Appendix 4.5

Energy

4.5.1

Existing Conditions Energy Calculations

Table 1. Summary of Annual Electricity Use During Operation

Land Use	Units	Buildout
Restaurant	kWh/yr	43,776
Restaurant	kWh/yr	173,718
Restaurant	kWh/yr	168,100
Auto Service	kWh/yr	371,800
Shopping Center	kWh/yr	140,712
Store	kWh/yr	253,899
Store	kWh/yr	57,200
Shopping Center	kWh/yr	291,720
Shopping Center	kWh/yr	84,061
Store	kWh/yr	189,618
Supermarket	kWh/yr	29,506,550
Gas Station	kWh/yr	1,707
Total Building	kWh/yr	31,282,861
Water	kWh/yr	386,833
Total Electricty	**kWh/yr**	**31,669,694**

Table 2. Summary of Annual Natural Gas Use During Operation

Land Use	Units	Buildout
Restaurant	kBTU/yr	919,600
Restaurant	kBTU/yr	311,184
Restaurant	kBTU/yr	1,194,950
Auto Service	kBTU/yr	919,600
Shopping Center	kBTU/yr	24,600
Store	kBTU/yr	44,388
Store	kBTU/yr	10,000
Shopping Center	kBTU/yr	51,000
Shopping Center	kBTU/yr	14,696
Store	kBTU/yr	33,150
Supermarket	kBTU/yr	1,570,060
Gas Station	kBTU/yr	4,222
Total Natural Gas	**kBTU/yr**	**5,097,450**

Table 3. Water by Land Use "Regulatory Compliance"

		Adjusted Baseline		
Land Use	**Units**	**Indoor/Outdoor Use**	**Indoor Use**	**Outdoor Use**
Combined	Mgal	24.06/6.62	24.06	6.62

Water and Wastewater Electricity Intensity (kWh/gallon)

Supply Water	0.009727
Treat Water	0.000111
Distribute Water	0.001272
Wastewater Treatment	0.001911

Source: CalEEMod User's Guide, Appendix D, Table 9.2 Los Angeles County - Los Angeles-South Coast

Indoor Water Factor	0.013021	kWh/gallon (supply, treat, distribute, wastewater treatment)
Outdoor Water Factor	0.01111	kWh/gallon (supply, treat, and distribute)

Notes:

Electricity and Natural Gas for the uses is total operational usage. Electricity, natural gas, and mobile usage was calculated from CalEEMod. Indoor water factor used for entire Project Site for conservative analysis.

ITC - Existing Parcels

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High Turnover (Sit Down Restaurant)	1.20	1000sqft	0.03	1,200.00	0
High Turnover (Sit Down Restaurant)	4.76	1000sqft	0.11	4,762.00	0
High Turnover (Sit Down Restaurant)	4.61	1000sqft	0.11	4,608.00	0
Automobile Care Center	44.00	1000sqft	1.01	44,000.00	0
Gasoline/Service Station	8.00	Pump	0.03	202.00	0
Regional Shopping Center	22.19	1000sqft	0.51	22,194.00	0
Regional Shopping Center	5.00	1000sqft	0.11	5,000.00	0
Regional Shopping Center	25.50	1000sqft	0.59	25,500.00	0
Regional Shopping Center	7.35	1000sqft	0.17	7,348.00	0
Regional Shopping Center	16.57	1000sqft	0.38	16,575.00	0
Regional Shopping Center	12.30	1000sqft	0.28	12,300.00	0
Supermarket	76.40	1000sqft	1.75	76,402.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Existing conditions.

Construction Phase - Existing conditions only.

Off-road Equipment - Existing conditions only.

ITC - Existing Parcels - Los Angeles-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	22.00
tblLandUse	LandUseSquareFeet	4,610.00	4,608.00
tblLandUse	LandUseSquareFeet	4,760.00	4,762.00
tblLandUse	LandUseSquareFeet	1,129.40	202.00
tblLandUse	LandUseSquareFeet	16,570.00	16,575.00
tblLandUse	LandUseSquareFeet	22,190.00	22,194.00
tblLandUse	LandUseSquareFeet	7,350.00	7,348.00
tblLandUse	LandUseSquareFeet	76,400.00	76,402.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblSolidWaste	SolidWasteGenerationRate	93.36	80.45
tblSolidWaste	SolidWasteGenerationRate	430.90	500.27
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblWater	IndoorWaterUseRate	6,585,787.89	5,675,436.60
tblWater	IndoorWaterUseRate	9,417,691.62	10,933,890.66
tblWater	OutdoorWaterUseRate	4,036,450.64	3,478,493.40
tblWater	OutdoorWaterUseRate	291,268.81	338,161.57

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.8976	3.0000e-005	2.9500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.6600e-003	5.6600e-003	2.0000e-005	0.0000	6.0400e-003
Energy	0.0292	0.2653	0.2229	1.5900e-003		0.0202	0.0202		0.0202	0.0202	0.0000	1,794.9534	1,794.9534	0.0677	0.0182	1,802.0580
Mobile	5.3382	22.0365	54.0868	0.1316	9.2333	0.1646	9.3979	2.4757	0.1548	2.6305	0.0000	12,117.5981	12,117.5981	0.8441	0.0000	12,138.7003
Waste						0.0000	0.0000		0.0000	0.0000	178.4067	0.0000	178.4067	10.5435	0.0000	441.9951
Water						0.0000	0.0000		0.0000	0.0000	7.6342	123.2811	130.9154	0.7892	0.0196	156.4765
Total	**6.2650**	**22.3018**	**54.3126**	**0.1332**	**9.2333**	**0.1847**	**9.4180**	**2.4757**	**0.1749**	**2.6506**	**186.0410**	**14,035.8383**	**14,221.8793**	**12.2446**	**0.0377**	**14,539.2360**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.8976	3.0000e-005	2.9500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.6600e-003	5.6600e-003	2.0000e-005	0.0000	6.0400e-003
Energy	0.0292	0.2653	0.2229	1.5900e-003		0.0202	0.0202		0.0202	0.0202	0.0000	1,794.9534	1,794.9534	0.0677	0.0182	1,802.0580
Mobile	5.3382	22.0365	54.0868	0.1316	9.2333	0.1646	9.3979	2.4757	0.1548	2.6305	0.0000	12,117.5981	12,117.5981	0.8441	0.0000	12,138.7003
Waste						0.0000	0.0000		0.0000	0.0000	178.4067	0.0000	178.4067	10.5435	0.0000	441.9951
Water						0.0000	0.0000		0.0000	0.0000	7.6342	123.2811	130.9154	0.7892	0.0196	156.4765
Total	**6.2650**	**22.3018**	**54.3126**	**0.1332**	**9.2333**	**0.1847**	**9.4180**	**2.4757**	**0.1749**	**2.6506**	**186.0410**	**14,035.8383**	**14,221.8793**	**12.2446**	**0.0377**	**14,539.2360**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/31/2017	12/29/2017	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	0	0.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.3382	22.0365	54.0868	0.1316	9.2333	0.1646	9.3979	2.4757	0.1548	2.6305	0.0000	12,117.5981	12,117.5981	0.8441	0.0000	12,138.7003
Unmitigated	5.3382	22.0365	54.0868	0.1316	9.2333	0.1646	9.3979	2.4757	0.1548	2.6305	0.0000	12,117.5981	12,117.5981	0.8441	0.0000	12,138.7003

