Ozone and Carbon Monoxide 1997-99 Air Quality Data Update

The following is a brief summary of EPA's 1999 air quality update for ozone and carbon monoxide nonattainment areas.

Ozone (O_3): Today's list updates ozone air quality monitoring data for the three year period, 1997-99. During this current three year period,

- 39 of the original 98 areas designated nonattainment for the 1-hour O₃ National Ambient Air Quality Standard (NAAQS) in 1991 failed to meet the NAAQS in 1997-99 (Table 1).
- 6 additional counties failed to meet the 1-hour O₃ NAAQS in 1997-99 (Table 2).
- 333 counties have average annual 4th maximum 8-hour daily maximum O₃ concentrations in 1997-99 greater than the level of the 8-hour O₃ NAAQS (Table 3).

EPA set the 1-hour O_3 standard at 0.12 parts per million (ppm) daily maximum 1-hour average concentration not to be exceeded more than once per year on average. Compliance with the 1-hour ozone standard is judged on the basis of the most recent three years of ambient air quality monitoring data. The 1-hour ozone standard is not met at a monitoring site if the average number of estimated exceedances of the ozone standard is greater than 1.0 (1.05 rounds up). The level of the 8-hour O_3 NAAQS is 0.08 ppm¹. The 8-hour O_3 standard is not met if the 3-year average of the annual 4th highest daily maximum 8-hour O_3 concentration is greater than 0.08 ppm (0.085 rounds up).

Carbon Monoxide (CO): Today's list updates CO air quality data for the two year period, 1998-99. During this two year period,

- 3 of the original 42 areas designated nonattainment for the 8-hour CO NAAQS in 1991 failed to meet the CO NAAQS in 1998-99 (Table 4).
- 3 additional areas failed to meet the CO NAAQS in 1998-99 (Table 4).

EPA's National Ambient Air Quality Standard for carbon monoxide is 9 parts per million (ppm) nonoverlapping 8-hour average concentration not to be exceeded more than once per year. The CO standard is not met at a monitoring site if there are two or more exceedances of the level of the CO NAAQS in either of the two most recent calendar years of monitoring data.

¹ In a May 1999 split decision, the U.S. Court of Appeals for the D.C. Circuit limited the manner in which EPA can implement the eight-hour standard, which the Agency issued in 1997. EPA appealed the May 1999 decision to the U.S. Supreme Court, which has agreed to hear the case. The Court of Appeals did not question the need for the new standard or the science behind it. That standard, based on 8-hour averages of ozone rather than the previous 1-hour average, reflects a more realistic measure of people's exposure and is more protective of public health.

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Table 1. Areas designated nonattainment in 1991 $^{\scriptscriptstyle{(1)}}$ that fail to meet the 1-hr ozone NAAQS in 1997-99

State	Designated Area	O ₃ Design Value ⁽²⁾ (ppm)	Avg. Expected Exceedance Rate (3)
		1997-99	1997-99
GA	Atlanta	0.156	10.2
MD	Baltimore	0.152	4.5
LA	Baton Rouge	0.126	1.8
TX	Beaumont-Port Arthur	0.130	1.7
AL	Birmingham	0.128	1.7
NC	Charlotte-Gastonia (4)	0.132	2.0
IL	Chicago-Gary-Lake County	0.126	
TX	Dallas-Fort Worth	0.135	9.9
MI	Detroit-Ann Arbor (4)	0.126	
CT	Greater Connecticut	0.147	2.7
TX	Houston-Galveston-Brazoria	0.203	11.7
WV	Huntington-Ashland (4)	0.129	2.3
IL	Jersey Co. (4)	0.127	1.7
MD	Kent County and Queen Anne's Co.	0.130	
TN	Knoxville (4)	0.138	3.7
PA	Lancaster	0.128	1.7
CA	Los Angeles South Coast Air Basin	0.211	39.3
IN	Louisville	0.130	
WI	Manitowoc Co	0.128	
TN	Memphis (4)	0.126	
WI	Milwaukee-Racine	0.134	
TN	Nashville (4)	0.127	2.0
NY	New York-N. New Jersey-Long Island, NY-NJ-CT	0.145	3.7
PA	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	0.153	
PA	Pittsburgh-Beaver Valley	0.128	
ME	Portland (5)	0.125	
NC	Raleigh-Durham (4)	0.127	
VA	Richmond (4)	0.134	
CA	Sacramento Metro	0.148	

