

# **Georgia Department of Natural Resources**

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Lonice C. Barrett, Commissioner

Carol A. Couch, PhD., Director

Environmental Protection Division

404/656-4713

James I. Palmer, Jr.  
Regional Administrator  
U.S. EPA, Region 4  
161 Forsyth Street, SW  
Atlanta, Georgia 30303-3104

Re: Revised PM<sub>2.5</sub> Nonattainment Area  
Designation Recommendations for Georgia

Dear Mr. Palmer:

The United States Environmental Protection Agency (EPA) promulgated a new Fine Particle National Ambient Air Quality Standard (PM<sub>2.5</sub>). Section 107 (d)(1) of the Clean Air Act requires each state to submit to the EPA its recommended designation of each area of the State as attainment/unclassifiable or nonattainment under the standard. On February 13, 2004, the Georgia Environmental Protection Division submitted initial recommendations for the designation status of each county in Georgia.

In EPD's February 13, 2004, letter, EPD stated that we will submit our final recommendation after EPA has finalized nonattainment boundaries for the 8-hour ozone air quality standard, after EPA has finalized the transportation conformity rule that would regulate PM<sub>2.5</sub>, and after EPA proposes the implementation rule for PM<sub>2.5</sub>. EPA has yet to propose the implementation rule and finalized the transportation conformity rule very recently. However, the 8-hour ozone nonattainment boundaries have been designated and were effective June 15, 2004. Since U.S. EPA is scheduled to notify States of any modifications to their designation recommendations in the near future, EPD has elected to submit revisions to our original recommendations prior to all of these documents becoming available. EPD has not had time to review the recently promulgated conformity rule and take it into consideration in these recommendations. Should our review of the conformity rule result in the need to modify these recommendations, we will do so at a later date.

This document contains a formal request for revisions of EPD's original PM<sub>2.5</sub> nonattainment area designation recommendations. Attached to this document is information to support Georgia EPD's revised recommendation. The revised recommendations were determined in accordance with EPA's memorandum dated April 1, 2003, "Designations for the Fine Particle National Ambient Air Quality Standards," as well as other, more recent guidance.

In developing the revised PM<sub>2.5</sub> nonattainment area recommendations, EPD relied on EPA's recent "L-Score" screening analysis as presented to STAPPA/ALPCO on May 5, 2004, with some enhancements, and application of the 7 factors to those counties that were flagged under the enhanced L-Score analysis.

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Please note that EPD is submitting, under separate covers, 1) a formal request that Richmond County be designated as "unclassifiable" for PM<sub>2.5</sub>, and 2) a proposed revised PM<sub>2.5</sub> monitoring plan that includes spacial averaging for Muscogee County, Georgia, and Russell County, Alabama. EPD has included revised PM<sub>2.5</sub> nonattainment boundary area recommendations for the Augusta and Columbus areas in the case that EPA does not accept these two recommendations.

This submittal does not contain any revised recommendations for Georgia's portion of the Chattanooga PM<sub>2.5</sub> nonattainment area. EPD is still in the process of analyzing factors related to the Chattanooga PM<sub>2.5</sub> nonattainment area including EPA's recent reactivation of the 8-hr ozone Early Action Compacts for that area.

Georgia EPD's revised recommended PM<sub>2.5</sub> nonattainment designations are as follows :

- Macon Nonattainment Area: Bibb County and the portion on Monroe County as described below:

From the point where Bibb and Monroe Counties meet at US Hwy 23/Georgia Hwy 87, follow the Bibb/Monroe County line westward 150' from the US Hwy 23/Georgia Hwy 87 centerline, proceed northward 150' west of and parallel to the US Hwy 23/Georgia Hwy 87 centerline to 33 degrees, 04 minutes, 30 seconds; proceed westward to 83 degrees, 49 minutes, 45 seconds; proceed due south to 150' north of the Georgia Hwy 18 centerline, proceed eastward 150' north of and parallel to the Georgia Hwy 18 centerline to 1150' west of the US Hwy 23/Georgia Hwy 87 centerline, proceed southward 1150' west of and parallel to the US Hwy 23/Georgia Hwy 87 centerline to the Monroe/Bibb County line; then follow the Monroe/Bibb County line to 150' west of the US Hwy 23/Georgia Hwy 87 centerline. (A map of this area is attached.)

- Augusta Nonattainment Area: Richmond County, if our June 17, 2004 request for an "unclassifiable" designation is not approved.
- Athens Nonattainment Area: Clarke County
- Atlanta Nonattainment Area: Fulton, DeKalb, Cobb, Bartow, Gwinnett, Coweta, Cherokee, Clayton, Hall, Henry, Carroll, Forsyth, Paulding, Newton, Douglas, Fayette, Walton, Spalding, Rockdale, and Barrow Counties and the northeast portion of Heard County that extends north of 33 degrees 24 minutes (North) to the Carroll County border and east of 85 degrees 3 minutes (West) to the Coweta County border. (A map of the Heard County portion of this area is attached.)
- Floyd County Nonattainment Area: Floyd County

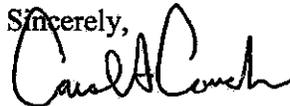
Georgia EPD recommends all other counties and portions of counties be designated as attainment for PM<sub>2.5</sub>.

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A table indicating Georgia EPD's revised recommendations for all counties and partial counties in the state and a map indicating EPD's revised designations is attached.

If you have any questions or need more information, please contact Ron Methier at (404) 363-7016 or Jimmy Johnston at (404) 363-7014.

Sincerely,



Carol A. Couch, Ph.D  
Director

CAC:jjj  
Attachments

c: Ron Methier, Air Protection Branch Chief

## RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES

County Name	Designation
Appling	Attainment
Atkinson	Attainment
Bacon	Attainment
Baker	Attainment
Baldwin	Attainment
Banks	Attainment
Barrow	Nonattainment
Bartow	Nonattainment
Ben Hill	Attainment
Berrien	Attainment
Bibb	Nonattainment
Bleckley	Attainment
Brantley	Attainment
Brooks	Attainment
Bryan	Attainment
Bulloch	Attainment
Burke	Attainment
Butts	Attainment
Calhoun	Attainment
Camden	Attainment
Candler	Attainment
Carroll	Nonattainment
Catoosa	Attainment
Charlton	Attainment
Chatham	Attainment
Chattahoochee	Attainment
Chattooga	Attainment
Cherokee	Nonattainment
Clarke	Nonattainment
Clay	Attainment
Clayton	Nonattainment
Clinch	Attainment
Cobb	Nonattainment
Coffee	Attainment
Colquitt	Attainment
Columbia	Attainment
Cook	Attainment
Coweta	Nonattainment
Crawford	Attainment
Crisp	Attainment
Dade	Attainment
Dawson	Attainment

## RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES

County Name	Designation
Decatur	Attainment
DeKalb	Nonattainment
Dodge	Attainment
Dooly	Attainment
Dougherty	Attainment
Douglas	Nonattainment
Early	Attainment
Echols	Attainment
Effingham	Attainment
Elbert	Attainment
Emanuel	Attainment
Evans	Attainment
Fannin	Attainment
Fayette	Nonattainment
Floyd	Nonattainment
Forsyth	Nonattainment
Franklin	Attainment
Fulton	Nonattainment
Gilmer	Attainment
Glascock	Attainment
Glynn	Attainment
Gordon	Attainment
Grady	Attainment
Greene	Attainment
Gwinnett	Nonattainment
Habersham	Attainment
Hall	Nonattainment
Hancock	Attainment
Haralson	Attainment
Harris	Attainment
Hart	Attainment
Heard	Partial Nonattainment
Henry	Nonattainment
Houston	Attainment
Irwin	Attainment
Jackson	Attainment
Jasper	Attainment
Jeff Davis	Attainment
Jefferson	Attainment
Jenkins	Attainment
Johnson	Attainment
Jones	Attainment

## RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES

County Name	Designation
Lamar	Attainment
Lanier	Attainment
Laurens	Attainment
Lee	Attainment
Liberty	Attainment
Lincoln	Attainment
Long	Attainment
Lowndes	Attainment
Lumpkin	Attainment
McDuffie	Attainment
McIntosh	Attainment
Macon	Attainment
Madison	Attainment
Marion	Attainment
Meriwether	Attainment
Miller	Attainment
Mitchell	Attainment
Monroe	Partial Nonattainment
Montgomery	Attainment
Morgan	Attainment
Murray	Attainment
Muscogee	Attainment
Newton	Nonattainment
Oconee	Attainment
Oglethorpe	Attainment
Paulding	Nonattainment
Peach	Attainment
Pickens	Attainment
Pierce	Attainment
Pike	Attainment
Polk	Attainment
Pulaski	Attainment
Putnam	Attainment
Quitman	Attainment
Rabun	Attainment
Randolph	Attainment
Richmond	Unclassifiable or Nonattainment
Rockdale	Nonattainment
Schley	Attainment
Screven	Attainment
Seminole	Attainment
Spalding	Nonattainment

## RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES

County Name	Designation
Stephens	Attainment
Stewart	Attainment
Sumter	Attainment
Talbot	Attainment
Taliaferro	Attainment
Tattnall	Attainment
Taylor	Attainment
Telfair	Attainment
Terrell	Attainment
Thomas	Attainment
Tift	Attainment
Toombs	Attainment
Towns	Attainment
Treutlen	Attainment
Troup	Attainment
Turner	Attainment
Twiggs	Attainment
Union	Attainment
Upson	Attainment
Walker	Nonattainment
Walton	Nonattainment
Ware	Attainment
Warren	Attainment
Washington	Attainment
Wayne	Attainment
Webster	Attainment
Wheeler	Attainment
White	Attainment
Whitfield	Attainment
Wilcox	Attainment
Wilkes	Attainment
Wilkinson	Attainment
Worth	Attainment

Table 1: VOC emissions, primary carbon emissions, and the ratio of VOCs to primary carbon emissions for counties being considered as part of Georgia's nonattainment area.