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	1,043.68	1,043.68	522.72	1,298,370	1,298,370
Gasoline/Service Station	1,348.48	1,348.48	1348.48	872,182	872,182
High Turnover (Sit Down Restaurant)	152.58	190.04	158.21	216,330	216,330
High Turnover (Sit Down Restaurant)	605.23	753.84	627.56	858,110	858,110
High Turnover (Sit Down Restaurant)	586.16	730.09	607.78	831,069	831,069
Regional Shopping Center	947.51	1,108.83	560.08	1,979,458	1,979,458
Regional Shopping Center	213.50	249.85	126.20	446,025	446,025
Regional Shopping Center	1,088.85	1,274.24	643.62	2,274,726	2,274,726
Regional Shopping Center	313.85	367.28	185.51	655,656	655,656
Regional Shopping Center	707.54	828.00	418.23	1,478,126	1,478,126
Regional Shopping Center	525.21	614.63	310.45	1,097,221	1,097,221
Supermarket	7,811.14	13,567.88	12716.02	12,316,238	12,316,238
Total	15,343.73	22,076.84	18,224.85	24,323,511	24,323,511

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	16.60	8.40	6.90	33.00	48.00	19.00	21	51	28
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Supermarket	16.60	8.40	6.90	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944
Gasoline/Service Station	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944
High Turnover (Sit Down Restaurant)	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944
Regional Shopping Center	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944
Supermarket	0.547972	0.046127	0.199330	0.125604	0.017697	0.005953	0.018360	0.027618	0.002341	0.002583	0.004804	0.000667	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,506.1095	1,506.1095	0.0622	0.0129	1,511.4977
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,506.1095	1,506.1095	0.0622	0.0129	1,511.4977
NaturalGas Mitigated	0.0292	0.2653	0.2229	1.5900e-003		0.0202	0.0202		0.0202	0.0202	0.0000	288.8439	288.8439	5.5400e-003	5.3000e-003	290.5603
NaturalGas Unmitigated	0.0292	0.2653	0.2229	1.5900e-003		0.0202	0.0202		0.0202	0.0202	0.0000	288.8439	288.8439	5.5400e-003	5.3000e-003	290.5603

