POLLUTION CONTROL DIVISION

ANNUAL REPORT 2009

Metro Public Health Dept
Nashville/Davidson County

Mayor of Metropolitan Government of

Nashville & Davidson County

The Honorable Karl Dean

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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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1. 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 2009.

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.

2. ENGINEERING ACTIVITIES

Table I and Figures 1 through 5, present the 2009 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% of the total 2009 particulate emissions. Dust from paved roads accounts for 87% of the total 2009 PM_{10} emissions. Figure 2 shows that fuel combustion accounts for approximately 84% of the total 2009 sulfur dioxide emissions. Figure 3 shows that the on-road and non-road mobile source emissions account for 83% of the total 2009 nitrogen dioxide emissions. Figure 4 shows that 98% of the 2009 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 53% of the total 2009 volatile organic compound emissions, and approximately 20% 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 2009 Davidson County Hazardous Air Pollutant Emission Inventory is shown in Table III.

During 2009, the Engineering Section reviewed plans and specifications for 54 new and/or modified stationary sources and issued the following permits:

Construction Permits:	66
Operating Permits:	490

In addition to the above permits, 189 permits were issued for asbestos removal and 5 burning permits using an air curtain destructor were issued. Revenue generated from the issuance of permits in 2009 was $690,054.

During 2009 this agency observed the following compliance source tests:

2	Nitrogen Oxides
1	Carbon Monoxide
2	Hydrochloric Acid
1	Volatile Organic Compound
0	Particulate Matter
87	Pressure-decay tests on gasoline dispensing facilities

3. 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	Zeledyne, LLC
70-0042	Vought Aircraft Industries, Inc.
70-0045	Armstrong Hardwood Flooring Company
70-0050	Metro District Energy System
70-0081	U.S. Smokeless Tobacco Manufacturing, LP
70-0120	Peterbilt Motors Company
70-0154	Aqua Bath Company
70-0156	Gibson Guitar
70-0189	Metro Public Works - Bordeaux Landfill
70-0241	Vanderbilt University Medical Center
70-0255	MM Nashville Energy

4. EMISSION INVENTORY

TABLE I
2009 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	18.5	22.1
Bulk Gasoline Terminals	0.0	0.0	0.0	0.0	0.0	10.5	0.0	34.5	0.0	279.9
Bulk Gasoline Plants	0.0	0.0	0.0	0.0	0.0	2.2	0.0	5.4	6.3	5.5
Tank Truck Unl. (Stage I)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	190.2	0.0
Vehicle Refuel. (Stage II)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	115.5	0.0
Tank Trucks In Transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.2	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**12.7**	**0.0**	**39.9**	**382.7**	**307.5**
Total--Area + Point	**0.0**		**0.0**		**12.7**		**39.9**		**690.2**	
INDUSTRIAL PROCESSES										
Adhesives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aerospace	0.8	1.0	0.0	0.1	0.0	0.7	0.0	0.2	0.3	34.4
Misc. Metal Products	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3	1.4
Inorganic Chemical Mfg.	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Organic Chemical Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textile Mfg.	0.0	45.2	0.0	0.1	0.0	9.0	0.0	9.5	0.1	67.4
Rubber Tire Mfg.	1.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.4	21.8
Plastic Products Mfg.	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	5.5
Wood Products Mfg.	3.6	2.1	0.8	0.0	11.3	0.0	2.4	0.0	35.5	117.0
Clay & Glass	3.4	61.6	0.0	113.9	0.0	682.0	0.0	19.6	0.3	29.3
Mineral Products	71.1	25.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Asphalt Plants	21.3	0.0	13.6	0.0	11.6	0.0	73.3	0.0	15.7	0.0
Paint Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	10.8
Food & Agriculture	3.3	0.4	0.0	0.0	0.0	1.2	0.0	0.8	2.2	49.5
Primary/Sec. Metals	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Large Appliance Coating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Ship Building	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**107.7**	**137.5**	**14.4**	**114.1**	**22.9**	**692.9**	**75.7**	**30.0**	**92.0**	**337.2**
Total--Area + Point	**245.2**		**128.4**		**715.8**		**105.7**		**429.2**	

TABLE I (continued)
2009 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

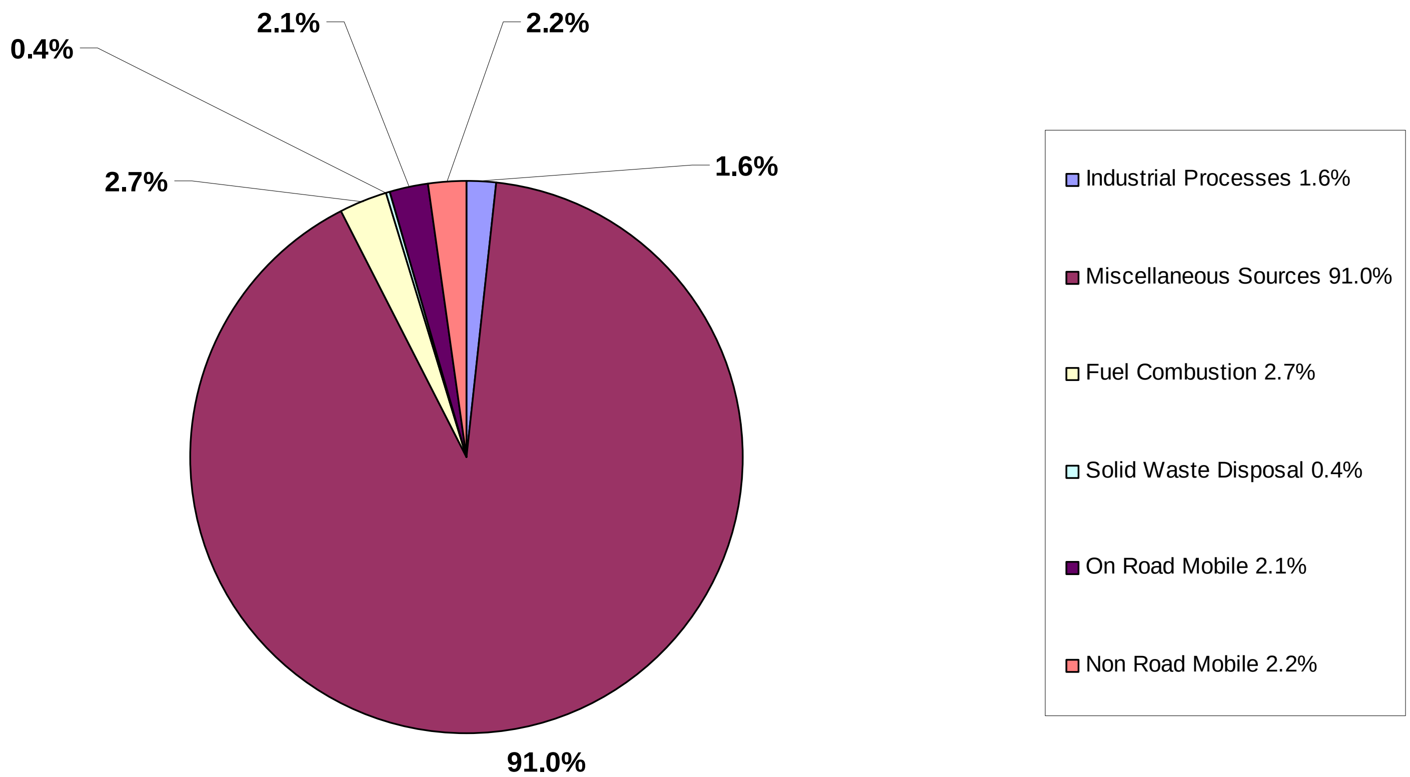
STATIONARY SOURCES-TONS PER YEAR										
	PARTICULATE		SULFUR OXIDES		NITROGEN OXIDES		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
NON-IND. SURFACE COAT.										
Architectural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,153.8	0.0
Auto Refinishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	758.3	0.0
Traffic Markings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113.0	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2,025.2**	**0.0**
Total--Area + Point	**0.0**		**0.0**		**0.0**		**0.0**		**2,025.2**	
OTHER SOLVENT USE										
Cold Cleaners (exc. perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,144.3	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	4.2	0.6	0.0	0.0	3.3	19.2	0.6	23.8	75.0	19.2
Dry Cleaning (exc. perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
Cons./Comm. Solv. Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,492.0	0.0
Subtotal	**4.2**	**0.6**	**0.0**	**0.0**	**3.3**	**19.2**	**0.6**	**23.8**	**3,711.2**	**21.2**
Total--Area + Point	**4.8**		**0.0**		**22.5**		**24.4**		**3,732.4**	
MISC. SOURCES										
Pesticide Application	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	565.8	0.0
Landfills	0.0	0.6	0.0	0.6	0.0	1.4	0.0	26.3	0.0	11.6
Scrap & Waste Material	21.0	30.3	1.8	0.0	24.1	3.5	4.1	6.8	1.2	0.0
Biogenic (PCBEIS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dust From Paved Roads	13,525.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brake and Tire Wear	183.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction Projects	382.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agricultural Tilling	57.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	**14,170.3**	**30.9**	**1.8**	**0.6**	**24.1**	**4.9**	**4.1**	**33.1**	**567.0**	**11.7**
Total--Area + Point	**14,201.2**		**2.3**		**29.0**		**37.2**		**578.6**	
FUEL COMBUSTION										
Residential	249.1	0.0	20.1	0.0	455.9	0.0	1,630.2	0.0	1,331.4	0.0
Commercial/Institutional	12.9	81.7	4.1	1,237.6	116.1	757.6	88.1	351.4	11.8	39.7
Industrial	0.2	71.4	0.0	530.7	2.5	695.1	2.0	74.2	4.3	6.3
Subtotal	**262.1**	**153.1**	**24.3**	**1,768.4**	**574.5**	**1,452.7**	**1,720.2**	**425.6**	**1,347.5**	**46.0**
Total--Area + Point	**415.2**		**1,792.6**		**2,027.2**		**2,145.8**		**1,393.5**	
SOLID WASTE DISPOSAL										
Incinerators	1.4	0.0	0.7	0.0	2.0	0.0	1.0	0.0	2.8	0.0
POTW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	1.6
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)	58.2	0.0	0.0	0.0	0.2	0.0	443.5	0.0	61.0	0.0
Forest & Grass Fires	6.7	0.0	0.0	0.0	0.7	0.0	47.8	0.0	6.8	0.0
Subtotal	**66.2**	**0.0**	**0.7**	**0.0**	**2.9**	**0.0**	**492.3**	**0.0**	**88.9**	**1.6**
Total--Area + Point	**66.2**		**0.7**		**2.9**		**492.3**		**90.5**	
TOTAL STATIONARY SOURCES	**14,610.6**	**322.0**	**41.1**	**1,883.0**	**627.8**	**2,182.3**	**2,293.0**	**552.4**	**8,214.5**	**725.1**
TOTAL STA. AREA + POINT	**14,932.6**		**1,924.1**		**2,810.1**		**2,845.4**		**8,939.6**	

