POLLUTION CONTROL DIVISION

ANNUAL REPORT 2010

PROMOTING & PROTECTING HEALTH

Metro Public Health Dept
Nashville/Davidson County

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 2010.

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 2010 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 62% of the total 2010 particulate emissions. Dust from paved roads accounts for 37% of the total 2010 PM_{10} emissions. Figure 2 shows that fuel combustion accounts for approximately 75% of the total 2010 sulfur dioxide emissions. Figure 3 shows that the on-road and non-road mobile source emissions account for 80% of the total 2010 nitrogen dioxide emissions. Figure 4 shows that 97% of the 2010 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 55% of the total 2010 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 2010 Davidson County Hazardous Air Pollutant Emission Inventory is shown in Table III.

During 2010, the Engineering Section reviewed plans and specifications for 51 new and/or modified stationary sources and issued the following permits:

Construction Permits:	53
Operating Permits:	607

In addition to the above permits, 321 permits were issued for asbestos removal and 2 burning permits using an air curtain destructor were issued. Revenue generated from the issuance of permits in 2010 was $696,587.

During 2010 this agency observed the following compliance source tests:

1	Nitrogen Oxides
0	Carbon Monoxide
0	Hydrochloric Acid
0	Volatile Organic Compound
0	Particulate Matter
73	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.
70-0050	Metro District Energy System
70-0081	U.S. Smokeless Tobacco Manufacturing, LP
70-0154	Aqua Bath Company
70-0156	Gibson Guitar
70-0189	Metro Public Works - Bordeaux Landfill
70-0241	Vanderbilt University Medical Center

4. EMISSION INVENTORY

TABLE I
2010 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	0.1	0.0	0.0	0.0	1.7	0.0	1.5	0.0	18.9	12.2
Bulk Gasoline Terminals	0.0	0.0	0.0	0.0	4.1	6.9	10.3	21.9	36.7	232.6
Bulk Gasoline Plants	0.0	0.0	0.0	0.0	0.0	1.8	0.0	4.4	6.8	22.9
Tank Truck Unl. (Stage I)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	205.0	0.0
Vehicle Refuel. (Stage II)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	139.7	0.0
Tank Trucks In Transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.1	0.0
Subtotal	**0.1**	**0.0**	**0.0**	**0.0**	**5.9**	**8.7**	**11.8**	**26.3**	**461.2**	**267.7**
Total--Area + Point	**0.2**		**0.0**		**14.6**		**38.1**		**728.9**	
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	1.5	0.0	0.1	0.0	12.9	0.0	10.5	0.2	29.2
Misc. Metal Products	3.4	5.4	0.0	3.9	2.5	66.4	2.0	70.0	24.8	30.0
Inorganic Chemical Mfg.	0.0	21.6	0.0	0.0	0.0	8.2	0.0	6.6	0.4	0.4
Organic Chemical Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1
Textile Mfg.	2.9	40.2	0.0	0.1	7.2	17.5	6.1	14.9	5.7	26.7
Rubber Tire Mfg.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.2	0.0
Plastic Products Mfg.	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	0.0
Wood Products Mfg.	4.4	1.6	0.5	0.2	7.4	2.7	1.6	1.5	27.0	120.4
Clay & Glass	2.3	118.4	0.0	135.5	0.0	779.2	0.0	35.4	0.6	28.2
Mineral Products	68.4	46.9	0.0	0.2	2.0	3.0	1.7	0.6	0.1	0.2
Asphalt Plants	21.7	0.0	13.9	0.0	9.3	0.0	71.7	0.0	17.5	0.0
Paint Mfg.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	10.4
Food & Agriculture	8.2	2.8	0.0	35.3	5.2	16.3	4.4	17.5	3.1	49.3
Primary/Sec. Metals	0.6	0.0	0.0	0.0	1.9	0.0	1.6	0.0	0.2	0.0
Large Appliance Coating	0.1	0.0	0.0	0.0	0.8	0.0	0.6	0.0	0.2	0.0
Paint and Body Shops	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6	0.0
Subtotal	**118.9**	**238.5**	**14.5**	**175.3**	**36.3**	**906.2**	**89.7**	**157.0**	**153.7**	**303.9**
Total--Area + Point	**357.4**		**189.8**		**942.4**		**246.7**		**457.5**	

TABLE I (continued)
2010 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

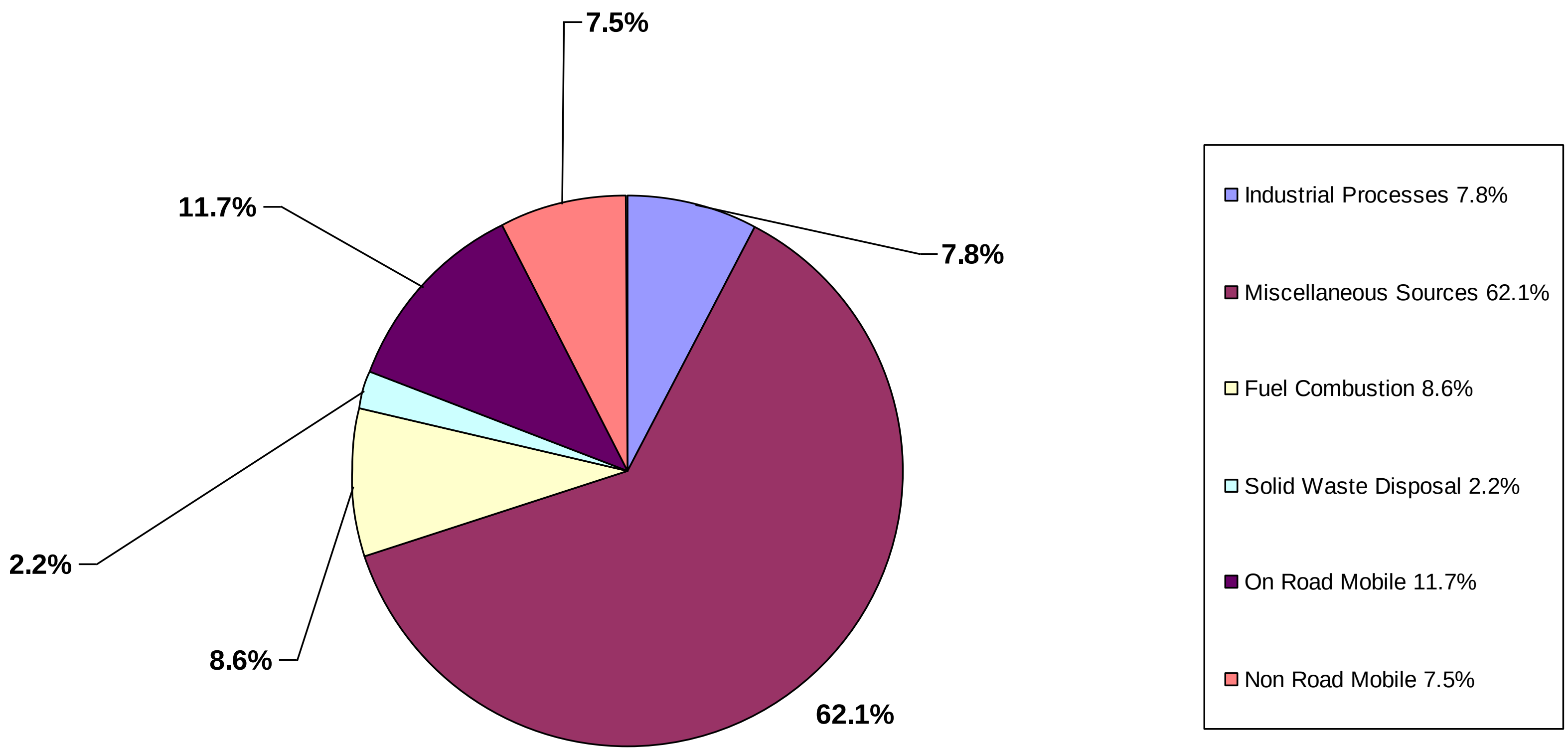
STATIONARY SOURCES-TONS PER YEAR										
	PARTICULATE		**SULFUR OXIDES**		**NITROGEN OXIDES**		**CARBON MONOXIDE**		**VOL. ORG. COMP.**	
SOURCE CATEGORY	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**	**AREA**	**POINT**
NON-IND. SURFACE COAT.										
Architectural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,137.5	0.0
Auto Refinishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	742.5	0.0
Traffic Markings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	110.7	0.0
Subtotal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1,990.7**	**0.0**
Total--Area + Point	**0.0**		**0.0**		**0.0**		**0.0**		**1,990.7**	
OTHER SOLVENT USE										
Cold Cleaners (exc. perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	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	0.2	0.8	0.0	0.0	7.4	22.4	4.9	26.0	95.1	0.0
Dry Cleaning (exc. perc)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Cons./Comm. Solv. Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,456.6	0.0
Subtotal	**0.2**	**0.8**	**0.0**	**0.0**	**7.4**	**22.4**	**4.9**	**26.0**	**2,554.1**	**0.0**
Total--Area + Point	**1.0**		**0.1**		**29.7**		**31.0**		**2,554.1**	
MISC. SOURCES										
Pesticide Application	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	557.7	0.0
Landfills	0.2	0.0	0.2	0.0	0.5	0.0	10.3	0.0	1.0	0.0
Scrap & Waste Material	20.9	33.2	1.4	2.0	11.4	21.5	1.4	9.9	0.2	1.5
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	1,710.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brake and Tire Wear	247.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction Projects	762.9	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	**2,799.8**	**33.2**	**1.6**	**2.0**	**12.0**	**21.5**	**11.7**	**9.9**	**558.8**	**1.5**
Total--Area + Point	**2,833.0**		**3.7**		**33.5**		**21.6**		**560.3**	
FUEL COMBUSTION										
Residential	270.3	0.0	18.9	0.0	508.0	0.0	1,766.6	0.0	1,437.5	0.0
Commercial/Institutional	69.5	44.9	10.3	1,072.2	906.1	565.8	750.2	190.5	55.4	9.7
Industrial	0.0	9.5	0.0	36.0	0.5	162.3	0.2	38.4	0.3	7.1
Subtotal	**339.8**	**54.4**	**29.2**	**1,108.2**	**1,414.6**	**728.1**	**2,516.9**	**229.0**	**1,493.2**	**16.8**
Total--Area + Point	**394.2**		**1,137.5**		**2,142.7**		**2,745.9**		**1,510.0**	
SOLID WASTE DISPOSAL										
Incinerators	1.2	0.0	0.7	0.0	2.2	0.0	0.9	0.0	0.0	0.0
POTW	0.0	22.8	0.1	0.0	1.1	3.6	0.2	3.0	18.4	2.4
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)	60.7	0.0	0.0	0.0	0.2	0.0	458.6	0.0	63.1	0.0
Forest & Grass Fires	16.9	0.0	0.0	0.0	2.1	0.0	123.8	0.0	17.4	0.0
Subtotal	**78.9**	**22.8**	**0.8**	**0.0**	**5.7**	**3.6**	**583.5**	**3.0**	**99.0**	**2.4**
Total--Area + Point	**101.7**		**0.8**		**9.3**		**586.5**		**101.4**	
TOTAL STATIONARY SOURCES	**3,337.6**	**349.8**	**46.2**	**1,285.7**	**1,481.7**	**1,690.5**	**3,218.5**	**451.3**	**7,310.7**	**592.3**
TOTAL STA. AREA + POINT	**3,687.4**		**1,331.9**		**3,172.2**		**3,669.8**		**7,903.0**	

