Appendix G

Connecticut Airport Related Emissions Provided to MARAMA for Inclusion in the MANE-VU Inventory

Connecticut 2007 airport-related emissions were calculated based on data collected in 2005, together with many of the parameters, assumptions and methods described in Section 3.4 of Connecticut's 2005 Draft Periodic Emission Inventory for Ozone and Carbon Monoxide. Appendix F to this $PM_{2.5}$ redesignation TSD includes applicable excerpts from the draft periodic inventory. The following text describes the differences between the parameters, assumptions and methods used in the 2005 analysis and those used to generate the 2007, 2017 and 2025 data presented in this report:

1) CT DEEP used the FAA's Emission and Dispersion Modeling System (EDMS) version 5.1 to calculate emissions. EDMS 5.1 was used as it better supported PM emissions than the older EDMS 4.5 software package that was used in the 2005 analysis.

2) PM emission factors for non-International Civil Aviation Organization (ICAO) engines are not included in the FAA's EMDS 5.1 Model. Emission factors for non-ICAO aircraft engines were obtained from Appendix A of the EPA's 2008 National Emission Inventory documentation (http://www.epa.gov/ttn/chief/net/2008_nei/aircraft_report_final.zip).

3) Activity data documented in the 2005 Draft Periodic Emission Inventory for Ozone and Carbon Monoxide were grown to 2007 and future years using Terminal Air Forecast observations and predictions. All airports not included in the TAF database were assumed to have a growth factor of 1, which is conservative given the decline in general aviation activity due to rising fuel prices. DEEP calculations used the TAF 2009 database and grew emissions from a 2005 base year. The assignment of SCC from the TAF database is accurate since it aligns with the data fields of the TAF database; however, the alignment of the SCC to an EDMS aircraft engine is less accurate. The inaccuracies associated with the individual SCC based growth factors were not considered to be a problem because the aircraft emissions are not a major portion of the inventory, and the primary concern was between Air Taxi and Commercial Aircraft and the alternative to use a single overall growth factor included similar concerns. As an illustration of this point, it must be understood that assignment for an aircraft-aircraft engine combination was uniquely set to one SCC by the EPA in the EIS system. Many air taxi carriers buy Commercial Aircraft and remove the seats to transport freight. As an example Federal Express tends to use a large number of A300 models for their air taxi service out of Bradley International Airport. These Federal Express aircraft would be grown at the Commercial Aircraft growth rate rather than the Air Taxi growth rate, because EPA has identified the aircraft-aircraft engine as being tied to a Commercial Aircraft SCC. Since the air taxi and commercial aircraft growth rates tend to be similar and the influence of aircraft emissions for Connecticut are smaller than other source categories, this is not viewed to be a problem.

4) EPA's 2008 Emissions inventory data was used for airport ground support equipment and auxiliary power units. DEEP calculations used the TAF 2009 database air carrier activity data and grew emissions from a 2008 base year. The airport ground support equipment and auxiliary power units were based on EPA data because it was determined that EPA emission estimates for aircraft closely matched the DEEP estimate and thus expending extra effort to recalculate these emissions was not worth the additional effort.