TABLE I (continued)
2009 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

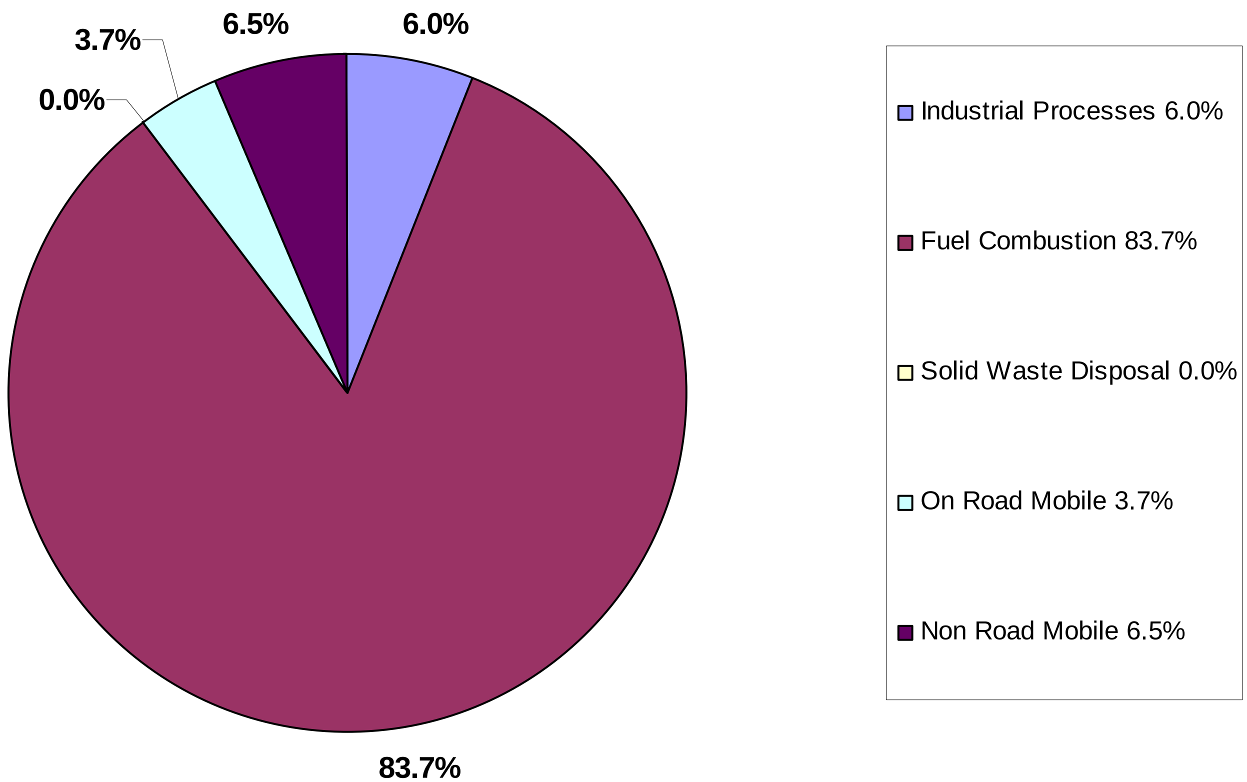
MOBILE SOURCES-TONS PER YEAR										
	PARTICULATE		SULFUR OXIDES		NITROGEN OXIDES		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**
ON-ROAD MOBILE										
LDV	162.5	0.0	42.1	0.0	3,246.4	0.0	60,224.2	0.0	4,398.7	0.0
LDT1	43.8	0.0	11.7	0.0	895.7	0.0	15,390.3	0.0	940.1	0.0
LDT2	11.1	0.0	3.6	0.0	332.1	0.0	5,061.3	0.0	388.9	0.0
HDV	113.4	0.0	22.6	0.0	4,949.6	0.0	2,318.3	0.0	305.7	0.0
MC	0.8	0.0	0.1	0.0	28.7	0.0	236.3	0.0	40.0	0.0
Subtotal	**331.6**	**0.0**	**80.1**	**0.0**	**9,452.5**	**0.0**	**83,230.3**	**0.0**	**6,073.3**	**0.0**
Total--Area + Point	**331.6**		**80.1**		**9,452.5**		**83,230.3**		**6,073.3**	
NON-ROAD MOBILE*										
Railroad Locomotives	3.5	0.0	9.9	0.0	137.1	0.0	20.5	0.0	9.4	0.0
Aircraft	15.4	0.0	80.5	0.0	684.7	0.0	2,520.9	0.0	258.3	0.0
Commercial Marine	0.0	0.0	4.3	0.0	44.9	0.0	16.0	0.0	8.0	0.0
Non-road	324.9	0.0	44.5	0.0	3,059.9	0.0	38,877.4	0.0	3,687.5	0.0
Subtotal	**343.7**	**0.0**	**139.2**	**0.0**	**3,926.6**	**0.0**	**41,434.8**	**0.0**	**3,963.2**	**0.0**
Total--Area + Point	**343.7**		**139.2**		**3,926.6**		**41,434.8**		**3,963.2**	
TOTAL MOBILE SOURCES	**675.2**	**0.0**	**219.2**	**0.0**	**13,379.1**	**0.0**	**124,665.1**	**0.0**	**10,036.5**	**0.0**
TOTAL MOBILE AREA + POINT	**675.2**		**219.2**		**13,379.1**		**124,665.1**		**10,036.5**	
TOTAL STATIONARY + MOBILE	**15,285.8**	**322.0**	**260.3**	**1,883.0**	**14,006.8**	**2,182.3**	**126,958.1**	**552.4**	**18,251.1**	**725.1**
GRAND TOTAL AREA + POINT	**15,607.9**		**2,143.3**		**16,189.2**		**127,510.4**		**18,976.1**	

*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, NONROAD2008a, 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 calculated emissions for 2005 and later years 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 NONROAD2008a model better estimates non-road mobile emissions.

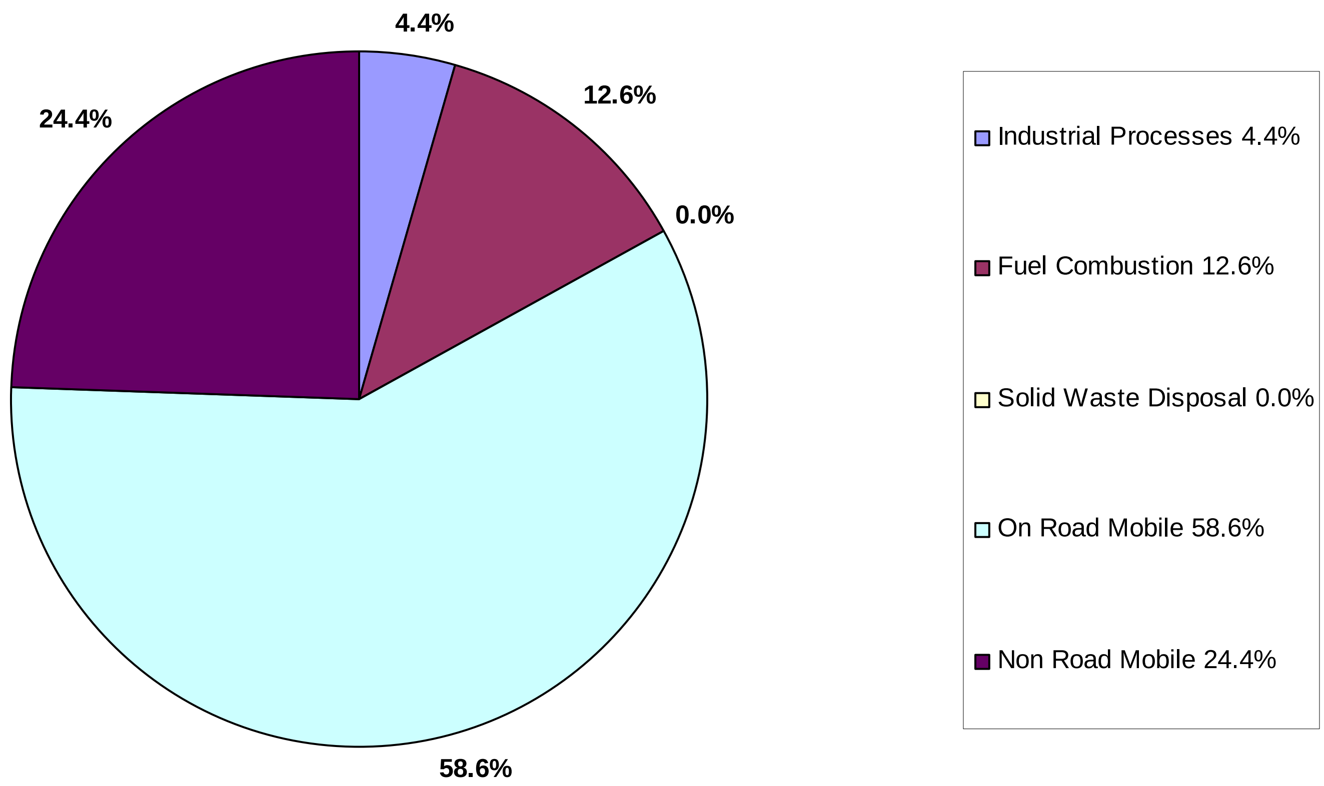
Percent Particulate Emissions for Various Sources
Figure 1



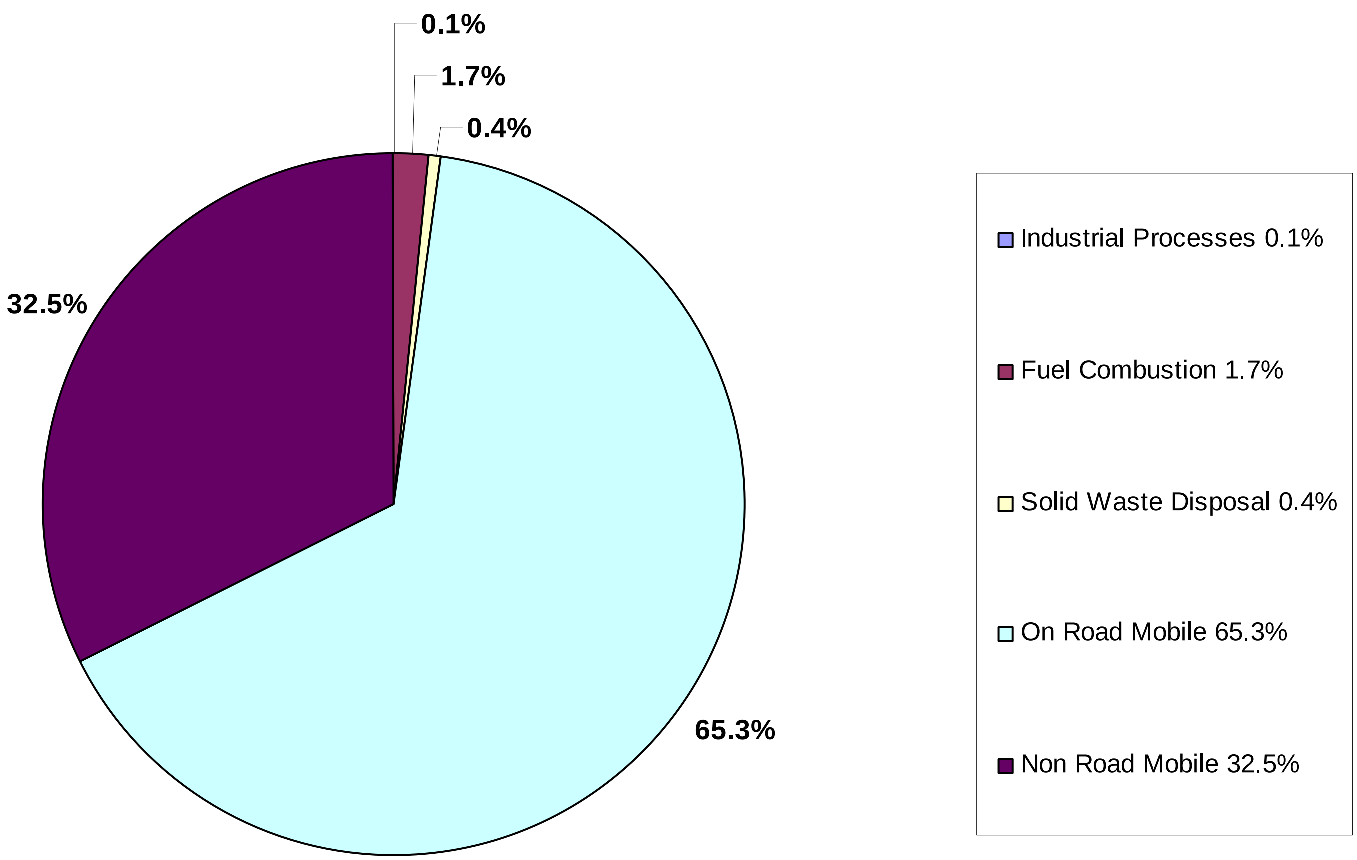
Percent Sulfur Dioxide Emissions for Various Sources
Figure 2



Percent Nitrogen Oxide Emissions for Various Sources
Figure 3



Percent Carbon Monoxide Emissions for Various Sources
Figure 4



Percent Volatile Organic Compound Emissions for Various Sources
Figure 5

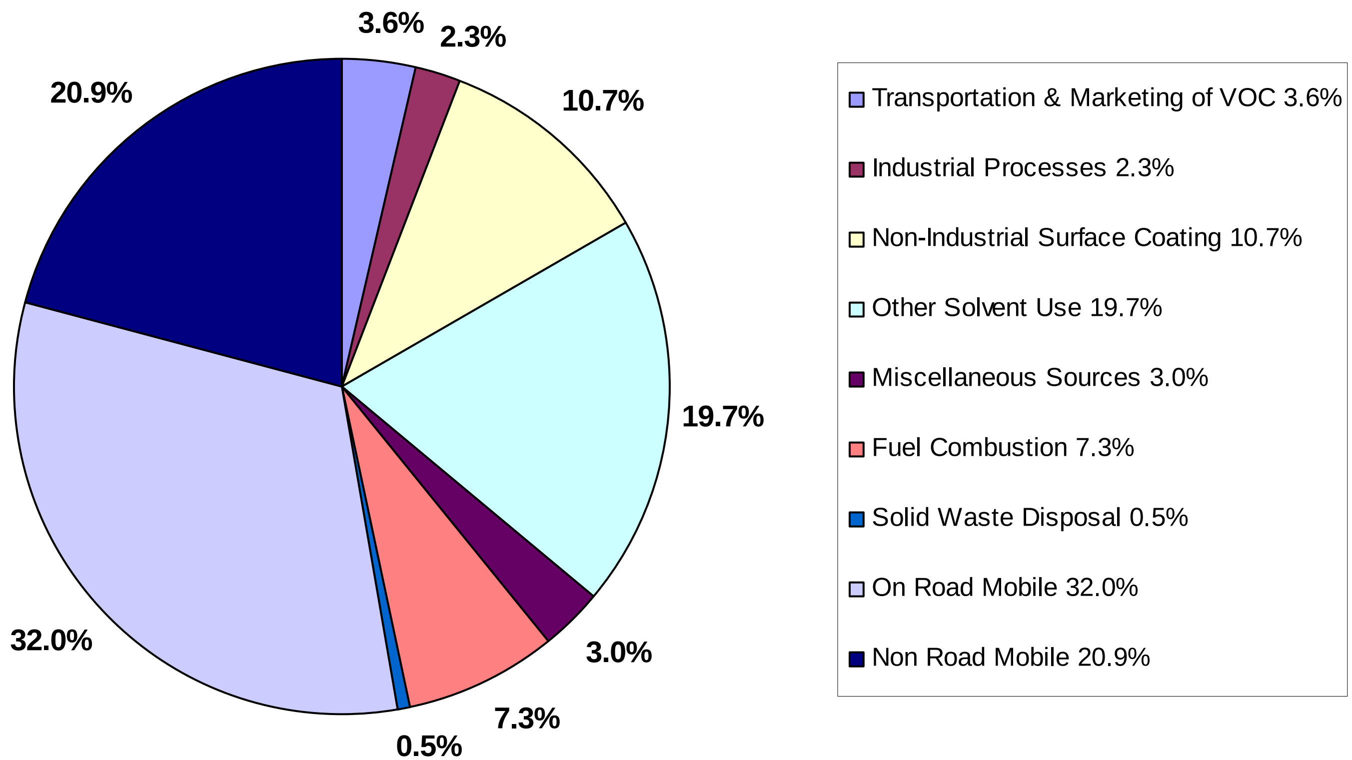


TABLE II
1996 - 2009 Annual Comparison of Nitrogen Dioxide and Volatile Organic Compound Emissions

