

Appendix B

Air Quality

In recognition of the close relationship between air quality and transportation, Federal legislation – the Clean Air Act Amendments of 1990 (CAAA) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) – require that transportation activities conform to State air quality implementation plans before receiving federal transportation funding. Specifically, the CAAA establishes air quality standards through the designation of National Ambient Air Quality Standards (NAAQS). These standards set limits on the levels of air pollution (e.g. ozone, Particulate Matter, Carbon Monoxide, and Nitrogen Dioxide) that can exist in a region. In regions where these standards are not met (i.e. non-attainment areas), it must be demonstrated that all future transportation plans and projects do not produce new air quality violations, worsen existing conditions, or delay timely attainment of the NAAQS.

In 1991, Dutchess County, Putnam County, and Northern Orange County were classified as a Moderate Non-attainment Area under the 1-hour ozone standard, while in attainment for all other Clean Air Act criteria pollutants.

On July 16, 1997, the U.S. Environmental Protection Agency (USEPA) concluded that the 1-hour standard did not adequately protect the public from the adverse health effects of ground level ozone. In establishing a new “concentration based” 8-hour standard, the USEPA set the standard at 0.08 parts per million (ppm). Specifically, the design value for 8-hour ozone is the 3-year average of the annual 4th-highest daily maximum 8-hour ozone concentrations. An area attains the standard when the 3-year average of the annual 4th-highest daily maximum 8-hour concentrations is less than or equal to 0.08 ppm.

Effective June 15, 2004, the USEPA designated Dutchess, Orange, and Putnam County to be a Non-attainment Area under the 8-hour ozone standard. Based on 2001-2003 data, the 8-hour ozone design value for the Poughkeepsie Ozone Non-attainment Area was 0.094 ppm, and Dutchess, Orange and Putnam County were classified as a Moderate Ozone Non-attainment Area under the 8-hour ozone standard. The current ozone design value for the area based on 2004-2006 monitoring data is 0.084 ppm.

On December 22, 2006, the U.S. Court of Appeals for the District of Columbia Circuit both upheld and rejected certain aspects of EPA’s framework for implementing the State Implementation Plan (SIP) requirements under Clean Air Act (CAA) Title I Part D for 8-hour ozone non-attainment areas. A key result of the court decision involved the continued implementation of emission control strategies in areas that were previously designated non-attainment for the 1-hour ozone standard under CAA Part D Subpart II and are now designated non-attainment for the 8-hour ozone standard under CAA Part D Subpart I.

Generally speaking, SIP requirements under Subpart I are less stringent than those under Subpart II. The “anti-backsliding” provision, CAA Section 172(e), provides that in the event “[EPA] relaxes a [primary National Ambient Air Quality Standard] after November 15, 1990, [EPA] shall...provide for controls applicable to areas designated non-attainment before such relaxation.”

In the subject court case, the DC Circuit Court specifically concluded that transportation conformity requirements for areas designated non-attainment for the 1-hour ozone standard

under Subpart II constitute “controls” under Section 172(e). The DC Circuit Court decision states that “EPA is required by statute to keep in place measures intended to constrain ozone levels – even ones that apply to outdated standards – in order to prevent backsliding.”

Therefore, the transportation conformity requirements that previously applied to 1-hour ozone non-attainment areas may remain “applicable requirements,” conformity determination and associated analyses must address the transportation conformity requirements that apply to the New York Metropolitan 1-hour severe ozone non-attainment area, the Poughkeepsie 1-hour moderate ozone non-attainment area, and the Poughkeepsie 8-hour moderate ozone non-attainment area.

Three separate Metropolitan Planning Organizations (MPOs) share responsibility for the Poughkeepsie-Ozone Non-attainment Area: the New York Metropolitan Transportation Council (NYMTC), the Orange County Transportation Council (OCTC), and the Poughkeepsie-Dutchess County Transportation Council (PDCTC). All three MPOs have worked together to complete a joint Conformity Determination for their respective TIP and MTP.

To complete the conformity determination, interagency consultation is required. The Interagency Consultation Group (ICG) includes representatives from the USDOT (Federal Highway and Transit Administrations), USEPA – Region 2, NYS Department of Environmental Conservation (NYSDEC) – Main Office, NYSDOT-Environmental Analysis Bureau (EAB), and the Metropolitan Planning Organizations (MPOs). The group provides multi-agency concurrence on the assumptions and methodologies used in the NYMTC, OCTC, and PDCTC Travel Demand Models; the results of which formed the basis of the regional emissions analysis. The model outputs are used to forecast the amount of air pollution created when the projects in the MTPs and TIPs are expected to be operational.

A crucial step in the modeling process involves identifying which projects might affect regional air quality. In most instances, projects such as safety improvements, resurfacing, bridge repairs, and bus replacements, which maintain current levels of service or capacity, are considered **Exempt** from the conformity analysis. Similarly, projects that result in operations improvements, but do not increase capacity - an intersection widening - are also excluded from the analysis. Inversely, there are two types of projects (**Non-exempt and Regionally Significant**) that have the potential to affect air quality:

Non-exempt: highway and road projects that change capacity by at least one travel lane or transit projects that change capacity on a fixed route system. A non-exempt determination is made if the project type is not found in the list of exempt projects derived from “Table 2- Exempt Projects” in 40 CFR Part 93.126, 93.127 and NYCRR Part 240.27.

Regionally Significant: any project, regardless of funding source, on a facility that serves regional transportation needs and that would normally be included in the modeling of a metropolitan area’s transportation network. Includes, at a minimum, all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

All of the projects in the MTPs and TIPs were first evaluated for applicability using the guidance contained in *Appendices B and C of The Air Quality Conformity Determination Process*, issued by NYSDOT-EAB on December 8, 2003.

