

Durham
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Planning Organization

APPENDIX F

AIR QUALITY CONFORMITY ANALYSIS AND DETERMINATION REPORT - EXECUTIVE SUMMARY



APPENDIX F – AIR QUALITY CONFORMITY ANALYSIS AND DETERMINATION REPORT

This appendix is an excerpt from the Executive Summary from the “Conformity Analysis and Determination Report.” The Executive Summary, which starts on page F-2, covers the 2030 Long Range Transportation Plans from:

- 1) the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO);
- 2) the Capital Area Metropolitan Planning Organization (CAMPO); and,
- 3) the Burlington-Graham Metropolitan Planning Organization (Orange County portion).

In addition, it includes projects from the FY 2004-2010 Transportation Improvement Programs from the portions of Chatham County, Franklin County, Granville County, Johnston County, Orange County and Person County that are within the Triangle Ozone Non-Attainment Area but Outside the Metropolitan Planning Organization Areas.

The report was prepared by the Triangle J Council of Governments (TJCOG) for the:

- Capital Area Metropolitan Planning Organization;
- Durham-Chapel Hill-Carrboro Metropolitan Planning Organization;
- Burlington-Graham Metropolitan Planning Organization;
- Triangle Area Rural Planning Organization;
- Kerr-Tar Rural Planning Organization;
- Upper Coastal Plain Rural Planning Organization; and,
- The NCDOT Transportation Planning Branch

The TJCOG cooperated with the North Carolina Department of Environment and Natural Resources, Division of Air Quality, to prepare this report.

Final and up-to-date copies of the “Air Quality Conformity Analysis and Determination Report” may be found at the DCHC MPO Web site:

<http://www.dchcmpo.org/>

EXECUTIVE SUMMARY

The purpose of this report is to comply with the provisions of the Clean Air Act Amendments of 1990 and the Transportation Equity Act for the 21st Century (TEA-21) of 1998. It demonstrates that the financially constrained long-range transportation plans (LRTPs) and the transportation improvement programs (TIPs) eliminate or reduce violation of the national ambient air quality standards (NAAQS) in the following areas:

- The Capital Area Metropolitan Planning Organization (CAMPO),
- The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO),
- The portion of Orange County within the Burlington-Graham Metropolitan Planning Organization (BG MPO),
- The portions of the Triangle Area Rural Planning Organization (TARPO) which are in the Triangle Ozone Non-Attainment Area (Orange County and four townships in Chatham County: Baldwin, Center, New Hope and Williams Townships),
- The portions of the Kerr-Tar Rural Planning Organization (Kerr-Tar RPO) which are in the Triangle Ozone Non-Attainment Area (Franklin, Granville and Person Counties), and
- Johnston County in the Upper Coastal Plain Rural Planning Organization.

The plan accomplishes the intent of the North Carolina State Implementation Plan (SIP). This conformity determination is based on a regional emissions analysis that uses the transportation networks approved by each of the above-named Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs) for the 2030 long-range transportation plans, and the emissions factors developed by the North Carolina Department of Environment and Natural Resources (DENR). The above-named MPOs and RPOs combine to form a region known as the Research Triangle, or "Triangle." Based on this analysis, 2030 Long-Range Transportation Plans for the CAMPO, the DCHC MPO, and the BGMPO, and their respective Transportation Improvement Programs conform to the purpose of the North Carolina SIP. The FY 2004-2010 TIP is a subset of the 2030 long-range transportation plan. The conformity analysis for the relevant portions of the RPOs during the TIP years is specifically addressed by the North Carolina Department of Transportation (NCDOT). The NCDOT analysis also showed the Transportation Improvement Programs conform to the purpose of the North Carolina SIP.

USEPA originally declared Durham County, Wake County and Dutchville Township in Granville County non-attainment for ozone (O₃) and Durham County and Wake County non-attainment for Carbon Monoxide (CO) on November 15, 1990. Durham County, Wake County and Dutchville Township were redesignated by USEPA to maintenance for ozone on June 17, 1994 and Durham County and Wake County were redesignated by USEPA to maintenance for CO on September 18, 1995.