County	State	VOCs	Carbon	Ratio
Hamilton	TN	27,150	872	31.14
Muscogee	GA	9,476	343	27.63
Montgomery	AL	14,966	584	25.63
Clarke	GA	5,223	211	24.75
Gwinnett	GA	27,071	1,529	17.71
Loudon	TN	5,338	310	17.22
Bradley	TN	7,551	442	17.08
De Kalb	GA	36,184	2,317	15.62
Peach	GA	2,261	149	15.17
Morgan	GA	3,176	212	14.98
Lexington	SC	17,429	1,209	14.42
Haralson	GA	3,071	216	14.22
Rockdale	GA	3,820	272	14.04
De Kalb	AL	5,867	425	13.80
Hall	GA	11,062	814	13.59
Houston	GA	5,627	415	13.56
Catoosa	GA	3,601	268	13.44
Baldwin	GA	2,949	221	13.34
Lee	AL	7,474	578	12.93
Spalding	GA	3,839	297	12.93
Troup	GA	8,223	657	12.52
Cobb	GA	27,219	2,318	11.74
Gordon	GA	4,019	348	11.55
Walker	GA	4,516	401	11.26
Polk	GA	3,485	311	11.21
Dade	GA	1,574	147	10.71
Oconee	GA	2,047	193	10.61
Elmore	AL	4,368	416	10.50
Orangeburg	SC	8,831	843	10.48
Barrow	GA	2,738	264	10.37
Bibb	GA	10,061	976	10.31
Fayette	GA	4,499	442	10.18
Grundy	TN	1,150	113	10.18
Carroll	GA	7,224	715	10.10
Walton	GA	3,952	394	10.03
Newton	GA	5,047	506	9.97
Franklin	GA	1,813	182	9.96
Franklin	TN	2,929	297	9.86
Hart	GA	1,595	167	9.55
Russell	AL	4,434	473	9.37
Tallapoosa	AL	3,230	357	9.05
Chambers	AL	2,882	322	8.95
Lamar	GA	1,090	122	8.93
Warren	TN	3,675	414	8.88
Richmond	GA	12,601	1,421	8.87
Fulton	GA	44,184	4,989	8.86
Douglas	GA	4,342	496	8.75

County	State	VOCs	Carbon	Ratio
Meigs	TN	871	100	8.71
Cherokee	AL	2,036	236	8.63
Marion	TN	2,640	308	8.57
Jackson	GA	2,935	356	8.24
Monroe	TN	3,420	416	8.22
Randolph	AL	1,891	231	8.19
Greenwood	SC	4,353	536	8.12
Macon	AL	1,871	231	8.10
Chattooga	GA	1,634	207	7.89
Forsyth	GA	5,763	751	7.67
Butts	GA	1,438	189	7.61
Columbia	GA	4,668	617	7.57
Pickens	GA	1,769	236	7.50
Aiken	SC	9,599	1,294	7.42
Upson	GA	1,926	260	7.41
Habersham	GA	2,201	305	7.22
Banks	GA	1,127	159	7.09
Edgefield	SC	1,631	235	6.94
Dawson	GA	1,246	181	6.88
Lincoln	GA	1,045	155	6.74
Barnwell	SC	1,440	214	6.73
Meriwether	GA	3,006	454	6.62
Henry	GA	6,349	960	6.61
Sequatchie	TN	591	90	6.57
Clayton	GA	10,776	1,679	6.42
Murray	GA	1,700	268	6.34
Elbert	GA	1,280	204	6.27
Cherokee	NC	1,753	281	6.24
Polk	TN	949	155	6.12
Pike	GA	823	137	6.01
Madison	GA	1,219	203	6.00
Whitfield	GA	7,386	1,253	5.89
Warren	GA	827	141	5.87
Jones	GA	1,506	265	5.68
Greene	GA	1,582	283	5.59
Laurens	GA	3,688	663	5.56
Floyd	GA	7,139	1,298	5.50
Saluda	SC	1,178	227	5.19
Paulding	GA	3,593	702	5.12
Mc Minn	TN	5,546	1,088	5.10
Cleburne	AL	1,091	220	4.96
White	GA	1,190	243	4.90
Harris	GA	1,748	362	4.83
Bledsoe	TN	528	115	4.59
Mc Cormick	SC	977	215	4.54
Barbour	AL	2,529	561	4.51
Rhea	TN	3,643	818	4.45
Lumpkin	GA	1,067	247	4.32
Sumter	GA	2,262	546	4.14

County	State	VOCs	Carbon	Ratio
Van Buren	TN	320	79	4.05
Bleckley	GA	642	159	4.04
Emanuel	GA	1,863	465	4.01
Allendale	SC	624	161	3.88
Jackson	AL	4,742	1,301	3.64
Cherokee	GA	7,334	2,062	3.56
Bartow	GA	5,725	1,621	3.53
Roane	TN	4,300	1,230	3.50
Jefferson	GA	1,387	397	3.49
Taliaferro	GA	355	102	3.48
Oglethorpe	GA	730	213	3.43
Macon	GA	1,248	366	3.41
Bullock	AL	570	171	3.33
Fannin	GA	1,266	380	3.33
Wilkes	GA	756	234	3.23
Burke	GA	1,624	531	3.06
Gilmer	GA	1,273	429	2.97
Screven	GA	1,002	344	2.91
Dooly	GA	1,442	503	2.87
Pulaski	GA	503	176	2.86
Monroe	GA	2,189	770	2.84
Chattahoochee	GA	482	171	2.82
Crawford	GA	570	208	2.74
Schley	GA	290	113	2.57
Taylor	GA	622	247	2.52
Marion	GA	517	208	2.49
Twiggs	GA	1,141	461	2.48
Talbot	GA	520	215	2.42
Coweta	GA	5,048	2,092	2.41
Mc Duffie	GA	1,986	886	2.24
Jenkins	GA	499	224	2.23
Heard	GA	1,170	648	1.81
Stewart	GA	464	314	1.48
Jasper	GA	2,453	1,702	1.44
Putnam	GA	1,175	923	1.27
Webster	GA	201	170	1.18
Wilkinson	GA	821	1,241	0.66

Table 2: Urban Excess values for Macon, Augusta, Columbus, Athens, and Atlanta.

	Macon	Augusta	Columbus	Athens	Atlanta
Urban Monitor (U)	15.2 µg/m <sup>3</sup>	15.2 µg/m <sup>3</sup>	15.3 µg/m <sup>3</sup>	15.6 µg/m <sup>3</sup>	18.0 µg/m <sup>3</sup>
Regional Monitor (R)	12.8 µg/m <sup>3</sup>	11.7 µg/m <sup>3</sup>	14.2 µg/m <sup>3</sup>	14.1 µg/m <sup>3</sup>	14.1 µg/m <sup>3</sup>
Background Monitor (B)	11.0 µg/m <sup>3</sup>	11.0 µg/m <sup>3</sup>	11.0 µg/m <sup>3</sup>	10.7 µg/m <sup>3</sup>	10.7 µg/m <sup>3</sup>
Urban Excess (U-R)	2.4 µg/m <sup>3</sup>	3.5 µg/m <sup>3</sup>	2.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	3.9 µg/m <sup>3</sup>
Urban Excess (U-B)	4.2 µg/m <sup>3</sup>	4.2 µg/m <sup>3</sup>	4.3 µg/m <sup>3</sup>	4.9 µg/m <sup>3</sup>	7.3 µg/m <sup>3</sup>
% Sulfate Urban Excess	22.03 %	38.21 %	27.66 %	22.84%	5.96 %
% Nitrate Urban Excess	4.28 %	9.81 %	2.03 %	36.90 %	0.00 %
% Carbon Urban Excess	36.35 %	31.23 %	58.20 %	15.18 %	86.70 %
% Crustal Urban Excess	27.33 %	2.50 %	0.98 %	21.32 %	7.34 %
% Amm. Urban Excess	10.00 %	18.25 %	11.13 %	3.77 %	0.00 %

Table 3: Emissions, L-scores, and cumulative L-scores for Macon.

County	SO2	NOX	VOC	NH3	Carbon	Crustal	L-score	Cumul. Score
Monroe	86,541	31,612	2,719	80	770	1,889	19.83	19.83
Putnam	74,204	29,261	1,700	31	923	2,242	18.59	38.43
<b>Bibb</b>	2,218	9,747	9,980	351	976	1,273	11.52	49.95
Wilkinson	623	1,526	844	20	1,241	2,450	8.97	58.92
Jasper	124	888	999	18	1,702	609	6.34	65.26
<b>Houston</b>	1,918	8,051	5,616	125	415	637	5.47	70.72
Laurens	2,160	4,396	3,351	83	663	516	4.87	75.60
Dooly	284	2,391	1,405	41	503	598	3.45	79.04
<b>Twiggs</b>	58	1,442	861	30	461	587	3.01	82.06
Macon	348	2,160	1,110	18	366	505	2.59	84.65
Baldwin	404	1,633	2,050	45	221	219	2.06	86.72
<b>Peach</b>	435	2,496	1,586	49	149	322	2.05	88.77
Upson	435	1,384	1,353	28	260	205	1.82	90.58
<b>Jones</b>	92	1,564	1,135	32	265	179	1.72	92.31
Butts	198	1,798	1,149	33	189	160	1.51	93.82
Pulaski	75	625	1,270	12	176	253	1.44	95.26
Taylor	83	1,096	609	16	247	143	1.32	96.58
Bleckley	217	755	622	16	159	177	1.15	97.73
Lamar	201	1,191	1,017	25	122	129	1.14	98.87
Crawford	43	600	533	14	208	132	1.12	99.99
<b>CMSA Total</b>	4,721	23,300	19,179	587	2,266	2,998		
<b>Area Total</b>	170,661	104,617	39,911	1,069	10,016	13,225		

Table 4: Emissions, L-scores, and cumulative L-scores for Augusta.

County	SO2	NOX	VOC	NH3	Carbon	Crustal	L-score	Cumul. Score
<b>Aiken</b>	19,486	15,497	9,599	2,124	1,294	1,723	23.33	23.33
Lexington	16,208	15,243	17,429	3,071	1,209	1,484	23.02	46.35
<b>Richmond</b>	7,779	13,699	9,831	1,351	1,421	2,396	14.09	60.45
Orangeburg	6,558	14,384	8,831	1,881	843	1,254	12.42	72.87
Greenwood	624	3,680	4,353	404	536	506	3.31	76.18
<b>Columbia</b>	642	3,507	4,822	81	617	378	3.02	79.20
Saluda	95	878	1,178	1,373	227	210	2.93	82.14
<b>Mc Duffie</b>	264	1,795	1,476	34	886	367	2.71	84.85
Wilkes	204	745	624	944	234	99	2.28	87.13
Burke	242	1,652	1,338	34	531	497	1.89	89.02
Emanuel	283	1,584	1,570	37	465	286	1.74	90.76
Jefferson	240	1,607	1,079	29	397	406	1.52	92.28
<b>Edgefield</b>	128	1,073	1,631	276	235	155	1.39	93.67
Barnwell	263	1,128	1,440	168	214	134	1.25	94.92
Screven	182	1,094	891	22	344	304	1.24	96.16
Allendale	120	764	624	176	161	117	0.90	97.07
Mc Cormick	61	544	977	81	215	91	0.85	97.91
Jenkins	165	808	519	14	224	161	0.84	98.75
Warren	120	994	736	19	141	91	0.66	99.41
Lincoln	49	448	999	9	155	117	0.59	100.00
CMSA Total	28,298	35,572	27,359	3,866	4,453	5,019		
Area Total	53,712	81,125	69,946	12,127	10,349	10,776		

Table 5: Emissions, L-scores, and cumulative L-scores for Columbus.