Nitrogen Dioxide (Tons/Year)

Source Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Trans. & Mkt. of VOC	6	4	5	5	5	6	4	3	7	10	12	10	11	13
Industrial Processes	1,765	2,146	1,877	1,914	1,672	1,365	898	899	890	884	703	1009	833	716
Other Solvents	0	8	0	0	0	3	0	4	5	6	6	7	7	23
Miscellaneous	28	28	6	8	2	7	0	0	0	0	0	27	30	29
Fuel Combustion	3,251	3,331	3,023	2,866	3,063	3,118	3,074	3,119	2,565	2,348	2,238	2208	2,294	2,027
Solid Waste Disposal	452	457	501	458	460	404	144	1	2	2	7	6	2	3
On-Road Mobile	20,940	21,216	20,754	21,001	18,548	19,669	19,218	16,875	16,114	14,844	13,352	12380	10,986	9,453
Non-Road Mobile	4,423	4,309	4,511	4,585	4,825	5,207	4,965	4,711	4,657	4,648	4,542	4318	4,176	3,927
TOTAL	**30,865**	**31,499**	**30,677**	**30,836**	**28,575**	**29,778**	**28,308**	**25,612**	**24,248**	**22,743**	**21,018**	**19,965**	**18,339**	**16,189**

Volatile Organic Compounds (Tons/Year)

Source Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Trans. & Mkt. of VOC	729	683	696	691	676	633	660	651	677	667	691	620	717	690
Industrial Processes	2,651	2,185	2,579	1,868	1,675	1,976	1,516	1,456	1,344	1,068	1,075	847	640	429
Non-Ind. Surface Coating	1,951	1,898	1,920	1,973	1,999	1,885	1,804	1,815	1,845	1,912	1,946	1,932	2,001	2,025
Other Solvents	2,747	2,760	2,752	2,749	3,004	2,999	3,033	3,052	3,101	3,164	3,206	3,052	3,129	3,732
Miscellaneous	572	569	507	498	511	519	531	536	545	550	551	553	561	579
Fuel Combustion	5,639	5,679	5,716	5,780	1,250	827	883	938	767	768	787	800	1,078	1,394
Solid Waste Disposal	196	128	157	113	101	98	90	76	110	55	80	126	75	91
On-Road Mobile	8,770	9,150	9,412	9,852	8,557	8,292	8,227	10,568	9,909	9,036	8,478	7,990	6,747	6,073
Non-Road Mobile	2,713	4,615	4,257	4,274	4,475	4,063	4,552	4,169	3,869	4,990	4,788	4,641	4,044	3,963
TOTAL	**25,967**	**27,666**	**28,016**	**27,798**	**22,247**	**21,290**	**21,296**	**23,260**	**22,167**	**22,210**	**22,040**	**20,565**	**18,991**	**18,976**

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 calculated emissions for 2005 and later years 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.

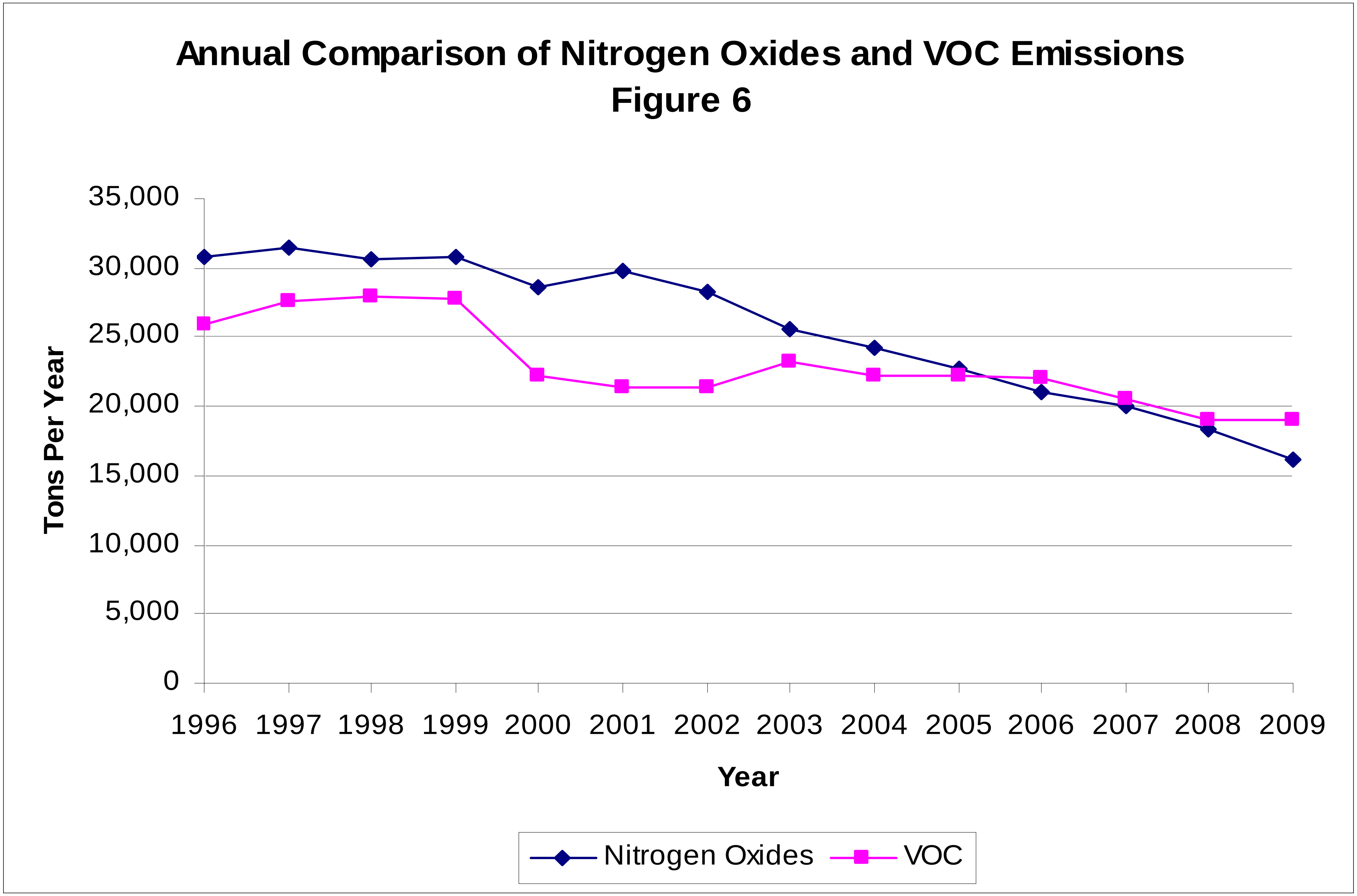

Annual Comparison of Nitrogen Oxides and VOC Emissions
Figure 6
Tons Per Year
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Year
Nitrogen Oxides
VOC

TABLE III
2009 Davidson County Hazardous Air Pollutant Emission Inventory

POLLUTANT	CAS #	TPY
1,1,2,2-tetrachloroethane	79-34-5	0.041
1,1,2-trichloroethane	79-00-5	0.069
1,2,4, Trichlorobenzene	120-82-1	0.039
1,3-Butadiene	106-99-0	20.444
1,3-Dichloropropene	542-75-6	0.000
1,4-Dichlorobenzene	106-46-7	77.270
1,4-Dioxane	123-91-1	0.393
2,2,4-Trimethylpentane	540-84-1	56.340
2-Butanone	78-93-3	0.000
2-Chloroacetophenone	532-27-4	0.000
2-Nitropropane	79-46-9	0.001
4-4'-Methylenediphenyl diisocyanate	101-68-8	0.000
Acetaldehyde	75-07-0	85.194
Acetophenone	98-86-2	5.483
Acrolein	107-02-8	11.196
Acrylonitrile	107-13-1	0.074
Aniline	62-53-3	0.007
Arsenic	00-00-0	0.002
Benzene	71-43-2	238.239
Benzyl chloride	100-44-7	0.010
Biphenyl	92-52-4	0.152
Bis(2-ethylhexyl)phthlate (DEHP)	117-81-7	3.987
Chloroform	67-66-3	0.440
Carbon Disulfide	75-15-0	0.055
Carbon Tetrachloride	56-23-5	0.037
Carbonyl sulfide	463-58-1	0.015
Chlorine	7782-50-5	3.666
Chlorobenzene	108-90-7	22.769
Chromium	00-00-0	0.006
Chromium compounds	00-00-0	0.099
Cobalt Compounds	00-00-0	0.001
Cumene	98-82-8	1.294
Cyanide Compounds	00-00-0	0.050
Dibenzofurans	132-64-9	0.068
Cobalt-2-ethylhexanote	136-52-7	0.002
Diethanolamine	111-42-2	0.022
Dichlorobenzene	107-46-7	0.053
Diethylene Glycol Monobutyl Ether	112-34-5	0.006
Dimethyl Formamide	68-12-2	3.640
Dimethyl Phthalate	131-11-1	0.000
Dimethyl Sulfate	77-78-1	0.000
Ethyl Chloride	75-00-3	2.586
Ethylbenzene	100-41-4	59.010
Ethylene Dichloride	107-06-2	0.010
Ethylene Glycol	107-21-1	19.740

TABLE III
Davidson County Hazardous Air Pollutant Emission Inventory Continued

Ethylene Oxide	75-21-8	5.229
Ethylidine Dichloride	75-34-3	0.051
Formaldehyde	50-00-0	109.222
Glycol Ethers	00-00-0	16.814
Hexamethylene diisocyanate	822-06-0	0.009
Hexane	110-54-3	244.227
Hydrogen chloride	7647-01-0	98.366
Hydrogen Fluoride	7664-39-3	8.055
Hydrogen Sulfide	7783-06-4	24.050
Hydroquinone	123-31-9	0.030
Isooctane	540-84-1	0.001
Isophorone	78-59-1	0.311
Lead compounds	00-00-0	0.012
Manganese Compounds	00-00-0	0.247
Methanol	67-56-1	287.174
Methyl Chloride	74-87-3	2.150
Methyl Chloroform	71-55-6	123.118
Methyl Bromide	74-83-9	70.564
Methyl Isobutyl Ketone	108-10-1	9.691
Methyl Methacrylate	80-62-6	0.116
Methyl Tertiary Butyl Ether	1634-04-4	0.486
Methylene Chloride	75-09-2	0.000
m-Xylene	108-38-3	62.590
Naphthalene	91-20-3	27.970
Nickel compounds	00-00-0	0.056
n-xylene	1330-20-7	2.125
o-Xylene	95-47-6	33.018
p-Dichlorobenzene	106-46-7	0.005
Phenol	108-95-2	0.652
Phthalic Anhydride	85-44-9	0.834
POM as 16-PAH	00-00-0	0.194
Propionaldehyde	123-38-6	15.375
Propylene Dichloride	78-87-5	0.004
Propylene Oxide	75-56-9	0.268
Propylene Glycol	57-55-6	0.543
Quinone	106-51-4	0.028
Selenium Compounds	00-00-0	0.034
Styrene	100-42-5	7.286
t-1,2-dichloroethene	156-60-5	0.060
Tetrachloroethylene (Perc)	127-18-4	9.953
Toluene	108-88-3	384.807
Trichloroethylene	79-01-6	4.745
Triethylamine	121-44-8	0.467
Trimethylbenzene	95-63-6	0.014
Vinyl Acetate	108-05-4	0.010
Vinyl Chloride	75-01-4	0.101
Vinylidene Chloride	75-35-4	0.004
Xylenes	1330-20-7	256.438
Total of All Hazardous Air Pollutants		**2420.122**

5. 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 2009 this agency conducted:

1,453 inspections of stationary air pollution sources;
376 inspections of asbestos removal sites;
20 indoor air quality inspections;
126 complaint investigations; and
Observed 87 pressure-decay and blockage tests on gasoline dispensing facilities.

