

John Street and Abbott Street Mixed Use Development Project - Phase 1

Last Updated: 7/21/2022

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			Construction Phase	Fuel Used (gallons)
		Hours per Day	Horsepower	Load Factor		
Concrete/Industrial Saws	1	8	81	0.73	Demolition Phase	973
Rubber Tired Dozers	1	8	247	0.4	Demolition Phase	1,462
Tractors/Loaders/Backhoes	3	8	97	0.37	Demolition Phase	1,772
Graders	1	8	187	0.41	Grading Phase	357
Tractors/Loaders/Backhoes	2	7	97	0.37	Grading Phase	325
Rubber Tired Dozers	1	8	247	0.4	Grading Phase	460
Cranes	1	8	231	0.29	Building Construction Phase	11,161
Forklifts	2	7	89	0.2	Building Construction Phase	5,770
Generator Sets	1	8	84	0.74	Building Construction Phase	11,514
Tractors/Loaders/Backhoes	1	6	97	0.37	Building Construction Phase	4,986
Welders	3	8	46	0.45	Building Construction Phase	11,502
Air Compressors	1	6	78	0.48	Architectural Coating Phase	224
Pavers	1	8	130	0.42	Paving Phase	393
Paving Equipment	1	8	132	0.36	Paving Phase	342
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving Phase	287
Rollers	2	8	80	0.38	Paving Phase	486
Cement and Mortar Mixers	1	8	9	0.56	Paving Phase	40

Total Fuel Used **52,052 (Gallons)**

Construction Phase	Days of Operation
Demolition Phase	35
Grading Phase	11
Building Construction Phase	394
Paving Phase	17
Architectural Coating Phase	17
Total Days	474

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition Phase	24.1	13	10.8	203.90
Grading Phase	24.1	10	10.8	49.29
Building Construction Phase	24.1	51	10.8	9004.78
Paving Phase	24.1	15	10.8	114.27
Architectural Coating Phase	24.1	10	10.8	76.18
Total				9,448.43

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Demolition Phase	7.5	1300	20.0	3466.67

Grading Phase	7.5	106	20.0	282.67
Building Construction Phase	7.5	0	20.0	0.00
Paving Phase	7.5	105	20.0	280.00
Architectural Coating Phase	7.5	0	20.0	0.00
Total				4,029.33

VENDOR TRIPS				
Demolition Phase	7.5	0	7.3	0.00
Grading Phase	7.5	0	7.3	0.00
Building Construction Phase	7.5	20	7.3	7669.87
Paving Phase	7.5	0	7.3	0.00
Architectural Coating Phase	7.5	0	7.3	0.00
Total				7,669.87

Total Gasoline Consumption (gallons)	9,448
Total Diesel Consumption (gallons)	63,751

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>.

John Street and Abbott Street Mixed Use Development Project - Phase 2

Last Updated: 7/21/2022

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	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Graders	1	8	187	0.41	Grading Phase	486
Excavators	1	8	158	0.38	Grading Phase	381
Rubber Tired Dozers	1	8	247	0.4	Grading Phase	627
Tractors/Loaders/Backhoes	3	8	97	0.37	Grading Phase	759
Cranes	1	7	231	0.29	Building Construction Phase	10,535
Forklifts	3	8	89	0.2	Building Construction Phase	10,669
Generator Sets	1	8	84	0.74	Building Construction Phase	12,419
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction Phase	18,823
Welders	1	8	46	0.45	Building Construction Phase	4,136
Air Compressors	1	6	78	0.48	Architectural Coating Phase	238
Pavers	1	8	130	0.42	Paving Phase	416
Paving Equipment	2	6	132	0.36	Paving Phase	543
Rollers	2	6	80	0.38	Paving Phase	386
Cement and Mortar Mixers	2	6	9	0.56	Paving Phase	64
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving Phase	304
Total Fuel Used						60,785
						(Gallons)

