MOUNTAIN AREA

EARLY ACTION COMPACT

June 22, 2006 Voluntary Submittal to

United States Environmental Protection Agency

North Carolina Department of Environment and Natural Resources
Division of Air Quality

The Mountain Area Early Action Compact is comprised of the three Western North Carolina Counties of Buncombe, Haywood, and Madison as well as municipalities within those Counties. Two Counties, Madison and Buncombe, are part of a decades old Metropolitan Statistical Area in the region. Haywood County is part of the newly expanded MSA. These sister governments have all elected to participate in the EAC process. Each desires to improve air quality in our area; to partner with and support State and Federal clean air initiatives; and to avoid the regional consequence of non-attainment.

1. *The following actions have taken place within the three Counties during the past six months.*

The Western North Carolina (WNC) 3 County Region as a whole

- The Regional Clean Air Campaign held monthly meetings to plan and implement air quality educational programs in the region.
  - The March 1 meeting featured a presentation on the VISTAS program.
  - The April 5 meeting featured a presentation by the EPA on its Wood Stove Changeout Program.
- The Land of Sky Clean Vehicles Coalition held several meetings during the period to promote the use of alternative fueled and advanced technology vehicles.
- The LOS CVC joined the EPA's Southeast Diesel Collaborative on April 26 to help reduce diesel emissions.
- Agencies participated in several Earth Day events and displayed hybrid or CNG vehicles.
- Land of Sky Regional Council Staff spoke to the East Tennessee Clean Air Coalition on March 13th about their clean air education programs in WNC.
- UNCA and the US Forest Service have purchased Ford Escape Hybrids for use, and NCDOT Divisions 113 and 114 are utilizing BioDiesel fuels.

- School Busses are no longer allowed to idle, reducing emissions.

Buncombe County (and Asheville)

- The City of Asheville opened the region's first CNG fueling station to the public in January. The City and Mission Memorial Hospital purchased several CNG vehicles.
- NC DAQ MSER Grants were announced in April. AB-Tech College received a $27,000 grant to purchase 3 new GEM electric vehicles for its security force. The Land of Sky Regional Council assisted with the application.
- Several local agencies co-sponsored the Clean Air-Clean Diesel Forum in Asheville on April 12. Congressman Taylor and the EPA Region IV Deputy Administrator participated. Retrofit awards were made by Caterpillar to the City of Asheville and Buncombe County.
- Several agencies sponsored the annual Ozone Season Kickoff Event and Press Conference on May 2nd in Asheville. Some excellent media coverage was received.
- Strive Not to Drive Events took place in Buncombe County April 21-23.

Haywood County

- Bill Eaker of Land of Sky Regional Council held several meetings with various Haywood County officials to begin planning for an AQ and Clean Vehicle Education Program that will take place over the next year.

Madison County

- No new actions were made in Madison County during this report period.

2. Air Quality Analysis

Assessment of Air Quality for Mountain EAC

Compact areas must certify progress toward attainment since their previous milestone, e. g., continued implementation and progress toward improvement in air quality and emissions reductions. Based on this June 30, 2006, progress report, the U.S. Environmental Protection Agency (USEPA) will determine whether or not to defer the effective date of the nonattainment designation to April 15, 2008 for the counties participating in the Mountain Early Action Compact (EAC) area.

The North Carolina Division of Air Quality (NCDAQ) evaluated design value (DV) trends and ozone exceedance trends from 1994 to 2005 to determine if the Mountain EAC area shows decreases in ozone formation. Specifically, the NCDAQ evaluated the following data as part of the air quality analyses:

- 1-Hour Ozone Design Value Trends – Most recent 1-hour ozone design values compared to the trend in 1-hour ozone design values from the 1994-1996 timeframe to present.
- 8-hour Ozone Design Value Trends – Most recent design values (3 year average of the 4th highest 8-hour ozone average), compared to the trend in design values from the 1994-1996 timeframe to present.
- 1-Hour Ozone Exceedances – Number of exceedances of the 1-hour ozone standard at each monitor in the EAC area for the most recent ozone season, compared to the number of exceedances at each monitor from 1994 to present.
- 8-Hour Ozone Exceedances – Number of exceedances of the 8-hour ozone standard at each monitor in the EAC area for the most recent ozone season, compared to the number of exceedances at each monitor from 1994 to present.

The National Ambient Air Quality Standard (NAAQS) for 1-hour ozone is 0.12 parts per million (ppm). When a monitor measures ozone above 0.124 ppm (per rounding convention), an exceedance of the NAAQS occurs. The design value for 1-hour ozone is calculated by rank ordering the highest monitor reading for a three-year period and the 4th highest value is the design value for that monitor. The design value for an area would be the highest monitor design value.

