POLLUTION CONTROL DIVISION

ANNUAL REPORT 2007

Metro Public Health Dept
Nashville/Davidson County

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The mission of the Metro Public Health Department is to promote physical and mental well-being and prevent disease, injury and disability for everyone in Nashville.

The vision of the Metro Public Health Department is "People creating healthy conditions everywhere."

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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 (PCD) in carrying out these responsibilities for calendar year 2007.

The purpose of the Air Quality Program (includes Pollution Control Division and Vehicle Inspection and Maintenance) is to provide assessment, information and protection products to everyone in Nashville so they can experience healthy living conditions through clean air and reduced exposure to environmental health and safety hazards.

4. ENGINEERING ACTIVITIES

Table I and Figures 1 through 5, present the 2007 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 92% of the total 2007 particulate emissions. Dust from paved roads accounts for 84% of the total 2007 PM_{10} emissions. Figure 2 shows that fuel combustion accounts for approximately 93% of the total 2007 sulfur dioxide emissions. Figure 3 shows that the on-road and non-road mobile source emissions account for 84% of the total 2007 nitrogen dioxide emissions. Figure 4 shows that 98% of the 2007 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 62% of the total 2007 volatile organic compound emissions, and approximately 15% 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 14 years.

The 2007 Davidson County Hazardous Air Pollutant Emission Inventory is shown in Table III.

During 2007, the Engineering Section reviewed plans and specifications for 68 new and/or modified stationary sources and issued the following permits:

Construction Permits:	53
Operating Permits:	720

In addition to the above permits, 217 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 2007 was $683,480.53.

During 2007 this agency observed the following compliance source tests:

2	Nitrogen Oxides
1	Volatile Organic Compound
2	Particulate
111	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. Since that time one facility has expanded production to become a major source while some facilities have closed. 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 (closed in 2007)
70-0081	U.S. Smokeless Tobacco Manufacturing, LP
70-0120	Peterbilt Motors Company
70-0133	Gibson Fiberglass (closed in 2007)
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
2007 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

STATIONARY SOURCES-TONS PER YEAR										
	PARTICULATE		SULFUR OXIDES		NITROGEN OXIDES		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	12.8	0.0
Bulk Gasoline Terminals	0.0	0.0	0.0	0.0	0.0	7.5	0.0	22.0	19.9	245.3
Bulk Gasoline Plants	0.0	0.0	0.0	0.0	0.0	2.2	0.0	5.6	7.0	19.7
Tank Truck Unl. (Stage I)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	194.2	0.0
Vehicle Refuel. (Stage II)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.3	0.0
Tank Trucks In Transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.5	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**9.7**	**0.0**	**27.6**	**355.7**	**265.1**
Total--Area + Point	**0.0**		**0.0**		**9.7**		**27.6**		**620.8**	
INDUSTRIAL PROCESSES										
Adhesives	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	0.0
Aerospace	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	10.2	25.4
Misc. Metal Products	0.7	0.6	0.0	0.0	0.0	1.2	0.0	0.7	49.4	61.4
Inorganic Chemical Mfg.	0.0	38.8	0.0	0.0	0.0	8.8	0.0	4.4	0.4	0.6
Organic Chemical Mfg.	0.0	15.3	0.0	0.0	0.0	8.3	0.0	8.5	0.0	248.8
Textile Mfg.	4.6	58.9	0.0	0.1	7.3	9.6	6.1	8.8	6.8	34.3
Rubber Tire Mfg.	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	1.8	18.0
Plastic Products Mfg.	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.0
Wood Products Mfg.	8.9	2.2	0.3	0.2	7.0	2.7	6.3	1.5	40.4	190.6
Clay & Glass	5.9	126.7	0.0	195.8	0.0	861.1	0.0	72.7	0.7	30.0
Mineral Products	97.2	66.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asphalt Plants	14.5	15.1	11.6	10.6	8.3	6.1	56.5	48.4	13.2	9.9
Paint Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	12.6
Food & Agriculture	4.1	0.4	0.0	0.1	3.2	2.3	2.7	0.9	2.0	49.5
Primary/Sec. Metals	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Large Appliance Coating	0.2	0.0	0.0	0.0	2.7	0.0	2.3	0.0	8.2	0.0
Ship Building	0.0	0.0	6.4	0.0	80.8	0.0	23.8	0.0	10.6	0.0
Subtotal	**139.4**	**325.5**	**18.4**	**206.8**	**109.3**	**900.1**	**97.7**	**146.0**	**166.6**	**681.1**
Total--Area + Point	**464.9**		**225.2**		**1,009.3**		**243.7**		**847.6**	

TABLE I (continued)
2007 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

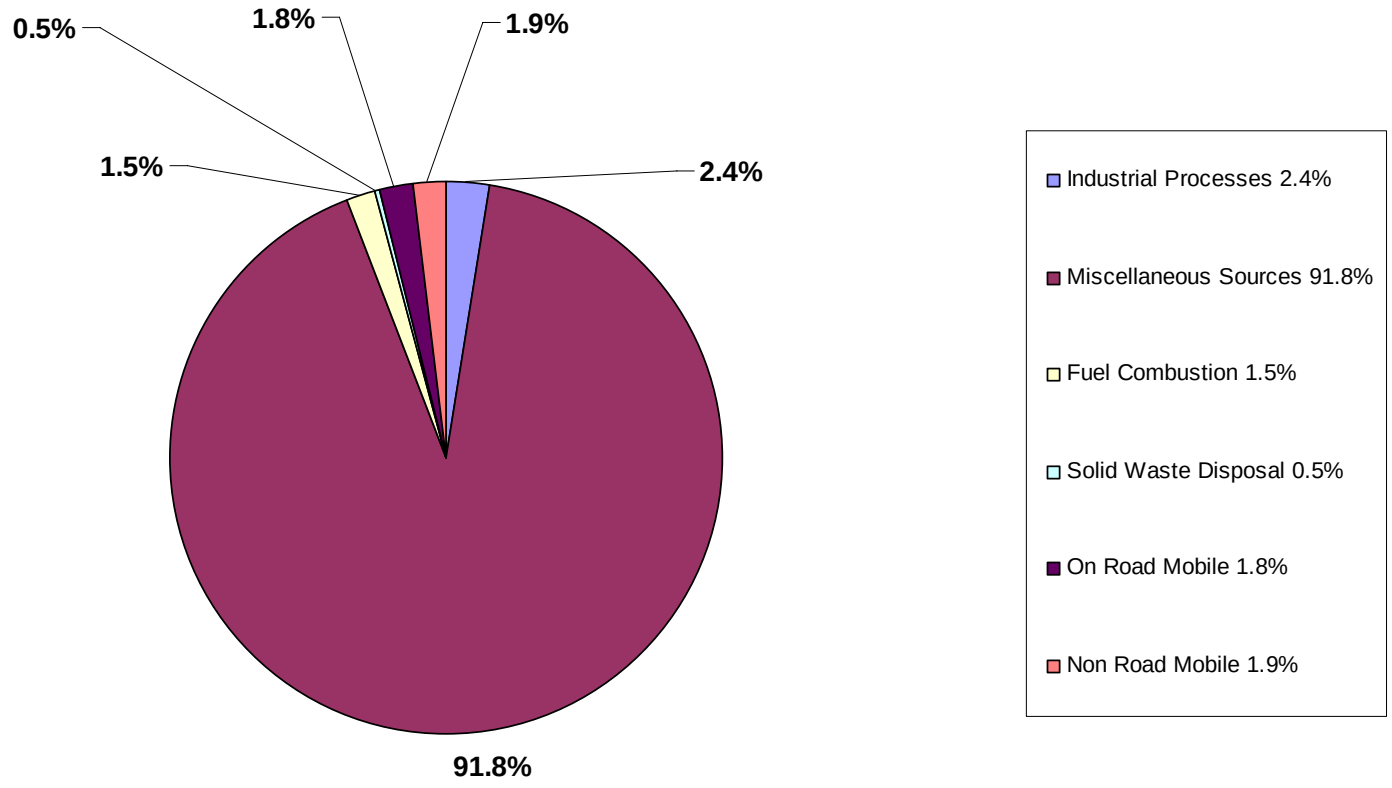
STATIONARY SOURCES-TONS PER YEAR										
	PARTICULATE		SULFUR OXIDES		NITROGEN OXIDES		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**
NON-IND. SURFACE COAT.										
Architectural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,099.9	0.0
Auto Refinishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	721.4	0.0
Traffic Markings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	111.1	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1,932.4**	**0.0**
Total--Area + Point	**0.0**		**0.0**		**0.0**		**0.0**		**1,932.4**	
OTHER SOLVENT USE										
Cold Cleaners (exc. perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,090.8	0.0
Degreas. (exc cold clean.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Graphic Arts	0.0	0.2	0.0	0.0	6.9	0.0	3.6	0.0	114.3	1.2
Dry Cleaning (exc. perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.0
Cons./Comm. Solv. Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,836.1	0.0
Subtotal	**0.0**	**0.2**	**0.0**	**0.0**	**6.9**	**0.0**	**3.6**	**0.0**	**3,050.9**	**1.2**
Total--Area + Point	**0.3**		**0.0**		**6.9**		**3.6**		**3,052.1**	
MISC. SOURCES										
Pesticide Application	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	539.3	0.0
Landfills	0.0	1.6	0.0	1.5	0.0	3.6	0.0	67.8	0.0	13.1
Scrap & Waste Material	29.2	14.3	1.1	0.6	14.5	8.8	2.7	1.9	0.7	0.7
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	15,998.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brake and Tire Wear	187.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction Projects	1,111.4	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	**17,398.8**	**15.9**	**1.1**	**2.1**	**14.5**	**12.4**	**2.7**	**69.7**	**540.0**	**13.8**
Total--Area + Point	**17,414.7**		**3.1**		**26.9**		**72.4**		**553.8**	
FUEL COMBUSTION										
Residential	149.1	0.0	35.8	0.0	335.1	0.0	979.4	0.0	751.7	0.0
Commercial/Institutional	15.9	57.6	14.1	1,302.3	98.7	796.0	102.2	355.1	8.2	22.8
Industrial	0.2	64.5	0.0	4,538.2	2.0	976.2	1.7	102.8	0.1	17.9
Subtotal	**165.2**	**122.1**	**50.0**	**5,840.5**	**435.9**	**1,772.2**	**1,083.2**	**457.9**	**760.0**	**40.7**
Total--Area + Point	**287.3**		**5,890.4**		**2,208.1**		**1,541.2**		**800.6**	
SOLID WASTE DISPOSAL										
Incinerators	1.1	0.0	0.5	0.0	1.8	0.0	0.6	0.0	0.2	0.0
POTW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	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 (inc. auto/truck)	79.3	0.0	0.0	0.0	0.2	0.0	618.4	0.0	84.7	0.0
Forest & Grass Fires	17.5	0.0	0.0	0.0	3.9	0.0	142.4	0.0	19.4	0.0
Subtotal	**97.9**	**0.0**	**0.5**	**0.0**	**6.0**	**0.0**	**761.4**	**0.0**	**126.3**	**0.0**
Total--Area + Point	**97.9**		**0.5**		**6.0**		**761.4**		**126.3**	
TOTAL STATIONARY SOURCES	**17,801.4**	**463.7**	**69.9**	**6,049.3**	**572.5**	**2,694.5**	**1,948.6**	**701.2**	**6,931.9**	**1,001.8**
TOTAL STA. AREA + POINT	**18,265.0**		**6,119.2**		**3,266.9**		**2,649.8**		**7,933.7**	

