

Appendix O

Energy Calculations

Stetson Corner Project - Riverside-South Coast County, Annual

3.2 Demolition - 2021

Mitigated Construction Off-Site

Category	NBio- CO2
Hauling	4.74
Vendor	0.00
Worker	1.42
Total	6.16

3.3 Grading - 2021

Mitigated Construction Off-Site

Category	NBio- CO2
Hauling	32.72
Vendor	0.00
Worker	3.70
Total	36.42

3.4 Building Construction - 2021

Mitigated Construction Off-Site

Category	NBio- CO2
Hauling	0.00
Vendor	41.48
Worker	39.11
Total	80.58

3.5 Paving - 2021

Mitigated Construction Off-Site

Category	NBio- CO2
Hauling	0.00
Vendor	0.00
Worker	2.04
Total	2.04

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

Category	NBio- CO2
Hauling	0.00
Vendor	0.00
Worker	1.44
Total	1.44

Stetson Corner Project - Riverside-South Coast County, Annual

3.2 Demolition - 2021

Mitigated Construction On-Site

Category	NBio- CO2
Off-Road	34.00
Total	34.00

3.3 Grading - 2021

Mitigated Construction On-Site

Category	NBio- CO2
Off-Road	67.74
Total	67.74

3.4 Building Construction - 2021

Mitigated Construction On-Site

Category	NBio- CO2
Off-Road	115.82
Total	115.82

3.5 Paving - 2021

Mitigated Construction On-Site

Category	NBio- CO2
Off-Road	18.83
Total	18.83

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

Category	NBio- CO2
Off-Road	2.30
Total	2.30

Table 3.6-1

Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO ₂ (MT)	kg/CO ₂ /Gallon	Gallons
Demolition	6	34.00	10.21	3,330.14
Grading	6	67.74	10.21	6,634.62
Building Construction	9	115.82	10.21	11,343.63
Paving	8	18.83	10.21	1,843.90
Architectural Coating	1	2.30	10.21	225.06
Total				20,047.22

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	
Demolition	Concrete/Industrial Saws	1.00	8.00	8
Demolition	Excavators	3.00	8.00	24
Demolition	Rubber Tired Dozers	2.00	8.00	16
Grading	Excavators	1.00	8.00	8
Grading	Graders	1.00	8.00	8
Grading	Rubber Tired Dozers	1.00	8.00	8
Grading	Tractors/Loaders/Backhoes	3.00	8.00	24
Building Construction	Cranes	1.00	7.00	7
Building Construction	Forklifts	3.00	8.00	24
Building Construction	Generator Sets	1.00	8.00	8
Building Construction	Tractors/Loaders/Backhoes	3.00	7.00	21
Building Construction	Welders	1.00	8.00	8
Paving	Cement and Mortar Mixers	2.00	6.00	12
Paving	Pavers	1.00	8.00	8
Paving	Paving Equipment	2.00	6.00	12
Paving	Rollers	2.00	6.00	12
Paving	Tractors/Loaders/Backhoes	1.00	8.00	8
Architectural Coating	Air Compressors	1.00	6.00	6

total Hours

Phase Name	total Days	Hrs/day	total hrs
Demolition	20.00	48	960
Grading	52.00	48	2496
Building Construction	100.00	68	6800
Paving	23.00	52	1196
Architectural Coating	18.00	6	108
total			11,560

Table 3.6-2
Construction Worker Gasoline Demand

Phase	Trips	Vehicle MT CO ₂	kg/CO ₂ / Gallon	Gallons
Demolition	320.00	1.42	8.78	161.98
Grading	832.00	3.70	8.78	421.14
Building Construction	8,800.00	39.11	8.78	4,454.35
Paving	460.00	2.04	8.78	232.85
Architectural Coating	324.00	1.44	8.78	164.00
Total				5,272.33

Sources: Trips and vehicle CO₂ (Appendix C); kg/CO₂/Gallon (The Climate Registry 2018).

Notes: MT = metric ton; CO₂ = carbon dioxide; kg = kilogram.