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	919600	4.9600e-003	0.0451	0.0379	2.7000e-004		3.4300e-003	3.4300e-003		3.4300e-003	3.4300e-003	0.0000	49.0734	49.0734	9.4000e-004	9.0000e-004	49.3650
Gasoline/Service Station	4221.8	2.0000e-005	2.1000e-004	1.7000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2253	0.2253	0.0000	0.0000	0.2266
High Turnover (Sit Down Restaurant)	1.19495e+006	6.4400e-003	0.0586	0.0492	3.5000e-004		4.4500e-003	4.4500e-003		4.4500e-003	4.4500e-003	0.0000	63.7669	63.7669	1.2200e-003	1.1700e-003	64.1458
High Turnover (Sit Down Restaurant)	1.23488e+006	6.6600e-003	0.0605	0.0509	3.6000e-004		4.6000e-003	4.6000e-003		4.6000e-003	4.6000e-003	0.0000	65.8980	65.8980	1.2600e-003	1.2100e-003	66.2896
High Turnover (Sit Down Restaurant)	311184	1.6800e-003	0.0153	0.0128	9.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	16.6060	16.6060	3.2000e-004	3.0000e-004	16.7046
Regional Shopping Center	10000	5.0000e-005	4.9000e-004	4.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5336	0.5336	1.0000e-005	1.0000e-005	0.5368
Regional Shopping Center	14696	8.0000e-005	7.2000e-004	6.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7842	0.7842	2.0000e-005	1.0000e-005	0.7889
Regional Shopping Center	24600	1.3000e-004	1.2100e-003	1.0100e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.3128	1.3128	3.0000e-005	2.0000e-005	1.3206
Regional Shopping Center	33150	1.8000e-004	1.6200e-003	1.3700e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7690	1.7690	3.0000e-005	3.0000e-005	1.7795
Regional Shopping Center	44388	2.4000e-004	2.1800e-003	1.8300e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.3687	2.3687	5.0000e-005	4.0000e-005	2.3828
Regional Shopping Center	51000	2.8000e-004	2.5000e-003	2.1000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.7216	2.7216	5.0000e-005	5.0000e-005	2.7377
Supermarket	1.57006e+006	8.4700e-003	0.0770	0.0647	4.6000e-004		5.8500e-003	5.8500e-003		5.8500e-003	5.8500e-003	0.0000	83.7844	83.7844	1.6100e-003	1.5400e-003	84.2823
Total		**0.0292**	**0.2653**	**0.2229**	**1.5700e-003**		**0.0202**	**0.0202**		**0.0202**	**0.0202**	**0.0000**	**288.8438**	**288.8438**	**5.5400e-003**	**5.2800e-003**	**290.5603**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	919600	4.9600e-003	0.0451	0.0379	2.7000e-004		3.4300e-003	3.4300e-003		3.4300e-003	3.4300e-003	0.0000	49.0734	49.0734	9.4000e-004	9.0000e-004	49.3650
Gasoline/Service Station	4221.8	2.0000e-005	2.1000e-004	1.7000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2253	0.2253	0.0000	0.0000	0.2266
High Turnover (Sit Down Restaurant)	1.19495e+006	6.4400e-003	0.0586	0.0492	3.5000e-004		4.4500e-003	4.4500e-003		4.4500e-003	4.4500e-003	0.0000	63.7669	63.7669	1.2200e-003	1.1700e-003	64.1458
High Turnover (Sit Down Restaurant)	1.23488e+006	6.6600e-003	0.0605	0.0509	3.6000e-004		4.6000e-003	4.6000e-003		4.6000e-003	4.6000e-003	0.0000	65.8980	65.8980	1.2600e-003	1.2100e-003	66.2896
High Turnover (Sit Down Restaurant)	311184	1.6800e-003	0.0153	0.0128	9.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	16.6060	16.6060	3.2000e-004	3.0000e-004	16.7046
Regional Shopping Center	10000	5.0000e-005	4.9000e-004	4.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5336	0.5336	1.0000e-005	1.0000e-005	0.5368
Regional Shopping Center	14696	8.0000e-005	7.2000e-004	6.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7842	0.7842	2.0000e-005	1.0000e-005	0.7889
Regional Shopping Center	24600	1.3000e-004	1.2100e-003	1.0100e-003	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.3128	1.3128	3.0000e-005	2.0000e-005	1.3206
Regional Shopping Center	33150	1.8000e-004	1.6200e-003	1.3700e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7690	1.7690	3.0000e-005	3.0000e-005	1.7795
Regional Shopping Center	44388	2.4000e-004	2.1800e-003	1.8300e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.3687	2.3687	5.0000e-005	4.0000e-005	2.3828
Regional Shopping Center	51000	2.8000e-004	2.5000e-003	2.1000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.7216	2.7216	5.0000e-005	5.0000e-005	2.7377
Supermarket	1.57006e+006	8.4700e-003	0.0770	0.0647	4.6000e-004		5.8500e-003	5.8500e-003		5.8500e-003	5.8500e-003	0.0000	83.7844	83.7844	1.6100e-003	1.5400e-003	84.2823
Total		**0.0292**	**0.2653**	**0.2229**	**1.5700e-003**		**0.0202**	**0.0202**		**0.0202**	**0.0202**	**0.0000**	**288.8438**	**288.8438**	**5.5400e-003**	**5.2800e-003**	**290.5603**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	371800	118.4635	4.8900e-003	1.0100e-003	118.8873
Gasoline/Service Station	1706.9	0.5439	2.0000e-005	0.0000	0.5458
High Turnover (Sit Down Restaurant)	168100	53.5602	2.2100e-003	4.6000e-004	53.7518
High Turnover (Sit Down Restaurant)	173718	55.3502	2.2900e-003	4.7000e-004	55.5482
High Turnover (Sit Down Restaurant)	43776	13.9480	5.8000e-004	1.2000e-004	13.9979
Regional Shopping Center	140712	44.8339	1.8500e-003	3.8000e-004	44.9943
Regional Shopping Center	189618	60.4164	2.4900e-003	5.2000e-004	60.6325
Regional Shopping Center	253899	80.8978	3.3400e-003	6.9000e-004	81.1872
Regional Shopping Center	291720	92.9482	3.8400e-003	7.9000e-004	93.2808
Regional Shopping Center	57200	18.2252	7.5000e-004	1.6000e-004	18.2904
Regional Shopping Center	84061.1	26.7837	1.1100e-003	2.3000e-004	26.8795
Supermarket	2.95065e+006	940.1388	0.0388	8.0300e-003	943.5022
Total		**1,506.1095**	**0.0622**	**0.0129**	**1,511.4977**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	371800	118.4635	4.8900e-003	1.0100e-003	118.8873
Gasoline/Service Station	1706.9	0.5439	2.0000e-005	0.0000	0.5458
High Turnover (Sit Down Restaurant)	168100	53.5602	2.2100e-003	4.6000e-004	53.7518
High Turnover (Sit Down Restaurant)	173718	55.3502	2.2900e-003	4.7000e-004	55.5482
High Turnover (Sit Down Restaurant)	43776	13.9480	5.8000e-004	1.2000e-004	13.9979
Regional Shopping Center	140712	44.8339	1.8500e-003	3.8000e-004	44.9943
Regional Shopping Center	189618	60.4164	2.4900e-003	5.2000e-004	60.6325
Regional Shopping Center	253899	80.8978	3.3400e-003	6.9000e-004	81.1872
Regional Shopping Center	291720	92.9482	3.8400e-003	7.9000e-004	93.2808
Regional Shopping Center	57200	18.2252	7.5000e-004	1.6000e-004	18.2904
Regional Shopping Center	84061.1	26.7837	1.1100e-003	2.3000e-004	26.8795
Supermarket	2.95065e+006	940.1388	0.0388	8.0300e-003	943.5022
Total		**1,506.1095**	**0.0622**	**0.0129**	**1,511.4977**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8976	3.0000e-005	2.9500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.6600e-003	5.6600e-003	2.0000e-005	0.0000	6.0400e-003
Unmitigated	0.8976	3.0000e-005	2.9500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.6600e-003	5.6600e-003	2.0000e-005	0.0000	6.0400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1020					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8000e-004	3.0000e-005	2.9500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.6600e-003	5.6600e-003	2.0000e-005	0.0000	6.0400e-003
Total	**0.8976**	**3.0000e-005**	**2.9500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.6600e-003**	**5.6600e-003**	**2.0000e-005**	**0.0000**	**6.0400e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1020					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8000e-004	3.0000e-005	2.9500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.6600e-003	5.6600e-003	2.0000e-005	0.0000	6.0400e-003
Total	**0.8976**	**3.0000e-005**	**2.9500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.6600e-003**	**5.6600e-003**	**2.0000e-005**	**0.0000**	**6.0400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	130.9154	0.7892	0.0196	156.4765
Unmitigated	130.9154	0.7892	0.0196	156.4765

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	4.13957 / 2.53716	27.4687	0.1360	3.4100e-003	31.8835
Gasoline/Service Station	0.106255 / 0.0651241	0.7051	3.4900e-003	9.0000e-005	0.8184
High Turnover (Sit Down Restaurant)	3.20835 / 0.204788	15.0535	0.1051	2.5900e-003	18.4529
Regional Shopping Center	5.67544 / 3.47849	37.6601	0.1864	4.6700e-003	43.7130
Supermarket	10.9339 / 0.338162	50.0281	0.3582	8.8100e-003	61.6086
Total		**130.9154**	**0.7892**	**0.0196**	**156.4765**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	4.13957 / 2.53716	27.4687	0.1360	3.4100e-003	31.8835
Gasoline/Service Station	0.106255 / 0.0651241	0.7051	3.4900e-003	9.0000e-005	0.8184
High Turnover (Sit Down Restaurant)	3.20835 / 0.204788	15.0535	0.1051	2.5900e-003	18.4529
Regional Shopping Center	5.67544 / 3.47849	37.6601	0.1864	4.6700e-003	43.7130
Supermarket	10.9339 / 0.338162	50.0281	0.3582	8.8100e-003	61.6086
Total		**130.9154**	**0.7892**	**0.0196**	**156.4765**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	178.4067	10.5435	0.0000	441.9951
Unmitigated	178.4067	10.5435	0.0000	441.9951

