

**Conformity Analysis and Determination Report for the  
Cabarrus-Rowan MPO, Mecklenburg-Union MPO, and the  
Gaston Urban Area MPO 2035 Long Range Transportation  
Plans and the FY 2009-2015 Transportation Improvement  
Programs and for Non-MPO Areas of Lincoln County, Iredell  
County, Gaston County, and Union County areas  
(8-Hour Ozone, and CO (Mecklenburg County Only))**

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This document, including the appendices, can be downloaded from the website:

[www.crmppo.org](http://www.crmppo.org)

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### List of Acronyms

<i>Acronym</i>	<i>Full Term</i>
CRMPO	Cabarrus-Rowan Metropolitan Planning Organization.
Conformity Analysis	Demonstration that when the projects planned in the TIP and LRTP are implemented the area will not exceed allowable motor vehicle emissions thresholds (emissions budgets).
Conformity Finding	Statement that the projects contained in the MTIP are essentially consistent with those listed in the LRTP and that no new Conformity Analysis is needed to account for noted differences.
CMS	Congestion Management System. A program of strategies for monitoring, evaluating, and addressing traffic congestion. Required for Transportation Management Areas.
CMAQ	Congestion Mitigation and Air Quality Program. A federal highway fund category for projects that will improve air quality.
DAQ	Division of Air Quality.
DENR	North Carolina Department of Environment and Natural Resources.
Emissions Budget	See Conformity Analysis.
EIS	Environmental Impact Statement. Federally required environmental study for projects with potentially significant environmental effects.
FHWA	Federal Highway Administration (USDOT)
FCEAD	Forsyth County Environmental Affairs Department.
FTA	Federal Transit Administration (US Department of Transportation)
GUAMPO	Gaston Urban Area Metropolitan Planning Organization.
LRTP	Long Range Transportation Plan: 25 year planning document identifying long and short term transportation investment needs.
MAB	Metropolitan Area Boundary. The boundary of the area within the transportation planning jurisdiction of an MPO.
MUMPO	Mecklenburg-Union Metropolitan Planning Organization
MPO	Metropolitan Planning Organization.
MTIP	Metropolitan Transportation Improvement Program.
MVEB	Motor Vehicle Emission Budgets.

### List of Acronyms (cont'd)

NCDOT	North Carolina Department of Transportation.
NEPA	National Environmental Policy Act. Federal law that requires consideration of environmental impacts for all major expenditures of federal funds.
NO <sub>x</sub>	Oxides of Nitrogen: key precursor to smog. According to NCDAQ, roadway sources produce around 31% of total NC NO <sub>x</sub> emissions.
Prospectus	Document outlining responsibilities and procedures for carrying out the cooperative transportation planning process. Defines ongoing work tasks cited in the Planning Work Program.
Planning Work Program	Accounting document for use of planning grant funds; lists approved activities that these funds may reimburse. The PWP thus guides transportation planning activities for the year.
RPO	Rural Planning Organization. RPOs are voluntary partnerships among non-MPO counties, established to provide rural areas a greater voice in state transportation decisions affecting those areas.
Section 104(f) PL	Funds distributed through the Federal Highway Administration for transportation planning tasks.
SIP	State Implementation Plan. The modeling analysis and the state and federal regulations demonstrating that the air in an area will meet National Ambient Air Quality Standards.
STIP	State Transportation Improvement Program
TCM	Transportation Control Measures. Specific projects or programs enumerated in the SIP that are designed to improve air quality are implemented in a timely fashion.
TDM	Travel Demand Model.
TMA	Transportation Management Area: urbanized area over 200,000 in population.
US EPA	United States Environmental Protection Agency.

# **Conformity Analysis and Determination Report for the Cabarrus-Rowan MPO, the Gaston Urban Area MPO, and the Mecklenburg-Union MPO 2035 Long Range Transportation Plans and the FY 2009-2015 Transportation Improvement Programs and for Non-MPO Donut Areas of Lincoln County, Iredell County, Gaston County, and Union County (8-Hour Ozone, and CO (Mecklenburg County Only))**

## **Overview**

Transportation Conformity ("conformity") ensures that Federal funding and approval is distributed to those transportation activities that are consistent with air quality goals. Conformity applies to Long Range Transportation Plans (LRTPs), Transportation Improvement Programs (TIPs), and projects funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) in areas that do not meet or previously have not met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide.

These areas are known as "nonattainment areas" or "maintenance areas," respectively. A conformity determination demonstrates that the total emissions projected for a plan or program are within the emissions limits ("budgets") established by the air quality plan or State Implementation Plan (SIP) for air quality, and that transportation control measures (TCMs) – specific projects or programs enumerated in the SIP that are designed to improve air quality – are implemented in a timely fashion.

## **Conformity Determination**

Regional emissions are estimated based on highway and transit usage according to LRTPs and TIPs. The projected emissions for the LRTPs and the TIPs must not exceed the emissions limits (or "budgets") established by the SIP (or less than baseline emissions where no SIP budgets have been approved or found adequate). Where TCMs are included, responsible Metropolitan Planning Organizations (MPOs) and the North Carolina Department of Transportation (NCDOT) are required to demonstrate that TCMs are implemented in a timely fashion to obtain conformity.

## **The Decision Process**

A formal interagency consultation process involving the Environmental Protection Agency (EPA), FHWA, FTA and State and Local transportation and air quality agencies is required in developing SIPs, TIPs, LRTPs, and in making conformity determinations. MPO policy boards make initial conformity determinations in metropolitan areas, while NCDOT makes this determination in areas outside of MPOs, in consultation with affected Rural Planning Organizations (RPOs).

Four organizations are responsible for making the conformity determinations in four distinct parts of the Metrolina Nonattainment/Maintenance Area:

- a. the Cabarrus-Rowan Urban Area MPO (CRMPO) within its portion of the metropolitan area boundary in Cabarrus and Rowan Counties;
- b. the Gaston Urban Area MPO (GUAMPO) within the metropolitan area boundary of Gaston County;
- c. the Mecklenburg-Union MPO (MUMPO) within the metropolitan area boundary of Mecklenburg and Union Counties;
- d. the NCDOT in the donut areas that is comprised of those county portions of Gaston, Lincoln, Iredell and Union Counties that remain outside of any MPO metropolitan area boundary.

Each of these responsible organizations must make a conformity determination for its respective area in order for all of the areas to be designated in conformity.

Conformity determinations must also be made at the Federal level by FHWA and FTA. These determinations must be made at least every four years, or with the updating of LRTPs or TIPs, or within one year of the effective date of a non-attainment designation.

Conformity analysis is made available to the public as part of the MPO and/or State DOT planning processes. MPOs are required to make LRTPs, TIPs, and conformity determinations available to the public, accept and respond to public comments, and provide adequate notice of relevant public meetings. Project sponsors of specific transportation projects within the LRTPs and TIPs must also include appropriate public involvement during project development.

### **Emissions Budget**

The SIP places limits on emissions of each pollutant for each source type (mobile, stationary, and area sources). Projected emissions from highway and transit usage must be less than or equal to the emissions limits for on-road mobile vehicles that are established by the SIP (or less than baseline emissions where no SIP budgets have been approved or found adequate). These emissions limits for motor vehicle emissions sources are called "budgets." Budgets are developed as part of the air quality planning process by State air quality/environmental agencies, and approved by EPA. Transportation agencies participate in this process.