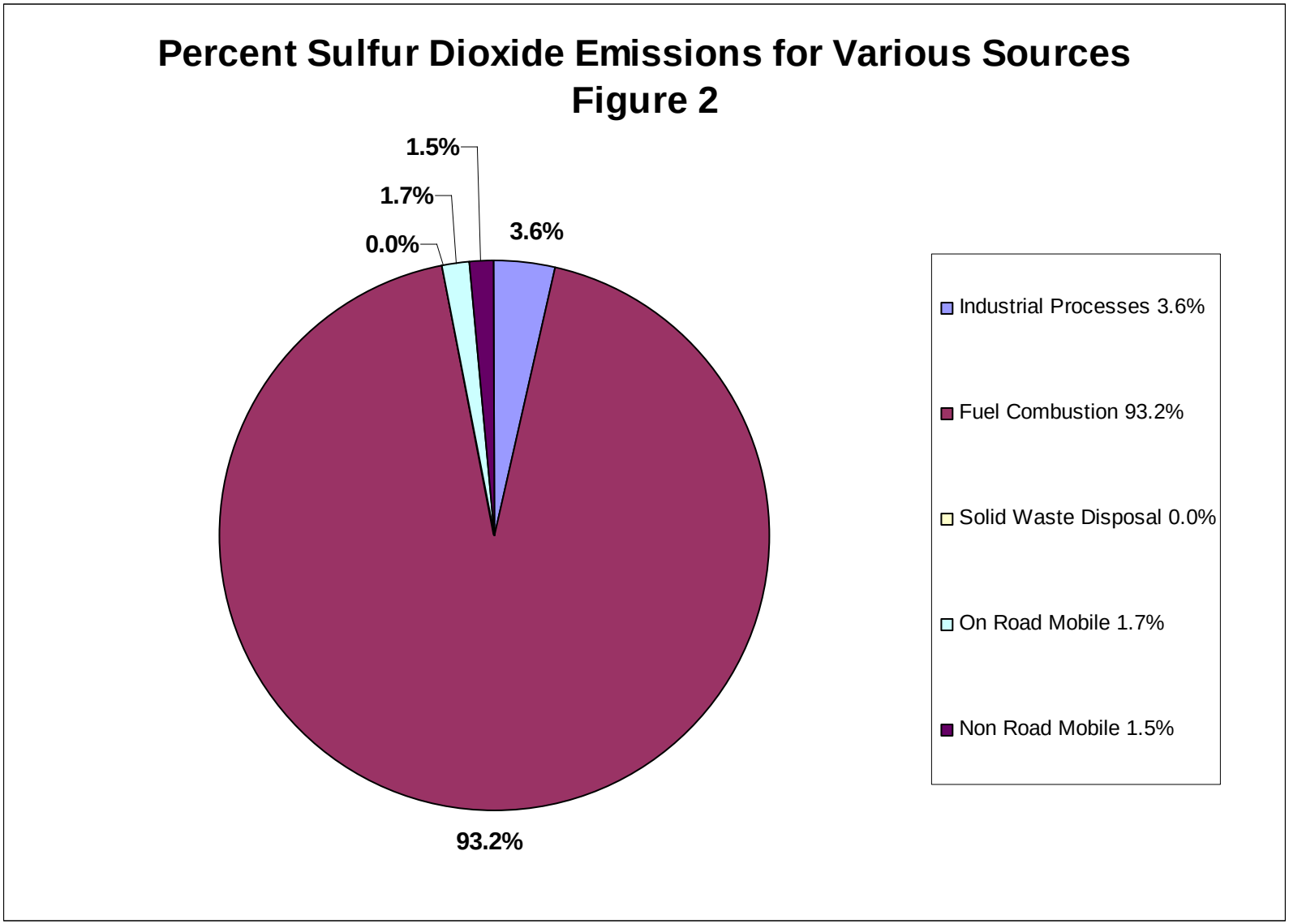
TABLE I (continued)
2007 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

M OBILE SOURCES-TONS PER YEAR										
	PARTICULATE		SULFUR OXIDES		NITROGEN OXIDES		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
ON-ROAD MOBILE										
LDV	156.9	0.0	46.8	0.0	4,139.8	0.0	68,594.3	0.0	5,818.6	0.0
LDT1	34.3	0.0	12.9	0.0	1,126.8	0.0	17,753.8	0.0	1,236.2	0.0
LDT2	8.6	0.0	4.0	0.0	382.3	0.0	5,726.9	0.0	492.0	0.0
HDV	147.3	0.0	41.6	0.0	6,702.7	0.0	3,347.5	0.0	398.2	0.0
MC	0.8	0.0	0.1	0.0	28.4	0.0	249.7	0.0	44.9	0.0
Subtotal	**348.0**	**0.0**	**105.4**	**0.0**	**12,380.0**	**0.0**	**95,672.1**	**0.0**	**7,990.0**	**0.0**
Total--Area + Point	**348.0**		**105.4**		**12,380.0**		**95,672.1**		**7,990.0**	
NON-ROAD MOBILE*										
Railroad Locomotives	10.5	0.0	30.6	0.0	422.2	0.0	60.9	0.0	26.4	0.0
Aircraft	32.3	0.0	28.2	0.0	589.4	0.0	1,380.0	0.0	174.2	0.0
Commercial Marine	0.0	0.0	6.4	0.0	80.8	0.0	23.8	0.0	10.6	0.0
Non-road	321.9	0.0	30.3	0.0	3,226.0	0.0	67,357.8	0.0	4,430.1	0.0
Subtotal	**364.7**	**0.0**	**95.4**	**0.0**	**4,318.4**	**0.0**	**68,822.5**	**0.0**	**4,641.3**	**0.0**
Total--Area + Point	**364.7**		**95.4**		**4,318.4**		**68,822.5**		**4,641.3**	
TOTAL MOBILE SOURCES	**712.7**	**0.0**	**200.9**	**0.0**	**16,698.4**	**0.0**	**164,494.7**	**0.0**	**12,631.3**	**0.0**
TOTAL MOBILE AREA + POINT	**712.7**		**200.9**		**16,698.4**		**164,494.7**		**12,631.3**	
TOTAL STATIONARY + MOBILE	**18,514.1**	**463.7**	**270.7**	**6,049.3**	**17,270.9**	**2,694.5**	**166,443.3**	**701.2**	**19,563.2**	**1,001.8**
GRAND TOTAL AREA + POINT	**18,977.7**		**6,320.0**		**19,965.3**		**167,144.5**		**20,565.0**	

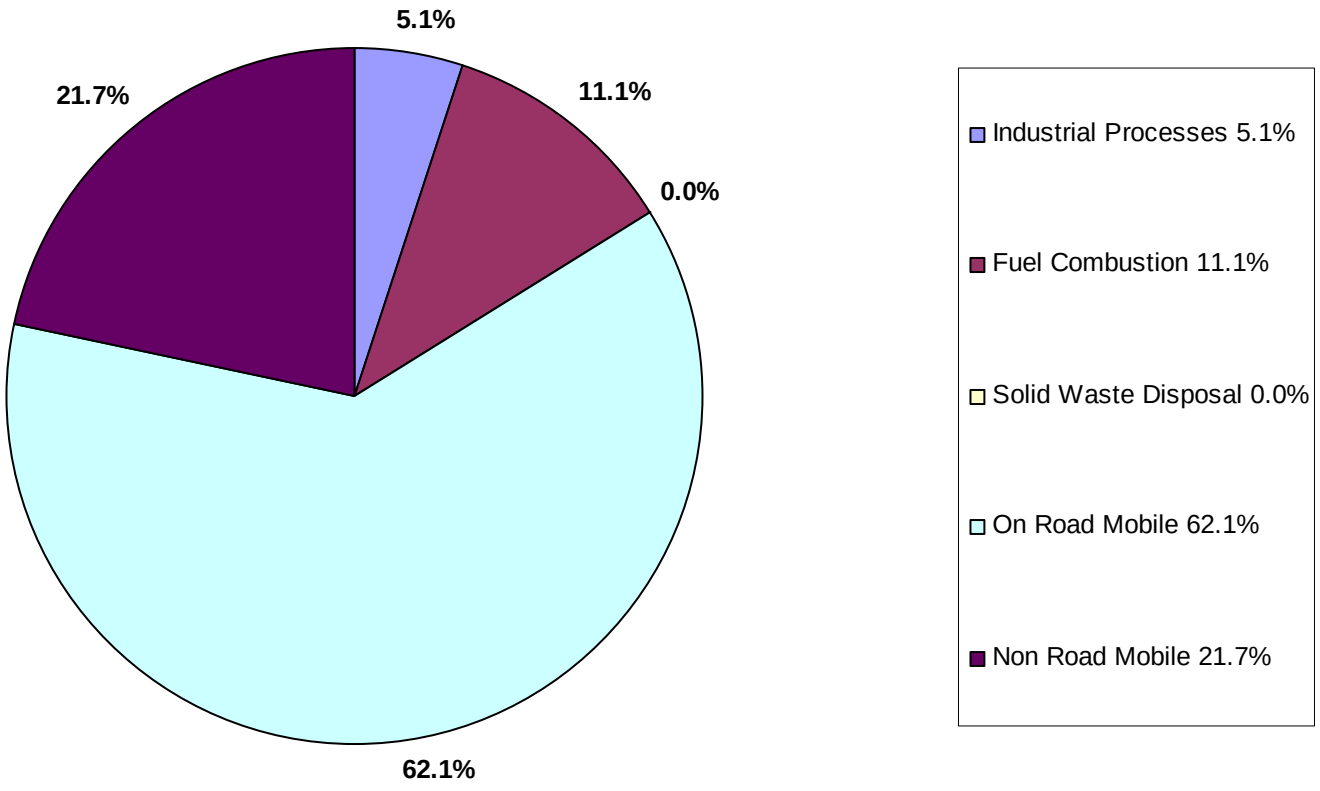
*Historically, the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine) were calculated without the use of an EPA approved computer model. EPA developed the NONROAD model in 2004. This became the recommend method of calculating the non-road mobile emissions (excluding 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, 2006 and 2007 calculated emissions are higher for CO and 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.

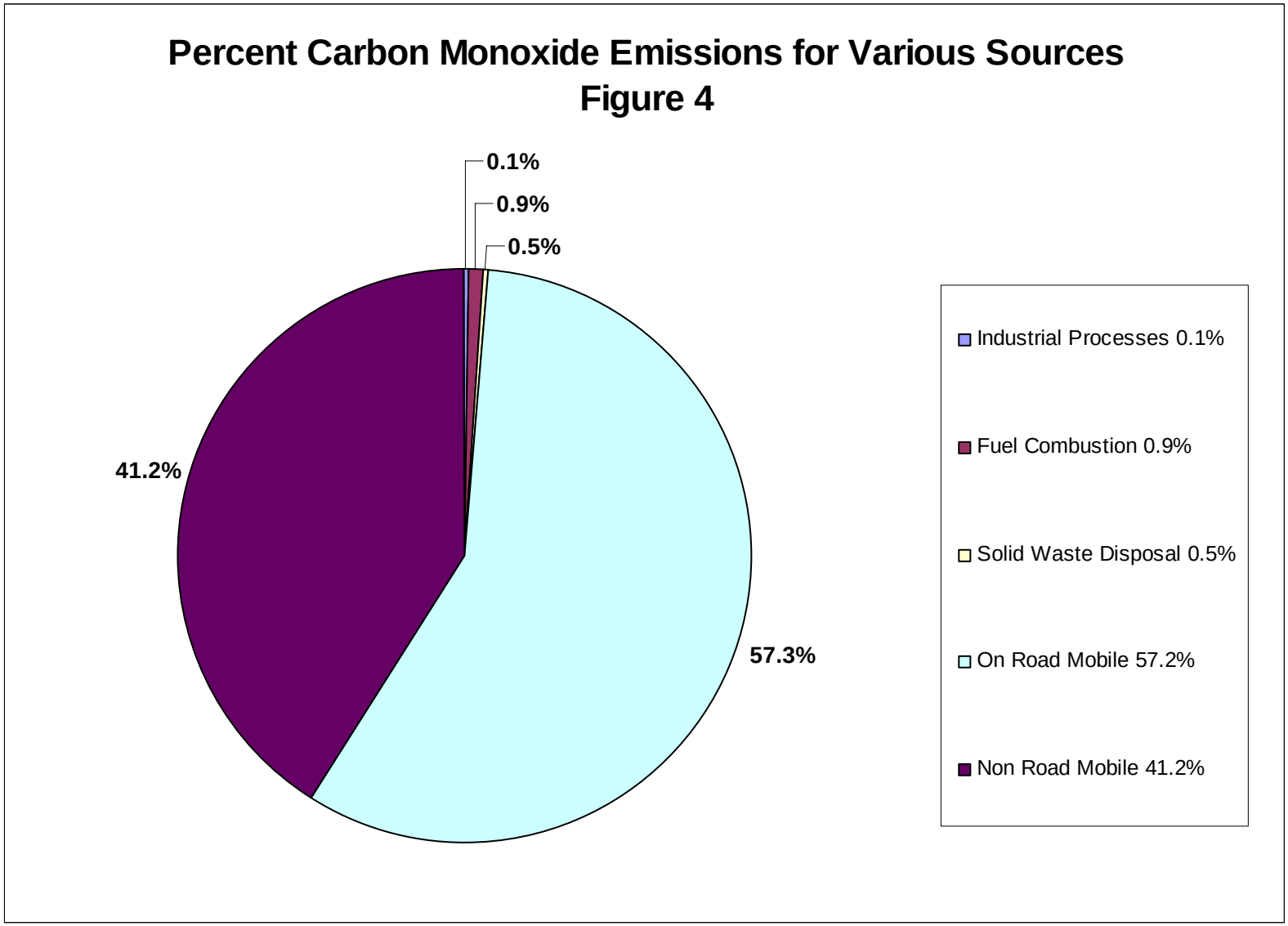
Percent Particulate Emissions for Various Sources
Figure 1




Percent Sulfur Dioxide Emissions for Various Sources
Figure 2
1.5%
1.7%
0.0%
3.6%
93.2%
Industrial Processes 3.6%
Fuel Combustion 93.2%
Solid Waste Disposal 0.0%
On Road Mobile 1.7%
Non Road Mobile 1.5%

Percent Nitrogen Oxide Emissions for Various Sources
Figure 3




Percent Carbon Monoxide Emissions for Various Sources
Figure 4
0.1%
0.9%
0.5%
41.2%
57.3%
Industrial Processes 0.1%
Fuel Combustion 0.9%
Solid Waste Disposal 0.5%
On Road Mobile 57.2%
Non Road Mobile 41.2%

