

Table A-16. Metropolitan Statistical Area Air Quality Trends, 1992–2001 (continued)

Metropolitan Statistical Area	Trend	#Trend Sites	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BELLINGHAM, WA												
SO2	2nd Daily max	10 ns	1	0.022	0.017	0.019	0.018	0.013	0.012	0.015	0.016	0.016
	Annual Mean	10 ns	1	0.007	0.006	0.007	0.006	0.005	0.005	0.005	0.007	0.007
Ozone	2nd Highest Daily Max	10 down	1	0.069	0.08	0.082	0.079	0.078	0.07	0.07	0.062	0.063
	4th Highest Daily max 8-h	10 down	1	0.056	0.058	0.059	0.054	0.062	0.052	0.056	0.05	0.052
BENTON HARBOR, MI												
Ozone	2nd Highest Daily Max	10 ns	1	0.079	0.093	0.116	0.115	0.125	0.118	0.136	0.107	0.107
	4th Highest Daily max 8-h	10 ns	1	0.064	0.079	0.086	0.098	0.098	0.099	0.093	0.096	0.077
BERGEN-PASSAIC, NJ												
CO	2nd max (daily,non-overlap)	10 down	1	4.4	4.5	5.3	5	3.6	3.65	3.7	3.8	3.4
SO2	2nd Daily max	10 down	1	0.032	0.023	0.028	0.023	0.018	0.018	0.018	0.02	0.02
	Annual Mean	10 down	1	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.005	0.005
PM10	90th Percentile	10 ns	1	59	59	71	53	58	58.5	59	53	61
	Weighted Annual Mean	10 ns	1	39.4	36.5	40.9	34.6	37.4	38.25	39.1	34.3	36.5
BILLINGS, MT												
SO2	2nd Daily max	10 down	2	0.081	0.099	0.073	0.066	0.048	0.033	0.024	0.02	0.02
	Annual Mean	10 down	2	0.022	0.023	0.017	0.013	0.008	0.006	0.006	0.005	0.005
BILOXI-GULFPORT-PASCAGOULA, MS												
SO2	2nd Daily max	10 down	1	0.022	0.022	0.014	0.011	0.017	0.016	0.015	0.016	0.01
	Annual Mean	10 down	1	0.006	0.006	0.003	0.003	0.003	0.003	0.003	0.003	0.002
Ozone	2nd Highest Daily Max	10 ns	2	0.1	0.094	0.105	0.104	0.103	0.103	0.113	0.107	0.121
	4th Highest Daily max 8-h	10 ns	2	0.079	0.076	0.085	0.085	0.079	0.087	0.093	0.09	0.083
PM10	90th Percentile	10 ns	1	31	31	32	26	28	40	36	28	29
	Weighted Annual Mean	10 ns	1	20.4	20.4	20.9	18.7	17.7	21.4	20.3	14.7	16.2
BIRMINGHAM, AL												
CO	2nd max (daily, non-overlap)	10 down	1	7.4	7.1	6.9	6.4	4.9	5.9	4.4	4.4	3.5
SO2	2nd Daily max	10 ns	1	0.027	0.05	0.037	0.016	0.015	0.018	0.032	0.026	0.057
	Annual Mean	10 ns	1	0.007	0.009	0.007	0.006	0.004	0.006	0.007	0.007	0.012
Ozone	2nd Highest Daily Max	10 ns	4	0.106	0.113	0.103	0.126	0.131	0.106	0.126	0.125	0.119
	4th Highest Daily max 8-h	10 ns	4	0.083	0.086	0.082	0.1	0.094	0.083	0.1	0.093	0.093
BOISE CITY, ID												
PM10	90th Percentile	10 down	1	78	78	78	73	64	56	50	66	54
	Weighted Annual Mean	10 down	1	40.6	40.6	40.6	39.5	35.7	34.6	26.9	36.1	29.8
BOSTON, MA-NH												
CO	2nd max (daily, non-overlap)	10 down	2	4.55	3.6	4.3	3.55	3.25	3.3	2.9	3.9	2.35
SO2	2nd Daily max	10 down	3	0.038	0.035	0.035	0.025	0.023	0.032	0.028	0.024	0.025
	Annual Mean	10 down	3	0.01	0.01	0.009	0.007	0.007	0.008	0.008	0.007	0.005
NO2	Annual Mean	10 down	4	0.025	0.026	0.027	0.024	0.024	0.024	0.024	0.023	0.021
Ozone	2nd Highest Daily Max	10 ns	1	0.102	0.102	0.121	0.119	0.105	0.105	0.113	0.115	0.085
	4th Highest Daily max 8-h	10 ns	1	0.078	0.078	0.09	0.094	0.083	0.091	0.1	0.088	0.07
PM10	90th Percentile	10 ns	1	40	44	45	41	33	37	42	43	36
	Weighted Annual Mean	10 ns	1	27.1	30.2	28.2	26.2	24.4	24.7	26.4	29.6	24.5
BOULDER-LONGMONT, CO												
CO	2nd max (daily, non-overlap)	10 down	1	6.6	6.4	6.2	4.7	5.5	5.4	4.7	3.7	3.1
Ozone	2nd Highest Daily Max	10 ns	1	0.092	0.092	0.092	0.09	0.087	0.092	0.111	0.099	0.09
	4th Highest Daily max 8-h	10 ns	1	0.072	0.072	0.072	0.074	0.075	0.072	0.089	0.075	0.072
BREMERTON, WA												
PM10	90th Percentile	10 down	1	41	47	36	33	24	30	21	23	23
	Weighted Annual Mean	10 down	1	22.6	23.4	19.7	20.6	16.9	17.3	12.9	15	15