### **Transportation Control Measures (TCMs)**

Areas can include TCMs in their SIPs. TCMs are specific programs designed to reduce

emissions from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. These programs can include:

- developing high occupancy vehicle (HOV) facilities
- ordinances to promote non-motor vehicle travel
- transit improvements
- signal timing
- bicycle and pedestrian facilities
- land use planning

## ***Executive Summary***

The purpose of this report is to comply with the provisions of the Clean Air Act Amendments of 1990 and the Safe Accountable Flexible Efficient Transportation Equity Act – Legacy for Users (SAFETEA-LU). It demonstrates that the financially constrained long-range transportation plan and the transportation improvement program (TIP) eliminates or reduces violation of the national ambient air quality standards (NAAQS) in the nonattainment area that includes:

The Cabarrus-Rowan Metropolitan Planning Organization (CRMPO);  
The Gaston Urban Area Metropolitan Planning Organization (GUAMPO);  
The Mecklenburg-Union Metropolitan Planning Organization (MUMPO); and  
The portions of Gaston, Lincoln, Iredell and Union outside the MPO boundary that are in the Metrolina Non-Attainment Area.

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 network approved by each of the above-named Metropolitan Planning Organizations (MPOs) for the 2035 long-range transportation plan, and the emissions factors developed by the North Carolina Department of Environment and Natural Resources (DENR). This area is henceforth defined as the Metrolina nonattainment area. Based on this analysis, 2035 Long-Range Transportation Plans for CRMPO, GUAMPO, and MUMPO, and their respective Transportation Improvement Programs conform to the purpose of the North Carolina SIP. The FY 2009-2015 TIP is a direct subset of the 2035 Long-Range Transportation Plans (LRTPs) for CRMPO, GUAMPO, and MUMPO. The LRTP has a 25-year planning horizon. The conformity determination for the donut areas during the State TIP years is specifically addressed by the North Carolina Department of Transportation (NCDOT). The projects in the State TIP outside the MPO areas conform to the purpose of the North Carolina SIP.

The United States Environmental Protection Agency (USEPA) originally declared Mecklenburg County nonattainment for carbon monoxide (CO) on March 3, 1978. Following the Clean Air Act Amendments of 1990, the USEPA designated Mecklenburg County as “not-classified” for CO. Mecklenburg County was re-designated as a maintenance area for CO on September 18, 1995.

In 1997 the US EPA reviewed and revised the NAAQS for ozone 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. In April 2004, the USEPA declared the Metrolina area as moderate nonattainment for the eight-hour ozone standard. The complete Metrolina nonattainment region also includes the Rock Hill, Fort Mill Area Transportation Study (RFATS), a MPO comprising the urbanized (eastern) half of York County, SC. EPA guidance allows NC and SC to work independently.

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

*2035 Transportation Plan for the Cabarrus-Rowan MPO*  
*2035 Transportation Plan for the Gaston Urban Area MPO*  
*2035 Transportation Plan for the Mecklenburg/Union MPO.*

Each plan has three analysis years: 2015, 2025, and 2035. Each analysis year includes expected population and employment data and roadway and transit projects that should be open for travel during the specified horizon year. The plans are fiscally constrained: funding sources for roadway and transit projects are identified.

Additionally this conformity determination takes into account the following FY 2009-2015 TIP amendments for the Mecklenburg Union MPO:

*R-2123CE: I-485 (Charlotte Eastern Outer Loop)/I-85, Mecklenburg County. Revise Interchange, Accelerate right of way, FFY 12 to FFY 10 and construction, FFY 15 to FFY 10 using the Design-Build process*

*R-2248E: I-485 (Charlotte Western Outer Loop) East of NC 115 (Old Statesville Road) to I-85 North, Mecklenburg County. Freeway on new location. Accelerate construction, FFY 11 to FFY 10 using the Design-Build process.*

DENR prepared base and future emissions factors for the vehicle fleet using Mobile 6.2. These rates were applied to projections of VMT from the Metrolina model. NC DENR prepared motor vehicle emissions budgets for each of the non-attainment counties and submitted them to EPA on November 30, 2009 as part of the Reasonable Further Progress (RFP) SIP.

Table 1 summarizes the conformity requirements of 40 CFR Part 51 and 93 and gives the status of the LRTPs in relation to each of these requirements. Tables 2 thru 8 provide a summary of the emission budget comparisons for each of the applicable counties. Table 9 contains a cross-reference index for the report.

**Table 1 Status of Conformity Requirements**

Criteria (√ indicates the criterion is met)	Cabarrus-Rowan MPO	Gaston MPO	Mecklenburg -Union MPO	Rural County Portion of Iredell, Lincoln, Gaston, and Mecklenburg
Less Than Emissions Budget(s) or Baseline	√	√	√	√
TCM Implementation	N/A	N/A	N/A	N/A
Interagency Consultation	√	√	√	√
Latest Emissions Model	√	√	√	√
Latest Planning Assumptions	√	√	√	√
Fiscal Constraint	√	√	√	√

**Table 2 Gaston County Emissions Proposed SIP MVEB Comparison Summary**

Gaston County Emissions Comparison Summary (kilograms/day)				
Year	NO <sub>x</sub>		VOC	
	LRTP Emissions	SIP Budget	LRTP Emissions	SIP Budget
2010	6002	7647	3824	5132
2015	3259	7647	2888	5132
2025	1793	7647	2195	5132
2035	1863	7647	2581	5132

**Table 3 Cabarrus County Emissions Proposed SIP MVEB Comparison Summary**

Cabarrus County Emissions Comparison Summary (kilograms/day)				
Year	NO <sub>x</sub>		VOC	
	LRTP Emissions	SIP Budget	LRTP Emissions	SIP Budget
2010	6295	7324	5501	6941
2015	4088	7324	4351	6941
2025	2141	7324	2705	6941
2035	2026	7324	3148	6941

**Table 4 Rowan County Emissions Proposed SIP MVEB Comparison Summary**

<b>Rowan County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010	6205	7193	4878	6149
2015	3784	7193	3634	6149
2025	1928	7193	2149	6149
2035	1683	7193	2451	6149

**Table 5 Lincoln County Emissions Proposed SIP MVEB Comparison Summary**

<b>Lincoln County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010	2550	2948	2208	2726
2015	1685	2948	1730	2726
2025	879	2948	1076	2726
2035	800	2948	1292	2726

**Table 6 Iredell County Emissions Proposed SIP MVEB Comparison Summary**

<b>Iredell County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010	4667	5637	2923	3601
2015	2699	5637	2299	3601
2025	1294	5637	1510	3601
2035	1157	5637	1971	3601

**Table 7 Union County Emissions Proposed SIP MVEB Comparison Summary**

<b>Union County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010	5058	5660	5227	6299
2015	3727	5660	4300	6299
2025	2207	5660	2884	6299
2035	2123	5660	3487	6299

**Table 8 Mecklenburg County Proposed SIP MVEB Comparison Summary**

<b>Mecklenburg County Emissions Comparison Summary</b>						
<b>Year</b>	<b>CO (tons/day)<sup>1</sup></b>		<b>NO<sub>x</sub> (kilograms/day)</b>		<b>VOC (kilograms/day)</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010			27581	34526	20421	26368
2015	350.8	470.18	15138	34526	15231	26368
2025	336.4	470.18	8395	34526	11004	26368
2035	368.8	470.18	8503	34526	12415	26368