During 2009, this agency issued 64 warning letters, 157 notices of violation, 20 citations, 11 consent agreements and 3 Director's Orders. Total penalties collected were $198,587.

6. MONITORING ACTIVITIES

During 2009 this agency operated eight 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 five sites. Three sites measure PM_{10}, and two 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 and Hillwood High 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, however, ceased operation October 15, 2008. The $PM_{2.5}$ monitor located at Wright Middle School ceased operation January 1, 2008 with EPA's concurrence.

Carbon monoxide was measured by a continuous monitor at Hume Fogg High School. The carbon monoxide monitor located at Douglas Park ceased operation May 1, 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://health.nashville.gov.

LOCATION OF AIR MONITORING SITES
Figure 7

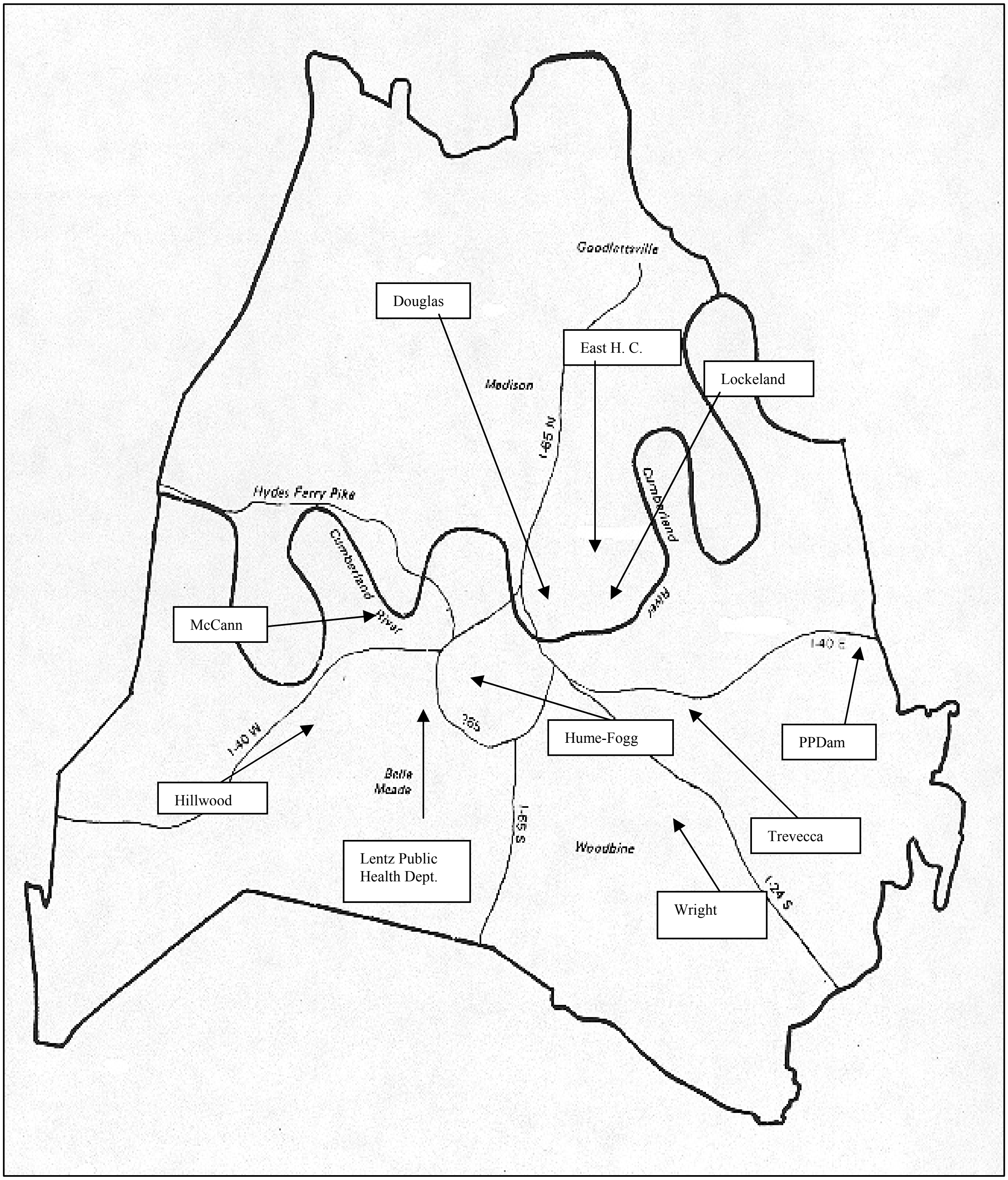


TABLE IV
AIR MONITORING SITE LOCATION & CLASSIFICATION

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 ceased 1/1/08	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 ceased 5/1/07	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 $PM_{2.5}$ monitor located at Wright Middle School, 180 McCall Street ceased operation January 1, 2008 with EPA's concurrence. This is no longer an air monitoring site.
****The CO monitor located at Douglas Park, 210 North Seventh Street ceased operation May 1, 2008 with EPA's concurrence. This is no longer an air monitoring site.
*****The $PM_{2.5}$ contiunous monitor located at Hillwood High School, 400 Davidson Street, ceased operation October 15, 2008 with EPA's concurrence.

Table V
National Ambient Air Quality Standards

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour (1)	None	
	35 ppm (40 mg/m^3)	1-hour (1)		
Lead	0.15 µg/m^3 (2) (2008 std)	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m^3	Quarterly Average	Same as Primary	
Nitrogen Dioxide	53 ppb (3)	Annual (Arithmetic Average)	Same as Primary	
Particulate Matter (PM_{10})	150 µg/m^3	24-hour (4)	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual (5) (Arithmetic Average)	Same as Primary	
	35 µg/m^3	24-hour (6)	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour (7)	Same as Primary	
	0.08 ppm (1997 std)	8-hour (8)	Same as Primary	
	0.12 ppm	1-hour (9)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour (1)
	0.14 ppm	24-hour (1)		

(1) Not to be exceeded more than once per year.

[(2)] Final rule signed October 15, 2008.
[(3)] The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard
[(4)] Not to be exceeded more than once per year on average over 3 years.
[(5)] 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 15.0 µg/m3.
[(6)] 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 35 µg/m3 (effective December 17, 2006).
[(7)] 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 0.075 ppm. (effective May 27, 2008)
[(8)] (a) 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 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
(c) EPA is in the process of reconsidering these standards (set in March 2008).
[(9)] (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.

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 two sites equipped with manual $PM_{2.5}$ monitors. One of the $PM_{2.5}$ sites has a continuous $PM_{2.5}$ monitor and the other has a manual, intermittent $PM_{2.5}$ monitor operating.

Tables VI and VII present a summary of the measured PM_{10} concentrations during 2009. This data shows that the ambient air quality standard for PM_{10} was not exceeded in 2009. Tables VIII and IX compare the PM_{10} concentrations for the past 10 years. Tables X, XI, XII and XIII present a summary of the 2009 $PM_{2.5}$ 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 years 1999 - 2009. 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 2007 - 2009 data, Davidson County complied 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 2007 - 2009, the Middle Tennessee area was in attainment with the annual NAAQS for $PM_{2.5}$ even without spatial averaging.

TABLE VI 2009 SUMMARY OF PM_{10} (μG/M^3)		
SITE LOCATION	**Trevecca**	**McCann**
Number of Observations	59	61
Maximum 24-Hr Concentration	37	35
Date of Maximum Concentration	11/09	11/09
2nd Maximum 24-Hr Concentration	34	30
Date of 2nd Maximum 24-Hr. Concentration	7/12	7/12
Annual Arithmetic Mean	17	18
Number of Exceedance of 24-Hr Standard	0	0

TABLE VII 2009 QUARTERLY COMPARISON OF PM_{10} ARITHMETIC MEAN (μG/M^3)					
Site Location	**1st**	**2nd**	**3rd**	**4th**	**Annual**
Trevecca	13	18	20	17	17
McCann	14	20	22	17	18

TABLE VIII 1999 – 2009 24-HOUR MAXIMUM PM_{10} CONCENTRATIONS (μG/M^3)											
Site Location	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Trevecca	68	81	60	47	51	45	62	58	58	38	37
East*	52	63	46	49	42	*	*	*	*	*	*
Lockeland*	55	61	46	56	56	*	*	*	*	*	*
McCann	60	79	61	53	58	47	59	57	53	38	35

TABLE IX 1999 – 2009 ANNUAL AVERAGE PM_{10} CONCENTRATIONS (μG/M^3)											
Site Location	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Trevecca	31	33	30	22	25	24	25	23	24	20	17
East*	24	27	24	21	23	*	*	*	*	*	*
Lockeland*	24	26	24	24	24	*	*	*	*	*	*
McCann	27	30	29	24	27	25	28	25	26	21	18

* 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 m onitors were permanently taken out of service in 2003. Also On September 21, 2006 the EPA revoked the annual PM10 standard.

TABLE X 2009 SUMMARY OF $PM_{2.5}$ ($\mu G/M^3$)			
SITE LOCATION	**Lockeland**	**Lockeland Collocated**	**Hillwood**
Number of Observations	356	70	355
Maximum 24-Hr Concentration	24.8	23.4	23.7
Date of Maximum Concentration	8/07	12/21	8/08
2nd Maximum 24-Hr Concentration	24.3	20.6	22.4
Date of 2nd Maximum 24-Hr. Concentration	8/08	11/15	6/26
Annual Arithmetic Mean	10.19	9.86	9.6
Number of Exceedances of 24-Hr Standard	0	0	0

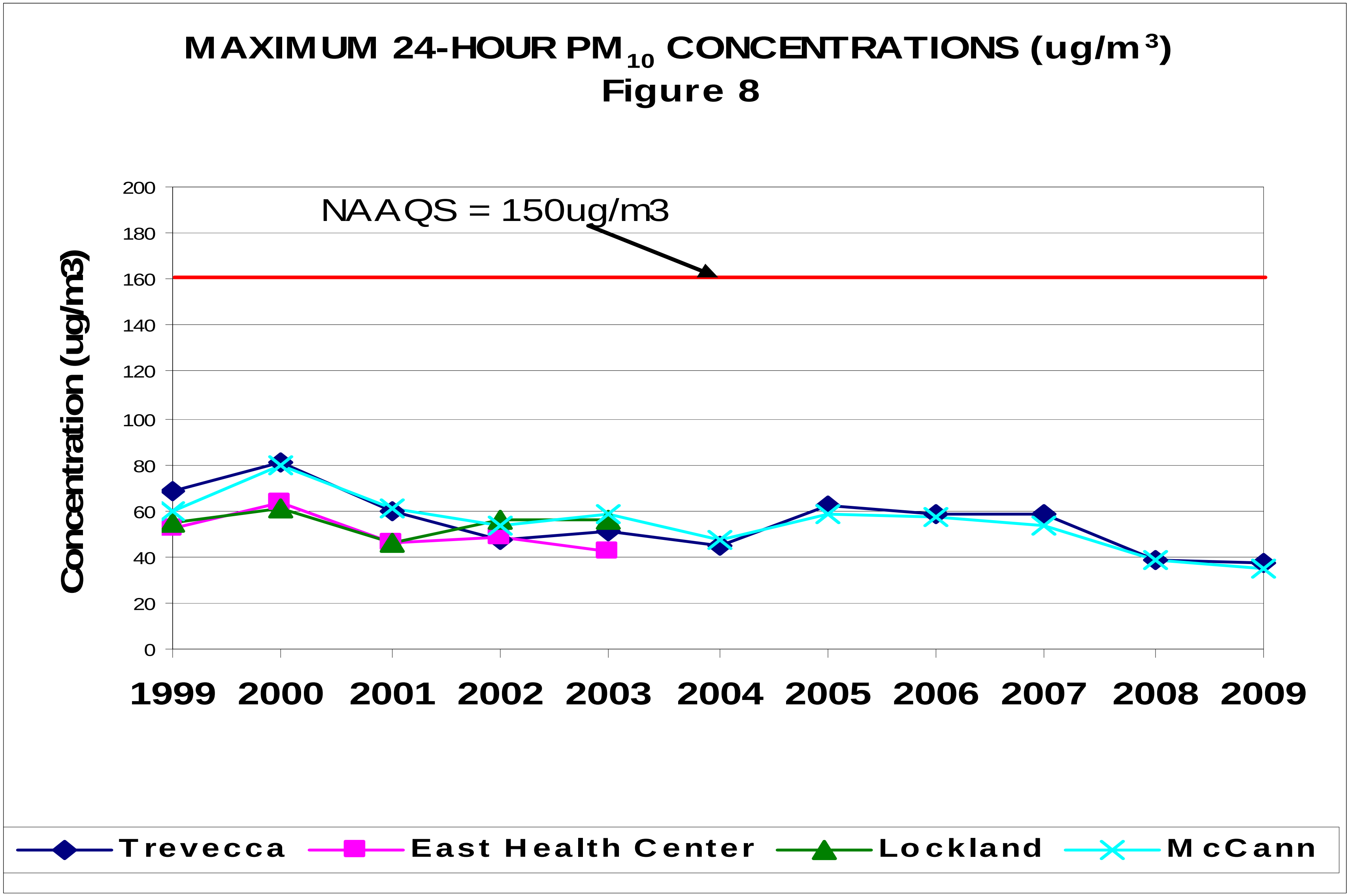
TABLE XI 2009 QUARTERLY COMPARISON OF $PM_{2.5}$ ARITHMETIC MEAN ($\mu G/M^3$)					
Site Location	**1st**	**2nd**	**3rd**	**4th**	**Annual**
Lockeland	9.83	9.62	11.42	9.89	10.19
Lockeland (collocated)	8.93	8.74	10.8	10.76	9.86
Wright*	0.0	0.0	0.0	0.0	0.0
Hillwood	9.46	9.19	10.83	8.84	9.6