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	168.08	34.1187	2.0164	0.0000	84.5277
Gasoline/Service Station	4.31	0.8749	0.0517	0.0000	2.1675
High Turnover (Sit Down Restaurant)	125.78	25.5322	1.5089	0.0000	63.2550
Regional Shopping Center	80.45	16.3306	0.9651	0.0000	40.4584
Supermarket	500.27	101.5503	6.0015	0.0000	251.5865
Total		**178.4067**	**10.5435**	**0.0000**	**441.9951**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	168.08	34.1187	2.0164	0.0000	84.5277
Gasoline/Service Station	4.31	0.8749	0.0517	0.0000	2.1675
High Turnover (Sit Down Restaurant)	125.78	25.5322	1.5089	0.0000	63.2550
Regional Shopping Center	80.45	16.3306	0.9651	0.0000	40.4584
Supermarket	500.27	101.5503	6.0015	0.0000	251.5865
Total		**178.4067**	**10.5435**	**0.0000**	**441.9951**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

4.5.2

Electricity Calculations for Project Construction

Table 1. Water Usage for Control of Fugitive Dust During Construction

Phase Name	Acres	Gallons for Project	Electricity (kWh)
ITC Construction	14.5	**10,509,600**	**102,226.9**

Construction Schedule

5 days per week
20 days per month
240 days per year

Water Usage

3,020 gallons per acre per day

Source: Air & Waste Management Association, Air Pollution Engineering Manual, 1992 Edition

Supply Water Electricity Intensity

0.009727 kWh/gallons (CalEEMod default for South Coast Air Basin)

ITC Construction Trailer

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Trailer usage only.

Off-road Equipment - Trailer usage only.

ITC Construction Trailer - Los Angeles-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	2.0000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4771	0.4771	1.0000e-005	0.0000	0.4774
Maximum	**2.0000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4771**	**0.4771**	**1.0000e-005**	**0.0000**	**0.4774**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	2.0000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4771	0.4771	1.0000e-005	0.0000	0.4774
Maximum	**2.0000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4771**	**0.4771**	**1.0000e-005**	**0.0000**	**0.4774**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-22-2022	7-21-2022	0.0003	0.0003
		Highest	0.0003	0.0003

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	2.5000e-004	2.2400e-003	1.8800e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	24.7263	24.7263	9.7000e-004	2.4000e-004	24.8205
Mobile	0.0127	0.0663	0.1715	6.2000e-004	0.0512	5.2000e-004	0.0518	0.0137	4.9000e-004	0.0142	0.0000	57.4280	57.4280	2.9700e-003	0.0000	57.5022
Waste						0.0000	0.0000		0.0000	0.0000	0.9439	0.0000	0.9439	0.0558	0.0000	2.3385
Water						0.0000	0.0000		0.0000	0.0000	0.2819	5.6149	5.8969	0.0292	7.3000e-004	6.8447
Total	**0.0333**	**0.0686**	**0.1734**	**6.3000e-004**	**0.0512**	**6.9000e-004**	**0.0519**	**0.0137**	**6.6000e-004**	**0.0144**	**1.2258**	**87.7693**	**88.9952**	**0.0889**	**9.7000e-004**	**91.5060**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	2.5000e-004	2.2400e-003	1.8800e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	24.7263	24.7263	9.7000e-004	2.4000e-004	24.8205
Mobile	0.0127	0.0663	0.1715	6.2000e-004	0.0512	5.2000e-004	0.0518	0.0137	4.9000e-004	0.0142	0.0000	57.4280	57.4280	2.9700e-003	0.0000	57.5022
Waste						0.0000	0.0000		0.0000	0.0000	0.9439	0.0000	0.9439	0.0558	0.0000	2.3385
Water						0.0000	0.0000		0.0000	0.0000	0.2819	5.6149	5.8969	0.0292	7.3000e-004	6.8447
Total	**0.0333**	**0.0686**	**0.1734**	**6.3000e-004**	**0.0512**	**6.9000e-004**	**0.0519**	**0.0137**	**6.6000e-004**	**0.0144**	**1.2258**	**87.7693**	**88.9952**	**0.0889**	**9.7000e-004**	**91.5060**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/22/2022	5/5/2022	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4771	0.4771	1.0000e-005	0.0000	0.4774
Total	**2.0000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4771**	**0.4771**	**1.0000e-005**	**0.0000**	**0.4774**

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4771	0.4771	1.0000e-005	0.0000	0.4774
Total	**2.0000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4771**	**0.4771**	**1.0000e-005**	**0.0000**	**0.4774**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0127	0.0663	0.1715	6.2000e-004	0.0512	5.2000e-004	0.0518	0.0137	4.9000e-004	0.0142	0.0000	57.4280	57.4280	2.9700e-003	0.0000	57.5022
Unmitigated	0.0127	0.0663	0.1715	6.2000e-004	0.0512	5.2000e-004	0.0518	0.0137	4.9000e-004	0.0142	0.0000	57.4280	57.4280	2.9700e-003	0.0000	57.5022

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	55.15	12.30	5.25	134,979	134,979
Total	55.15	12.30	5.25	134,979	134,979

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.2876	22.2876	9.2000e-004	1.9000e-004	22.3673
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.2876	22.2876	9.2000e-004	1.9000e-004	22.3673
NaturalGas Mitigated	2.5000e-004	2.2400e-003	1.8800e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4387	2.4387	5.0000e-005	4.0000e-005	2.4532
NaturalGas Unmitigated	2.5000e-004	2.2400e-003	1.8800e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4387	2.4387	5.0000e-005	4.0000e-005	2.4532

