



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243-0435

BETSY L. CHILD
COMMISSIONER

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May 7, 2004

J.I. Palmer, Jr.
Regional Administrator
US EPA, Region IV
Atlanta Federal Center, 12th Floor
61 Forsyth Street, SW
Atlanta, GA 30303



RE: Tennessee Revised Recommendation for PM_{2.5} Area Designations and Technical Support Documentation

Dear Mr. Palmer:

The Clean Air Act requires states to submit a recommendation for PM_{2.5} attainment status. Tennessee's recommendations were submitted to EPA on February 12, 2004. Using the Environmental Protection Agency's Designation Boundary Guidance memorandum of April 1, 2003 and upon evaluation of more recent data, Tennessee is revising its initial recommendation to list only the two (2) following counties as nonattainment for PM_{2.5}:

2001-2003 Preliminary Data

Knoxville MSA
Knox County

2001-2003 Final Data

Chattanooga MSA
Hamilton County

PM_{2.5} data from a number of the PM_{2.5} monitoring sites has recently been quality checked through the end of 2003 and submitted to the EPA Air Quality System. This data shows that the McMinn, Roane and Sullivan County areas have attained the annual PM_{2.5} National Ambient Air Quality Standard (NAAQS). In the previous February 12, 2004 recommendation, these three counties were recommended as nonattainment. Following an evaluation of the 2003 data, Tennessee now recommends that these three counties be designated attainment for the annual PM_{2.5} NAAQS.

As you may know, Knox County has a local air pollution control program. Data from Knox County is still being processed and entered into the EPA Air Quality System. I expect this to be completed in the near future. As the data is finalized, Tennessee will evaluate the information and provide subsequent recommendations to EPA as necessary.

Mr. J.I. Palmer, Jr.
May 7, 2004
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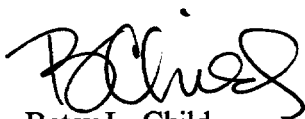
In support of the recommendations made by the State of Tennessee, the following technical support documentation is enclosed for your consideration:

- County by County Analysis
- Census 2000 Data for the State of Tennessee
- Boundary Definition/Description
- Jurisdictional Boundaries
- Monitoring Data Representing PM_{2.5} Concentrations
- Design Values for the Areas (Calculations)
- Period of Time Represented by the Design Values
- Design Value Monitoring Site Location and Identification Number
- Population Density and Degree of Urbanization including Commercial Development
- Expected Growth
- Level of Control of Emission Sources
- Traffic and Commuting Patterns
- Geography/Topography (Mountain Ranges or Other Air Basin Boundaries)
- Meteorology (Weather/Transport Patterns)

For counties that have not been specified as nonattainment, it is recommended that those counties be classified as attainment.

In closing, I believe the enclosed documentation substantiates recommendations made by the State of Tennessee. If more information is needed do not hesitate to contact Barry Stephens, Director of the Air Pollution Control Division.

Sincerely,



Betsy L. Child

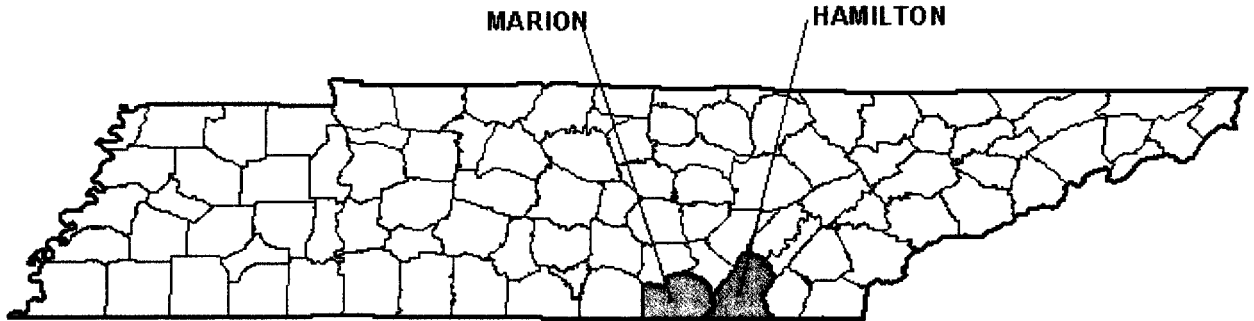
Enclosures

BLC:BRS

Copy to: Kay Prince, Karen Borel, Dick Schutt, EPA Region IV
Tennessee Air Pollution Control Board
Tennessee Local Air Programs