Percent Volatile Organic Compound Emissions for Various Sources
Figure 5

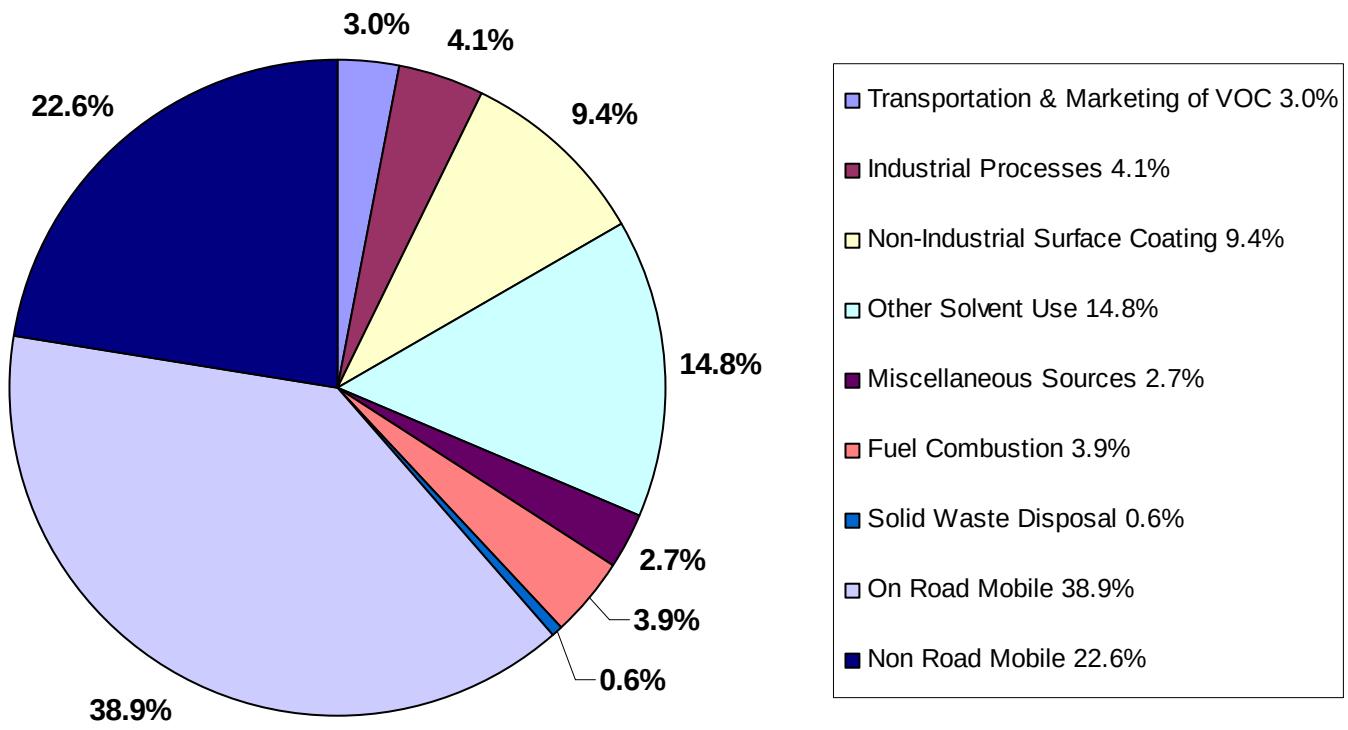


TABLE II
1994 - 2007 Annual Comparison of Nitrogen Dioxide and Volatile Organic Compound Emissions

Nitrogen Dioxide (Tons/Year)

Source Category	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trans. & Mkt. of VOC	0	0	6	4	5	5	5	6	4	3	7	10	12	10
Industrial Processes	1,674	1,307	1,765	2,146	1,877	1,914	1,672	1,365	898	899	890	884	703	1009
Other Solvents	0	0	0	8	0	0	0	3	0	4	5	6	6	7
Miscellaneous	0	16	28	28	6	8	2	7	0	0	0	0	0	27
Fuel Combustion	3,012	2,626	3,251	3,331	3,023	2,866	3,063	3,118	3,074	3,119	2,565	2,348	2,238	2208
Solid Waste Disposal	480	459	452	457	501	458	460	404	144	1	2	2	7	6
On-Road Mobile	21,691	21,771	20,940	21,216	20,754	21,001	18,548	19,669	19,218	16,875	16,114	14,844	13,352	12380
Non-Road Mobile	4,544	4,464	4,423	4,309	4,511	4,585	4,825	5,207	4,965	4,711	4,657	4,648	4,542	4318
TOTAL	**31,399**	**30,647**	**30,865**	**31,499**	**30,677**	**30,836**	**28,575**	**29,778**	**28,308**	**25,612**	**24,248**	**22,743**	**21,018**	**19,965**

Volatile Organic Compounds (Tons/Year)

Source Category	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trans. & Mkt. of VOC	1,490	883	729	683	696	691	676	633	660	651	677	667	691	620
Industrial Processes	1,666	1,730	2,651	2,185	2,579	1,868	1,675	1,976	1,516	1,456	1,344	1,068	1,075	847.6
Non-Ind. Surface Coating	2,436	2,182	1,951	1,898	1,920	1,973	1,999	1,885	1,804	1,815	1,845	1,912	1,946	1932.4
Other Solvents	2,837	2,844	2,747	2,760	2,752	2,749	3,004	2,999	3,033	3,052	3,101	3,164	3,206	3052.1
Miscellaneous	233	204	572	569	507	498	511	519	531	536	545	550	551	553.8
Fuel Combustion	5,556	5,563	5,639	5,679	5,716	5,780	1,250	827	883	938	767	768	787	800.6
Solid Waste Disposal	224	235	196	128	157	113	101	98	90	76	110	55	80	126.3
On-Road Mobile	10,044	9,646	8,770	9,150	9,412	9,852	8,557	8,292	8,227	10,568	9,909	9,036	8,478	7990.0
Non-Road Mobile	3,313	3,196	2,713	4,615	4,257	4,274	4,475	4,063	4,552	4,169	3,869	4,990	4,788	4641.3
TOTAL	**27,799**	**26,482**	**25,967**	**27,666**	**28,016**	**27,798**	**22,247**	**21,290**	**21,296**	**23,260**	**22,167**	**22,210**	**22,040**	**20,565**

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, 2006 and 2007 calculated emissions are 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.

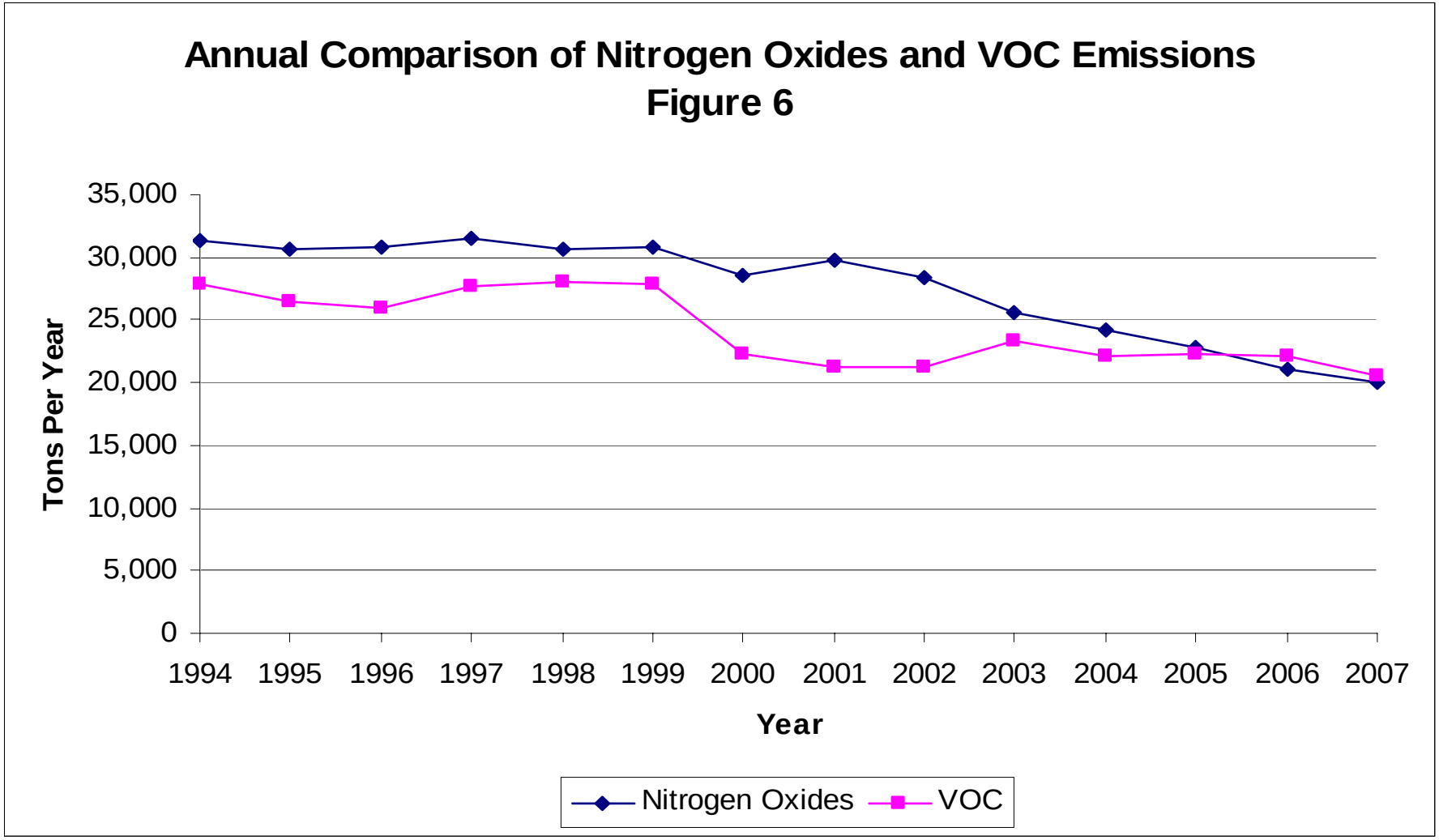

Annual Comparison of Nitrogen Oxides and VOC Emissions
Figure 6
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Tons Per Year
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Year
Nitrogen Oxides
VOC

TABLE III
2007 Davidson County Hazardous Air Pollutant Emission Inventory

POLLUTANT	CAS #	TPY
1,1,1 Trichloroethene	79-00-5	0.025
1,1,2,2-tetrachloroethane	79-34-5	0.069
1,3-Butadiene	106-99-0	0.075
1,3-Dichloropropene	542-75-6	48.478
1,4-Dichlorobenzene	106-46-7	25.178
1,4-Dioxane	123-91-1	2.913
2,2,4-Trimethylpentane	540-84-1	66.652
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	140.780
Acetophenone	98-86-2	1.974
Acrolein	107-02-8	6.941
Acrylonitrile	107-13-1	0.000
Aniline	62-53-3	0.009
Arsenic	00-00-0	0.003
Benzene	71-43-2	353.801
Benzyl chloride	100-44-7	0.130
Biphenyl	92-52-4	5.445
Bis(2-ethylhexyl)phthlate (DEHP)	117-81-7	0.939
Bromoform	75-25-2	0.004
Carbon Disulfide	75-15-0	0.981
Carbon Tetrachloride	56-23-5	0.036
Carbonyl sulfide	463-58-1	0.009
Chlorine	7782-50-5	1.660
Chlorobenzene	108-90-7	21.708
Chloroform	67-66-3	0.454
Chromium compounds	00-00-0	0.136
Cobalt Compounds	00-00-0	0.010
Cumene	98-82-8	1.331
Cyanide Compounds	00-00-0	0.420
Dibenzofurans	132-64-9	0.002
Dibutyl Phthlate	84-74-2	0.131
Diethanolamine	111-42-2	0.110
Dimethyl Formamide	68-12-2	3.470
Dimethyl Sulfate	77-78-1	0.005
Ethyl Chloride	75-00-3	2.471
Ethylbenzene	100-41-4	61.116
Ethylene Dichloride	107-06-2	0.125
Ethylene Glycol	107-21-1	26.451
Ethylene Oxide	75-21-8	4.681
Ethylidine Dichloride	75-34-3	0.056

TABLE III (continued) 2007 Davidson County Hazardous Air Pollutant Emission Inventory		
Formaldehyde	50-00-0	107.137
Glycol Ethers	00-00-0	15.355
Hexamethylene diisocyanate	822-06-0	0.422
Hexane	110-54-3	188.235
Hydrochloric Acid	7647-01-0	155.761
Hydrogen fluoride	7664-39-3	15.452
Hydroquinone	123-31-9	0.058
Isophorone	78-59-1	0.385
Lead compounds	00-00-0	0.090
Magnesium	00-00-0	0.730
Manganese Compounds	00-00-0	0.048
Methanol	67-56-1	301.248
Methyl Bromide	74-83-9	67.289
Methyl Chloride	74-87-3	2.180
Methyl Chloroform	71-55-6	117.303
Methyl Hydrazine	60-34-4	0.027
Methyl Isobutyl Ketone	108-10-1	12.947
Methyl Methyacrylate	80-62-6	0.116
Methyl Tertiary Butyl Ether	1634-04-4	0.003
Methylene Chloride	75-09-2	35.639
m-Xylene	108-38-3	75.460
Naphthalene	91-20-3	25.674
Nickel compounds	00-00-0	0.031
o-Toluidine	95-53-4	0.000
o-Xylene	95-47-6	0.001
Phenol	108-95-2	0.462
Phthalic Anhydride	85-44-9	0.794
POM as 16-PAH	00-00-0	0.365
Propionaldehyde	123-38-6	16.169
Propylene Dichloride	78-87-5	0.005
Propylene Oxide	75-56-9	0.264
Quinone	106-51-4	0.038
Selenium Compounds	00-00-0	0.090
Styrene	100-42-5	10.134
Tetrachloroethylene (Perc)	127-18-4	55.786
Toluene	108-88-3	393.876
Trichloroethylene	79-01-6	5.653
Triethylamine	121-44-8	0.671
Trimethylbenzene	95-63-6	0.012
Vinyl Acetate	108-05-4	0.083
Vinyl Chloride	75-01-4	0.110
Vinylidene Chloride	75-35-4	0.005
Xylenes	1330-20-7	248.933
Total of All Hazardous Air Pollutants		**2,633. 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 2007 this agency conducted:

1478 inspections of stationary air pollution sources;
340 inspections of asbestos removal sites;
47 indoor air quality inspections;
131 complaint investigations; and
Observed 111 pressure-decay and blockage tests on gasoline dispensing facilities.