Construction Phase	Days of Operation
Grading Phase	15
Building Construction Phase	425
Paving Phase	18
Architectural Coating Phase	18
Total Days	476

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Grading Phase	24.1	15	10.8	100.83
Building Construction Phase	24.1	40	10.8	7618.26
Paving Phase	24.1	20	10.8	161.33
Architectural Coating Phase	24.1	8	10.8	64.53
Total				7,944.95

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Grading Phase	7.5	166	20.0	442.67
Building Construction Phase	7.5	0	20.0	0.00
Paving Phase	7.5	166	20.0	442.67
Architectural Coating Phase	7.5	0	20.0	0.00
Total				885.33

VENDOR TRIPS

Grading Phase	7.5	0	0.0	0.00
Building Construction Phase	7.5	12	7.3	4964.00
Paving Phase	7.5	0	0.0	0.00
Architectural Coating Phase	7.5	0	0.0	0.00
Total				4,964.00

Total Gasoline Consumption (gallons)	7,945
Total Diesel Consumption (gallons)	66,634

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>.

John Street and Abbott Street Mixed Use Development Project - Phase 3

Last Updated: 7/21/2022

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		Load Factor	Construction Phase	Fuel Used (gallons)
		Day	Horsepower			
Graders	1	8	187	0.41	Grading Phase	324
Excavators	1	8	158	0.38	Grading Phase	254
Rubber Tired Dozers	1	8	247	0.4	Grading Phase	418
Tractors/Loaders/Backhoes	3	8	97	0.37	Grading Phase	506
Cranes	1	7	231	0.29	Building Construction Phase	7,312
Forklifts	3	8	89	0.2	Building Construction Phase	7,406
Generator Sets	1	8	84	0.74	Building Construction Phase	8,621
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction Phase	13,066
Welders	1	8	46	0.45	Building Construction Phase	2,871
Air Compressors	1	6	78	0.48	Architectural Coating Phase	238
Pavers	1	8	130	0.42	Paving Phase	416
Paving Equipment	2	6	132	0.36	Paving Phase	543
Cement and Mortar Mixers	2	6	9	0.56	Paving Phase	64
Rollers	2	6	80	0.38	Paving Phase	386
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving Phase	304
Total Fuel Used						42,726
						(Gallons)

Construction Phase	Days of Operation
Grading Phase	10
Building Construction Phase	295
Paving Phase	18
Architectural Coating Phase	18
Total Days	341

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Grading Phase	24.1	15	10.8	67.22
Building Construction Phase	24.1	13	10.8	1718.59
Paving Phase	24.1	20	10.8	161.33
Architectural Coating Phase	24.1	3	10.8	24.20
Total				1,971.34

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Grading Phase	7.5	166	20.0	442.67
Building Construction Phase	7.5	0	0.0	0.00
Paving Phase	7.5	166	20.0	442.67
Architectural Coating Phase	7.5	0	0.0	0.00
Total				885.33

VENDOR TRIPS

Grading Phase	7.5	0	0.0	0.00
Building Construction Phase	7.5	6	7.3	1722.80
Paving Phase	7.5	0	0.0	0.00
Architectural Coating Phase	7.5	0	0.0	0.00
Total				1,722.80

Total Gasoline Consumption (gallons)	1,971
Total Diesel Consumption (gallons)	45,334

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>.