<sup>1</sup>To obtain kilograms per day, multiply tons per day by 907.18

**Table 9 Cross-Reference Index**

Conformity Determination Report for the Long-Range Transportation Plans and TIPs in the Metrolina Non-Attainment/Maintenance Area

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The adopted long-range plans are fiscally constrained (§93.108)	p. 24
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The latest emissions model was used in the conformity analysis (§93.111)	p. 30
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Dates of the Transportation Advisory Committee reviews of the conformity determination and the recommendation	Appendix L
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Listing of projects in each analysis year (highway and transit)	p. 27, Appendix D
VMT & Summary	p. 30, Appendix F
Significant comments of reviewing agencies addressed by the MPO, or a statement that no significant comments were received.	Appendix K
Emissions Calculations	Appendix I
MOBILE 6.2 input files	Appendix G

# **Conformity Analysis and Determination Report for the Cabarrus-Rowan MPO, Gaston Urban Area MPO, and Mecklenburg-Union MPO 2035 Long Range Transportation Plans and the FY 2009-2015 Transportation Improvement Programs and for Non-MPO Donut Areas of Lincoln County, Iredell County, Gaston County, and Union County**

## **Introduction**

The Clean Air Act requires the United States Environmental Protection Agency (USEPA) to set limits on how much of a particular pollutant can be in the air anywhere in the United States. National Ambient Air Quality Standards (NAAQS) are the pollutant limits set by the USEPA; they define the allowable concentration of pollution in the air for six different pollutants – Carbon Monoxide, Lead, Nitrogen Dioxide, Particulate Matter, Ozone, and Sulfur Dioxide.

The Clean Air Act specifies how areas within the country are designated as either “attainment” or “nonattainment” of an air quality standard, and provides USEPA the authority to define the boundaries of nonattainment areas. For areas designated as nonattainment for one or more NAAQS, the Clean Air Act defines a specific timetable to attain the standard and requires that nonattainment areas demonstrate reasonable and steady progress in reducing air pollution emissions until such time that an area can demonstrate attainment. Each state must develop and submit a State Implementation Plan (SIP) that addresses each pollutant for which it fails to meet the NAAQS. Individual state air quality agencies are responsible for defining the overall regional plan to reduce air pollution emissions to levels that will enable attainment and maintenance of the NAAQS. This strategy is articulated through the SIP.

In North Carolina, the agency responsible for SIP development is the North Carolina Department of Environment and Natural Resources, Division of Air Quality (NC DENR/DAQ). The delineation and implementation of strategies to control emissions from on-road mobile sources is a significant element of the state plan to improve air quality, thereby creating a direct link between transportation and air quality planning activities within a nonattainment area. The process of ensuring that a region’s transportation planning activities contribute to attainment of the NAAQS, or “conform” to the purposes of the SIP, is referred to as transportation conformity. In order to receive federal transportation funds within the nonattainment area, the area must demonstrate through a federally mandated conformity process that the transportation investments, strategies and programs, taken as a whole, contribute to the air quality goals defined in the state air quality plan.

In order to ensure the conformity requirements are met, Section 176 (c) of the Clean Air Act authorizes the USEPA Administrator to “promulgate criteria and procedures for demonstrating and assuring conformity in the case of transportation plans, programs,

and projects.” This is accomplished through the Transportation Conformity Rule, developed by the USEPA to outline all federal requirements associated with transportation conformity. The Transportation Conformity Rule in conjunction with the Metropolitan Planning Regulations direct transportation plan and program development as well as the conformity process.

The purpose of this report is to comply with the provisions of the Clean Air Act Amendments of 1990 in concurrence with all conformity requirements as detailed in 40 CFR Parts 51 and 93 (the Transportation Conformity Rule) and 23 CFR Part 450 (the Metropolitan Planning Regulations as established in SAFETEA-LU). This report demonstrates that the financially constrained long-range transportation plan and the transportation improvement program (TIP) eliminates or reduces future violation of the National Ambient Air Quality Standards (NAAQS) in the following jurisdictions:

*The Cabarrus-Rowan Metropolitan Planning Organization (CRMPO);  
The Gaston Urban Area Metropolitan Planning Organization (GUAMPO);  
The Mecklenburg-Union Metropolitan Planning Organization (MUMPO); and  
The donut portions of Gaston, Lincoln, Iredell, and Union Counties henceforth referred to as the non-MPO area.*

The conformity determination accomplishes the intent of the North Carolina State Implementation Plan (SIP) and is based on a regional emissions analysis that uses the transportation networks approved by each of the above-named Metropolitan Planning Organizations (MPOs) for the 2035 LRTPs, VMT and Speed input data developed by NCDOT, and emissions factors developed in cooperation with the North Carolina Department of Environment and Natural Resources (DENR). For the purpose of this document, the above-named MPOs and rural areas combine to form a region henceforth known as “Metrolina.” The complete Metrolina nonattainment region also includes the Rock Hill, Fort Mill Area Transportation Study (RFATS) a MPO comprising the urbanized (eastern) half of York County, SC. EPA guidance allows NC and SC to work independently. The entire Metrolina nonattainment region, including the MPO and non-MPO regions, is shown as a map on Figure 1.

All Federally funded projects and regionally significant projects regardless of funding source, in areas designated by the United States Environmental Protection Agency (USEPA) as air quality nonattainment or maintenance areas must come from a conforming long-range transportation plan and transportation improvement program (TIP). The Metrolina region is required by 23 CFR 134 and 40 CFR 51 and 93 to make a conformity determination on any newly adopted or amended fiscally constrained long-range transportation plan and TIP. In addition, the United States Department of Transportation (USDOT), specifically, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), must make a conformity determination on the three MPO Plans in the Metrolina region and the related TIPs in all nonattainment and maintenance areas.

In order to assist the Metrolina region in making a conformity determination on the adopted 2035 fiscally constrained long-range transportation plans, the following agencies shared leading roles composing substantial portions of this document pertaining to specific areas:

<i>Agency</i>	<i>Responsible Counties</i>
CRMPO	Cabarrus, Rowan
GUAMPO	Gaston
MUMPO	Mecklenburg, Union
NCDOT	Lincoln, and non-MPO portions of Iredell, Union, Gaston

These analyses are consistent with the set of amendments to 40 CFR Part 93, published in the January 24, 2008 Federal Register, *Transportation Conformity Rule Amendments to Implement Provisions Contained in the 2005 Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU)*. Based on the regional emissions budget tests and interim tests documented in this report, the following Transportation Plans conform to the purpose of the North Carolina SIP:

Cabarrus-Rowan 2035 LRTP  
 Gaston Urban Area MPO 2035 LRTP  
 Mecklenburg Union MPO 2035 LRTP  
 For the Non-MPO areas, projects from 2009-2015 STIP (a surrogate plan for those areas)

Additionally, the following FY 2009-2015 TIP amendments for the Mecklenburg Union MPO conform to the purpose of the North Carolina SIP:

*R-2123CE: I-485 (Charlotte Eastern Outer Loop)/I-85, Mecklenburg County. Revise Interchange, Accelerate right of way, FFY 12 to FFY 10 and construction, FFY 15 to FFY 10 using the Design-Build process*

*R-2248E: I-485 (Charlotte Western Outer Loop) East of NC 115 (Old Statesville Road) to I-85 North, Mecklenburg County. Freeway on new location. Accelerate construction, FFY 11 to FFY 10 using the Design-Build process.*

The NCDOT FY 2009-2015 State TIP amendment NCBOT approval and the MPO resolutions for the FY 2009-2015 TIP amendments are provided in Appendix L.