Table A-16. Metropolitan Statistical Area Air Quality Trends, 1992–2001 (continued)

Metropolitan Statistical Area	Trend	#Trend Sites	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BRIDGEPORT, CT												
CO	2nd max (daily, non-overlap)	10 down	1	4.7	3.7	5.8	4.9	3	4	2.8	3.2	2.4
SO2	2nd Daily max	10 ns	1	0.04	0.035	0.049	0.028	0.023	0.031	0.024	0.023	0.024
	Annual Mean	10 down	1	0.011	0.01	0.01	0.007	0.006	0.007	0.007	0.006	0.006
Ozone	2nd Highest Daily Max	10 ns	1	0.131	0.165	0.174	0.14	0.123	0.135	0.134	0.14	0.122
	4th Highest Daily max 8-h	10 ns	1	0.097	0.111	0.093	0.115	0.096	0.103	0.097	0.096	0.09
PM10	90th Percentile	10 ns	1	38	43	46	37	32	34	33	30	37
	Weighted Annual Mean	10 down	1	22.4	20.8	25.7	21.8	20.6	21.4	20.8	19.4	20.4
BROWNSVILLE-HARLINGEN-SAN BENITO, TX												
CO	2nd max (daily, non-overlap)	10 down	1	3.8	3.8	3.8	2.6	2.2	3.2	3.2	2.6	1.6
Ozone	2nd Highest Daily Max	10 ns	1	0.034	0.034	0.085	0.084	0.077	0.08	0.081	0.075	0.08
	4th Highest Daily max 8-h	10 down	1	0.072	0.072	0.072	0.069	0.065	0.065	0.069	0.066	0.064
PM10	90th Percentile	10 ns	1	36	45	36	35	28	36	45	32	47
	Weighted Annual Mean	10 ns	1	23.7	22.4	22.5	21.4	18.9	20.6	24.6	21.5	25.4
BUFFALO-NIAGARA FALLS, NY												
CO	2nd max (daily, non-overlap)	10 down	1	6.1	4.4	4.2	3.1	3.7	3.3	3.1	2.2	2
SO2	2nd Daily max	10 ns	2	0.051	0.04	0.043	0.039	0.033	0.057	0.034	0.037	0.038
	Annual Mean	10 ns	2	0.01	0.01	0.011	0.008	0.008	0.009	0.008	0.008	0.008
NO2	Annual Mean	10 ns	2	0.018	0.017	0.019	0.019	0.019	0.018	0.018	0.019	0.018
Ozone	2nd Highest Daily Max	10 ns	1	0.103	0.088	0.088	0.099	0.091	0.088	0.11	0.102	0.105
	4th Highest Daily max 8-h	10 up	1	0.076	0.072	0.079	0.082	0.074	0.073	0.094	0.09	0.085
BURLINGTON, VT												
CO	2nd max (daily, non-overlap)	10 down	1	3.9	3.9	3.9	2.5	3.3	2	2.4	2.2	2.2
SO2	2nd Daily max	10 ns	1	0.013	0.011	0.013	0.006	0.014	0.012	0.008	0.008	0.008
	Annual Mean	10 down	1	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
NO2	Annual Mean	10 ns	1	0.016	0.017	0.017	0.017	0.017	0.017	0.018	0.017	0.017
PM10	90th Percentile	10 down	1	39	37	34	36	29	31	31	26	26
	Weighted Annual Mean	10 down	1	22.9	20.9	21.3	20.6	20.8	20.2	21.3	16.8	16.8
CANTON-MASSILLION, OH												
CO	2nd max (daily, non-overlap)	10 ns	1	3.2	3.2	5.2	3	2.5	2.5	3.5	2.3	2.6
SO2	2nd Daily max	10 down	1	0.04	0.046	0.052	0.033	0.032	0.025	0.029	0.028	0.028
	Annual Mean	10 ns	1	0.01	0.01	0.009	0.006	0.006	0.007	0.007	0.008	0.007
Ozone	2nd Highest Daily Max	10 ns	2	0.092	0.104	0.098	0.111	0.096	0.096	0.114	0.105	0.099
	4th Highest Daily max 8-h	10 ns	2	0.079	0.09	0.084	0.093	0.085	0.083	0.096	0.09	0.084
PM10	90th Percentile	10 ns	2	38	41.5	48	50	37	40	44.5	34.5	38.5
	Weighted Annual Mean	10 down	2	25.75	25.3	28.35	28	25	24	24.6	22.9	23
CASPER, WY												
PM10	90th Percentile	10 ns	1	38	27	34	32	33	29	31	29	30
	Weighted Annual Mean	10 ns	1	21.3	17.7	17.3	19.4	19.1	15.7	17.2	19.7	17
CEDAR RAPIDS, IA												
CO	2nd max (daily, non-overlap)	10 down	1	4.9	3.2	4.2	2.6	7.8	2.4	2.5	2	1.8
SO2	2nd Daily max	10 down	2	0.024	0.017	0.016	0.013	0.011	0.012	0.01	0.016	0.008
	Annual Mean	10 ns	2	0.005	0.003	0.003	0.003	0.002	0.003	0.003	0.003	0.002
PM10	90th Percentile	10 ns	1	43	32	33	34	33	41	42	33	46
	Weighted Annual Mean	10 ns	1	26.7	20.7	21.5	21.4	20.9	25.7	25.8	22.8	31.1

Table A-16. Metropolitan Statistical Area Air Quality Trends, 1992–2001 (continued)

