

APPENDIX I

MOVES3 ON-ROAD INVENTORY DEVELOPMENT

Redesignation Request and Maintenance Plan State
Implementation Plan Revision for the Freestone-Anderson and
Titus 2010 Sulfur Dioxide National Ambient Air Quality
Standard Nonattainment Areas

Project Number 2021-007-SIP-NR
SFR-122/2021-007-SIP-NR

MOVES3 ON-ROAD INVENTORY DEVELOPMENT

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

The Texas Commission on Environmental Quality (TCEQ) relied upon trend county databases (CDBs) developed by the Texas A&M Transportation Institute¹ (TTI), converted to MOVES3 CDB format using the built-in converter tool in the MOVES3 model. TCEQ staff edited the CDBs to add data and supply local inputs when appropriate and available. The paragraphs below describe the edits made to the MOVES3 CDBs before runs were executed in the MOVES3 model.

There are several MOVES input tables that are either 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.

Alternate Vehicle and Fuel Technology (AVFT)- The 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. The months from October - March receive winter fuel, and the months from April - September receives summer fuel.

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

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.

FuelFormulation- Developed as part of the Eastern Research Group, Inc. (ERG) 2017 summer fuel study³ and updated to incorporate Texas biodiesel consumption data from the U.S. Energy Information Administration⁴.

HotellingActivityDistribution- Developed by the TTI as part of a hotelling study⁵ published in December 2019.

Updates to several other data tables occurred to import newer local data or remove older local data so that more recently developed MOVES3 defaults could be used. These updated tables include:

- County,
- ZoneMonthHour,
- DayVMTFraction
- MonthVMTFraction,
- SourceUseTypeAgeDistribution,
- RoadTypeDistribution,
- AverageSpeedDistribution, and
- Starts.

The following describes the data sources for values used in these tables.

County and ZoneMonthHour- Values imported from 2017 Air Emissions Reporting Rule annual CDBs.

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

AverageSpeedDistribution- MOVES3 defaults used.

Starts- Table cleared, MOVES3 defaults used.

For any questions or to receive a copy of the MOVES3 inputs and results contact the TCEQ Emissions Assessment Section of the TCEQ at psinvent@tceq.texas.gov.

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>

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