State	Designated Area	O ₃ Design Value ⁽²⁾ (ppm)	Avg. Expected Exceedance Rate (3)
		1997-99	1997-99
CA	San Francisco-Bay	0.139	2.7
CA	San Joaquin Valley	0.161	13.5
WI	Sheboygan (4)	0.134	2.0
CA	Southeast Desert Modified AQMD	0.170	24.1
MA	Springfield (W. Mass)	0.128	1.7
MO	St. Louis	0.131	2.0
DE	Sussex Co (5)	0.125	1.3
CA	Ventura Co	0.134	2.7
DC	Washington	0.132	4.2

- 1. Designations and classifications for ozone nonattainment areas as published in the Federal Register, 40 CFR Part 81. *Unclassified and transitional nonattainment areas are not included in Table 1*.
- 2. The updated air quality design value is estimated for the 1997-99 period using all air quality data reported to EPA's Aerometric Information Retrieval System (AIRS). The computation procedures follow EPA guidance for calculating design values (Laxton Memorandum, June 18, 1990). For sites with three complete years of monitoring data, the air quality design value is the fourth highest daily maximum 1-hour ozone concentration, because the standard allows one exceedance per year on average. It is important to note that the 1990 Clean Air Act Amendments required that nonattainment areas be classified on the basis of the design value at the time the Amendments were passed, generally the 1987-89 period was used.
- 3. The level of the 1-hour ozone Ambient Air Quality standard is 0.12 parts per million (ppm) daily maximum 1-hour average concentration not to be exceeded more than once per year on average. The average estimated number of exceedances column shows the number of days the 0.12 ppm 1-hour ozone standard was exceeded on average at the site recording the highest updated air quality value. This computation is performed after adjustment for any missing sampling days during the 3-year period, 1996-98.
- 4. Areas presently designated attainment for the 1-hour ozone NAAQS that fail to meet the standard in 1997-99.
 - 5. Areas to be reinstated to nonattainment for the 1-hour NAAOS that fail to meet the standard in 1997-99.
- 6. At the publication date for this update, air quality data for two areas: Poughkeepsie, NY; and Hancock and Waldo Co.s, ME are still under review and evaluation. Currently, it is unclear whether or not these areas violate the 1-hour ozone NAAOS. When a final determination is made, this table will be updated.

Table 2. Additional counties failing to meet the 1-hour ozone NAAQS in 1997-99

State	County (Area)	O ₃ Design Value ⁽¹⁾ (ppm)	Avg. Expected Exceedance Rate (2)
		1997-99	1997-99
CA	Amador Co. (4) (adjacent to Sacramento)	0.128	1.8
CA	Imperial Co. (3) (Calexico, CA)	0.139	4.7
GA	Bibb Co. (4) (Macon, GA)	0.134	3.0
NC	Rowan Co. (4) (Charlotte-Gastonia-Rock Hill, NC-SC)	0.128	1.7
TN	Jefferson Co. (4) (adjacent to Knoxville)	0.127	3.2
TX	Gregg Co. (4) (Longview-Marshall)	0.134	3.0