This report documents the regional emissions budget test for the proposed 8-hour ozone SIP MVEBs, interagency consultation process, public involvement process, and

analysis methodology used to demonstrate transportation conformity for each MPO and thus for the Metrolina region.

40 CFR Part 93 requires that a conforming transportation plan satisfy five conditions:

- The transportation plan must be consistent with the motor vehicle emissions budget(s) in an area where the applicable implementation plan or implementation plan submission contains a budget (*40 CFR Part 93.118*).
- The transportation plan, TIP, or FHWA/FTA project not from a conforming



- plan must provide for the timely implementation of TCMs from the applicable implementation plan (*40 CFR Part 93.113b*).
- The MPO must make the conformity determination according to the consultation procedures of *40 CFR Part 93.105* and the implementation plan revision required by *40 CFR Part 93.390 (40 CFR Part 416)*.
- The conformity determination must be based on the latest emissions estimation model available (*40 CFR Part 93.111*).
- The conformity determination must be based on the latest planning assumptions (*40 CFR Part 93.110*).

This report shows that each applicable MPO's 2035 Transportation Plan meets each condition. Each condition is discussed in the following sections of this report.

### **Air Quality Planning**

Mecklenburg County was originally declared nonattainment for carbon monoxide (CO) on March 3, 1978. Mecklenburg County was redesignated as a maintenance area for CO on September 18, 1995 based on monitoring continuous attainment from 1990 to 1995. The USEPA direct final rule from the Federal Register for CO is found in Appendix A.

On April 15, 2004 EPA designated new "nonattainment" areas throughout the country that exceeded the new health-based standards for 8-hour ozone. Ozone, the primary component of smog is a compound formed when volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) mix together in the atmosphere with sunlight. The counties of Cabarrus, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Union, and York, SC were grouped together as a single nonattainment area. The Iredell County non-attainment area only includes the townships of Coddle Creek and Davidson. The 8-hour ozone standard as it applies to conformity replaced the 1-hour ozone standard on June 15, 2005.

The Federal Register notices containing the SIP MVEBs for each designated pollutant for the Metrolina Area is provided in Appendix B (to be added in final).

### **Motor Vehicle Emission Budgets**

DENR prepared emission budgets as part of the Reasonable Further Progress State Implementation Plan (RFP SIP), which was submitted to US EPA on November 30, 2009. Each of the 7 North Carolina counties is proposed to have a motor vehicle emission budget under the 8-hour ozone standard for both NO<sub>x</sub> and VOC. Motor Vehicle Emission Budgets were established for 2008. The Federal Register notice

established the NO<sub>x</sub> and VOC budgets for the non-attainment portion of the region and they are below:

**Table 10 NO<sub>x</sub> and VOC Budgets for the Metrolina Counties**

<b>Motor Vehicle Emissions Budget Summary (kilograms/day)</b>		
<b>Year</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>
	<b>SIP Budget</b>	<b>SIP Budget</b>
Gaston	7647	5132
Cabarrus	7324	6941
Rowan	7193	6149
Lincoln	2948	2726
Iredell*	5637	3601
Union	5660	6299
Mecklenburg	34526	26368

\*Iredell County MVEB for nonattainment area only

Under the emission test scenario, Mecklenburg County is maintenance for the Carbon Monoxide (CO) standard. A MVEB was established for 2015 and emission targets based on this MVEB are indicated below.

**Table 11 CO Budget for Mecklenburg County**

<b>Mecklenburg County CO SIP Summary (tons/day)<sup>1</sup></b>			
<b>County</b>	<b>Pollutant</b>		
	<b>CO</b>		
<b>Mecklenburg</b>	470.18		

<sup>1</sup>To obtain kilograms per day, multiply tons per day by 907.18.

\*\*The MVEB for 2015 will be used for the 2025 and 2035 comparison since 2015 is the last year that a MVEB is provided for CO

\*\*The MVEB for 2005 will be used for the 2015, 2025 and 2035 comparison since 2005 is the last year that a MVEB is provided for NO<sub>x</sub> and VOC

**Long-Range Transportation Plans**

The 2035 Transportation Plans were developed between 2006 and 2009. Federal law 40 CFR part 93.104(b)(3) requires a conformity determination of transportation plans no less frequently than every four years. As required in 40 CFR 93.106, the horizon years for the transportation plans are no more than ten years apart.

The CRMPO area includes all of Cabarrus and Rowan Counties. Both counties are part

of the 8-hour moderate nonattainment area for ozone.

The GUAMPO area includes the eastern two-thirds of Gaston County, the urbanized region. Gaston County is also part of the 8-hour moderate nonattainment area for ozone.

The MUMPO area includes all of Mecklenburg County and a portion of Union County that is within the Charlotte Urbanized Area. Mecklenburg County is a maintenance area for CO. Mecklenburg and Union Counties are part of the 8-hour moderate nonattainment area for ozone.

### **Consultation**

The 2035 Transportation Plans are consistent with consultation requirements discussed in *40 CFR 93.105*.

Consultation on the development of this conformity determination was accomplished through interagency consultation meetings held on April 14, 2009; May 12, 2009; June 16, 2009; July 14, 2009; August 11, 2009; September 8, 2009; October 13, 2009; November 10, 2009; December 8, 2009, and January 12, 2010. As part of the interagency consultation process, the start of the conformity analysis work was defined as beginning on October 19, 2009. That date was defined through interagency consultation and included in the conformity process schedule provided in Appendix C.

### **Financial Constraint Assumptions**

The LRTPs are fiscally constrained as discussed in *40 CFR 93.108*. Projects included in this analysis reflect up to date revenue forecasts. The Cabarrus-Rowan MPO, the Gaston Urban Area MPO, and the Mecklenburg-Union MPO LRTPs are fiscally constrained to the year 2035. All projects included in the 2009-2015 TIPs are fiscally constrained, and funding sources have been identified for construction and operation. The estimates of available funds are based on historic funding availability and include federal, state, private, and local funding sources. Additional detail on fiscal constraint is included in each MPO LRTP. It is assumed that the projects listed for each horizon year will be completed and providing service by the end of the indicated calendar year (December 31). These transportation networks are described in the respective 2035 LRTPs.

### **Latest Planning Assumptions**

The *2035 Long Range Transportation Plans* were developed with the latest local and regional planning assumptions as discussed in *40 CFR 93.110*. The MPOs provided housing, employment, and population projections, and a set of highway and transit projects consistent across jurisdictional boundaries was developed through regional coordination. This collection of socioeconomic data, highway and transit networks and travel forecast tools, representing the latest planning assumptions, was finalized

through the adoption of the draft Long Range Transportation Plans by the Gaston Urban Area MPO, Mecklenburg-Union MPO, and Cabarrus-Rowan MPO in March 2010.

Land use and demographic data were collected by regional planning agency staff. A regional methodology included updating residential and employment data to a 2005 base year, and agreeing to a growth forecast for the year 2035. Forecasts by traffic analysis zone and county were prepared, submitted for public review, and adopted for use in developing travel demand and air quality forecasts by each MPO. Residential data included population, households, and group quarters and was based on Census 2000 data from Summary File 1. Housing and population data were updated to 2005 using building permits from local jurisdictions and applying household size and occupancy rates to the new dwelling units. Residential data was reviewed by local planning department staff.