In 1997 the NAAQS for ozone was reviewed and revised to reflect improved scientific understanding of the health impacts of this pollutant. When the standard was revised in 1997, an eight-hour ozone standard was established. The USEPA designated the entire Triangle area as a "basic" non-attainment area for eight-hour ozone with an effective date of June 15, 2004.

The non-attainment designation covers the following geographic areas:

- Durham County
- Wake County
- Orange County
- Johnston County
- Franklin County
- Granville County
- Person County
- Baldwin, Center, New Hope and Williams Townships in Chatham County

The conformity determination is based on the following Long Range Transportation Plans (LRTPs):

- 2030 Transportation Plan for the Capital Area MPO
- 2030 Transportation Plan for the Durham-Chapel Hill-Carrboro MPO
- 2030 Transportation Plan for the Burlington-Graham MPO.

These three LRTPs, taken together, and with projects from the most recent TIP in the rural areas outside of the urban areas, form in effect a Triangle Regional Transportation plan. Each plan has three analysis years: 2010, 2020, and 2030. Each analysis year includes expected population and employment data and roadway and transit projects that should be open. The plans are fiscally constrained: funding sources for roadway and transit projects are identified.

DENR prepared base and future emission rates for the vehicle fleet using Mobile 6.2. These rates were applied to VMT or normalized VMT from the Triangle Regional Model (TRM). VMT normalization for CO was necessary to match the Triangle's VMT with the HPMS VMT that was used to develop the CO budgets. Only Durham and Wake Counties and Dutchville Township in Granville County had emissions budgets.

Table 1 summarizes the conformity requirements of 40 CFR Part 51 and 93 and gives the status of each long range transportation plan in relation to each of these requirements. Tables 2 through 4 contain results from the budget comparisons for Durham County, Wake County and Dutchville Township in Granville County. Tables 5 through 10 provide the summary for the remaining areas that do not have emissions budgets. Details are included in Section 5 of the report. In every horizon year for every pollutant in each geographic area, the emissions expected from the implementation of the long-range plans and TIPs are less than the emissions budgets established in the SIP or the baseline emissions where no SIP budget is available. Table 11 contains a cross-reference index for the report.

Table 1. Status of Conformity Requirements

Criteria (✓ indicates the criterion is met)	Burlington-Graham MPO	Durham-Chapel Hill-Carrboro MPO	Capital Area MPO	Rural Area of the Triangle
Less Than Emissions Budget(s) or Baseline	✓	✓	✓	✓
TCM Implementation	The NC SIP includes no Transportation Control Measures in the Triangle Area			
Interagency Consultation	✓	✓	✓	✓
Latest Emissions Model	✓	✓	✓	✓
Latest Planning Assumptions	✓	✓	✓	✓
Fiscal Constraint	✓	✓	✓	✓

Table 2. Durham County Emissions Comparison Summary (kg/day)¹

Year	NOx		VOC		CO			
	SIP Budgets	L RTP Emissions	SIP Budgets	L RTP Emissions	Existing SIP Budgets	Previously Proposed SIP Budgets	Currently Proposed SIP Budgets	L RTP Emissions
2002 ²		19,494		9,120				
2005 ³	N/A	N/A	N/A	N/A	148,418	145,794	145,794	135,736
2007 ³	13,871	13,344	7,530	6,459	N/A	N/A	N/A	N/A
2009 ³	13,871	10,957	7,530	5,663	N/A	N/A	N/A	N/A
2010 ³	10,297	9,672	6,142	5,298	148,418	145,794	145,794	108,890
2012 ³	8,246	7,489	5,389	4,574	N/A	N/A	N/A	N/A
2015 ³	5,888	5,244	4,772	3,863	148,418	145,794	160,771	95,590
2020	5,888	3,337	4,772	3,209	148,418	145,794	160,771	90,498
2030 ⁴	5,888	2,686	4,772	3,094	148,418	145,794	160,771	104,141