- 1. The updated air quality design value is estimated for the 1997-99 period using all air quality data reported to EPA's Aerometric Information Retrieval System (AIRS). The computation procedures follow EPA guidance for calculating design values (Laxton Memorandum, June 18, 1990). For sites with three complete years of monitoring data, the air quality design value is the fourth highest daily maximum 1-hour ozone concentration, because the standard allows one exceedance per year on average. It is important to note that the 1990 Clean Air Act Amendments required that nonattainment areas be classified on the basis of the design value at the time the Amendments were passed, generally the 1987-89 period was used.
- 2. The level of the 1-hour ozone Ambient Air Quality standard is 0.12 parts per million (ppm) daily maximum 1-hour average concentration not to be exceeded more than once per year on average. The average estimated number of exceedances column shows the number of days the 0.12 ppm 1-hour ozone standard was exceeded on average at the site recording the highest updated air quality value. This computation is performed after adjustment for any missing sampling days during the 3-year period, 1997-99.
 - 3. Section 185a nonattainment area that fails to meet the standard in 1997-99.
- 4. Areas presently designated attainment for the 1-hour ozone NAAQS that fail to meet the standard in 1997-99.

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Alabama	Clay Co	88
Alabama	Jefferson Co	93
Alabama	Madison Co	90
Alabama	Mobile Co	88
Alabama	Shelby Co	97
Arizona	Maricopa Co	88
Arkansas	Crittenden Co	90
California	Alameda Co	85
California	Amador Co	96
California	Calaveras Co	96
California	El Dorado Co	103
California	Fresno Co	113
California	Imperial Co	91
California	Kern Co	111
California	Kings Co	99
California	Los Angeles Co	118
California	Mariposa Co	95
California	Merced Co	97
California	Nevada Co	94
California	Placer Co	97
California	Riverside Co	124
California	Sacramento Co	101

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
California	San Bernardino Co	147
California	San Diego Co	99
California	San Joaquin Co	87
California	Shasta Co	95
California	Solano Co	85
California	Stanislaus Co	95
California	Sutter Co	89
California	Tehama Co	91
California	Tulare Co	102
California	Tuolumne Co	92
California	Ventura Co	106
Connecticut	Fairfield Co	103
Connecticut	Hartford Co	91
Connecticut	Litchfield Co	97
Connecticut	Middlesex Co	99
Connecticut	New Haven Co	103
Connecticut	New London Co	94
Connecticut	Tolland Co	95
Delaware	Kent Co	99
Delaware	New Castle Co	100
Delaware	Sussex Co	99
Dist. Columbia	Washington	100

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Florida	Escambia Co	91
Florida	Hillsborough Co	87
Georgia	Bibb Co	104
Georgia	Dawson Co	88
Georgia	De Kalb Co	105
Georgia	Douglas Co	101
Georgia	Fulton Co	118
Georgia	Gwinnett Co	100
Georgia	Muscogee Co	89
Georgia	Paulding Co	97
Georgia	Richmond Co	92
Georgia	Rockdale Co	115
Illinois	Cook Co	90
Illinois	Jersey Co	91
Illinois	Lake Co	88
Illinois	Madison Co	87
Indiana	Allen Co	88
Indiana	Clark Co	96
Indiana	Floyd Co	92
Indiana	Hamilton Co	97
Indiana	Hancock Co	92
Indiana	Johnson Co	89
Indiana	Lake Co	91

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Indiana	La Porte Co	91
Indiana	Madison Co	90
Indiana	Marion Co	93
Indiana	Morgan Co	90
Indiana	Porter Co	93
Indiana	Posey Co	91
Indiana	St. Joseph Co	91
Indiana	Vanderburgh Co	94
Indiana	Warrick Co	94
Kentucky	Boone Co	85
Kentucky	Boyd Co	85
Kentucky	Bullitt Co	89
Kentucky	Campbell Co	89
Kentucky	Christian Co	86
Kentucky	Daviess Co	87
Kentucky	Edmonson Co	93
Kentucky	Fayette Co	87
Kentucky	Graves Co	87
Kentucky	Greenup Co	90
Kentucky	Hancock Co	91
Kentucky	Henderson Co	86
Kentucky	Jefferson Co	95
Kentucky	Kenton Co	88
Kentucky	Livingston Co	95

