air Quality

2001 Data Report

HAMILTON COUNTY
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The 2001 Air Quality Data Report, produced by the Hamilton County Department of Environmental Services (DOES) presents the results of monitoring that measures the outdoor concentrations of pollutants for the southwestern Ohio counties of Butler, Clermont, Hamilton and Warren.

The primary source of this data is the Air Quality Monitoring Network operated by the Department's Monitoring & Analysis Section. The monitoring station locations are selected with USEPA and OhioEPA guidance and, in general, are established near areas of high population, pollutant sources or maximum expected concentrations.

Continuous monitors for ozone, carbon monoxide, sulfur dioxide, and nitrogen oxides produce hourly readings that are accessed by the agency's central computer. Particulate samples are generally collected using intermittent samplers that operate either daily, every third day or every six days. Samples are then brought to the Department's laboratory for analysis. One continuous PM2.5 particulate monitor is also available.

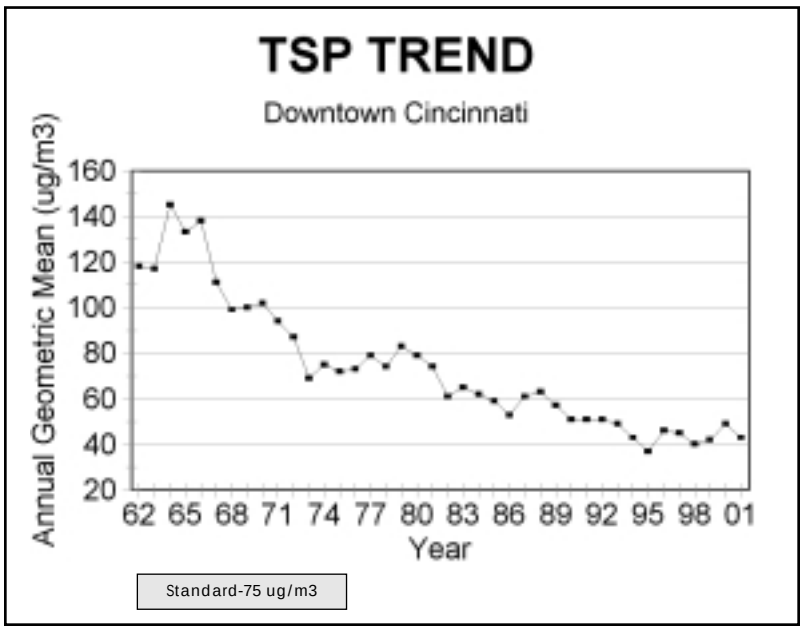
Many staff hours are devoted to the operation of the monitoring network. Staff members routinely visit the sites to calibrate and maintain the monitoring equipment, as well as collect particulate samples and retrieve strip charts from continuous monitors. Because it is very important that the data is accurate and precise, the Monitoring & Analysis Section has an extensive quality assurance program. Staff members calibrate every air monitor quarterly to assure that each is operating properly.

Monitoring data is used to demonstrate compliance with and/or progress made toward meeting national ambient air quality standards, and to identify air quality trends. The pollutant levels for the Air Quality Index (AQI) are also derived from this data. The public can access the AQI information by calling (513) 946-7753, or by visiting our website at ***www.hcdoes.org***.

Harry G. St. Clair
Monitoring & Analysis Supervisor

Monitoring

Total Suspended Particulate (TSP) emissions have decreased in Cincinnati since the 1960s. This reduction can be attributed to pollution control strategies and enforcement actions taken by DOES over the years. The closure of four municipal solid waste incinerators, elimination of hundreds of single-chambered incinerators at apartment buildings, commercial buildings, and schools, and the conversion of coal-fired boilers to natural gas have all contributed to the decline of particulate emissions in the Greater Cincinnati area. The graph below depicts the annual mean concentrations for TSP monitored at the downtown Cincinnati Library.



To determine the quality of air in southwestern Ohio, the Department of Environmental Services' Air Quality Management Division (AQMD) maintains monitors in four counties— Butler, Clermont, Hamilton, and Warren. There are two (2) types of monitors established, continuous and intermittent. Continuous monitors operate continuously and measure ozone, sulfur dioxide, carbon monoxide, oxides of nitrogen, and inhalable particulates. There are fifteen (15) continuous monitors located in our area. Intermittent monitors collect airborne particles at 24-hour intervals from fifteen (15) locations in the area. Toxic monitoring data is also collected from intermittent monitors.

Analysis

The Monitoring & Analysis Section within the AQMD maintains the air quality monitoring network, provides analytical laboratory support services, monitors all facility stack tests, tracks industrial emissions data and conducts quality assurance checks and audits for all data generated by the section.

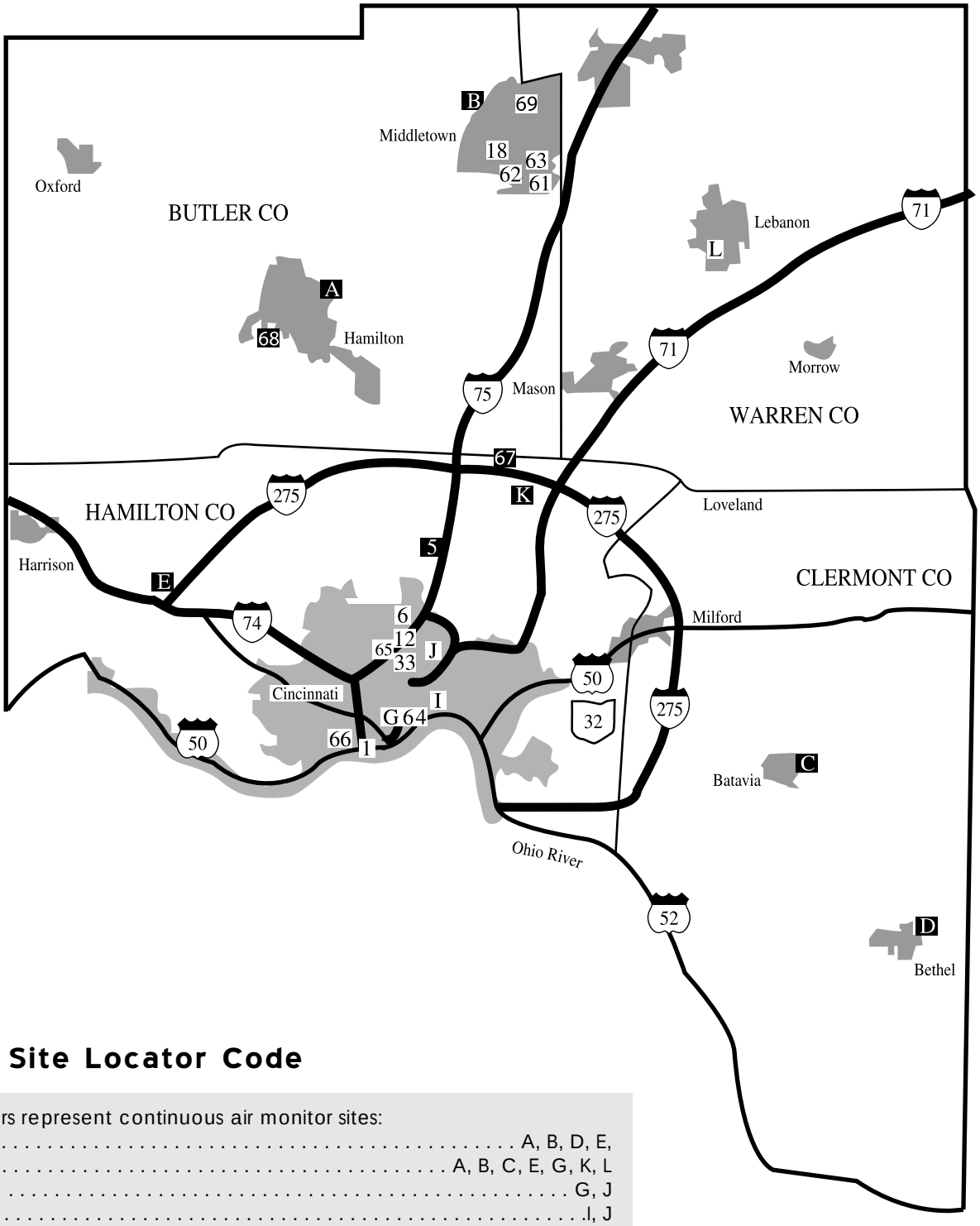
To ensure the quality of air monitoring data sent to the USEPA, the Monitoring & Analysis section is required to comply with validation and accuracy guidelines established by the USEPA. These guidelines require at least 75% of all collected data must meet established data quality objectives before being submitted. Currently, the Monitoring & Analysis Section has set an internal goal of submitting at least 85% valid data to USEPA. In 2001 the Monitoring & Analysis Section was able to exceed that goal and submit over 96% valid, quality assured data.