During 2007, this agency issued 50 notices of violation and four consent agreements. Total penalties collected were $2,100.00.

8. MONITORING ACTIVITIES

During 2007 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 third PM_{10} site is operated at the Lentz Public Health Department 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. A continuous monitor was installed at Hillwood in November, 2005. One manual monitor is operating at Wright.

Carbon monoxide was measured by continuous monitors at Hume Fogg High School and Douglas Community Center. The continuous monitor at Douglas Community Center was closed April 30, 2007 with EPA's concurrence. 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 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 Criteria Air Pollutant concentrations measured in Davidson County during 2007.

LOCATION OF AIR MONITORING SITES
Figure 7

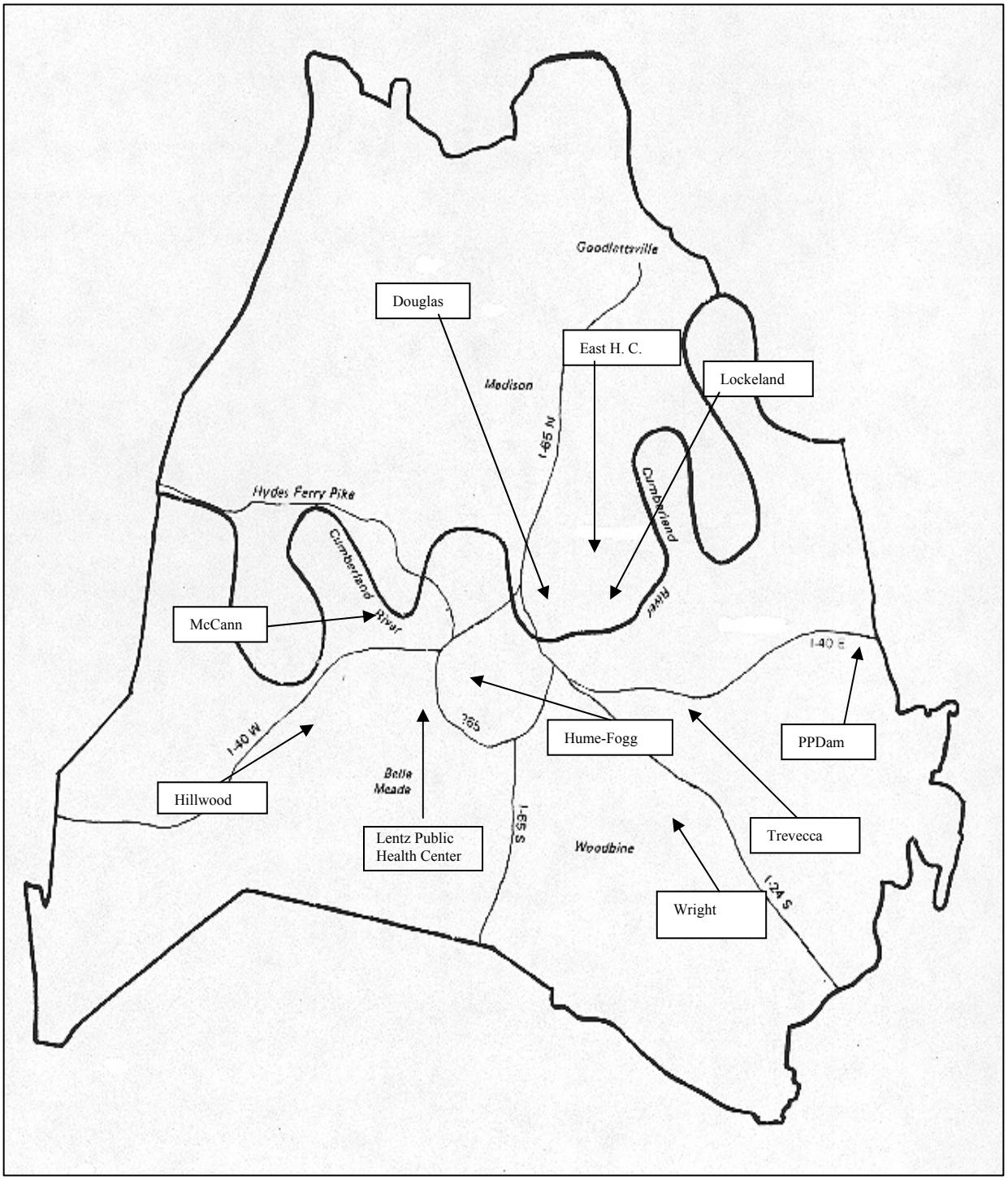


TABLE IV
AIR MONITORING SITE LOCATION & CLASSIFICATION

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

***The CO monitor located at Douglas Park, 210 North Seventh Street ceased operation April 30, 2007 with EPA's concurrence.

TABLE V
NATIONAL AMBIENT AIR QUALITY STANDARDS

CONTAMINANTS	PRIMARY STANDARD			SECONDARY STANDARD		
	CONCENTRATION		AVERAGE INTERVAL	CONCENTRATION		AVERAGE INTERVAL
	µg/m³	PPM		µg/m³	PPM	
PM_{10}	150		24-HR(1)	Same as Primary		
$PM_{2.5}$	15 35		AAM(2) 24-HR(3)	Same as Primary Same as Primary		
Sulfur Dioxide	80 365	0.03 0.14	AAM 24-HR(4) 3-HR	1,300	0.5	3-HR
Carbon Monoxide	40,000 10,000	35.0 9.0	1-HR(4) 8-HR(4)	NONE NONE		
Ozone3.	235 157	0.12 0.08	1-HR(5) 8-HR(6)	Same as Primary Same as Primary		
Nitrogen Dioxide	100	0.05	AAM	Same as Primary		
Lead	1.5		QA	1.5		QA

AAM – Annual Arithmetic Mean QA – Quarterly Average

1. Not to be exceeded more than once per year on average over a three year period.

2. To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0µg/m³.

3. To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35μg/m^3 (effective December 17, 2006).

4. Not to be exceeded more than once per year.

5. The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.

6. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08ppm.

PARTICULATE MATTER

The air pollutant 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 (μg/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 is also equipped with a collocated manual 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 2007. This data shows that the ambient air quality standard for PM_{10} was not exceeded in 2007. Tables VIII and IX and Figures 8 and 9 compare the PM_{10} concentrations for the past 16 years. Tables X, XI, XII and XIII present a summary of the 2006 $PM_{2.5}$ data. Figures 10 and 11 summarize the annual 98th percentile of 24–hour monitored concentrations and the maximum 24 hour annual average $PM_{2.5}$ concentrations for the last calendar quarter of 1999, and the years 2000 - 2007. Figure 10 shows that Davidson County is in compliance with the 24–hour average standard based on the 3-year average of the annual 98th percentile of 24–hour monitored concentrations. Figure 11 shows that based on the 2005 - 2007 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) may be spatially averaged with the Davidson County data provided that the data meets the requirements for spatial averaging outlined in the Federal Register. If allowed 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 demonstrate attainment with the $PM_{2.5}$ standard. For the period of 2005 - 2007, the Middle Tennessee area was in attainment with the annual NAAQS for $PM_{2.5}$ even without spatial averaging.

TABLE VI 2007 SUMMARY OF PM_{10} ($\mu G/M^3$)		
SITE LOCATION	**Trevecca**	**McCann**
Number of Observations	58	57
Maximum 24-Hr Concentration	58	53
Date of Maximum Concentration	8/4	3/25
2nd Maximum 24-Hr Concentration	57	53
Date of 2nd Maximum 24-Hr. Concentration	3/13	8/4
Annual Arithmetic Mean	24.1	26.3
Number of Exceedance of 24-Hr Standard	0	0

TABLE VII 2007 QUARTERLY COMPARISON OF PM_{10} ARITHMETIC MEAN ($\mu G/M^3$)					
Site Location	**1st**	**2nd**	**3rd**	**4th**	**Annual**
Trevecca	23	25	30	15	24
McCann	24	28	31	22	26

TABLE VIII 1992 – 2007 24-HOUR MAXIMUM PM_{10} CONCENTRATIONS ($\mu G/M^3$)																
Site Location	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Trevecca	61	83	73	69	61	76	70	68	81	60	47	51	45	62	58	58
East*	55	57	63	64	64	54	50	52	63	46	49	42	*	*	*	*
Lockeland*	58	72	63	65	55	51	53	55	61	46	56	56	*	*	*	*
McCann	65	79	85	70	76	65	56	60	79	61	53	58	47	59	57	53

TABLE IX 1992 – 2007 ANNUAL AVERAGE PM_{10} CONCENTRATIONS ($\mu G/M^3$)																
Site Location	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Trevecca	31	32	32	34	33	34	32	31	33	30	22	25	24	25	23	24
East*	30	27	28	27	24	25	25	24	27	24	21	23	*	*	*	*
Lockeland*	28	28	25	27	26	23	25	24	26	24	24	24	*	*	*	*
McCann	33	36	36	35	30	30	28	27	30	29	24	27	25	28	25	26

* 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.

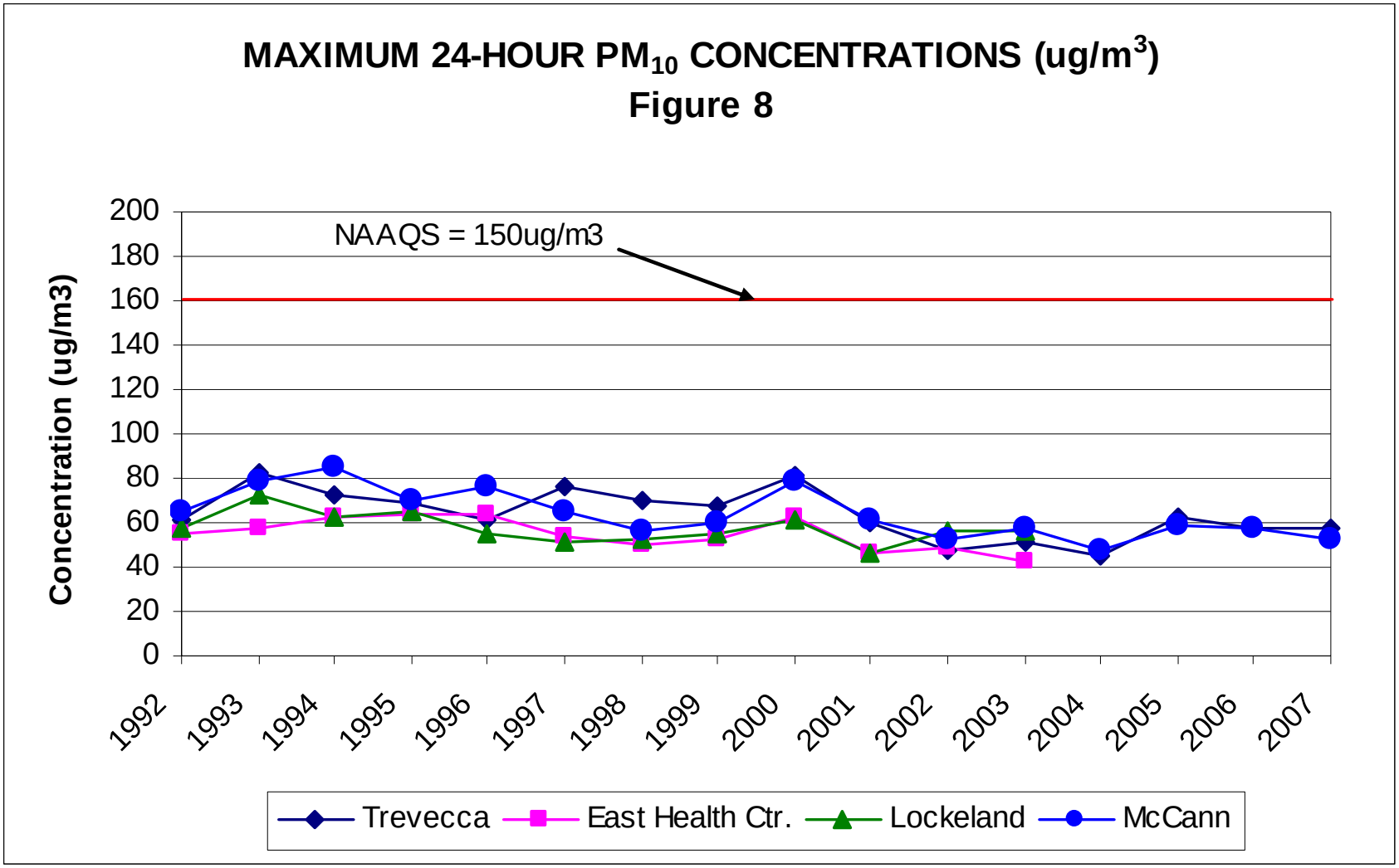
TABLE X 2007 SUMMARY OF $PM_{2.5}$ ($\mu G/M^3$)				
SITE LOCATION	**Lockeland**	**Lockeland Collocated**	**Wright**	**Hillwood**
Number of Observations	357	65	121	351
Maximum 24-Hr Concentration	46.60	44.90	41.27	43
Date of Maximum Concentration	7/31	8/04	5/30	7/31
2nd Maximum 24-Hr Concentration	44.20	32	40.60	39.90
Date of 2nd Maximum 24-Hr. Concentration	8/04	9/03	6/02	8/4
Annual Arithmetic Mean	13.86	14.81	14.27	12.15
Number of Exceedances of 24-Hr Standard	6	1	0	0