TABLE I (continued)
2010 DAVIDSON COUNTY ANNUAL EMISSION INVENTORY

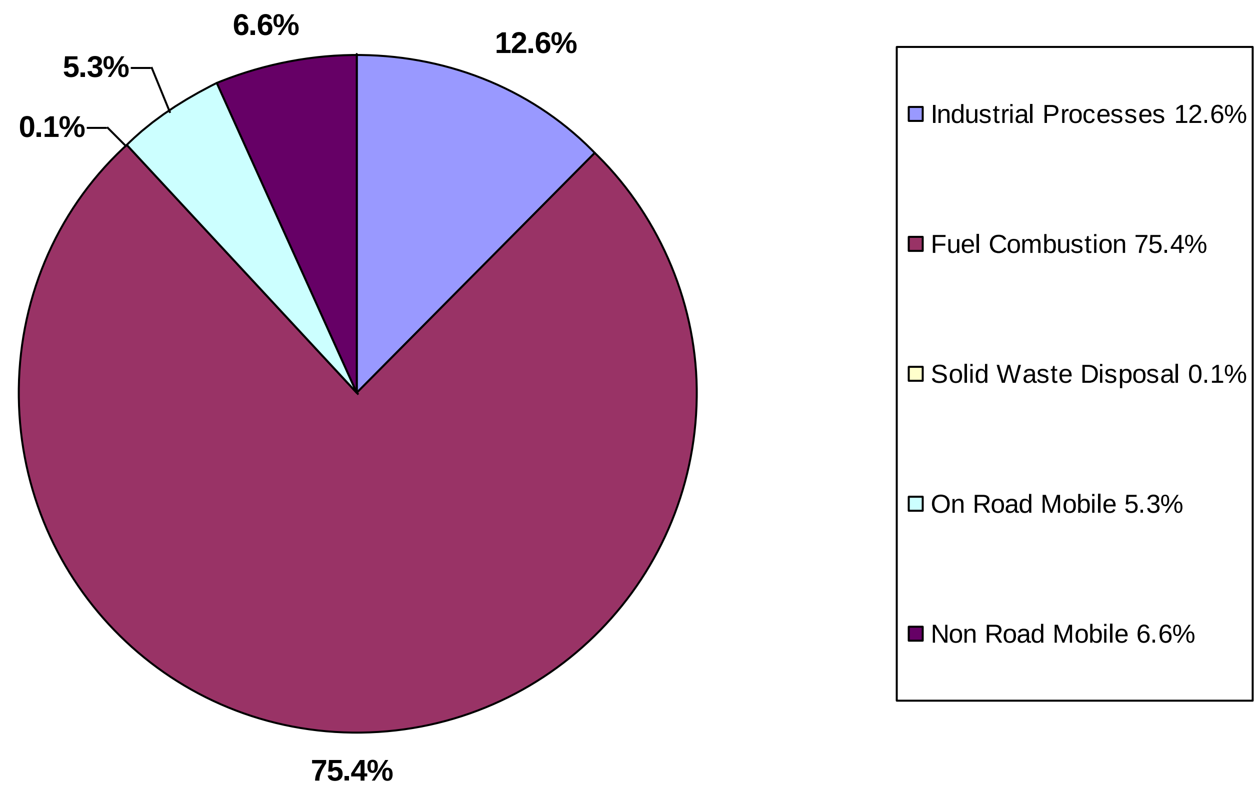
M OBILE SOURCES-TONS PER YEAR										
	PARTICULATE		SULFUR OXIDES		NITROGEN OXIDES		CARBON MONOXIDE		VOL. ORG. COMP.	
SOURCE CATEGORY	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT	AREA	POINT
ON-ROAD MOBILE										
LDV	56.1	0.0	23.4	0.0	2,636.9	0.0	26,033.4	0.0	2,449.1	0.0
LDT1	85.8	0.0	36.8	0.0	4,490.3	0.0	30,240.5	0.0	1,742.3	0.0
LDT2	51.7	0.0	10.2	0.0	1,786.7	0.0	8,870.4	0.0	563.9	0.0
HDV	338.0	0.0	10.0	0.0	7,536.0	0.0	3,883.9	0.0	572.9	0.0
MC	2.1	0.0	0.3	0.0	29.4	0.0	711.6	0.0	133.8	0.0
Subtotal	**533.8**	**0.0**	**80.6**	**0.0**	**16,479.4**	**0.0**	**69,739.9**	**0.0**	**5,462.0**	**0.0**
Total--Area + Point	**533.8**		**80.6**		**16,479.4**		**69,739.9**		**5,462.0**	
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	19.0	0.0	77.0	0.0	612.0	0.0	2,603.0	0.0	532.0	0.0
Commercial Marine	0.0	0.0	4.1	0.0	42.3	0.0	15.1	0.0	7.6	0.0
Non-road	319.7	0.0	8.4	0.0	2,964.6	0.0	36,920.9	0.0	3,614.9	0.0
Subtotal	**342.2**	**0.0**	**99.4**	**0.0**	**3,756.0**	**0.0**	**39,559.5**	**0.0**	**4,163.9**	**0.0**
Total--Area + Point	**342.2**		**99.4**		**3,756.0**		**39,559.5**		**4,163.9**	
TOTAL MOBILE SOURCES	**876.0**	**0.0**	**180.0**	**0.0**	**20,235.5**	**0.0**	**109,299.4**	**0.0**	**9,625.9**	**0.0**
TOTAL MOBILE AREA + POINT	**876.0**		**180.0**		**20,235.5**		**109,299.4**		**9,625.9**	
TOTAL STATIONARY + MOBILE	**4,213.6**	**349.8**	**226.2**	**1,285.7**	**21,717.2**	**1,690.5**	**112,517.9**	**451.3**	**16,936.6**	**592.3**
GRAND TOTAL AREA + POINT	**4,563.4**		**1,511.9**		**23,407.6**		**112,969.2**		**17,528.9**	

*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 recommended method of calculating the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine). The latest version of this model, NONROAD2008.02, was used to calculate the non-road mobile emissions (excluding railroad locomotives, aircraft and commercial marine) for this emissions inventory. Also the on-road mobile emissions were calculated using the latest version of the EPA's on-road model, MOVES 2010a. In 1996, MOBILE5b was released, followed by MOBILE6.0 in 2002. Finally, MOBILE 6.2 was released in 2004, and was used to model emissions up through calendar year 2009. The MOBILE model was officially replaced by the MOVES model in 2010. For calendar year 2010, MOVES 2010a was used to calculate the on-road mobile emissions. EPA has acknowledged that the MOVES model calculates significantly higher NOx emissions than the MOBILE model. This is the reason why the table above shows a 74 percent increase in NOx emissions between 2009 and 2010. It is our belief that the actual NOx emissions did not change substantially between these two years, but that the MOVES model does a better job of estimating the actual emissions. Although the changes in the on-road mobile model and the nonroad mobile model show noticeable fluctuations in emissions, the "real world" emissions have not changed significantly.

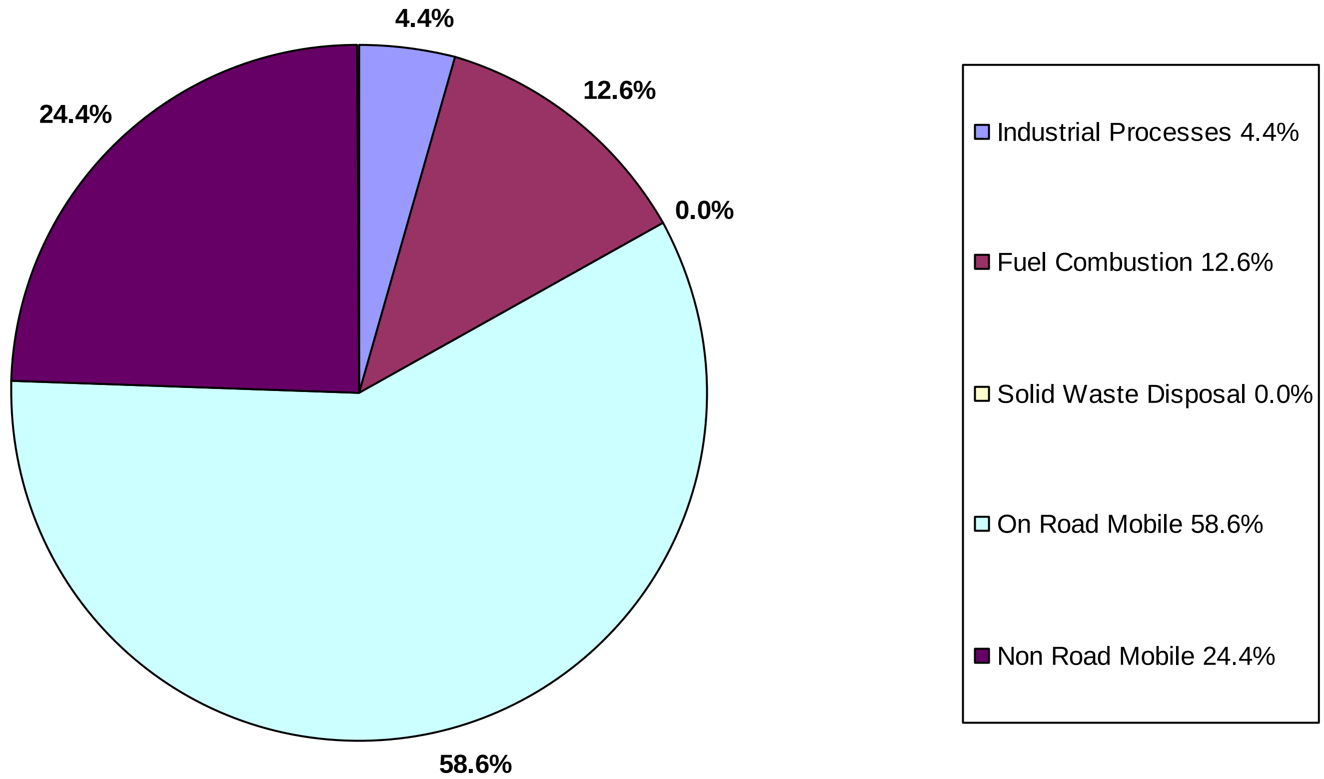
Percent Particulate Emissions for Various Sources
Figure 1