The Monitoring & Analysis Section also reviews and quality assures continuous emissions data collected from stack monitors[1]. If the continuous monitors show a company has emissions in excess of their operating permit limits over 5% of their operating time, an enforcement action is initiated.

[1] *There are 55 continuous emission monitors located on the stacks of major facilities in the area to ensure that excess emissions do not occur.*

Monitoring Site Map

The air quality in Butler, Clermont, Hamilton, and Warren counties is monitored by a series of continuous and intermittent instruments placed throughout the area. The monitoring sites are identified on the map below.



Map Site Locator Code

Letters represent continuous air monitor sites:

SO2	A, B, D, E,
O3	A, B, C, E, G, K, L
NOx	G, J
CO	I, J

Numerals represent intermittent high-volume network sites:

Inhalable particulate PM10	5, 6, 12,18, 61, 62, 63, 64
Lead	62
Total suspended particulate	1, 62
Inhalable particulate PM2.5	6, 12, 18, 33, 64, 65, 66, 67, 68, 69

Data Reports

NATIONAL AMBIENT AIR QUALITY STANDARDS

The USEPA has classified six different substances as "criteria pollutants" due to their potential to harm human health and the environment: carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and inhalable particulate matter. In order to protect public health, the USEPA has established the National Ambient Air Quality Standards (NAAQS), which set "maximum allowable levels" for each pollutant.

The NAAQS are used to determine the status of air quality anywhere in the United States. If levels of the criteria pollutants are determined to be below the maximum allowable levels, the area is said to be in "attainment" status, having attained the standard. If levels rise above allowable amounts, the area is classified as "nonattainment" status. Greater Cincinnati is in attainment status for all the criteria pollutants except ozone.

On July 17, 1997, the USEPA, based on the latest medical research, proposed to revise the 1-hour ozone NAAQS to an 8-hour standard, and to create a new standard for fine particulate matter smaller than 2.5 microns in diameter. Based on 1999, 2000 and 2001 data, several sites in southwestern Ohio **will not meet** the new 8-hour standard for ozone. Based on the PM2.5 data collected for 1999, 2000 and 2001 southwestern Ohio **will not meet** the new fine particulate matter standard.

Pollutant

Carbon Monoxide (CO)	Standard:	9 parts per million (8-hour avg. not to be exceeded more than once per year)
	Standard:	35 parts per million (1-hour avg. not to be exceeded more than once per year)
	Source:	Vehicle exhaust
	Effects:	Replaces oxygen in the blood, causing dizziness, unconsciousness, or death
Inhalable Particulates (PM-10)	Standard:	50 micrograms per cubic meter (max. annual arithmetic mean)
	Standard:	150 micrograms per cubic meter (24-hour concentration not to be exceeded more than once per year)
Inhalable Particulates (PM-2.5)	Standard:	15 micrograms per cubic meter (max. annual arithmetic mean)
	Standard:	65 micrograms per cubic meter (24-hour average)
	Source:	Industrial processes, heating boilers, engines, dust
	Effects:	Can clog lung sacs. May pass into bloodstream. Often carry toxic and carcinogenic materials.
Lead (Pb)	Standard:	1.5 micrograms per cubic meter (max. avg. over a calendar quarter)
	Source:	Anti-knock agents in gasoline and lead-based paints.
	Effects:	Harmful to blood-forming organs, kidneys, and nervous system. May cause learning disabilities in children.
Nitrogen Dioxide (NO_2)	Standard:	0.053 parts per million (max. annual arithmetic mean)
	Source:	Industrial processes; vehicle exhaust (NO2)
	Effects:	Structural damage to lungs. Lowers resistance to respiratory infections. Reacts with hydrocarbons to form smog. Causes acid rain.
Ozone (O3)	Standard:	0.12 parts per million (max. one-hour avg. not to be exceeded more than three times over the three most recent years)
	Standard:	0.08 parts per million (max. 8-hour average based on highest three-year average of the fourth highest 8-hour concentration)
	Sources:	Formed when hydrocarbons and nitrogen dioxide react in sunlight.
	Effects:	Main component of smog. Irritates mucous membranes, causing coughing, choking, and impaired lung function. Aggravates asthma and bronchial conditions.
Sulfur Dioxide (SO2)	Standard:	0.03 parts per million (max. annual arithmetic mean)
		0.14 parts per million (max. 24-hour avg. concentration not to be exceeded more than once per year)
	Source:	Burning coal and oil, industrial processes
	Effects:	Corrosive to outdoor structures. Aggravates lung conditions.Causes acid rain.

Comparison to the Standards

1988-2001 One-Hour Ozone Exceedences per Year

	Site Name							
Year	Batavia	Colerain	Taft	Hamilton	Lebanon	Middletown	Sycamore	Total
1988	6	0	5	4	8	6	5	34
1989	0	0	2	0	0	0	1	3
1990	0	1	0	0	4	2	1	8
1991	0	1	0	0	3	0	4	8
1992	0	0	0	0	0	0	0	0
1993	0	0	0	1	0	1	0	2
1994	1	0	0	0	2	0	0	3
1995	1	1	1	1	2	2	0	8
1996	0	0	0	0	0	1	0	1
1997	0	0	0	0	1	1	1	3
1998	1	0	0	0	1	0	1	3
1999	1	0	0	1	0	1	0	3
2000	0	0	0	0	0	0	0	0
2001	0	1	0	0	0	0	0	1

A maximum 1-hour mean of 0.12 ppm may not be exceeded on more than one day per year, as averaged over the most recent three years. An hourly concentration of 0.200 ppm is the alert level for Ohio.

