CO_2 (metric tons) *= Fuel Usage (gallons) x 19.643 pounds CO_2 per gallon x short ton per 2,000 pound x 0.907185 metric ton per short ton*

CH_4 (metric tons) *= Fuel Usage (gallons) x 0.000003 pounds CH_4 per gallon x short ton per 2,000 pound x 0.907185 metric ton per short ton*

N_2O (metric tons) *= Fuel Usage (gallons) x 0.00000023 pounds N_2O per gallon x short ton per 2,000 pound x 0.907185 metric ton per short ton*

CO_{2e} (in metric tons) = CO_2 + CH_4 x 34 + N_2O x 298

Equation C-9. CO_{2e} Emission Calculation of Gasoline GSE

C.2.4 Ground Access Vehicles

The following section discusses the methodologies for computing GHG emissions from ground access vehicles. Ground access vehicles[66] encompass airport passenger vehicles (e.g., private autos, taxis, limousines, shuttles, vans, buses, rental cars, etc.), vehicles transporting airport and tenant employees, airport fleet (e.g., buses, shuttles, etc.), and vehicles transporting cargo to and from airport as well as circulating around the airport.

Emissions from ground access vehicles are generally a function of traffic volumes, distances traveled, vehicle operating characteristics, and fuel type. They are also typically associated with three different types of vehicles trip types: (i) those traveling within on- and off-airport roadways, (ii) those traveling within airport parking facilities; and (iii) those accessing terminal curbside areas associated with passenger pickup and drop-off.

In general, the computation and data inputs for computing motor vehicle GHG emissions are similar to those used for computing motor vehicle criteria pollutants (see **Appendix A4**, *Ground Access Vehicles Emissions Inventory for Criteria Pollutants*). As discussed, some airports monitor and collect information on the overall movement of traffic through the use of automatic vehicle identification (AVI) systems. Other airports track fuel usage for some types of vehicle operations (e.g., parking shuttle buses, rental car shuttles, airport fleet vehicles). Traffic volumes can also be estimated based on passenger surveys and enplanement data.

From these data, the ground access vehicle usage (either in miles traveled or fuel usage) can be determined. The EPA's MOVES model is then used to estimate fuel consumption rates (in gallons per mile) and CO_2, CH_4, and N_2O emission factors (in grams per mile) based on the vehicle fleet mix.

[66] Ground access vehicles exclude those ground support equipment (GSE) used for servicing aircraft and airport.