John Street and Abbott Street Mixed Use Development Project - Phase 4

Last Updated: 7/21/2022

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		Construction Phase	Fuel Used (gallons)
		Hours per Day	Load Factor		
Graders	1	6	0.41	Grading Phase	122
Rubber Tired Dozers	1	6	0.4	Grading Phase	157
Tractors/Loaders/Backhoes	1	7	0.37	Grading Phase	74
Cranes	1	4	0.29	Building Construction Phase	3,343
Forklifts	2	6	0.2	Building Construction Phase	2,962
Tractors/Loaders/Backhoes	2	8	0.37	Building Construction Phase	7,964
Air Compressors	1	6	0.48	Architectural Coating Phase	66
Pavers	1	7	0.42	Paving Phase	101
Cement and Mortar Mixers	4	6	0.56	Paving Phase	36
Rollers	1	7	0.38	Paving Phase	63
Tractors/Loaders/Backhoes	1	7	0.37	Paving Phase	74
Total Fuel Used					14,960 (Gallons)

Construction Phase	Days of Operation
Grading Phase	5
Building Construction Phase	236
Paving Phase	5
Architectural Coating Phase	5
Total Days	251

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Grading Phase	24.1	8	10.8	17.93
Building Construction Phase	24.1	9	10.8	951.83
Paving Phase	24.1	18	10.8	40.33
Architectural Coating Phase	24.1	2	10.8	4.48
Total				1,014.57

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Grading Phase	7.5	50	20.0	133.33
Building Construction Phase	7.5	0	0.0	0.00
Paving Phase	7.5	50	20.0	133.33
Architectural Coating Phase	7.5	0	0.0	0.00
Total				266.67
VENDOR TRIPS				
Grading Phase	7.5	0	0.0	0.00
Building Construction Phase	7.5	4	7.3	918.83
Paving Phase	7.5	0	0.0	0.00
Architectural Coating Phase	7.5	0	0.0	0.00

Total

918.83

Total Gasoline Consumption (gallons)	1,015
Total Diesel Consumption (gallons)	16,145

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>.

John Street and Abbott Street Mixed Use Development Project - Phase 5

Last Updated: 7/21/2022

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		Construction Phase	Fuel Used (gallons)
		Hours per Day	Load Factor		
Graders	1	8	0.41	Grading Phase	162
Rubber Tired Dozers	1	8	0.4	Grading Phase	209
Tractors/Loaders/Backhoes	2	7	0.37	Grading Phase	148
Cranes	1	6	0.29	Building Construction Phase	5,014
Forklifts	1	6	0.2	Building Construction Phase	1,481
Generator Sets	1	8	0.74	Building Construction Phase	6,896
Tractors/Loaders/Backhoes	1	6	0.37	Building Construction Phase	2,986
Welders	3	8	0.45	Building Construction Phase	6,890
Air Compressors	1	8	0.48	Architectural Coating Phase	176
Pavers	1	6	0.42	Paving Phase	173
Cement and Mortar Mixers	1	6	0.56	Paving Phase	18
Paving Equipment	1	8	0.36	Paving Phase	201
Rollers	1	7	0.38	Paving Phase	125
Tractors/Loaders/Backhoes	1	8	0.37	Paving Phase	169
Total Fuel Used					24,648 (Gallons)

Construction Phase	Days of Operation
Grading Phase	5
Building Construction Phase	236
Paving Phase	10
Architectural Coating Phase	10
Total Days	261

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Grading Phase	24.1	10	10.8	22.41
Building Construction Phase	24.1	34	10.8	3595.82
Paving Phase	24.1	13	10.8	58.26
Architectural Coating Phase	24.1	7	10.8	31.37
Total				3,707.85

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Grading Phase	7.5	66	20.0	176.00
Building Construction Phase	7.5	0	0.0	0.00
Paving Phase	7.5	66	20.0	176.00
Architectural Coating Phase	7.5	0	0.0	0.00
Total				352.00
VENDOR TRIPS				
Grading Phase	7.5	0	0.0	0.00

Building Construction Phase	7.5	9	7.3	2067.36
Paving Phase	7.5	0	0.0	0.00
Architectural Coating Phase	7.5	0	0.0	0.00
Total				2,067.36

Total Gasoline Consumption (gallons)	3,708
Total Diesel Consumption (gallons)	27,068

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>.

