	0.066	0.054	0.054	0.035	0.085
Date of Highest Conc.	1/20	2/2	3/25	4/14	5/23	6/24	7/17	8/17	9/10	10/30	11/3	12/10	6/24
2nd Highest 1-Hr Conc.	0.034	0.040	0.056	0.071	0.062	0.076	0.069	0.068	0.064	0.053	0.052	0.035	0.076
Date of 2nd Highest Conc.	1/19	2/3	3/23	4/27	5/24	6/28	7/20	8/25	9/12	10/25	11/1	12/29	6/28
3rd Highest 1-Hr Conc.	0.033	0.035	0.055	0.067	0.059	0.073	0.067	0.062	0.059	0.051	0.051	0.034	0.073
Date of 3rd Highest Conc.	1/12	2/13	3/24	4/12	5/28	6/29	7/3	8/19	9/17	10/19	11/2	12/28	3/29
4th Highest 1-Hr Conc.	0.031	0.032	0.054	0.064	0.057	0.069	0.065	0.060	0.058	0.051	0.037	0.030	0.073
Date of 4th Highest Conc.	1/17	2/11	3/12	4/29	5/30	6/5	7/14	8/18	9/11	10/31	11/8	12/25	7/17
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	742	668	696	601	672	596	618	640	649	710	705	741	8038
0.045 - 0.084	0	2	46	109	65	122	122	96	70	27	11	0	670
0.085 - 0.124	0	0	0	0	0	1	0	0	0	0	0	0	1
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
2003 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	743	671	742	717	739	718	742	740	718	741	718	742	8731
Highest 1-Hr Conc.	0.051	0.056	0.070	0.092	0.070	0.091	0.084	0.082	0.080	0.063	0.065	0.044	0.092
Date of Highest Conc.	1/20	2/2	3/25	4/14	5/28	6/24	7/3	8/25	9/10	10/30	11/3	12/28	4/14
2nd Highest 1-Hr Conc.	0.041	0.049	0.066	0.081	0.068	0.086	0.082	0.080	0.074	0.062	0.063	0.041	0.091
Date of 2nd Highest Conc.	1/19	2/3	3/24	4/29	5/24	6/29	7/20	8/26	9/11	10/25	11/2	12/29	6/24
3rd Highest 1-Hr Conc.	0.037	0.045	0.064	0.077	0.067	0.08.	0.076	0.078	0.084	0.060	0.059	0.038	0.086
Date of 3rd Highest Conc.	1/27	2/14	3/12	4/16	5/23	6/5	7/17	8/1	9/12	10/31	11/1	12/9	6/29
4th Highest 1-Hr Conc.	0.036	0.041	0.061	0.077	0.065	0.073	0.076	0.075	0.072	0.057	0.049	0.038	0.084
Date of 4th Highest Conc.	1/17	2/15	3/27	4/27	5/1	6/17	7/18	8/17	9/17	10/9	11/21	12/10	7/3
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	739	659	631	481	608	544	598	552	596	661	689	742	7500
0.045 - 0.084	4	12	111	232	131	168	144	188	122	80	29	0	1221
0.085 - 0.124	0	0	0	4	0	6	0	0	0	0	0	0	10
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

2003 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	744	713	732	720	744	737	720	737	720	744	8727
Highest 8-Hr Avg. Conc.	0.033	0.039	0.055	0.065	0.059	0.078	0.064	0.060	0.059	0.047	0.039	0.032	0.078
Date of Highest Conc.	1/20	2/2	3/25	4/27	5/23	6/24	7/20	8/25	9/10	10/30	11/1	12/28	6/24
2nd Highest 8-Hr Avg. Conc.	0.029	0.032	0.053	0.059	0.059	0.066	0.063	0.054	0.055	0.046	0.038	0.032	0.066
Date of 2nd Highest Conc.	1/12	2/3	3/23	4/14	5/24	6/28	7/17	8/17	9/12	10/25	11/2	12/29	6/28
3rd Highest 8-Hr Avg. Conc.	0.029	0.030	0.051	0.056	0.054	0.064	0.056	0.053	0.049	0.046	0.033	0.026	0.065
Date of 3rd Highest Conc.	1/19	2/12	3/24	4/12	5/28	6/29	7/3	8/19	9/11	10/31	11/3	12/9	4/27
4th Highest 8-Hr Avg. Conc.	0.027	0.027	0.049	0.056	0.052	0.062	0.056	0.051	0.049	0.042	0.032	0.026	0.064
Date of 4th Highest Conc.	1/11	2/8	3/12	4/16	5/30	6/5	7/25	8/24	9/13	10/4	11/13	12/10	6/29
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	744	712	732	712	744	737	720	737	720	744	8718
0.065 - 0.084	0	0	0	1	0	8	0	0	0	0	0	0	9
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