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Kentucky	McCracken Co	89
Kentucky	McLean Co	90
Kentucky	Oldham Co	96
Kentucky	Simpson Co	91
Louisiana	Ascension Par	88
Louisiana	Bossier Par	88
Louisiana	Caddo Par	87
Louisiana	Calcasieu Par	88
Louisiana	East Baton Rouge Par	92
Louisiana	Iberville Par	91
Louisiana	Jefferson Par	85
Louisiana	Lafourche Par	85
Louisiana	Livingston Par	87
Louisiana	West Baton Rouge Par	85
Maine	Cumberland Co	89
Maine	Hancock Co	89
Maine	Sagadahoc Co	92
Maine	York Co	92
Maryland	Anne Arundel Co	109
Maryland	Baltimore Co	99
Maryland	Calvert Co	90
Maryland	Carroll Co	95

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Maryland	Cecil Co	110
Maryland	Charles Co	104
Maryland	Harford Co	106
Maryland	Kent Co	100
Maryland	Montgomery Co	95
Maryland	Prince George's Co	106
Maryland	Baltimore city	90
Massachusetts	Barnstable Co	95
Massachusetts	Bristol Co	91
Massachusetts	Essex Co	93
Massachusetts	Hampden Co	91
Massachusetts	Hampshire Co	99
Massachusetts	Middlesex Co	93
Massachusetts	Worcester Co	94
Michigan	Allegan Co	94
Michigan	Benzie Co	89
Michigan	Berrien Co	96
Michigan	Cass Co	92
Michigan	Genesee Co	89
Michigan	Huron Co	85
Michigan	Kalamazoo Co	87
Michigan	Macomb Co	95
Michigan	Mason Co	93
Michigan	Muskegon Co	93

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Michigan	Ottawa Co	87
Michigan	St. Clair Co	88
Michigan	Wayne Co	91
Mississippi	De Soto Co	88
Mississippi	Hancock Co	86
Mississippi	Jackson Co	93
Mississippi	Lee Co	87
Missouri	Clay Co	91
Missouri	Jefferson Co	92
Missouri	Platte Co	85
Missouri	St. Charles Co	95
Missouri	Ste. Genevieve Co	88
Missouri	St. Louis Co	89
New Hampshire	Hillsborough Co	89
New Hampshire	Rockingham Co	90
New Jersey	Atlantic Co	97
New Jersey	Camden Co	106
New Jersey	Cumberland Co	99
New Jersey	Essex Co	93
New Jersey	Gloucester Co	102
New Jersey	Hudson Co	100
New Jersey	Hunterdon Co	102

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
New Jersey	Mercer Co	104
New Jersey	Middlesex Co	105
New Jersey	Monmouth Co	94
New Jersey	Morris Co	98
New Jersey	Ocean Co	107
New York	Bronx Co	88
New York	Chautauqua Co	89
New York	Dutchess Co	90
New York	Erie Co	85
New York	Jefferson Co	90
New York	Niagara Co	86
New York	Orange Co	90
New York	Putnam Co	94
New York	Richmond Co	105
New York	Suffolk Co	98
New York	Wayne Co	86
New York	Westchester Co	98
North Carolina	Alexander Co	86
North Carolina	Caldwell Co	90
North Carolina	Caswell Co	94
North Carolina	Chatham Co	88
North Carolina	Cumberland Co	92
North Carolina	Davie Co	98

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
North Carolina	Duplin Co	85
North Carolina	Durham Co	88
North Carolina	Edgecombe Co	90
North Carolina	Forsyth Co	97
North Carolina	Franklin Co	93
North Carolina	Granville Co	92
North Carolina	Guilford Co	92
North Carolina	Haywood Co	94
North Carolina	Johnston Co	95
North Carolina	Lincoln Co	87
North Carolina	Mecklenburg Co	104
North Carolina	Northampton Co	87
North Carolina	Pitt Co	93
North Carolina	Rockingham Co	85
North Carolina	Rowan Co	99
North Carolina	Wake Co	101
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Ohio	Allen Co	88
Ohio	Ashtabula Co	92
Ohio	Butler Co	93
Ohio	Clark Co	94
Ohio	Clermont Co	93
Ohio	Clinton Co	98
Ohio	Cuyahoga Co	88
Ohio	Delaware Co	97