The NAAQS for 8-hour ozone is 0.08 ppm. When a monitor measures ozone above 0.084 ppm, an exceedance of the NAAQS occurs. The design value for 8-hour ozone is calculated by averaging the annual 4th highest daily maximum for three consecutive years for a monitor. The design value for an area would be the highest monitor design value.

In the sections below the four matrices listed above are discussed.

1-hour Design Value Trends

In the Mountain EAC area, 1-hour ozone design values peaked during the mid and late '90s periods, then showed a slight decrease through the 2002-2004 period, with a greater decrease in the 2003-2005 period (see Table 1 below). The design values are presented in parts per million and the light shading indicates that no data was available.

Table 1: 1-Hour Ozone Design Values for Mountain EAC Area

Monitoring Sites	AIRS ID	Design Value Summary (ppm)									
		94-96	95-97	96-98	97-99	98-00	99-01	00-02	01-03	02-04	03-05
Frying Pan	37-087-0035	0.095	0.095	0.106	0.107	0.107	0.104	0.098	0.098	0.098	0.091
Purchase Knob	37-087-0036	0.094	0.106	0.103	0.105	0.103	0.102	0.104	0.104	0.104	0.091
Bent Creek	37-021-0030	0.085	0.086	0.108	0.111	0.111	0.106	0.106	0.103	0.103	0.092
Waynesville	37-087-0004				0.09	0.094	0.094	0.095	0.091	0.091	0.084

Figure 1 below shows the trend in highest monitor 1-hour DVs for the Mountain EAC area. After the 1996-1998 DV period, values roughly plateau until a significant drop is seen in the 2003-2005 DV period.

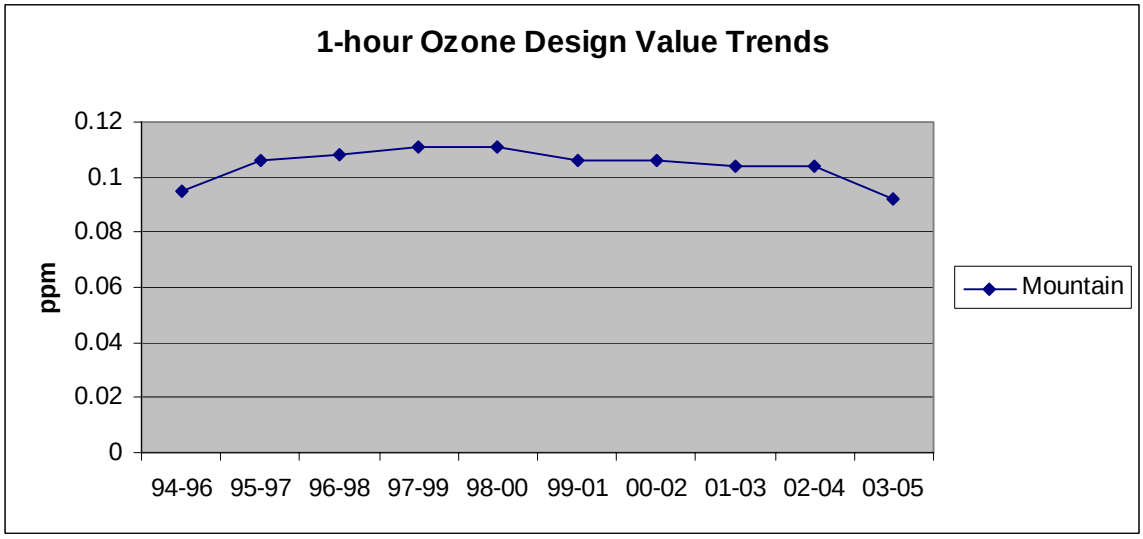

Figure 1: Trend in the area-wide 1-hour design values (in parts per million) for the Mountain EAC area from 1994 to 2005.

8-hour Design Value Trends

Much like the 1-hour values, 8-hour design values peaked in 1997-1999 and 1998-2000, with a steady decline in DVs in following years. As for the 2002-2004 and 2003-2005 DVs, all were 0.082 ppm or less. The design values are presented in parts per million, with design values exceeding the standard highlighted in orange. Light shading indicates that no data was available.

Table 2: 8-Hour Ozone Design Values for the Mountain EAC Area

Monitoring Sites	AIRS ID	Design Value Summary (ppm)									
		94-96	95-97	96-98	97-99	98-00	99-01	00-02	01-03	02-04	03-05
Frying Pan	37-087-0035	0.079	**0.085**	**0.091**	**0.094**	**0.094**	**0.087**	**0.085**	0.082	0.080	0.076
Purchase Knob	37-087-0036		0.083	**0.085**	**0.090**	**0.090**	**0.087**	**0.087**	**0.085**	0.082	0.078
Bent Creek	37-021-0030	0.073	0.075	0.079	0.083	**0.088**	0.083	**0.085**	0.078	0.077	0.074
Waynesville	37-087-0004						0.080	0.080	0.079	0.076	0.072

Figure 2 below shows the trend in the highest monitor 8-hour DVs for the Mountain EAC area. The graph shows the peak in the 1997-1999 and 1998-2000 design values. Design values decrease through the rest of the graph. The Mountain area drops below the 8-hour standard by the 2003-2005 period.