Chattanooga TN-GA MSA

Tennessee MSA Areas Pre-2000 Census



Chattanooga MSA Area

In 2000, this MSA was listed as the 89th largest MSA within the United States.

Hamilton County, Tennessee

Geography/Topography

Hamilton County has a land area of 542.44 square miles and is located on the western fringe of the Valley and Ridge physiographic province of the East Grand Division of the State along the Interstate 24 corridor near the Georgia State line.

Meteorological Information

Wind data from Chattanooga, TN for the period of record from 1988 through 1992 was determined to be representative for Hamilton County. The predominate wind direction and speed is from the south at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 89.8 F, while the mean low is 69.4 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Hamilton County resides with the Chattanooga Hamilton County Air Pollution Control Bureau. Transportation planning for Hamilton County is performed by the Chattanooga Urban Area Metropolitan Planning Organization.

Air Monitoring

For the 2001-2003 monitoring period, the PM_{2.5} monitor 470650031 located at 1510 Maxwell Street shows a PM_{2.5} design value of 16.2 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), and the PM_{2.5} monitor (470654002) located at 642A East Fifth Street, in Chattanooga shows a PM_{2.5} design value of 15.3 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Both monitors would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 309,321 persons living in Hamilton County (see Table 1 C). This indicates a population density of 570.2 persons per square mile. The population of Hamilton County is approximately 9.7% rural with the remaining 90.3% living in incorporated areas. The largest cities in Hamilton County are Chattanooga and East Ridge (see Table 1 C).

Hamilton County's population from 1990 through 2000 increased by approximately 7.8% (285,571 to 307,896). The population is expected to decrease by 0.7% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Chattanooga TN-GA MSA, Hamilton County represents approximately 66% of the total Chattanooga TN-GA MSA population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM_{2.5} control, point sources located within Hamilton County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NO_x SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Hamilton County is minimal. Commuting traffic from Hamilton County into surrounding counties is not significant.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

Preliminary analysis of the 2003 PM_{2.5} data for the representative monitor with the highest value indicates that the 2001-2003 design value will be approximately 16.2 $\mu\text{g}/\text{m}^3$. A detailed air emissions analysis will be submitted at a later date. Therefore, Hamilton County should be designated nonattainment for the PM_{2.5} standard.

Marion County, Tennessee

Geography/Topography

Marion County has a land area of 498 square miles and is located on the western fringe of the Valley and Ridge physiographic province of the East Grand Division of the State along the Interstate 24 corridor near the Georgia State line.

Meteorological Information

Wind data from Chattanooga, TN for the period of record from 1988 through 1992 was determined to be representative for Marion County. The predominate wind direction and speed is from the south at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 89.8 F, while the mean low is 69.4 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Marion County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Marion County is performed by the Tennessee Department of Transportation.

Air Monitoring

Marion County does not have a PM2.5 monitor.

Population

Based on projections to 2002 from the 2000 census data, there are 27,654 persons living in Marion County (see Table 1 C). This indicates a population density of 55.5 persons per square mile. The population of Marion County is approximately 79.3% rural with the remaining 20.7% living in incorporated areas. The largest city in Marion County is South Pittsburg (see Table 1 C).