TABLE XII 2002 - 2009 24-HOUR MAXIMUM $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)								
Site Location	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Lockeland	39.8	42.3	36.6	58.6	37.2	46.6	31.5	23.7
Lockeland (collocated)	32.6	39.0	30.4	36.6	31.2	44.9	33.7	23.4
Wright*	32.8	42.4	31.4	38.5	36.6	41.27	0	0
Hillwood	35.7	42.1	33.9	54.3	35.7	43.0	35.7	23.7

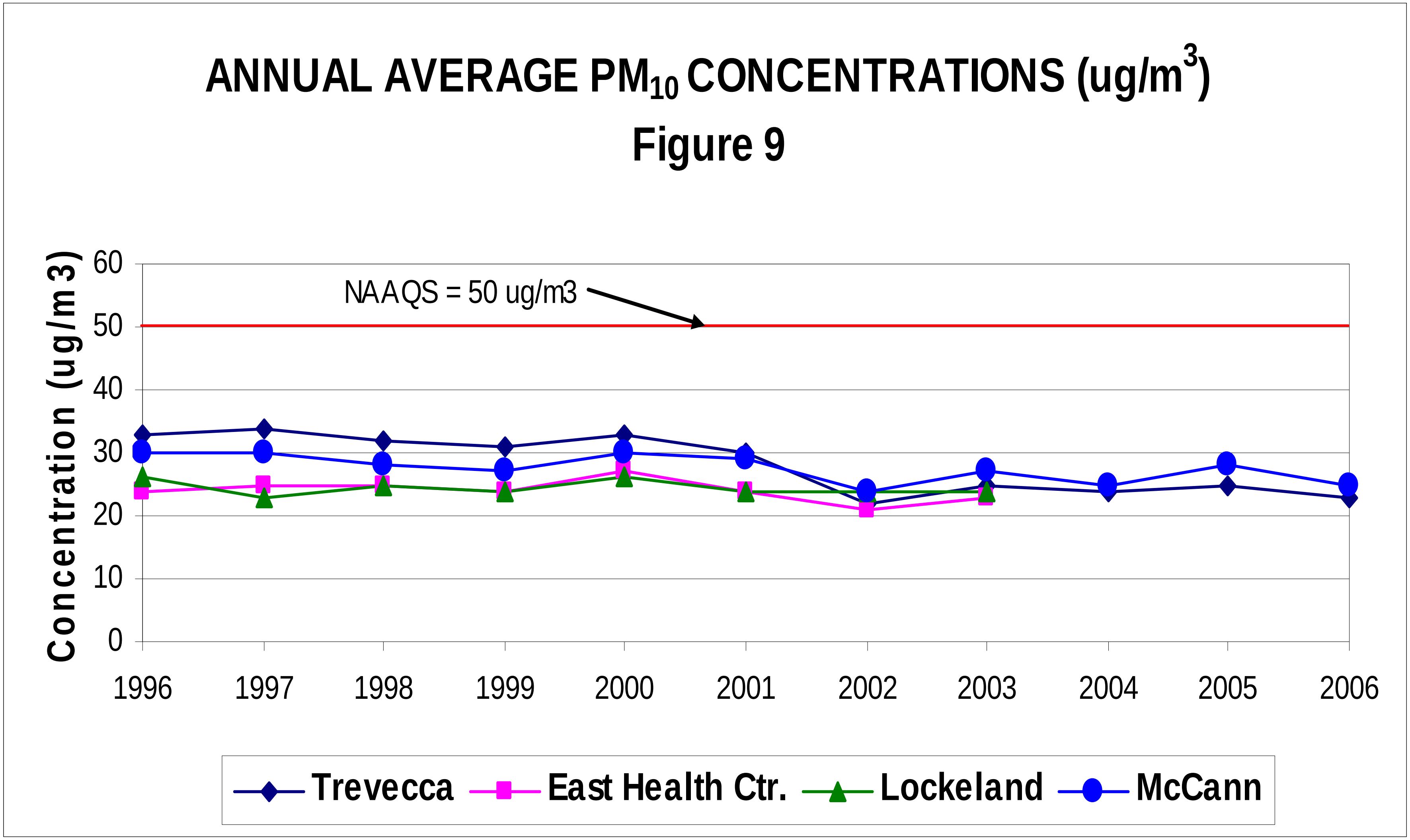
TABLE XIII 2004 - 2009 ANNUAL AVERAGE $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)							
Site Location	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**LATEST 3 YEAR AVERAGE**
Lockeland	13.1	15.0	14.2	13.8	11.5	10.1	11.8
Lockeland (collocated)	13.2	13.6	14.0	14.8	12.7	9.8	12.4
Wright*	13.1	14.2	14.1	14.3	na[1]	na[1]	na[1]
Hillwood	12.1	13.6	13.4	12.1	10.9	9.6	10.8
Sumner County	12.8	14.8	13.2	13.9	12.1	9.5	11.8
Spatial Avg. of Valid Monitors	12.8	14.4	13.7	13.7	11.8	9.7	11.7

[1] The $PM_{2.5}$ monitor located at Wright Middle School, 180 McCall Street ceased operation December 31, 2007 with EPA's concurrence.

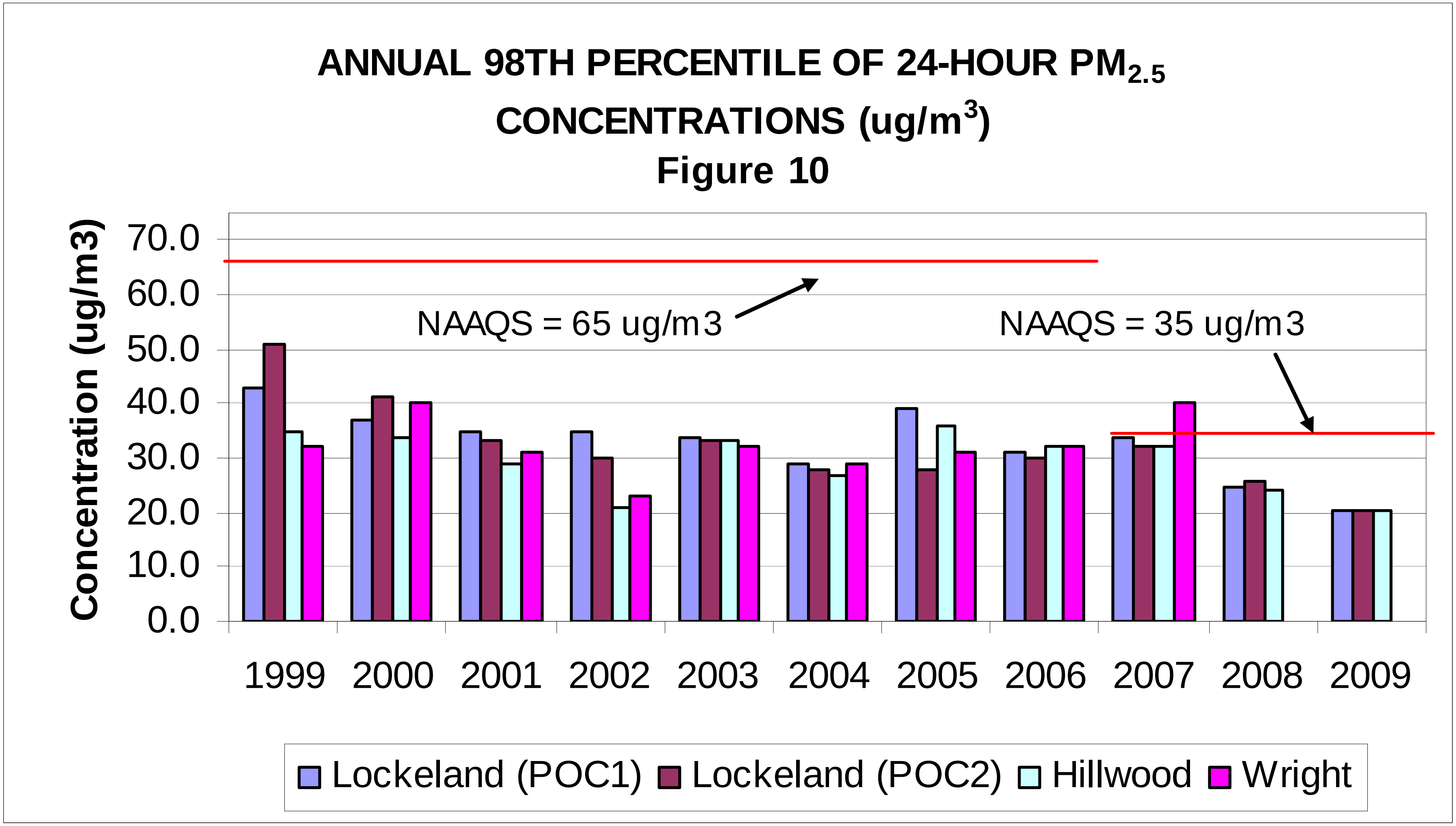
To determination compliance with the National Am bient Air Quality Standards (NAAQS), the data from the Sum ner County monitor operated by the State of Tennessee may be spatially averaged with the three sites in Davidson County provided that the data meets specific requirements outlined in the Federal Register. For the three year period of 2007 - 2009, the Middle Tennessee area was in attainment with the $PM_{2.5}$ NAAQS even without spatial averaging.



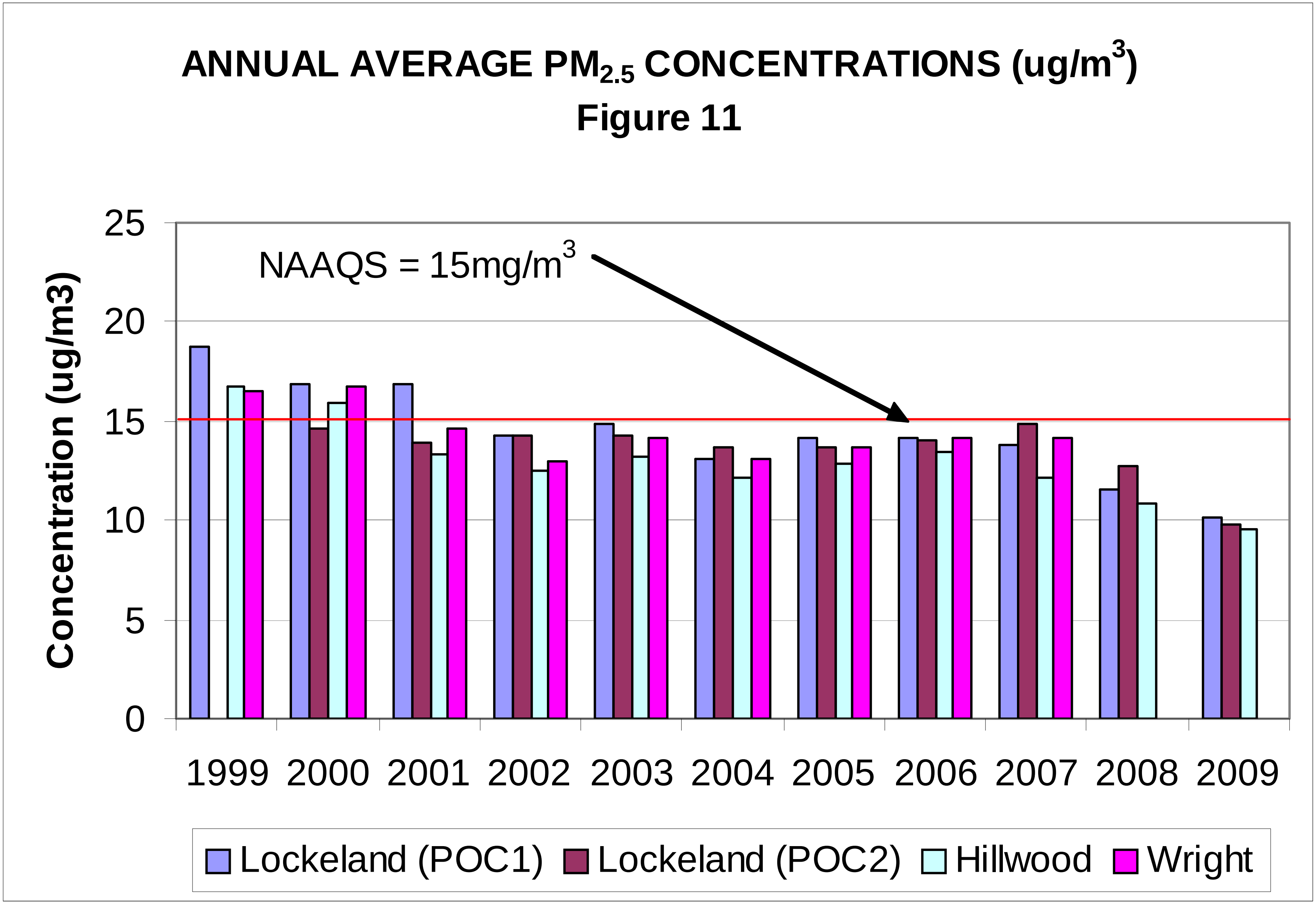
MAXIMUM 24-HOUR PM_{10} CONCENTRATIONS (ug/m^3)
Figure 8



On September 21, 2006 the EPA revoked the annual PM_{10} standard, because available evidence generally did not suggest a link between long-term exposure to the current levels of coarse particles and health problems.