2003 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	672	744	720	738	720	744	744	720	744	720	744	8754
Highest 8-Hr Avg. Conc.	0.044	0.050	0.066	0.082	0.063	0.085	0.071	0.075	0.071	0.057	0.055	0.041	0.085
Date of Highest Conc.	1/20	2/2	3/25	4/14	5/28	6/24	7/20	8/25	9/10	10/25	11/3	12/28	6/24
2nd Highest 8-Hr Avg. Conc.	0.038	0.043	0.062	0.074	0.061	0.073	0.069	0.068	0.070	0.057	0.049	0.039	0.082
Date of 2nd Highest Conc.	1/19	2/3	3/24	4/16	5/24	6/5	7/17	8/26	9/12	10/31	11/1	12/29	4/14
3rd Highest 8-Hr Avg. Conc.	0.033	0.039	0.060	0.070	0.059	0.073	0.067	0.064	0.064	0.053	0.048	0.035	0.075
Date of 3rd Highest Conc.	1/27	2/14	3/12	4/15	5/30	6/29	7/3	8/1	9/11	10/30	11/2	12/22	8/25
4th Highest 8-Hr Avg. Conc.	0.031	0.038	0.056	0.070	0.058	0.065	0.059	0.063	0.063	0.048	0.044	0.034	0.074
Date of 4th Highest Conc.	1/12	2/15	3/27	4/27	5/23	6/23	7/25	8/19	9/17	10/20	11/23	12/9	4/16
No. of 8-Hr Exceedances	0	0	0	0	0	1	0	0	0	0	0	0	1
No. of 8-Hr Concentrations													
0.000 - 0.064	744	672	742	678	738	698	733	737	711	744	720	744	8661
0.065 - 0.084	0	0	2	42	0	21	11	7	9	0	0	0	92
0.085 - 0.104	0	0	0	0	0	1	0	0	0	0	0	0	1
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 2003. The maximum eight-hour average concentration of 0.085 ppm was measured at Percy Priest Dam (site 0026) on June 24, 2003. Table XXI compares the 1-hour daily maximum ozone concentrations from 1980 through 2003 at East Health Center and Percy Priest Dam. Table XXII compares the 8-hour ozone concentrations for the past seven (7) years.

TABLE XXI

1980 - 2003 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
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
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
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
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
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
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

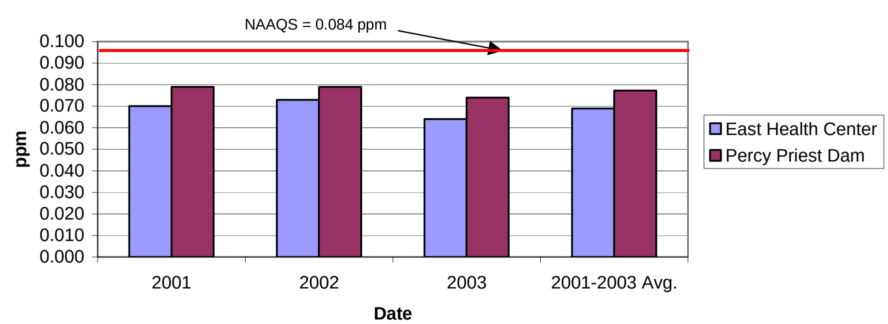
SITE 247-037-0026 PERCY PRIEST DAM

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
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
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
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
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
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
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

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

The data in Figure 12 shows that the new, more stringent 8-hour average ozone National Ambient Air Quality Standard (NAAQS) of 0.08 ppm was not exceeded in 2003. Compliance with the 8-hour average ozone NAAQS is achieved when the 3-year average of the annual fourth highest value is 0.084 ppm or less. The Davidson County 3-year average (2001, 2002 and 2003) at the Percy Priest Dam site is 0.077. Therefore, Davidson County is attaining the new 8-hour ozone NAAQS.

