

APPENDIX I

MOVES3 ON-ROAD INVENTORY DEVELOPMENT

Howard County Attainment Demonstration State
Implementation Plan for the 2010 One-Hour Sulfur Dioxide
National Ambient Air Quality Standard

2021-010-SIP-NR

SO₂ ON-ROAD MOBILE EMISSION INVENTORY DEVELOPMENT

The on-road mobile SO₂ emissions inventory was developed using the most recent version of the Environmental Protection Agencies (EPA) MOfor Vehicle Emissions Simulator (MOVES), MOVES3, released November 2020.

The Texas Commission on Environmental Quality (TCEQ) relied upon trend County Databases (CDB's) developed by the Texas A&M Transportation Institute¹, converted to MOVES3 CDB using the built in converter tool in the MOVES3 model. Additional edits were made to add data and supply local inputs when appropriate and available. The paragraphs below describe edits done to the MOVES3 CDB's before runs were executed in the MOVES3 model.

There are several MOVES input tables cleared of values, or newly created when the MOVES3 converter tool is executed. The following six tables were cleared of local data or created when the CDB converter tool was used:

- AVFT,
- FuelSupply,
- FuelUsageFraction,
- FuelFormulation,
- HotellingActivityDistribution, and
- HotellingHours.

For these tables, local data was imported for all but HotellingHours which was left empty so EPA defaults could be used. The following describes the data sources for imported values used in the remaining tables.

AVFT- The Texas A&M Transportation Institute (TTI) provided 2020 statewide AVFT inputs² developed from 2018 end of year registration data.

FuelSupply- Developed by TCEQ staff, allocates summer and winter fuel usage by month. October - March receives winter fuel, April - September receives summer fuels.

FuelUsageFraction- Developed by the TCEQ, allocates all E-85 vehicles to use conventional gasoline.

FuelFormulation- Developed as part of the ERG 2017 summer fuel study³ and updated to incorporate Texas biodiesel consumption data from the U.S. Energy Information administration⁴.

¹ TTI. 2015. On Road Mobile Source Trend Emissions Inventories for All 254 Counties in Texas for 1999 - 2050: Technical Report- Final. PGA: 582-15-52612-18. August 2015.

² Boardman, Martin. "RE: Texas, statewide, MOVES3 sourcetypeagedistribution and avft inputs (based on TxDMV 2018 EOY reg. data) for TxLED factors development ==> Newly updated AVFT file" Message to Chris Kite. 29 January 2021. E-mail.

³ ERG, 2017. 2017 Summer Fuel Field Study. Final Report. August 2017.

⁴ <https://www.eia.gov/state/seds/seds-data-complete.php?sid=US>

HotellingActivityDistribution- Developed by the TTI as part of 2017 hotelling study⁵.

MOVES3 defaults were used for the following five tables:

- DayVMTFraction,
- MonthVMTFraction,
- RoadTypeDistribution,
- AverageSpeedDistribution, and
- Starts

The remaining three tables needed include the County, ZoneMonthHour, and SourceUseTypeAgeDistribution. The following describes the data sources used in these tables.

County and ZoneMonthHour- Values imported from 2017 AERR annual CDBs.

SourceUseTypeAgeDistribution- Inputs developed by TCEQ staff using end of year 2018 registration data and select MOVES3 defaults, processed using TTI aggregation methodology.

For any questions or to receive a copy of the MOVES3 inputs and results contact the emissions assessment section of the TCEQ.

⁵ TTI. 2019. Heavy-Duty Vehicle Idle Activity Study: Final Report. PGA: 582-17-74308-06. December 2019.