

Appendix 7. Air Quality

Background

The National Ambient Air Quality Standards (NAAQS) defines the allowable concentration for six different pollutants (carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide). In the past, the Triangle area was designated as “non-attainment” for oxides of nitrogen and volatile organic compounds (VOC) that are precursors to ozone, and for carbon monoxide because the area did not meet the NAAQS standard. As a result, North Carolina Department of Environment and Natural Resources (NCDENR), which is responsible for creating the State Implementation Plan (SIP) to address the non-attainment issues, included the Triangle area in the SIP. Basically, the MPOs complied with the SIP by demonstrating that certain emissions from the future transportation sector would not exceed a specified threshold, called the SIP budget. The compliance requirements and emission calculation methodology were presented in a detailed report called the *Research Triangle Regional Conformity Determination Report*.

The Triangle area has been in “attainment” for the NAAQS pollutants for almost a decade and therefore the SIP no longer requires the MPOs to demonstrate conformity in a conformity determination report. However, the MPOs believe that monitoring and lowering pollutant emissions is a prudent practice given the exceedingly positive health, environmental and economic benefits of doing so. Thus, to ensure that the 2045 MTP continues to support these positive benefits, this appendix compares the emissions set forth in the SIP that was used for the previous long-range plan (2040 MTP) with those estimated to result from implementation of the 2045 MTP.

2045 MTP Air Quality

The table on the following page compares the SIP budget used in the previous long-range plan, i.e., 2040 MTP, with the projected emissions from the current plan, i.e., 2045 MTP. The values are for the daily kilograms of emissions of oxides of nitrogen (NO_x) and carbon monoxide (CO) for the counties that are in the respective air quality areas. In every case, the projected 2045 MTP emissions are only a fraction of the SIP budget, being as low as 8% in Granville County for NO_x and only reaching the highest fraction among the group at 27% in Wake County for NO_x. These future lower emissions are not surprising. It is expected that the Corporate Average Fuel Economy (CAFE) standards will continue to improve the average fuel economy of cars and light trucks. In addition, vehicle emission standards continue to reduce tailpipe pollutants and improve fuel quality.

NOx (kg/day)

<u>County</u> (1)	2040 <u>SIP</u> <u>Budget</u>	2045 <u>MTP</u>	MTP/ <u>SIP</u> <u>Budget</u>
Durham	4,960	1,205	24%
Wake	16,532	4,464	27%
Granville	1,714	144	8%
Franklin	1,139	191	17%
Johnston	5,958	781	13%
Orange	3,742	643	17%

(1) Chatham not included because only partial county data is available for the budget

CO (kg/day)

<u>County</u> (2)	2040 <u>SIP</u> <u>Budget</u>	2045 <u>MTP</u>	MTP/ <u>SIP</u> <u>Budget</u>
Durham	160,771	22,675	14%
Wake	348,604	84,023	24%

(2) Only Durham and Wake counties have a CO budget.