Marion County's population from 1990 through 2000 increased by approximately 11.7% (24,873 to 27,776). The population is expected to increase by 7.8% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Chattanooga TN-GA MSA, Marion County represents approximately 6% of the total Chattanooga TN-GA MSA population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM2.5 control, point sources located within Marion County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NOX SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Marion County is minimal.
Commuting traffic from Marion County into surrounding counties is significant.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

A detailed air emissions analysis will be submitted at a later date. The county is relatively (79.3%) rural and represents only 6% of the total MSA population. Therefore, Marion County should be designated attainment for the PM2.5 standard.

Chattanooga TN-GA

Figure 1 A
Chattanooga TN-GA MSA
Wind Rose

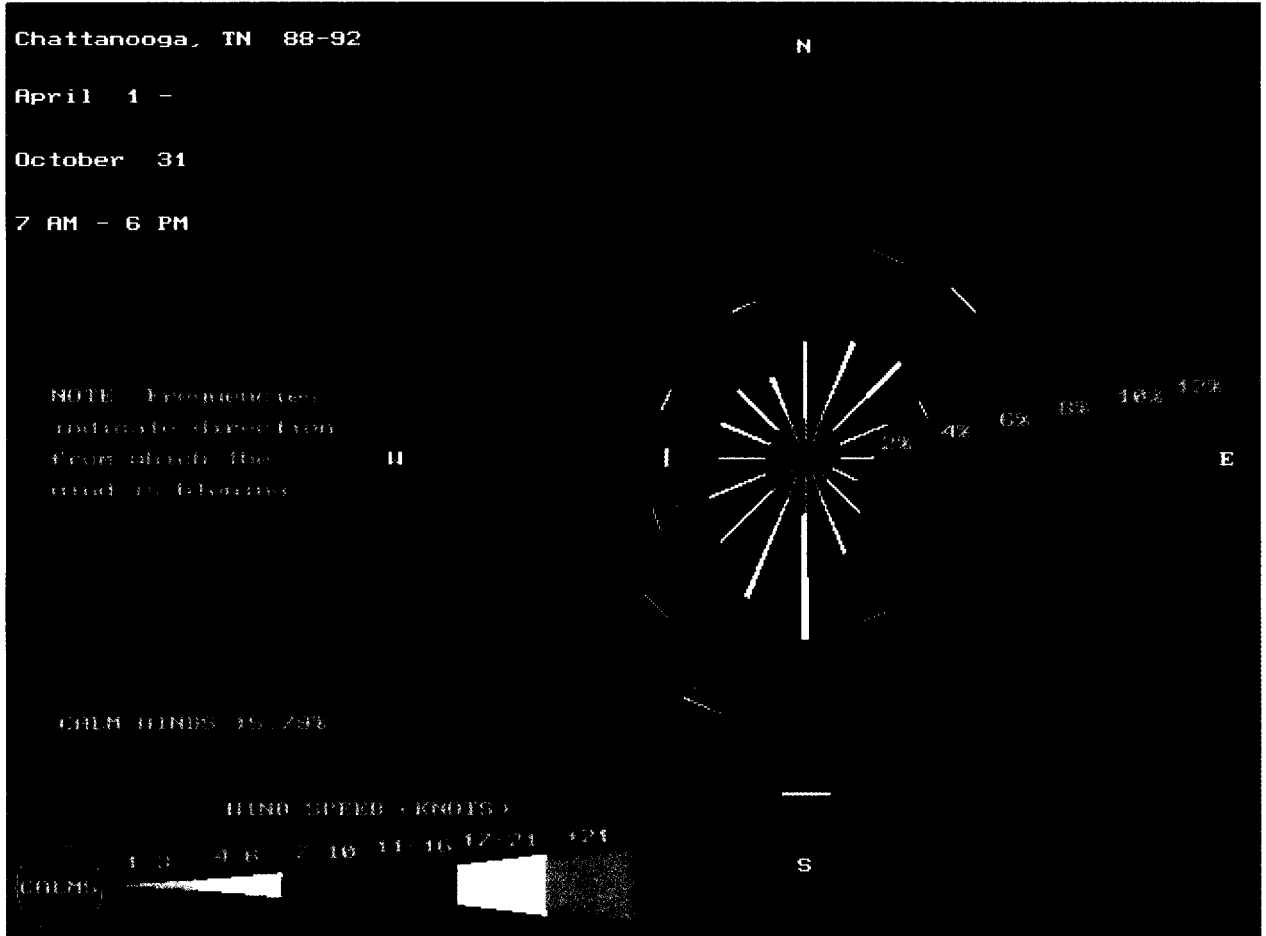


Table 1 A
Chattanooga TN-GA MSA
PM2.5 Design Values
(ugm/m3)

County	Site Name	MONITOR ID	2000 2002 Design Value ugm/m3	2001 2003 Design Value ugm/m3
Hamilton	1510 Maxwell Street	470650031	16.9	16.2
Hamilton	642A East Fifth Street	470654002	16.2	15.3
McMinn	815 Jackson Street	471071002	16.4	14.6