County	SO2	NOX	VOC	NH3	Carbon	Crustal	L-score	Cumul. Score
Montgomery	6,292	10,454	14,966	973	584	732	20.13	20.13
Lee	1,425	5,125	7,474	333	578	428	8.58	28.71
<b>Russell</b>	2,550	5,718	4,434	179	473	565	8.57	37.28
<b>Muscogee</b>	1,893	5,945	7,969	151	343	151	7.46	44.73
Troup	1,256	4,717	4,739	98	657	461	7.40	52.13
Barbour	419	2,208	2,529	497	561	284	6.20	58.33
Sumter	975	2,075	2,649	34	546	1,650	5.71	64.04
Elmore	517	4,443	4,368	326	416	573	5.50	69.54
Tallapoosa	655	1,993	3,230	263	357	284	4.78	74.32
Chambers	527	2,350	2,882	124	322	239	3.86	78.18
Meriwether	297	1,965	1,637	33	454	353	3.70	81.89
<b>Harris</b>	217	2,172	1,596	44	362	216	3.06	84.94
Macon	223	2,242	1,871	133	231	172	2.65	87.59
Stewart	50	521	435	12	314	107	2.08	89.67
Bullock	93	407	570	214	171	96	1.98	91.65
Taylor	83	1,096	609	16	247	143	1.82	93.47
Marion	201	456	606	10	208	98	1.72	95.19
Talbot	60	1,008	491	14	215	67	1.55	96.74
<b>Chattahoochee</b>	38	560	448	9	171	34	1.21	97.95
Webster	34	346	394	7	170	124	1.18	99.14
Schley	79	247	200	5	113	76	0.86	100.00
CMSA Total	4,698	14,396	14,447	383	1,349	966		
Area Total	17,884	56,048	64,097	3,477	7,493	6,853		

Table 6: Emissions, L-scores, and cumulative L-scores for Athens.

County	SO2	NOX	VOC	NH3	Carbon	Crustal	L-score	Cumul. Score
Clarke	1,155	4,388	4,645	321	211	175	13.45	13.45
Jackson	578	4,231	3,154	95	356	446	11.94	25.39
Madison	374	4,563	1,466	32	203	330	9.80	35.19
Walton	354	2,671	2,892	70	394	508	9.52	44.71
Barrow	391	2,416	2,156	58	264	429	8.37	53.08
Franklin	282	2,337	1,589	52	182	259	6.42	59.50
Hart	361	1,512	1,509	31	167	327	6.13	65.64
Oconee	195	1,912	1,755	47	193	305	5.85	71.49
Morgan	241	2,245	1,618	45	212	170	5.70	77.19
Wilkes	204	745	624	944	234	99	5.22	82.41
Elbert	345	1,303	1,057	26	204	198	5.13	87.54
Greene	207	1,626	1,400	33	283	144	4.87	92.41
Banks	156	1,221	1,014	27	159	159	3.77	96.19
Oglethorpe	39	653	717	17	213	123	2.49	98.68
Taliaferro	22	575	282	11	102	27	1.32	100.00
CMSA Total	1,724	10,863	7,866	399	607	810		
Area Total	4,905	32,399	25,879	1,807	3,377	3,699		

Table 7: Emissions, L-scores, and cumulative L-scores for Atlanta.

County	SO2	NOX	VOC	NH3	Carbon	Crustal	L-score	Cumul. Score
Fulton	7,474	46,793	41,475	1,325	4,989	8,238	12.39	12.39
De Kalb	3,587	26,533	67,831	733	2,317	963	8.72	21.11
Cobb	32,586	29,956	24,222	635	2,318	1,126	6.00	27.11
Bartow	163,516	44,613	5,961	162	1,621	5,174	5.63	32.74
Gwinnett	3,985	23,706	24,884	618	1,529	934	4.42	37.17
Coweta	42,367	14,281	3,737	128	2,092	1,177	4.31	41.48
Cherokee	678	5,580	5,607	161	2,062	1,327	3.97	45.45
Floyd	33,587	16,702	7,042	108	1,298	4,442	3.66	49.11
Clayton	2,059	20,627	9,419	265	1,679	605	3.51	52.62
Jasper	124	888	999	18	1,702	609	2.94	55.56
Putnam	74,204	29,261	1,700	31	923	2,242	2.77	58.34
Monroe	86,541	31,612	2,719	80	770	1,889	2.68	61.01
Heard	73,618	21,036	724	13	648	2,263	2.25	63.27
Hall	2,972	7,884	8,032	166	814	1,476	2.15	65.42
Henry	664	9,771	5,567	196	960	1,085	2.13	67.55
Forsyth	753	4,406	4,445	119	751	1,129	1.72	69.26
Carroll	1,143	5,268	5,233	119	715	883	1.68	70.94
Lee	1,425	5,125	7,474	333	578	428	1.55	72.49
Troup	1,256	4,717	4,739	98	657	461	1.49	73.98
Paulding	250	2,743	2,334	70	702	681	1.42	75.40
Newton	657	3,498	3,808	81	506	619	1.19	76.59
Douglas	514	5,047	3,837	149	496	308	1.13	77.72
Fayette	661	3,428	3,389	89	442	657	1.07	78.79
Walton	354	2,671	2,892	70	394	508	0.93	79.71
Walker	1,042	2,426	2,663	56	401	428	0.92	80.63
Meriwether	297	1,965	1,637	33	454	353	0.91	81.54
Jackson	578	4,231	3,154	95	356	446	0.88	82.42
Gordon	1,129	4,170	2,891	83	348	508	0.86	83.28
Tallapoosa	655	1,993	3,230	263	357	284	0.86	84.14

County	SO2	NOX	VOC	NH3	Carbon	Crustal	L-score	Cumul. Score
Gilmer	370	1,586	1,287	36	429	204	0.83	84.97
Chambers	527	2,350	2,882	124	322	239	0.77	85.74
Rockdale	853	3,410	3,390	88	272	485	0.76	86.50
Spalding	668	2,925	2,767	66	297	482	0.76	87.26
Harris	217	2,172	1,596	44	362	216	0.74	88.00
Clarke	1,155	4,388	4,645	321	211	175	0.71	88.71
Polk	380	2,179	1,985	44	311	335	0.70	89.41
Habersham	527	2,171	1,960	47	305	332	0.69	90.10
Barrow	391	2,416	2,156	58	264	429	0.65	90.75
Cherokee	222	1,184	2,036	778	236	371	0.59	91.34
Haralson	279	1,797	2,666	40	216	185	0.57	91.91
Upton	435	1,384	1,353	28	260	205	0.56	92.46
Pickens	219	2,448	1,845	64	236	215	0.55	93.01
Jones	92	1,564	1,135	32	265	179	0.54	93.55
Randolph	223	9,276	1,891	1,294	231	163	0.54	94.09
Lumpkin	135	1,101	1,007	28	247	147	0.50	94.59
White	102	864	923	22	243	197	0.49	95.08
Chattooga	2,028	2,138	1,350	29	207	231	0.49	95.57
Morgan	241	2,245	1,618	45	212	170	0.49	96.06
Oconee	195	1,912	1,755	47	193	305	0.49	96.54
Taylor	83	1,096	609	16	247	143	0.47	97.01
Cleburne	130	2,057	1,091	1,227	220	104	0.45	97.47
Butts	198	1,798	1,149	33	189	160	0.42	97.88
Crawford	43	600	533	14	208	132	0.40	98.28
Talbot	60	1,008	491	14	215	67	0.40	98.67
Dawson	77	765	937	20	181	136	0.38	99.06
Banks	156	1,221	1,014	27	159	159	0.36	99.41
Pike	44	652	631	18	137	171	0.29	99.71
Lamar	201	1,191	1,017	25	122	129	0.29	100.00
CMSA Total	263,379	260,120	224,799	5,196	24,642	27,025		
Area Total	548,927	440,829	309,364	10,926	39,876	47,709		

Table 8: Quantitative Criteria Analysis for Macon

County	Pop.	Pop. Growth			In	Vehicle	VMT
	Density	Rate	Persons	% Urban.	Commutes	Registration	
Monroe	57	27%	4644	25%	3398	26,888	572,000
Putnam	57	33%	4675	25%	352	23,957	179,000
<b>Threshold</b>	<b>139</b>	<b>20%</b>	<b>2713</b>	<b>35%</b>	<b>8913</b>	<b>59,418</b>	<b>742,000</b>

Table 9: Quantitative Criteria Analysis for Columbus

County	Pop.	Pop. Growth			In	Vehicle	VMT
	Density	Rate	Persons	% Urban.	Commutes	Registration	
Muscogee	861	4%	7013	97%	78,089	135,312	4,067,534
Troup	144	6%	3243	57%	350	55,442	2,728,620
<b>Threshold</b>	<b>139</b>	<b>20%</b>	<b>2713</b>	<b>35%</b>	<b>8913</b>	<b>59,418</b>	<b>742,000</b>

Table 10: Quantitative Criteria Analysis for Athens

County	Pop.	Pop. Growth		% Urban.	In Commutes	Vehicle	
	Density	Rate	Persons			Registration	VMT
Jackson	133	39%	11,584	12%	3022	50,677	748,000
Madison	94	22%	4680	4%	6048	31,241	351,000
<b>Threshold</b>	<b>139</b>	<b>20%</b>	<b>2713</b>	<b>35%</b>	<b>8913</b>	<b>59,418</b>	<b>742,000</b>

Table 11: Quantitative Criteria for Atlanta - Counties Identified by Revised L-Score Analysis for Possible Inclusion

County	Pop.	Pop. Growth		% Urban.	In Commutes	Vehicle	
	Density	Rate	Persons			Registration	VMT
Bartow	180	55%	16,423	59%	10,155	91,234	1,322,000
Coweta	221	66%	35,362	54%	14,499	89,348	1,562,000
Cherokee	376	57%	51,669	75%	41,597	153,948	1,795,000
Jasper	33	35%	2973	0%	717	15,399	112,000
Putnam	57	33%	4675	25%	352	23,957	179,000
Heard	38	28%	2384	0%	454	13,586	146,000
Hall	386	46%	43,849	67%	11,604	149,737	1,987,000
Henry	433	103%	60,600	72%	36,191	131,810	1,774,000
Carroll	190	22%	15,846	47%	7042	93,031	1,431,000
Forsyth	517	123%	54,324	66%	25,884	115,315	1,197,000
Troup	144	6%	3243	57%	855	55,442	2,728,620
Paulding	300	96%	40,067	60%	24,665	86,049	1,047,000
Newton	259	48%	20,193	56%	8177	75,774	1,049,000
Douglas	496	30%	21,054	80%	25,857	90,105	1,251,000
Fayette	490	46%	28,848	78%	23,962	99,209	1,197,000
Walton	204	57%	22,101	42%	12,218	74,593	684,000
<b>Threshold</b>	<b>139</b>	<b>20%</b>	<b>2713</b>	<b>35%</b>	<b>8913</b>	<b>59,418</b>	<b>742,000</b>

Table 12: Quantitative Criteria for Atlanta - Counties NOT Identified by Revised L-Score Analysis for Possible Inclusion

County	Pop.	Pop. Growth		% Urban.	In Commutes	Vehicle	
	Density	Rate	Persons			Registration	VMT
Spalding	300	7%	3960	60%	5071	56,791	796,000
Rockdale	562	30%	16,020	85%	14,338	64,674	924,000
Barrow	315	55%	16,423	47%	10,565	54,079	590,000
<b>Threshold</b>	<b>139</b>	<b>20%</b>	<b>2713</b>	<b>35%</b>	<b>8913</b>	<b>59,418</b>	<b>742,000</b>

Table 13: County-Specific NOx and VOC Control Regulations as They Apply to Evaluated Counties.