TABLE XI 2007 QUARTERLY COMPARISON OF $PM_{2.5}$ ARITHMETIC MEAN ($\mu G/M^3$)					
Site Location	**1st**	**2nd**	**3rd**	**4th**	**Annual**
Lockeland (POC1)	11.32	15.10	18.38	10.37	13.86
Lockeland (POC2)	12.31	15.46	19.15	12.83	14.81
Wright	11.87	15.97	18.31	10.8	14.27
Hillwood	9.97	13.07	17.64	7.82	12.15

TABLE XII 2000 - 2007 24-HOUR MAXIMUM $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)								
Site Location	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Lockeland (POC1)	42.3	38.2	39.8	42.3	36.6	58.6	37.2	46.6
Lockeland (POC2)	40.8	37.0	32.6	39.0	30.4	36.6	31.2	44.9
Wright	52.4	33.4	32.8	42.4	31.4	38.5	36.6	41.27
Hillwood	38.6	35.5	35.7	42.1	33.9	54.3	35.7	43.0

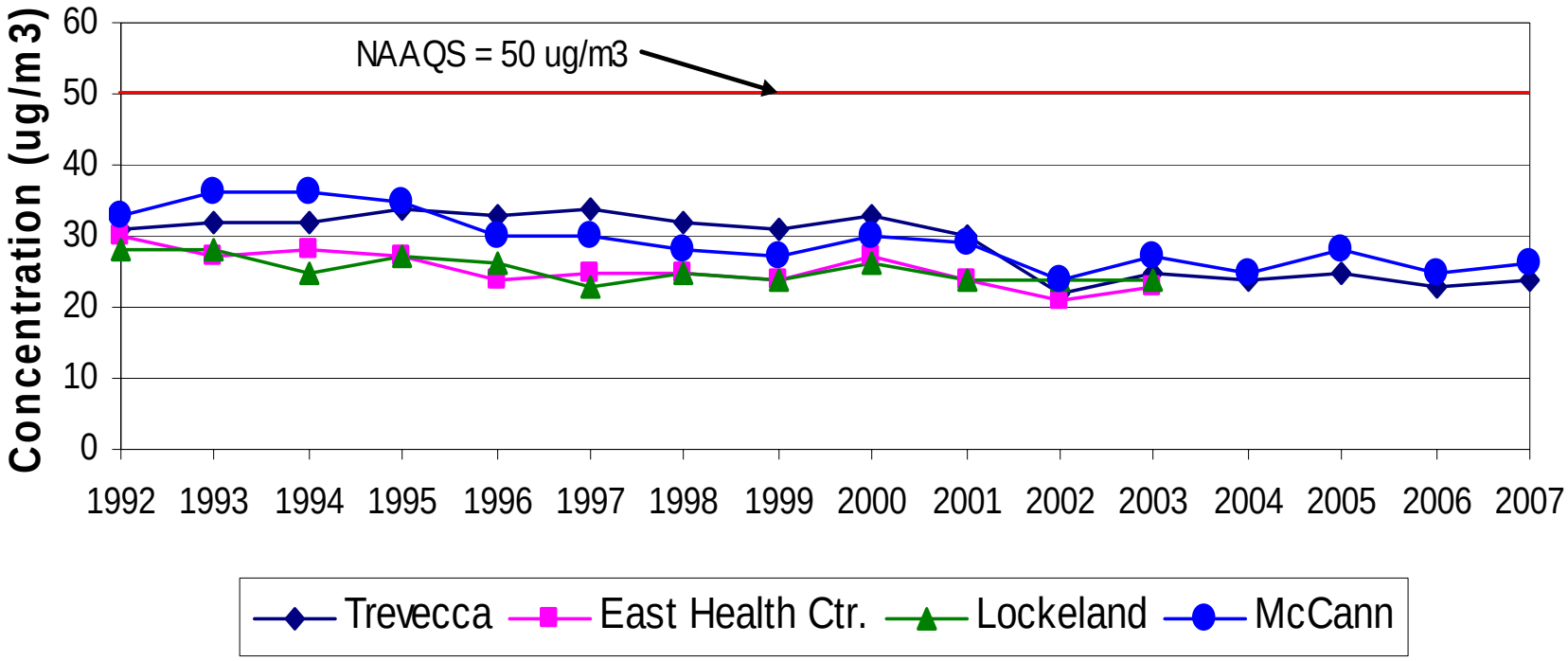
TABLE XIII 2002 - 2007 ANNUAL AVERAGE $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)							
Site Location	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**LATEST 3 YEAR AVERAGE**
Lockeland	na	na	13.1	15.0	14.2	13.8	14.3
Lockeland Collocated	13.7	14.3	13.2	13.6	14.0	14.8	14.1
Wright	na	na	13.1	14.2	14.1	14.3	14.2
Hillwood	na	na	12.1	13.6	13.4	12.1	13.0
Sumner County	12.9	13.4	12.8	14.8	13.2	13.9	13.9
Spatial Avg. of Valid Monitors	13.3	13.9	12.8	14.4	13.7	13.7	13.9

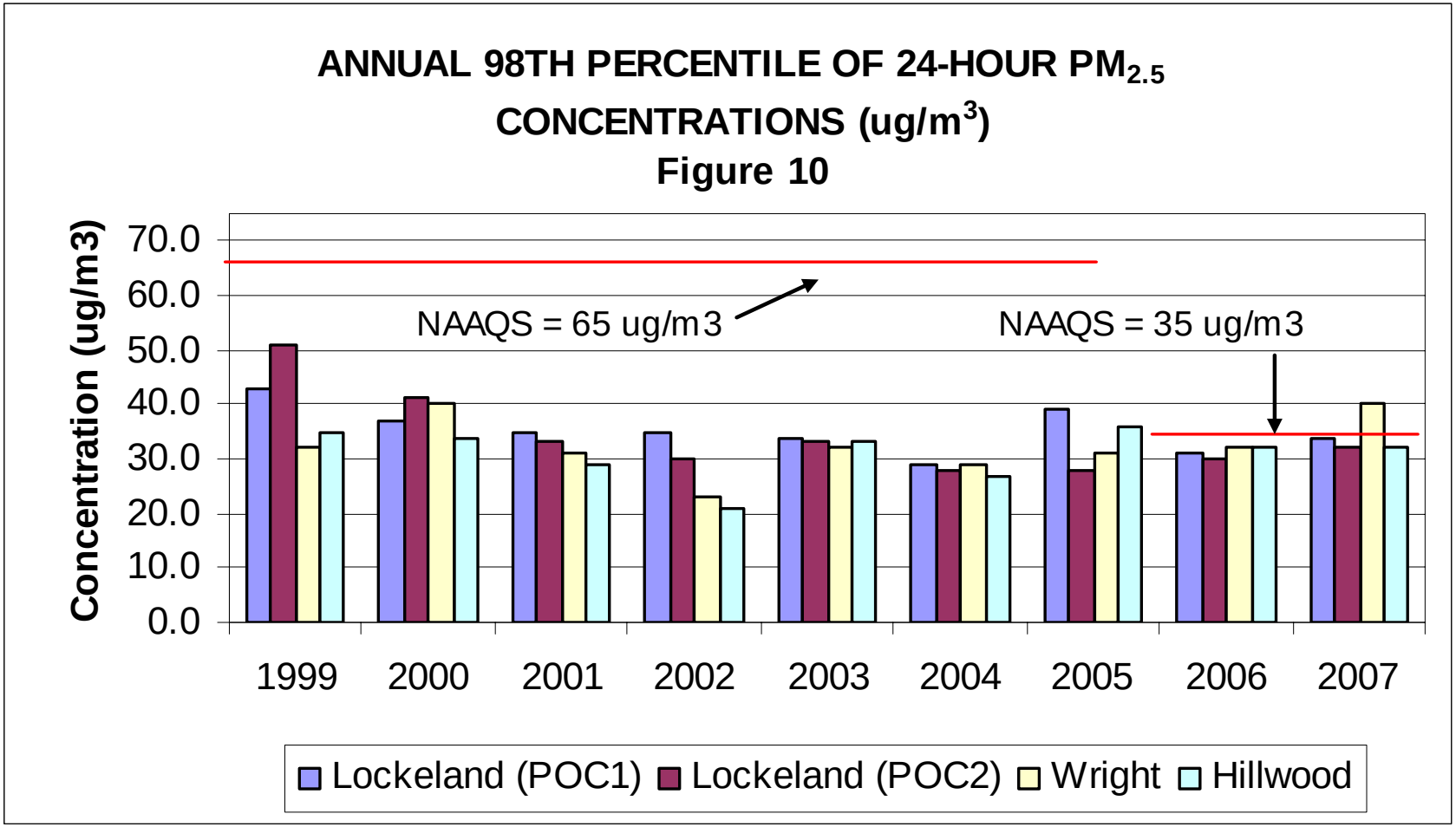
According to the Environmental Protection Agency, there were quality assurance problems with the data generated by the Lockeland POC1 monitor during 2002 and 2003. We believe the data to be good data representative of the $PM_{2.5}$ concentrations at the Lockeland site. However, due to EPA's ruling, 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 may be spatially averaged with the three sites in Davidson County provided that the data meets specific requirements outlined in the Federal Register. For the three year period of 2005 - 2007, the Middle Tennessee area was in attainment with the $PM_{2.5}$ NAAQS even without spatial averaging.


MAXIMUM 24-HOUR PM10 CONCENTRATIONS (ug/m3)
Figure 8
NAAQS = 150ug/m3
Concentration (ug/m3)
200
180
160
140
120
100
80
60
40
20
0
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Trevecca
East Health Ctr.
Lockeland
McCann

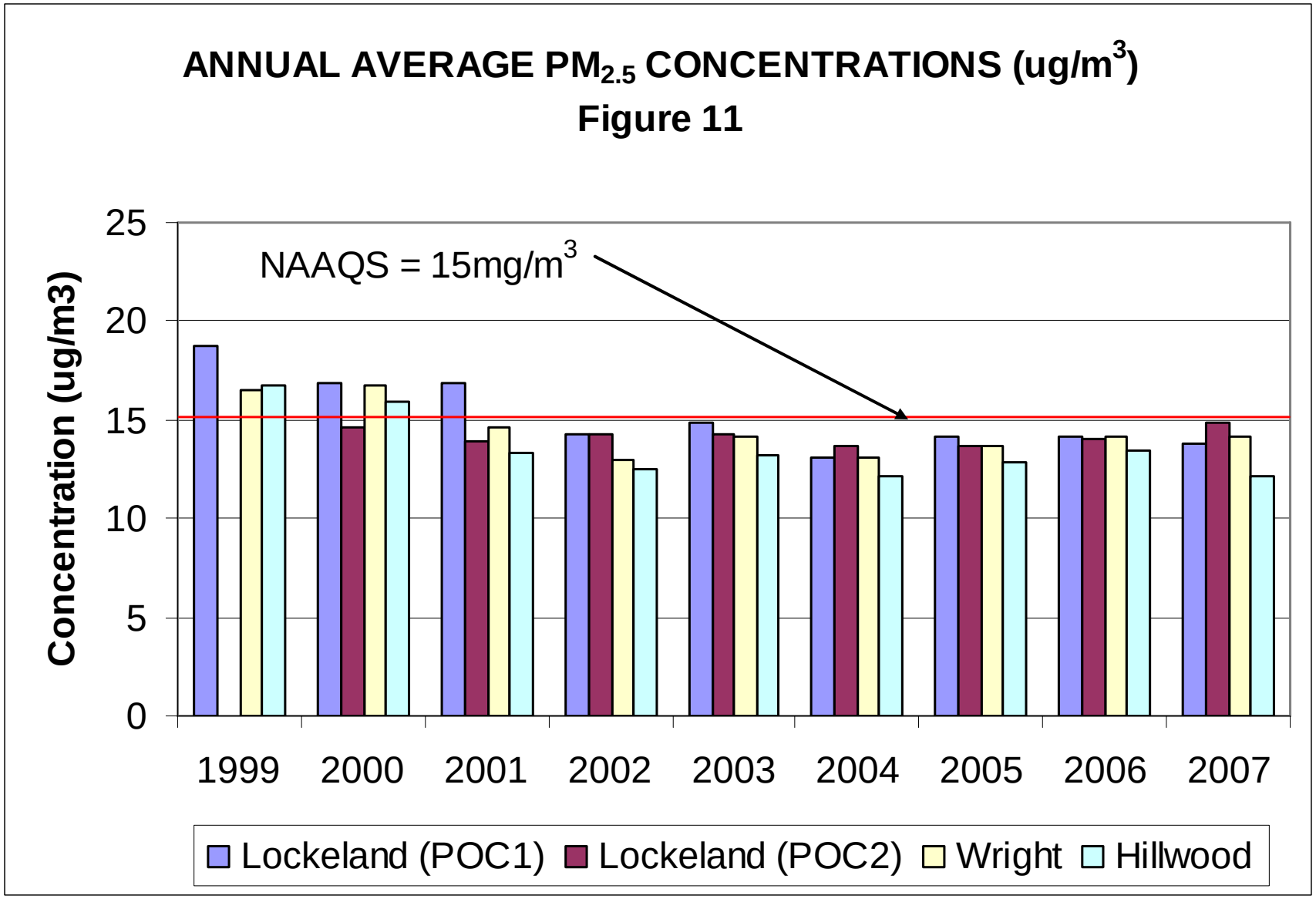
ANNUAL AVERAGE PM_{10} CONCENTRATIONS (ug/m^3)

Figure 9





On December 17, 2006, the 24 hour PM 2.5 standard was reduced from 65µG/M^3 to 35µg/m^3. Attainment is demonstrated when the 3-year average of the 98th percentile of 24 hour monitored concentrations is less than or equal to 35µg/m$^{3.}$ The 3-year average for Lockland, Wright and Hillwood demonstrate attainment with the more stringent standard.