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	45700	2.5000e-004	2.2400e-003	1.8800e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4387	2.4387	5.0000e-005	4.0000e-005	2.4532
Total		**2.5000e-004**	**2.2400e-003**	**1.8800e-003**	**1.0000e-005**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**	**0.0000**	**2.4387**	**2.4387**	**5.0000e-005**	**4.0000e-005**	**2.4532**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	45700	2.5000e-004	2.2400e-003	1.8800e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4387	2.4387	5.0000e-005	4.0000e-005	2.4532
Total		**2.5000e-004**	**2.2400e-003**	**1.8800e-003**	**1.0000e-005**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**	**0.0000**	**2.4387**	**2.4387**	**5.0000e-005**	**4.0000e-005**	**2.4532**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	69950	22.2876	9.2000e-004	1.9000e-004	22.3673
Total		**22.2876**	**9.2000e-004**	**1.9000e-004**	**22.3673**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	69950	22.2876	9.2000e-004	1.9000e-004	22.3673
Total		**22.2876**	**9.2000e-004**	**1.9000e-004**	**22.3673**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Unmitigated	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.8969	0.0292	7.3000e-004	6.8447
Unmitigated	5.8969	0.0292	7.3000e-004	6.8447

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.888669 / 0.544668	5.8969	0.0292	7.3000e-004	6.8447
Total		**5.8969**	**0.0292**	**7.3000e-004**	**6.8447**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.888669 / 0.544668	5.8969	0.0292	7.3000e-004	6.8447
Total		**5.8969**	**0.0292**	**7.3000e-004**	**6.8447**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.9439	0.0558	0.0000	2.3385
Unmitigated	0.9439	0.0558	0.0000	2.3385

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	4.65	0.9439	0.0558	0.0000	2.3385
Total		**0.9439**	**0.0558**	**0.0000**	**2.3385**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	4.65	0.9439	0.0558	0.0000	2.3385
Total		**0.9439**	**0.0558**	**0.0000**	**2.3385**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

4.5.3

Vehicle Fuel Calculations for Project Construction

ITC Construction Equipment

Fuel Comsumption Model

21-Jul-20

Meridian Consultants

24-hour equipment intensity

Equipment Usage and Load Assumptions

Morning /Evening Shift	Intensity	Usage Minutes	Morning /NIght Shift	Intensity	Usage Minutes
12:00 AM to 1: AM	25%	15	12:00 AM to 1: AM	50%	30
1:00 AM to 2 AM	25%	15	1:00 AM to 2 AM	50%	30
2 AM to 3 AM	25%	15	2 AM to 3 AM	50%	30
3 AM to 4 AM	25%	15	3 AM to 4 AM	50%	30
4 AM to 5 AM	25%	15	4 AM to 5 AM	50%	30
5 AM to 6 AM	25%	15	5 AM to 6 AM	50%	30
6 AM to 7 AM	25%	15	6 AM to 7 AM	50%	30
7 AM to 8 AM	100%	60	7 AM to 8 AM	100%	60
8 AM to 9 AM	100%	60	8 AM to 9 AM	100%	60
9 AM to 10 AM	100%	60	9 AM to 10 AM	100%	60
10 AM to 11 AM	100%	60	10 AM to 11 AM	100%	60
11 AM to 12 PM	100%	60	11 AM to 12 PM	100%	60
12 PM to 1 PM	100%	60	12 PM to 1 PM	100%	60
1 PM to 2 PM	100%	60	1 PM to 2 PM	100%	60
2 PM to 3 PM	100%	60	2 PM to 3 PM	100%	60
3 PM to 4 PM	100%	60	3 PM to 4 PM	50%	30
4 PM to 5 PM	100%	60	4 PM to 5 PM	50%	30
5 PM to 6 PM	100%	60	5 PM to 6 PM	50%	30
6 PM to 7 PM	100%	60	6 PM to 7 PM	50%	30
7 PM to 8 PM	75%	45	7 PM to 8 PM	38%	22.8
8 PM to 9 PM	75%	45	8 PM to 9 PM	38%	22.8
9 PM to 10 PM	75%	45	9 PM to 10 PM	38%	22.8
10 PM to 11 PM	50%	30	10 PM to 11 PM	25%	15
11 Pm to 12 AM	25%	15	11 Pm to 12 AM	50%	30
Total Daily Minutes		**1005**	**Total Daily Minutes**		**923.4**
Totals Daily Hours		**16.75**	**Totals Daily Hours**		**15.39**

Hourly Load Estimates

Load Factor

		25%	50%	100%
On Road On Site	1-hour load in minutes	40	15	5
		67%	25%	8%
Off Road Off Site	1-hour load in minutes	30	20	10
		50%	33%	17%

	Start	Finish	Calendar Days	Work Days			
					6	7	86%
Phase 1	4/15/2022	12/18/2023	612	525			
Phase 2	3/24/2023	2/10/2025	689	591			
Phase 3	2/14/2024	2/2/2026	719	616			
Phase 4	10/31/2025	5/28/2026	209	179			

Off-Road On-Site Equipment: Off-road construction equipment includes dozers, loaders, sweepers and other heavy-duty construction equipment that is not licensed for travel on public highways.