1999-2001 Fourth Highest 8-hour Ozone Concentration per Year*

	Batavia	Colerain	Taft	Hamilton	Lebanon	Middletown	Sycamore
1999	0.094 ppm	0.088 ppm	0.088 ppm	0.096 ppm	0.095 ppm	0.096 ppm	0.090 ppm
2000	0.090 ppm	0.080 ppm	0.085 ppm	0.082 ppm	0.086 ppm	0.084 ppm	0.081 ppm
2001	0.083 ppm	0.080 ppm	0.083 ppm	0.083 ppm	0.085 ppm	0.087 ppm	0.088 ppm
Average	0.089 ppm	0.083 ppm	0.085 ppm	0.087 ppm	0.089 ppm	0.089 ppm	0.086 ppm

*An exceedence is any value over 0.084 ppm using a three year average of the fourth highest 8-hour daily concentration.

2001 Nitrogen Dioxide (NO_2)

Site Name	Standard	Annual Average	Meets Standard
Taft	.053 ppm	.021 ppm	Yes
Norwood	.053 ppm	.022 ppm	Yes

2001 Carbon Monoixide (CO)

Site Name	8-hr. Standard	8-hr. High Average	Meets Standard	1-hr. Standard	1-hr. High Average	Meets Standard
Norwood	9 ppm	3.0 ppm	Yes	35 ppm	3.6 ppm	Yes
Post Office	9 ppm	2.5 ppm	Yes	35 ppm	4.7 ppm	Yes

2001 Sulfur Dioxide (SO_2)

Site Name	Annual Standard	Annual Average	Meets Standard	Max 24-hr. Standard	Max 24-hr. Average	Meets Standard
Hamilton	.030 ppm	.006 ppm	Yes	.140 ppm	.039 ppm	Yes
Bethel	.030 ppm	.005 ppm	Yes	.140 ppm	.027 ppm	Yes
Middletown	.030 ppm	.005 ppm	Yes	.140 ppm	.025 ppm	Yes
Colerain	.030 ppm	.006 ppm	Yes	.140 ppm	.038 ppm	Yes

Air Quality Index

The Air Quality Index (AQI) was established by the USEPA to inform the public about current air quality conditions and the health effects in certain areas. This scale is used to measure five major pollutants: inhalable particulate, ozone, sulfur dioxide, carbon monoxide, and nitrogen dioxide. Seven days a week, AQMD instruments measure the level of each of the pollutants at sites located throughout the four-county area. The sites are called twice each day by the AQMD's central computer. The daily AQI is based on the single pollutant with the highest air quality index (determined by using NAAQS). The AQI for Greater Cincinnati is generally based on ozone or inhalable particulates. AQMD personnel provide local media and the public with the daily AQI values as an indication of that day's air quality. The number to call for a recorded message of this information is (513) 946-7753 or by visiting the department's website at ***www.hcdoes.org***.

AQI Scale	Description of the Air	Health Effects
0-50	"Good" (Green)	No health impacts are expected when air quality is in this range.
51-100	"Moderate" (yellow)	Unusually sensitive people should consider limiting prolonged outdoor exertion.
101-150	"Unhealthy for Sensitive Groups" (orange)	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
151-200	"Unhealthy" (red)	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
201-300	"Very Unhealthy" (maroon)	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.

2001 AQI Data

Month	High	Low	Average	Month	High	Low	Average
January	54	8	31	July	121	25	73
February	54	18	36	August	147	28	87
March	64	16	40	September	93	18	55
April	72	25	48	October	73	18	45
May	106	28	67	November	87	21	54
June	127	25	76	December	62	15	38

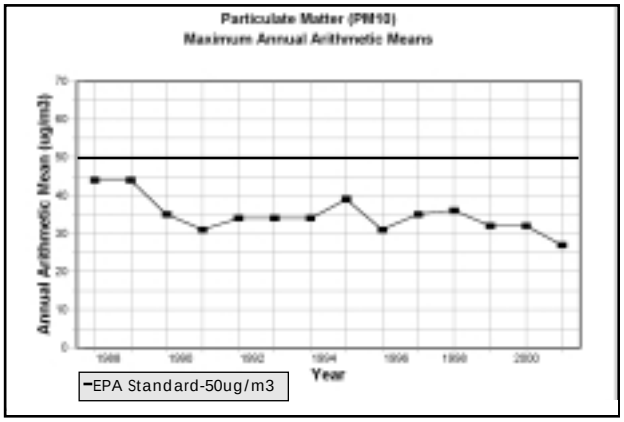
2001 AQI Summary

AQI Level	Description	Number of Days
0-50	"Good"	174
51-100	"Moderate"	171
101-150	"Unhealthy for Sensitive Groups"	20
151-200	"Unhealthy"	0
201-300	"Very Unhealthy"	0

Monitoring Air Quality

The Intermittent Monitoring Network

In general, monitoring of pollutants is performed either on an intermittent or continuous basis. Twenty air samplers at various sites in the four-county area intermittently collect airborne particles. These intermittent samplers monitor inhalable particulates and lead.



2001 PM_{10} Results

[Results reported as micrograms per cubic meter of air (µg/m3)]

	5 Lockland	6 Carthage	12 St. Bernard	18 Verity	61 Garfield	62 Oneida	63 Ohio Bell	64 Taft
01-Jan-01		20	23	24	19	21	16	
07-Jan-01		19	20		19	18	21	16
13-Jan-01	54	59	60	46	57	61	50	45
19-Jan-01	32	34	35	29	31	33	27	32
25-Jan-01	16	24	26	12	24	24	15	15
31-Jan-01	14			31	14	14	44	14
06-Feb-01	24	30	27	24	22	22	24	21
12-Feb-01	28	35	28	28	30	33	30	24
18-Feb-01	15	14	15	19		18	19	11
24-Feb-01	21	22	23	25		68	46	19
01-Mar-01	19	22	41	29	19	20	32	20
08-Mar-01	29	32	46	61	27	28	96	25
14-Mar-01	18	20	25	16	21	16	16	13
20-Mar-01	19	21	22	10	19	28	14	15
26-Mar-01	16		22	13	14	15	16	13
01-Apr-01	17	17	18	16	18	20		15
07-Apr-01	26	32	32	39	26	23	37	24
13-Apr-01	14	11	18	09	11	13	11	09
19-Apr-01	36	45	47	41	43	39	51	33
25-Apr-01	23	29	36	17	32	30	18	23
01-May-01		49	58	46	60	61		37
07-May-01	35	40	39	34	44	35		30
13-May-01	20	21	22	17	23	26		20
19-May-01	23	21	22	17	21	23		22
25-May-01	11	16	17	20	16	14		12
31-May-01	20	20	23	13	23	47	16	19
06-Jun-01	19	22	26	23	18	19	25	19
12-Jun-01	43	48		45	39	40		47
18-Jun-01	21	26	29	18	30	19	23	19
24-Jun-01	21	21	21	18	21	22		22
30-Jun-01	29	31	33.	42	29	32	42	29