The following regulations are more stringent than air quality regulations that apply to the entire state of Georgia. They apply to specific counties in the state as specified in the rules. These rules apply to the counties included in the "Other Criteria" analysis as shown below. These rules also apply to other counties in Georgia not included in this analysis.

County	VOC RACT - Gasoline Plants (VOC)	VOC RACT - Gasoline Transport (VOC)	VOC RACT - 6 Source Categories (VOC)	Consumer & Commercial Products (VOC)	Case-by-Case VOC RACT (VOC)	Case-by-Case NOx RACT (NOx)	Electric Utility Boilers (NOx)	New Boilers (NOx)	Stationary Engines & Small Turbines (NOx)	Large Stationary Gas Turbines (NOx)	Stage I Vapor Control (VOC)	Stage II Vapor Control (VOC)	Georgia Gasoline (NOx & VOC)	Open Burning Restrictions (NOx & VOC)	Vehicle I/M (NOx & VOC)	Severe Nonattainment NSR (NOx & VOC)	BACT/Offset - All Sources (NOx and VOC)	BACT/Offset - Electric Utilities (NOx)
Barrow							X	X	X				X	X				X
Bartow			X		X	X	X	X	X	X			X	X			X	
Carroll			X		X	X		X	X	X			X	X			X	
Cherokee	X	X	X	X	X	X		X	X	X	X	X	X	X				
Coweta	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Douglas	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		
Fayette	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		
Forsyth	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		
Hall			X		X	X		X	X	X			X	X			X	
Heard								X	X	X			X	X				X
Henry	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		
Jackson								X	X	X			X	X				X
Jasper								X	X	X			X	X				X
Madison								X	X	X			X	X				X
Meriwether								X	X	X			X	X				X
Monroe							X	X	X	X	*		X	X				X
Muscogee																		
Newton			X		X	X	X	X	X	X			X	X			X	
Paulding	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		
Putnam							X	X	X	X			X	X				X
Rockdale	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		
Spalding			X		X	X		X	X	X			X	X			X	
Troup								X	X	X			X	X			X	
Walton			X		X	X		X	X	X			X	X			X	

\*EPD plans to adopt stage I vapor control regulations in Monroe County by the end of 2004.

Key to Rules in Table 13:

VOC RACT - Gasoline Plants - GA Rule 391-3-1-.02(2)(pp) - Bulk Gasoline Plants

VOC RACT - Gasoline Transfer - GA Rule 391-3-1-.02(2)(ss) - Gasoline Transport Vehicles and Vapor Collection Systems

VOC RACT - 6 Source Categories - GA Rules 391-3-1-.02(2)(vv) - Volatile Organic Liquid Handling and Storage, (ccc) - VOC Emissions from Bulk Mixing Tanks, (ddd) - VOC Emissions from Offset Lithography, (eee) - VOC Emissions from Expanded Polystyrene

Products Manufacturing, (hhh) – Wood Furniture Finishing and Cleaning Operations, and (qqq)  
– Extruded Polystyrene Products Manufacturing Utilizing a Blowing Agent  
**Consumer & Commercial Products** - GA Rule 391-3-1-.02(2)(aaa) – Consumer and  
Commercial Products  
**Case-by-Case VOC RACT** - GA Rule 391-3-1-.02(2)(tt) – VOC Emissions from Major Sources  
**Case-by-Case NOx RACT** - GA Rule 391-3-1-.02(2)(yy) – Emissions of Nitrogen Oxides from  
Major Sources  
**Electric Utility Boilers** - GA Rule 391-3-1-.02(2)(jjj) – NOx Emissions from Electric Utility  
Steam Generating Units  
**New Boilers** - GA Rule 391-3-1-.02(2)(lll) – NOx Emissions from Fuel-burning Equipment  
**Stationary Engines & Small Turbines** – GA Rule 391-3-1-.02(2)(mmm) - NOx Emissions  
from Stationary Gas Turbines and Stationary Engines Used to Generate Electricity  
**Large Stationary Gas Turbines** - GA Rule 391-3-1-.02(2)(nnn) – NOx Emissions from  
Large Stationary Gas Turbines  
**Stage I Vapor Control** – GA Rule 391-3-1-.02(2)(rr) – Gasoline Dispensing Facility – Stage I  
**Stage II Vapor Control** – GA Rule 391-3-1-.02(2)(zz) – Gasoline Dispensing Facilities –  
Stage II  
**Georgia Gasoline** - GA Rule 391-3-1-.02(2)(bbb) – Gasoline Marketing  
**Open Burning Restrictions** – GA Rule 391-3-1-.02(5)(b)1. & 2.  
**Vehicle I/M** – GA Rule 391-3-20 – Rules for Enhanced Inspection and Maintenance  
**Severe Nonattainment NSR** – GA Rule 391-3-1-.03(8)(c)13.  
**BACT/Offset - All Sources** – GA Rule 391-3-1-.03(8)(c)14.  
**BACT/Offset - Electric Utilities** – GA Rule 391-3-1-.03(8)(c)15.

## Nonattainment Area Designations for Floyd County under the PM2.5 Standard

This document contains Georgia EPD's analysis for Floyd County, which was originally recommended to U.S. EPA for designation as nonattainment for fine particulate matter in Georgia. This analysis has been conducted in accordance with U.S. EPA's April 1, 2003, memorandum "Designations for the Fine Particulate National Ambient Air Quality Standards."

In EPA's April 1, 2003, memo, EPA addresses how rural areas should be addressed concerning PM2.5 nonattainment designation. In section 7, entitled "How will EPA address rural areas?", EPA states that "An area found to violate the standard that is adjacent to a metropolitan area will generally be designated as part of that urban nonattainment area..." Floyd County is not adjacent to any MSA or CMSA as defined by OMB on June 30, 1999. Floyd County is therefore treated as a rural area.

In the third paragraph of section 7 of the April 1 memo, EPA states "When a rural monitor violates the standard, EPA intends to apply a presumption that the nonattainment area shall include the full county in which the monitor is located." The memo continues to discuss situations in which EPA will consider recommendations to reducing the size of a rural nonattainment area to smaller than a full county. There is no discussion concerning expanding a rural PM2.5 nonattainment area to an area larger than a single county. Therefore, there is no reason to analyze any counties other than Floyd for designation as inclusion as part of the Floyd County PM2.5 nonattainment area.

Floyd County contains a monitored violation of a PM2.5 standard. At this time, Georgia EPD is not aware any additional information that would justify recommending an area smaller than a full county. Therefore, EPD recommends that all of Floyd County be designated as a single, separate nonattainment for PM2.5.

- Floyd County Nonattainment Area: Floyd County

## Nonattainment Area Designations for Athens, Atlanta, Augusta, Columbus, and Macon under the PM2.5 Standard

This document contains Georgia EPD's analysis of five of the six urban areas in Georgia that were originally recommended to U.S. EPA for designation as nonattainment for fine particulate matter in Georgia. This analysis has been conducted in accordance with U.S. EPA's April 1, 2003, memorandum "Designations for the Fine Particle National Ambient Air Quality Standards."

EPD is still in process of analyzing the Georgia counties (including Walker County which contains a violating PM2.5 monitor) which are part of or adjacent to the Chattanooga urbanized area which has been recommended for designation as nonattainment for PM2.5.

### EMISSIONS AND AIR QUALITY ANALYSIS

The first step in revising Georgia EPA's PM2.5 nonattainment recommendations for the Athens, Atlanta, Augusta, Columbus, and Macon areas was through analysis of the emissions and air quality in the potentially included areas. EPA's April 1, 2003, memo lists emissions and air quality as two of the nine factors to be considered in assessing which areas to include as part of a designated nonattainment area. The emissions and air quality analysis was done through the use of a revised L-Score approach as described below.

#### **Background**

EPA has developed an equation to help evaluate the contribution of local emissions to an area's PM2.5 nonattainment problem. This equation will produce a value known as the local emissions score or "L-score" (EPA, 2004):

$$\begin{aligned} &= \left[ \left( \frac{\text{County\_SO2\_tons}}{\text{CMSA\_SO2\_tons}} \right) * (\% \text{\_SO4\_Urban\_excess}) \right] \\ &+ \left[ \left( \frac{\text{County\_NOx\_tons}}{\text{CMSA\_NOx\_tons}} \right) * (\% \text{\_NO3\_Urban\_excess}) \right] \\ &+ \left[ \left( \frac{\text{County\_Carbon\_tons}}{\text{CMSA\_Carbon\_tons}} \right) * (\% \text{\_Carbon\_Urban\_excess}) \right] \\ &+ \left[ \left( \frac{\text{County\_crustal\_tons}}{\text{CMSA\_crustal\_tons}} \right) * (\% \text{\_Crustal\_Urban\_excess}) \right] \end{aligned} \tag{Eq. 1}$$

County-by-county L-scores are a quantitative way to rank the contribution of individual counties to a metropolitan area's "urban excess." Urban excess is defined as the local contribution of PM2.5 above the regional background concentrations and is calculated by taking the difference between PM2.5 concentrations recorded by an urban monitor and those recorded by a more regional or rural monitor. Percent urban excess can be calculated on a species-by-species basis if speciated PM2.5 monitoring data is available (Rao *et al.*, 2003). The L-score calculation will focus on counties within the metropolitan area (1999 and 2003 definitions) and counties adjacent to those metropolitan areas and will be used to help identify which counties should be included in the nonattainment area.

### **Revised L-Score Equation and Updated Emissions Inventory**

Conceptually, the basic methodology proposed by EPA (EPA, 2004) is a sound approach; however, we feel a number of improvements to this methodology will better quantify which counties are contributing to a metropolitan area's nonattainment problem.

