

**REGIONAL AIR QUALITY EMISSIONS ASSESSMENT
PM2.5 NAAQS
FFY 2015-2018 TRANSPORTATION IMPROVEMENT PROGRAM &
LONG RANGE TRANSPORTATION PLANS
CENTRAL NAUGATUCK VALLEY MPO
October 2016**

The *Clean Air Act Amendments (CAAA) of 1990* and the federal transportation regulations and legislation recognized the major contributions of transportation sources to the overall air quality problem evidenced throughout the country. To effectuate a reduction in transportation-related emissions and a corresponding improvement in air quality, areas designated as non-attainment or maintenance for a criterion pollutant were required to demonstrate that their transportation plans, programs and projects contributed to the attainment of *National Ambient Air Quality Standards (NAAQS)* and would not cause a new violation or delay attainment of the *NAAQS*. This process is referred to as *Air Quality Conformity*.

The US Environmental Protection Agency (EPA) promulgated national ambient air quality standards (NAAQS) for fine particulate matter in 1997. Fine particulate matter is referred to as PM2.5 and is a mixture of microscopic solids and suspended liquid solids in the air. It is formed directly as a by-product of combustion, such as smoke or automobile exhaust, or indirectly from chemical reactions in the atmosphere. Fairfield and New Haven Counties are included in the New York-New Jersey-Connecticut (NY-NJ-CT) PM2.5 non-attainment area.

On April 17, 2007 the Connecticut Department of Energy and Environmental Protection (CTDEEP) submitted a revision to the State Implementation Plan to establish interim progress for achieving the NAAQS for fine particulate matter and motor vehicle emission budgets. The annual emission budgets for the Connecticut portion of the NY-NJ-CT non-attainment area were determined to be adequate and are used in future analysis years. The EPA has also determined Connecticut's PM2.5 attainment demonstration SIP to be administratively and technically complete as of January 8, 2009. Effective October 24, 2013, the Connecticut portion of the multi-state PM2.5 non-attainment area was re-designated as "attainment maintenance." EPA's guidance for maintenance plans calls for a demonstration of continued compliance by showing that future emissions during the maintenance period will not exceed the level of emission in the attainment inventory. The end of the maintenance period is 2025.

The Connecticut Department of Transportation is responsible for conducting the air quality emissions assessments for the metropolitan planning organizations in Connecticut. The CTDOT uses the statewide travel demand model to estimate vehicle miles of travel for various classes of highways and during various time periods. The future transportation network includes all planned improvement projects and is based on the complete implementation of the transportation improvement program (TIP) and the long range transportation plans.

The MOVES2014a emissions model is used to establish emissions budgets for the 2017 and 2025 analysis years. Emission estimates were developed for direct PM_{2.5} and indirect PM_{2.5} emissions based on the estimate of NO_x emissions, the most critical precursor of PM_{2.5}.

The conformity test requires the emissions from the future transportation system expected to be in place in 2017 to be less than the EPA-approved budget for 2017 and the emissions from the 2025 build scenario and subsequent years to be less than the 2025 budget. The emissions analyses were conducted for the following years:

- 2017 – Attainment year
- 2025 – End maintenance period
- 2035 – Interim modeling year
- 2040 – Long range transportation plan horizon year

The results of the quantitative emissions analysis conducted by CTDOT are shown in the following table and the analysis year trends are depicted in the charts following the table.

**CENTRAL NAUGATUCK VALLEY PLANNING REGION
2015-2040 LONG RANGE TRANSPORTATION PLAN
REGION EMISSIONS ANALYSIS RESULTS**

**Fine Particulate Matter (PM_{2.5}) Annual NAAQS
Connecticut Portion of the NY-NJ-LI-CT Area**

Direct PM_{2.5} Emission Analysis				NO_x Emission Analysis		
Analysis Year	Action	SIP Budget	Difference	Action	SIP Budget	Difference
2017 Emissions	313.10	575.80	-262.70	7942.80	12791.80	-4849.00
2025 Emissions	201.50	516.00	-314.50	4350.30	9728.10	-5377.80
2035 Emissions	153.50	516.00	-362.50	2713.10	9728.10	-7015.00
2045 Emissions	143.90	516.00	-372.10	2563.80	9728.10	-7164.30

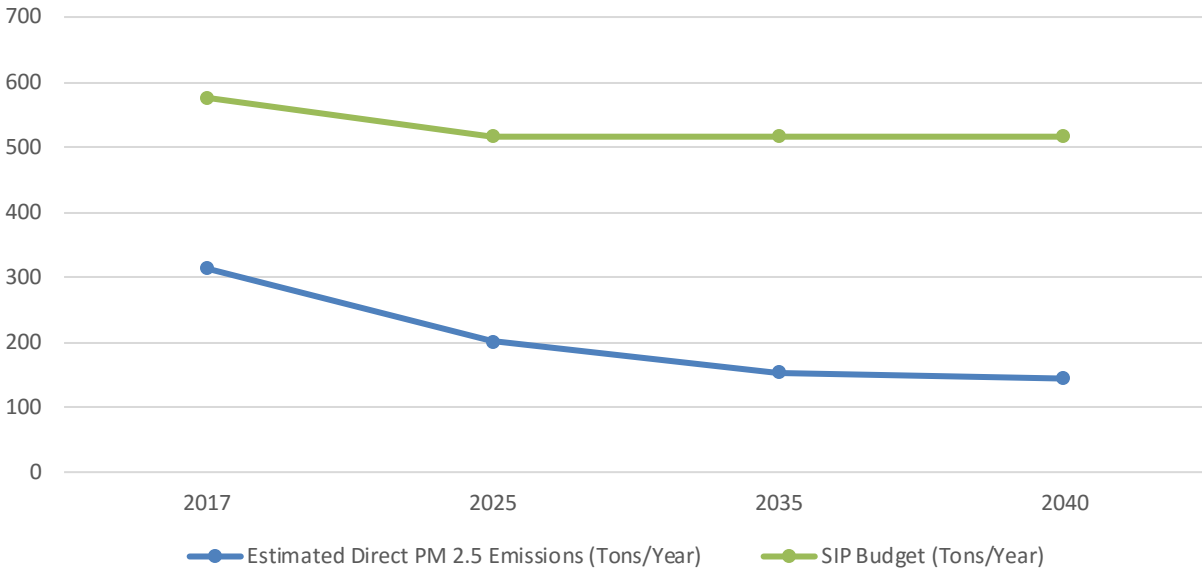
1. A small reduction in VMT and emissions in the Greater Connecticut area will occur from the ECO program.

2. Emission analysis based on SUMMER and WINTER conditions.

3. NO_x emissions are in tons per day and are calculated using Connecticut’s vehicle mix.

4. HMPS 12 Functional Class system used.

Estimated Direct PM 2.5 Emissions by Analysis Year
 Compared to Approved EPA Budget
 CT Portion of the NY-NJ-LI-CT Non-Attainment Area



Estimated NOx (Indirect) Emissions by Analysis Year
 Compared to Approved EPA Budget
 CT Portion of the NY-NJ-LI-CT Non-Attainment Area