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 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 2008 2009
Lockeland (POC1)
Lockeland (POC2)
Hillwood
Wright

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. Sam ples were taken every 6th day on the sam e schedule as the PM_{10} samplers. The filters were analyzed for suspended lead. Table XIV is a sum mary of the suspended lead concentrations measured in 1997. This data shows that the Am bient 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 w as 0.10 $\mu g/m^3$. This data indicates that am bient lead concentrations are relatively insignificant. Based on low monitored lead levels and EPA guidance, am bient monitoring for lead w as discontinued in Nashville and Davidson County on December 31, 1997. On October 15, 2008 the lead standard was revised. Davidson County was not required to resume monitoring.

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 com bines easily with water vapor to form sulfuric acid. The major health concerns associated w ith exposure to sulfur dioxide include effects on breathing, respiratory illness, alterations in the lungs' defenses, and aggravati on of existing cardiovascular disease. Sulfur dioxide was measured at East Health Center (site 0011) during 2009. Table XV presents a summary of this data. The data shows that the annual arithm etic mean, the 24-hour average or the 3-hour average standards of 0.02 ppm, 0..007 ppm and 0.013ppm respectively were not violated in 2009. The m ain source of sulfur dioxide in Metropolitan Nashville and Davidson County is from fuel combustion.

TABLE XV
2009 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	740	668	739	717	739	715	741	740	711	737	715	737	8699
Arithmetic Mean	0.002	0.001	0.003	0.004	0.002	0.002	0.001	0.003	0.002	0.001	0.001	0.001	0.002
Highest 24-Hr Conc.	0.005	0.003	0.006	0.007	0.002	0.005	0.002	0.005	0.005	0.002	0.002	0.001	0.007
Date of Highest 24-Hr Conc.	1/26	2/16	3/03	4/12	5/30	6/14	7/01	8/31	9/01	10/13	11/11	12/16	4/12
2nd Highest 24-Hr Conc.	0.005	0.002	0.004	0.006	0.002	0.005	0.001	0.005	0.005	0.002	0.002	0.001	0.006
Date of 2nd Highest 24-Hr Conc.	1/16	2/14	3/22	4/16	5/22	6/13	7/18	8/23	9/06	10/30	11/07	12/05	4/16
Highest 3-Hr Conc.	0.011	0.005	0.012	0.013	0.007	0.007	0.005	0.011	0.009	0.005	0.005	0.005	0.013
Date of Highest 3-Hr Conc.	1/25	2/05	3/03	4/01	5/22	6/25	7/01	8/13	9/01	10/02	11/11	12/16	4/01
2nd Highest 3-Hr Conc.	0.010	0.005	0.010	0.010	0.004	0.006	0.005	0.007	0.009	0.005	0.004	0.005	0.012
Date of 2nd Highest 3-Hr Conc.	1/16	2/14	3/17	4/12	5/17	6/06	7/18	8/12	9/13	10/05	11/02	12/29	3/03
Annual or 3-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0

NITROGEN DIOXIDE

Air is com posed of approxim ately 78% nitrogen a nd 21% oxy gen. When com bustion occurs at high temperatures, such as in autom obile engines and in other fossil fuel com bustion, nitrogen com bines with oxygen to form several different gaseous com pounds collectively known as oxides of nitrogen (NO_x). Of these, nitrogen dioxide (NO_2) and nitric oxide (NO) are the m ost important from an air pollution standpoint. Nitrogen dioxide can irritate the lungs and lower resistance to respiratory infections. N itrogen dioxide contributes to the form ation of ozone through a chem ical reaction with volatile organic com pounds in the presence of sunlight. On-road m obile sources em itted 58% of the nitrogen dioxide emissions in 2009 with light duty cars and trucks responsible for 28% of the total nitrogen dioxide emissions.

Nitrogen dioxide was measured at East Health Center (site 0011) during 2009. Table XVI presents a summary of this data and show s that the annual arithm etic mean standard of 0.012 PPM for nitrogen dioxide was not violated in 2009.

TABLE XVI
2009 NITROGEN DIOXIDE (PPM), SITE 247-037-0011, EAST HEALTH CENTER

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
No. of Observations	739	668	736	717	739	713	739	740	711	738	717	740	8697
Arithmetic Mean	0.015	0.013	0.012	0.011	0.010	0.012	0.011	0.010	0.010	0.011	0.016	0.014	0.012
Highest 24-Hr Conc.	0.028	0.023	0.024	0.020	0.016	0.020	0.016	0.017	0.017	0.021	0.024	0.025	0.028
Date of Highest 24-Hr Conc.	1/22	2/05	3/04	4/22	5/20	6/02	7/08	8/25	9/04	10/20	11/14	12/11	1/22
2nd Highest 24-Hr Conc.	0.025	0.023	0.022	0.019	0.016	0.019	0.015	0.016	0.016	0.019	0.023	0.025	0.025
Date of 2nd Highest 24-Hr Conc.	1/21	2/13	3/18	4/09	5/19	6/01	7/21	8/26	9/02	10/21	11/09	12/22	12/11
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 non-methane 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 2009. The data shows that the one-hour NAAQS of 0.12 ppm was not exceeded in 2009. The maximum one-hour average concentration of 0.080 ppm was measured at Percy Priest Dam (site 0026) on June 25, 2009. Table XXI compares the measured ozone concentration for the past several years.

TABLE XVII

2009 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	670	738	716	737	717	741	741	714	740	720	742	8720
Highest 1-Hr Conc.	0.040	0.060	0.029	0.063	0.059	0.080	0.064	0.065	0.070	0.046	0.053	0.040	0.080
Date of Highest Conc.	1/22	2/26	3/22	4/08	5/31	6/25	7/10	8/14	9/04	10/01	11/08	12/25	6/25
2nd Highest 1-Hr Conc.	0.037	0.048	0.057	0.063	0.058	0.073	0.060	0.064	0.056	0.041	0.051	0.039	0.073
Date of 2nd Highest Conc.	1/31	2/01	3/18	4/17	5/19	6/26	7/08	8/07	9/09	10/21	11/15	12/26	6/26
3rd Highest 1-Hr Conc.	0.034	0.041	0.056	0.060	0.056	0.069	0.060	0.062	0.054	0.039	0.021	0.038	0.070
Date of 3rd Highest Conc.	1/23	2/11	3/23	4/18	5/20	6/06	7/09	8/26	9/05	10/02	11/20	12/24	9/04
4th Highest 1-Hr Conc.	0.032	0.040	0.053	0.059	0.053	0.063	0.059	0.061	0.052	0.039	0.049	0.034	0.069
Date of 4th Highest Conc.	1/01	2/06	3/17	4/11	5/30	6/01	7/07	8/13	9/11	10/03	11/07	12/29	6/06
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	665	579	678	608	674	666	671	738	697	742	8127
0.045 - 0.084	0	5	73	137	59	109	67	75	43	2	23	0	593
0.085 - 0.124	0	0	0	0	0	0	0	0	0	0	0	0	0
0.125 - 0.164	0	0	0	0	0	0	0	0	0	0	0	0	0
0.165 - 0.204	0	0	0	0	0	0	0	0	0	0	0	0	0
0.205 - 0.404	0	0	0	0	0	0	0	0	0	0	0	0	0
0.405 - 0.504	0	0	0	0	0	0	0	0	0	0	0	0	0
0.505 - 0.604	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XVIII

2009 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	670	738	713	740	718	740	741	715	739	720	744	8722
Highest 1-Hr Conc.	0.047	0.051	0.061	0.064	0.057	0.077	0.062	0.067	0.062	0.046	0.053	0.040	0.077
Date of Highest Conc.	1/22	2/01	3/23	4/09	5/19	6/26	7/09	8/27	9/06	10/21	11/15	12/24	6/26
2nd Highest 1-Hr Conc.	0.041	0.049	0.060	0.062	0.056	0.074	0.060	0.065	0.061	0.045	0.052	0.039	0.074
Date of 2nd Highest Conc.	1/31	2/06	3/18	4/17	5/30	6/27	7/10	8/07	9/09	10/01	11/08	12/23	6/27
3rd Highest 1-Hr Conc.	0.039	0.049	0.060	0.061	0.055	0.070	0.059	0.065	0.060	0.042	0.050	0.038	0.070
Date of 3rd Highest Conc.	1/23	2/09	3/22	4/18	520	6/01	7/08	8/14	9/04	10/20	11/07	12/26	6/01
4th Highest 1-Hr Conc.	0.036	0.046	0.059	0.059	0.055	0.070	0.055	0.063	0.058	0.041	0.048	0.034	0.070
Date of 4th Highest Conc.	1/01	2/07	3/05	4/23	5/31	6/25	7/07	8/13	9/08	10/22	11/14	12/11	6/25
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	636	632	567	687	578	662	649	657	737	699	744	7990
0.045 - 0.084	2	34	106	146	53	140	78	92	58	2	21	0	732
0.085 - 0.124	0	0	0	0	0	0	0	0	0	0	0	0	0
0.125 - 0.164	0	0	0	0	0	0	0	0	0	0	0	0	0
0.165 - 0.204	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XIX 2009 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	738	720	744	744	714	744	720	744	8748
Highest 8-Hr Avg. Conc.	0.029	0.041	0.055	0.057	0.055	0.069	0.056	0.060	0.056	0.037	0.044	0.037	0.069
Date of Highest Conc.	1/23	2/01	3/22	4/08	5/19	6/25	7/09	8/14	9/04	10/01	11/07	12/26	6/25
2nd Highest 8-Hr Avg. Conc.	0.029	0.041	0.052	0.057	0.055	0.064	0.055	0.059	0.049	0.035	0.042	0.036	0.064
Date of 2nd Highest Conc.	1/31	2/26	3/23	4/17	5/31	6/06	7/07	8/07	9/05	10/03	11/08	12/24	6/06
3rd Highest 8-Hr Avg. Conc.	0.028	0.038	0.051	0.055	0.050	0.060	0.054	0.055	0.049	0.031	0.039	0.031	0.060
Date of 3rd Highest Conc.	1/01	2/07	3/18	4/18	5/20	6/01	7/08	8/13	9/09	10/22	11/15	12/29	6/01
4th Highest 8-Hr Avg. Conc.	0.028	0.038	0.048	0.053	0.049	0.054	0.052	0.053	0.044	0.030	0.036	0.029	0.060
Date of 4th Highest Conc.	1/10	2/11	3/05	4/0	5/30	6/26	7/14	8/08	9/03	10/02	11/21	12/27	8/14
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 - 0.059	744	672	744	720	738	710	744	743	714	744	720	744	8737
0.060 - 0.075	0	0	0	0	0	10	0	1	0	0	0	0	11
0.076 - 0.095	0	0	0	0	0	0	2	0	0	0	0	0	2
0.096 - 0.115	0	0	0	0	0	0	0	0	0	0	0	0	0
0.116 - 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 2009 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	738	720	744	720	744	744	720	744	720	744	8754
Highest 8-Hr Avg. Conc.	0.040	0.048	0.058	0.060	0.054	0.065	0.057	0.059	0.052	0.039	0.046	0.038	0.065
Date of Highest Conc.	1/22	2/01	3/22	4/09	5/19	6/01	7/09	8/14	9/05	10/01	11/07	12/24	6/01
2nd Highest 8-Hr Avg. Conc.	0.036	0.045	0.058	0.058	0.054	0.065	0.055	0.058	0.051	0.038	0.044	0.036	0.065
Date of 2nd Highest Conc.	1/23	2/06	3/23	4/17	5/31	6/25	7/08	8/27	9/04	10/22	11/15	12/26	6/25
3rd Highest 8-Hr Avg. Conc.	0.036	0.045	0.056	0.057	0.052	0.062	0.052	0.057	0.051	0.037	0.043	0.034	0.062
Date of 3rd Highest Conc.	1/31	2/09	3/05	4/18	5/30	6/06	7/07	8/13	9/09	10/20	11/08	12/23	6/06
4th Highest 8-Hr Avg. Conc.	0.033	0.044	0.056	0.055	0.047	0.057	0.052	0.056	0.049	0.035	0.038	0.034	0.030
Date of 4th Highest Conc.	1/01	2/07	3/18	4/25	5/20	6/26	7/10	8/07	9/08	10/03	11/03	11/14	12/27
No. of 8-Hr Exceedances	0	0	0	0	0	0	0	2	0	0	0	0	0
No. of 1-Hr Concentrations													
0.000 - 0.059	744	672	738	718	744	709	744	744	720	744	720	744	8741
0.060 - 0.075	0	0	0	2	0	11	0	0	0	0	0	0	13
0.076 - 0.104	0	0	0	0	0	0	0	5	0	0	0	0	5
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 2009. The EPA adopted a new 8-hour ozone standard of 0.075 ppm in May 2008. The maximum eight-hour average concentration of 0.065 ppm was measured at Percy Priest Dam (site 0026) on July 1, 2009. The 8-hour ozone NAAQS is the three year average of the annual fourth highest 8-hour value. Table XXI compares the 1-hour daily maximum ozone concentrations from 1986 through 2009 at East Health Center and Percy Priest Dam. Table XXII compares the 8-hour ozone concentrations for the past ten years.