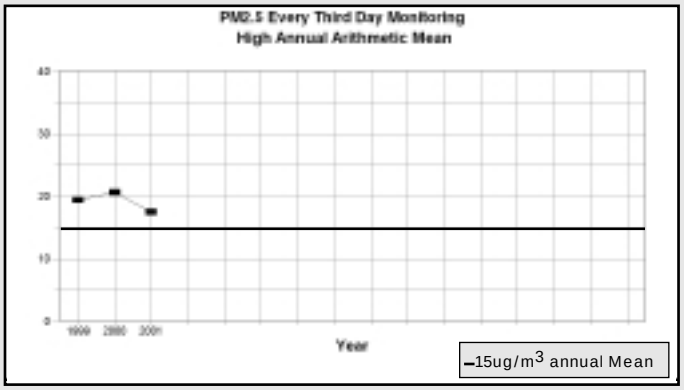
2001 PM_{10} Results [cont'd]

	5 Lockland	6 Carthage	12 St. Bernard	18 Verity	61 Garfield	62 Oneida	63 Ohio Bell	64 Taft
06-Jul-01	.17	.18	.19			.21	.25	.14
12-Jul-01	.17	.21	.22	.13		.16	.14	.19
18-Jul-01	.18	.19	.21	.19	.18	.17	.22	.18
24-Jul-01	.50	.53	.61	.45	.49	.47	.47	.55
30-Jul-01	.33	.38	.39	.26	.33		.38	.32
05-Aug-01	.24	.25	.26	.20	.23	.27	.23	.24
11-Aug-01	.29	.31	.31	.20	.27			.31
17-Aug-01	.20	.22	.36	.31	.23	.23	.39	.21
23-Aug-01	.15	.21	.20	.11	.13	.14	.14	.16
29-Aug-01	.38	.37	.38	.29	.33	.46	.31	.33
04-Sep-01	.28	.29		.30	.28	.26	.32	.25
10-Sep-01		.13		.10	.09	.10		.11
16-Sep-01	.17	.19	.21	.15	.19	.27	.16	.18
22-Sep-01	.18	.22	.24	.17	.18	.21	.24	.18
28-Sep-01	.17	.22	.25	.10	.29	.27	.12	.16
04-Oct-01	.39	.44	.56	.54	.47	.39	.54	.39
10-Oct-01	.22	.26	.31	.23	.43	.32	.37	.18
16-Oct-01	.07	.08	.18	.11	.08	.07	.14	.08
22-Oct-01	.38	.47	.52	.34	.53	.42	.40	.32
28-Oct-01	.14	.18	.20	.15	.15	.14	.21	.12
03-Nov-01	.17	.21	.23	.14	.14	.17	.16	.13
09-Nov-01	.19	.20	.20	.18	.18	.18		.15
15-Nov-01	.48	.57		.48	.52	.46		.38
21-Nov-01	.24	.27	.30	.24	.21	.20	.26	.17
27-Nov-01	.16	.18	.23	.19	.32	.18	.28	.13
03-Dec-01	.30	.36	.46	.24	.49	.32	.33	.18
09-Dec-01	.18	.21	.22	.16	.18	.26	.17	.18
15-Dec-01	.09	.09	.11	.09	.10	.23	.09	.08
21-Dec-01	.29	.39	.54	.37	.26	.29	.39	.21
27-Dec-01	.24	.20	.26	.39	.14	.13	.35	.19
#Samples	.57	.59	.56	.59	.57	.59	.49	.60
Geom. Mean	.22	.25	.28	.22	.24	.24	.25	.20
Arith. Mean	.24	.27	.30	.25	.27	.27	.28	.22
Max. 24 hr.	.54	.59	.61	.61	.60	.68	.96	.55
Min. 24 hr.	.07	.08	.11	.9	.08	.07	.09	.08
Days Above 150 µg/m3	.0	.0	.0	.0	.0	.0	.0	.0

2001 $PM_{2.5}$ RESULTS
Monitoring Every Third Day [Results reported as micrograms per cubic meter of air (µg/m3)]

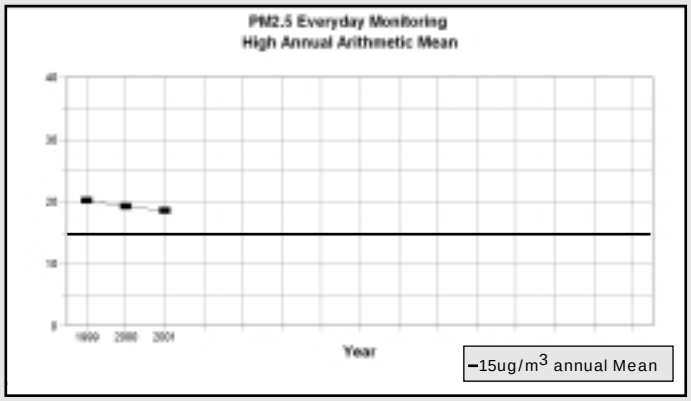
	12 St. Bernard	64 Taft	65 Winton
#Samples	108	117	117
Arith. Mean	16.8	15.7	16.0
Max 24 hr.	45.5	51.3	53.7
No. Days Above 65 µg/m3	0	0	0

	66 Lower Price Hill	67 Scarlet Oaks	68 Sacred Heart School	69 Wild Wood School
#Samples	116	113	114	122
Arith. Mean	17.5	15.9	15.8	15.7
Max 24 hr.	56.1	46.2	45.5	48.9
No. Days Above 65 µg/m3	0	0	0	0



2001 $PM_{2.5}$ RESULTS
Monitoring Every Day [Results reported as micrograms per cubic meter of air (µg/m3)]

	6 Carthage	33 Norwood	18 Verity
#Samples	330	336	345
Arith. Mean	18.6	16.70	16.5
Max 24 hr.	53.2	53.4	49.9
No. Days Above 65 µg/m3	0	0	0



2001 total Suspended Particulate (TSP) Results

Results reported as micrograms per cubic meter of air (µg/m3).
Annual standard: 75 µg/m3
24-Hour Standard: 150 µg/m3