John Street and Abbott Street Mixed Use Development Project - Phase 6

Last Updated: 7/21/2022

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		Construction Phase	Fuel Used (gallons)
		Hours per Day	Load Factor		
Graders	1	8	0.41	Grading Phase	486
Excavators	1	8	0.38	Grading Phase	381
Rubber Tired Dozers	1	8	0.4	Grading Phase	627
Tractors/Loaders/Backhoes	3	8	0.37	Grading Phase	759
Cranes	1	7	0.29	Building Construction Phase	10,535
Forklifts	3	8	0.2	Building Construction Phase	10,669
Generator Sets	1	8	0.74	Building Construction Phase	12,419
Tractors/Loaders/Backhoes	3	7	0.37	Building Construction Phase	18,823
Welders	1	8	0.45	Building Construction Phase	4,136
Air Compressors	1	6	0.48	Architectural Coating Phase	238
Pavers	1	8	0.42	Paving Phase	416
Paving Equipment	2	6	0.36	Paving Phase	543
Rollers	2	6	0.38	Paving Phase	386
Tractors/Loaders/Backhoes	1	8	0.37	Paving Phase	304
Total Fuel Used					60,721 (Gallons)

Construction Phase	Days of Operation
Grading Phase	15
Building Construction Phase	425
Paving Phase	18
Architectural Coating Phase	18
Total Days	476

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Grading Phase	24.1	15	10.8	100.83
Building Construction Phase	24.1	137	10.8	26092.53
Paving Phase	24.1	20	10.8	161.33
Architectural Coating Phase	24.1	27	10.8	217.79
Total				26,572.48

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Grading Phase	7.5	237	20.0	632.00
Building Construction Phase	7.5	0	0.0	0.00
Paving Phase	7.5	237	20.0	632.00
Architectural Coating Phase	7.5	0	0.0	0.00
Total				1,264.00
VENDOR TRIPS				
Grading Phase	7.5	0	0.0	0.00

Building Construction Phase	7.5	38	7.3	15719.33
Paving Phase	7.5	0	0.0	0.00
Architectural Coating Phase	7.5	0	0.0	0.00
Total				15,719.33

Total Gasoline Consumption (gallons)	26,572
Total Diesel Consumption (gallons)	77,704

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>.

John Street and Abbott Street Mixed Use Development Project - Operational

Last Updated: 8/1/2022

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

Annual VMT	OR	Daily Vehicle Trips
Annual VMT: 21,790,093		Daily Vehicle Trips: Average Trip Distance:

Fleet Class	Fleet Mix	Fuel Economy (MPG) [1]	
Light Duty Auto (LDA)	0.550670	Passenger Vehicles	24.1
Light Duty Truck 1 (LDT1)	0.055397	Light-Med Duty Trucks	17.6
Light Duty Truck 2 (LDT2)	0.189443	Heavy Trucks/Other	7.5
Medium Duty Vehicle (MDV)	0.129039	Motorcycles	44
Light Heavy Duty 1 (LHD1)	0.021412		
Light Heavy Duty 2 (LHD2)	0.005590		
Medium Heavy Duty (MHD)	0.010094		
Heavy Heavy Duty (HHD)	0.008865		
Other Bus (OBUS)	0.001017		
Urban Bus (UBUS)	0.000525		
Motorcycle (MCY)	0.024397		
School Bus (SBUS)	0.001050		
Motorhome (MH)	0.002502		

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT:		Fuel Consumption (Gallons)
			VMT	Vehicle Trips: VMT	
Passenger Vehicles	55.07%	Gasoline	11,999,151	0.00	497,890
Light-Medium Duty Trucks	37.39%	Gasoline	8,146,858	0.00	462,890
Heavy Trucks/Other	5.11%	Diesel	1,112,493	0.00	148,332
Motorcycle	2.44%	Gasoline	531,613	0.00	12,082

Total Gasoline Consumption (gallons)	972,862
Total Diesel Consumption (gallons)	148,332

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>.