*(1) Normalize Emission Contributions by CMSA + non-CMSA Emissions:* The process used by EPA to determine which counties should be nonattainment involves ranking the CMSA counties from highest L-score to lowest and then ranking the non-CMSA counties from highest L-score to lowest. A cumulative weighted emissions score is calculated for the CMSA counties and can be used to identify possible guidelines (e.g., 80%, 90%, 95%, etc.) for including CMSA and/or adjacent counties in the nonattainment area. This methodology assumes that the majority of the emissions contributing to an area's nonattainment problem are from within the CMSA counties. However, this is not necessarily the case. For example, Monroe county (1999 Macon non-CMSA) contains more NO<sub>x</sub> than the entire Macon CMSA and contains almost 20 times the SO<sub>2</sub> emissions of the Macon CMSA. Furthermore, EPA's methodology uses an arbitrary cut-off value (e.g., 80%, 90%, 95%, etc.) that does not account for the amount of urban excess or how far the urban monitor is over the NAAQS standard for determining which counties in the CMSA will be nonattainment and then adds additional counties from the non-CMSA based upon their L-scores. Many times, this approach will lead to CMSA counties being included in the nonattainment area when they have relatively small emission contributions to the urban excess compared to adjacent counties. Since all counties (CMSA and adjacent CMSA) contribute emissions to the urban excess, a better approach would be to normalize each species' contribution in Equation 1 by the total (CMSA + adjacent non-CMSA) emissions instead of just the CMSA emissions. The L-scores that result should be ranked from highest to lowest regardless of whether a county is in the CMSA or adjacent to the CMSA. A cumulative weighted emissions score can then be calculated for the entire area under consideration. This cumulative weighted emissions score will have more meaning than the one proposed by EPA and can be used in conjunction with the actual urban excess and how much a violating monitor is over the NAAQS standard to determine which counties should be included in the nonattainment area. In this analysis, a 50% "revised" cumulative L-score cut-off was used to determine the list of counties to be considered for nonattainment in each area where the violating monitor was only slightly over ( $\leq 0.6 \mu\text{g}/\text{m}^3$ ) the NAAQS. Because Atlanta's design value was  $3.0 \mu\text{g}/\text{m}^3$  over the NAAQS, an 80% "revised" cumulative L-score cut-off was used. It should be noted that this approach for Atlanta produced a list of potential nonattainment counties very similar to the list that would have been produced using EPA's methodology and a 95% cumulative CMSA L-score cut-off.

*(2) Add VOCs and NH<sub>3</sub> to the L-score Equation:* EPA's weighted emissions metric (L-score) includes SO<sub>2</sub>, NO<sub>x</sub>, primary carbon, and primary crustal emissions. However, in the Southeast much of the organic carbon PM<sub>2.5</sub> is formed in the atmosphere through secondary oxidation reactions rather than emitted directly as primary particles. Since EPA's equation does not include VOC emissions, this formation pathway is not taken into account. EPA may have assumed that just looking at the primary carbon emissions would be a good surrogate for all organic carbon PM<sub>2.5</sub> precursors. If the ratio of VOCs to primary carbon emissions were somewhat consistent across all counties, EPA's assumption would be valid. However, this is not the case as can be seen by looking at Table 1 (attached). Table 1 contains VOC emissions, primary carbon emissions, and the ratio of VOC to primary carbon emissions for each CMSA and adjacent CMSA county being considered as part of Georgia's nonattainment area. It can be seen that the ratios vary dramatically by county with a high value of 31.14 and a low value of 0.66. Because of the secondary nature of organic PM<sub>2.5</sub>, the VOC contribution to urban excess

is hard to quantify. Based on the work of Zheng *et al.* (2002), it can be approximated that secondary organic PM<sub>2.5</sub> formed from VOC emissions accounts for approximately 25% of the annual average organic PM<sub>2.5</sub> in Georgia. This information can be incorporated into the L-score equation by separating the contribution of primary carbon emissions from those of VOC emissions and applying weighting factors of 75% and 25%, respectively. Additionally, ammonium is an important constituent of PM<sub>2.5</sub> that has not been accounted for in EPA's L-score equation. Therefore, an additional term has been added to the L-score equation to include ammonia emissions. Inclusion of VOCs and NH<sub>3</sub> emissions along with normalizing the county emissions by total CMAA + Non-CMAA emissions results in a revised equation for the L-score (Equation 2). This equation was used to perform our nonattainment analysis in the following section.

$$\begin{aligned}
 &= \left[ \left( \frac{\text{County\_SO2\_tons}}{\text{CMAA} + \text{nonCMAA\_SO2\_tons}} \right) * (\% \text{\_SO4\_Urban\_excess}) \right] \\
 &+ \left[ \left( \frac{\text{County\_NOx\_tons}}{\text{CMAA} + \text{nonCMAA\_NOx\_tons}} \right) * (\% \text{\_NO3\_Urban\_excess}) \right] \\
 &+ \left[ \left( \frac{\text{County\_Carbon\_tons}}{\text{CMAA} + \text{nonCMAA\_Carbon\_tons}} \right) * 0.75 * (\% \text{\_Carbon\_Urban\_excess}) \right] \\
 &+ \left[ \left( \frac{\text{County\_VOCs\_tons}}{\text{CMAA} + \text{nonCMAA\_VOCs\_tons}} \right) * 0.25 * (\% \text{\_Carbon\_Urban\_excess}) \right] \\
 &+ \left[ \left( \frac{\text{County\_crustal\_tons}}{\text{CMAA} + \text{nonCMAA\_crustal\_tons}} \right) * (\% \text{\_Crustal\_Urban\_excess}) \right] \\
 &+ \left[ \left( \frac{\text{County\_NH3\_tons}}{\text{CMAA} + \text{nonCMAA\_NH3\_tons}} \right) * (\% \text{\_NH4\_Urban\_excess}) \right]
 \end{aligned} \tag{Eq. 2}$$

(3) *Updated Emissions Inventory:* The Excel spreadsheet supplied by EPA contains 2001 emission estimates for SO<sub>2</sub>, NO<sub>x</sub>, VOC, NH<sub>3</sub>, primary carbon, and primary crustal. For the purpose of this analysis, Georgia EPD updated emission estimates of SO<sub>2</sub>, NO<sub>x</sub>, VOC, and NH<sub>3</sub> with the recent 2002 CERR inventory for Atlanta, Macon, Augusta, Columbus, and Athens. The 2002 CERR inventory is the first statewide criteria pollutant inventory completed for Georgia. Primary carbon and crustal emissions from 2001 continue to be utilized in the analysis because Georgia has not yet speciated its 2002 CERR primary PM<sub>2.5</sub> emissions. In many counties, EPA's 2001 and Georgia's 2002 CERR emission inventories are very similar. However, there are a few counties where the updated emission inventories have significant impacts on the L-score rankings.

#### Application of Updated L-Score Equation

The updated L-score equation (Equation 2) was used to evaluate which counties in the Atlanta, Macon, Augusta, Columbus, and Athens areas should be designated nonattainment. Each area has multiple FRM monitors (except Athens which has only one FRM monitor) with at least 3 years of data and one STN monitor with speciated PM<sub>2.5</sub> data available from the second quarter

of 2002 through the fourth quarter of 2003. Coffee County (located in south central Georgia) has an STN monitor with a similar period of record and will be used to represent the background speciated PM<sub>2.5</sub> concentrations for Macon, Augusta, and Columbus. In addition, there are two speciated SEARCH monitors located in Yorkville (Paulding County) and Atlanta (Fulton County) with at least 3 years of data. Table 2 (attached) contains urban excess values and speciated percent contribution to urban excess for each city. The "urban monitor" concentration is defined as the maximum 2003 design value and the "regional monitor" concentration is defined as the lowest 2003 design value recorded with an FRM monitor in each area under consideration for PM<sub>2.5</sub> nonattainment. The "background monitor" concentration is the PM<sub>2.5</sub> value recorded at a rural monitor outside the immediate influence of local emissions. The annual average background concentration for Atlanta and Athens was calculated using 2002 measurements at the Cohutta IMPROVE site. The annual average background concentration for Macon, Augusta, and Columbus was calculated using 2003 measurements at the Coffee County STN site. The speciated percent contributions to urban excess for Macon, Augusta, and Columbus were calculated from 2003 annual average concentrations recorded at the urban STN monitors in each city compared to the background STN monitor located in Coffee County. The speciated percent contributions to urban excess for Atlanta were calculated from 2001-2003 annual average concentrations recorded at the urban SEARCH monitor compared to the 2001-2003 annual average concentrations recorded at the regional SEARCH monitor located in Yorkville. Finally, the speciated percent contributions to urban excess for Athens were calculated from 2003 annual average concentrations recorded at the urban STN monitor compared to the 2003 annual average concentrations recorded at the regional SEARCH monitor located in Yorkville. The results of applying Equation 2 to Macon, Augusta, Columbus, Athens, and Atlanta are summarized in Tables 3 – 7 (attached). These tables include emissions, L-scores, and cumulative L-scores for each county under consideration. Counties in bold text are part of the 1999 CMSA.

The methodology used in this analysis to identify which counties should be designated nonattainment involves comparing how far a monitor is over the NAAQS to the benefits achieved from reducing emissions responsible for the area's urban excess. The urban excess contribution from the counties designated nonattainment is calculated by multiplying the cumulative L-score value for the counties designated nonattainment by the true urban excess for the region (urban monitor minus background monitor). Using the background monitor is more appropriate than using the regional monitor to calculate the urban excess because the regional monitor may still be significantly impacted by local emissions and reductions of emissions from these counties will reduce both the urban and regional monitoring concentrations. The required percent reduction in cumulative L-scores for the counties designated nonattainment to bring the area into attainment can be calculated by dividing the difference between the 2003 design value (DV) and the NAAQS by the urban excess contribution from the counties designated nonattainment (Equation 3).

$$\text{required } L_{\text{score}} \text{ reduction}(\%) = \frac{(2003 \text{ Design Value} - \text{NAAQS})}{\text{Cumulative } L_{\text{score}} * (\text{Urban Excess})} * 100 \quad (\text{Eq. 3})$$

**Macon Nonattainment Area:** The 2003 design value for Macon is 15.2 µg/m<sup>3</sup> and the urban excess is 4.2 µg/m<sup>3</sup>. According to Table 3, the inclusion of Monroe, Putnam, and Bibb Counties would account for approximately 50% of the emissions responsible for the area's urban excess.

Designating these three counties as nonattainment would account for 50% of the urban excess ( $2.1 \mu\text{g}/\text{m}^3$ ) in Macon. Emission reductions resulting in a 9.5% reduction in the cumulative L-scores across these three counties should be enough to achieve compliance with the NAAQS.