ANNUAL AVERAGE PM2.5 CONCENTRATIONS (ug/m3)
Figure 11
NAAQS = 15mg/m3
Concentration (ug/m3)
25
20
15
10
5
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
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 $\mu g/m^3$ 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 $\mu g/m^3$. 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	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 2007. 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 2007. The main source of sulfur dioxide in Metropolitan Nashville and Davidson County is from fuel combustion.

TABLE XV
2007 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	738	718	742	712	735	740	712	738	715	717	8675
Arithmetic Mean	0.003	0.004	0.004	0.004	0.003	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.002
Highest 24-Hr Conc.	0.006	0.009	0.012	0.007	0.007	0.004	0.004	0.006	0.004	0.002	0.003	0.004	0.012
Date of Highest 24-Hr Conc.	1/02	2/08	3/08	4/20	5/06	6/12	7/31	8/13	9/01	10/29	11/03	12/01	3/08
2nd Highest 24-Hr Conc.	0.005	0.008	0.008	0.006	0.007	0.003	0.003	0.006	0.003	0.002	0.003	0.002	0.009
Date of 2nd Highest 24-Hr Conc.	1/03	2/09	3/06	4/17	5/07	6/01	7/02	8/18	9/20	10/21	11/12	12/17	2/08
Highest 3-Hr Conc.	0.015	0.024	0.034	0.013	0.014	0.011	0.010	0.014	0.008	0.008	0.011	0.009	0.034
Date of Highest 3-Hr Conc.	1/02	2/09	3/08	4/20	5/06	6/12	7/31	8/11	9/01	10/15	11/03	12/01	03/08
2nd Highest 3-Hr Conc.	0.013	0.020	0.018	0.008	0.011	0.007	0.008	0.001	0.008	0.006	0.007	0.006	0.024
Date of 2nd Highest 3-Hr Conc.	1/03	2/16	3/11	4/17	5/07	6/01	7/01	8/18	9/04	10/21	11/02	12/02	2/09
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 64% of the nitrogen dioxide emissions in 2006 with light duty cars and trucks responsible for 29% of the total nitrogen dioxide emissions.

Nitrogen dioxide was measured at East Health Center (site 0011) during 2007. 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 2007.

TABLE XVI
2007 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	740	664	741	715	739	710	737	738	710	740	715	714	8663
Arithmetic Mean	0.017	0.019	0.020	0.016	0.019	0.017	0.012	0.017	0.019	0.019	0.020	0.016	0.018
Highest 24-Hr Conc.	0.028	0.036	0.031	0.027	0.030	0.033	0.021	0.032	0.029	0.032	0.029	0.028	0.036
Date of Highest 24-Hr Conc.	1/26	2/12	3/12	4/17	5/31	6/01	7/13	8/15	9/19	10/02	11/12	12/04	2/12
2nd Highest 24-Hr Conc.	0.026	0.028	0.028	0.025	0.028	0.028	0.020	0.025	0.028	0.029	0.027	0.026	0.033
Date of 2nd Highest 24-Hr Conc.	1/10	2/11	3/13	4/09	5/09	6/17	7/09	8/13	9/05	10/8	11/13	12/17	6/01
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 October 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 2007. The data shows that the one-hour NAAQS of 0.12 ppm was not exceeded in 2007. The maximum one-hour average concentration of 0.112 ppm was measured at Percy Priest Dam (site 0026) on August 15, 2007. Table XXI compares the measured ozone concentration for the past several years.

TABLE XVII
2007 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	744	669	739	717	739	716	739	742	715	740	719	722	8701
Highest 1-Hr Conc.	0.034	0.053	0.069	0.065	0.078	0.082	0.075	0.094	0.080	0.068	0.048	0.040	0.094
Date of Highest Conc.	01/27	2/28	3/09	4/21	5/09	6/21	7/23	8/15	9/04	10/14	11/05	12/02	8/14
2nd Highest 1-Hr Conc.	0.032	0.047	0.066	0.061	0.076	0.077	0.074	0.083	0.075	0.060	0.041	0.034	0.083
Date of 2nd Highest Conc.	1/15	2/06	3/07	4/30	5/21	6/13	7/26	8/16	9/05	10/21	11/17	12/01	8/16
3rd Highest 1-Hr Conc.	0.031	0.042	0.065	0.060	0.076	0.077	0.066	0.083	0.075	0.060	0.041	0.034	0.083
Date of 3rd Highest Conc.	1/28	2/07	3/21	4/22	5/22	6/17	7/07	8/16	9/05	10/21	11/17	12/1	7/16
4th Highest 1-Hr Conc.	0.030	0.041	0.064	0.058	0.068	0.075	0.065	0.083	0.074	0.055	0.040	0.033	0.083
Date of 4th Highest Conc.	1/12	2/20	3/08	4/17	5/20	6/16	7/08	8/27	9/20	10/07	11/04	12/23	6/27
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	665	663	613	525	532	583	465	584	689	713	722	7468
0.045 - 0.084	0	4	106	104	214	184	156	275	131	51	6	0	1231
0.085 - 0.124	0	0	0	0	0	0	0	2	0	0	0	0	2
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
2007 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	659	740	717	740	718	737	742	718	740	720	744	8719
Highest 1-Hr Conc.	0.038	0.063	0.079	0.073	0.092	0.085	0.090	0.112	0.094	0.070	0.056	0.043	0.112
Date of Highest Conc.	1/27	2/28	3/9	4/21	5/22	6/13	7/23	8/15	9/5	10/14	11/05	12/02	8/15
2nd Highest 1-Hr Conc.	0.036	0.047	0.070	0.069	0.084	0.084	0.087	0.094	0.092	0.065	0.050	0.41	0.094
Date of 2nd Highest Conc.	1/14	2/06	6/21	4/17	5/21	6/21	7/26	8/16	9/04	10/02	11/09	12/31	8/16
3rd Highest 1-Hr Conc.	0.035	0.044	0.069	0.06	0.083	0.084	0.076	0.092	0.081	0.064	0.054	0.040	0.094
Date of 3rd Highest Conc.	1/11	2/19	3/07	4/22	5/09	6/22	7/8	8/14	9/19	10/21	11/12	12/26	9/05
4th Highest 1-Hr Conc.	0.035	0.044	0.065	0.065	0.083	0.081	0.071	0.084	0.079	0.063	0.045	0.038	0.092
Date of 4th Highest Conc.	1/15	2/24	3/08	4/30	5/10	6/15	7/09	8/02	9/20	10/15	11/17	12/11	5/22
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	648	548	549	445	467	490	366	524	647	708	744	6880
0.045 - 0.084	0	11	192	168	293	250	243	358	188	93	12	0	1808
0.085 - 0.124	0	0	0	0	2	1	4	18	6	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 2007 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	720	744	720	744	744	720	744	720	719	8735
Highest 8-Hr Avg. Conc.	0.031	0.045	0.062	0.059	0.070	0.077	0.060	0.079	0.076	0.056	0.042	0.038	0.079
Date of Highest Conc.	1/27	2/28	3/09	4/21	5/21	6/21	7/26	8/15	9/04	10/14	11/05	12/01	8/15
2nd Highest 8-Hr Avg. Conc.	0.028	0.037	0.058	0.057	0.068	0.072	0.058	0.077	0.070	0.051	0.038	0.038	0.077
Date of 2nd Highest Conc.	1/11	2/19	3/07	4/22	5/22	6/16	7/08	8/14	9/20	10/21	11/09	12/02	8/14
3rd Highest 8-Hr Avg. Conc.	0.028	0.035	0.058	0.056	0.065	0.071	0.058	0.073	0.069	0.048	0.034	0.032	0.073
Date of 3rd Highest Conc.	1/14	2/22	3/21	4/30	5/09	6/17	7/23	8/27	9/19	10/07	11/04	12/31	8/27
4th Highest 8-Hr Avg. Conc.	0.027	0.034	0.052	0.054	0.063	0.067	0.058	0.072	0.061	0.047	0.034	0.031	0.072
Date of 4th Highest Conc.	1/28	2/06	3/10	4/17	5/20	6/12	7/31	8/16	9/02	10/02	11/17	12/23	8/16
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	720	737	694	744	705	709	744	720	719	8652
0.065 - 0.084	0	0	0	0	7	26	0	39	11	0	0	0	83
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 2007 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	655	744	720	738	720	738	744	720	744	720	744	8735
Highest 8-Hr Avg. Conc.	0.030	0.056	0.074	0.068	0.080	0.079	0.72	0.100	0.080	0.064	0.051	0.042	0.100
Date of Highest Conc.	1/11	2/28	3/09	4/21	5/22	6/21	7/23	8/15	9/04	10/14	11/05	12/01	8/15
2nd Highest 8-Hr Avg. Conc.	0.032	0.042	0.067	0.065	0.076	0.078	0.070	0.088	0.080	0.059	0.041	0.042	0.088
Date of 2nd Highest Conc.	1/13	2/19	3/21	4/22	5/20	6/15	7/08	8/14	9/05	10/21	11/12	12/02	8/14
3rd Highest 8-Hr Avg. Conc.	0.032	0.041	0.064	0.063	0.076	0.073	0.070	0.083	0.075	0.058	0.039	0.038	0.083
Date of 3rd Highest Conc.	1/14	2/06	3/07	4/17	5/21	6/13	7/26	8/16	9/20	10/02	11/11	12/31	8/16
4th Highest 8-Hr Avg. Conc.	0.032	0.041	0.057	0.061	0.070	0.073	0.064	0.079	0.073	0.056	0.038	0.033	0.079
Date of 4th Highest Conc.	1/27	2/24	3/24	4/30	5/09	6/22	7/09	8/03	9/19	10/08	11/09	12/11	8/03
No. of 8-Hr Exceedances	0	0	0	0	0	0	0	2	0	0	0	0	2
No. of 1-Hr Concentrations													
0.000 - 0.064	744	655	732	714	709	665	724	662	687	744	720	744	8500
0.065 - 0.084	0	0	12	6	29	55	14	71	33	0	0	0	220
0.085 - 0.104	0	0	0	0	0	0	0	11	0	0	0	0	11
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 2007. The maximum eight-hour average concentration of 0.100 ppm was measured at Percy Priest Dam (site 0026) on August 15, 2007. 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 2007. Table XXI compares the 1-hour daily maximum ozone concentrations from 1982 through 2007 at East Health Center and Percy Priest Dam. Table XXII compares the 8-hour ozone concentrations for the past ten years.