Table 1 B
Chattanooga TN-GA MSA
Population Growth Data

County	Population 1990	Population 2000	PERCENT CHANGE 1990 - 2000	Population 2002	Area in Square Miles	2002 Pop. Density (Sq. Mile)	Projection 2010	% Growth 2000 - 2010
Tennessee								
Hamilton	285,571	307,896	7.8	309,321	542.44	570.2	305,767	-0.7
Marion	24,873	27,776	11.7	27,654	498.36	55.5	29,930	7.8
Georgia								
Catoosa	42,464	53,282	25.5				65,877	23.6
Dade	13,147	15,154	15.3				17,740	17.1
Walker	58,340	61053	4.7				65,195	6.8
TOTALS	432,487	407,811		348,285			496,058	

Table 1 C
Chattanooga TN-GA MSA
2002 Population Estimates

Tennessee Counties	Population
Hamilton	309,321
*Chattanooga	(155,554)
*East Ridge	(20,640)
Marion	27,654
*South Pittsburg	(3,295)
TN TOTALS	336,975

Georgia Counties	Population
**Catoosa	55,197
**Dade	15,508
**Walker	61,884
GA TOTALS	132,589

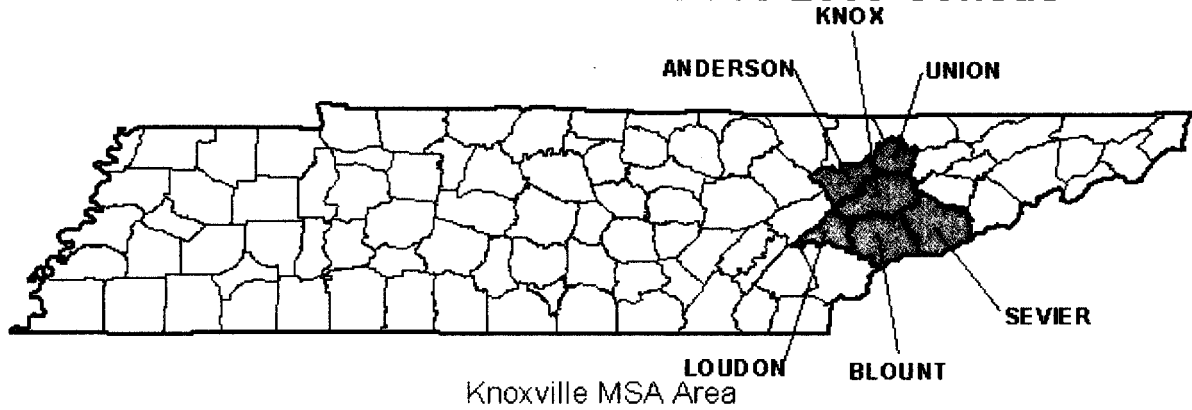
TN & GA TOTALS	469,564
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* Based on 2000 Census Data

** Based on 2001 Census Data

Knoxville MSA

Tennessee MSA Areas Pre-2000 Census



The Knoxville Metropolitan Statistical Area encompasses six counties. It includes Anderson, Blount, Knox, Loudon, Sevier, and Union counties in East Tennessee. In 2000, this MSA was listed as the 62nd largest MSA within the United States.