Table 3. Wake County Emissions Comparison Summary (kg/day)¹

Year	NOx		VOC		CO			
	SIP Budgets	L RTP Emissions	SIP Budgets	L RTP Emissions	Existing SIP Budgets	Previously Proposed SIP Budgets	Currently Proposed SIP Budgets	L RTP Emissions
2002 ²		52,029		25,035				
2005 ³	N/A	N/A	N/A	N/A	353,082	347,570	347,570	296,260
2007 ³	37,539	35,383	18,180	17,846	N/A	N/A	N/A	N/A
2009 ³	37,539	29,474	18,180	15,817	N/A	N/A	N/A	N/A
2010 ³	27,125	26,311	15,749	14,919	353,082	347,570	347,570	297,395
2012 ³	22,144	20,881	14,188	13,207	N/A	N/A	N/A	N/A
2015 ³	16,239	15,096	13,018	11,531	353,082	347,570	348,604	287,339
2020	16,239	10,030	13,018	10,100	353,082	347,570	348,604	284,656
2030 ⁴	16,239	8,516	13,018	10,321	353,082	347,570	348,604	344,841

1. To obtain tons per day, divide kilograms per day by 907.2.

2. Baseline year.
3. Budget year; 2009 is also the attainment year for ozone.
4. Horizon year.

Table 4. Dutchville Township (Granville County) Emissions Comparison Summary (kg/day)¹

Year	NO _x		VOC	
	SIP Budgets	Long Range Plan or TIP Emissions	SIP Budgets	Long Range Plan or TIP Emissions
2002 ²		2,372		615
2007 ³	1,324	1,311	499	428
2009 ³	1,324	1,139	499	391
2010 ³	1,025	1,008	417	371
2012 ³	807	774	372	326
2015 ³	562	534	336	281
2020	562	335	336	242
2030 ⁴	562	295	336	272

1. To obtain tons per day, divide kilograms per day by 907.2.
2. Baseline year.
3. Budget year; 2009 is also the attainment year for ozone.
4. Horizon year.

Table 5. Remainder of Granville County Emissions Comparison Summary (kg/day)

Year	NO _x		VOC	
	Baseline (2002) Emissions	Long Range Plan or TIP Emissions	Baseline (2002) Emissions	Long Range Plan or TIP Emissions
2010	3,924	2,068	1,848	1,086
2020	3,924	823	1,848	635
2030	3,924	510	1,848	536

Table 6. Franklin County Emissions Comparison Summary (kg/day)¹

Year	NO _x		VOC	
	Baseline (2002) Emissions	Long Range Plan or TIP Emissions	Baseline (2002) Emissions	Long Range Plan or TIP Emissions
2010	3,129	1,829	2,403	1,382
2020	3,129	841	2,403	911
2030	3,129	602	2,403	811

Table 7. Johnston County Emissions Comparison Summary (kg/day)

Year	NO _x		VOC	
	Baseline (2002) Emissions	Long Range Plan or TIP Emissions	Baseline (2002) Emissions	Long Range Plan or TIP Emissions
2010	17,136	10,182	7,955	4,879
2020	17,136	4,101	7,955	3,203
2030	17,136	2,688	7,955	2,888

Table 8. Orange County Emissions Comparison Summary (kg/day)

Year	NO _x		VOC	
	Baseline (2002) Emissions	Long Range Plan or TIP Emissions	Baseline (2002) Emissions	Long Range Plan or TIP Emissions
2010	13,668	6,711	4,270	2,470
2020	13,668	2,100	4,270	1,507
2030	13,668	1,608	4,270	1,478

Table 9. Person County Emissions Comparison Summary (kg/day)

Year	NO _x		VOC	
	Baseline (2002) Emissions	Long Range Plan or TIP Emissions	Baseline (2002) Emissions	Long Range Plan or TIP Emissions
2010	1,840	1,103	1,610	1,023
2020	1,840	599	1,610	660
2030	1,840	484	1,610	592

Table 10. Chatham County (part) Emissions Comparison Summary (kg/day)

Year	NO _x		VOC	
	Baseline (2002) Emissions	Long Range Plan or TIP Emissions	Baseline (2002) Emissions	Long Range Plan or TIP Emissions
2010	729	503	612	444
2020	729	160	612	180
2030	729	142	612	194