Percent Sulfur Dioxide Emissions for Various Sources
Figure 2

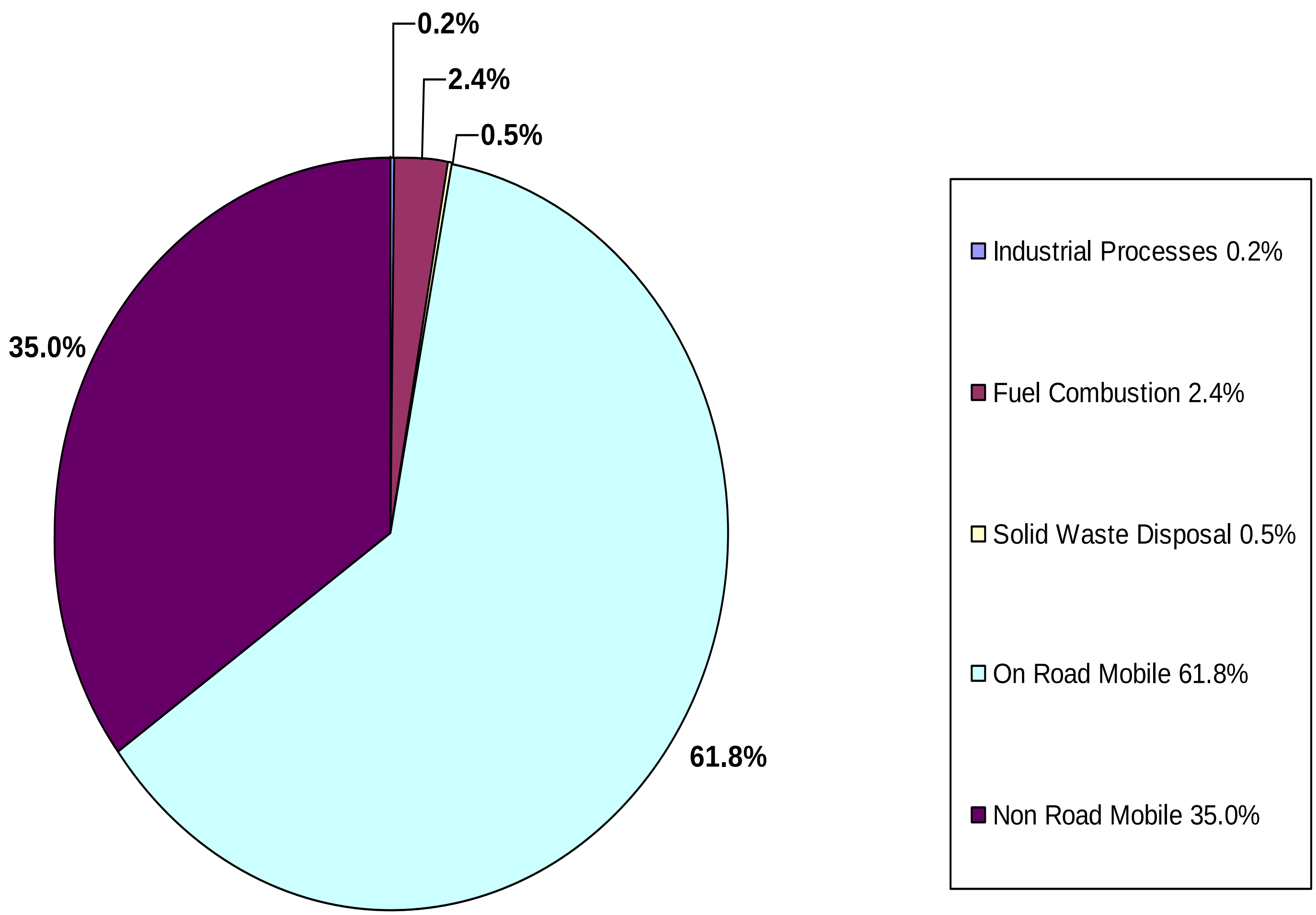


Percent Nitrogen Oxide Emissions for Various Sources
Figure 3



Percent Carbon Monoxide Emissions for Various Sources

Figure 4



Percent Volatile Organic Compound Emissions for Various Sources
Figure 5

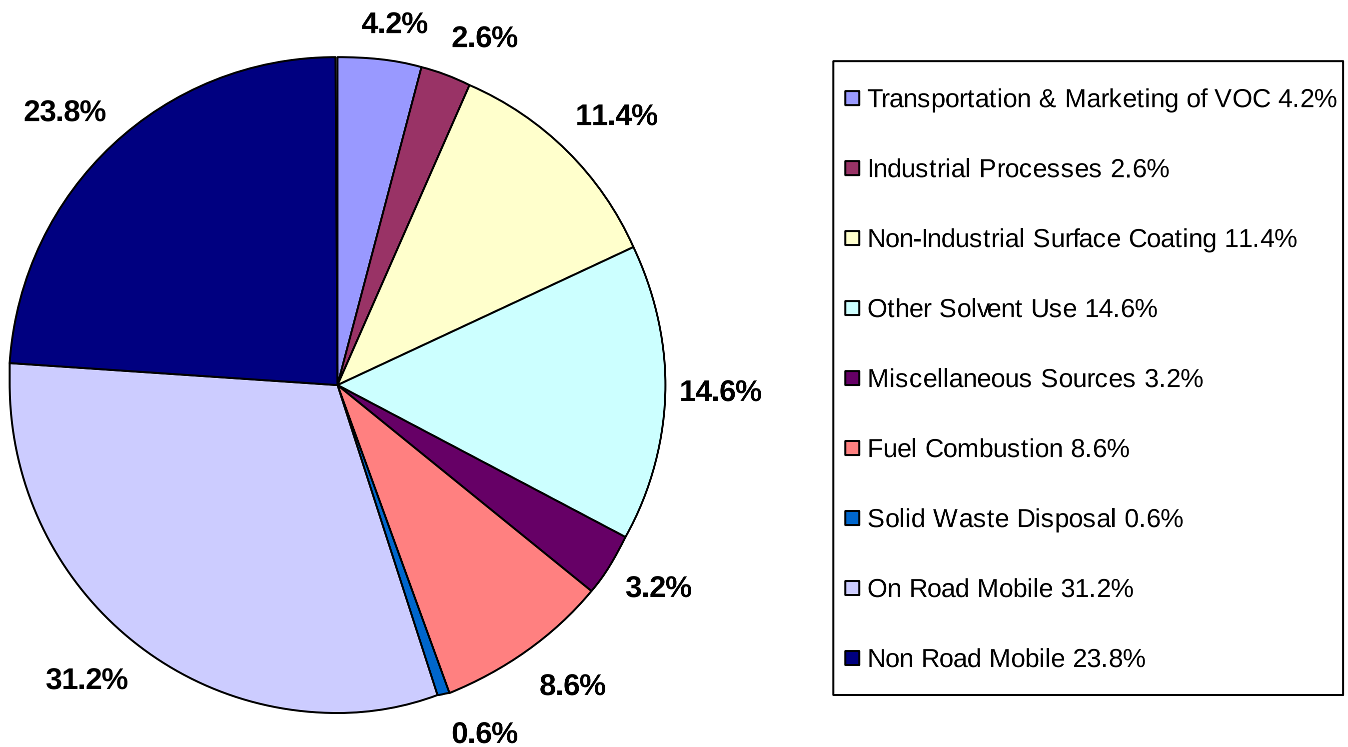


TABLE II
1997 - 2010 Annual Comparison of Nitrogen Dioxide and Volatile Organic Compound Emissions

Nitrogen Dioxide (Tons/Year)

Source Category	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Trans. & Mkt. of VOC	4	5	5	5	6	4	3	7	10	12	10	11	13	14
Industrial Processes	2,146	1,877	1,914	1,672	1,365	898	899	890	884	703	1009	833	716	942
Other Solvents	8	0	0	0	3	0	4	5	6	6	7	7	23	29
Miscellaneous	28	6	8	2	7	0	0	0	0	0	27	30	29	33
Fuel Combustion	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	2,142
Solid Waste Disposal	457	501	458	460	404	144	1	2	2	7	6	2	3	9
On-Road Mobile	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	16,479
Non-Road Mobile	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	3,756
TOTAL	**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**	**23,407**

Volatile Organic Compounds (Tons/Year)

Source Category	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Trans. & Mkt. of VOC	683	696	691	676	633	660	651	677	667	691	620	717	690	728
Industrial Processes	2,185	2,579	1,868	1,675	1,976	1,516	1,456	1,344	1,068	1,075	847	640	429	457
Non-Ind. Surface Coating	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	1,990
Other Solvents	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	2,554
Miscellaneous	569	507	498	511	519	531	536	545	550	551	553	561	579	560
Fuel Combustion	5,679	5,716	5,780	1,250	827	883	938	767	768	787	800	1,078	1,394	1,510
Solid Waste Disposal	128	157	113	101	98	90	76	110	55	80	126	75	91	101
On-Road Mobile	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	5,462
Non-Road Mobile	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	4,163
TOTAL	**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**	**17,528**

* Historically, the on-road mobile emissions were calculated using the latest version of the EPA's MOBILE model. In 1996, MOBILE5b was released, followed by MOBILE6.0 in 2002. Finally, MOBILE 6.2 was released in 2004, and was used to model emissions up through calendar year 2009. The MOBILE model was officially replaced by the MOVES model in 2010. For calendar year 2010, MOVES 2010a was used to calculate the on-road mobile emissions. EPA has acknowledged that the MOVES model calculates significantly higher NOx emissions than the MOBILE model. This is the reason why the table above shows a 74 percent increase in NOx emissions between 2009 and 2010. It is our belief that the actual NOx emissions did not change substantially between these two years, but that the MOVES model does a better job of estimating the actual emissions.

Annual Comparison of Nitrogen Oxides and VOC Emissions
Figure 6

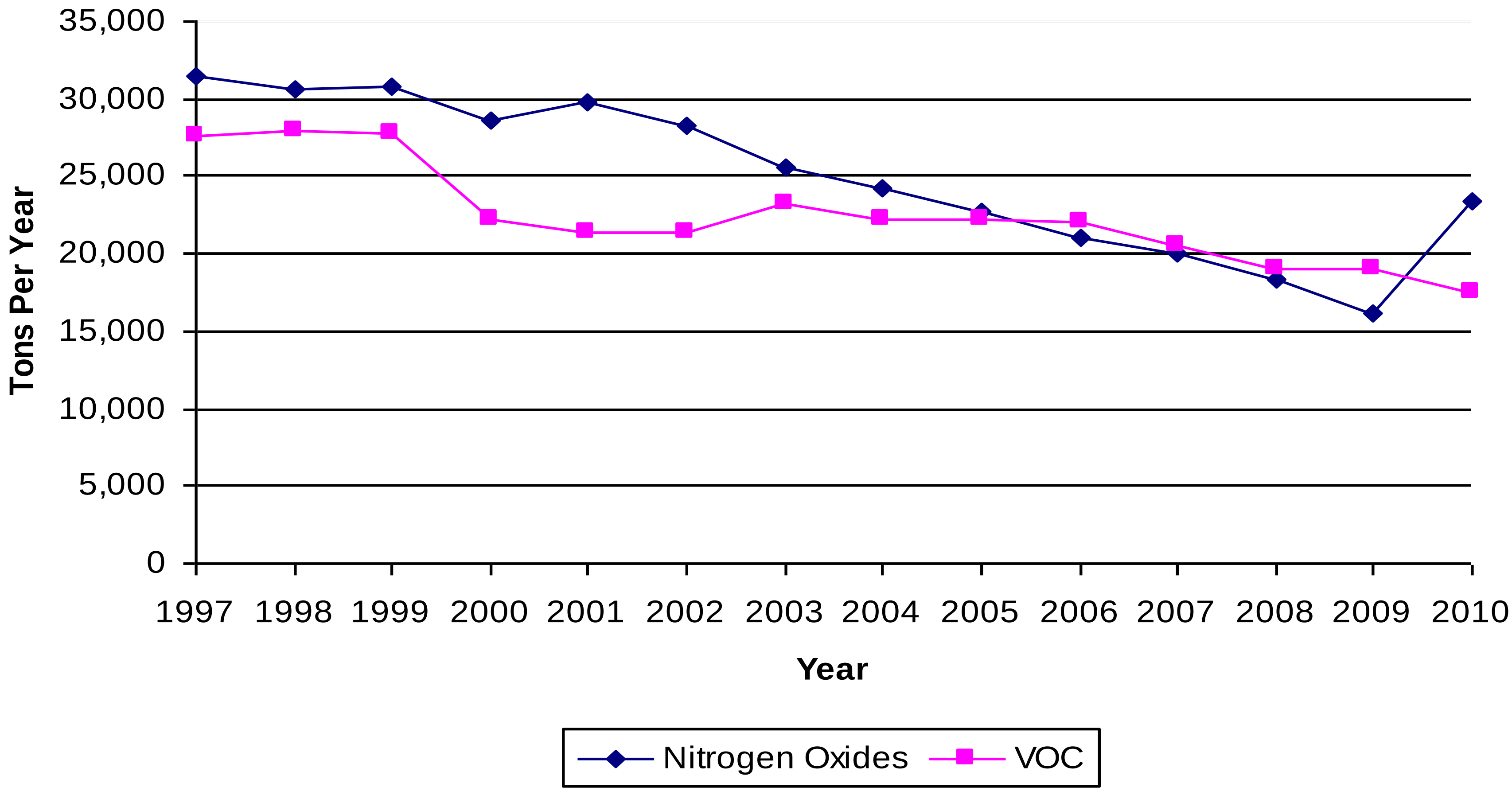


TABLE III
2010 Davidson County Hazardous Air Pollutant Emission Inventory

POLLUTANT	CAS #	TPY
1,1,2,2-tetrachloroethane	79-34-5	0.014
1,1,2-trichloroethane	79-00-5	0.024
1,2,4, Trichlorobenzene	120-82-1	0.053
1,3-Butadiene	106-99-0	22.510
1,3-Dichloropropene	542-75-6	50.134
1,4-Dichlorobenzene	106-46-7	15.009
1,4-Dioxane	123-91-1	0.003
2,2,4-Trimethylpentane	540-84-1	3.190
2-Butanone	78-93-3	0.001
2-Chloroacetophenone	532-27-4	0.000
2-Nitropropane	79-46-9	0.001
4-4'-Methylenediphenyl diisocyanate	101-68-8	0.003
Acetaldehyde	75-07-0	55.680
Acetophenone	98-86-2	4.459
Acrolein	107-02-8	12.076
Acrylonitrile	107-13-1	0.026
Aniline	62-53-3	0.009
Arsenic	00-00-0	0.001
Benzene	71-43-2	136.990
Benzyl chloride	100-44-7	0.021
Biphenyl	92-52-4	0.149
Bis(2-ethylhexyl)phthlate (DEHP)	117-81-7	0.002
Chloroform	67-66-3	0.311
Carbon Disulfide	75-15-0	0.012
Carbon Tetrachloride	56-23-5	0.036
Carbonyl sulfide	463-58-1	0.002
Chlorine	7782-50-5	0.030
Chlorobenzene	108-90-7	22.435
Bromoform	75-25-2	0.001
Chromium compounds	00-00-0	0.049
Cobalt Compounds	00-00-0	0.002
Cumene	98-82-8	0.833
Cyanide Compounds	00-00-0	0.076
Dibenzofurans	132-64-9	0.023
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	0.001
Dimethyl Formamide	68-12-2	3.577
Dimethyl Phthalate	131-11-1	0.000
Dimethyl Sulfate	77-78-1	0.001
Ethyl Chloride	75-00-3	2.532
Ethylbenzene	100-41-4	30.764
Ethylene Dichloride	107-06-2	0.003
Ethylene Glycol	107-21-1	6.403