Morning/Evening Shift

Equipment	HP	Impact Device	Noise Level (dba)	Exposure Limit	Phase 1	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 2	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 3	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 4	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Total	Total Days Use	Total Hr Use	Total Fuel Use
Impact Pile Driver	700	Yes	101	8 hr.	1	525	8,794	8.00	70,350	1	591	9,899	8	79,194	1	616	10318	8	82,544	0	179	2,998	8	0	3	1911	32,009	232,088
Crane	270	No	85	8 hr.	1	525	8,794	8.00	70,350	2	591	9,899	8	158,388	2	616	10318	8	82,544	1	179	2,998	8	23,986	6	1911	32,009	335,268
Backhoe	127	No	80	8 hr.	5	525	8,794	4.01	176,315	5	591	9,899	4.01	198,480	5	616	10318	4.01	41,375	0	179	2,998	4.01	0	13	1911	32,009	416,170
Loader	164	No	80	8 hr.	5	525	8,794	2.40	105,525	3	591	9,899	2.4	71,275	2	616	10318	2.4	24,763	0	179	2,998	2.4	0	8	1911	32,009	201,563
Auger Drill Rig	600	Yes	85	8 hr.	1	525	8,794	6.09	53,554	1	591	9,899	6.09	60,286	1	616	10318	6.09	62,837	0	179	2,998	6.09	0	3	1911	32,009	176,677
Compressor (air)	150	No	80	8 hr.	6	525	8,794	4.23	223,185	6	591	9,899	4.23	251,243	6	616	10318	4.23	43,645	3	179	2,998	4.23	38,048	18	1911	32,009	556,121
Excavator	396	Yes	85	8 hr.	3	525	8,794	4.77	125,839	2	591	9,899	4.77	94,439	2	616	10318	4.77	49,217	0	179	2,998	4.77	0	6	1911	32,009	269,494
Bobcat	72.9	No	85	8 hr.	3	525	8,794	2.40	63,315	3	591	9,899	2.4	71,275	4	616	10318	2.4	24,763	1	179	2,998	2.4	7,196	11	1911	32,009	166,549
Impact Hammer	N/A	Yes	90	8 hr.	6	525	8,794	6.09	321,324	3	591	9,899	6.09	180,859	3	616	10318	6.09	62,837	2	179	2,998	6.09	36,519	11	1911	32,009	601,538
Jackhammer	N/A	Yes	89	8 hr.	7	525	23,770,950	0.00	0	4	591	26,759,298	0	0	4	616	10318	0	0	2	179	2,998	0	0	13	1911	50,543,564	0
Pneumatic Tools	N/A	Yes	85	8 hr.	15	525	8,794	0.00	0	20	591	9,899	0	0	20	616	10318	0	0	8	179	2,998	0	0	58	1911	32,009	0
Generator	15plus	No	82	8 hr.	3	525	8,794	0.85	22,424	3	591	9,899	0.85	25,243	3	616	10318	0.85	8,770	1	179	2,998	0.85	2,549	10	1911	32,009	58,986
Warning Horn	N/A	No	85	6 hr.	2	525	8,794	0.00	0	2	591	9,899	0	0	2	616	10318	0	0	1	179	2,998	0	0	7	1911	32,009	0
Drum Mixer	1.5-5.5	No	80	8 hr.	0	525	8,794	3.00	26,381	3	591	9,899	3	89,093	3	616	10318	3	30,954	0	179	2,998	3	0	6	1911	32,009	146,429
Drill Rig Truck	600	Yes	84	8 hr.	1	525	8,794	6.09	53,554	1	591	9,899	6.09	60,286	1	616	10318	6.09	62,837	0	179	2,998	6.09	0	3	1911	32,009	176,677
Concrete Saw	24	No	90	8 hr.	4	525	8,794	0.00	0	2	591	9,899	0	0	2	616	10318	0	0	1	179	2,998	0	0	7	1911	32,009	0
Compactor (ground)	80	Yes	83	8 hr.	3	525	8,794	2.16	56,984	3	591	9,899	2.16	64,147	4	616	10318	2.16	22,287	0	179	2,998	2.16	0	10	1911	32,009	143,418
Portable Light Towers for night work	12.2	No	55	8 hr.	4	525	8,794	0.00	0	4	591	9,899	0	0	6	616	10318	0	0	3	179	2,998	0	0	17	1911	32,009	0
MKN Lifts	49.9	No	75	9 hr.	9	525	8,794	0.67	53,026	9	591	9,899	0.67	59,692	10	616	10318	0.67	34,565	5	179	2,998	0.67	2,009	33	1911	32,009	149,293
		Totals					**23,929,238**		**1,422,125**		**11,229**	**26,937,485**		**1,463,901**		**11,704**	**196,042**		**633,938**		**3,401**	**56,967**		**110,306**		**36,309**	**51,119,731**	**3,630,270**

Morning/Night Shift

Equipment	HP	Impact Device	Noise Level (dba)	Exposure Limit	Phase 1	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 2	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 3	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 4	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Total	Total Days Use	Total Hr Use	Total Fuel Use
Impact Pile Driver	700	Yes	101	8 hr.	1	525	8,080	8.00	64,638	1	591	9,095	8	72,764	1	616	9,480	8	75,842	0	179	2,755	8	0	3	1911	29,410	213,244
Crane	270	No	85	8 hr.	1	525	8,080	8.00	64,638	2	591	9,095	8	145,528	2	616	9,480	8	151,684	1	179	2,755	8	22,038	6	1911	29,410	383,888
Backhoe	127	No	80	8 hr.	5	525	8,080	4.01	161,999	5	591	9,095	4.01	182,365	5	616	9,480	4.01	190,079	0	179	2,755	4.01	0	13	1911	29,410	534,442
Loader	164	No	80	8 hr.	5	525	8,080	2.40	96,957	3	591	9,095	2.4	65,488	2	616	9,480	2.4	45,505	0	179	2,755	2.4	0	8	1911	29,410	207,950
Auger Drill Rig	600	Yes	85	8 hr.	1	525	8,080	6.09	49,206	1	591	9,095	6.09	55,392	1	616	9,480	6.09	57,735	0	179	2,755	6.09	0	3	1911	29,410	162,332
Compressor (air)	150	No	80	8 hr.	6	525	8,080	4.23	205,064	6	591	9,095	4.23	230,844	6	616	9,480	4.23	240,608	3	179	2,755	4.23	34,959	18	1911	29,410	711,475
Excavator	396	Yes	85	8 hr.	3	525	8,080	4.77	115,621	2	591	9,095	4.77	86,771	2	616	9,480	4.77	90,441	0	179	2,755	4.77	0	6	1911	29,410	292,834
Bobcat	72.9	No	85	8 hr.	3	525	8,080	2.40	58,174	3	591	9,095	2.4	65,488	4	616	9,480	2.4	91,010	1	179	2,755	2.4	6,612	11	1911	29,410	221,284
Impact Hammer	N/A	Yes	90	8 hr.	6	525	8,080	6.09	295,234	3	591	9,095	6.09	166,175	3	616	9,480	6.09	173,204	2	179	2,755	6.09	33,554	11	1911	29,410	668,166
Jackhammer	N/A	Yes	89	8 hr.	7	525	8,080	0.00	0	4	591	9,095	0	0	4	616	9,480	0	0	2	179	2,755	0	0	13	1911	29,410	0
Pneumatic Tools	N/A	Yes	85	8 hr.	15	525	8,080	0.00	0	20	591	9,095	0	0	20	616	9,480	0	0	8	179	2,755	0	0	58	1911	29,410	0
Generator	15plus	No	82	8 hr.	3	525	8,080	0.85	20,603	3	591	9,095	0.85	23,193	3	616	9,480	0.85	24,175	1	179	2,755	0.85	2,342	10	1911	29,410	70,313
Warning Horn	N/A	No	85	6 hr.	2	525	8,080	0.00	0	2	591	9,095	0	0	2	616	0	0	0	1	179	2,755	0	0	7	1911	19,930	0
Drum Mixer	1.5-5.5	No	80	8 hr.	0	525	8,080	3.00	0	3	591	9,095	3	81,859	3	616	9,480	3	85,322	0	179	2,755	3	0	6	1911	29,410	167,182
Drill Rig Truck	600	Yes	84	8 hr.	1	525	8,080	6.09	49,206	1	591	9,095	6.09	55,392	1	616	9,480	6.09	57,735	0	179	2,755	6.09	0	3	1911	29,410	162,332
Concrete Saw	24	No	90	8 hr.	4	525	8,080	0.00	0	2	591	9,095	0	0	2	616	9,480	0	0	1	179	2,755	0	0	7	1911	29,410	0
Compactor (ground)	80	Yes	83	8 hr.	3	525	8,080	2.16	52,357	3	591	9,095	2.16	58,939	4	616	9,480	2.16	81,909	0	179	2,755	2.16	0	10	1911	29,410	193,205
Portable Light Towers for night work	12.2	No	55	8 hr.	4	525	8,080	0.00	0	4	591	9,095	0	0	6	616	9,480	0	0	3	179	2,755	0	0	17	1911	29,410	0
MKN Lifts	49.9	No	75	9 hr.	9	525	8,080	0.67	48,721	9	591	9,095	0.67	0	10	616	9,480	0.67	63,518	5	179	2754.81	0.67	1,846	33	1911	29,410	114,084
Totals						**9,975**	**153,515**		**1,282,418**		**11,229**	**172,814**		**1,290,195**		**11,704**	**170,644**		**1,428,767**		**3,401**	**52,341**		**101,349**		**36,309**	**549,315**	**4,102,730**