Metropolitan Statistical Area	Trend	#Trend Sites	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
COLUMBUS, OH												
CO	2nd max (daily, non-overlap)	10 down	1	5.8	5.3	4.1	4.9	2.7	2.9	3.7	2.5	2.8
SO2	2nd Daily max	10 ns	1	0.032	0.032	0.04	0.016	0.015	0.021	0.018	0.015	0.019
	Annual Mean	10 down	1	0.007	0.007	0.006	0.003	0.004	0.005	0.005	0.004	0.004
PM10	90th Percentile	10 ns	1	40	50	46	53	39	63	70	62	54
	Weighted Annual Mean	10 up	1	25.1	27.1	26.7	30.6	24.8	30.9	34.2	32.6	34.1
CORPUS CHRISTI, TX												
Ozone	2nd Highest Daily Max	10 ns	1	0.097	0.11	0.103	0.109	0.099	0.094	0.102	0.103	0.099
	4th Highest Daily max 8-h	10 ns	1	0.078	0.08	0.079	0.089	0.083	0.077	0.082	0.084	0.083
PM10	90th Percentile	10 ns	1	41	57	48	47	37	50	57	62	54
	Weighted Annual Mean	10 ns	1	29.9	30.6	31.3	31.1	25.1	30.5	34.5	34.9	35.7
DALLAS, TX												
Pb	Maximum Quarterly Value	10 ns	1	0.193	0.091	0.076	0.191	0.111	0.039	0.096	0.061	0.132
PM10	90th Percentile	10 ns	1	37	46	49	51	49	45	46	46	42
	Weighted Annual Mean	10 up	1	26.5	27.8	28.8	30.9	29.6	28.1	29.2	30.7	29.2
DANBURY, CT												
SO2	2nd Daily max	10 ns	1	0.027	0.024	0.037	0.02	0.02	0.024	0.02	0.024	0.017
	Annual Mean	10 down	1	0.007	0.006	0.006	0.004	0.005	0.005	0.004	0.004	0.004
Ozone	2nd Highest Daily Max	10 ns	1	0.121	0.14	0.125	0.134	0.11	0.138	0.115	0.151	0.124
	4th Highest Daily max 8-h	10 ns	1	0.082	0.096	0.093	0.093	0.081	0.105	0.092	0.106	0.09
DAVENPORT-MOLINE-ROCK ISLAND, IA-IL												
SO2	2nd Daily max	10 down	1	0.031	0.022	0.034	0.02	0.014	0.02	0.018	0.014	0.014
	Annual Mean	10 down	1	0.006	0.005	0.006	0.006	0.004	0.005	0.004	0.004	0.003
PM10	90th Percentile	10 down	1	94	79	92	108	89	90	68	80	70
	Weighted Annual Mean	10 down	1	51.3	46.5	59.9	66.8	50	49.3	37.9	43.5	40.2
DAYTON-SPRINGFIELD, OH												
CO	2nd max (daily, non-overlap)	10 down	1	4.4	4	4.4	3.7	3	4	3.4	2.8	3.1
SO2	2nd Daily max	10 ns	2	0.02	0.032	0.032	0.016	0.027	0.027	0.019	0.018	0.017
	Annual Mean	10 down	2	0.005	0.006	0.006	0.004	0.005	0.005	0.005	0.005	0.004
Ozone	2nd Highest Daily Max	10 ns	2	0.096	0.104	0.113	0.12	0.113	0.112	0.119	0.111	0.103
	4th Highest Daily max 8-h	10 ns	2	0.081	0.083	0.089	0.092	0.097	0.09	0.098	0.092	0.087
PM10	90th Percentile	10 ns	1	42	50	44	48	38	40	45	45	44
	Weighted Annual Mean	10 ns	1	25	24.9	25.5	27.3	22.7	24.5	24.5	23.6	26.7
DAYTONA BEACH, FL												
Ozone	2nd Highest Daily Max	10 ns	1	0.082	0.094	0.081	0.075	0.085	0.084	0.092	0.086	0.088
	4th Highest Daily max 8-h	10 ns	1	0.071	0.071	0.072	0.067	0.065	0.071	0.078	0.074	0.074
DECATUR, AL												
Ozone	2nd Highest Daily Max	10 ns	1	0.08	0.091	0.092	0.098	0.096	0.09	0.102	0.103	0.098
	4th Highest Daily max 8-h	10 ns	1	0.069	0.08	0.077	0.083	0.086	0.076	0.085	0.092	0.083
DECATUR, IL												
SO2	2nd Daily max	10 ns	1	0.023	0.025	0.03	0.024	0.022	0.021	0.02	0.027	0.025
	Annual Mean	10 ns	1	0.005	0.006	0.007	0.005	0.005	0.006	0.005	0.006	0.005
Ozone	2nd Highest Daily Max	10 ns	1	0.086	0.077	0.095	0.097	0.1	0.087	0.094	0.102	0.092
	4th Highest Daily max 8-h	10 ns	1	0.078	0.065	0.079	0.08	0.094	0.077	0.078	0.087	0.077

Table A-16. Metropolitan Statistical Area Air Quality Trends, 1992–2001 (continued)