DAVIDSON COUNTY 4TH HIGHEST 8-HOUR AVERAGE OZONE VALUES
Figure 12



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.

Table XXIII shows that over the three-year period of 2001 through 2003, none of the ozone monitors in the Middle Tennessee area measured a violation of the original 1-hour (NAAQS) by measuring more than one (1.0) exceedance per year on the average. However, the monitor located at Old Hickory Dam showed a violation of the more stringent 8-hour average NAAQS by the average of the annual fourth highest value over the 3-year period being greater than 0.084 ppm. The average of the annual fourth highest value for the most recent three year period at the Old Hickory Dam site is 0.086.

TABLE XXIII
2001 - 2003 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	2001	0.088	0.078	0.083	0.076	0.083	0.074	0.079	0.070	0	0
	2002	0.087	0.076	0.087	0.075	0.086	0.073	0.085	0.073	0	0
	2003	0.085	0.078	0.076	0.066	0.073	0.065	0.073	0.064	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-037-0026 Percy Priest Dam-Davidson	2001	0.106	0.097	0.100	0.093	0.094	0.079	0.088	0.079	0	2
	2002	0.100	0.082	0.097	0.082	0.090	0.079	0.087	0.079	0	0
	2003	0.092	0.085	0.091	0.082	0.086	0.075	0.084	0.074	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-149-0101* Eagleville-Rutherford	2001	0.088	0.082	0.088	0.078	0.085	0.078	0.084	0.076	0	0
	2002	0.121	0.104	0.109	0.096	0.108	0.092	0.095	0.090	0	8
	2003	0.090	0.087	0.089	0.080	0.089	0.077	0.088	0.076	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-165-0007* Old Hickory Dam-Sumner	2001	0.113	0.103	0.110	0.093	0.099	0.090	0.099	0.086	0	6
	2002	0.118	0.093	0.107	0.087	0.105	0.087	0.104	0.086	0	5
	2003	0.100	0.095	0.096	0.086	0.096	0.086	0.094	0.086	0	5
COMPLIANCE WITH NAAQS										**Yes**	**No**
247-165-0101* Cottontown-Sumner	2001	0.109	0.096	0.108	0.093	0.099	0.088	0.098	0.086	0	4
	2002	0.106	0.093	0.101	0.089	0.101	0.087	0.099	0.087	0	6
	2003	0.098	0.078	0.091	0.078	0.089	0.075	0.085	0.074	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-187-0106* Fairview-Williamson	2001	0.097	0.083	0.091	0.082	0.091	0.080	0.089	0.080	0	0
	2002	0.124	0.096	0.113	0.095	0.106	0.094	0.106	0.094	0	12
	2003	0.091	0.088	0.091	0.083	0.090	0.082	0.086	0.080	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-189-0103* Cedars of Lebanon-Wilson	2001	0.096	0.084	0.092	0.082	0.089	0.080	0.088	0.079	0	0
	2002	0.124	0.108	0.102	0.098	0.096	0.089	0.095	0.088	0	7
	2003	0.099	0.089	0.090	0.081	0.089	0.079	0.089	0.079	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 2003, 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 shut-down 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 2003. This data shows that the National Ambient Air Quality Standard was not violated at any site during 2003.