Phase Name	# trips Worker per day	total Days	Total Trips
Demolition	16.00	20.00	320
Grading	16.00	52.00	832
Building Construction	88.00	100.00	8800
Paving	20.00	23.00	460
Architectural Coating	18.00	18.00	324

Table 3.6-3
Construction Vendor Diesel Demand

Phase	Trips	Vehicle MT CO ₂	kg/CO ₂ /Gallon	Gallons
Demolition	0	0.00	10.21	0.00
Grading	0	0.00	10.21	0.00
Building Construction	3400	41.48	10.21	4,062.23
Paving	0	0.00	10.21	0.00
Architectural Coating	0	0.00	10.21	0.00
Total				4,062.23

Sources: Trips and vehicle CO₂ (Appendix B); kg/CO₂/Gallon (The Climate Registry 2018).

Notes: MT = metric ton; CO₂ = carbon dioxide; kg = kilogram.

Phase Name	Vender # trips vendor per day	total Days	Total Trips
Demolition	0.00	20.00	0
Grading	0.00	52.00	0
Building Construction	34.00	100.00	3400
Paving	0.00	23.00	0
Architectural Coating	0.00	18.00	0

Table 3.6-4

Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle MT CO ₂	kg/CO ₂ /Gallon	Gallons
Demolition	132.00	4.74	10.21	463.81
Grading	912.00	32.72	10.21	3,204.48
Building Construction	0.00	0.00	10.21	0.00
Paving	0.00	0.00	10.21	0.00
Architectural Coating	0.00	0.00	10.21	0.00
Total				3,204.48

Sources: Trips and vehicle CO₂ (Appendix B); kg/CO₂/Gallon (The Climate Registry 2018).

Notes: MT = metric ton; CO₂ = carbon dioxide; kg = kilogram.

Project	
Total Gasoline	5272.3349
Total Diesel	27,313.93

Phase Name	Total # trips Hauling	total Days
Demolition	132.00	20.00
Grading	912.00	52.00
Building Construction	0.00	100.00
Paving	0.00	23.00
Architectural Coating	0.00	18.00

Table 3.6-4

Annual Mobile Source Gasoline Demand

	Vehicle MT CO ₂	kg/CO ₂ /Gallon	Gallons
Operation	3,166.55	8.78	360,654.74

Sources: Trips and vehicle CO₂ (Appendix C); kg/CO₂/Gallon (The Climate Registry 2018).

Notes: MT = metric ton; CO₂ = carbon dioxide; kg = kilogram

Table 3.6-5

Annual Diesel Demand

	Vehicle MT CO ₂	kg/CO ₂ /Gallon	Gallons
Operation	392.57	10.21	38,449.36

Sources: Trips and vehicle CO₂ (Appendix C); kg/CO₂/Gallon (The Climate Registry 2018).

Notes: MT = metric ton; CO₂ = carbon dioxide; kg = kilogram

Electrical Energy Usage

Total 274,839 kWh/yr

Natural Gas Usage

Total 1,000,596 kBtu/yr

Total VMT

5,783,979 VMT

Mobile Sources

Total

3464.5 MT/yr CO₂e

88.9265 % Gasoline

11.0734 %Diesel

3080.8586 MT/yr CO₂e

383.64 MT/yr CO₂e

Fleet Mix

LDA	LD1	LD2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCV	SBUS	MH
0.545527	0.036856	0.186032	0.115338	0.01522	0.00497	0.017525	0.069528	0.0014	0.00116	0.004547	0.000932	0.00097
0.545527	0.036856	0.186032	0.115338	0.01522	0.00497	0.017525	0.069528	0.0014	0.00116	0.004547	0.000932	0.00097

1.00000

0.889265 % light and medium

0.110734 % heavy

Gasoline

Diesel

Mobile	CO ₂	CO ₂ e	
CalEEMod	3456.85	3464.5	Both
Drive Thru	34.8	35.9	cars
Drive Thru	48.26	49.79	cars
Truck Idle	8.66	8.93	trucks
Total	3548.57	3559.12	

