

VII. Air Quality Documentation

Record of Decision

VII) AIR QUALITY DOCUMENTATION

With regard to the National Ambient Air Quality Standards (NAAQS), the US 301 project corridor is located in southern New Castle County, Delaware. The County is designated as in-attainment for carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb) and particulate matter (PM₁₀), meaning that the pollutant levels in the ambient air are currently within the maximum permissible concentrations. However, New Castle County is designated as a non-attainment area for ozone (O₃) and fine particulate matter (PM_{2.5}).

The US 301 project was subjected to two types of air quality analyses, a regional conformity analysis and project level analysis.

A. Regional Conformity Analysis

Transportation conformity analyses are coordinated by the Wilmington Area Planning Council (WILMAPCO), the regional transportation and planning agency for New Castle County, Delaware and Cecil County, Maryland. The recent addition of construction, design and right-of-way funds for US 301, a regionally significant project, to the Transportation Improvement Program (TIP) required the Regional Transportation Program (RTP) (fiscally constrained long range plan) to be amended to indicate available funding and air quality conformity. Amendments were proposed to the 2030 RTP, the 2008-2011 TIP and the draft 2009-2012 TIP.

In June 2007 and April 2008, the Secretary of DNREC issued Orders that finalized new budgets for New Castle County as part of Delaware's 8-hour ozone and PM_{2.5} State Implementation Plans (SIPs). These budgets were identified as necessary for Delaware to attain compliance with the 8-hour ozone and PM_{2.5} ambient air quality standards by the Clean Air Act deadline of 2010. The new 8-hour ozone budgets for New Castle County are 9.89 and 19.23 tons per day for VOC and NO_x, respectively, and 86.9 and 4904 tons per year for PM_{2.5} and NO_x, respectively. The new budgets, shown in **Table 11**, are significantly lower than the budgets of record, and have been submitted to EPA for approval.

Table 11: Comparison of 8-hour Ozone Standards

	Budget of Record	Finalized New Budget
VOC, tons/day	15.08	9.89
NO _x , tons/day	21.28	19.23
PM _{2.5} , tons/day	Not established	Not Applicable
PM _{2.5} , tons/year	208.6*	86.9
NO _x , tons/year	11,799.10	4904

Source: DNREC, April 10, 2008 letter to WILMAPCO

* 2002 baseline budget

DNREC's Air Quality Management Section worked with DelDOT to determine the emissions associated with the 2030 WILMAPCO Regional Transportation Plan (RTP) and the 2009-2012 TIP. DNREC and DelDOT agreed that the methods and data used were acceptable. The results indicated conformity with all of the new budgets except Delaware's 2008 fine particle matter Attainment Demonstration SIP for 2030. PM_{2.5} emissions in 2030 are projected to exceed Delaware's attainment demonstration budget by about 8 tons per year, a relatively small amount. DelDOT and DNREC are committed to work together to identify measures that DelDOT has committed to implement to address this issue and to give their implementation a high priority. Accordingly, DNREC provided their concurrence on April 10, 2008 that the 2030 WILMAPCO RTP and 2009-2012 TIP, amended to include the US 301 project, are in conformity with Delaware's SIP.

The amendments to include the US 301 project in the 2030 RTP, the 2008-2011 TIP and the draft 2009-2012 TIP were approved by the WILMAPCO Council on April 10, 2008.

USEPA concurred in the air quality conformity determination on April 23, 2008, and FHWA/FTA provided their concurrence on April 24, 2008. Finally, FHWA approved the State Transportation Improvement Program (STIP) on April 25, 2008.

B. Project Level Analysis

The project must also meet the requirements for the analysis of localized CO and PM_{2.5} analysis (40 CFR 93.116). The project level CO "hot spot" analysis was performed for the No-Build Alternative as well as the four retained build alternatives. The results of this analysis are included in **Section III-C, pages III-73 through 80** of the Final EIS, the *Air Quality Technical Report*, and in the project files. The analysis demonstrated that the carbon monoxide

impact from the No-Build Alternative results in no violations of the State/National Ambient Air Quality Standards (S/NAAQS) one-hour concentration of 35.0 ppm or the eight-hour concentration of 9.0 ppm at any air quality receptor location in either the 2010 or 2030 analysis years. The air quality analysis also demonstrated that carbon monoxide impacts resulting from the implementation of any of the build alternatives, including the Selected Alternative, would not result in a violation of the one-hour concentration or the eight-hour concentration, at any air quality receptor location, in any analysis year.