TABLE III
Davidson County Hazardous Air Pollutant Emission Inventory Continued

Ethylene Oxide	75-21-8	4.731
Ethylidine Dichloride	75-34-3	0.018
Formaldehyde	50-00-0	91.380
Glycol Ethers	00-00-0	10.904
Hexamethylene diisocyanate	822-06-0	0.001
Hexane	110-54-3	198.819
Hydrogen chloride	7647-01-0	34.633
Hydrogen Fluoride	7664-39-3	4.329
Hydrogen Sulfide	7783-06-4	32.940
Hydroquinone	123-31-9	0.015
Isooctane	540-84-1	0.002
Isophorone	78-59-1	0.297
Lead compounds	00-00-0	0.002
Manganese Compounds	00-00-0	0.023
Methanol	67-56-1	218.085
Methyl Chloride	74-87-3	2.110
Methyl Chloroform	71-55-6	102.462
Methyl Bromide	74-83-9	69.562
Methyl Isobutyl Ketone	108-10-1	4.293
Methyl Methacrylate	80-62-6	0.114
Methyl Tertiary Butyl Ether	1634-04-4	0.481
Methylene Chloride	75-09-2	23.210
m-Xylene	108-38-3	61.661
Naphthalene	91-20-3	14.414
Nickel compounds	00-00-0	0.003
n-xylene	1330-20-7	2.125
o-Xylene	95-47-6	30.899
Methyl Hydrazine	60-34-4	0.005
Phenol	108-95-2	1.277
Phthalic Anhydride	85-44-9	0.817
POM as 16-PAH	00-00-0	0.199
Propionaldehyde	123-38-6	12.212
Propylene Dichloride	78-87-5	0.001
Propylene Oxide	75-56-9	0.263
Propylene Glycol	57-55-6	0.705
Quinone	106-51-4	0.015
MIBK	108-10-1	0.155
Styrene	100-42-5	3.740
t-1,2-dichloroethene	156-60-5	0.020
Tetrachloroethylene (Perc)	127-18-4	32.293
Toluene	108-88-3	134.423
Trichloroethylene	79-01-6	2.290
Triethylamine	121-44-8	0.243
Trimethylbenzene	95-63-6	0.012
Ethylene Glycolmonobutyl	112-07-2	0.012
Vinyl Chloride	75-01-4	0.035
Vinylidene Chloride	75-35-4	0.001
Xylenes	1330-20-7	153.477
Total of All Hazardous Air Pollutants		**1582.833**

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 2010 this agency conducted:

1,306 inspections of stationary air pollution sources;
440 inspections of asbestos removal sites;
19 indoor air quality inspections;
75 complaint investigations; and
Observed 73 pressure-decay and blockage tests on gasoline dispensing facilities.

During 2010, this agency issued 29 warning letters, 258 notices of violation, 49 citations, 1 consent agreements and no Director's Orders. Total penalties collected were $44,797.

6. MONITORING ACTIVITIES

During 2010 this agency operated eight air monitoring sites in Davidson County. Figure 7 shows the location of each of these sites along with two monitoring sites that are no longer operating. 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

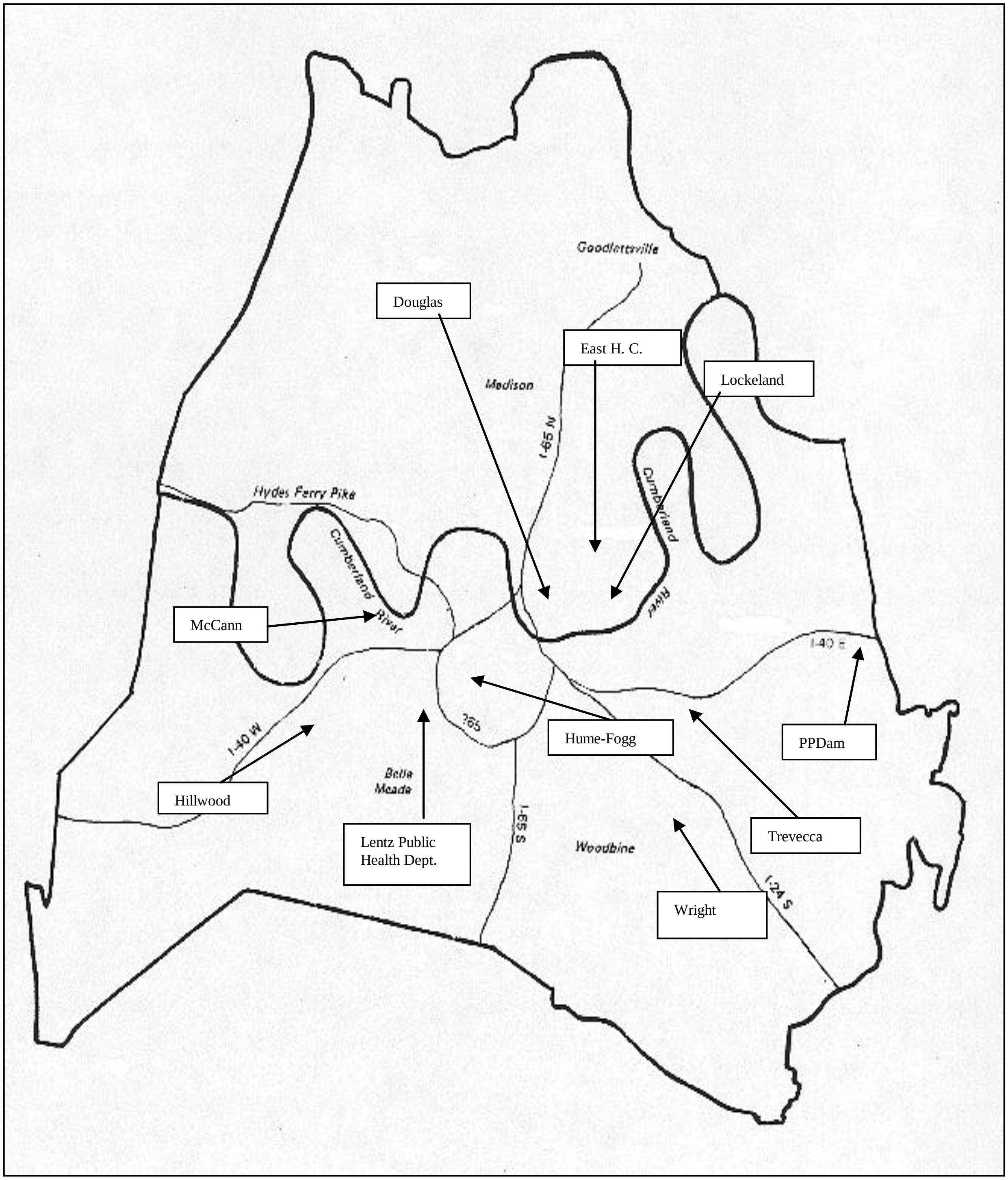


TABLE IV
AIR MONITORING SITE LOCATION & CLASSIFICATION

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 $PM_{2.5}$ contiuous 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 $\mu g/m^3$ (2) (2008 std)	Rolling 3-Month Average	Same as Primary	
Nitrogen Dioxide	100ppb	1-hour	Same as Primary	
	53 ppb (3)	Annual (Arithmetic Average)		
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24-hour (4)	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual (5) (Arithmetic Average)	Same as Primary	
	35 $\mu g/m^3$	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	75 ppb	1-hour (99th percentile of 1-hour daily max. concentrations, Averaged over 3 years)	0.5 ppm	3-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) In 2007 the 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 ($\mu g/m^3$) is computed by measuring the mass of the particulate matter collected and the volume of air sampled. For determining the average concentrations of particulate matter, a 24-hour sampling period is used. After sampling for 24 hours, the filter is removed and returned to the laboratory where it is allowed to equilibrate and is weighed.

The Pollution Control Division operates two sites equipped with manual, intermittent PM_{10} monitors. One site 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 2010. This data shows that the ambient air quality standard for PM_{10} was not exceeded in 2010. 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 2010 $PM_{2.5}$ 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 2000 - 2010. 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 2008 - 2010 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 $\mu g/m^3$, the Middle Tennessee area will demonstrate attainment with the $PM_{2.5}$ standard. For the period of 2008 - 2010, the Middle Tennessee area was in attainment with the annual NAAQS for $PM_{2.5}$ even without spatial averaging.

TABLE VI 2010 SUMMARY OF PM_{10} ($\mu G/M^3$)		
SITE LOCATION	**Trevecca**	**McCann**
Number of Observations	61	60
Maximum 24-Hr Concentration	42	42
Date of Maximum Concentration	4/14	11/10
2nd Maximum 24-Hr Concentration	40	41
Date of 2nd Maximum 24-Hr. Concentration	7/25	1/14
Annual Arithmetic Mean	20.48	21.85
Number of Exceedance of 24-Hr Standard	0	0

TABLE VII 2010 QUARTERLY COMPARISON OF PM_{10} ARITHMETIC MEAN ($\mu G/M^3$)					
Site Location	**1st**	**2nd**	**3rd**	**4th**	**Annual**
Trevecca	19.6	23.4	20.1	18.7	20.4
McCann	20.4	24.5	21.6	20.6	21.8

TABLE VIII 2000 – 2010 24-HOUR MAXIMUM PM_{10} CONCENTRATIONS ($\mu G/M^3$)											
Site Location	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Trevecca	81	60	47	51	45	62	58	58	38	37	42
East*	63	46	49	42	*	*	*	*	*	*	*
Lockeland*	61	46	56	56	*	*	*	*	*	*	*
McCann	79	61	53	58	47	59	57	53	38	35	42

TABLE IX 2000 – 2010 ANNUAL AVERAGE PM_{10} CONCENTRATIONS ($\mu G/M^3$)											
Site Location	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Trevecca	33	30	22	25	24	25	23	24	20	17	20
East*	27	24	21	23	*	*	*	*	*	*	*
Lockeland*	26	24	24	24	*	*	*	*	*	*	*
McCann	30	29	24	27	25	28	25	26	21	18	21

* 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. Also On September 21, 2006 the EPA revoked the annual PM10 standard.