TABLE XXIV
2003 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	670	742	718	740	718	739	740	717	740	717	741	8724
Highest 1-Hr Conc.	4.2	4.9	3.3	2.3	2.6	3.0	2.1	2.2	3.0	3.0	5.4	3.2	5.4
Date of Highest Conc.	1/16	2/13	3/7	4/28	5/3	6/8	7/18	8/11	9/22	10/7	11/1	12/31	11/1
2nd Highest 1-Hr Cond.	3.4	3.1	3.0	2.2	1.9	2.8	2.1	2.1	2.9	2.9	4.4	2.9	4.9
Date of 2nd Highest 1-Hr Conc.	1/13	2/13	3/8	4/28	5/13	6/8	7/18	8/8	9/11	10/27	11/1	12/27	2/13
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr Conc.	2.8	2.7	2.3	1.7	1.5	2.2	1.8	1.6	2.0	1.9	3.9	2.2	3.9
Date of Highest 8-Hr Conc.	1/16	2/14	3/8	4/1	5/14	6/8	7/18	8/11	9/11	10/6	11/2	12/28	11/2
2nd Highest 8-Hr Conc.	2.6	2.6	1.8	1.7	1.4	1.8	1.7	1.6	1.8	1.8	3.0	1.9	3.0
Date of 2nd Highest 8-Hr Conc.	1/20	2/13	3/7	4/2	5/16	6/6	7/4	8/14	9/21	10/7	11/1	12/27	11/1
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
17.0 - 20.9	0	0	0	0	0	0	0	0	0	0	0	0	0
21.0 - 24.9	0	0	0	0	0	0	0	0	0	0	0	0	0
25.0 - 28.0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greater Than 28.0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XXV
2003 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	740	668	743	695	740	717	742	740	717	741	716	739	8698
Highest 1-Hr Conc.	4.7	4.8	4.9	2.8	2.6	3.2	3.2	2.3	2.3	3.3	4.2	4.1	4.9
Date of Highest Conc.	1/25	2/13	3/7	4/11	5/3	6/8	7/3	8/26	9/23	10/6	11/1	12/26	3/7
2nd Highest 1-Hr. Conc.	4.1	4.6	4.9	2.6	2.4	3.1	3.0	2.2	2.2	3.2	4.2	4.1	4.9
Date of 2nd Highest 1-Hr. Conc.	1/13	2/13	3/8	4/27	5/7	6/7	7/4	8/25	9/11	10/29	11/3	12/26	3/8
No. of 1-Hr. Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr. Conc.	3.6	3.6	4.2	2.1	1.7	2.8	2.7	1.8	1.7	2.9	3.5	3.6	4.2
Date of Highest 8-Hr. Conc.	1/14	2/14	3/8	4/28	5/4	6/8	7/4	8/26	9/24	10/7	11/2	12/27	3/8
2nd Highest 8-Hr. Conc.	3.0	3.2	3.2	1.9	1.7	2.2	1.9	1.7	1.6	2.7	3.5	3.3	3.6
Date of 2nd Highest 8-Hr. Conc.	1/26	2/13	3/17	4/12	5/8	6/10	7/3	8/27	9/12	10/9	11/4	12/28	1/14
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	666	744	696	744	720	744	744	720	744	720	738	8724
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
2003 SUMMARY OF CARBON MONOXIDE CONCENTRATIONS (PPM)

SITE	HUME FOGG	DOUGLAS PARK	ANNUAL
Highest 1-Hr Conc.	5.4	4.9	5.4
2nd Highest 1-Hr Conc.	4.9	4.9	4.9
Highest 8-Hr Conc.	3.9	4.2	4.2
2nd Highest 8-Hr Conc.	3.0	3.6	3.9
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 exceeded since 1989.

TABLE XXVII
1980 – 2003 ANNUAL COMPARISON CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0021 HUME FOGG MAGNET SCHOOL

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
Highest 1-Hr Conc.	16.5	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
2nd Highest 1-Hr Conc.	14.0	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
Highest 8-Hr Conc.	9.3	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
2nd Highest 8-Hr Conc.	8.9	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
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)	1	4	6	20	8	0	3	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)	1	3	5	20	8	0	3	1	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*