Metropolitan Statistical Area		Trend	#Trend Sites	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
DENVER, CO													
Pb	Maximum Quarterly Value	10 ns	1	0.117	0.108	0.067	0.054	0.05	0.03	0.106	0.078	0.149	0.103
CO	2nd max (daily, non-overlap)	10 down	1	13.3	10.4	8.2	9.5	7.3	5.5	4.7	5	5.4	4.1
SO2	2nd Daily max	10 ns	1	0.061	0.035	0.034	0.019	0.024	0.026	0.023	0.024	0.025	0.026
	Annual Mean	10 down	1	0.009	0.009	0.007	0.005	0.006	0.006	0.004	0.005	0.005	0.005
NO2	Annual Mean	10 ns	1	0.041	0.034	0.035	0.035	0.033	0.034	0.035	0.036	0.036	0.037
Ozone	2nd Highest Daily Max	10 ns	2	0.094	0.087	0.095	0.093	0.098	0.083	0.11	0.093	0.096	0.094
	4th Highest Daily max 8-h	10 up	2	0.068	0.067	0.07	0.068	0.071	0.066	0.085	0.072	0.074	0.075
PM10	90th Percentile	10 ns	2	48	69.5	57.5	49.5	49.5	52	49.5	52.75	59	62
	Weighted Annual Mean	10 ns	2	33.25	38.65	34.5	30.55	30.85	30.25	31.4	33.425	38.25	36.55
DES MOINES, IA													
Ozone	2nd Highest Daily Max	10 ns	1	0.079	0.08	0.073	0.081	0.082	0.075	0.065	0.069	0.071	0.067
	4th Highest Daily max 8-h	10 ns	1	0.071	0.04	0.052	0.071	0.064	0.063	0.056	0.059	0.061	0.06
PM10	90th Percentile	10 ns	2	62.5	52	57.5	53	56	65	55.5	50.75	48	56.5
	Weighted Annual Mean	10 ns	2	31.85	31.7	32.8	30.1	32.8	34	30.3	28.15	28.35	32.95
DETROIT, MI													
CO	2nd max (daily, non-overlap)	10 down	2	4.25	4.65	6.1	5.4	3.55	3.45	2.85	2.95	2.95	3.05
SO2	2nd Daily max	10 ns	3	0.033	0.033	0.036	0.034	0.037	0.032	0.044	0.038	0.032	0.034
	Annual Mean	10 ns	3	0.007	0.007	0.007	0.006	0.007	0.006	0.008	0.007	0.005	0.005
NO2	Annual Mean	10 ns	1	0.021	0.022	0.025	0.022	0.02	0.026	0.023	0.024	0.024	0.023
Ozone	2nd Highest Daily Max	10 ns	5	0.097	0.106	0.123	0.112	0.099	0.109	0.111	0.11	0.091	0.112
	4th Highest Daily max 8-h	10 ns	5	0.077	0.078	0.087	0.085	0.086	0.084	0.089	0.09	0.075	0.088