*Augusta Nonattainment Area:* The 2003 design value for Augusta is  $15.2 \mu\text{g}/\text{m}^3$  and the urban excess is  $4.2 \mu\text{g}/\text{m}^3$ . According to Table 4, the inclusion of Aiken (SC) and Lexington (SC) Counties would account for approximately 46% of the emissions responsible for the area's urban excess. Richmond County (GA) has also been added because it is the county where the violating monitor is located. Designating these three counties as nonattainment would account for 60% of the urban excess ( $2.5 \mu\text{g}/\text{m}^3$ ) in Augusta. Emission reductions resulting in a 7.9% reduction in the cumulative L-scores across these three counties should be enough to achieve compliance with the NAAQS.

*Columbus Nonattainment Area:* The 2003 design value for Columbus is  $15.3 \mu\text{g}/\text{m}^3$  and the urban excess is  $4.3 \mu\text{g}/\text{m}^3$ . According to Table 5, the inclusion of Montgomery (AL), Lee (AL), Russell (AL), Muscogee (GA), and Troup (GA) Counties would account for approximately 52% of the emissions responsible for the area's urban excess. Designating these five counties as nonattainment would account for 52% of the urban excess ( $2.24 \mu\text{g}/\text{m}^3$ ) in Columbus. Emission reductions resulting in a 13.4% reduction in the cumulative L-scores across these five counties should be enough to achieve compliance with the NAAQS.

*Athens Nonattainment Area:* The 2003 design value for Athens is  $15.6 \mu\text{g}/\text{m}^3$  and the urban excess is  $4.9 \mu\text{g}/\text{m}^3$ . According to Table 6, the inclusion of Barrow, Clarke, Jackson, Madison, and Walton Counties would account for approximately 53% of the emissions responsible for the area's urban excess. Designating these five counties as nonattainment would account for 53% of the urban excess ( $2.60 \mu\text{g}/\text{m}^3$ ) in Athens. Emission reductions resulting in a 23.1% reduction in the cumulative L-scores across these five counties should be enough to achieve compliance with the NAAQS.

*Atlanta Nonattainment Area:* The 2003 design value for Atlanta is  $18.0 \mu\text{g}/\text{m}^3$  and the urban excess is  $7.3 \mu\text{g}/\text{m}^3$ . According to Table 7, the inclusion of Fulton, DeKalb, Cobb, Bartow, Gwinnett, Coweta, Cherokee, Floyd, Clayton, Jasper, Putnam, Monroe, Heard, Hall, Henry, Carroll, Forsyth, Troup, Lee, Paulding, Newton, Douglas, Fayette, Walker, and Walton Counties would account for approximately 80% of the emissions responsible for the area's urban excess. Designating these twenty-five counties as nonattainment would account for 80% of the urban excess ( $5.84 \mu\text{g}/\text{m}^3$ ) in Atlanta. Emission reductions resulting in a 51.4% reduction in the cumulative L-scores across those twenty-five counties should be enough to achieve compliance with the NAAQS.

#### **ANALYSIS USING OTHER FACTORS**

EPD then examined those counties identified by the revised L-Score method using the seven other factors as described in U.S. EPA's April 1, 2003, memorandum "Designations for the Fine Particle National Ambient Standards":

1. population density and degree of urbanization
2. traffic and commuting patterns
3. expected growth
4. meteorology

5. geography/topography
6. jurisdictional boundaries
7. level of control of emissions

As specified on page 6 of the April 1, 2003, EPA memorandum, the Division also considered the recently designated 8-hour ozone nonattainment boundaries in order to better coordinate air quality planning, control strategy development, and implementation of the transportation conformity program.

Any county with a monitored violation is automatically included in a recommended PM2.5 nonattainment area recommendation. Therefore, these factors are only analyzed for those counties without monitored violations.

For this particular analysis, EPD could not identify any areas where factor 4, meteorology, was an issue for PM2.5 nonattainment. It was also determined that the topography portion of factor 5 was not an issue in any of the PM2.5 nonattainment areas analyzed.

The following thresholds were used to determine whether or not a county met criteria 1, 2, or 3.

- A. Population Density – 139 persons per square mile [Derived from the lowest projected 2002 population density of any county with a monitored violation]
- B. Percent Population growth - 20% (minimum percent urbanization considered by the U.S. Census) and 2713 persons [Derived from lowest increase in population of any county with a monitored violation] for the period 1990-2000. (To meet this criteria, a county would have to meet or exceed both the percent growth and numerical growth thresholds. This takes into account the fact that a county with a low population can experience a high percentage growth rate with only a small increase in actual population.)
- C. Percent Urbanization – 35% (minimum percent urbanization considered by U.S. Census Bureau) for 2000
- D. In Commutes – At least 8913 vehicles commuting into a core county or a county with a monitored violation. The in-commute into core counties or counties with a monitored violation was only considered for those counties outside a current non-attainment area [Derived from 15% (minimum commute considered by U.S. Census Bureau in MSA determinations) multiplied by 59,418 vehicles]
- E. Vehicle Registration – 59,418 vehicles [Derived from the lowest 2003 vehicle registration of any county currently with a monitored violation]. Vehicular Miles Traveled (VMT) in county – 742,000 miles [derived from lowest 2002 VMT of any county currently with a monitored violation]

The specific values for each of these criteria for the counties analyzed are shown in tables 8 through 12 (attached) and are compared to the threshold values.

Geography, jurisdictional boundaries, and level of control of emissions are considered on a qualitative basis for each county.

#### **Macon Nonattainment Area**

The revised L-Score analysis for the Macon area identified Bibb, Monroe, and Putnam Counties for possible inclusion in the Macon Nonattainment Area. Bibb county contains one monitor with a design value that exceeds the annual PM2.5 standard, and thus is automatically included in EPD's recommendation for inclusion.

*Quantitative Criteria* - The specific values for the quantitative factors listed above for Monroe and Putnam Counties were evaluated (see Table 8). Both Monroe and Putnam meet only one of the six quantitative criteria (population growth).

*Geography* - Monroe County is contiguous to Bibb County (which contains the violating monitor). However, Putnam County is contiguous to neither Bibb nor Monroe County. Putnam County is approximately 19 miles from Bibb County and 31 miles from the violating monitor in Bibb County. The vast majority of emissions from Putnam County come from Georgia Power's Plant Branch. Plant Branch is located approximately 29 miles from Bibb County and 37 miles from the violating monitor in Bibb County. Other than distance, there are no other geographical factors identified that affect the area.

*Jurisdictional* - Neither Monroe nor Putnam County were included in the June 30, 1999, Macon Metropolitan Statistical Area (MSA). Monroe County became part of the Macon MSA in 2003. Both counties are within Georgia and fall within the jurisdiction of Georgia EPD. There are no other jurisdictional issues associated with this area.

*Level of Control of Emissions* - Both Monroe and Putnam Counties are designated as areas that contribute to the level of ozone in the Atlanta 1-hr ozone nonattainment area in accordance with Georgia Air Quality Control Rule 391-3-1-.03(8)(e). Therefore, the level of NOx and VOC emissions controls in these two counties are more stringent than other areas of the state. (See Table 13 for the specific NOx and VOC regulations that apply in these counties.) In addition to these existing rules, Plants Scherer and Branch contain affected units under Phase II of the Regional NOx SIP Call and the Regional Haze Rule and would also be subject to the proposed Clean Air Implementation Rule (formerly Integrated Air Quality Rule) once promulgated. Local officials in Monroe County (as well as Bibb, Crawford, Houston, Jones, Peach, and Twiggs) have committed to stage I gasoline vapor controls and open burning restrictions as well as several local control measures. EPD intends to promulgate rules for stage I and open burning in these counties by the end of 2004.

*8-hour Ozone Nonattainment Boundaries* - The Macon 8-hour ozone nonattainment area consists of Bibb County and a portion of Monroe County which includes Georgia Power's Plant Scherer.

*Conclusion* - Based on the above factors and the revised L-Scores analysis conducted by EPD, we conclude that the portion of Monroe County described below that includes Plant Scherer be included with Bibb County in the Macon PM2.5 nonattainment area. By including this portion of Monroe County, the nonattainment area captures the vast majority of PM2.5 emissions and precursors from Monroe County. (A map of this area is attached.)

*From the point where Bibb and Monroe Counties meet at US Hwy 23/Georgia Hwy 87, follow the Bibb/Monroe County line westward 150' from the US Hwy 23/Georgia Hwy 87 centerline, proceed northward 150' west of and parallel to the US Hwy 23/Georgia Hwy 87 centerline to 33 degrees, 04 minutes, 30 seconds; proceed westward to 83 degrees, 49 minutes, 45 seconds; proceed due south to 150' north of the Georgia Hwy 18 centerline, proceed eastward 150' north of and parallel to the Georgia Hwy 18 centerline to 1150' west of the US Hwy 23/Georgia Hwy 87 centerline, proceed southward 1150' west of and parallel to the US Hwy 23/Georgia Hwy 87 centerline to the Monroe/Bibb County line; then follow the Monroe/Bibb County line to 150' west of the US Hwy 23/Georgia Hwy 87 centerline.*

We conclude that because of its distance from Bibb County and the violating monitor, the fact that it is not contiguous with any other county recommended as part of the Macon nonattainment area, the existing level of controls in the county, and the fact that the county only met one of the six quantitative factors analyzed, Putnam County should not be included in the Macon PM2.5 nonattainment area. Should future analysis indicate that additional controls are required from Putnam County to bring the Macon nonattainment area into attainment, EPD has the authority under Rule 391-3-1-.03(8)(e) to require the necessary controls (as it has already done for the Atlanta 1-hour nonattainment area).

#### **Augusta Nonattainment Area**

The revised L-Score analysis for the Augusta area identified Richmond County as the only Georgia county for possible inclusion in the Augusta Nonattainment Area. Richmond County contains one monitor with a design value that exceeds the annual PM2.5 standard, and thus is automatically included in EPD's recommendation for inclusion, assuming air monitoring data completeness is not considered. The revised L-Score analysis did not identify any other Georgia counties for possible inclusion in the Augusta PM2.5 nonattainment area.

#### **Columbus Nonattainment Area**

The revised L-Score analysis for the Columbus area identified Muscogee and Troup Counties as Georgia Counties for possible inclusion in the Columbus Nonattainment Area. None of the Georgia counties contain a monitor with a design value that exceeds the annual PM2.5 standard.

*Quantitative Criteria* - The specific values for the quantitative factors listed above for Muscogee and Troup Counties were evaluated (see Table 9). Muscogee County meets five of the six quantitative criteria. Troup County meets two of the six quantitative criteria; however, it is only slightly above the threshold for population density. (Note: A county must exceed both the rate and persons portions of the population growth thresholds to meet that criteria.)