On-Road On-Site Equipment: On-road on-site equipment includes shuttle vans transporting construction employees to and from the site(s), on-site pick-up trucks, crew vans, water trucks, dump trucks, haul trucks and other on road-road vehicles licensed to travel on public roadways.

Morning/Evening Shift

Equipment	HP	Impact Device	Noise Level	Exposure Limit	Phase 1	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 2	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 3	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 4	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Total	Total Days Use	Total Hr Use	Total Fuel Use
Demo Dump Trucks	335-475	No	76	8 hr.	1343	525	8,794	4.7	55,507,029	0	591	9,899	4.7	46,526	0	616	10,318	4.7	48,495	0	179	2,998	4.7	14,092	1343	1911	32,009	55,616,142
Asphalt Removal Trucks	335-475	No	76	8 hr.	172	525	8,794	4.7	7,108,868	0	591	9,899	4.7	46,526	0	616	10,318	4.7	48,495	0	179	2,998	4.7	14,092	172	1911	32,009	7,217,980
Asphalt Placement Trucks	335-475	No	76	8 hr.	209	525	8,794	4.7	8,638,101	0	591	9,899	4.7	46,526	0	616	10,318	4.7	48,495	0	179	2,998	4.7	14,092	209	1911	32,009	8,747,213
Soil Spoils Dump Trucks	335-475	No	76	8 hr.	1607	525	8,794	4.7	66,418,314	1503	591	9,899	4.7	46,526	2395	616	10,318	4.7	48,495	10	179	2,998	4.7	14,092	5515	1911	32,009	66,527,427
Utility Trucks	375-600	No	75	4 hr.	28	525	8,794		0	39	591	9,899	0	0	35	616	10,318	0	0	39	179	2,998	0	0	123	1911	32,009	0
Welder/Torch	23	No	73	8 hr.	5	525	8,794	0	0	5	591	9,899	0	0	6	616	10,318	0	0	4	179	2,998	0	0	20	1911	32,009	0
Water Truck	650	No	74	8 hr.	2	525	8,794	3.2	56,280	2	591	9,899	3.2	31,678	2	616	10,318	3.2	33,018	0	179	2,998	3.2	9,594	6	1911	32,009	130,570
Street Sweeper	240	No	74	8 hr.	1	525	8,794	3.2	28,140	2	591	9,899	3.2	31,678	2	616	10,318	3.2	33,018	1	179	2,998	3.2	9,594	6	1911	32,009	102,430
Flat Bed Trucks	650	No	74	5 hr.	48	525	8,794	3.2	1,350,720	61	591	9,899	3.2	31,678	65	616	10,318	3.2	33,018	10	179	2,998	3.2	9,594	184	1911	32,009	1,425,010
Pneumatic Tools	N/A	Yes	85	8 hr.	10	525	0	0	0	20	591	9,899	0	0	20	616	10,318	0	0	8	179	2,998	0	0	58	1911	23,216	0
Concrete Trucks	430	No	85	8 hr.	10,284	525	8,794	5	425,044,148	9477	591	9,899	4.7	46,526	3516	616	10,318	4.7	48,495	50	179	2,998	4.7	14,092	21,866	1911	32,009	425,153,260
Conc. Pump Trucks	600	No	84	8 hr.	2	525	8,794	4.7	82,661	2	591	9,899	4.7	46,526	2	616	10,318	4.7	48,495	2	179	0	4.7	0	8	1911	29,011	177,682
Total						**5,775**	**87,938**		**564,151,599**		**6,501**	**108,892**		**327,665**		**6,776**	**113,498**		**341,526**		**1,969**	**32,981**		**99,242**		**21,021**	**343,308**	**564,920,032**