TABLE X 2010 SUMMARY OF $PM_{2.5}$ ($\mu G/M^3$)			
SITE LOCATION	**Lockeland**	**Lockeland Collocated**	**Hillwood**
Number of Observations	361	62	343
Maximum 24-Hr Concentration	28.9	24.7	27.5
Date of Maximum Concentration	8/02	2/01	2/01
2nd Maximum 24-Hr Concentration	27.3	22.1	25.3
Date of 2nd Maximum 24-Hr. Concentration	7/05	1/14	1/12
Annual Arithmetic Mean	11.85	11.65	10.76
Number of Exceedances of 24-Hr Standard	0	0	0

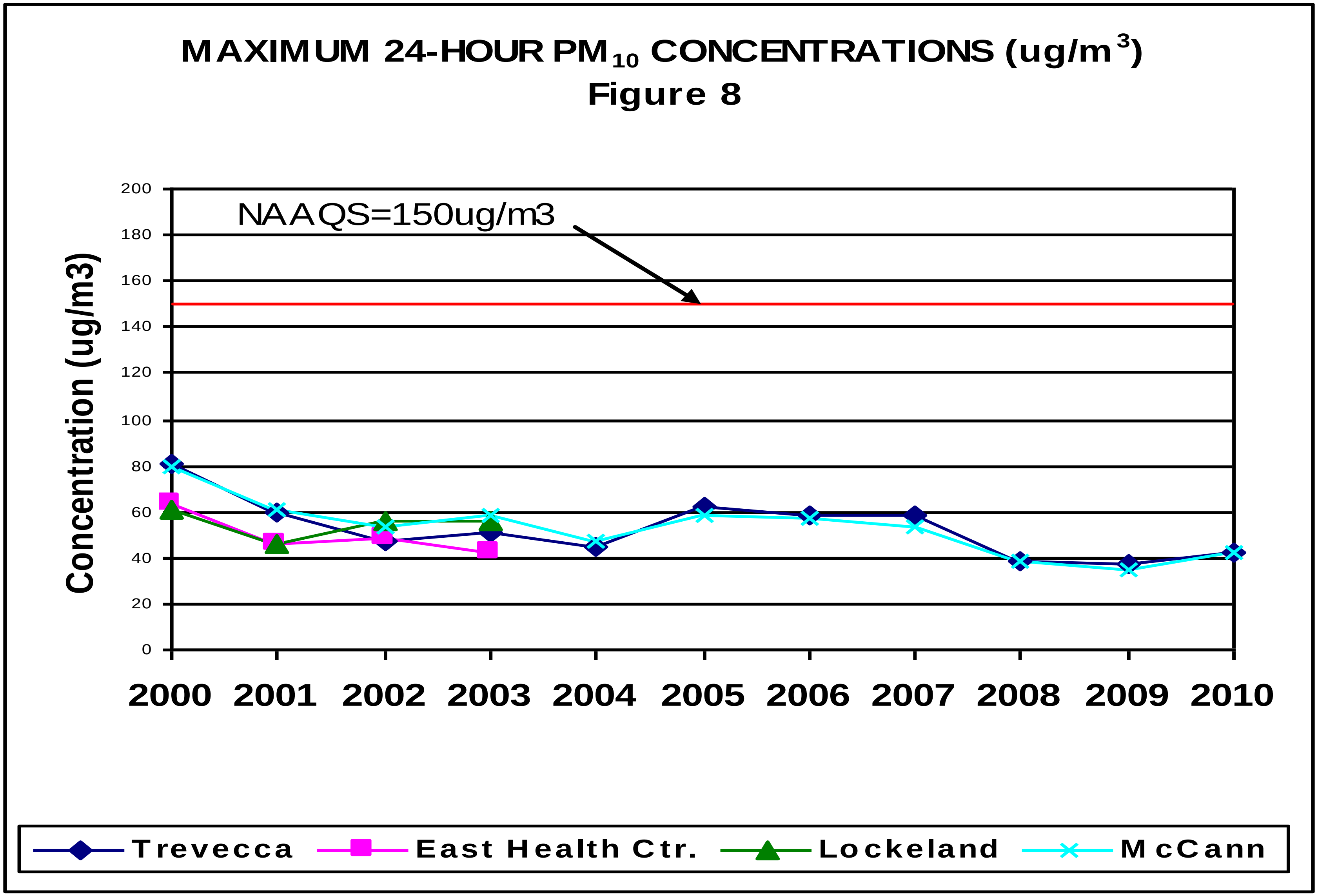
TABLE XI 2010 QUARTERLY COMPARISON OF $PM_{2.5}$ ARITHMETIC MEAN ($\mu G/M^3$)					
Site Location	**1st**	**2nd**	**3rd**	**4th**	**Annual**
Lockeland	11.9	11.0	13.3	11.1	11.8
Lockeland (collocated)	13.3	10.6	11.2	11.2	11.6
Wright*	0.0	0.0	0.0	0.0	0.0
Hillwood	11.0	10.2	11.8	9.9	10.7

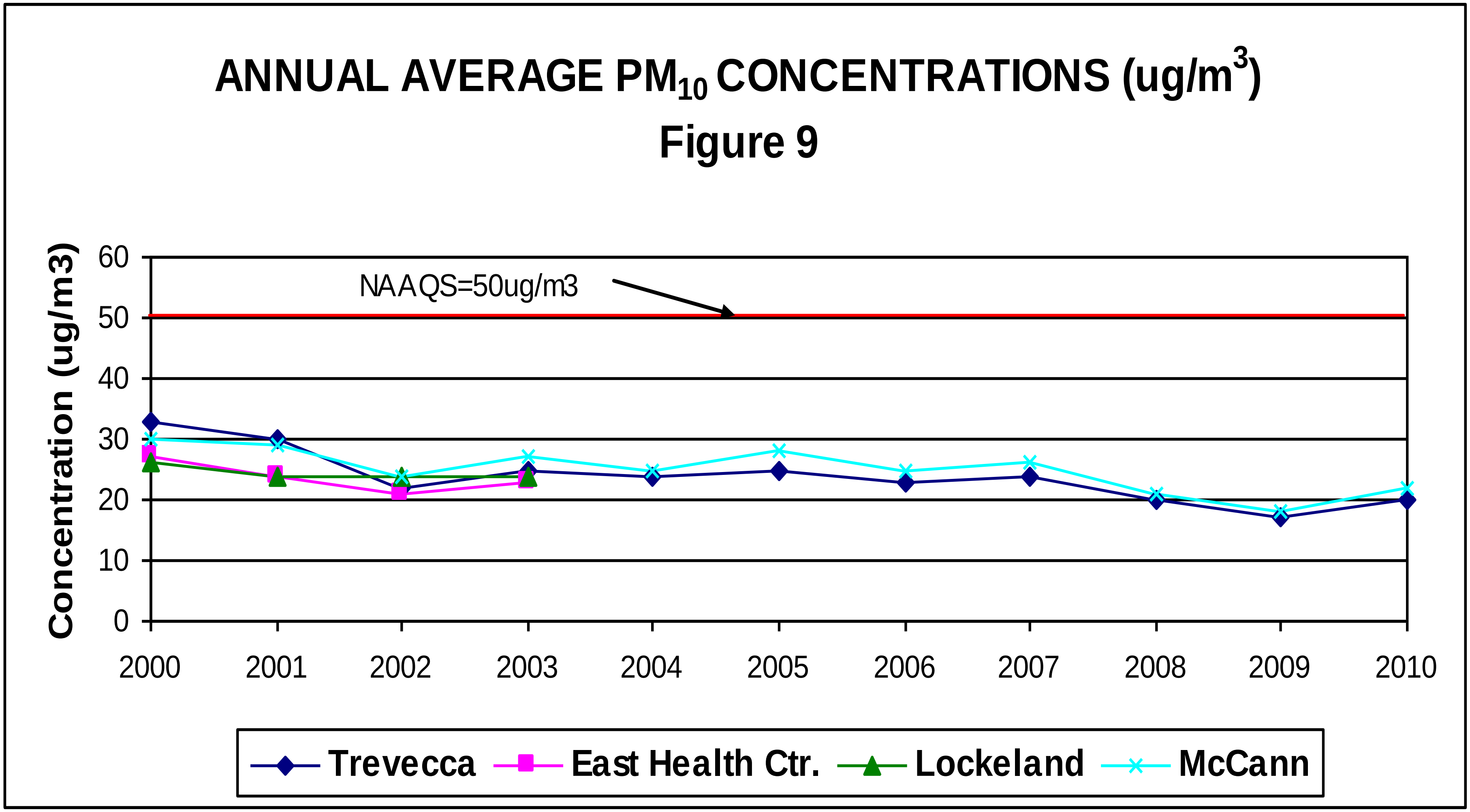
TABLE XII 2003 - 2010 24-HOUR MAXIMUM $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)								
Site Location	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Lockeland	42.3	36.6	58.6	37.2	46.6	31.5	23.7	28.9
Lockeland (collocated)	39.0	30.4	36.6	31.2	44.9	33.7	23.4	24.7
Wright*	42.4	31.4	38.5	36.6	41.27	na[1]	na[1]	na[1]
Hillwood	42.1	33.9	54.3	35.7	43.0	35.7	23.7	27.5

TABLE XIII 2005 - 2010 ANNUAL AVERAGE $PM_{2.5}$ CONCENTRATIONS ($\mu G/M^3$)							
Site Location	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**LATEST 3 YEAR AVERAGE**
Lockeland	15.0	14.2	13.8	11.5	10.1	11.8	11.1
Lockeland (collocated)	13.6	14.0	14.8	12.7	9.8	11.6	11.3
Wright*	14.2	14.1	14.3	na[1]	na[1]	na[1]	na[1]
Hillwood	13.6	13.4	12.1	10.9	9.6	10.7	10.4
Sumner County	14.8	13.2	13.9	12.1	9.5	10.7	10.7
Spatial Avg. of Valid Monitors	14.4	13.7	13.7	11.8	9.7	11.2	10.9

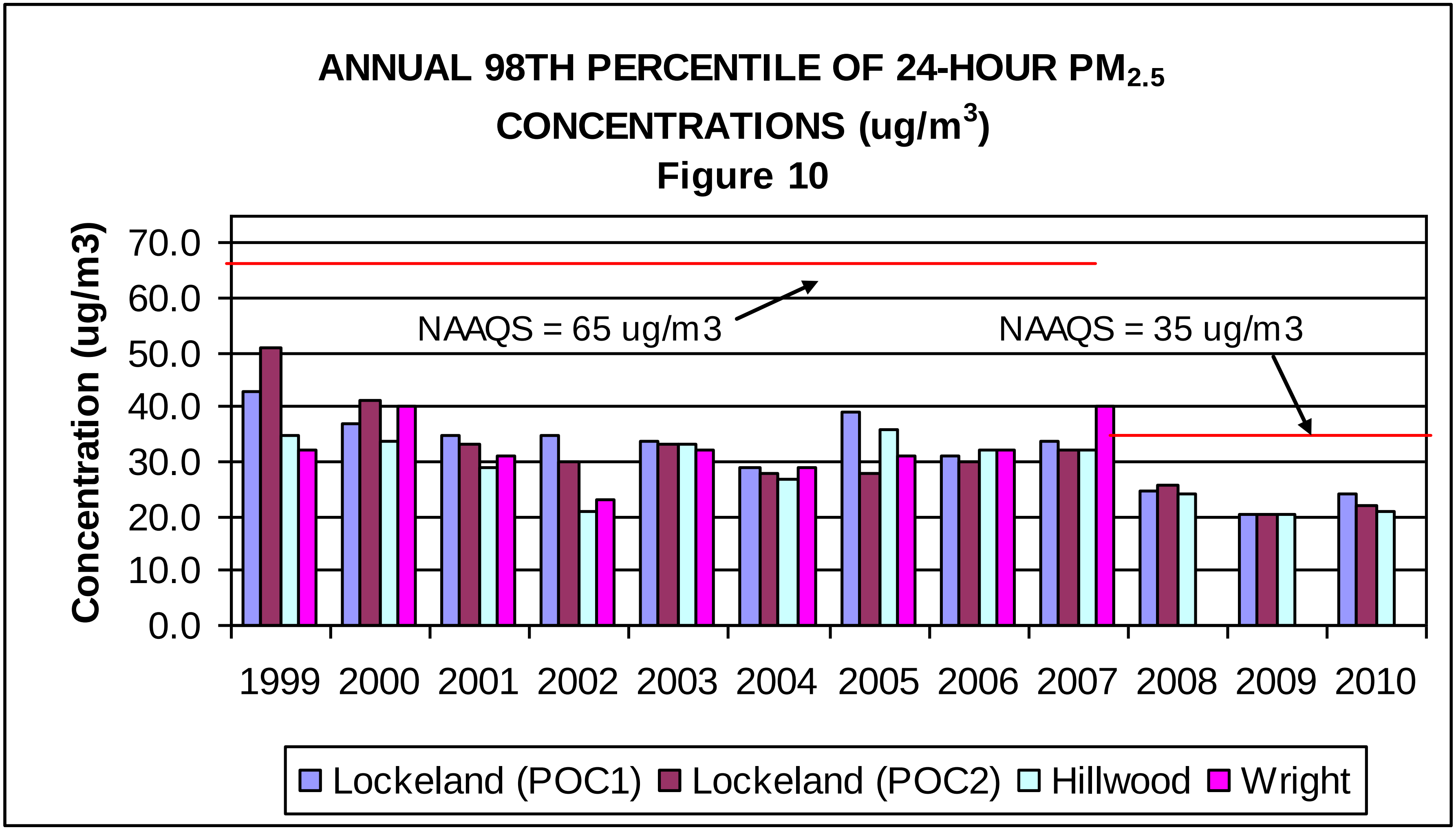
[1]The $PM_{2.5}$ monitor located at Wright Middle School, 180 McCall Street ceased operation December 31, 2007 with EPA's concurrence.