Anderson County, Tennessee

Geography/Topography

Anderson County has a land area of 337.51 square miles. The northwest portion of the county is on the eastern edge of the Cumberland Plateau, while the remainder lies in the valley and ridge portion East Tennessee. It is located north of I-40 and west of I-75 northwest of Knoxville.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Anderson County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Anderson County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Anderson County is performed by the Tennessee Department of Transportation.

Air Monitoring

Anderson County does not have a PM2.5 monitor.

Population

Based on projections to 2002 from the 2000 census data, there are 71,627 persons living in Anderson County (see Table 1 C). This indicates a population density of 212.2 persons per square mile. The population of Anderson County is approximately 41% rural with the remaining 59% living in incorporated areas. The largest cities in Anderson County are Oak Ridge and Clinton (see Table 1 C).

Anderson County's population from 1990 through 2000 increased by approximately 4.3% (68,398 to 71,330). The population is expected to increase by 7.0% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Anderson County represents approximately 10% of the total population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM2.5 control, point sources located within Anderson County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NOX SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Anderson County is significant. Commuting traffic from Anderson County into surrounding counties is high.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

A detailed air emissions analysis will be submitted at a later date Anderson County does not have a nonattaining PM2.5 monitor in the County.

Anderson County does have an electric generating facility contributing to the NOX point source emissions, and 37.1 ton/day of the 55 ton/day total of NOX point source emissions comes from this facility. The electric generating facility in Anderson County is subject to the NOX SIP call, and at the minimum would be required to add on low NOX burner controls thereby significantly reducing the impact to the Knoxville MSA area.

Taking all of the above factors into consideration, Anderson County should be designated attainment for the PM2.5 standard.

Blount County, Tennessee

Geography/Topography

Blount County has a land area of 559 square miles and is located in the ridge and valley region of the East Grand Division south of Knoxville. It is located in the south portion of the MSA, and the southeast portion of the county is in elevated terrain within the boundary of the Great Smoky Mountains NP.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Blount County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Blount County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Blount County is performed by the Tennessee Department of Transportation with a portion of the County handled by the Knoxville Regional Transportation Planning Organization.

Air Monitoring

Blount County, part of the Knoxville MSA, has a PM_{2.5} monitor (470090011) at 2007 Sequoyah Avenue. The 2003 design value for the Blount County monitor is 14.4 $\mu\text{g}/\text{m}^3$. This value indicates that the area is attaining the standard (See Table 1A).

Population

Based on projections to 2002 from the 2000 census data, there are 109,849 persons living in Blount County (see Table 1 C). This indicates a population density of 197 persons per square mile. The population of Blount County is approximately 36.6% rural with the remaining 63.4% living in incorporated areas. The largest cities in Blount County are Maryville and Alcoa (see Table 1 C).

Blount County's population from 1990 through 2000 increased by approximately 23% (86,286 to 105,823). The population is expected to increase by 9% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Blount County represents approximately 16% of the total MSA population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM_{2.5} control, point sources located within Blount County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NO_x SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Blount County is minimal. Commuting traffic from Blount County into surrounding counties is high.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

A detailed air emissions analysis will be submitted at a later date. Preliminary analysis of the 2003 ozone data for the representative monitor indicates that the 2001-2003 design value will be approximately 14.4 ug/m³. Therefore, Blount County should be designated attainment for the PM_{2.5} standard.

Knox County, Tennessee

Geography/Topography

Knox County has a land area of 509 square miles and is located in the ridge and valley region of the East Grand Division along the Interstate 40 and 75 corridors. It makes up the central portion of the MSA.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Knox County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Knox County resides with the Knox County Department of Air Quality Management. Transportation planning for Knox County is performed by the Knoxville Regional Transportation Planning Organization.