Employment data was collected from several economic sources such as Employment Security Commission, Chambers of Commerce, Dunn and Bradstreet, InfoUSA, etc. Large employers were spot-checked for work location and number of employees. Employment and population data at the zonal level was evaluated through thematic mapping and review by local planning department staff.

The planning assumptions and travel forecasts used to develop the 2035 LRTPs were also used in this conformity analysis. The Metrolina travel demand model was applied for an area that includes all of Mecklenburg County, Union County, Cabarrus County, Rowan County, Lincoln County, Gaston County, Stanly County, York County (SC), and portions of Iredell County, Cleveland County, and Lancaster County (SC), which covers an area larger than the non-attainment area. The Metrolina TransCAD Model uses the basic four-step process (trip generation, trip distribution, mode choice, and assignment). All four steps of the process are discussed in greater detail in later sections of this report. The Metrolina Model was calibrated to 2005 conditions. This conformity determination is based on the projections of travel within these counties.

In the non-MPO areas of Gaston, Iredell, Lincoln, and Union, land use and socioeconomic data were collected and projected by means of a cooperative process involving planning partners across the region. As part of this process, the Lake Norman RPO and Rocky River RPO collected base year land use and socioeconomic data for the non-MPO portions of the region and worked cooperatively with the Land Use Subcommittee of the Metrolina Model Oversight Committee to maintain and develop projections for the years 2015, 2025, and 2035.

There are no court orders or special agreements that apply to conformity (*40 CFR 93.109*).

### **Future Year Roadway Projects**

Roadway improvements used for conformity modeling were developed in the 2035

LRTP process in each MPO. Outside of the MPO boundaries, TIP projects from the 2009-2015 TIP served as the future year roadway projects. For the 2035 LRTPs, lists of needed projects were developed based on modeled congestion and identified local needs. Improvements were coded into the TDM and analyzed. Intermediate analyses for the years 2015, and 2025 were performed to assist in prioritizing the 2035 roadway needs. The final 2010, 2015, 2025 and 2035 networks are fiscally constrained. Projects were added from MPO priority lists until estimated project costs equaled the expected funding available. The base network (2002) and the four future networks (2010, 2015, 2025, and 2035) used for the conformity determination are the same as the networks used for the 2035 LRTPs. Throughout the process to develop the roadway networks, the MPOs and NCDOT identified any initial inconsistencies in project timing and characteristics (e.g. cross-section) for those projects crossing jurisdictional boundaries and reached consensus on consistent solutions.

The following criteria are used to identify major existing and future regional roadway systems that may produce significant impacts to air quality emissions with respect to the Metrolina region.

## **Figure 2: Regional Significance**

### **Regional Significance Criteria**

1. The facility serves regional transportation needs (i.e. facilities that provide access to and from the region or that provide access to major destinations in the region);
2. The facility is functionally classified higher than a minor arterial (minor arterials may be regionally significant if their main purpose is to provide access to major facilities in the region);
3. The facility is a fixed guideway transit facility; and
4. The facility is included in the travel model for the region (In many cases collector streets are modeled that are not regionally significant).

To be regionally significant a facility should meet one or more of the criteria in this checklist. 40 CFR Part 93.101

Appendix D includes lists of the future year roadway projects in the Metrolina region as indicated below, including indications of which projects are regionally significant and which projects are exempt.

<b>Area</b>	<b>Roadway Project List Appendix D</b>
Gaston Urban Area MPO	2035 LRTP (Appendix D1) 2009-2015 TIP (Appendix D2)
Mecklenburg-Union MPO	2035 LRTP (Appendix D3) 2009-2015 TIP (Appendix D4)
Cabarrus-Rowan MPO	2035 LRTP (Appendix D5) 2009-2015 TIP (Appendix D6)
Non-MPO (donut portion of Gaston, Iredell, Lincoln, and Union Counties)	2009-2015 TIP (Appendix D7)

### **Transit Networks**

As with the roadway projects, each MPO developed transit projects for its LRTP. The base year network was modeled from existing routes and fares for the transit systems in 2002. Future year networks were based on fiscally-constrained projected new or expanded services from regional transit plans, local bus system short range plans, corridor transit plans and other projected bus service expansion estimates, where available. As with the roadway networks, the MPOs and NCDOT identified and rectified any initial inconsistencies in project characteristics or implementation years where transit projects crossed jurisdictional boundaries.

The base year network was modeled based on routes and fares existing in 2005. This network was enhanced to include transit improvements as outlined in each of the MPOs *2035 LRTPs*.

<b>Area</b>	<b>Transit Project List Appendix D</b>
Gaston Urban Area MPO	2035 LRTP (Appendix D1) 2009-2015 TIP (Appendix D2)
Mecklenburg-Union MPO	2035 LRTP (Appendix D3) 2009-2015 TIP (Appendix D4)
Cabarrus-Rowan MPO	2035 LRTP (Appendix D5) 2009-2015 TIP (Appendix D6)
Non-MPO (donut portion of Gaston, Iredell, Lincoln, and Union Counties)	2009-2015 TIP (Appendix D7)

## **Congestion Mitigation/Air Quality (CMAQ) Projects**

The NC Department of Transportation has established an allocation and review process for CMAQ projects. Each MPO or RPO in a non-attainment or maintenance area receives an allocation of CMAQ funds based on population and air quality status. In addition, a statewide pool of CMAQ funds is allocated to projects serving more than one non-attainment area on a competitive basis. MPO and RPO project priorities and project applications for statewide funding. This conformity report includes a listing of funded CMAQ projects in the Metrolina Area in Appendix E.

## **Trip Generation**

A new trip generation model was developed and includes 8 household based trip purposes and 3 commercial trip purposes. Trips into and out of the region are parsed into work, non-work, and 3 commercial trip purposes, and through trips are disaggregated into 4 classes. This model is based on a 2002 household survey of 3,333 households, supplemented by a 2003 workplace survey of 185 establishments and a 2002 external / internal / through trip study. Trip purposes are:

HBW	Home-Based Work	4 income groups
HBS	Home-Based Shopping	4 income groups
HBO	Home-Based Other	4 income groups
HBU	Home-Based University	
SCH	Home-Based School	
JTW	Non-Home- Based: Journey to Work	
ATW	Non-Home-Based: At Work	
NWK	Non-Home-Based: Not Work related	
COM	Commercial Vehicles (cars and light truck)	
MTK	Medium Trucks	
HTK	Heavy Trucks	
EIW / IEW	External-Internal and Internal-External Work trips	
EIN / IEN	External-Internal and Internal-External Non-work trips	
EIC / IEC	External-Internal and Internal-External Commercial trips	
EIM / IEM	External-Internal and Internal-External Medium Trucks	
EIH / IEH	External-Internal and Internal-External Heavy Trucks	
EEA	External-External (thru) Auto trips	
EEC	External-External (thru) Commercial trips	
EEM	External-External (thru) Medium Trucks	
EEH	External-External (thru) Heavy Trucks	

All home based and non-home based trips are generated as person trips to facilitate mode choice. Commercial and truck trips are generated as vehicle trips. The rates are consistent with trip rates from other U.S. urban areas.