In accordance with 40 CFR 93.123(b)(1), a qualitative PM_{2.5} hot-spot analysis is only required for projects of air quality concern, *i.e.*, those that involve significant levels of diesel vehicle traffic. Although the 2030 percentage of total truck traffic (including diesel trucks) on new US 301 is projected to exceed the eight percent guidance maximum (7-9 percent on most segments of the roadway and 20 percent at the state line), the average vehicles per day is less than half the minimum 125,000 AADT recommended for the analysis (the highest average daily traffic (ADT) is projected at 56,700). Because the new tolled US 301 does not encourage new diesel truck traffic, but merely shifts the diesel truck traffic from existing toll free US 301 to the new tolled roadway, it is not anticipated to result in a significant increase in diesel truck traffic. Therefore, the US 301 project is considered not a project of air quality concern, and a PM_{2.5} analysis was not included.

The conclusion that the project is not a project of air quality concern was contained in both the Draft EIS (**page III-54**) and the Final EIS (**page III-70**) and was available for public and agency review and comment. No comments were received from air quality agencies or the public in either review period regarding this conclusion.

C. Mobile Source Air Toxics (MSATS)

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Mobile Source Air Toxics (MSATs) are compounds emitted from highway vehicles and non-road equipment. No NAAQS have been established either individually or collectively for this group of compounds. Instead, EPA's current ruling regarding vehicle emissions and fuel formulations were issued to meet its duty under the Clean Air Act to regulate and reduce MSATs.

A project-level qualitative discussion of MSATs is included in the Final EIS. The US 301 improvements will provide a new controlled-access, grade separated freeway that will carry a projected design year traffic volume of approximately 57,000 vehicles per day at the location with the highest projected volume (north of the Levels Road interchange, prior to the Spur Road split). This volume is considerably lower than FHWA's Level 3 threshold of 140,000 to 150,000 vehicles per day for the performance of a quantitative analysis. Furthermore, the primary impact of the US 301 improvements will be to *shift* traffic, especially large, diesel trucks, away from existing local roads and onto a new roadway of higher functional class. This shift will reduce traffic volumes on roads with lower travel speeds, that are often congested in the peak periods, and which have traffic control devices (signals and stop signs) resulting in the need to accelerate and decelerate, and will place those vehicles on a higher speed facility with consistent travel speeds.

Because the analysis data indicated that there would only be minimal differences in the regional MSAT emissions for the US 301 Project Alternatives, in accordance with FHWA *Interim Guidance on Air Toxic Analysis in NEPA Documents* (February 3, 2006), the US 301 project is one "... that serve[s] to improve operations of highway...without adding substantial new capacity or creating a facility that is likely to meaningfully increase emissions" and the project would be considered a "Project with Low Potential MSAT Effects" and was subjected to a qualitative discussion of localized MSAT impacts. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented in **Section III.K, pages III-233 to III-241** of the Final EIS was derived in part from FHWA's study, *A Methodology for Evaluating Mobile Source Air Toxic Emissions among Transportation Project Alternatives*.

The results of the analysis, as reported in the Final EIS, showed that for each retained alternative, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. While the build alternatives are all projected to result in a small increase in total VMT relative to the No-Build throughout the project area (10 percent to 16 percent increase in VMT), those increases would be at least partially mitigated by the shift in total VMT away from existing, often

congested roads, and onto an uncongested higher speed roadway with consistent travel speeds (17 percent to 28 percent decrease in VMT).

In addition, because the estimated VMT under each of the build alternatives are nearly the same, varying by less than five percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

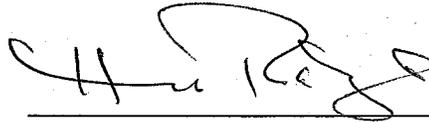
Because of the specific characteristics of the project alternatives (i.e. new connector roadways), there may be localized areas under each alternative where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new US 301 alignments. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations. Furthermore, MSAT emissions should be reduced, compared to the No-build, on several existing roads in the project area which are closer in proximity to numerous homes, businesses and schools than the proposed US 301 alignments.

In summary, under all build alternatives in the design year it is expected there would be only minor increases in MSAT emissions in the immediate area of the project, relative to the No-Build Alternative, due to the reduced VMT on the existing, congested roadway network, which helps to offset the increase in VMT associated with the build alternatives. Any potential increase in MSAT emissions associated with the build alternatives would be further reduced by the 2030 design year due to EPA's MSAT reduction programs.

In comparing various project alternatives, MSAT levels could be higher in some locations than others, but current tools and science are not adequate to quantify them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over

time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

4/30/2008
Date



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