PDCTC staff developed the list of Non-exempt and Regionally Significant projects and forwarded it to NYSDOT-EAB on August 28, 2007 for dissemination to the ICG. On September 13, 2007 the PDCTC received concurrence from the ICG on the list of Non-exempt and Regionally Significant projects to be included in the Regional Emissions Analysis.

Non-exempt and Regionally Significant Projects

PIN	Project	Agency
801012	Route 9 - Reconstruction, Route 301 to Interstate 84	NYSDOT
801030	Route 9 - Construction, CR 93 (Myers Corners Rd.) to Mesier Ave.	NYSDOT
806207	Interstate-84 @ Route 9D - Reconstruction	NYSDOT
875739	Route 9 Service road: Construction - Hollowbrook Dr. to Imperial Blvd.	DCDPW
881053	Ozone Action Days	NYSDOT
882382	Enhanced Regional Commuter Choice	NYSDOT
882524	Beacon Train Station - Parking improvements	Metro-North
8TRD42	City of Poughkeepsie Transit Center - Academy St. (no federal funds)	C/Poughkeepsie
8TRD51	LOOP Diesel Retrofit Program - 25 Vehicles	DC LOOP

Completing the air quality analysis on the MTPs and TIPs required analyzing some projects that are still in the conceptual stage. In accordance with the final transportation conformity rules issued by the USEPA, if adequate information was available to produce reasonable assumptions, then forecasts of the project impacts on vehicle miles traveled and average vehicle speeds could be produced.

Future projects with insufficient data to model include those still in the early development stages, such as the Taconic State Parkway and CR 29 (Carpenter Rd.) interchange, and the Route 9-Route 44/55 interchange.

Public involvement in the conformity process is discussed separately in Appendix A (*Public Involvement*).

A SIP-based on-road mobile source emissions budget has not yet been established for the Poughkeepsie Moderate Ozone 8-hour Non-attainment Area. However, 40 CFR Part 93.109(e) requires areas that were part of another 1-hour ozone non attainment area with an emissions budget to be considered separately within a conformity determination for the new 8-hour ozone non attainment area.

Therefore, per 40 CFR Part 93.109(e), a demonstration that 1) the entire area's Volatile Organic Compounds (VOC) and Nitrous Oxides (NO_x) "Action" scenario emissions are less than 2002 baseline emissions, and 2) the area's "Action" scenario emissions are less than the "No-Action" scenario in each future conformity analysis year scenario and 3) the VOC and NO_x "action" scenario emissions in LOCMA are less than those allowed in future analysis years for the LOCMA portion of the former NYMA 1-hour severe ozone non-attainment area, is required the Poughkeepsie Ozone Non-attainment Area Conformity Determination Statement.

The results of the regional emissions analysis demonstrate that the **Metropolitan Transportation Plans** and **2008-2012 Transportation Improvement Programs** of NYMTC, OCTC and the PDCTC achieve and maintain National Ambient Air Quality Standards (NAAQS), as required by the Clean Air Act Amendments of 1990 and the New York State Implementation Plan (SIP) for air quality. The table below details the results for the Dutchess County portion of the Poughkeepsie 8-Hour Ozone Non-attainment area.

Dutchess County Emissions Reduction Test (Build < No-Build and Build < 2002) (tons/day)

PDCTC	Base Year	Future Analysis Years									
	2002	2009		2015		2025		2030		2035	
	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build
VOC	7.52	3.90	3.97	2.41	2.48	1.42	1.50	1.40	1.50	1.56	1.67
NOx	10.82	6.27	6.44	3.30	3.41	1.56	1.66	1.32	1.40	1.37	1.44

Energy Analysis

New York State Department of Transportation requested that the PDCTC complete an analysis of the *2008-2012 TIP* and *New Connections* to determine if they were consistent with the goals and objectives of the New York State Energy Plan. The energy analysis was completed after the required federal air quality conformity analysis, and used some of the same planning assumptions.

The energy analysis included a calculation of four pollutants (volatile organic compounds, nitrogen oxides, carbon monoxide, and carbon dioxide), and energy use (direct and indirect). Completion of the analysis was based on guidance received from NYSDOT Environmental Analysis Bureau (NYSDOT-EAB) and relies on the PDCTC regional travel demand model for the “build” scenario.

A quantitative analysis was also undertaken for those recommendations in the *2008-2012 TIP* and *New Connections* that could not be modeled in the regional travel demand model. This included transit projects, bicycle and pedestrian projects and transportation demand management (TDM) projects. Using information developed by the project sponsors, PDCTC calculated the reduction of VMT. The VMT reductions were then added to the regional demand model outputs in order to reflect a more accurate *2008-2012 TIP* and *New Connections* “build” scenario. This process differs from that used in Air Quality Analysis where only the results of VMT from the regional travel demand model were used.

The results of the quantitative analyses demonstrate that the projects included in the *2008-2012 TIP* and *New Connections* will decrease the emissions of VOC, NO_x, CO, and CO₂ and the amount of direct energy consumed, albeit by small amounts.

Energy Analysis Summary

	Energy	Greenhouse Gas (CO₂)
Scenario	Direct (BTUs)	Direct (tons)
2035 no-build	55,662,230,970	1,182
2035 build	53,668,828,145	1,140
Change (build-no build)	-1,993,402,825	- 42
% Change (build-no build)	-3.58%	-3.58%

The PDCTC is committed to working with New York State and its other partners to identify other projects and activities that are consistent with the objectives of the *New York State Energy Plan*.