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Ohio	Franklin Co	93
Ohio	Geauga Co	91
Ohio	Greene Co	93
Ohio	Hamilton Co	91
Ohio	Knox Co	91
Ohio	Lake Co	99
Ohio	Lawrence Co	93
Ohio	Licking Co	92
Ohio	Lorain Co	87
Ohio	Lucas Co	85
Ohio	Madison Co	94
Ohio	Mahoning Co	91
Ohio	Medina Co	89
Ohio	Miami Co	88
Ohio	Montgomery Co	92
Ohio	Portage Co	93
Ohio	Stark Co	91
Ohio	Summit Co	94
Ohio	Trumbull Co	95
Ohio	Warren Co	95
Ohio	Washington Co	90
Ohio	Wood Co	86
Oklahoma	Oklahoma Co	86
Oklahoma	Tulsa Co	88

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Pennsylvania	Allegheny Co	101
Pennsylvania	Armstrong Co	86
Pennsylvania	Beaver Co	92
Pennsylvania	Berks Co	96
Pennsylvania	Blair Co	95
Pennsylvania	Bucks Co	103
Pennsylvania	Cambria Co	93
Pennsylvania	Centre Co	90
Pennsylvania	Clearfield Co	93
Pennsylvania	Dauphin Co	94
Pennsylvania	Delaware Co	100
Pennsylvania	Erie Co	93
Pennsylvania	Franklin Co	97
Pennsylvania	Greene Co	97
Pennsylvania	Lackawanna Co	90
Pennsylvania	Lancaster Co	101
Pennsylvania	Lehigh Co	100
Pennsylvania	Luzerne Co	92
Pennsylvania	Mercer Co	96
Pennsylvania	Monroe Co	97
Pennsylvania	Montgomery Co	104
Pennsylvania	Northampton Co	93
Pennsylvania	Perry Co	90
Pennsylvania	Philadelphia Co	90

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Pennsylvania	Washington Co	101
Pennsylvania	Westmoreland Co	85
Pennsylvania	York Co	94
Rhode Island	Kent Co	92
South Carolina	Abbeville Co	86
South Carolina	Aiken Co	89
South Carolina	Anderson Co	95
South Carolina	Barnwell Co	88
South Carolina	Cherokee Co	93
South Carolina	Chester Co	92
South Carolina	Darlington Co	88
South Carolina	Edgefield Co	85
South Carolina	Oconee Co	86
South Carolina	Pickens Co	90
South Carolina	Richland Co	92
South Carolina	Spartanburg Co	94
South Carolina	York Co	86
Tennessee	Anderson Co	88
Tennessee	Blount Co	104
Tennessee	Davidson Co	91
Tennessee	Hamilton Co	94
Tennessee	Haywood Co	88
Tennessee	Jefferson Co	101

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Tennessee	Knox Co	102
Tennessee	Lawrence Co	88
Tennessee	Putnam Co	88
Tennessee	Rutherford Co	90
Tennessee	Sevier Co	100
Tennessee	Shelby Co	95
Tennessee	Sullivan Co	91
Tennessee	Sumner Co	102
Tennessee	Williamson Co	95
Tennessee	Wilson Co	87
Texas	Bexar Co	88
Texas	Brazoria Co	95
Texas	Collin Co	101
Texas	Dallas Co	92
Texas	Denton Co	104
Texas	Ellis Co	92
Texas	Galveston Co	109
Texas	Gregg Co	100
Texas	Harris Co	118
Texas	Jefferson Co	88
Texas	Smith Co	91
Texas	Tarrant Co	99
Texas	Travis Co	88