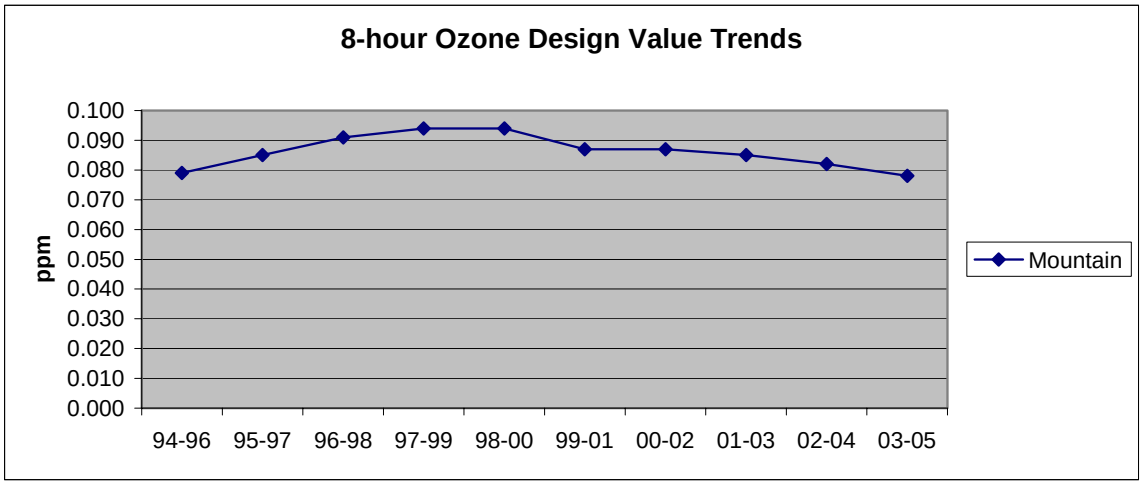

Figure 2: Trend in the area-wide 8-hour design values (in parts per million) for the Mountain EAC area from 1994 to 2005.

1-hour & 8-Hour Ozone Exceedance Trends

An exceedance of the 1-hour standard occurred in the 1998 season at the Bent Creek monitor in the Mountain EAC area. There have been no exceedances of the 1-hour standard in the last 7 years in the Mountain EAC area (see Table 3 below). Light shading indicates that no data was available for the period.

Table 3: The Number of 1-Hour Ozone Exceedances Within the Mountain EAC Area.

Number Of 1-Hour Exceedances Per Year		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Bent Creek	37-021-0030	0	0	0	0	1	0	0	0	0	0	0	0
Frying Pan	37-087-0035	0	0	0	0	0	0	0	0	0	0	0	0
Purchase Knob	37-087-0036		0	0	0	0	0	0	0	0	0	0	0
Waynesville	37-087-0004						0	0	0	0	0	0	0

The number of 8-hour ozone exceedances (Table 4) shows a downward trend since peaking in 1998 and 1999 in the Mountain EAC area. The Mountain EAC area only had one exceedance from 2003 to 2005. Light shading indicates that no data was available for the period and orange highlighting indicates a monitor with four or more exceedances for that year.

Table 4: The Number of 8-Hour Ozone Exceedances Within the Mountain EAC Area.

Number Of 8-Hour Exceedances Per Year		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Bent Creek	37-021-0030	0	0	0	0	5	2	7	1	7	0	0	1
Frying Pan	37-087-0035	0	5	5	4	23	24	4	1	13	0	0	0
Purchase Knob	37-087-0036		4	1	7	12	19	5	0	18	0	0	0
Waynesville	37-087-0004						1	3	0	2	0	0	0

Conclusions

The Mountain EAC area continues to show decreases in both the 1-hour and 8-hour ozone design values. In fact, the summer of 2005 was both hot and dry and none of the Mountain area monitors had more than one exceedance of the 8-hour ozone standard. The USEPA allows three exceedances to be discounted when calculating the design value. It is believed that the Mountain EAC area is well on its way to meet the December 2007 milestone of having a design value below the 8-hour ozone standard.

3. Expected Emissions Reductions

- Open burning ban and ozone action days, implemented in June 2004:
  i. VOC Reduction of 0.5 TPD
  ii. NOx Reduction of 0.4 TPD

- Expand vehicle I&M, implemented in July 2005:
    i. VOC Reduction of 0.6 TPD
    ii. NOx Reduction of 0.7 TPD