To determination compliance with the National 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 2008 - 2010, 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
Concentration (ug/m3)
NAAQS=150ug/m3
0
20
40
60
80
100
120
140
160
180
200
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Trevecca
East Health Ctr.
Lockeland
McCann



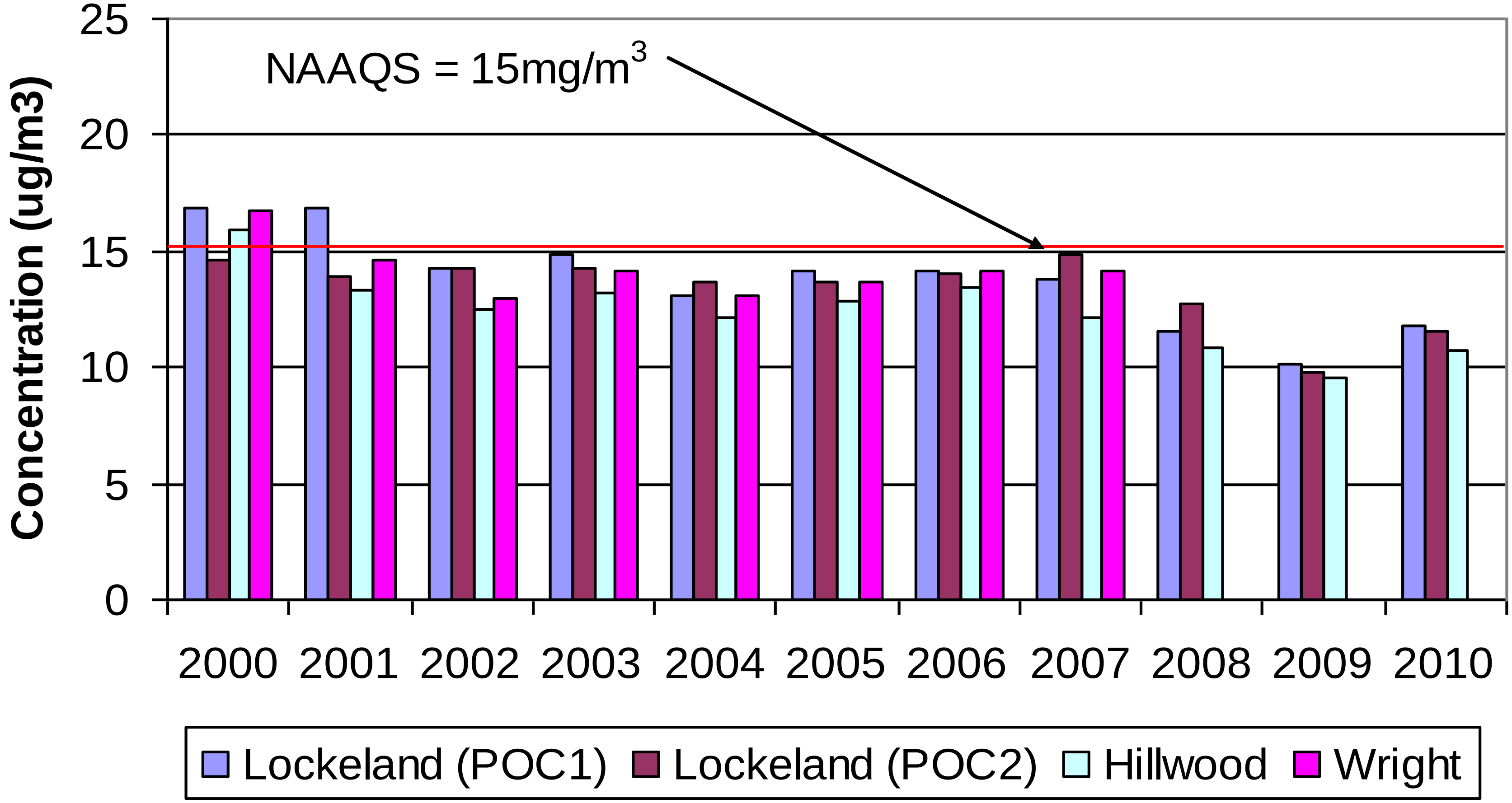
On September 21, 2006 the EPA revoked the annual PM_{10} standard, because available evidence generally did not suggest a link between long-term exposure to the current levels of coarse particles and health problems.



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 $PM_{2.5}$ CONCENTRATIONS (ug/m^3)

Figure 11



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

SULFUR DIOXIDE

Sulfur dioxide is a heavy, pungent, colorless gas that combines easily with water vapor to form sulfuric acid. The major health concerns associated with exposure to sulfur dioxide include effects on breathing, respiratory illness, alterations in the lungs' defenses, and aggravation of existing cardiovascular disease. Sulfur dioxide was measured at East Health Center (site 0011) during 2010. 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 0.002 ppm, 0.006 ppm and 0.013ppm respectively were not violated in 2010. The main source of sulfur dioxide in Metropolitan Nashville and Davidson County is from fuel combustion.

TABLE XV
2010 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	659	739	716	739	716	726	741	715	740	716	737	8684
Arithmetic Mean	0.001	0.001	0.003	0.002	0.002	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.002
Highest 24-Hr Conc.	0.003	0.004	0.005	0.005	0.004	0.004	0.003	0.004	0.004	0.002	0.003	0.006	0.006
Date of Highest 24-Hr Conc.	1/28	2/13	3/29	4/10	5/31	6/07	7/02	8/26	9/04	10/10	11/01	12/18	12/18
2nd Highest 24-Hr Conc.	0.003	0.003	0.005	0.005	0.004	0.006	0.003	0.004	0.003	0.002	0.002	0.004	0.005
Date of 2^{nd} Highest 24-Hr Conc.	1/10	2/01	3/18	4/09	5/30	6/06	7/01	8/27	9/26	10/09	11/02	12/26	3/29
Highest 3-Hr Conc.	0.006	0.009	0.008	0.006	0.006	0.005	0.011	0.006	0.005	0.006	0.012	0.013	0.013
Date of Highest 3-Hr Conc.	1/10	2/13	3/06	4/01	5/24	6/01	7/01	8/26	9/02	10/22	11/01	12/18	12/18
2nd Highest 3-Hr Conc.	0.006	0.008	0.007	0.006	0.005	0.005	0.006	0.005	0.005	0.005	0.006	0.012	0.012
Date of 2^{nd} Highest 3-Hr Conc.	1/15	2/12	3/18	4/02	5/06	6/05	7/02	8/07	9/04	10/01	11/11	12/08	11/01
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 70% of the nitrogen dioxide emissions in 2010 with light duty cars and trucks responsible for 23% of the total nitrogen dioxide emissions.

Nitrogen dioxide was measured at East Health Center (site 0011) during 2010. Table XVI presents a summary of this data and shows that the annual arithmetic mean of 0.012 ppm standards for nitrogen dioxide was not violated in 2010.

TABLE XVI
2010 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	742	656	739	714	739	713	727	740	715	739	717	739	8680
Arithmetic Mean	0.016	0.015	0.014	0.011	0.009	0.008	0.009	0.010	0.013	0.015	0.012	0.012	0.012
Highest 24-Hr Conc.	0.033	0.033	0.029	0.023	0.016	0.015	0.014	0.018	0.022	0.028	0.029	0.029	0.033
Date of Highest 24-Hr Conc.	1/14	2/01	3/07	4/14	5/05	6/22	7/07	8/03	9/22	10/11	11/12	12/28	1/14
2nd Highest 24-Hr Conc.	0.033	0.028	0.024	0.022	0.015	0.013	0.013	0.017	0.020	0.025	0.026	0.026	0.033
Date of 2nd Highest 24-Hr Conc.	1/15	2/19	3/19	4/15	5/04	6/17	7/16	8/05	9/21	10/08	11/09	12/09	1/15
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 2010. The data shows that the one-hour NAAQS of 0.12 ppm was not exceeded in 2010. The maximum one-hour average concentration of 0.095 ppm was measured at Percy Priest Dam (site 0026) on August 13. 2010. Table XXI compares the measured ozone concentration for the past several years.