*Geography* - Muscogee County is contiguous to Russell County, Alabama (which contains the violating monitor). However, Troup County is contiguous to neither Muscogee, Russell (AL), Lee (AL), or Montgomery (AL). Troup County is approximately 18 miles from Muscogee County and 27 miles from the violating monitor in Russell County, Alabama. Troup County is adjacent to the Atlanta 1-hour ozone nonattainment area. Other than distance, there are no other geographical factors identified that affect the area.

*Jurisdictional* - Muscogee County is included in the Columbus Metropolitan Statistical Area (MSA). Troup County is not part of the Columbus, nor any other, MSA. Both counties are within Georgia and fall within the jurisdiction of Georgia EPD. However, the county with the violating monitor and two counties in Alabama identified for possible inclusion by the Division's revised L-Score analysis fall within the jurisdiction of the Alabama Department of Environmental Management. There are no other jurisdictional issues associated with this area.

*Level of Control of Emissions* - Troup County is designated as an area that contributes to the level of ozone in the Atlanta 1-hr ozone nonattainment area in accordance with Georgia Air Quality Control Rule 391-3-1-.03(8)(e). Therefore, the level of NOx and VOC emissions controls in this county is more stringent than other areas of the state. (See Table 13 (attached) for the specific NOx and VOC regulations that apply in these counties.) The air quality regulations that apply in Muscogee County are the same as other areas in the state that are not part of or designated as contributing to the Atlanta 1-hr ozone nonattainment area.

*8-hour Ozone Nonattainment Boundaries* – Columbus is attainment for the 8-hour ozone standard. Therefore, this is not a factor.

*Conclusion* – Based on the above factors and the revised L-Scores analysis conducted by EPD, Muscogee County should be included as part of the Columbus PM2.5 nonattainment area. However, the 2001-2003 data from both FRM monitors operated in Muscogee County indicates attainment. Given that air quality monitoring data and the proposal to revise the PM 2.5 monitoring plan, we recommend now that Muscogee be designated attainment.

We conclude that because of its distance from Muscogee County and the violating monitor in Russell County, Alabama, the fact that it is not contiguous with any other county recommended as part of the Columbus nonattainment area, the existing level of controls in the county, and the fact that the county only met one of the six quantitative factors analyzed (one of which it was barely over the threshold), Troup County should not be included in the Columbus PM2.5 nonattainment area. Because of its closer proximity to the Atlanta urbanized area, EPD concludes that it is more appropriate to analyze Troup County as part of the Atlanta PM2.5 nonattainment instead of the Columbus PM2.5 nonattainment area.

#### **Athens Nonattainment Area**

The revised L-Score analysis for the Athens area identified Barrow, Clarke, Jackson, Madison, and Walton Counties for possible inclusion in the Athens Nonattainment Area. Clarke County contains one monitor with a design value that exceeds the annual PM2.5 standard, and thus is automatically included in EPD's recommendation for inclusion. Barrow and Walton Counties are being recommended as part of the Atlanta PM2.5 nonattainment area, and thus are not analyzed for inclusion in the Athens PM2.5 nonattainment area.

*Quantitative Criteria* - The specific values for the quantitative factors listed above for Jackson and Madison Counties were evaluated (see Table 10). Jackson County meets two of the six quantitative criteria, but it is only slightly above the threshold for VMT. Madison County only meets one of the six quantitative criteria, population growth.

*Geography* - Both Jackson and Madison Counties are contiguous to Clarke County. There are no other geographical factors identified that affect the area.

*Jurisdictional* – Madison County is included in the Athens Metropolitan Statistical Area (MSA). Jackson County is not part of the Athens, or any other, MSA. Both counties are within Georgia and fall within the jurisdiction of Georgia EPD. There are no other jurisdictional issues associated with this area.

*Level of Control of Emissions* – Both Jackson and Madison Counties are designated as part of an area that contributes to the level of ozone in the Atlanta 1-hr ozone nonattainment area in accordance with Georgia Air Quality Control Rule 391-3-1-.03(8)(e). Therefore, the level of NOx and VOC emissions controls in these two counties is more stringent than in other areas of the state. (See Table 13 for the specific NOx and VOC regulations that apply in these counties.)

*8-hour Ozone Nonattainment Boundaries* – Athens is attainment for the 8-hour ozone standard. Therefore, this is not a factor.

*Conclusion* – Based on the above factors and the revised L-Scores analysis conducted by EPD,

we conclude that Clarke County should be included in the Athens PM2.5 nonattainment area. We conclude that neither Madison nor Jackson County should be included as part of the Athens PM2.5 nonattainment area. This conclusion is based on the existing level of controls in these counties, and that Jackson County met only two of the six quantitative factors analyzed (one of which it was barely over the threshold) and Madison met only one of the six quantitative factors.

#### **Atlanta Nonattainment Area**

The revised L-Score analysis for the Atlanta area identified Fulton, DeKalb, Cobb, Bartow, Gwinnett, Coweta, Cherokee, Floyd, Clayton, Jasper, Putnam, Monroe, Heard, Hall, Henry, Carroll, Forsyth, Troup, Paulding, Newton, Douglas, Fayette, Walton, and Walker Counties as Georgia counties for possible inclusion in the Atlanta Nonattainment Area. Fulton, DeKalb, Cobb, Gwinnett, and Clayton contain monitors with a design value that exceeds the annual PM2.5 standard, and thus are automatically included in EPD's recommendation for inclusion in the Atlanta PM2.5 nonattainment area. Floyd County is being recommended as a separate PM2.5 nonattainment and is thus not analyzed for inclusion in the Atlanta PM2.5 nonattainment area. Monroe County has been analyzed for inclusion as part of the Macon PM2.5 nonattainment area and the portion of that county that contains Georgia Power's Plant Scherer has been recommended for inclusion in the Macon PM2.5 nonattainment area and is therefore not analyzed here. Walker County is part of the Chattanooga MSA and has a violating PM2.5 monitor and thus should be considered for inclusion as part of the Chattanooga PM2.5 nonattainment area (which EPD has not yet completed) and not Atlanta.

*Quantitative Criteria* - The specific values for the quantitative factors for the 16 remaining counties were evaluated (see Table 11). In addition Spalding, Rockdale, and Barrow are part of the Atlanta MSA and Atlanta 8-hr ozone nonattainment area and were also analyzed (see Table 12). Twelve of the counties (Bartow, Carroll, Cherokee, Coweta, Douglas, Fayette, Forsyth, Hall, Henry, Newton, Paulding, and Walton) identified by the Revised L-Score and all three counties (Barrow, Rockdale, and Spalding) NOT identified by the Revised L-Score analysis met at least four of the six of the quantitative criteria. One county (Troup) identified by the Revised L-Score analysis met three of the six quantitative criteria, but one of the criteria (population density) was only slightly above the threshold. Three counties (Heard, Putnam, and Jasper) identified by the Revised L-Score analysis met only one of the six quantitative criteria.

*Geography* - There are no geographical factors identified that affect the area.

*Jurisdictional* - Neither Jasper, Putnam, Heard, Hall, nor Troup were included in the June 30, 1999, Atlanta Metropolitan Statistical Area (MSA). Hall County became part of the single county Gainesville MSA in 2003. Jasper and Heard Counties became part of the Atlanta MSA in 2003. All counties are within Georgia and fall within the jurisdiction of Georgia EPD. There are no other jurisdictional issues associated with this area.

*Level of Control of Emissions* - All of the counties listed are either part of the Atlanta 1-hr ozone nonattainment area or have been designated as part of an area that contribute to the level of ozone in the Atlanta 1-hr ozone nonattainment area in accordance with Georgia Air Quality Control Rule 391-3-1-.03(8)(e). Therefore, the level of NOx and VOC emissions controls in the counties is more stringent than in other areas of the state. (See Table 13 for the specific NOx and VOC regulations that apply in these counties.) In addition to the existing rules, Georgia Power's Plants Scherer, Branch, Wansley, and Yates contain affected units under Phase II of the Regional NOx SIP Call the Regional Haze Rule and would also be subject to the proposed Clean Air Implementation Rule (formerly Integrated Air Quality Rule) once promulgated. Several sources

other than the four coal fired power plants in these counties will also be subject to Phase II of the NOx SIP Call.

*8-hour Ozone Nonattainment Boundaries* – The Atlanta 8-hour ozone nonattainment consists of Carroll, Paulding, Bartow, Cherokee, Forsyth, Hall, Barrow, Walton, Newton, Henry, Spalding, Coweta, Douglas, Cobb, Fulton, DeKalb, Gwinnett, Rockdale, Clayton, and Fayette Counties.

*Conclusion* – Based on the above factors and the revised L-Scores analysis conducted by EPD, we recommend that all of counties currently contained in the Atlanta 8-hour ozone nonattainment area, plus the northeast portion of Heard County that extends north of 33 degrees 24 minutes (North) to the Carroll County border and east of 85 degrees 3 minutes (West) to the Coweta County border (a map of this area is attached) be included in the Atlanta PM2.5 nonattainment area. The northeast corner of Heard County contains Georgia Power’s Plant Wansley. By including this portion of Heard County, the nonattainment area captures the vast majority of PM2.5 emissions and precursors from Heard County.

We have concluded that Troup, Putnam, and Jasper should not be included in the Atlanta PM2.5 nonattainment area. This is based on the fact that these counties met only three or less (Troup met three, one of them slightly, and the other counties met only one) of the six quantitative criteria, the level of control that currently is required for these counties is more stringent than in other parts of the state, and that none of these counties is part of the Atlanta 8-hour ozone nonattainment area. Should future analysis indicate that additional controls are required from Troup, Putnam, and/or Jasper County to bring the Atlanta PM2.5 nonattainment area into attainment, EPD has the authority under Rule 391-3-1-.03(8)(e) to require the necessary controls (as it has already done for the Atlanta 1-hour nonattainment area).

We are recommending that three counties (Spalding, Rockdale, and Barrow) not identified for inclusion by EPD’s revised L-Score analysis be included in the Atlanta PM2.5 nonattainment area. This is because all three of these counties are part of the Atlanta 8-hr ozone nonattainment area and they all met at least four of the quantitative criteria.

**Cumulative L-Scores Following Analysis of Other Factors**

The Division recalculated the revised L-Scores of recommended PM2.5 nonattainment areas following adjustments made using the other quantitative and qualitative factors. Following are the combined L-Scores, % of Urban Excess represented by the selected counties, and % reduction in L-Scores of the selected counties necessary to comply with the PM2.5 NAAQS. This information is presented first for those counties that were initially identified by solely using EPD’s L-Score analysis and then for the counties identified after considering the other factors. (The following combined L-Score for each nonattainment area also includes L-Score values for counties that are part of another nonattainment area but included in or adjacent to that area’s MSA.)