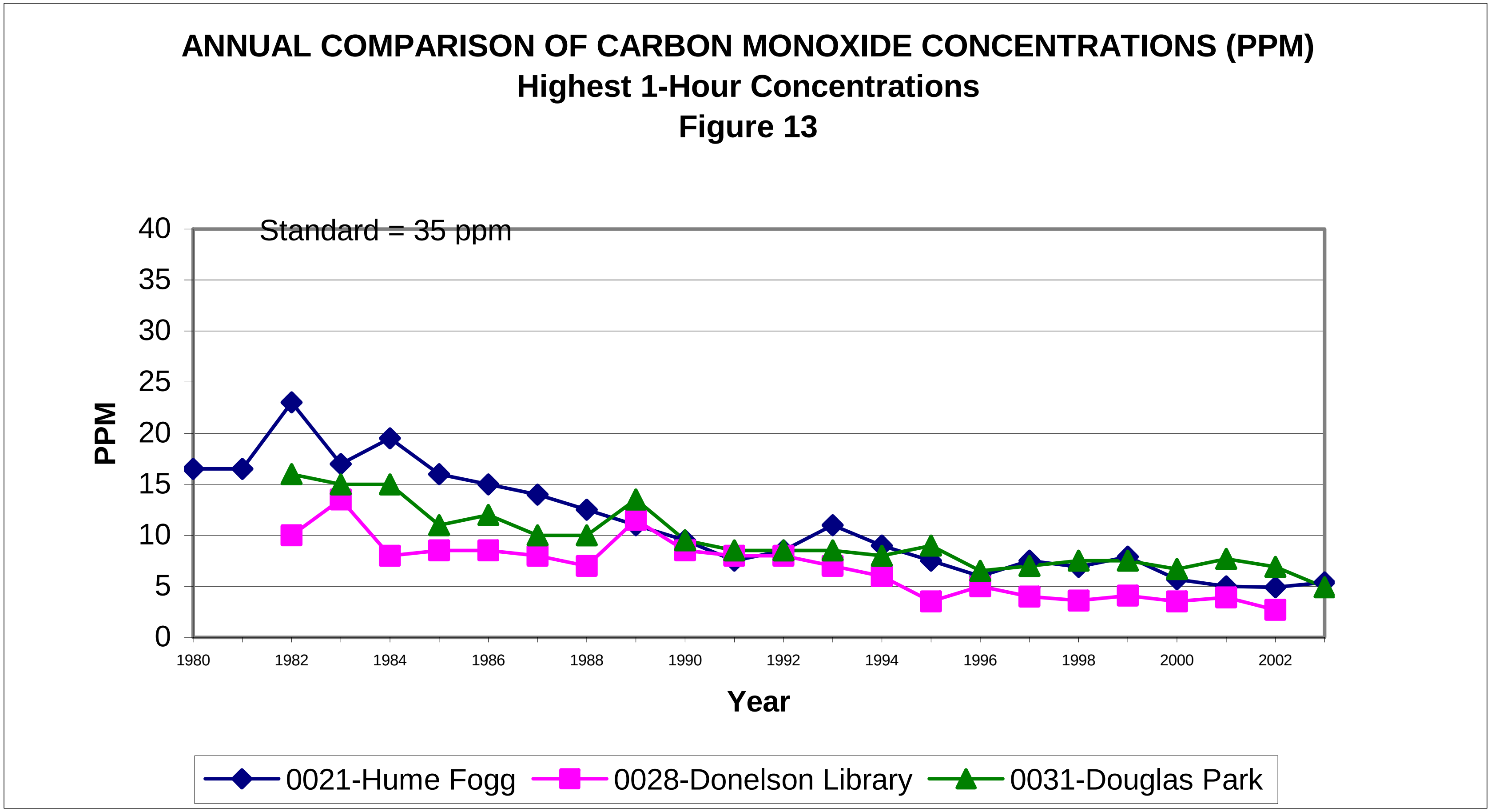
YEAR	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Highest 1-Hr Conc.	10.0	13.5	8.0	8.5	8.5	8.0	7.0	11.5	8.5	8.0	8.0	7.0	6.0	3.5	5.0	4.0	3.6	4.1	3.5	3.9	2.7
2nd Highest 1-Hr Conc.	9.5	8.0	7.5	7.0	6.5	8.0	7.0	7.0	7.5	6.5	7.0	6.8	5.5	3.0	4.5	4.0	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