PM10	90th Percentile	10 ns	1	49	63	79	68	51	53	68	60	66	70
	Weighted Annual Mean	10 ns	1	31.9	38.4	44.6	39.3	33.1	32.1	34.4	35.6	38.3	39.5
DOOTHAN, AL													
PM10	90th Percentile	10 ns	1	43	52	47	46	36	45	41	43	48	37
	Weighted Annual Mean	10 ns	1	24.7	26.4	27.8	28.1	22.3	24.9	27.3	28.8	24.4	22.5
DULUTH-SUPERIOR, MN-WI													
CO	2nd max (daily, non-overlap)	10 down	1	4	4.1	4.3	4.5	4.5	3.2	3.7	2.9	2.1	2.5
PM10	90th Percentile	10 ns	1	39	36	37	35	32	37	32	41	58	39
	Weighted Annual Mean	10 up	1	22.5	20.7	20.8	20.4	20.2	21	22.8	24.2	29.2	24.5
DUTCHESS COUNTY, NY													
Ozone	2nd Highest Daily Max	10 ns	1	0.112	0.139	0.117	0.115	0.109	0.111	0.108	0.12	0.105	0.109
	4th Highest Daily max 8-h	10 ns	1	0.092	0.099	0.087	0.093	0.089	0.089	0.089	0.093	0.079	0.091
EL PASO, TX													
Pb	Maximum Quarterly Value	10 down	1	0.255	0.229	0.14	0.192	0.153	0.108	0.144	0.145	0.099	0.099
CO	2nd max (daily, non-overlap)	10 down	2	8.2	7.65	6.3	6.15	6.85	6.05	6.5	4.4	5.5	5.15
SO2	2nd Daily max	10 down	1	0.054	0.046	0.031	0.054	0.046	0.03	0.023	0.013	0.005	0.008
	Annual Mean	10 down	1	0.013	0.009	0.008	0.01	0.009	0.008	0.005	0.002	0.002	0.001
NO2	Annual Mean	10 down	1	0.021	0.021	0.023	0.023	0.023	0.021	0.019	0.017	0.016	0.018
Ozone	2nd Highest Daily Max	10 down	2	0.125	0.117	0.12	0.114	0.12	0.112	0.109	0.098	0.118	0.111
	4th Highest Daily max 8-h	10 ns	2	0.076	0.072	0.076	0.078	0.077	0.068	0.08	0.068	0.082	0.077
PM10	90th Percentile	10 ns	1	70	61	74	76	72	60	49	73	71	71
	Weighted Annual Mean	10 ns	1	43.6	37.1	38.6	45.2	42.9	34.6	31.9	46.2	45.8	39.2
ELKHART-GOSHEN, IN													
Ozone	2nd Highest Daily Max	10 ns	1	0.092	0.09	0.095	0.102	0.115	0.108	0.106	0.085	0.083	0.066
	4th Highest Daily max 8-h	10 ns	1	0.078	0.078	0.083	0.09	0.091	0.089	0.082	0.077	0.063	0.055