TABLE XXI

1986 - 2009 ANNUAL COMPARISON OF 1-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)

SITE 247-037-0011 EAST HEALTH CENTER

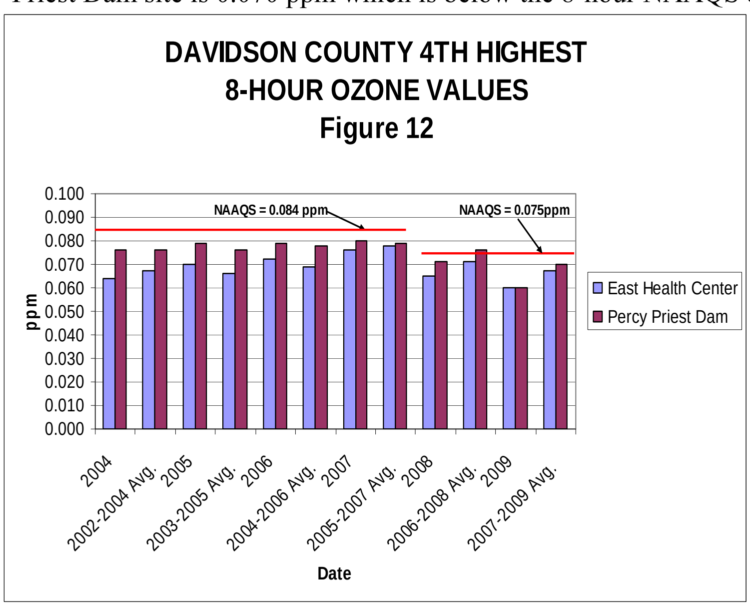
YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Highest 1-Hr. Conc.	0.105	0.105	0.145	0.100	0.110	0.095	0.090	0.105	0.090	0.110	0.100	0.130	0.114	0.117	0.104	0.088	0.087	0.085	0.084	0.083	0.091	0.094	0.086	.080
2nd Highest 1-Hr. Conc.	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	0.084	.073
3rd Highest 1-Hr. Conc.	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	0.084	.070
4th Highest 1-Hr. Conc.	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	0.075	.069
No. of 1-Hr. Exceedances	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
No. of Days Std. Exceeded	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0

SITE 247-037-0026 PERCY PRIEST DAM

YEAR	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Highest 1-Hr. Conc.	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	0.092	.077
2nd Highest 1-Hr. Conc.	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	0.084	.074
3rd Highest 1-Hr. Conc.	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	0.083	.070
4th Highest 1-Hr. Conc.	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	0.081	.070
No. of 1-Hr. Exceedances	0	0	3	0	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0	0	0	0	0	0
No. of Days Std. Exceeded	0	0	12	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0

TABLE XXII 2000 – 2009 ANNUAL COMPARISON OF 8-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)										
SITE 247-037-0011 EAST HEALTH CENTER										
YEAR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Highest 8-hour average concentration	0.084	0.078	0.076	0.078	0.071	0.074	0.084	0.079	0.078	0.069
2nd highest 8-hour average concentration	0.081	0.076	0.075	0.066	0.065	0.071	0.077	0.077	0.074	0.064
3rd highest 8-hour average concentration	0.075	0.074	0.073	0.065	0.065	0.071	0.072	0.073	0.073	0.060
4th highest 8-hour average concentration	0.072	0.070	0.073	0.064	0.064	0.070	0.072	0.072	0.065	0.060
No. of days 8-hour standard exceeded	0	0	0	0	0	0	0	0	1	0
SITE 247-037-0026 PERCY PRIEST DAM										
YEAR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Highest 8-hour average concentration	0.096	0.097	0.082	0.085	0.082	0.094	0.098	0.100	0.079	0.065
2nd highest 8-hour average concentration	0.085	0.093	0.082	0.082	0.077	0.081	0.088	0.088	0.077	0.065
3rd highest 8-hour average concentration	0.085	0.079	0.079	0.075	0.077	0.079	0.082	0.083	0.074	0.062
4th highest 8-hour average concentration	0.084	0.079	0.079	0.074	0.076	0.079	0.079	0.079	0.071	0.060
No. of days 8-hour standard exceeded	3	2	0	1	0	1	2	2	2	0

The EPA adopted a new 8-hour NAAQS of 0.075 ppm for ozone in March, 2008. The data in Table XXII shows that there were no days during 2009 when the highest 8-hour average ozone concentration was greater than 0.075 ppm Compliance with the new 8-hour average ozone NAAQS is achieved when the 3-year average of the annual fourth highest value is less than 0. 075 ppm. The Davidson County 3-year average (2007, 2008 and 2009) at the Percy Priest Dam site is 0.070 ppm which is below the 8-hour NAAQS during 2009.



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 1997 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 met all milestones, and therefore received timely deferrals from EPA in order to remain in the EAC. On April 2, 2008 the Middle Tennessee, including Davidson County, was designated attainment for the 1997 ozone NAAQS.

Table XXIII shows the highest ozone values measured in the Middle Tennessee area during the 3-year period of 2007 through 2009. 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 2008 8-hour standard is achieved when the three year average of the annual fourth highest 8-hour ozone value is less than 0.075 ppm . Therefore, Middle Tennessee is exceeding the new 2008 8-hour ozone NAAQS of 0.075 ppm adopted by the EPA in March 2008. Official non-attainment designation was originally to become effective in March, 2010. However, on September 16, 2009, EPA announced it will reconsider the 2008 Ozone NAAQS with final designations due August, 2011.

TABLE XXIII
2007 - 2009 SUMMARY OF THE HIGHEST 1-HOUR AVERAGE AND 8-HOUR AVERAGE OZONE CONCENTRATIONS IN THE MIDDLE TENNESSEE AREA

SITE NUMBER & LOCATION	YEAR	MAXIMUM CONCENTRATIONS 1st 1-Hr.	1st 8-Hr.	2nd 1-Hr.	2nd 8-Hr.	3rd 1-Hr.	3rd 8-Hr.	4th 1-Hr.	4th 8-Hr.	NO. OF DAYS > STANDARD 1-Hr.	8-Hr.
247-037-0011 East Health Center-Davidson	2007	0.094	0.079	0.083	0.077	0.083	0.077	0.083	0.076	0	0
	2008	0.086	0.078	0.084	0.074	0.084	0.073	0.075	0.065	0	1
	2009	0.080	0.069	0.073	0.064	0.070	0.060	0.069	0.060	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-037-0026 Percy Priest Dam-Davidson	2007	0.112	0.100	0.094	0.088	0.094	0.083	0.092	0.080	0	2
	2008	0.092	0.079	0.077	0.077	0.083	0.074	0.081	0.071	0	2
	2009	0.077	0.065	0.074	0.065	0.070	0.062	0.070	0.060	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-149-0101* Eagleville-Rutherford	2007	0.112	0.098	0.104	0.091	0.100	0.089	0.095	0.089	0	4
	2008	0.082	0.073	0.079	0.073	0.077	0.072	0.077	0.071	0	0
	2009	0.076	0.065	0.074	0.065	0.074	0.064	0.071	0.063	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-165-0007* Old Hickory Dam-Sumner	2007	0.114	0.104	0.098	0.088	0.098	0.087	0.094	0.083	0	3
	2008	0.108	0.090	0.100	0.089	0.097	0.082	0.089	0.081	0	6
	2009	0.095	0.079	0.086	0.073	0.081	0.071	0.078	0.070	0	1
COMPLIANCE WITH NAAQS										**Yes**	**No**
247-165-0101* Cottontown-Sumner	2007	0.104	0.091	0.103	0.086	0.101	0.086	0.095	0.085	0	6
	2008	0.088	0.080	0.087	0.076	0.083	0.069	0.077	0.069	0	2
	2009	0.074	0.068	0.073	0.066	0.073	0.064	0.073	0.064	0	0
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-187-0106* Fairview-Williamson	2007	0.109	0.089	0.097	0.088	0.095	0.087	0.093	0.085	0	4
	2008	0.087	0.078	0.083	0.076	0.083	0.072	0.078	0.069	0	2
	2009	0.095	0.082	0.076	0.068	0.075	0.064	0.072	0.063	0	1
COMPLIANCE WITH NAAQS										**Yes**	**Yes**
247-189-0103* Cedars of Lebanon-Wilson	2007	0.098	0.093	0.097	0.091	0.096	0.086	0.095	0.085	0	3
	2008	0.093	0.081	0.091	0.079	0.090	0.076	0.089	0.076	0	4
	2009	0.093	0.070	0.079	0.069	0.077	0.068	0.071	0.067	0	0
COMPLIANCE WITH NAAQS										**Yes**	**No**

*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 2009, carbon monoxide was measured at Hume Fogg Magnet School (site 0021). 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 2009. This data along with Figures 13 and 14 show the National Ambient Air Quality Standard was not violated at any site during 2009.

TABLE XXIV
2009CARBON 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	741	669	740	718	738	718	742	741	714	741	717	741	8720
Highest 1-Hr Conc.	1.8	2.2	1.9	1.6	1.0	1.2	0.7	1.2	1.1	1.2	2.4	1.7	2.4
Date of Highest Conc.	1/31	2/08	3/16	4/17	5/01	6/06	7/04	8/26	9/10	10/31	11/19	12/11	11/19
2nd Highest 1-Hr Cond.	1.7	2.2	1.8	1.6	1.0	1.0	0.6	1.2	0.9	1.1	2.1	1.4	2.2
Date of 2nd Highest 1-Hr Conc.	1/30	2/08	3/17	4/17	5/01	6/14	7/04	8/26	9/03	10/20	11/13	12/05	2/08
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr Conc.	1.3	1.7	1.3	1.3	0.9	0.8	0.4	1.0	0.7	0.8	1.6	1.1	1.7
Date of Highest 8-Hr Conc.	1/06	2/13	3/18	4/18	5/08	6/07	7/04	8/26	9/03	10/21	11/14	12/06	2/13
2nd Highest 8-Hr Conc.	1.3	1.6	1.2	1.0	0.8	0.6	0.3	0.8	0.7	0.8	1.6	0.9	1.6
Date of 2nd Highest 8-Hr Conc.	1/31	2/09	3/17	4/17	5/07	6/01	7/15	8/15	9/04	10/25	11/20	12/12	2/09
No. of 8-Hr Exceedance	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 8-Hr Concentration													
0 - 4.9	744	672	744	720	744	720	744	744	720	744	720	744	8760
5.0 - 8.9	0	0	0	0	0	0	0	0	0	0	0	0	0
9.0 - 12.9	0	0	0	0	0	0	0	0	0	0	0	0	0
13.0 - 16.9	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XXV 2009 SUMMARY OF CARBON MONOXIDE CONCENTRATIONS (PPM)		
SITE	**HUME FOGG**	**ANNUAL**
Highest 1-Hr Conc.	2.4	2.4
2nd Highest 1-Hr Conc.	2.2	2.2
Highest 8-Hr Conc.	1.7	1.7
2nd Highest 8-Hr Conc.	1.6	1.6
No. of 1-Hr Exceedances	0	0
No. of 8-Hr Exceedances	0	0
No. of Days 8-Hr Exceedances	0	0

Tables XXVII, XXVIII and XXIX, and Figures 13 and 14, show a com parison 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 XXVI
1985 – 2009 ANNUAL COMPARISON CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0021 HUME FOGG MAGNET SCHOOL

YEAR	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Highest 1-Hr Conc.	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	3.2	2.4
2nd Highest 1-Hr Conc.	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	3.2	2.2
Highest 8-Hr Conc.	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	2.4	1.7
2nd Highest 8-Hr Conc.	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	2.3	1.6
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	0	0	0
No. of 8-Hr Exceedances of the Standard (9PPM)	0	3	1	0	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)	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XXVII
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.