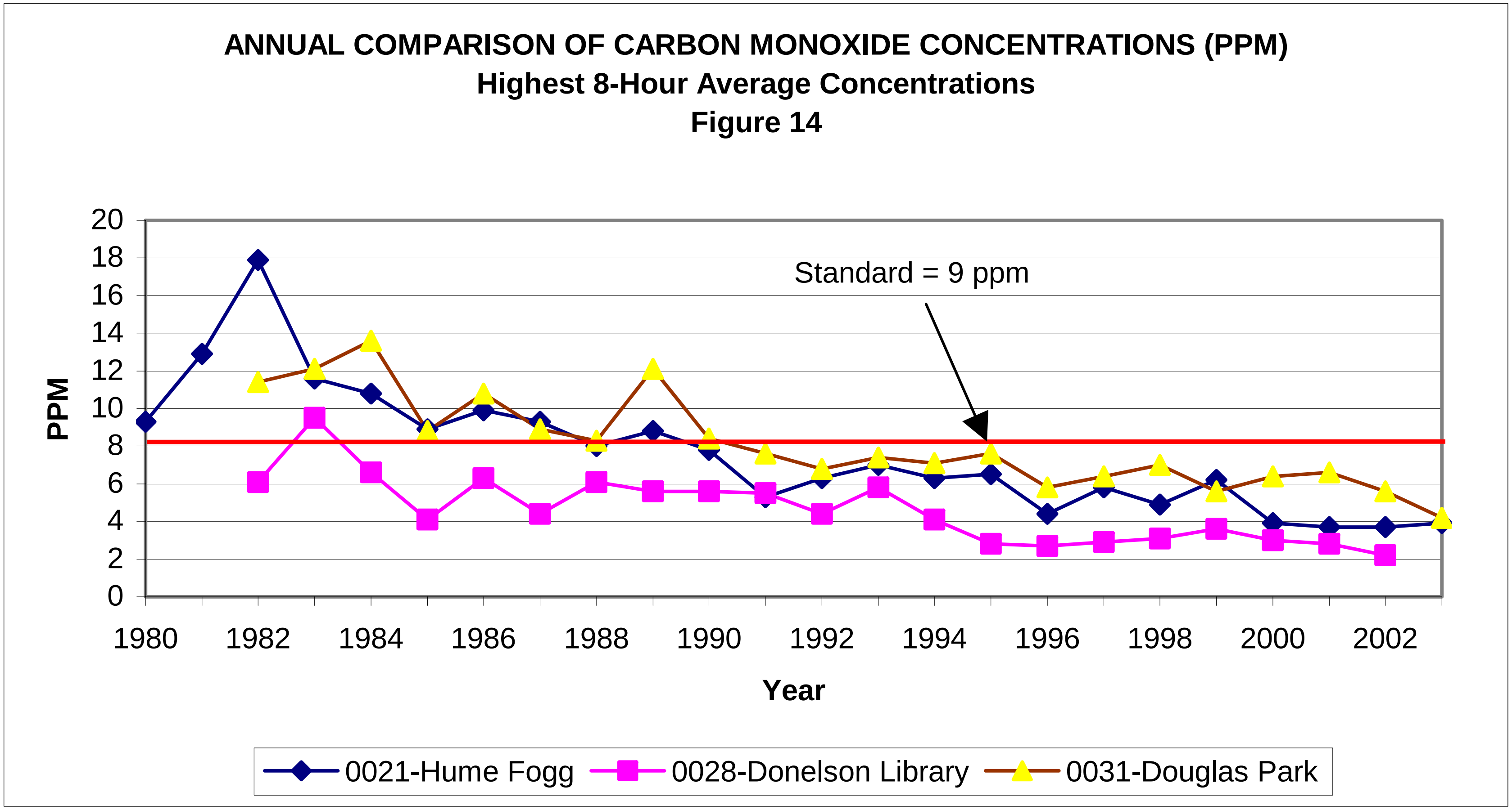
*Donelson Library site was taken out of service in 2002.

TABLE XXIX
1982 - 2003 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
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
2nd Highest 1-Hr Concentration	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
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
2nd Highest 8-Hr Concentration	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
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
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
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


ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS (PPM)
Highest 1-Hour Concentrations
Figure 13
Standard = 35 ppm
PPM
0
5
10
15
20
25
30
35
40
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
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
Year
0
2
4
6
8
10
12
14
16
18
20
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
0021-Hume Fogg
0028-Donelson Library
0031-Douglas Park

AIR QUALITY INDEX
AIR QUALITY FORECASTING

The Air Quality Index (AQI) was developed by the Environmental Protection Agency (EPA) to provide accurate, timely, and easily understandable information about daily levels of air pollution. The AQI converts the measured pollutant concentration to a number on a scale of 0 to 500 with critical breakpoints in between representing ranges of air pollution. The AQI provides general information to the public about air quality and associated health effects. Another purpose of the AQI is to maintain a standardized air quality reporting method across the country.