Air Monitoring

Preliminary recommendations for Knox County are based on the 2000-2002 PM2.5 design value. Data for 2003 has not yet undergone quality assurance. There are three PM2.5 monitors in Knox County. For the 2000-2002 monitoring period, the PM2.5 monitor 470930028 located at 1000 Francis Road shows a PM2.5 design value of 16.8 $\mu\text{g}/\text{m}^3$. There is a second monitor (470931017) at 1919 Vermont Avenue, which shows a PM2.5 design value of 18.4 $\mu\text{g}/\text{m}^3$. The third monitor in Knox County is located at 4625 Mildred Drive (470931020) which has a 2000-2002 design value of 17.3. Based on the 2000-2002 data, Knox County would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 389,327 persons living in Knox County (see Table 1 C). This indicates a population density of 766 persons per square mile. The population of Knox County is approximately 13.1% rural with the remaining 86.9% living in incorporated areas. The largest city in Knox County is Knoxville (see Table 1 C).

Knox County's population from 1990 through 2000 increased by approximately 14% (336,610 to 382,032). The population is expected to increase by 6% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Knox County represents approximately 55% of the total MSA population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM2.5 control, point sources located within Knox County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NOX SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Knox County is minimal. Commuting traffic from Knox County into surrounding counties is minimal.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

A detailed air emissions analysis will be submitted at a later date. Preliminary analysis of the 2002 PM2.5 data for the representative monitor indicates that the 2000-2002 design value will be above the standard. At this point it is unknown whether final quality assurance of the 2003 data will change this result significantly.

Therefore, at this time, Knox County should be designated nonattainment for the PM2.5 standard.

Loudon County, Tennessee

Geography/Topography

Loudon County has a land area of 229 square miles and is located in the ridge and valley region of the East Grand Division along the Interstate 75 corridor southwest of Knoxville. It makes up the southwest portion of the MSA.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Loudon County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Loudon County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Loudon County is performed by the Tennessee Department of Transportation.

Air Monitoring

Loudon County does not have a PM2.5 monitor.

Population

Based on projections to 2002 from the 2000 census data, there are 40,631 persons living in Loudon County (see Table 1 C). This indicates a population density of 178 persons per square mile. The population of Loudon County is approximately 50% rural with the remaining 50% living in incorporated areas. The largest city in Loudon County is Lenoir City (see Table 1 C).

Loudon County's population from 1990 through 2000 increased by approximately 24% (31,411 to 39,086). The population is expected to increase by 15% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Loudon County represents approximately 6% of the total MSA population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM_{2.5} control, point sources located within Loudon County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NO_x SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Loudon County is high.
Commuting traffic from Loudon County into surrounding counties is high.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

A detailed air emissions analysis will be submitted at a later date. At only six percent, Loudon County represents a very small fraction of the MSA population. Also, since Loudon County does not have a nonattaining monitor, Loudon County should be designated attainment for the PM_{2.5} standard.

Sevier County, Tennessee

Geography/Topography

Sevier County has a land area of 592 square miles and is located in the ridge and valley region of the East Grand Division of the state southeast of Knoxville. It is located in the southeast portion of the MSA, and the southeast portion of the county is in elevated terrain within the boundary of the Great Smoky Mountains NP.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Sevier County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Sevier County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Sevier County is performed by the Tennessee Department of Transportation.

Air Monitoring

Sevier County does not have a PM2.5 monitor.

Population

Based on projections to 2002 from the 2000 census data, there are 74,456 persons living in Sevier County (see Table 1 C). This indicates a population density of 126 persons per square mile. The population of Sevier County is approximately 65% rural with the remaining 35% living in incorporated areas. The largest cities in Sevier County are Sevierville, Pigeon Forge and Gatlinburg (see Table 1 C).