TABLE XXI

1983 - 2007 ANNUAL COMPARISON OF 1-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)

SITE 247-037-0011 EAST HEALTH CENTER

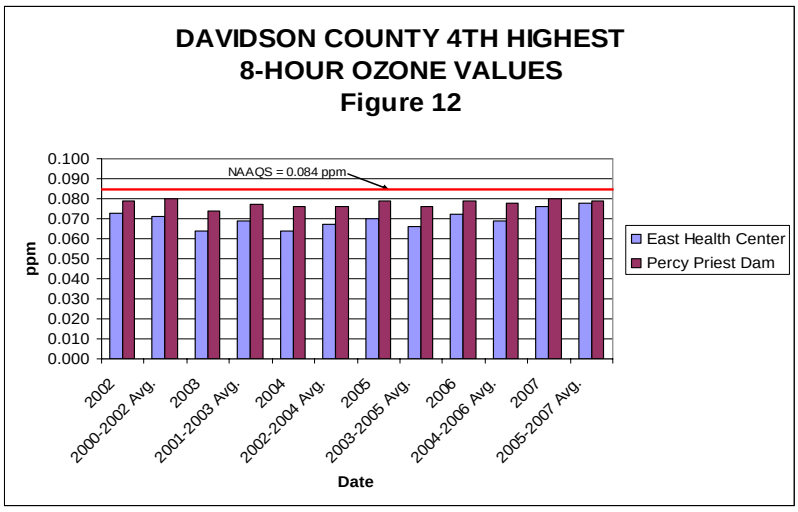
YEAR	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Highest 1-Hr. Conc.	0.135	0.120	0.090	0.105	0.105	0.145	0.100	0.110	0.095	0.090	0.105	0.090	0.110	0.100	0.130	0.114	0.117	0.104	0.088	0.087	0.085	0.084	0.083	0.091	0.094
2nd Highest 1-Hr. Conc.	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	0.088	0.083
3rd Highest 1-Hr. Conc.	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	0.082	0.83
4th Highest 1-Hr. Conc.	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	0.080	.083
No. of 1-Hr. Exceedances	1	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
No. of Days Std. Exceeded	1	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0

SITE 247-037-0026 PERCY PRIEST DAM

YEAR	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Highest 1-Hr. Conc.	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	0.108	0.112
2nd Highest 1-Hr. Conc.	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	0.103	0.094
3rd Highest 1-Hr. Conc.	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	0.099	0.094
4th Highest 1-Hr. Conc.	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	0.098	0.092
No. of 1-Hr. Exceedances	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0	0	0	0
No. of Days Std. Exceeded	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0

TABLE XXII 1998 – 2007 ANNUAL COMPARISON OF 8-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)										
SITE 247-037-0011 EAST HEALTH CENTER										
YEAR	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Highest 8-hour average concentration	0.095	0.103	0.084	0.078	0.076	0.078	0.071	0.074	0.084	0.079
2nd highest 8-hour average concentration	0.092	0.102	0.081	0.076	0.075	0.066	0.065	0.071	0.077	0.077
3rd highest 8-hour average concentration	0.092	0.090	0.075	0.074	0.073	0.065	0.065	0.071	0.072	0.073
4th highest 8-hour average concentration	0.089	0.088	0.072	0.070	0.073	0.064	0.064	0.070	0.072	0.072
No. of days 8-hour standard exceeded	4	9	0	0	0	0	0	0	0	0
SITE 247-037-0026 PERCY PRIEST DAM										
YEAR	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Highest 8-hour average concentration	0.107	0.101	0.096	0.097	0.082	0.085	0.082	0.094	0.098	0.100
2nd highest 8-hour average concentration	0.100	0.100	0.085	0.093	0.082	0.082	0.077	0.081	0.088	0.088
3rd highest 8-hour average concentration	0.093	0.098	0.085	0.079	0.079	0.075	0.077	0.079	0.082	0.083
4th highest 8-hour average concentration	0.091	0.098	0.084	0.079	0.079	0.074	0.076	0.079	0.079	0.079
No. of days 8-hour standard exceeded	12	15	3	2	0	1	0	1	2	2

The data in Table XXII shows that there were two days during 2007 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 (2005, 2006 and 2007) at the Percy Priest Dam site is 0.079. Therefore, Davidson County is attaining the more stringent 8-hour ozone NAAQS. Davidson County has not monitored a violation of the 8-hour ozone NAAQS since its adoption in 1997.



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. The Middle Tennessee EAC area has met all milestones, and therefore received timely deferrals from EPA in order to remain in the EAC.

Table XXIII shows the highest ozone values measured in the Middle Tennessee area during the 3-year period of 2005 through 2007. 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 more stringent 8-hour standard is achieved when the three year average of the annual fourth highest 8-hour ozone value is less than 0.085 ppm. During 2005 - 2007, none of the ozone monitors in the Middle Tennessee area measured a violation of the original 1-hour NAAQS or the more stringent 8-hour NAAQS.

TABLE XXIII
2005 - 2007 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	2005	0.083	0.074	0.079	0.071	0.079	0.071	0.079	0.070	0	0
	2006	0.091	0.084	0.088	0.077	0.082	0.072	0.080	0.072	0	0
	2007	0.094	0.079	0.083	0.077	0.083	0.077	0.083	0.076	0	0
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-037-0026 Percy Priest Dam-Davidson	2005	0.104	0.094	0.101	0.081	0.096	0.079	0.093	0.079	0	1
	2006	0.108	0.098	0.103	0.088	0.099	0.082	0.098	0.079	0	2
	2007	0.112	0.100	0.094	0.088	0.094	0.083	0.092	0.080	0	2
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-149-0101* Eagleville-Rutherford	2005	0.099	0.092	0.089	0.082	0.088	0.082	0.088	0.079	0	1
	2006	0.095	0.076	0.082	0.076	0.081	0.075	0.080	0.074	0	0
	2007	0.112	0.098	0.104	0.091	0.100	0.089	0.095	0.089	0	4
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-165-0007* Old Hickory Dam-Sumner	2005	0.110	0.097	0.100	0.090	0.095	0.086	0.094	0.083	0	3
	2006	0.108	0.098	0.104	0.091	0.101	0.089	0.100	0.088	0	5
	2007	0.114	0.104	0.098	0.088	0.098	0.087	0.094	0.083	0	3
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-165-0101* Cottontown-Sumner	2005	0.105	0.087	0.092	0.080	0.089	0.079	0.087	0.078	0	1
	2006	0.105	0.090	0.104	0.087	0.099	0.084	0.097	0.083	0	2
	2007	0.104	0.091	0.103	0.086	0.101	0.086	0.095	0.085	0	6
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-187-0106* Fairview-Williamson	2005	0.087	0.079	0.086	0.077	0.084	0.076	0.084	0.076	0	0
	2006	0.097	0.085	0.084	0.075	0.082	0.073	0.082	0.072	0	1
	2007	0.109	0.089	0.097	0.088	0.095	0.087	0.093	0.085	0	4
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-189-0103* Cedars of Lebanon-Wilson	2005	0.101	0.087	0.091	0.082	0.090	0.081	0.090	0.081	0	1
	2006	0.095	0.086	0.094	0.083	0.094	0.081	0.091	0.080	0	1
	2007	0.098	0.093	0.097	0.091	0.096	0.086	0.095	0.085	0	3
									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 2007, 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 and the Douglas Park site (site 0031) was taken out April 30, 2007 with EPA concurrence due to continuing compliance with the carbon monoxide NAAQS. Tables XXIV through XXVI present a summary of the carbon monoxide data for 2007. This data shows that the National Ambient Air Quality Standard was not violated at any site during 2007.

TABLE XXIV
2007 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	740	715	741	717	736	741	713	739	716	742	8712
Highest 1-Hr Conc.	2.5	2.7	2.2	1.7	1.8	2.3	1.4	1.5	1.5	1.9	3.0	2.3	3.0
Date of Highest Conc.	1/24	212	3/25	4/17	5/22	6/29	7/04	8/01	9/04	10/29	11/18	12/8	11/18
2nd Highest 1-Hr Cond.	2.4	2.6	1.9	1.6	1.5	2.0	1.3	1.5	1.5	1.9	2.9	2.2	2.9
Date of 2nd Highest 1-Hr Conc.	1/19	2/10	3/24	4/09	5/09	6/29	7/26	8/04	9/05	10/30	11/17	12/08	11/7
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr Conc.	2.0	2.1	1.6	1.3	1.2	1.4	0.9	1.1	1.1	1.6	2.3	1.6	2.3
Date of Highest 8-Hr Conc.	1/23	2/12	3/25	4/17	5/26	6/29	7/13	8/01	9/04	10/31	11/18	12/18	11/18
2nd Highest 8-Hr Conc.	1..9	2.0	1.5	1.2	1.1	1.2	0.8	1.1	1.1	1.4	1.8	1.5	2.1
Date of 2nd Highest 8-Hr Conc.	1/19	2/21	3/13	4/13	5/22	6/01	7/01	8/05	9/05	10/07	11/28	12/08	2/13
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	714	744	720	735	744	714	744	720	744	8739
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
2007 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	742	606	0	0	0	0	0	0	0	0	2759
Highest 1-Hr Conc.	2.6	2.3	2.6	1.9	0	0	0	0	0	0	0	0	3.9
Date of Highest Conc.	1/02	2/18	3/12	4/02	0	0	0	0	0	0	0	0	11/9
2nd Highest 1-Hr. Conc.	2.5	2.2	2.5	1.9	0	0	0	0	0	0	0	0	3.7
Date of 2nd Highest 1-Hr. Conc.	1/02	2/11	3/12	4/21	0	0	0	0	0	0	0	0	1/26
No. of 1-Hr. Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr. Conc.	2.2	1.8	1.9	1.6	0	0	0	0	0	0	0	0	2.2
Date of Highest 8-Hr. Conc.	1/03	2/19	3/13	4/22	0	0	0	0	0	0	0	0	01/03
2nd Highest 8-Hr. Conc.	1.8	1.7	1.9	1.3	0	0	0	0	0	0	0	0	1.9
Date of 2nd Highest 8-Hr. Conc.	1/02	2/11	3/25	4/21	0	0	0	0	0	0	0	0	3/13
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	611	0	0	0	0	0	0	0	0	2771
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
2007 SUMMARY OF CARBON MONOXIDE CONCENTRATIONS (PPM)

SITE	HUME FOGG	DOUGLAS PARK	ANNUAL
Highest 1-Hr Conc.	3.0	3.9	3.9
2nd Highest 1-Hr Conc.	2.9	3.7	3.7
Highest 8-Hr Conc.	2.3	2.2	2.3
2nd Highest 8-Hr Conc.	2.1	1.9	2.1
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
1983 – 2007 ANNUAL COMPARISON CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0021 HUME FOGG MAGNET SCHOOL

YEAR	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Highest 1-Hr Conc.	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	3.5	3.0
2nd Highest 1-Hr Conc.	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	3.4	2.9
Highest 8-Hr Conc.	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	3.0	2.3
2nd Highest 8-Hr Conc.	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	2.6	2.1
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)	20	8	0	3	1	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)	20	8	0	3	1	0	0	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*

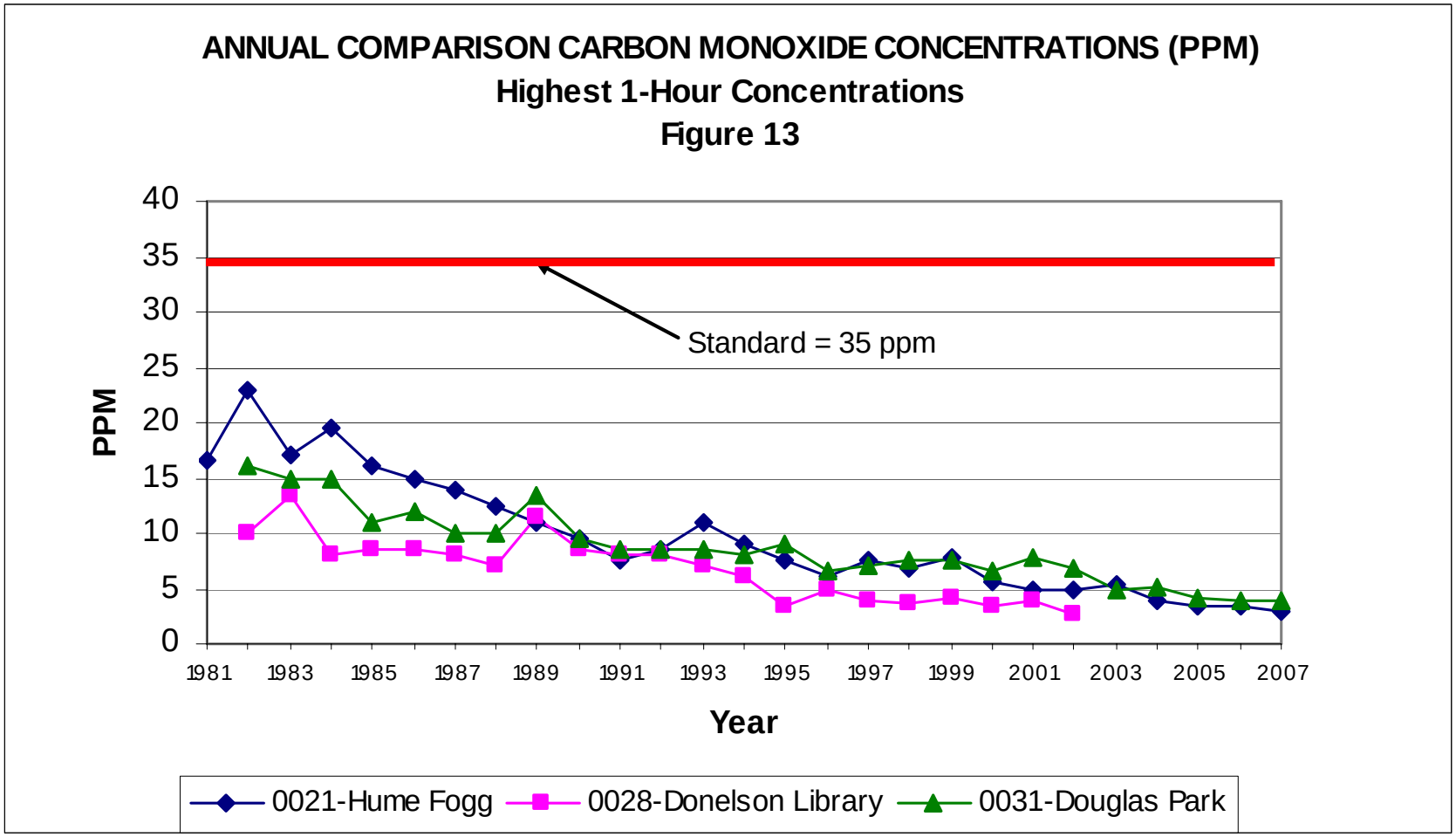
YEAR	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Highest 1-Hr Conc.	10.0	13.5	8.0	8.5	8.5	8.0	7.0	11.5	8.5	8.0	8.0	7.0	6.0	3.5	5.0	4.0	3.6	4.1	3.5	3.9	2.7
2nd Highest 1-Hr Conc.	9.5	8.0	7.5	7.0	6.5	8.0	7.0	7.0	7.5	6.5	7.0	6.8	5.5	3.0	4.5	4.0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