TABLE XVII
2010 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	657	742	717	741	715	728	742	717	740	720	744	8707
Highest 1-Hr Conc.	0.039	0.050	0.057	0.078	0.073	0.081	0.085	0.071	0.062	0.070	0.051	0.033	0.085
Date of Highest Conc.	1/20	2/21	3/19	4/14	5/06	6/18	7/15	8/13	9/02	10/08	11/11	12/31	7/15
2nd Highest 1-Hr Conc.	0.034	0.046	0.057	0.076	0.067	0.078	0.071	0.070	0.061	0.067	0.051	0.032	0.081
Date of 2nd Highest Conc.	1/02	2/20	3/31	4/13	5/04	6/22	7/07	8/07	9/21	10/07	11/12	12/12	6/18
3rd Highest 1-Hr Conc.	0.034	0.042	0.056	0.071	0.061	0.075	0.070	0.066	0.060	0.067	0.049	0.032	0.078
Date of 3rd Highest Conc.	1/28	2/27	3/20	4/11	5/05	6/21	7/02	8/03	9/30	10/10	11/13	12/13	4/14
4th Highest 1-Hr Conc.	0.033	0.041	0.055	0.069	0.059	0.073	0.063	0.064	0.058	0.065	0.045	0.031	0.078
Date of 4th Highest Conc.	1/01	2/22	3/24	4/12	5/07	6/25	7/04	8/08	9/19	10/11	11/02	12/11	6/22
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	651	675	544	639	600	696	624	629	668	708	744	7822
0.045 - 0.084	0	6	67	173	102	115	131	118	88	72	12	0	884
0.085 - 0.124	0	0	0	0	0	0	0	0	0	0	0	0	1
0.125 - 0.164	0	0	0	0	0	0	0	0	0	0	0	0	0
0.165 - 0.204	0	0	0	0	0	0	0	0	0	0	0	0	0
0.205 - 0.404	0	0	0	0	0	0	0	0	0	0	0	0	0
0.405 - 0.504	0	0	0	0	0	0	0	0	0	0	0	0	0
0.505 - 0.604	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE XVIII
2010 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	669	742	717	742	715	741	659	715	739	720	744	8647
Highest 1-Hr Conc.	0.038	0.052	0.064	0.081	0.074	0.079	0.082	0.095	0.081	0.074	0.061	0.040	0.095
Date of Highest Conc.	1/15	2/21	3/19	4/13	5/04	6/22	7/14	8/13	9/21	10/09	11/12	12/31	8/13
2nd Highest 1-Hr Conc.	0.034	0.045	0.062	0.081	0.066	0.072	0.077	0.085	0.074	0.072	0.056	0.038	0.085
Date of 2nd Highest Conc.	1/02	2/20	3/31	4/14	5/06	6/20	7/15	8/12	9/19	10/08	11/02	12/11	8/12
3rd Highest 1-Hr Conc.	0.034	0.041	0.060	0.074	0.063	0.072	0.069	0.082	0.073	0.072	0.055	0.038	0.082
Date of 3rd Highest Conc.	1/19	2/22	3/20	4/11	5/05	6/25	7/30	8/02	9/14	10/10	11/13	12/30	7/14
4th Highest 1-Hr Conc.	0.033	0.040	0.060	0.071	0.061	0.070	0.068	0.081	0.070	0.072	0.053	0.036	0.082
Date of 4th Highest Conc.	1/01	2/27	3/24	4/15	5/07	6/18	7/07	8/07	9/02	10/11	11/11	12/20	8/02
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of 1-Hr Concentrations													
0.000 - 0.044	744	661	642	512	613	554	562	456	565	610	681	744	7344
0.045 - 0.084	2	8	100	205	129	161	179	198	150	129	39	0	1298
0.085 - 0.124	0	0	0	0	0	0	0	5	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 2010 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	655	744	720	744	720	727	744	720	744	720	744	8726
Highest 8-Hr Avg. Conc.	0.031	0.042	0.053	0.067	0.064	0.068	0.071	0.066	0.054	0.061	0.043	0.031	0.071
Date of Highest Conc.	1/01	2/21	3/31	4/13	5/06	6/18	7/15	8/07	9/30	10/08	11/13	12/12	7/15
2nd Highest 8-Hr Avg. Conc.	0.029	0.039	0.051	0.067	0.060	0.067	0.065	0.060	0.053	0.056	0.037	0.031	0.068
Date of 2nd Highest Conc.	1/02	2/27	3/19	4/14	5/34	6/22	7/02	8/13	9/21	10/10	11/01	12/31	6/18
3rd Highest 8-Hr Avg. Conc.	0.028	0.037	0.050	0.064	0.056	0.066	0.063	0.059	0.052	0.053	0.037	0.030	0.067
Date of 3rd Highest Conc.	1/03	2/28	3/08	4/12	5/05	6/21	7/07	8/08	9/19	10/07	11/11	12/13	6/13
4th Highest 8-Hr Avg. Conc.	0.027	0.036	0.050	0.063	0.054	0.060	0.060	0.055	0.050	0.050	0.037	0.028	0.067
Date of 4th Highest Conc.	1/10	2/18	3/24	4/15	5/27	6/25	7/04	8/02	9/02	10/09	11/21	12/25	4/14
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	655	744	703	739	705	712	738	720	743	720	744	8667
0.060 - 0.075	0	0	0	17	5	15	15	6	0	1	0	0	59
0.076 - 0.095	0	0	0	0	0	0	0	0	0	0	0	0	0
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 2010 OZONE (PPM), DAILY MAXIMUM 8-HOUR AVERAGE VALUES, SITE 247-037-0026, PERCY PRIEST DAM													
MONTH	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**ANNUAL**
No. of Observations	744	672	744	720	744	720	744	661	720	744	720	744	8677
Highest 8-Hr Avg. Conc.	0.030	0.047	0.058	0.073	0.061	0.075	0.069	0.080	0.068	0.066	0.052	0.038	0.080
Date of Highest Conc.	1/01	2/21	3/19	4/14	5/04	6/22	7/15	8/13	9/21	10/08	11/13	12/31	8/13
2nd Highest 8-Hr Avg. Conc.	0.030	0.039	0.058	0.069	0.059	0.063	0.068	0.072	0.066	0.065	0.049	0.036	0.075
Date of 2nd Highest Conc.	1/02	2/20	3/31	4/13	5/05	6/20	7/14	8/03	9/19	10/10	11/12	12/11	6/22
3rd Highest 8-Hr Avg. Conc.	0.030	0.037	0.057	0.067	0.059	0.063	0.064	0.071	0.061	0.064	0.045	0.036	0.073
Date of 3rd Highest Conc.	1/19	2/27	3/24	4/15	5/06	6/25	7/02	8/02	9/23	10/09	11/20	12/30	4/14
4th Highest 8-Hr Avg. Conc.	0.029	0.035	0.054	0.065	0.055	0.061	0.063	0.071	0.059	0.063	0.044	0.034	0.072
Date of 4th Highest Conc.	1/03	2/28	3/20	4/11	5/27	6/18	7/30	8/07	9/20	10/11	11/09	11/20	8/03
No. of 8-Hr Exceedances	0	0	0	0	0	0	0	1	0	0	0	0	1
No. of 1-Hr Concentrations													
0.000 - 0.059	744	672	744	698	741	700	721	625	720	728	720	744	8545
0.060 - 0.075	0	0	0	22	3	20	23	31	12	16	0	0	127
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 2010. The EPA adopted a new 8-hour ozone standard of 0.075 ppm in May 2008. The maximum eight-hour average concentration of 0.080 ppm was measured at Percy Priest Dam (site 0026) on August 13, 2010. 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 1987 through 2010 at East Health Center and Percy Priest Dam. Table XXII compares the 8-hour ozone concentrations for the past ten years.

TABLE XXI

1987 - 2010 ANNUAL COMPARISON OF 1-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)

SITE 247-037-0011 EAST HEALTH CENTER

YEAR	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Highest 1-Hr. Conc.	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	.085
2nd Highest 1-Hr. Conc.	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	.081
3rd Highest 1-Hr. Conc.	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	.078
4th Highest 1-Hr. Conc.	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	.078
No. of 1-Hr. Exceedances	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of Days Std. Exceeded	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0

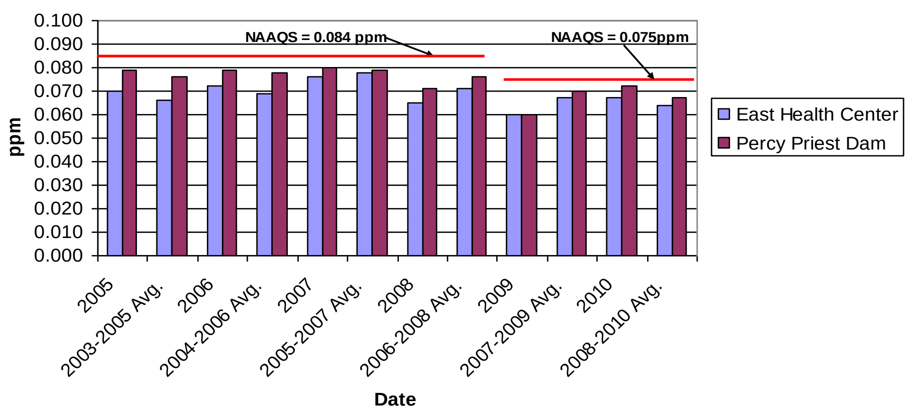
SITE 247-037-0026 PERCY PRIEST DAM

YEAR	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Highest 1-Hr. Conc.	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	.095
2nd Highest 1-Hr. Conc.	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	.085
3rd Highest 1-Hr. Conc.	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	.082
4th Highest 1-Hr. Conc.	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	.082
No. of 1-Hr. Exceedances	0	3	0	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0	0	0	0	0	0	0
No. of Days Std. Exceeded	0	12	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0

TABLE XXII 2001 – 2010 ANNUAL COMPARISON OF 8-HOUR AVERAGE OZONE CONCENTRATIONS (PPM)										
SITE 247-037-0011 EAST HEALTH CENTER										
YEAR	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Highest 8-hour average concentration	0.078	0.076	0.078	0.071	0.074	0.084	0.079	0.078	0.069	.071
2nd highest 8-hour average concentration	0.076	0.075	0.066	0.065	0.071	0.077	0.077	0.074	0.064	.068
3rd highest 8-hour average concentration	0.074	0.073	0.065	0.065	0.071	0.072	0.073	0.073	0.060	.067
4th highest 8-hour average concentration	0.070	0.073	0.064	0.064	0.070	0.072	0.072	0.065	0.060	.067
No. of days 8-hour standard exceeded	0	0	0	0	0	0	0	1	0	0
SITE 247-037-0026 PERCY PRIEST DAM										
YEAR	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Highest 8-hour average concentration	0.097	0.082	0.085	0.082	0.094	0.098	0.100	0.079	0.065	.080
2nd highest 8-hour average concentration	0.093	0.082	0.082	0.077	0.081	0.088	0.088	0.077	0.065	.075
3rd highest 8-hour average concentration	0.079	0.079	0.075	0.077	0.079	0.082	0.083	0.074	0.062	.0073
4th highest 8-hour average concentration	0.079	0.079	0.074	0.076	0.079	0.079	0.079	0.071	0.060	.072
No. of days 8-hour standard exceeded	2	0	1	0	1	2	2	2	0	1

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 was one day during 2010 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 (2008, 2009and 2010) at the Percy Priest Dam site is 0.067 ppm which is below the 8-hour NAAQS during 2010.

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



The Middle Tennessee ozone nonattainment area, which includes Davidson, Sumner, Rutherford, Williamson, and Wilson Counties, was reclassified to attainment for the 1-hour ozone NAAQS on October 30, 1996. The area is currently operating under an existing 1-hour ozone maintenance plan. Designation for the Middle Tennessee area for the 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 2008 through 2010. 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, Davidson County is in compliance with the 8-hour ozone NAAQS of 0.075 ppm adopted by the EPA in March 2008. The Old Hickory Dam monitor in Sumner County exceeded the 8-hour ozone standard in 2010.

TABLE XXIII
2008 - 2010 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	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
	2010	0.085	0.071	0.081	0.068	0.078	0.067	0.078	0.067	0	0
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-037-0026 Percy Priest Dam-Davidson	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
	2010	0.095	0.080	0.085	0.075	0.082	0.073	0.082	0.072	0	1
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-149-0101* Eagleville-Rutherford	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
	2010	0.090	0.077	0.084	0.074	0.082	0.074	0.078	0.073	1	1
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-165-0007* Old Hickory Dam-Sumner	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
	2010	0.104	0.088	.0101	0.084	0.100	0.080	0.091	0.078	1	8
									COMPLIANCE WITH NAAQS	**Yes**	**No**
247-165-0101* Cottontown-Sumner	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
	2010	0.098	0.076	0.091	0.076	0.085	0.073	0.085	0.073	2	2
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-187-0106* Fairview-Williamson	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
	2010	0.084	0.078	0.081	0.076	0.081	0.074	0.079	0.074	2	2
									COMPLIANCE WITH NAAQS	**Yes**	**Yes**
247-189-0103* Cedars of Lebanon-Wilson	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
	2010	0.086	0.078	0.082	0.076	0.082	0.075	0.081	0.074	0	2
									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 2010, 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 2010. This data along with Figures 13 and 14 show the National Ambient Air Quality Standard was not violated at any site during 2010.

