

Appendix A
Fuel and Energy Usage

Menlo Park Commonwealth Project
Fuel and Energy Usage

Estimated Total Fuel Usage during Construction

Engine Types	CO2 emissions (metric tons) ¹	CO2 emissions (kilograms)	Emission factor (kg CO2/gallon) ²	Fuel Usage (gallons)	Fuel Type
On-site (diesel)	562.52	562,520	10.21	55,095	diesel
Off-site - Hauling (diesel)	64.04	64,040	10.21	6,272	diesel
Off-site - Vendor (diesel)	126.06	126,060	10.21	12,347	diesel
Off-site - Worker (gasoline)	107.67	107,670	8.78	12,263	gasoline
Total Fuel Usage				73,714	Diesel
				12,263	Gasoline
				85,977	Total

Source:

1. Appendix 3.4, Air Quality and Greenhouse Gas Emission Technical Data
2. The Climate Registry 2014, see emission factors below.

Estimated Net Increase of Annual Fuel Usage during Operation

Engine Types	Annual CO2 emissions (metric tons/year) ¹	Annual CO2 emissions (kilograms/year)	Emission factor (kg CO2/gallon) ²	Annual Fuel Usage (gallons/year)	Fuel Type
On-road vehicles (all)	3,799.43				
On-road vehicles (gasoline) ³	3,609.46	3,609,459	8.78	411,100	gasoline
On-road vehicles (diesel) ³	189.97	189,972	10.21	18,606	diesel
Generator (diesel)	4.20	4,200	10.21	411	diesel
Total Annual Fuel Usage				19,018	Diesel
				411,100	Gasoline
				430,118	Total

Source:

1. Appendix 3.4, Air Quality and Greenhouse Gas Emission Technical Data
2. The Climate Registry 2014, see emission factors below.
3. It is assumed that 95% of the on-road vehicle emissions are generated by gasoline-powered vehicles because majority of the project trips are generated by employee vehicles.

Estimated Net Increase of Annual Energy Usage during Operation

Energy Type	Existing Annual Energy Usage ¹	Proposed Annual Energy Usage ¹	Net Increase of Annual Energy Usage ¹
Electricity (kWh)	2,636	2,513,660	2,511,024
Natural Gas (therms)	120	15,208	15,088

Source:

1. Appendix 3.4, Air Quality and Greenhouse Gas Emission Technical Data
 - Existing values are provided by the applicant in EXISTING 164 Jefferson.xlsx document.
 - Proposed values are provided by the applicant in the ICF Response Letter 2013-05-07_SRH_ee.pdf.

Fuel Emission Factors

Source:

2014 Climate Registry Default Emission Factors – Released April 11, 2014
Available: <http://www.theclimateregistry.org/downloads/2014/04/2014-Climate-Registry-Default-Emissions-Factors.pdf>
Table 12.1 U.S. Default Factors for Calculating CO2 Emissions from Fossil Fuel and Biomass Combustion

Fuel Type	CO2 Emission Factor (kg CO2/gallon)
Motor Gasoline	8.78
Distillate Fuel Oil No. 2	10.21