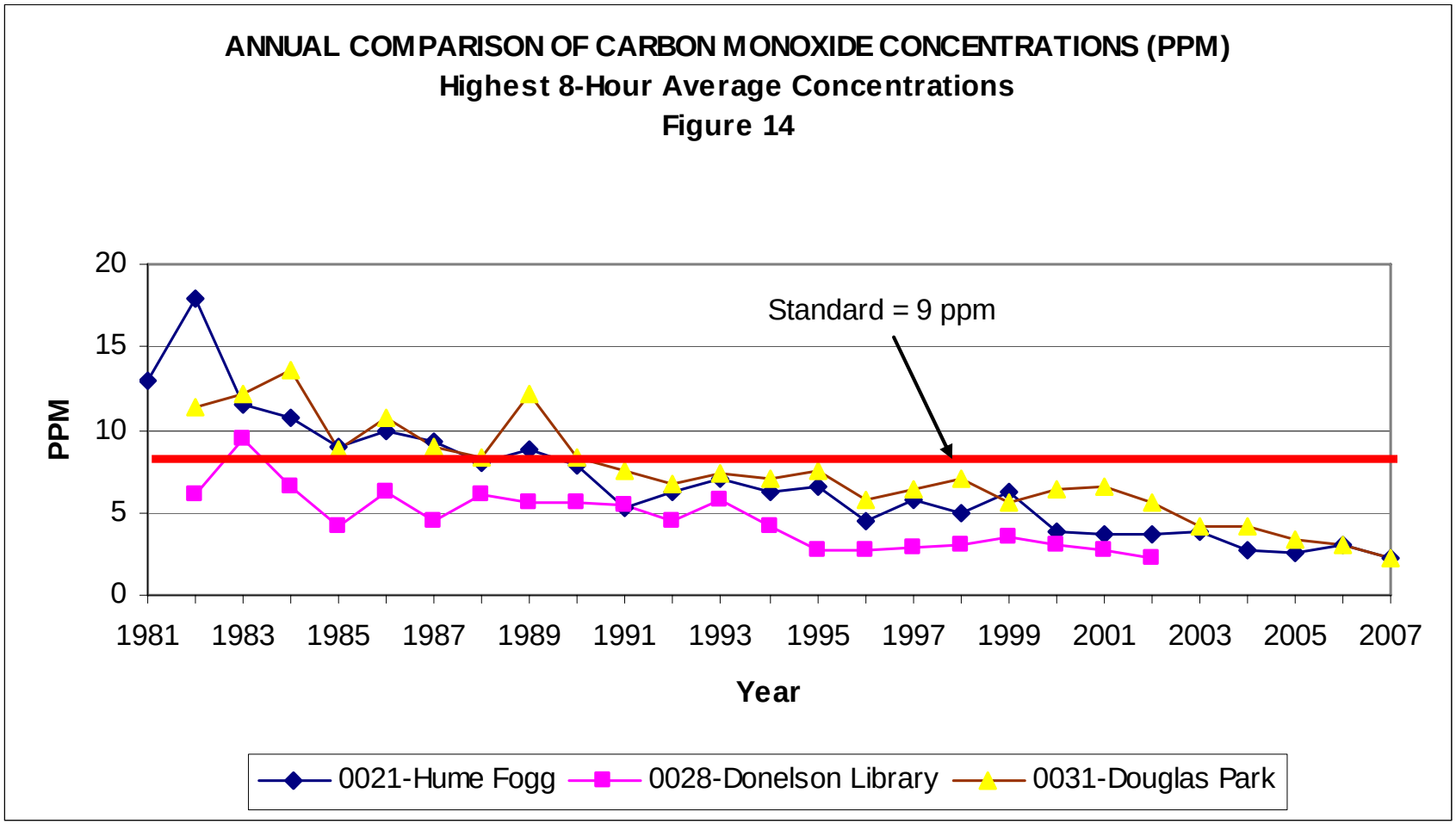
*Donelson Library site was taken out of service in 2002.

TABLE XXIX
1983 - 2007 ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0031 DOUGLAS PARK

YEAR	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Highest 1-Hr Concentration	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	3.9	3.9
2nd Highest 1-Hr	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	3.7	3.7
Highest 8-Hr Concentration	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	3.1	2.2
2nd Highest 8-Hr	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	3.1	1.9
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)	7	17	0	4	0	0	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)	6	16	0	4	0	0	1	0	0	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
PPM
40
35
30
25
20
15
10
5
0
Standard = 35 ppm
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
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
20
15
10
5
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Year
0021-Hume Fogg
0028-Donelson Library
0031-Douglas Park

AIR QUALITY INDEX

The Air Quality Index (AQI) is a tool 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 ambient air quality standards to protect public health. Ground-level ozone and airborne particles are the two criteria 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. A daily recorded update of the AQI can be obtained by calling (615) 340-0488 and on the Metro Public Health Department's website which can be found at http://health.nashville.gov. Table XXX summarizes the daily AQI for 2006.

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 ambient 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, green means good, yellow means moderate, orange means "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 2007 AQI SUMMARY		
Range	**Number of Days**	**% of Total Days**
Good	213	58%
Moderate	146	40%
Unhealthy for Sensitive Groups	6	2%

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 2007 data, Nashville's air was in the good or moderate range on 98% of the days according to EPA's AQI. Therefore, the PCD achieved its performance goal in 2007.

The Davidson County maximum AQI in 2007 was on August 15, 2007 when the 8-hour ozone concentration reached 0.100 ppm at the Percy Priest Dam monitoring site. The 0.100 ppm concentration resulted in a reported AQI of 161. Hot temperatures along with sunny skies and stagnant conditions persisted across the nation causing elevated ground level ozone concentrations during this time period.

AIR QUALITY FORECASTING

In cooperation with the Tennessee Department of Environment and Conservation, Air Pollution Control Division, 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 continued relationships with weather staff at each of the local TV news stations, continued relationships with local newspaper environmental and transportation reporters, development and continued support of the CAP of Middle Tennessee's www.cleanairpartnership.info website and quarterly newsletter, launch of multi-media outreach campaign including billboards, radio, television, and newspaper advertising, participation in the Nashville Earth Day Festival and several other community events from 2003 through 2007, several radio interviews, on-camera interviews aired on local TV news programs on Air Quality Action Days in 2005-2007, and formal launch of the CAP Employer Partner Program. Planned activities include promoting air quality curriculum materials for use in area public and private schools, increasing the number of businesses participating in the CAP Employer Partner Program, 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://health.nashville.gov.

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
2007 POLLEN COUNT SUMMARY

Range	Number of Days	% of Total Days
Slight	60	35%
Moderate	67	39%
Heavy	14	8%
Extremely Heavy	31	18%

Table XXXI gives a summary of the 2007 pollen season. The maximum daily pollen count for Nashville during 2007 was 674 grains/cm^2 measured March 27, 2007 due to the combination of cedar, maple and pine.

A daily update of the Pollen Count can be found on the website at http://health.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 2007, more than 54 on-site indoor air quality investigations were conducted in residences, schools, childcare facilities and public buildings. 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 mandated a Vehicle Inspection Program in non-attainment areas unable to demonstrate attainment of the National Ambient Air Quality Standards (NAAQS) for carbon monoxide and ozone by December 31, 1982. Davidson County was unable to demonstrate attainment by December 31, 1982. Therefore, a 5-year extension was requested to demonstrate attainment of the NAAQS 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 have resulted in sanctions including the loss of federal highway funds, air program funds and/or a construction moratorium.

Carbon monoxide (CO) is a colorless, odorless gas that is a product of incomplete combustion. The major source of carbon monoxide in Davidson County is light duty vehicles. Ozone (O_3) is a colorless, pungent gas that is produced by the reaction of sunlight with volatile organic compounds and nitrogen oxides. A major source of volatile organic compounds and nitrogen oxides in Davidson County is light duty vehicles.

The following section describes the Davidson County Vehicle Inspection Program for the period of January 1, 2007 through December 31, 2007.

VEHICLE INSPECTION PROGRAM DESCRIPTION

The Metro Code of Nashville and Davidson County, Chapter 10.56, "Air Pollution Control," Section 10.56.240, "Internal Combustion Engines," authorizes the Metro Board of Health to develop and implement a vehicle inspection maintenance program. On May 31, 1981, the Metro 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 provided for a vehicle inspection program for all light duty vehicles manufactured from 1975 through the current model year with a maximum gross vehicle weight rating (GVWR) of 8,500 pounds or less. The only exceptions were diesel or electric powered light duty vehicles and motorcycles. This regulation was approved by the Metro Council of Nashville and Davidson County May 17, 1983 by Resolution No. R83-1471. The program approved by the Metro Council was a centralized program operated by a contractor. The allowable emission standards for various vehicle types and ages are listed in Table XXXII.

The Vehicle Inspection Program became mandatory January 1, 1985. A vehicle owner was required to show proof that their vehicle met the allowable tailpipe emission standards of the Vehicle Inspection Program in order to purchase the Davidson County wheel tax license.

Effective December 1, 1994, the program was changed to require all 1975 and newer light duty vehicles, to undergo a visual three-point anti-tampering inspection in addition to the tailpipe test. This included the gas cap, gasoline inlet restrictor and catalytic converter.

In August, 2001, the Metro Council adopted Resolution No. RS 2001-716 to require all 1996 and newer vehicles to receive an OBD test for emissions compliance. The OBD testing started April 1, 2002.

On April 1, 2005, the Vehicle Inspection Program changed the test weight of vehicles from 8,500 pounds GVWR to include vehicles up to 10,500 pounds GVWR. The program also added diesel powered vehicles.

The Nashville Vehicle Inspection Program requires all light duty gasoline and diesel powered 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 Nashville Vehicle Inspection Program currently uses idle, on-board diagnostic (OBD) and curb idle (opacity) test procedures. Light duty gasoline vehicles 1975 – 1995 are tested using the idle test. Light duty diesel vehicles 1975 – 2001 are tested using the curb idle test. Light duty gasoline vehicles 1996 and newer, and light duty diesel vehicles 2002 and newer, are tested using the OBD test.

The 1975 - 1995 light duty gasoline 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.

The OBD 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. The vehicle analyzer is plugged into the data link connector (DLC) on the vehicle, and the stored information from the vehicle's on-board computer is downloaded to the analyzer.

The curb idle (opacity) test measures the density of the exhaust from light duty diesel vehicles. The opacity is compared to the 10% standard, and pass-fail is determined.

Table XXXII
Maximum Idle Speed Allowable Emissions
During Idle Speed Test

Vehicle Model Year	LIGHT DUTY VEHICLES 0 - 6000 LBS. GVWR		LIGHT DUTY VEHICLES 6001 – 10,500 LBS. GVWR	
	Carbon Monoxide %	Hydrocarbon (PPM)	Carbon Monoxide %	Hydrocarbon (PPM)
1975	5.0	500	6.5	750
1976	5.0	500	6.5	750
1977	5.0	500	6.5	750
1978	4.0	400	6.0	600
1979	4.0	400	6.0	600
1980	3.0	300	4.5	400
1981 & Newer	1.2	220	4.0	400

VEHICLE INSPECTION PROGRAM OPERATING STATISTICS

During 2007, the Nashville Vehicle Inspection Program performed 590,930 emission inspections. Compared to the 594,577 inspections done during 2006, there was a decrease of 3,647 inspections.

VEHICLE INSPECTION FAIL RATES

In 2007, a total of 517,254 vehicles were tested. The 2007 overall fail rate was 9.46%. The initial inspection fail rates rounded to the nearest percent by year since the program start-up can be found 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%
2006	9%
2007	9%

The most reasonable explanation for the decreasing fail rates from 1986 - 1994 was that affected vehicles were being better maintained and many gross polluters were being 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 was due to the adding of a three-point anti-tampering inspection into the program in 1995. Again, the increase in the 2002 and later vehicle fail rate was due to the addition of OBD testing on 1996 and newer vehicles.

This data shows that the Nashville Vehicle Inspection Program is effective in reducing light duty gasoline and diesel vehicle emissions from the test fleet.

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, 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 hydrocarbons, carbon monoxide and carbon dioxide accurately. During 2007, there were 586 gas analyzer audits on 42 individual gas analyzers used by the test centers and mobile testing vans. Also, there were 82 undercover activities conducted on contractor inspection facilities.

VEHICLE INSPECTION PROGRAM ENFORCEMENT

During 2007, various enforcement activities were carried out to ensure compliance with the vehicle inspection program. The staff issued 213 Notices of Violation or Citations.

Due to the enforcement efforts of the staff, the Nashville 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 Nashville Vehicle Inspection Program is effective in reducing emissions from light duty vehicles, since the dirty vehicles are being identified and repaired.

11. OTHER POLLUTION CONTROL DIVISION ACTIVITIES

During 2007, the staff attended 56 EPA workshops or training courses. Semi-annually in 2007, the State of Tennessee Visible Emission Evaluation School certified two environmentalists and two engineers to conduct visible emissions evaluations. The staff made three presentations.

In addition to the ambient monitoring activities previously presented, the Pollution Control Division Laboratory performed analysis on 26 samples for asbestos and 6 other particulate matter samples.

During 2007, this agency's revenue included:

$ 683,481	Operating Permits and Emission-based fees
$ 2,100	Penalties
$ 1,875	Fines
$1,396,276	Vehicle Inspection Program

November, 2008