### **Trip Distribution**

A gravity model was used to develop trip tables for 2002, 2005, 2010, 2015, 2025, and 2035. The model builds zone to zone trip tables (by purpose) using a weighted sum of travel time and distance between zones. The Metrolina model includes travel time on transit in addition to time over the highway network. Home-based work trips, non-home based journey to work trips, and external/internal work trips are distributed using peak loaded speeds on the highway network and the peak transit system. All other trip purposes (HBShop, HBOther, School, NHB (other than journey to work), and Commercial) are distributed over a free speed, off-peak highway network and off-peak transit system. Average trip travel times are calibrated against trips from the 2002 Home survey. Future year trips are distributed over respective future year financially-constrained highway and transit networks.

The Metrolina model employs a speed feedback loop. Speeds from a loaded highway assignment are used to redistribute peak trips (HBW, JTW, work based IE/EI). Mode choice and assignment are repeated with the new speeds, and there are three feedback iterations.

### **Mode Choice and Transit Assignment**

A nested LOGIT model was developed in 2002 in cooperation with the Federal Transit Administration to estimate Transportation System User Benefits (TSUB) for the proposed South Corridor Light Rail transit project. The TSUB model has been updated and extended for use in the Metrolina model. This approach creates a predictive model that is responsive to changes in quality of service variables such as travel time and cost. The different 'nests' of the model reflect a traveler's choice between local bus, express bus, rail, single occupancy vehicles, and multiple occupancy vehicles.

### **Highway Assignment and Vehicle Miles Traveled**

Once the total number of trips has been determined, and the mode by which the trip is made has been chosen, the trips are assigned to the network. Four separate time-of-day assignments are performed. The networks for the peak periods represent three hours of capacity during the AM or PM peak periods. The midday assignment is based on a six-hour capacity and the night assignment on a 12-hour capacity. The assignment technique is user-equilibrium with up to 20 iterations. Carpool trips are assigned over networks including HOV lanes. Drive alone trips are excluded from the HOV lanes.

The model includes a feedback loop where speeds from the morning peak assignment are applied in the trip distribution model for peak-based trip purposes (home-based

work, journey to work, and external / internal work trips). The distribution, mode choice, and highway assignment steps are repeated three times.

### **Method of Reporting VMT and Speed**

The Metrolina travel model has the capability to provide output by peak period in addition to daily output. Since the Model can model peak period volumes and speeds, these must be used in the air quality analysis. The vehicle kilometers of travel (VKT), is converted to vehicle miles of travel (VMT). Vehicle miles traveled (VMT) used in the conformity determination are from the last iteration of the model. Each link in the roadway network carries a functional classification. The VMT for each functional class is multiplied by an emissions factor. The North Carolina Division of Air Quality (DAQ) provides the emissions factors based on MOBILE6.2 output.

The MOBILE6.2 model requires as an input the weighted speeds by functional classification. This information can be derived directly from the model link data output. This first requires the separation of the model link data into functional classification. The congested link speed in mph can then be determined by converting the link distance to miles and dividing by travel time. The congested speed is then weighted by the ratio of the link VMT to the system VMT for each of the functional classifications. This input is then used for MOBILE6.2.

Congested and uncongested speeds are calculated using the model output. The congested speeds are sent to DAQ to determine actual emissions factors. The VMT and speed data is found in Appendix F.

### **Regional Emissions Budget Tests**

In areas with an USEPA approved motor vehicle emissions budgets, it satisfies the emissions test requirement of 40 CFR Part 93.118. For pollutants that have an emissions budget, the estimated emissions from the transportation plan must be less than or equal to the emissions budget values. All parts of the Metrolina Ozone Non-Attainment Area have emissions budgets and are covered by the Metrolina Travel Model. Each part was analyzed for each pollutant (NO<sub>x</sub>, VOC, and CO) in each comparison year. Emissions factors were provided by DENR.

### **Emissions Model**

MOBILE6.2 was used to develop the emissions factors. Motor vehicle emissions controls included in the Mobile model are a decentralized inspection and maintenance program (as discussed in the North Carolina SIP), the national low emitting vehicle (NLEV), and the heavy-duty diesel (HDDV) control program (final guidance dated January 30, 1998). Also, area specific information is used for such items as vehicle age distribution and vehicle type distribution.

**Sub-area Emission Budgets or Baseline Emissions**

Each county or, in the case of Iredell County, county portion, have NOx and VOC motor vehicle emission budgets under the proposed Reasonable Further Progress SIP. Mecklenburg County is also maintenance under the CO standard and has an emission budget.

**Development of Emissions Factors (ozone 8 hour and CO)**

A critical element of any emissions analysis or estimate is the development and utilization of the emissions factors applied to the travel estimates. In order to assure that the emissions factors used in the conformity analysis were compatible with those used in the development of the North Carolina SIP, NCDENR provides emission factors and model inputs for each maintenance area in North Carolina. The MOBILE6.2 emissions factor model was used to develop the emissions factors for ozone for the Metrolina counties and for CO for MUMPO. NCDENR’s emission factor summary spreadsheet is shown in Appendix G.

NCDENR provides motor vehicle emission factors by federal functional classification. The percentage of motor vehicles subject to the inspection and maintenance program is estimated from accident data. The scope of North Carolina’s motor vehicle inspection and maintenance program is expanded from nine counties to forty-eight counties in 2007. The I&M program phase in is shown in Table 4-1 below. For the five county area, the proportion of I&M and non-I&M is based on VMT in the respective counties. For 2007, VMT is interpolated between 2005 and 2010.

**Table 12 Percent of Vehicle Subject to I&M in Metrolina Region**

<b>2002</b>	VMT	pct donut	pct I&M	Wgt I&M%
Gaston				0.79
Mecklenburg				0.85
Cabarrus	5,320,348	29%	0.79	0.23
Iredell (pt)	2,199,349	12%	0.09	0.01
Lincoln	2,179,728	12%	0.18	0.02
Rowan	4,828,004	26%	0.16	0.04
Union	3,984,854	22%	0.84	0.18
5 County	18,512,283			0.48

<b>2005</b>	I&M %
Gaston	0.91
Mecklenburg	0.90

<b>2007 &amp; later</b>	VMT (2007)	pct donut	pct I&M	Wgt I&M%
Gaston				0.92
Mecklenburg				0.91
Cabarrus	6,164,417	29%	0.95	0.28
Iredell (pt)	2,622,404	12%	0.84	0.10
Lincoln	2,415,767	11%	0.97	0.11
Rowan	5,400,614	26%	0.93	0.24
Union	4,437,178	21%	0.88	0.19
5 County	21,040,380			0.92

### **Emissions Analysis Source**

Vehicle Miles of Travel (VMT) and speeds for the emissions analysis were derived from the Metrolina model.

### **Emissions Comparison Years (ozone)**

For *areas with budgets under the 8-hour standard* (Mecklenburg, Union, Gaston, Cabarrus, Rowan, Lincoln, and the two townships in Iredell) emissions must be analyzed for years where there is a 8-hour emission budget, the attainment year (if applicable), the horizon year and intermediate years such that intervals do not exceed 10 years. The following years were analyzed to meet the requirements: 2010 (model run & intermediate year), 2015 (model run & intermediate year), 2025 (model run & intermediate year), and 2035 (model run & LRTP horizon year).

