

# Redlands Boulevard & Hemlock Avenue Gas Station

Last Updated: 12/10/2021

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors [1]:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529
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*Values above are expressed in gallons per horsepower-hour/BSFC.*

## CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Load Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Graders	1	8	187	0.41	Site Preparation Phase	97
Scrapers	1	8	367	0.48	Site Preparation Phase	223
Tractors/Loaders/Backhoes	1	7	97	0.37	Site Preparation Phase	44
Graders	1	8	187	0.41	Grading Phase	195
Rubber Tired Dozers	1	8	247	0.4	Grading Phase	251
Tractors/Loaders/Backhoes	2	7	97	0.37	Grading Phase	177
Cranes	1	8	231	0.29	Building Construction Phase	6,232
Forklifts	2	7	89	0.2	Building Construction Phase	3,222
Generator Sets	1	8	84	0.74	Building Construction Phase	6,429
Tractors/Loaders/Backhoes	1	6	97	0.37	Building Construction Phase	2,784
Welders	3	8	46	0.45	Building Construction Phase	6,423
Air Compressors	1	6	78	0.48	Architectural Coating Phase	132
Cement and Mortar Mixers	1	8	9	0.56	Paving Phase	24
Pavers	1	8	130	0.42	Paving Phase	231
Paving Equipment	1	8	132	0.36	Paving Phase	201
Rollers	2	8	80	0.38	Paving Phase	286
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving Phase	169

**Total Fuel Used** **27,119**  
(Gallons)

### Construction Phase      Days of Operation

Site Preparation Phase	3
Grading Phase	6
Building Construction Phase	220
Paving Phase	10
Architectural Coating Phase	10
<b>Total Days</b>	<b>249</b>

## WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Preparation Phase	24.1	8	14.7	15
Grading Phase	24.1	10	14.7	37
Building Construction Phase	24.1	44	14.7	5,904
Paving Phase	24.1	15	14.7	91
Architectural Coating Phase	24.1	9	14.7	55

**Total** **6,102**

## HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
<b>HAULING TRIPS</b>				
Site Preparation Phase	7.5	0	20.0	0
Grading Phase	7.5	38	20.0	101
Building Construction Phase	7.5	0	20.0	0
Paving Phase	7.5	0	20.0	0
Architectural Coating Phase	7.5	0	20.0	0

				<b>Total</b>	<b>101</b>
<b>VENDOR TRIPS</b>					
Site Preparation Phase	7.5	0	6.9		0
Grading Phase	7.5	0	6.9		0
Building Construction Phase	7.5	17	6.9		3,441
Paving Phase	7.5	0	6.9		0
Architectural Coating Phase	7.5	0	6.9		0
				<b>Total</b>	<b>3,441</b>

<b>Total Gasoline Consumption (gallons)</b>	<b>6,102</b>
<b>Total Diesel Consumption (gallons)</b>	<b>30,661</b>

**Sources:**

[1] United States Environmental Protection Agency. 2021. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2*. September. Available at: <https://www.epa.gov/system/files/documents/2021-08/420r21021.pdf>.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2021. *National Transportation Statistics*. Available at: <https://www.bts.gov/topics/national-transportation-statistics>.

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Populate one of the following tables (Leave the other blank):

<b>Annual VMT</b>	<b>OR</b>	<b>Daily Vehicle Trips</b>
Annual VMT: 1,992,726		Daily Vehicle Trips: Average Trip Distance:

Fleet Class	Fleet Mix	Fuel Economy (MPG) [1]	
Light Duty Auto (LDA)	0.543139	Passenger Vehicles	24.1
Light Duty Truck 1 (LDT1)	0.060749	Light-Med Duty Trucks	17.6
Light Duty Truck 2 (LDT2)	0.184760	Heavy Trucks/Other	7.5
Medium Duty Vehicle (MDV)	0.130258	Motorcycles	44.0
Light Heavy Duty 1 (LHD1)	0.023830		
Light Heavy Duty 2 (LHD2)	0.006353		
Medium Heavy Duty (MHD)	0.011718		
Heavy Heavy Duty (HHD)	0.009137		
Other Bus (OBUS)	0.000812		
Urban Bus (UBUS)	0.000509		
Motorcycle (MCY)	0.024193		
School Bus (SBUS)	0.000750		
Motorhome (MH)	0.003791		

Fleet Mix					
Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	54.31%	Gasoline	1,082,327	0.00	44,910
Light-Medium Duty Trucks	37.58%	Gasoline	748,801	0.00	42,545
Heavy Trucks/Other	5.69%	Diesel	113,386	0.00	15,118
Motorcycle	2.42%	Gasoline	48,210	0.00	1,096

<b>Total Gasoline Consumption (gallons)</b>	<b>88,551</b>
<b>Total Diesel Consumption (gallons)</b>	<b>15,118</b>

**Sources:**

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2021. National Transportation Statistics. Available at: <https://www.bts.gov/topics/national-transportation-statistics>.

Equipment	Horsepower	Load Factor
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Excavators	158	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	172	0.42
Other General Industrial Equipment	88	0.34
Other Material Handling Equipment	168	0.4
Pavers	130	0.42
Paving Equipment	132	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.5
Welders	46	0.45