The daily air quality index and pollen count 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.org. The measured concentrations of carbon monoxide, ozone, sulfur dioxide, $PM_{2.5}$, PM_{10} and nitrogen dioxide are used to generate the AQI. It is furnished daily, Monday through Friday, by 9:00 a.m. Included in the numerical value is a descriptive word and cautionary statement, when applicable. Table XXX summarizes the daily AQI for 2003. Table XXXI shows the Air Quality Index categories along with the cautionary statements associated with each pollutant.

TABLE XXX
2003 AQI SUMMARY

Range	Number of Days	% of Total Days
Good	203	56%
Moderate	159	44%
Unhealthy for Sensitive Groups	3	1%

The maximum Air Quality Index in 2003 was on July 20, 2003 when the $PM_{2.5}$ concentration reached 45 $\mu g/m^3$ at the Lockeland monitoring site. The 45 $\mu g/m^3$ ppm concentration resulted in a reported AQI of 111.

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. 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 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.org.

TABLE XXXI
AQI CAUTIONARY STATEMENTS

AQI Category	Ozone (ppm)		Particulate Matter ($\mu g/m^3$)		Carbon Monoxide (ppm)	Sulfur Dioxide (ppm)	Nitrogen Dioxide (ppm)
	8-Hour	1-Hour	$PM_{2.5}$ 24-Hour	PM_{10} 24-Hour	8-Hour	24-Hour	1-Hour
Good (0 –50)	None		None	None	None	None	None
Moderate (51 – 100)	Unusually sensitive people should consider limiting prolonged outdoor exertion.		Unusually sensitive people should consider reducing prolonged or heavy exertion.	Unusually sensitive people should consider reducing prolonged or heavy exertion.	None	None	None
Unhealthy for Sensitive Groups (101 – 150)	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.	Active children and adults, and people with respiratory disease, such as asthma, should limit heavy outdoor exertion.	People with respiratory or heart disease, the elderly and children should limit prolonged exertion.	People with respiratory disease, such as asthma, should limit outdoor exertion.	People with cardiovascular disease, such as angina, should limit heavy exertion and avoid sources of CO, such as heavy traffic.	People with asthma should consider limiting outdoor exertion.	None
Unhealthy (151 – 200)	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.	Active children and adults, and people with respiratory disease, such as asthma, should avoid heavy outdoor exertion; everyone else, especially children, should limit heavy outdoor exertion.	People with respiratory or heart disease, the elderly and children should avoid prolonged exertion; everyone else should limit prolonged exertion.		People with cardiovascular disease, such as angina, should limit moderate exertion and avoid sources of CO such as heavy traffic.	Children, asthmatics, and people with heart or lung disease should limit outdoor exertion.	None
Very Unhealthy (201 – 300)	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.	People with respiratory or heart disease, the elderly and children should avoid any outdoor activity; everyone else should avoid prolonged exertion.	People with respiratory disease, such as asthma, should avoid any outdoor activity; everyone else, especially the elderly and children, should limit outdoor exertion.	People with cardiovascular disease, such as angina, should avoid exertion and sources of CO, such as heavy traffic.	Children, asthmatics, and people with heart or lung disease should avoid outdoor exertion; everyone else should limit outdoor exertion.	Children and people with respiratory disease, such as asthma, should limit heavy outdoor exertion.
Hazardous (greater than 300)	Everyone should avoid all outdoor exertion.	Everyone should avoid all outdoor exertion.	Everyone should avoid any outdoor exertion; people with respiratory or heart disease, the elderly and children should remain indoors.	Everyone should avoid any outdoor exertion; people with respiratory disease, such as asthma, should remain indoors.	People with cardiovascular disease, such as angina, should avoid exertion and sources of CO, such as heavy traffic; everyone else should limit heavy exertion.	Children, asthmatics, and people with heart or lung disease should remain indoors; everyone else should avoid outdoor exertion.	Children, and people with respiratory disease, such as asthma, should limit moderate or heavy outdoor exertion.

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 (5) 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 XXXII
2003 POLLEN COUNT SUMMARY

Range	Number of Days	% of Total Days
Slight	89	51%
Moderate	39	23%
Heavy	11	6%
Extremely Heavy	34	20%

The maximum daily pollen count for Nashville during 2003 was 860 grains/cm^2 measured April 3, 2003, due to the combination of cedar, elm, maple and pine.