Analysis years where there is a budget and no LRTP model runs, do not require additional runs; interpolation was used to derive data for any non-matching year. Also, in accordance with 40 CFR 93.118, since there was no budget for the required analysis years 2015, 2025 and 2035, the 2008 budgets were used for 2015, 2025, and 2035.

**Table 13 Transportation Conformity Analysis Matrix (2035 L RTPs)**

County	Area model status	Area emissions budget status	Emissions analysis source	Emission comparison years				
				2002 <sup>1</sup> Baseline	2010 <sup>2</sup>	2015 <sup>4</sup>	2025	2035 Horizon
<b>Cabarrus</b>	Modeled all	8 hr O3 to EPA by 11.30.09	TDM <sup>3</sup>	O3	O3	O3	O3	O3
<b>Rowan</b>	Modeled all	8 hr O3 to EPA by 11.30.09	TDM <sup>3</sup>	O3	O3	O3	O3	O3
<b>Gaston</b>	Modeled all	8 hr O3 to EPA by 11.30.09	TDM <sup>3</sup>	O3	O3	O3	O3	O3
<b>Mecklenburg</b>	Modeled all	8 hr O3 to EPA by 11.30.09	TDM <sup>3</sup>	O3	O3	CO O3	CO O3	CO O3
<b>Union</b>	Modeled all	8 hr O3 to EPA by 11.30.09	TDM <sup>3</sup>	O3	O3	O3	O3	O3
<b>Lincoln</b>	Modeled all	8 hr O3 to EPA by 11.30.09	TDM <sup>3</sup>	O3	O3	O3	O3	O3
<b>Iredell (part)</b>	Modeled all	8 hr O3 to EPA by 11.30.09	TDM <sup>3</sup>	O3	O3	O3	O3	O3

<sup>1</sup> Baseline for 8 hour ozone interim emissions test (if necessary)

<sup>2</sup> O3 attainment date for the Metrolina Region will need to be an MRM modeled year.

<sup>3</sup> The baseyear of the MRM is 2005

<sup>4</sup> 2015 will meet the interim test requirement of needing an analysis year no more than 5 years beyond the year in which the conformity determination is being made

*Additional table notes and explanations:*

**County:**

- Ozone: The Metrolina ozone non-attainment area consists of 6 whole counties (Mecklenburg, Union, Cabarrus, Rowan, Gaston, and Lincoln) plus one partial county (Iredell). The ozone non-attainment area includes four donut areas (Union, Gaston, Lincoln and Iredell-partial) represented by the NCDOT in

cooperation with the Lake Norman Rural Planning Organization (RPO) and the Rocky River RPO.

- CO: The Metrolina CO maintenance area consists of one whole county (Mecklenburg)

*\*Note: a donut area is an area outside the MPO boundary but within the non-attainment/maintenance area.*

### **Emission comparison years (CO)**

Mecklenburg County has a CO maintenance SIP. This Maintenance Plan update provides a 2015 budget for Mecklenburg County which is applicable from 2015 onwards. Mecklenburg County is entirely within the modeled area and has emissions budgets under the SIP; the Metrolina Model was used as the analysis tool. Listed below is specific CO budget and comparison year information:

- SIP Budget Years: 2015 (Mecklenburg County)
- Comparison Years for CO SIP – 2015, 2025, 2035 (Mecklenburg County)

### **Emissions Model**

MOBILE6.2 was used to develop the emissions factors. Motor vehicle emission controls considered in the MOBILE6.2 model include the following:

#### **Strategy**

*I/M Program (per NC SIP)  
Tier 2 vehicle's Emission Standards  
Low Sulfur Gasoline and Diesel fuels  
Heavy Duty Vehicle Rules 2004 and 2007  
Low RVP Gasoline  
On board vapor recovery*

#### **Methodology/Approach**

*Accounted for in MOBILE6.2 model  
Accounted for in MOBILE6.2 model  
Accounted for in MOBILE6.2 model  
Accounted for in MOBILE6.2 model  
Accounted for in MOBILE6.2 model  
Accounted for in MOBILE6.2 model*

Also, area specific information is used for such items as vehicle age distribution and vehicle type distribution rather than national default values, as documented below.

### **Transportation Control Measures (TCM)**

There are no TCMs approved in the State Implementation Plan (SIP) that are applicable to the Metrolina nonattainment area and are required to meet the requirements of 93.113.

### **Estimation of Vehicle Starts**

A component of the emissions rates for each functional class is an estimate of the start-based emissions. This rate is based on an assumed number of starts per vehicle and is

added to running emissions to produce a single rate to apply to vehicle miles traveled. Mobile 6 defaults are 7.28 starts for passenger cars and 8.06 starts for light duty trucks. However, the use of default rates isn't the best practice for heavily urbanized areas with an updated Travel Demand Model. Area-specific rates were calculated by dividing the total number of trips from the travel demand model by the total number of registered vehicles. Appendix H contains additional information. This methodology has been previously endorsed by USEPA and used in prior conformity analysis in Metrolina.

### **Emission Comparison Tests by Location and Pollutant**

The United States Environmental Protection Agency (USEPA) originally declared Mecklenburg County nonattainment for carbon monoxide (CO) on March 3, 1978. Following the Clean Air Act Amendments of 1990, the USEPA designated Mecklenburg County as "not-classified" for CO. Mecklenburg County was re-designated as a maintenance area 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 Metrolina area as a "moderate" non-attainment area for eight-hour ozone with an effective date of June 15, 2004.

The non-attainment/maintenance designations cover the following geographic areas:

- Cabarrus County
- Mecklenburg County
- Union County
- Gaston County
- Lincoln
- Rowan
- Iredell (Coddle Creek and Davidson Townships)

Four organizations are responsible for conformity determinations; each must make a conformity determination for its respective area in order for all of the areas to be designated in conformity:

- the Cabarrus-Rowan MPO (CR MPO) within its portion of the metropolitan area boundary in Cabarrus and Rowan counties;
- the Gaston Urban Area MPO (GUAMPO) within the metropolitan area boundary of Gaston County;
- the Mecklenburg-Union MPO (HPMPO) within its metropolitan area boundary in Mecklenburg and Union Counties;

- the NCDOT in the donut areas that is comprised of those county portions of Iredell, Gaston, Union, and Lincoln that remain outside of any MPO metropolitan area boundary.

Table 14 summarizes the emissions test used and decision-making responsibility for conformity findings in each County.

**Table 14 Emissions Test and Responsibility for Conformity Findings**

<b>Location</b>	<b>Pollutant(s)</b>	<b>Emissions Test</b>	<b>Conformity Finding Responsibility</b>
Gaston County	O3	Budget	Gaston Urban Are MPO, NCDOT
Cabarrus County	O3	Budget	Cabarrus-Rowan MPO
Rowan County	O3	Budget	Cabarrus-Rowan MPO
Mecklenburg County	O3, CO	Budget	Mecklenburg-Union MPO
Union County	O3	Budget	Mecklenburg-Union MPO, NCDOT
Iredell (Coddle Creek and Davidson Townships)	O3	Budget	NC DOT
Lincoln County	O3	Budget	NC DOT

The results of the emission comparisons are summarized by County in Tables 15 through 21. Detailed emissions analysis results by county are contained in Appendix I.