	1 Library	62 Oneida
01-Jan-01	54	40
07-Jan-01	39	37
11-Jan-01		98
19-Jan-01	42	46
25-Jan-01	54	70
31-Jan-01		
06-Feb-01	44	41
12-Feb-01	57	83
18-Feb-01		42
24-Feb-01	43	177
02-Mar-01	42	49
08-Mar-01	53	56
14-Mar-01	34	36
20-Mar-01	32	85
26-Mar-01	33	41
01-Apr-01	27	40
07-Apr-01	54	64
13-Apr-01	33	39
19-Apr-01	69	84
25-Apr-01	53	76
01-May-01	60	133
07-May-01	53	87
13-May-01	41	77
19-May-01	33	41
25-May-01	30	37
31-May-01	33	117
06-Jun-01	33	39
12-Jun-01	76	78
18-Jun-01	45	72
24-Jun-01	39	81
30-Jun-01	47	47
06-Jul-01	35	
12-Jul-01	53	
18-Jul-01	33	41
24-Jul-01	72	81
30-Jul-01	50	70
05-Aug-01	43	67
11-Aug-01	45	77
17-Aug-01	52	63
23-Aug-01	48	39
29-Aug-01	53	105
04-Sep-01	47	60
10-Sep-01	26	32
16-Sep-01	30	87
22-Sep-01	42	64
28-Sep-01	63	79
04-Oct-01	74	83
10-Oct-01	40	90
16-Oct-01	17	20
22-Oct-01	64	96
28-Oct-01	24	29
03-Nov-01	42	
09-Nov-01	40	43
15-Nov-01	75	100
21-Nov-01	34	41
27-Nov-01	28	33
03-Dec-01	45	74
09-Dec-01	27	52
15-Dec-01	20	53
21-Dec-01	50	62
27-Dec-01	96	35

	1 Library	62 Oneida
# Samples	58	57
Geom. Mean	43	59
Arith. Mean	45	65
Max. 24 hr.	96	177
Min. 24 hr.	17	20
Days Above 150 µg/m3	0	1

2001 Toxic Monitoring Data

Air samples are collected in 6-liter SUMMA canisters and analyzed for 60 volatile organic compounds using USEPA Method TO-14. The sampling equipment collects a 24-hour composite sample on a 12-day cycle. The toxic compounds of interest are benzene; toluene; xylenes; chloroform; styrene; 1,3-butadiene; methylene chloride; and trichloroethane. All measurements are in parts per billion (ppb). "Percent (%) Detection" is the percent of the time the compound was detected in the sample. The following compounds were not detected in any samples from the three monitoring sites in 2001.

Benzyl Chloride	Bromodichloromethane	Bromoform	Chlorobenzene
Chloroethane	Chloromethame	3-Chloropropene	Dibromo chloromethane
1,2-Dibromoethane (EDB)	Dibromomethane	1,1-Dichloroethane	1,2-Dichloroethane
1,1-Dichloroethene	t-1,2-Dichloroethene	1,2-Dichloroprepane	cis-1,3-Dichloroprepene
t-1,3-Dichloropropene	Vinyl chloride	1,1,2,2-Tetrachloroethane	1,2,4-Trichlorobenzene
1,1,2-Trichloroethane	1,2-Dichloro-1,1,2,2-Tetraflouroethane (Freon 114)		

Carthage

Compound	Low ppb	High ppb	Avg ppb	% Detection
Dichlorodifluoromethane	0.58	0.89	0.65	100.0
Chlorodifluoromethane	0.29	0.93	0.48	100.0
Chloromethane	0.52	0.97	0.70	100.0
n-Butane	0.77	18	3.83	100.0
1,3-Butadiene	0.26	0.26	0.26	5.9
Bromomethane				0
Trichlorofluoromethane	0.24	0.32	0.27	100.0
Pentane	0.42	4.1	1.34	88.2
Carbon Disulfide	0.087	1.1	0.31	94.1
Methylene Chloride	0.17	1.2	0.41	100.0
n-Hexane	0.15	2.5	0.52	100.0
Chloroform	0.093	0.23	0.15	29.4
cis-1,2-Dichloroethene				0
1,1,1-Trichloroethane	0.073	0.85	0.15	76.5
Cyclohexane	0.13	0.39	0.22	47.1
Carbon Tetrachloride	0.12	0.14	0.13	23.5
Benzene	0.41	2.1	0.80	100.0
n-Heptane	0.11	0.58	0.26	82.4
Trichloroethene	0.088	0.44	0.26	11.8
Toluene	0.49	16	2.51	100.0
n-Octane	0.14	0.24	0.19	11.8
Tetrachloroethene	0.11	0.18	0.15	11.8
Ethylbenzene	0.12	0.81	0.26	88.2
m & p-Xylene	0.27	2.8	0.82	100.0
Nonane	0.11	0.27	0.16	23.5
o-Xylene	0.11	1.1	0.30	100.0
Styrene	0.11	0.53	0.20	64.7
Cumene	0.13	0.14	0.14	11.8
n-Propylbenzene	0.13	0.21	0.17	11.8
1,3,5-Trimethylbenzene	0.084	0.36	0.14	58.8
n-Decane	0.1	22	3.25	41.2
1,2,4-Trimethylbenzene	0.11	1.25	0.29	100.0
1,4-Dichlorobenzene	0.12	0.28	0.20	11.8
1,2-Dichlorobenzene	0.73	0.73	0.73	5.9
n-Undecane	0.12	0.38	0.21	29.4
n-Dodecane	0.14	1.1	0.46	17.6
Naphthalene	0.21	0.21	0.21	5.9

2001 Toxic Monitoring Data [cont'd]

Winton Place

Compound	Low ppb	High ppb	Avg ppb	% Detection
Dichlorodifluoromethane	0.50	0.73	0.59	100.0
Chlorodifluoromethane	0.17	1.0	0.30	90.0
Chloromethane	0.19	0.85	0.63	100.0
n-Butane	0.55	7.8	2.20	95.0
1,3-Butadiene	0.45	0.45	0.45	5.0
Trichlorofluoromethane	0.22	0.40	0.27	100.0
Pentane	0.32	2.3	1.02	70.0
FREON 113*	0.10	0.11	0.11	10.0
Carbon Disulfide	0.079	2.3	0.63	90.0
Methylene Chloride	0.13	0.36	0.21	100.0
n-Hexane	0.079	0.56	0.21	100.0
Chloroform	0.094	0.094	0.09	5.0
Cyclohexane	0.16	0.20	0.18	10.0
Carbon Tetrachloride	0.11	0.17	0.13	20.0
Benzene	0.15	0.85	0.33	100.0
n-Heptane	0.12	0.30	0.20	30.0
Toluene	0.21	1.90	0.63	100.0
Tetrachloroethene	0.42	0.42	0.42	5.0
Ethylbenzene	0.097	0.30	0.16	50.0
m & p-Xylene	0.11	0.90	0.32	95.0
Nonane	0.11	0.16	0.15	20.0
o-Xylene	0.098	0.35	0.17	55.0
Styrene	0.10	0.40	0.20	15.0
1,3,5-Trimethylbenzene	0.085	0.17	0.12	20.0
n-Decane	0.13	1.5	0.53	35.0
1,2,4-Trimethylbenzene	0.10	0.35	0.19	55.0
1,3-Dichlorobenzene	0.35	0.35	0.35	5.0
n-Undecane	0.42	4.0	2.0	50.0
n-Dodecane	0.15	0.49	0.30	30.0
Hexachlorobutadiene	0.54	0.54	0.54	5.0

