

Appendix F
Energy Calculations

XS/S Common	MT CO2e	kg CO2e	gallons
Diesel		292.6713	292671.3
Gasoline		21.3764	21376.4
			33,334
			2,094

	Project Elements	MT CO2e
	XS/S Common	
	Demolition	
Diesel	Off-Road	42.78
Diesel	Hauling	27.79
Diesel	Vendor	0.00
Gasoline	Worker	1.98
	Site Preparation	
Diesel	Off-Road	17.06
Diesel	Hauling	0.66
Diesel	Vendor	0.00
Gasoline	Worker	3.07
	Grading	
Diesel	Off-Road	48.20
Diesel	Hauling	48.12
Diesel	Vendor	0.00
Gasoline	Worker	2.97
	Building Construction	
Diesel	Off-Road	68.10
Diesel	Hauling	0.38
Diesel	Vendor	29.81
Gasoline	Worker	10.39
	Paving	
Diesel	Off-Road	8.90
Diesel	Hauling	0.55
Diesel	Vendor	0.00
Gasoline	Worker	1.48
	Architectural Coatings	
Diesel	Off-Road	0.00
Diesel	Hauling	0.33
Diesel	Vendor	0.00
Gasoline	Worker	1.48

Conversion Factors (kg CO2/gallon)

Diesel (kg co2/gallon)
 Gasoline (kg co2/gallon)
 MT to KG

Source

8.78 Source: Climate Registry. 2019. Table 2.1. <https://www.theclimateregistry.org/wp-content/uploads/2019/05/The-Climate-Registry-2019-Default-Emission-Factor-Documen.pdf>
 10.21 Source: Climate Registry. 2019. Table 2.1. <https://www.theclimateregistry.org/wp-content/uploads/2019/05/The-Climate-Registry-2019-Default-Emission-Factor-Documen.pdf>
 1000

M Trails/Gateways	MT CO2e	kg CO2e	gallons
Diesel	1366.8925	1366892.5	155,683
Gasoline	14.582	14582	1,428

Project Elements		MT CO2e
M Trails/Gateways		
Demolition		
Diesel	Off-Road	83.88
Diesel	Hauling	68.68
Diesel	Vendor	0.00
Gasoline	Worker	1.26
Site Preparation		
Diesel	Off-Road	77.37
Diesel	Hauling	753.74
Diesel	Vendor	0.00
Gasoline	Worker	2.47
Grading		
Diesel	Off-Road	48.81
Diesel	Hauling	0.11
Diesel	Vendor	0.00
Gasoline	Worker	2.47
Building Construction - 2021		
Diesel	Off-Road	6.38
Diesel	Hauling	0.00
Diesel	Vendor	21.35
Gasoline	Worker	0.49
Building Construction - 2022		
Diesel	Off-Road	57.43
Diesel	Hauling	0.00
Diesel	Vendor	190.50
Gasoline	Worker	4.30
Paving		
Diesel	Off-Road	21.39
Diesel	Hauling	0.11
Diesel	Vendor	0.00
Gasoline	Worker	2.39
Architectural Coatings		
Diesel	Off-Road	36.99
Diesel	Hauling	0.16
Diesel	Vendor	0.00
Gasoline	Worker	1.19

Conversion Factors (kg CO2/gallon)

Diesel (kg co2/gallon)
 Gasoline (kg co2/gallon)
 MT to KG

Source

8.78 Source: Climate Registry. 2019. Table 2.1. <https://www.theclimateregistry.org/wp-content/uploads/2019/05/The-Climateregistry-2019-Default-Emission-Factor-Document.pdf>
 10.21 Source: Climate Registry. 2019. Table 2.1. <https://www.theclimateregistry.org/wp-content/uploads/2019/05/The-Climateregistry-2019-Default-Emission-Factor-Document.pdf>
 1000

Summary

Source	Consumed per Year
Natural Gas (MMbtu)	2,075
Electricity (mWh)	318
Gasoline Fuel (gallons)	433,226

Natural Gas (MMbtu)

	kBTU	MMBtu
Natural Gas	2074560	2075

Conversion Factors

kBTU to MMBtu	0.001
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Electricity (mWh)

Indoor Water	13
Outdoor Water	13
Building Electricity	292
Total	318

	kWh/yr
Building Energy	291840

Activities	kwh/million gallons	mwh/million gallons
Supply	2117	2.12
Treat	111	0.11
Distribution	1272	1.27
Wastewater Treatment	1911	1.91
Indoor		5.41
Outdoor		3.50

Source: CalEEMod Appendix

Water Use	million gallons/yr
Indoor	2.43
Outdoor	3.73

Conversion Factors

kwh to mwh	0.001
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Fuel

		MT CO2e/year	kg CO2e	gallons
Gasoline	Mobile	4423.2396	4423240	433226.2
Gasoline	Area	4.00E-04	0.4	0.0004

		MT CO2e/year	kg CO2e	gallons
	Gasoline	4423.24	4423240	433,226

Conversion Factors

Gasoline (kg co2/gallon)
MT to KG

Source

10.21 Source: Climate Registry. 2019. Table 2.1. <https://www.theclimateregistry.org/wp-content/uploads/2019/05/The-Climite-Registry-2019-Default-Emission-Factor-Documnt.pdf>
1000

Summary

Source	Consumed per Year
Natural Gas (MMbtu)	-
Electricity (mWh)	101
Gasoline Fuel (gallons)	20,486

Natural Gas (MMbtu)

	kBTU	MMBtu
Natural Gas	0	0

Conversion Factors

kBTU to MMBtu	0.001
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Electricity (mWh)

Indoor Water	0
Outdoor Water	101
Building Electricity	0
Total	101

Building Energy	kWh/yr	0
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Activities	kwh/million gallons	mwh/million gallons
Supply	2117	2.12
Treat	111	0.11
Distribution	1272	1.27
Wastewater Treatment	1911	1.91
Indoor		5.41
Outdoor		3.50

Source: CalEEMod Appendix

Water Use	million gallons/yr
Indoor	0.00
Outdoor	28.88

Conversion Factors

kwh to mwh	0.001
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Fuel

		MT CO2e/year	kg CO2e	gallons
Gasoline	Mobile	209.158	209158	20485.6
Gasoline	Area	1.22E-03	1.22	0.00122
	Gasoline	209.15922	209159.2	20,486

Conversion Factors

Gasoline (kg co2/gallon)	10.21
MT to KG	1000

Source

10.21 Source: Climate Registry. 2019. Table 2.1. <https://www.theclimateregistry.org/wp-content/uploads/2019/05/The-Climate-Registry-2019-Default-Emission-Factor-Documents.pdf>