TABLE XXIV
2010CARBON 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	666	740	717	742	716	741	738	718	738	716	739	8713
Highest 1-Hr Conc.	3.3	1.9	1.5	1.3	1.6	1.2	0.6	1.0	1.8	1.7	2.8	1.9	3.3
Date of Highest Conc.	1/15	2/01	3/11	4/10	5/23	6/19	7/04	8/21	9/17	10/31	11/10	12/28	11/15
2nd Highest 1-Hr Cond.	2.9	1.9	1.4	1.1	1.5	1.2	0.6	0.9	1.4	1.6	2.3	1.7	2.9
Date of 2nd Highest 1-Hr Conc.	1/15	2/21	3/23	4/04	5/22	6/19	7/04	8/05	9/14	10/09	11/08	12/28	1/15
No. of 1-Hr Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0
Highest 8-Hr Conc.	2.2	1.5	1.0	0.9	1.1	1.0	0.5	0.7	1.1	1.1	1.9	1.3	2.2
Date of Highest 8-Hr Conc.	1/16	2/21	3/07	4/04	5/23	6/19	7/05	8/21	9/29	10/31	11/09	12/29	1/16
2nd Highest 8-Hr Conc.	1.9	1.4	0.9	0.7	0.9	0.8	0.4	0.5	1.0	1.0	1.7	1.2	1.9
Date of 2nd Highest 8-Hr Conc.	1/15	2/02	3/24	4/11	5/12	6/22	7/04	8/05	9/14	10/10	11/08	12/28	1/15
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 2010 SUMMARY OF CARBON MONOXIDE CONCENTRATIONS (PPM)		
SITE	**HUME FOGG**	**ANNUAL**
Highest 1-Hr Conc.	3.3	3.3
2nd Highest 1-Hr Conc.	2.9	2.9
Highest 8-Hr Conc.	2.2	2.2
2nd Highest 8-Hr Conc.	1.9	1.9
No. of 1-Hr Exceedances	0	0
No. of 8-Hr Exceedances	0	0
No. of Days 8-Hr Exceedances	0	0

Tables XXVI, XXVII, XXVIII, 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 XXVI 1986 – 2010 ANNUAL COMPARISON CARBON MONOXIDE CONCENTRATIONS, (PPM)																									
SITE 247-037-0021 HUME FOGG MAGNET SCHOOL																									
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**	**2010**
Highest 1-Hr Conc.	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	3.3
2nd Highest 1-Hr Conc.	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	2.9
Highest 8-Hr Conc.	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	2.2
2nd Highest 8-Hr Conc.	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	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)	3	1	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 Days 8-Hr. Standard Exceeded (Standard = 9PPM)	3	1	0	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.

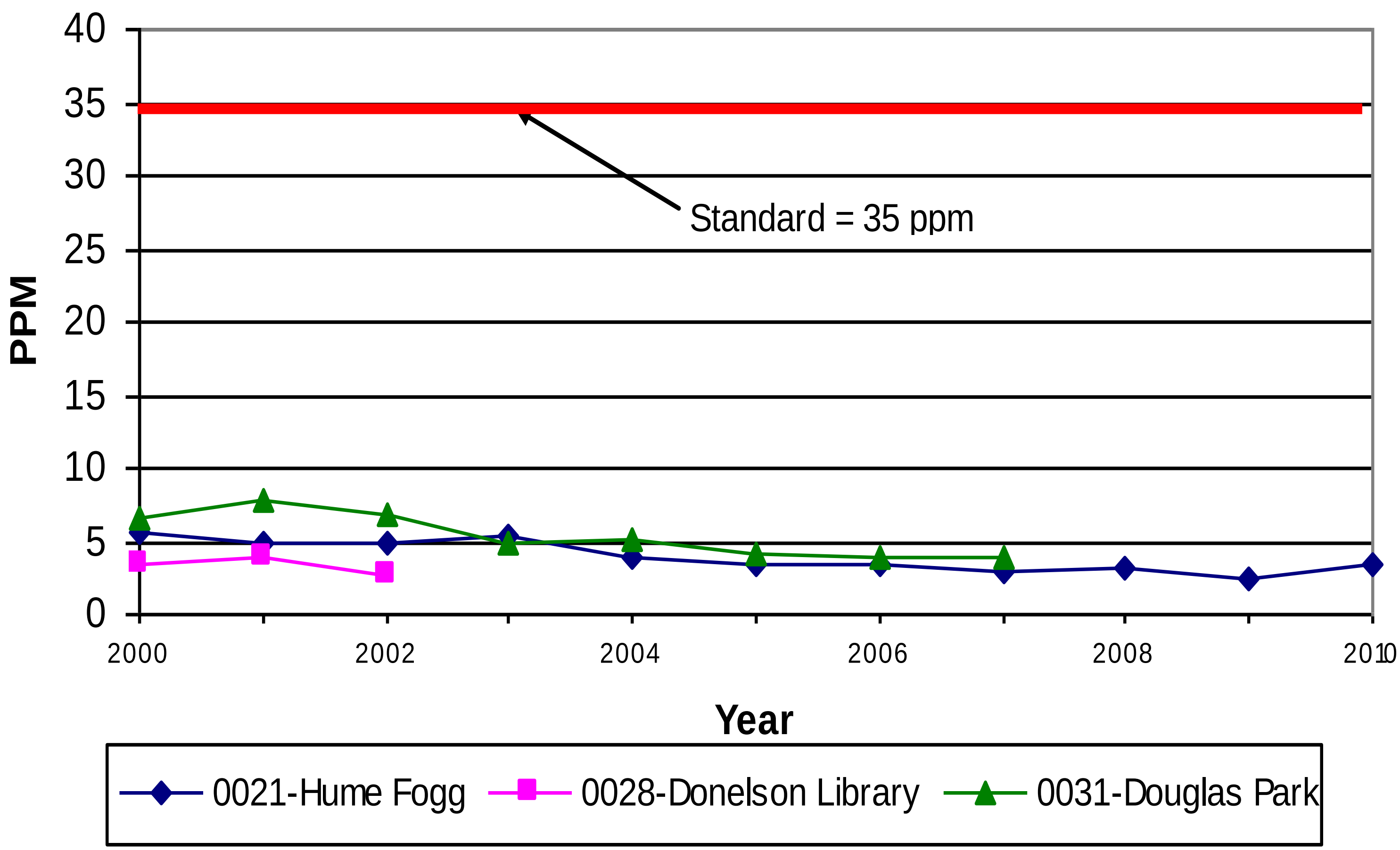
TABLE XXVIII
1987 - 2007 ANNUAL COMPARISON OF CARBON MONOXIDE CONCENTRATIONS, (PPM)

SITE 247-037-0031 DOUGLAS PARK*

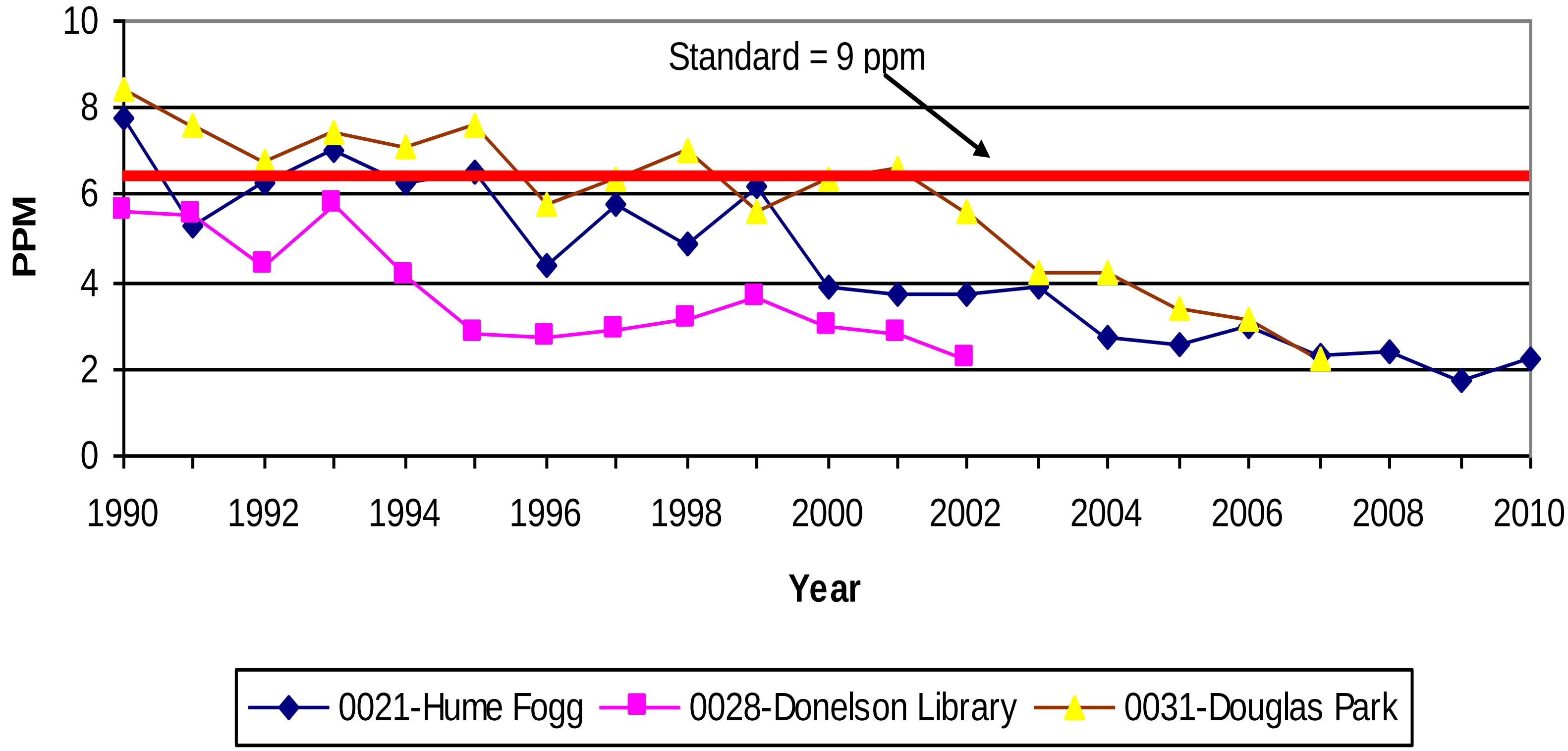
YEAR	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Highest 1-Hr Concentration	10.0	10.0	13.5	9.5	8.5	8.5	8.5	8.0	9.0	6.5	7.0	7.5	7.5	6.7	7.7	6.9	4.9	5.1	4.2	3.9	3.9
2nd Highest 1-Hr Concentration	9.0	9.5	12.5	9.0	8.5	8.0	8.5	8.0	8.5	6.0	7.0	7.2	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



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 using data from the continuous monitors located at East Health Center, Lockland Middle School and Percy Priest Dam. 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 reflects the daily AQI data that is available on the EPA Air Data website. This data may differ from the daily AQI values reported by this agency due to the fact that EPA calculates the AQI for particulate matter based on the $PM_{2.5}$ manual monitoring data rather the continuous monitoring data.

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 2010 AQI SUMMARY		
Range	**Number of Days**	**% of Total Days**
Good	247	68%
Moderate	117	32%
Unhealthy for Sensitive Groups	1	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 2010 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 2010.

The Davidson County maximum AQI in 2010 was on August 13, 2010 when the 8-hour ozone concentration reached 0.080 ppm at the Percy Priest Dam monitoring site. The 0.080 ppm concentration resulted in a reported AQI of 111. 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 2010, several radio interviews, on-camera interviews aired on local TV news programs on Air Quality Action Days in 2005-2010, 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
2010 POLLEN COUNT SUMMARY

Range	Number of Days	% of Total Days
Slight	54	32%
Moderate	53	31%
Heavy	20	12%
Extremely Heavy	40	24%

Table XXX gives a summary of the 2010 pollen season. The maximum daily pollen count for Nashville during 2010 was 807 grains/cm^2 measured April 16, 2010 due to the combination of cedar, maple, oak 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 2010, more than 19 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, 2010 through December 31, 2010.

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 8,500 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

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

VEHICLE INSPECTION PROGRAM OPERATING STATISTICS

During 2010, the Nashville Vehicle Inspection Program performed 580,526 emission inspections. Compared to the 577,104 inspections performed during 2009, there was an increase of 3,422 inspections.

VEHICLE INSPECTION PASS AND FAIL RATES

In 2010, a total of 516,694 vehicles were inspected. The 2010 initial test pass rate was 90.4%, and the initial test fail rate was 9.6%. 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%
2010	10%

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 2010, there were 961 gas analyzer audits on 42 gas analyzers used by the test centers. Also, there were 84 covert activities conducted on contractor inspection facilities.

VEHICLE INSPECTION PROGRAM ENFORCEMENT

During 2010, various enforcement activities were carried out to ensure compliance with the vehicle inspection program. The staff issued 270 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 2010, the staff attended 69 EPA workshops or training courses. Semi-annually in 2010, 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 35 samples for asbestos.

During 2010, this agency's revenue included:

$ 696,587	Operating Permits and Emission-based fees
$ 18,200	Penalties
$ 1,787	Fines
$1,914,149	Vehicle Inspection Program