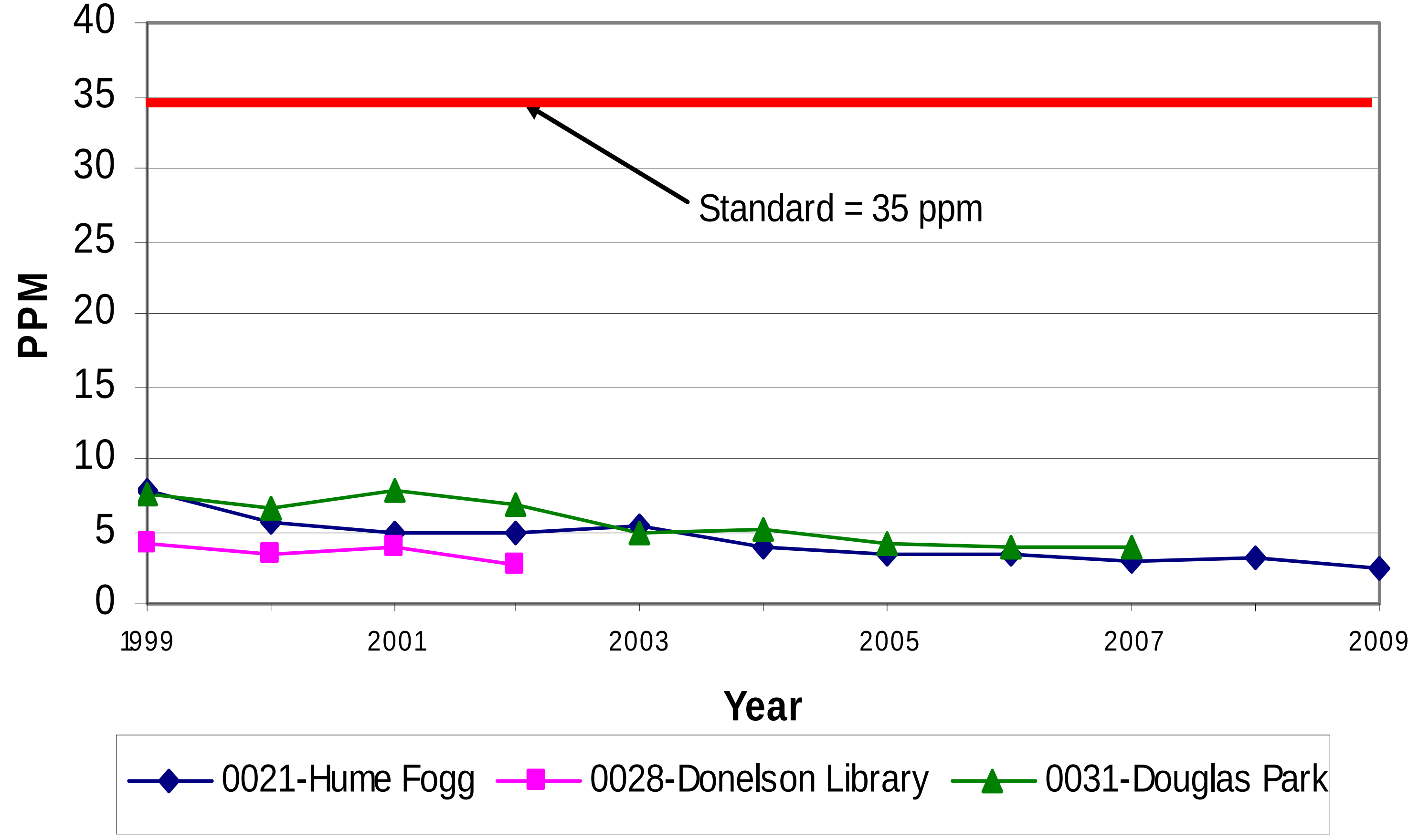
TABLE XXVIII
1987 - 2007 ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS, (PPM)

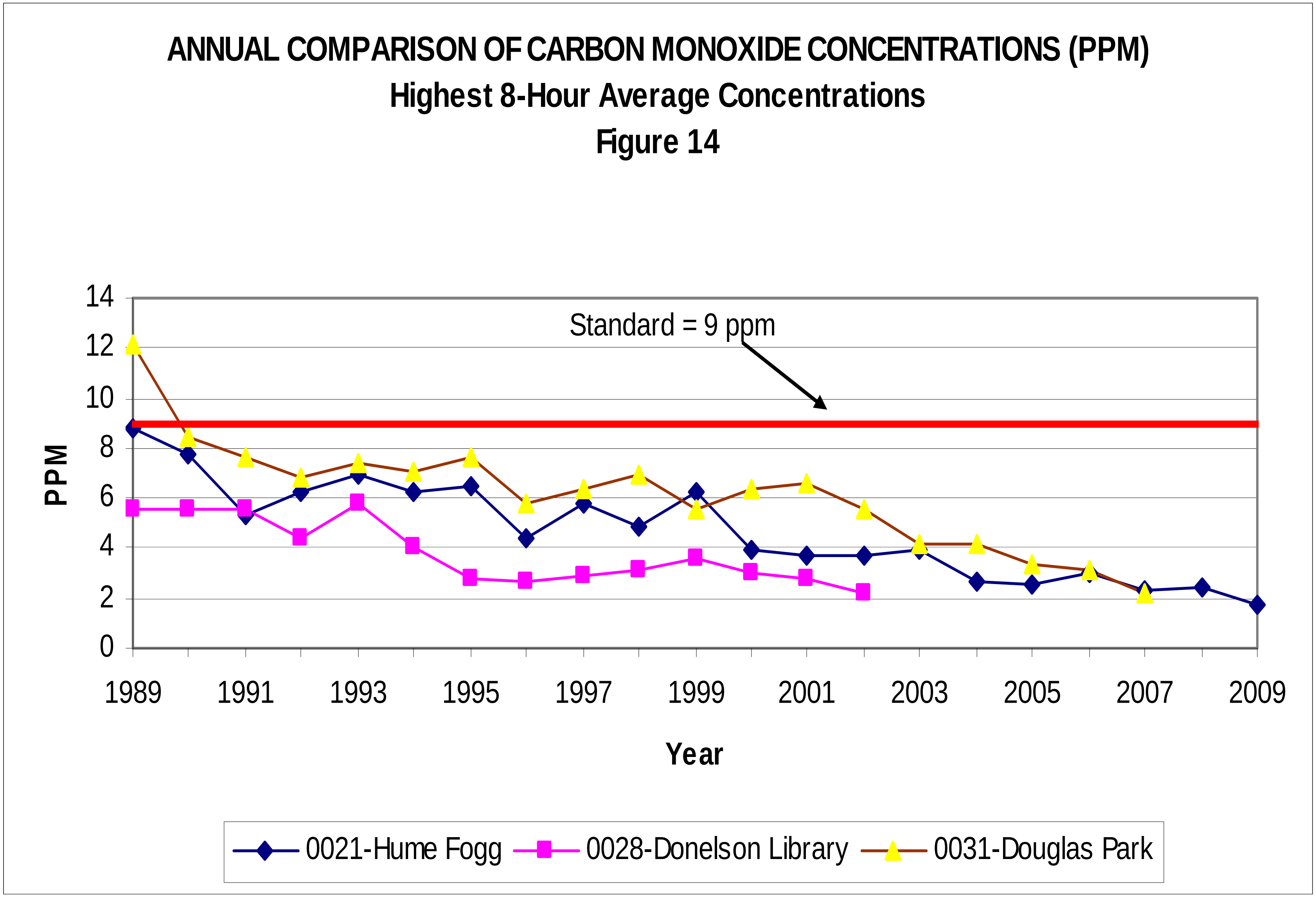
SITE 247-037-0031 DOUGLAS PARK*

YEAR	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	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 Concentration	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	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 Concentration	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
No. of 8-Hr Exceedances of the Standard (9PPM)	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)	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Douglas Park site was taken out of service in 2007.

ANNUAL COMPARISON CARBON MONOXIDE CONCENTRATIONS (PPM)
Highest 1-Hour Concentrations
Figure 13




ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS (PPM)
Highest 8-Hour Average Concentrations
Figure 14
Standard = 9 ppm
PPM
0
2
4
6
8
10
12
14
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
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 XXIX summarizes the daily AQI for 2009.

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 XXIX 2009 AQI SUMMARY		
Range	**Number of Days**	**% of Total Days**
Good	302	83%
Moderate	63	17%
Unhealthy for Sensitive Groups	0	0%

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 95% 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 2009 data, Nashville's air was in the good or moderate range on 100% of the days according to EPA's AQI. Therefore, the PCD achieved its performance goal in 2009.

The Davidson County maximum AQI in 2009 was on June 25, 2009 when the 8-hour ozone concentration reached 0.069 ppm at the East Nashville Health Center monitoring site. The 0.069 ppm concentration resulted in a reported AQI of 80. 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, 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 2009, several radio interviews, on-camera interviews aired on local TV news programs on Air Quality Action Days in 2005-2009, and the launch of the Air Quality 101 Workshop series, and the formal launch of the CAP Employer Partner Program, which has grown to reach over 11,000 Middle Tennessee employees. Planned activities include promoting air quality curriculum materials for use in area public and private schools, development of an anti-idling program, increasing the number of businesses participating in the CAP Employer Partner Program, launching a Clean Air Schools program in partnership with the Tennessee Department of Transportation's Clear the Air program, and working with other schools and businesses interested in air quality projects as part of the Tennessee Pollution Prevention Partnership program.

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. It is also available on the Clean Air Partnership web site (www.cleanairpartnerhsip.info), in the Tennessean, and during the local television weather broadcasts. Individuals also may sign up to receive the air quality forecasts or alerts only via the EnviroFlash

POLLEN

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

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

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

TABLE XXX
2009 POLLEN COUNT SUMMARY

Range	Number of Days	% of Total Days
Slight	74	43%
Moderate	45	26%
Heavy	17	10%
Extremely Heavy	36	21%

Table XXX gives a summary of the 2009 pollen season. The maximum daily pollen count for Nashville during 2009 was 275 grains/cm^2 measured April 1, 2009 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.

7. 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 2009, more than 32 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 mandates a Vehicle Inspection Program in non-attainment areas unable to demonstrate attainment of the National Ambient Air Quality Standard (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. The basis for the requested extension was a commitment to implement a mandatory vehicle emissions testing program. The Vehicle Inspection Program began the mandatory testing of light duty gasoline motor vehicles in 1985. Failure to implement this mandatory vehicle inspection program could have resulted 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 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.

This section describes the results of Davidson County's Vehicle Inspection Program for the period of January 1, 2009 through December 31, 2009.

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 10,500 pounds or less. The only exceptions were 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 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 1975 and newer, to undergo 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 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 Gross Vehicle Weight Rate (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 with a GVWR of 10,500 pounds or less to be inspected annually. Vehicles found to have excessive emissions must be repaired, retested and pass the emissions test prior to being issued a Davidson County wheel tax license.

The Nashville Vehicle Inspection Program 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 (opacity) 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 allowable emission standards for various vehicle types and ages are listed in Table XXXI.

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 XXXI
Idle Speed Maximum Allowable Emissions
During Idle Speed (Tailpipe) Test

Vehicle Model Year	Carbon Monoxide %		Hydrocarbon (PPM)	
	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 2009, the Nashville Vehicle Inspection Program performed 577,104 emission inspections. Compared to the 584,572 inspections done during 2008, there was a decrease of 7,468 inspections.

VEHICLE INSPECTION PASS AND FAIL RATES

In 2009, a total of 515,994 vehicles were inspected. The 2009 initial test pass rate was 90.7%, and the initial test fail rate was 9.3%. The initial inspection fail rates rounded to the nearest percent by year since the program start-up can be found in Table XXXII.

TABLE XXXII
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%
2008	9%
2009	9%

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

Also, note that the fail rate went up beginning in 1995 after years of decline. This is due to the adding of a three-point anti-tampering inspection into the program in 1995. Again, the increase in the 2002 and 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 fixed test centers and six mobile (remote) locations as seen in Table XXXIII.

TABLE XXXIII
TEST CENTER LOCATIONS
DAVIDSON COUNTY, TENNESSEE

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
Mobile 1	Cane Ridge Park – 419 Battle Road, Antioch
Mobile 2	Joelton Park – 3570 Old Clarksville Pike, Joelton
Mobile 3	Rhodes Park – 710 Mainstream Drive
Mobile 4	Bellevue YMCA – 8101 Highway 100
Mobile 5	CarMax – Rivergate
Mobile 6	CarMax – Thompson Lane

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 2009, there were 975 gas analyzer audits on 42 gas analyzers used by the test centers. Also, there were 87 covert activities conducted on contractor inspection facilities.

VEHICLE INSPECTION PROGRAM ENFORCEMENT

During 2009, various enforcement activities were carried out to ensure compliance with the vehicle inspection program. The staff issued 122 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.

9. OTHER POLLUTION CONTROL DIVISION ACTIVITIES

During 2009, the staff attended 89 EPA workshops or training courses. Semi-annually in 2009, the State of Tennessee Visible Emission Evaluation School certified three environmentalists, two engineers, one program coordinator and one vehicle technician to conduct visible emissions evaluations.

In addition to the ambient monitoring activities previously presented, the Pollution Control Division Laboratory performed analysis on 16 samples for asbestos.

During 2009, this agency's revenue included:

$ 690,054	Operating Permits and Emission-based fees
$ 198,587	Penalties
$ 538	Fines
$1,888,241	Vehicle Inspection Program