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

9. INDOOR AIR QUALITY

According to the Environmental Protection Agency (EPA), we spend approximately 90% of our time indoors. For certain populations (infants, the elderly and those confined due to illness or injury), that time approaches 100%. Groups such as the EPA and the American Lung Association (ALA) have stated that our indoor environment may be more polluted than our outdoor environment. Tobacco smoking (and secondhand smoke), asthma, radon, mold, other biologicals, carbon monoxide and nuisance odors are just a few of the things that can make our indoor environment unpleasant or even unhealthy.

Currently, there is an Indoor Air Quality (IAQ) program operated as a segment of the Pollution Control Division (PCD). This program has been in existence for several years. The program is not regulatory. It is a voluntary program that seeks to provide education, information, diagnostic services (when possible) and suggestions on to how to improve indoor air quality. The focus of the IAQ program is on homes, apartments, daycare centers and public and private schools. The Tennessee Occupational Safety and Health Administration (TOSHA) is responsible for the health and safety of employees at commercial and industrial establishments.

During 2003, 176 on-site IAQ investigations were conducted. There were many more telephone calls from people looking for information, guidance on how to correct a particular situation or how to generally 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.

Much interest has been generated in mold recently. Mold is certainly not new. We exist with mold on a daily basis. There is always a little mold everywhere - in the air and on many surfaces. Generally, it is when a person has become sensitized to mold that it becomes a noticeable problem causing respiratory discomfort. However, the symptoms may be quite severe if the person is asthmatic or has an otherwise compromised pulmonary or immune system. There is evidence that some molds produce toxic by-products (mycotoxins). The current recommendations from the EPA and the Centers for Disease Control (CDC) are based on a common-sense approach for any mold contamination existing inside buildings and homes. According to EPA, the hazards presented by molds that may contain mycotoxins should be considered the same as other common molds which can grow in your home. It is not necessary to determine what type of mold you may have. All molds should be treated the same with respect to potential health risks and removal.

For the most part, one should take routine measures to prevent mold growth in the home. Moisture control is the key to mold control. In most cases, mold can be cleaned off surfaces with soap and water and the surfaces sanitized with a weak bleach solution. Mold under carpets typically requires that the carpets be removed. Once mold starts 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 you do not think you can manage the cleanup on your own, you may want to contact a professional who has experience in cleaning mold in buildings and homes.

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 XXXIII. Davidson County could not demonstrate attainment by December 31, 1982; therefore, a five-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, 2003 through December 31, 2003.

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.

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 and retested and must pass the emissions test prior to being issued a Davidson County wheel tax license.

The Davidson County's 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 if fails both of the 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 XXXIII
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 2003, the Davidson County Vehicle Inspection Program performed 551,945 emission inspections. Compared to the 532,108 inspections done during 2002, there was an increase of 19,837 inspections.

VEHICLE INSPECTION PASS AND FAIL RATES

In 2003, a total of 551,945 vehicles were tested. The 2003 overall pass rate was 89.5%, and the fail rate was 10.5%. The 2002 fail rate was 9.9%.

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

TABLE XXXIV
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%

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 the emission inspection facilities in the Davidson County program. The program has six test centers as seen in Table XXXV.

TABLE XXXV
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 2003, there were 373 gas analyzer audits on 13 gas analyzers used by the test centers. Also, there were 35 undercover activities conducted on contractor inspection facilities.

VEHICLE INSPECTION PROGRAM ENFORCEMENT

During 2003, various enforcement activities were carried out to ensure compliance with the vehicle inspection program. The staff issued 294 Notices of Violation or Citations.

Due to the enforcement efforts of the staff, the Davidson County Vehicle Inspection Program has a 98% compliance rate. 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 2003, the staff attended 104 EPA workshops or training courses. Semi-annually in 2003, the State of Tennessee Visible Emission Evaluation School certified three environmentalists to conduct visible emissions evaluations. The staff made 21 presentations.

In addition to the ambient monitoring activities previously presented, the Pollution Control Division Laboratory performed analysis on 43 samples for asbestos and 98 other particulate matter samples.

During 2003, this agency's revenue included:

$477,284.84	Operating Permits and Emission-based fees
$140,615.00	Penalties
$993,499.20	Vehicle Inspection Program

Prepared by Fred Huggins
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