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Virginia	Arlington Co	97
Virginia	Caroline Co	92
Virginia	Charles City Co	96
Virginia	Chesterfield Co	91
Virginia	Fairfax Co	96
Virginia	Fauquier Co	88
Virginia	Frederick Co	90
Virginia	Hanover Co	99
Virginia	Henrico Co	96
Virginia	Madison Co	96
Virginia	Prince William Co	91
Virginia	Roanoke Co	90
Virginia	Stafford Co	91
Virginia	Alexandria city	91
Virginia	Hampton city	94
Virginia	Suffolk city	90
West Virginia	Cabell Co	95
West Virginia	Greenbrier Co	90
West Virginia	Hancock Co	87
West Virginia	Kanawha Co	90
West Virginia	Ohio Co	85
West Virginia	Wood Co	91
Wisconsin	Door Co	97
Wisconsin	Jefferson Co	85

Table 3. Counties failing to meet the 8-hr ozone NAAQS, 1997-99

State	County	Design Value (ppb)
Wisconsin	Kenosha Co	95
Wisconsin	Kewaunee Co	94
Wisconsin	Manitowoc Co	97
Wisconsin	Milwaukee Co	91
Wisconsin	Ozaukee Co	97
Wisconsin	Racine Co	91
Wisconsin	Rock Co	87
Wisconsin	Sheboygan Co	93
Wisconsin	Walworth Co	85

The level of the 8-hour ozone (O_3) National Ambient Air Quality Standard (NAAQS) is 0.08 parts per million (ppm). The air quality design value for the 8-hour O_3 NAAQS is the 3-year average of the annual 4th highest daily maximum 8-hour average O_3 concentration. The 8-hour O_3 NAAQS is not met when the 8-hour ozone design value is greater than 0.08 ppm (85 ppb rounds up).

In a May 1999 split decision, the U.S. Court of Appeals for the D.C. Circuit limited the manner in which EPA can implement the eight-hour standard, which the Agency issued in 1997. EPA appealed the May 1999 decision to the U.S. Supreme Court, which has agreed to hear the case. The Court of Appeals did not question the need for the new standard or the science behind it. That standard, based on 8-hour averages of ozone rather than the previous 1-hour average, reflects a more realistic measure of people's exposure and is more protective of public health.

For additional information on air quality data relative to the 8-hour ozone NAAQS, refer to http://www.epa.gov/ttn/rto/areas/aqdata.htm

Table 4. Areas not meeting the 8-hour Carbon Monoxide National Ambient Air Quality Standard, 1998-99

Metropolitan Area	1998-99	1998		1999	
	Design Value (1) (ppm)	2 nd Max ⁽²⁾	# Exc ⁽³⁾	2nd Max ⁽²⁾	# Exc ⁽³⁾
Designated CO nonattainment areas					
Fairbanks, AK	10.3	10.2	2	10.3	2
Las Vegas, NV	10.1	10.1	2	8.1	0
Los Angeles- Long Beach, CA	11.5	11.5	13	11.1	8
Additional areas					
Calexico, CA	14.4	13.3	8	14.4	13
Des Moines, IA	10.4	10.1	2	2.1	0
Weirton, WV	13.2	13.2	6	4.3	0
Number of areas not meeting the NAAQS	6		6		3

- 1. The level of the 8-hour National Ambient Air Quality Standard for carbon monoxide is 9 parts per million (ppm) not to be exceeded more than once per year. The design value for the 8-hour CO NAAQS is the highest annual second maximum nonoverlapping 8-hour concentration during the most recent two years.
 - 2. Annual second highest nonoverlapping 8-hour average CO concentration.
 - 3. Number of nonoverlapping exceedances of the 8-hour CO NAAQS.

SOURCE: U.S. EPA's Aerometric Information Retrieval System (AIRS)