Sevier County's population from 1990 through 2000 increased by approximately 39% (51,368 to 71,170). The population is expected to increase by 15% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Sevier County represents approximately 11% of the total MSA population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM2.5 control, point sources located within Sevier County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NOX SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Sevier County is minimal. Commuting traffic from Sevier County into surrounding counties is minimal.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

A detailed air emissions analysis will be submitted at a later date. Because Sevier County does not have a PM2.5 monitor, and pending an emissions analysis, it should be designated attainment at this time.

Union County, Tennessee

Geography/Topography

Union County has a land area of 224 square miles and is located in the ridge and valley region of the East Grand Division of the state north of Knoxville. It makes up the north portion of the MSA.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Union County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Union County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Union County is performed by the Tennessee Department of Transportation.

Air Monitoring

Union County does not have a PM2.5 monitor.

Population

Based on projections to 2002 from the 2000 census data, there are 18,541 persons living in Union County (see Table 1 C). This indicates a population density of 83 persons per square mile. The population of Union County is located in almost entirely rural areas. The largest cities in Union County is Plainview (see Table 1 C).

Union County's population from 1990 through 2000 increased by approximately 30% (13,739 to 17,808). The population is expected to increase by 14% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Union County represents approximately 3% of the total MSA population (see Table 1 C).

Air Emissions

A detailed air emissions analysis will be submitted at a later date.

For PM_{2.5} control, point sources located within Union County are subject to the following: Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control (MACT) requirements for Hazardous Air Pollutants (HAP), New Source Performance Standards (NSPS), requirements of the Acid Rain Program, and the NO_x SIP Call.

Commuting Patterns

Commuting traffic from surrounding counties into Union County is minimal. Commuting traffic from Union County into surrounding counties is high.

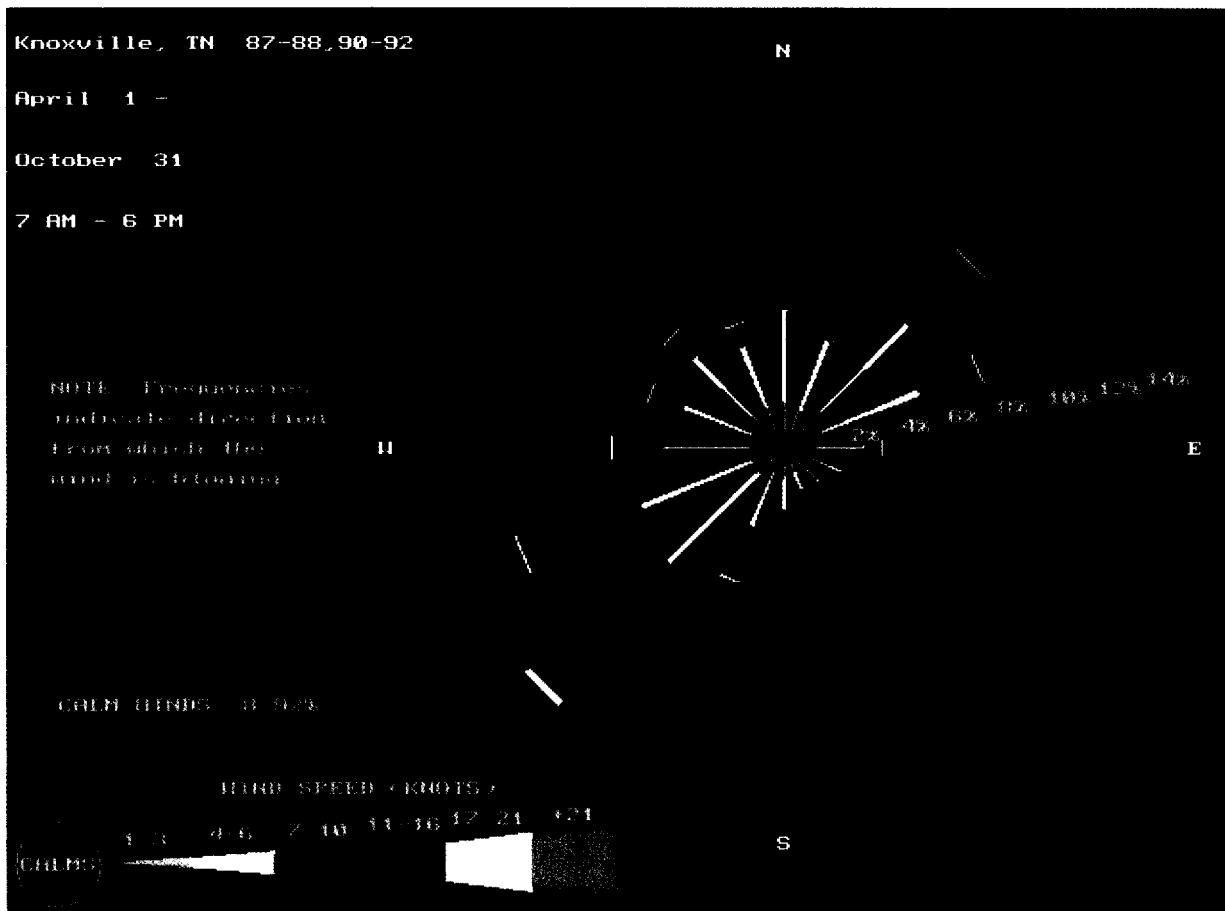
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Conclusion and Recommendation