Table A-16. Metropolitan Statistical Area Air Quality Trends, 1992–2001 (continued)

Metropolitan Statistical Area	Trend	#Trend Sites	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
SALT LAKE CITY-OGDEN, UT													
Pb	Maximum Quarterly Value	10 ns	1	0.06	0.096	0.054	0.066	0.032	0.105	0.094	0.082	0.068	0.037
CO	2nd max (daily, non-overlap)	10 ns	1	6.4	6.4	6.4	6.7	7	6.4	7.5	6.2	6.1	4.9
SO ₂	2nd Daily max	10 down	1	0.073	0.052	0.014	0.012	0.021	0.011	0.01	0.01	0.013	0.013
	Annual Mean	10 down	1	0.013	0.009	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004
NO ₂	Annual Mean	10 ns	1	0.019	0.022	0.02	0.02	0.02	0.021	0.02	0.02	0.019	0.019
Ozone	2nd Highest Daily Max	10 ns	1	0.093	0.104	0.105	0.115	0.114	0.103	0.122	0.112	0.1	0.111
	4th Highest Daily max 8-h	10 ns	1	0.072	0.08	0.075	0.083	0.086	0.079	0.096	0.079	0.078	0.081
PM ₁₀	90th Percentile	10 down	1	90	86	81	76	82	72	69	80	81	72
	Weighted Annual Mean	10 down	1	50.8	50.3	46.8	44.6	47	43.9	40.4	45	46.4	44.3
SAN ANTONIO, TX													
CO	2nd max (daily, non-overlap)	10 down	1	5.2	5.3	3.3	4.3	4.5	4.4	4.6	4.2	2.7	2.7
Ozone	2nd Highest Daily Max	10 ns	1	0.095	0.111	0.101	0.121	0.11	0.103	0.107	0.109	0.094	0.089
	4th Highest Daily max 8-h	10 ns	1	0.067	0.084	0.083	0.095	0.082	0.084	0.089	0.091	0.077	0.078

CO = Highest second maximum non-overlapping 8-hour concentration (*Applicable NAAQS is 9 ppm*)Pb = Highest quarterly maximum concentration (*Applicable NAAQS is 1.5 µg/m³*)NO₂ = Highest arithmetic mean concentration (*Applicable NAAQS is 0.053 ppm*)O₃ (1-hr) = Highest second daily maximum 1-hour concentration (*Applicable NAAQS is 0.12 ppm*)O₃ (8-hr) = Highest fourth daily maximum 8-hour concentration (*Applicable NAAQS is 0.08 ppm*)PM₁₀ = Highest second maximum 24-hour concentration (*Applicable NAAQS is 150 µg/m³*)SO₂ = Highest second maximum 24-hour concentration (*Applicable NAAQS is 0.14 ppm*)

ppm = Units are parts per million

µg/m³ = Units are micrograms per cubic meter