*FREON 113 = 1,1,2-Trichloro-1,2,2-Trifluoroethane

Lower Price Hill

Compound	Low ppb	High ppb	Avg ppb	% Detection
Dichlorodifluoromethane	0.25	0.77	0.60	100.0
Chlorodifluoromethane	0.41	7.9	2.30	96.0
Chloromethane	0.23	0.86	0.65	100.0
n-Butane	0.97	10	2.6	100.0
1,3-Butadiene	0.18	0.22	0.19	12.0
Trichlorofluoromethane	0.11	0.39	0.28	100.0
Pentane	0.33	4.0	0.91	92.0
FREON 113*	0.10	0.11	0.10	12.0
Carbon Disulfide	0.083	0.66	0.22	100.0
Methylene Chloride	0.16	1.4	0.33	100.0

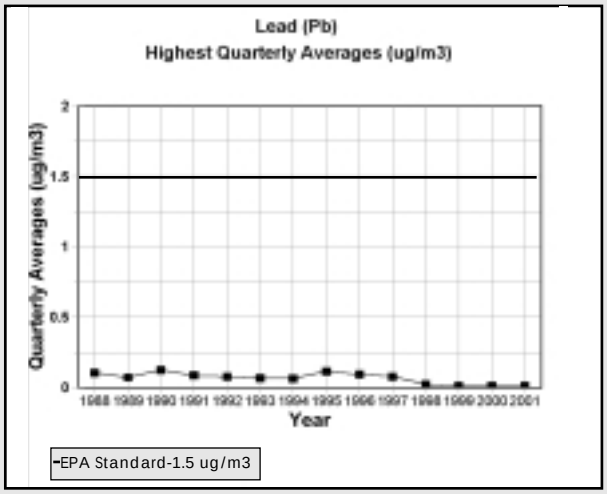
2001 Toxic Monitoring Data [cont'd]

Lower Price Hill (cont'd)

Compound	Low ppb	High ppb	Avg ppb	% Detection
n-Hexane	0.088	0.84	0.27	100.0
Chloroform	0.085	0.085	0.09	4.0
cis-1,2-Dichloroethene	0.18	0.18	0.18	4.0
Cyclohexane	0.12	1.30	0.48	16.0
Carbon Tetrachloride	0.11	0.12	0.12	8.0
Benzene	0.11	1.30	0.51	96.0
n-Heptane	0.10	0.61	0.18	92.0
Trichloroethene	0.087	0.78	0.31	0.36
Toluene	0.31	5.4	1.80	92.0
n-Octane	0.10	0.17	0.14	20.0
Tetrachloroethene	0.15	0.15	0.15	4.0
Ethylbenzene	0.1	0.36	0.17	64.0
m & p-Xylene	0.18	1.20	0.46	88.0
Nonane	0.12	0.52	0.22	20.0
o-Xylene	0.099	0.49	0.19	84.0
Styrene	0.10	0.98	0.25	36.0
Cumene	0.094	0.094	0.09	4.0
n-Propylbenzene	0.20	0.20	0.20	4.0
1,3,5-Trimethylbenzene	0.084	0.39	0.14	52.0
n-Decane	0.10	0.53	0.17	60.0
alpha-Methylstyrene	0.13	0.49	0.22	20.0
1,2,4-Trimethylbenzene	0.097	0.82	0.23	88.0
1,4-Dichlorobenzene	0.13	0.21	0.17	8.0
1,2-Dichlorobenzene	0.10	0.16	0.13	8.0
n-Undecane	0.11	0.94	0.24	40.0
n-Dodecane	0.12	20	0.75	12.0
Hexachlorobutadiene	0.10	0.11	0.11	8.0
Naphthalene	0.18	0.20	0.19	8.0

*FREON 113 = 1,1,2-Trichloro-1,2,2-Trifluoroethane

2001 Lead-Monitoring Data (Pb)



Oneida (62)

1st Quarter Average	0.014
2nd Quarter Average	0.008
3rd Quarter Average	0.011
4th Quarter Average	0.013
Yearly Average	**0.012**

All values are in micrograms per cubic meter µg/m^3. Standard is 1.5 micrograms per cubic meter per calendar quarter.

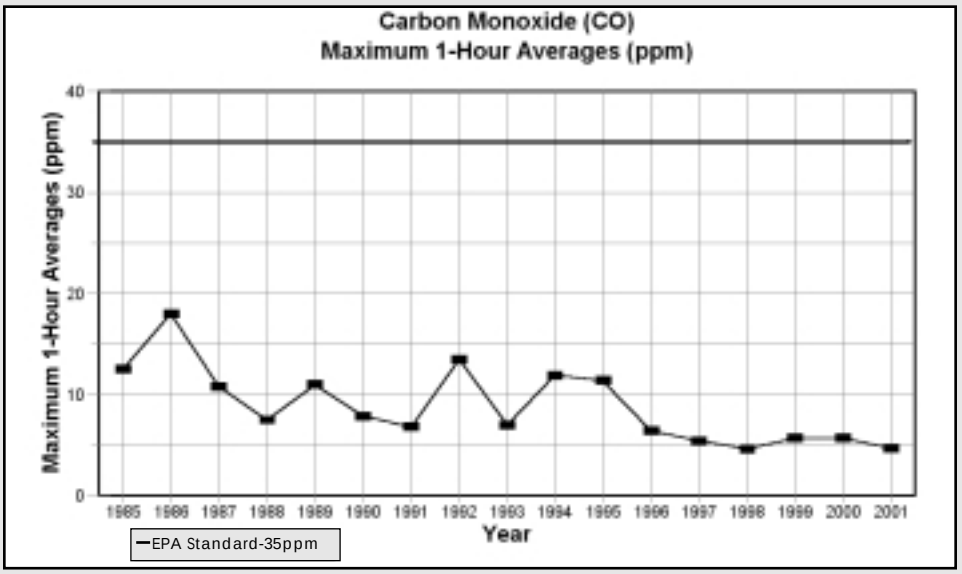
The Continuous Monitoring Network

Fifteen air samplers continuously monitor pollutants in the four-county area. Ambient concentrations of the pollutants are recorded continuously at each site, along with the hourly averages for each day. Ozone, sulfur dioxide, carbon monoxide, nitrogen dioxide, and nitric oxide are monitored on a continuous basis by the AQMD's computerized data-logging system.