**Table 15 Gaston County Emissions Comparison Summary**

<b>Gaston County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010	6002	7647	3824	5132
2015	3259	7647	2888	5132
2025	1793	7647	2195	5132
2035	1863	7647	2581	5132

**Table 16 Cabarrus County Emissions Comparison Summary**

<b>Cabarrus County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010	6295	7324	5501	6941
2015	4088	7324	4351	6941
2025	2141	7324	2705	6941
2035	2026	7324	3148	6941

**Table 17 Rowan County Emissions Comparison Summary**

<b>Rowan County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010	6205	7193	4878	6149
2015	3784	7193	3634	6149
2025	1928	7193	2149	6149
2035	1683	7193	2451	6149

**Table 18 Lincoln County Emissions Comparison Summary**

<b>Lincoln County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>LRTP Emissions</b>	<b>SIP Budget</b>	<b>LRTP Emissions</b>	<b>SIP Budget</b>
2010	2550	2948	2208	2726
2015	1685	2948	1730	2726
2025	879	2948	1076	2726
2035	800	2948	1292	2726

**Table 19 Iredell County Emissions Comparison Summary**

<b>Iredell County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>LRTP Emissions</b>	<b>SIP Budget</b>	<b>LRTP Emissions</b>	<b>SIP Budget</b>
2010	4667	5637	2923	3601
2015	2699	5637	2299	3601
2025	1294	5637	1510	3601
2035	1157	5637	1971	3601

**Table 20 Union County Emissions Comparison Summary**

<b>Union County Emissions Comparison Summary (kilograms/day)</b>				
<b>Year</b>	<b>NO<sub>x</sub></b>		<b>VOC</b>	
	<b>LRTP Emissions</b>	<b>SIP Budget</b>	<b>LRTP Emissions</b>	<b>SIP Budget</b>
2010	5058	5660	5227	6299
2015	3727	5660	4300	6299
2025	2207	5660	2884	6299
2035	2123	5660	3487	6299

**Table 21 Mecklenburg County Emissions Comparison Summary**

<b>Mecklenburg County Emissions Comparison Summary</b>						
<b>Year</b>	<b>CO (tons/day)<sup>1</sup></b>		<b>NO<sub>x</sub> (kilograms/day)</b>		<b>VOC (kilograms/day)</b>	
	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>	<b>L RTP Emissions</b>	<b>SIP Budget</b>
2010			27581	34526	20421	26368
2015	350.8	470.18	15138	34526	15231	26368
2025	336.4	470.18	8395	34526	11004	26368
2035	368.8	470.18	8503	34526	12415	26368

**Public Involvement and Interagency Consultation**

The 2035 Transportation Plans are consistent with consultation requirements discussed in 40 CFR 93.105. Interagency consultation was a cooperative effort on the part of the Cabarrus-Rowan MPO, the Gaston Urban Area MPO, the Mecklenburg-Union MPO, the Rocky River RPO, the Lake Norman RPO, the North Carolina Department of Transportation, the North Carolina Division of Air Quality, the Environmental Protection Agency, the Federal Transit Administration, and the Federal Highway Administration. The process was administered by the Federal Highway Administration and the North Carolina Department of Transportation on behalf of the partners and was organized according to the sections in the document entitled *Metrolina Area Transportation Conformity*:

*Pre-Analysis Consensus Plan, a document agreed to at the initial interagency consultation meeting on April 22, 2008 and updated periodically. Subsequent interagency consultation meetings were held on April 14, 2009; May 12, 2009; June 16, 2009; July 14, 2009; August 11, 2009; September 8, 2009; October 13, 2009; November 10, 2009; December 8, 2009; and January 12, 2010. A copy of the latest version of the Consensus Plan, together with summaries of the interagency consultation meetings are included in Appendix C.*

Public review of this report was handled in accordance with each MPO’s public participation policy for the LRTPs. Copies of all public participation policies are included in Appendix J. Comments from the public participation process will be incorporated into the final Conformity Analysis and Determination Report. Those comments will be included in Appendix K of the final report

## **Conclusion**

Based on the analysis and consultation discussed above the following transportation plans and TIPs conform to the purpose of the North Carolina State Implementation Plan. 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.

Table 22 Summary of Conformity Requirements

<b>Criteria</b> (√ indicates the criterion is met)	<b>Cabarrus-Rowan MPO L RTP &amp; MTIP*</b>	<b>Gaston MPO L RTP &amp; MTIP*</b>	<b>Mecklenburg -Union MPO L RTP &amp; MTIP*</b>	<b>Rural County Portion of Iredell, Lincoln, Gaston, and Mecklenburg &amp; State TIP</b>
Less Than Emissions Budget(s)	√	√	√	√
TCM Implementation	N/A	N/A	N/A	N/A
Interagency Consultation	√	√	√	√
Latest Emissions Model	√	√	√	√
Latest Planning Assumptions	√	√	√	√
Fiscal Constraint	√	√	√	√

*\*The 2009-15 MTIPs are direct subsets of the 2035 L RTPs*

Specific conformity findings for each of these areas are listed below:

### **Cabarrus Rowan MPO Ozone Conformity Finding for the 2035 Long Range Transportation Plan and 2009-2015 Transportation Improvement Program**

Based on the analysis and consultation and involvement process described in this report, the Cabarrus Rowan MPO 2035 Long-Range Transportation Plan and 2009-2015 Transportation Improvement Program are found to conform to the purpose of the North Carolina State Implementation Plan (SIP). The emissions expected from the implementation of the Cabarrus Rowan MPO 2035 Long-Range Transportation Plan and 2009-2015 Transportation Improvement Program are in conformity with the 8-hour

ozone standard.

### **Gaston MPO Ozone Conformity Finding for the 2035 Long Range Transportation Plan and 2009-2015 Transportation Improvement Program**

Based on the analysis and consultation and involvement process described in this report, the Gaston MPO 2035 Long-Range Transportation Plan and 2009-2015 Transportation Improvement Program are found to conform to the purpose of the North Carolina State Implementation Plan (SIP). The emissions expected from the implementation of the Gaston MPO 2035 Long-Range Transportation Plan and 2009-2015 Transportation Improvement Program are in conformity with the 8-hour ozone standard.

### **Mecklenburg Union MPO Ozone and Carbon Monoxide Conformity Finding for the 2035 Long Range Transportation Plan and 2009-2015 Transportation Improvement Program**

Based on the analysis and consultation and involvement process described in this report, the Mecklenburg Union MPO 2035 Long-Range Transportation Plan and 2009-2015 Transportation Improvement Program are found to conform to the purpose of the North Carolina State Implementation Plan (SIP). The emissions expected from the implementation of the Mecklenburg Union MPO 2035 Long-Range Transportation Plan and 2009-2015 Transportation Improvement Program are in conformity with the 8-hour ozone and CO standard.

### **NCDOT Donut Area Conformity Finding for Projects from the 2009-2015 State Transportation Improvement Program**

Based on the analysis and consultation and involvement process described in this report, the projects from the 2009-2015 State Transportation Improvement Program for the donut areas of counties in the Metrolina area that are outside of the MPO boundaries are found to conform to the purpose of the North Carolina State Implementation Plan (SIP). The emissions expected from the implementation of the projects from the 2009-2015 State Transportation Improvement Program are in conformity with the 8-hour ozone standard (where applicable).

In the final Air Quality Conformity Analysis and Determination Report, please refer to resolutions of conformity finding, approval, and/or endorsement by the Metropolitan Planning Organizations of the Metrolina region in Appendix L.

***The End***