A detailed air emissions analysis will be submitted at a later date. Union county is almost entirely rural. It's population represents only 3% of the total for the Knoxville MSA. Union County is located at the northern extreme of the MSA together with the prevailing up-valley wind flow implies that it is unlikely Union County would significantly affect any non-attaining monitors in the area. Therefore, Union County should be designated attainment for the PM_{2.5} standard.

Knoxville MSA

Figure 1 A
Knoxville MSA
Wind Rose



**Table 1 A
Knoxville MSA
PM2.5 Design Values
(ugm/m3)**

County	Site Name	MONITOR ID	2000 2002 Design Value ugm/m3	2001 2003 Design Value ugm/m3
Knox	1000 Francis Road	470930028	16.8	*
Knox	1919 Vermont Avenue	470931017	18.4	*
Knox	4625 Mildred Drive	470931020	17.3	*
Roane	Harriman, 501 Carter Street	471450004	15.4	14.2
Blount	2007 Sequoyah Avenue	470090011	16.2	14.4
* 2003 Data not yet available for review.				

**Table 1 B
Knoxville MSA
Population Growth Data**

County	Population 1990	Population 2000	PERCENT CHANGE 1990 - 2000	Population 2002	Area in Square Miles	2002 Pop. Density (Sq. Mile)	Projection 2010	% Growth 2000 - 2010
Anderson	68,398	71,330	4.3	71,627	337.51	212.2	76,000	6.5
Blount	86,286	105,823	22.6	109,849	558.56	196.7	115,135	8.8
Knox	336,610	382,032	13.5	389,327	508.46	765.7	404,666	5.9
Loudon	31,411	39,086	24.4	40,631	228.88	177.5	44,941	15.0
Sevier	51,368	71,170	38.5	74,456	592.29	125.7	82,031	15.3
Union	13,739	17,808	29.6	18,541	223.56	82.9	20,216	13.5
TOTALS	620,932	731,543		704,431			742,989	

**Table 1 C
Knoxville MSA
2002 Population Estimates**

County	Population
Anderson	71,627
*Oak Ridge	(27,387)
*Clinton	(9,409)
Blount	109,849
*Maryville	(23,120)
*Alcoa	(7,734)
Knox	389,327
*Knoxville	(173,890)
Loudon	40,631
*Lenoir City	(6,819)
Sevier	74,456
*Gatlinburg	(3,382)
*Pigeon Forge	(5,083)
*Sevierville	(11,757)
Union	18,541
*Plainview	(1,866)
TOTALS	704,431

* Based on 2000 Census Data