2001 Carbon Monoxide (CO)

Site Code	I	J
Site Name	**Post Office**	**Norwood**
Maximum 8-Hour ppm		
January	2.5	3.0
February	2.1	1.5
March	1.6	1.7
April	1.4	1.2
May	1.5	1.3
June	1.4	1.3
July	1.3	1.7
August	1.6	1.2
September	1.8	1.1
October	1.6	1.5
November	2.2	2.8
December	1.8	1.3
Highest	2.5	3.0

Site Code	I	J
Site Name	**Post Office**	**Norwood**
Maximum 1-Hour ppm		
January	3.1	3.3
February	4.7	2.7
March	2.2	2.2
April	2.5	1.7
May	2.7	1.8
June	2.7	1.6
July	2.0	2.1
August	2.1	1.9
September	2.5	1.4
October	4.5	3.0
November	4.5	3.6
December	3.1	2.4
Highest	4.7	3.6

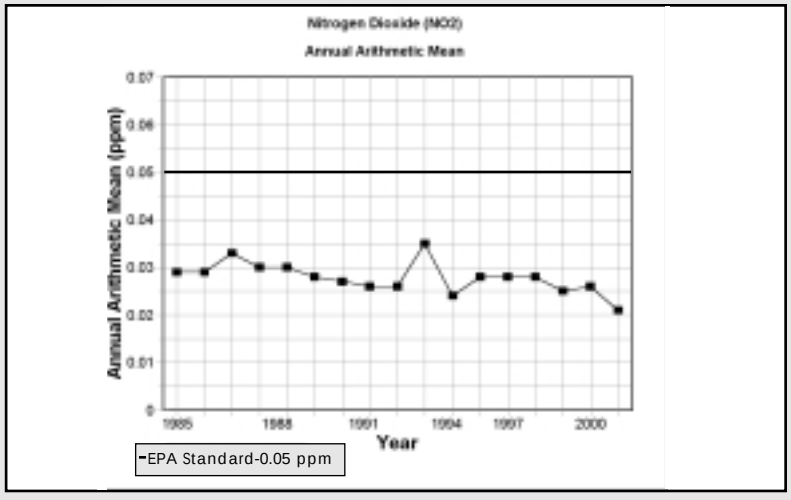


2001 Nitric Oxide (NO)

Site Code	G	J
Site Name	Taft	Norwood
Maximum 24-Hour ppm		
January	0.099	0.201
February	0.042	0.114
March	0.074	0.129
April	0.036	0.081
May	0.044	0.046
June	0.035	0.047
July	0.039	0.040
August	0.026	0.087
September	0.066	0.056
October	0.055	0.120
November	0.110	0.212
December	0.084	0.163
Highest	**0.110**	**0.212**
Maximum 1-Hour ppm		
January	0.255	0.495
February	0.172	0.375
March	0.251	0.459
April	0.333	0.316
May	0.218	0.180
June	0.131	0.187
July	0.213	0.189
August	0.116	0.270
September	0.203	0.216
October	0.197	0.457
November	0.333	0.485
December	0.231	0.398
Highest	**0.333**	**0.495**

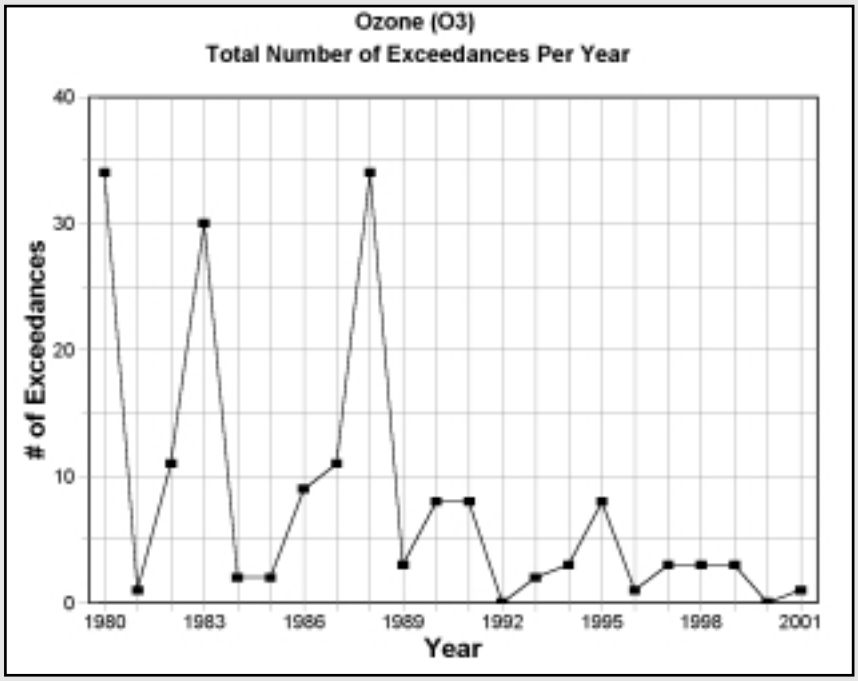
2001 Nitrogen Dioxide (NO_2)

Site Code	G	J
Site Name	Taft	Norwood
Maximum 24-Hour ppm		
January	0.041	0.041
February	0.034	0.042
March	0.035	0.032
April	0.039	0.040
May	0.043	0.037
June	0.037	0.032
July	0.030	0.033
August	0.037	0.035
September	0.030	0.032
October	0.031	0.032
November	0.036	0.035
December	0.032	0.032
Highest	**0.043**	**0.042**
Maximum 1-Hour ppm		
January	0.056	0.050
February	0.057	0.060
March	0.057	0.056
April	0.072	0.082
May	0.075	0.080
June	0.067	0.067
July	0.060	0.064
August	0.072	0.063
September	0.065	0.066
October	0.057	0.062
November	0.060	0.064
December	0.043	0.048
Highest	**0.075**	**0.082**



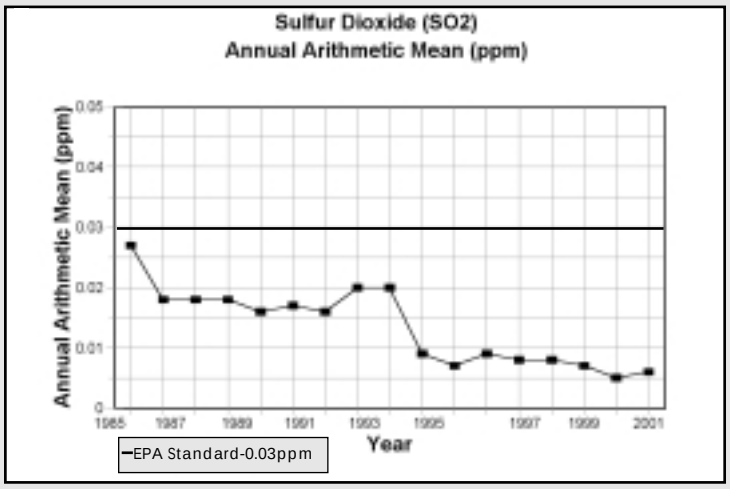
2001 Ozone (O_3) Ozone is measured between April 1 and October 31, 2001.