Nonattainment Area	Combined L-Score and Percent of Urban Excess		% Reduction of NAA L-Score Necessary to Attain NAAQS	
	Initial	Revised	Initial	Revised
Macon	50%	31%	10%	15%
Columbus	52%	45%	13%	16%
Augusta	60%	60%	8%	8%
Athens	53%	31%	23%	39%
Atlanta	80%	75%	51%	55%

The above figures indicate that while the changes to the recommended nonattainment areas that occurred through the analysis of the other factors resulted in reduced L-Score levels and percent urban excess covered by the recommended areas, the % reduction in local emissions necessary to attain the PM2.5 standard is not significantly affected. (The increase in percent reduction of local emissions necessary to attain the PM2.5 standard for Athens is somewhat higher than the other areas. However, Athens is in the same regional airshed as Atlanta and reductions in Atlanta's emissions will have a large impact on Athens' air quality.)

Note that consideration of the other factors did not alter the recommended PM2.5 nonattainment area for Augusta, so the initial and revised values are identical.

### **RECOMMENDATIONS**

The Air Protection Branch recommends the following areas in Georgia be designated nonattainment for the PM2.5 standard:

- **Macon Nonattainment Area:** Bibb County and the portion on Monroe County as described below:

*From the point where Bibb and Monroe Counties meet at US Hwy 23/Georgia Hwy 87, follow the Bibb/Monroe County line westward 150' from the US Hwy 23/Georgia Hwy 87 centerline, proceed northward 150' west of and parallel to the US Hwy 23/Georgia Hwy 87 centerline to 33 degrees, 04 minutes, 30 seconds; proceed westward to 83 degrees, 49 minutes, 45 seconds; proceed due south to 150' north of the Georgia Hwy 18 centerline, proceed eastward 150' north of and parallel to the Georgia Hwy 18 centerline to 1150' west of the US Hwy 23/Georgia Hwy 87 centerline, proceed southward 1150' west of and parallel to the US Hwy 23/Georgia Hwy 87 centerline to the Monroe/Bibb County line; then follow the Monroe/Bibb County line to 150' west of the US Hwy 23/Georgia Hwy 87 centerline.*

- **Augusta Nonattainment Area:** Richmond County, if our June 17, 2004 request for an "unclassifiable" designation is not approved.
- **Athens Nonattainment Area:** Clarke County
- **Atlanta Nonattainment Area:** Fulton, DeKalb, Cobb, Bartow, Gwinnett, Coweta, Cherokee, Clayton, Hall, Henry, Carroll, Forsyth, Paulding, Newton, Douglas, Fayette, Walton, Spalding, Rockdale, and Barrow Counties and the northeast portion of Heard County that extends north of 33 degrees 24 minutes (North) to the Carroll County border and east of 85 degrees 3 minutes (West) to the Coweta County border

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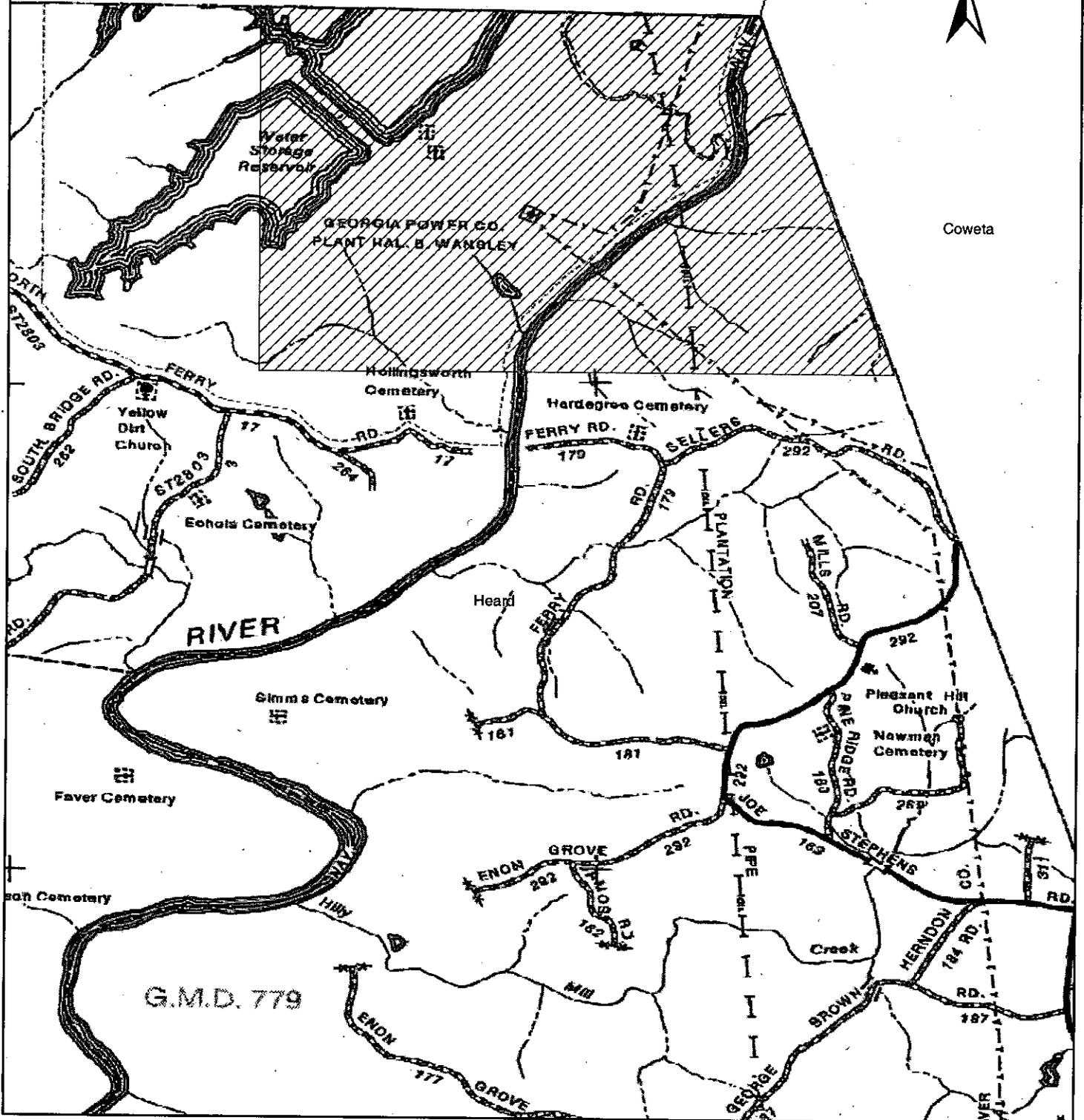


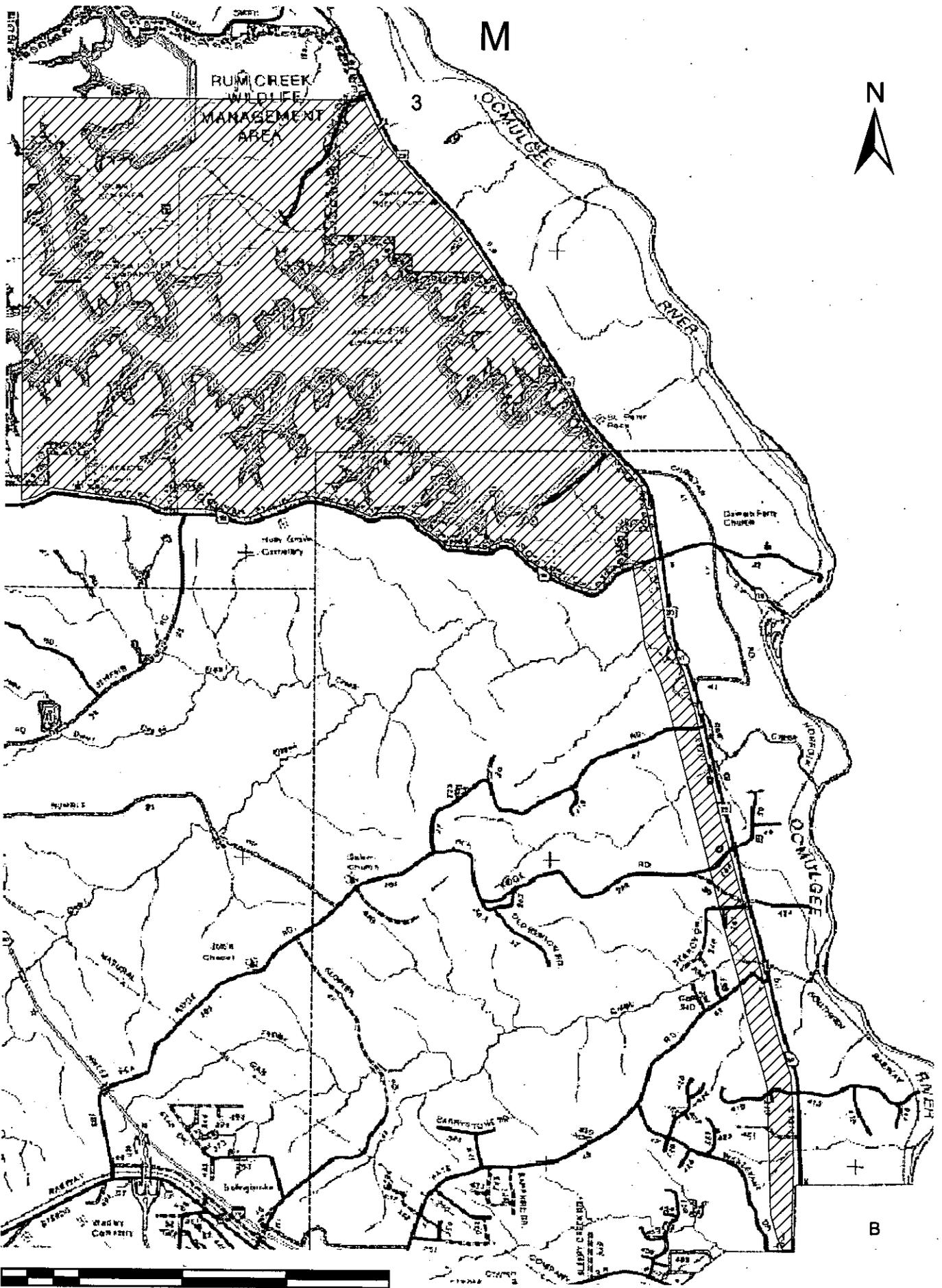
# Heard County Nonattainment Area (Partial)

Carroll



Coweta





M



B

# Heard County Nonattainment Area (Partial)

Carroll



Coweta