	C Batavia	E Colerain	G Taft	A Hamilton	L Lebanon	B Middletown	K Sycamore
Maximum 1-Hour ppm							
April	0.075	0.073	0.079	0.076	0.073	0.079	0.073
May	0.085	0.089	0.090	0.088	0.099	0.093	0.092
June	0.097	0.095	0.104	0.107	0.102	0.111	0.107
July	0.105	0.100	0.095	0.094	0.099	0.100	0.101
August	0.101	0.125	0.103	0.116	0.099	0.117	0.108
September	0.078	0.084	0.087	0.091	0.078	0.087	0.082
October	0.069	0.073	0.066	0.066	0.073	0.070	0.070
Highest	**0.105**	**0.125**	**0.104**	**0.116**	**0.102**	**0.117**	**0.108**
Maximum 8-Hour ppm							
April	0.066	0.068	0.070	0.066	0.066	0.073	0.064
May	0.082	0.076	0.080	0.082	0.087	0.086	0.083
June	0.084	0.078	0.095	0.084	0.093	0.089	0.088
July	0.091	0.082	0.083	0.080	0.085	0.087	0.092
August	0.087	0.105	0.094	0.098	0.085	0.103	0.094
September	0.070	0.067	0.074	0.076	0.070	0.076	0.074
October	0.062	0.051	0.056	0.052	0.063	0.060	0.062
Highest	**0.091**	**0.105**	**0.095**	**0.098**	**0.093**	**0.103**	**0.094**



2001 Sulfur Dioxide (SO_2)

	D Bethel	A Hamilton	B Middletown	E Colerain
Maximum 24-Hours ppm				
January	0.021	0.036	0.025	0.029
February	0.018	0.022	0.023	0.028
March	0.016	0.011	0.010	0.012
April	0.022	0.020	0.020	0.038
May	0.010	0.012	0.012	0.019
June	0.013	0.011	0.012	0.029
July	0.009	0.017	0.013	0.024
August	0.009	0.015	0.012	0.016
September	0.020	0.010	0.007	0.008
October	0.013	0.026	0.014	0.029
November	0.023	0.016	0.013	0.025
December	0.027	0.016	0.013	0.013
Highest	**0.027**	**0.036**	**0.025**	**0.038**
Maximum 1-Hour ppm				
January	0.133	0.106	0.073	0.164
February	0.076	0.103	0.116	0.161
March	0.089	0.039	0.038	0.054
April	0.172	0.057	0.096	0.167
May	0.051	0.058	0.133	0.130
June	0.189	0.061	0.049	0.140
July	0.051	0.096	0.093	0.131
August	0.073	0.107	0.064	0.168
September	0.113	0.039	0.031	0.057
October	0.066	0.072	0.049	0.309
November	0.129	0.088	0.082	0.189
December	0.113	0.059	0.043	0.124
Highest	**0.189**	**0.107**	**0.133**	**0.309**



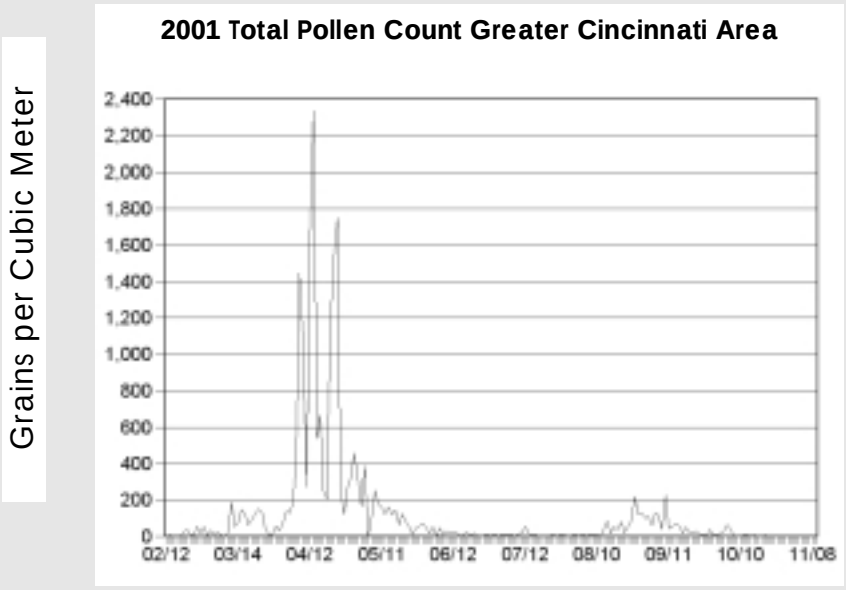
Pollen and Mold

Since 1986, the AQMD has operated a Pollen and Mold Counting Program to record levels of various airborne allergens. While the mold count is year-round, pollen samples are counted only during the growing season, which is when pollen is prevalent, generally from March to October.

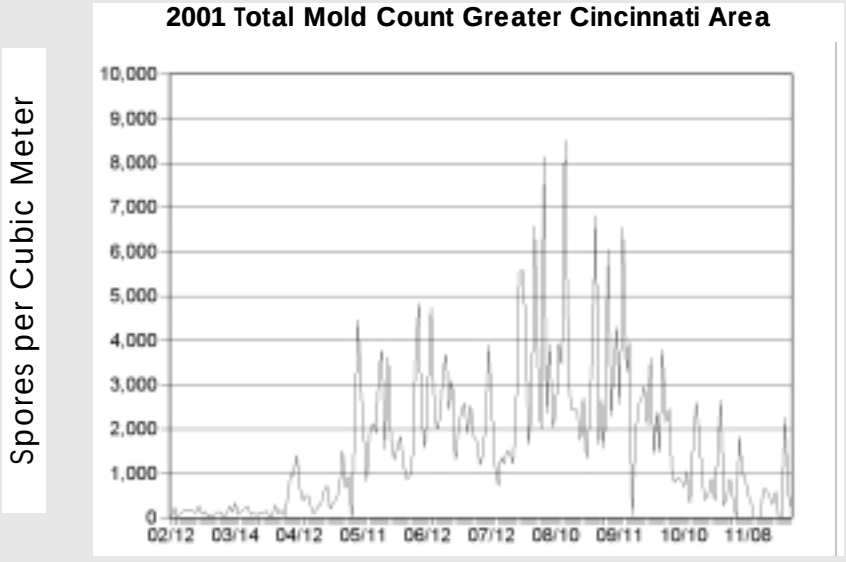
Sampling is accomplished using a state-of-the-art collection device located on the roof of the DOES-AQMD office building. During collection, small plastic rods rotate at 2,400 revolutions per minute for one minute out of every ten, making the sample time 144 minutes in a 24-hour period. This intermittent method of sampling is optimal because of the varied occurrence of pollen and mold spores during the sampling period and because the periodic sampling prevents excessive collection of fugitive dust and debris.

The daily pollen and mold counts are reported to the media, which disseminates the information to the public via local newspapers and during weather reports. In addition, the AQMD records daily count information available to the general public by calling (513) 946-7753, or on our website at ***www.hcdoes.org***. The message, which is updated at 10 a.m. and 3 p.m. Monday through Friday, includes the most current AQI and allergen count information. Below are charts of the pollen and mold counts for 2001.

Pollen



Mold



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