Morning/Night Shift

Equipment	HP	Impact Device	Noise Level	Exposure Limit	Phase 1	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 2	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 3	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Phase 4	Total Days Use	Total Hr Use	Gallons/Hr	Total Fuel Use	Total	Total Days Use	Total Hr Use	Total Fuel Use
Demo Dump Trucks	335-475	No	76	8 hr.	1343	525	8,080	4.7	51,000,190	0	591	9,095	4.7	42,749	0	616	9,480	4.7	9,480	0	179	2,755	4.7	12,948	1343	1911	29,410	51,065,367
Asphalt Removal Trucks	335-475	No	76	8 hr.	172	525	8,080	4.7	6,531,670	0	591	9,095	4.7	42,749	0	616	9,480	4.7	9,480	0	179	2,755	4.7	12,948	172	1911	29,410	6,596,847
Asphalt Placement Trucks	335-475	No	76	8 hr.	209	525	8,080	4.7	7,936,738	0	591	9,095	4.7	42,749	0	616	9,480	4.7	9,480	0	179	2,755	4.7	12,948	209	1911	29,410	8,001,915
Soil Spoils Dump Trucks	335-475	No	76	8 hr.	1607	525	8,080	4.7	61,025,544	1503	591	9,095	4.7	42,749	2395	616	9,480	4.7	9,480	10	179	2,755	4.7	12,948	5515	1911	29,410	61,090,720
Utility Trucks	375-600	No	75	4 hr.	28	525	8,080		0	39	591	9,095	0	0	35	616	9,480	0	9,480	39	179	2,755	0	0	123	1911	29,410	9,480
Welder/Torch	23	No	73	8 hr.	5	525	8,080	0	0	5	591	9,095	0	0	6	616	9,480	0	9,480	4	179	2,755	0	0	20	1911	29,410	9,480
Water Truck	650	No	74	8 hr.	2	525	8,080	3.2	51,710	2	591	9,095	3.2	29,106	2	616	9,480	3.2	9,480	0	179	2,755	3.2	8,815	6	1911	29,410	99,112
Street Sweeper	240	No	74	8 hr.	1	525	8,080	3.2	25,855	2	591	9,095	3.2	29,106	2	616	9,480	3.2	9,480	1	179	2,755	3.2	8,815	6	1911	29,410	73,256
Flat Bed Trucks	650	No	74	5 hr.	48	525	8,080	3.2	1,241,050	61	591	9,095	3.2	29,106	65	616	9,480	3.2	9,480	10	179	2,755	3.2	8,815	184	1911	29,410	1,288,451
Pneumatic Tools	N/A	Yes	85	8 hr.	10	525	8,080	0	0	20	591	9,095	0	0	20	616	9,480	0	9,480	8	179	2,755	0	0	58	1911	29,410	9,480
Concrete Trucks	430	No	85	8 hr.	10,284	525	8,080	5	390,533,100	9477	591	9,095	4.7	42,749	3516	616	9,480	4.7	9,480	50	179	2,755	4.7	12,948	21,866	1911	29,410	390,598,277
Conc. Pump Trucks	600	No	84	8 hr.	2	525	8,080	4.7	75,950	2	591	9,095	4.7	42,749	2	616	9,480	4.7	9,480	2	179	2,755	4.7	12,948	8	1911	29,410	141,126
Totals						**6,300**	**96,957**		**518,421,807**		**7,092**	**109,146**		**343,810**		**7,392**	**113,763**		**113,763**		**2,148**	**33,058**		**104,132**		**22,932**	**352,923**	**518,983,511**

ESTIMATING OWNING & OPERATING COSTS

Caterpillar®

Caterpillar Performance Handbook

Edition 44

ESTIMATING OWNING & OPERATING COSTS

Owning & Operating (O&O) Baseline Cost Estimate Solutions

he O&O web site provides information related to O&O baseline cost estimate development for both commercial ngine products and machines. Approved O&O baseline cost estimate ranges for machines, and links related to)&O baseline cost development are also available. **NOTE:** Access to the web sites indicated below is restricted to aterpillar and Cat® dealer personnel.

or information about O&O costs, enter the appropriate link.

or Corporate Global Mining (CGM): https://mining.cat.com
elect "Support," "Equipment Management," "MARCs," "BUILDER Downloads."

or North American Commercial Division (NACD): https://dealer.cat.com
elect "Product Support," "Equipment Management Solutions,"
Owning and Operating Cost Information."

ONTENTS

Most sections of this Handbook deal with the productivity of Cat machines. This section considers the cost aspect of performance.

Hourly Owning and Operating Costs for a given machine can vary widely because they are influenced by

neral

Machine users must balance productivity and costs to ieve optimum performance ... that is, achieve the sired production at the lowest possible cost. The proach most often used to measure machine perfor- nce is this simple equation:

$$\frac{\textit{Lowest Possible Hourly Costs}}{\textit{Highest Possible Hourly Productivity}} = \textit{Top Machine Performance}$$

machine can vary widely because they are influenced by many factors: the type of work the machine does, the ownership period, local prices of fuel and labor, the repair and maintenance costs, shipping costs from the factory, interest rates, etc. No attempt is made in this handbook to provide precise hourly costs for each model. Users must be able to estimate with a reasonable degree of accuracy what a machine will cost per hour to own and operate in a given application and locality. Therefore, this section provides a suggested method of estimating hourly owning and operating costs. When this method is coupled with local conditions and dealer input, it will result in reasonable estimates.

The method suggested follows several basic principles:

- Repair and Planned Maintenance cost per hour are developed jointly by the customer and local Cat dealer.
- In the examples, labor is assumed @ $60.00 per hour, fuel @ $1.25 per gallon. For reliable estimates, these costs must always be obtained locally.
- Because of different standards of comparison, what may seem a high application to one machine owner may appear only medium to another.
- Unless otherwise specified, the word "hour" when used in this section means clock or operating hours, not Service Meter Units.

UEL CONSUMPTION TABLES AND LOAD FACTOR GUIDES

RACK-TYPE TRACTORS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
D3K Tier 3 LRC	—	—	9.5	**2.5**	—	—
D4K Tier 3 LRC	—	—	10.2	**2.7**	—	—
D5K Tier 3 LRC	—	—	10.6	**2.8**	—	—
D3K2 Tier 4 Interim HRC	—	—	7.9	**2.1**	—	—
D4K2 Tier 4 Interim HRC	—	—	8.6	**2.3**	—	—
D5K2 Tier 4 Interim HRC	—	—	9.0	**2.4**	—	—
D5N	6.5-11.5	**1.5-3.5**	11.5-16.0	**3.5-4.5**	13.75-18.5	**3.75-5.0**
D5R	12.1-15.1	**3.2-4.0**	15.1-20.0	**4.0-5.3**	20.0-26.4	**5.3-6.9**
D6K Tier 3 HRC & LRC	—	—	12.4	**3.3**	—	—
D6K2 Tier 4 Interim HRC	—	—	11.3	**3.0**	—	—
D6N Tier 3 LRC	12.1-15.1	**3.2-4.0**	15.1-20.0	**4.0-5.3**	20.0-26.4	**5.3-6.9**
D6N Tier 4 Interim HRC	9.9-13.3	**2.6-3.5**	13.3-17.5	**3.5-4.6**	17.5-24.9	**4.6-6.6**
D6R (130 kW/**175 hp**)	13.2-18.9	**3.5-5.0**	18.9-24.6	**5.0-6.5**	24.6-30.3	**6.5-8.0**
D6R (145 kW/**195 hp**)	14.8-21.2	**3.9-5.6**	21.2-27.3	**5.6-7.2**	27.3-33.7	**7.2-8.9**
D6T (138 kW/**185 hp**)	15.5-22.3	**4.1-5.9**	22.3-28.8	**5.9-7.6**	28.8-35.6	**7.6-9.4**
D6T (149 kW/**200 hp**) (Tier 4 Interim)	15.1-21.6	**4.0-5.7**	21.6-28.0	**5.7-7.4**	28.0-34.4	**7.4-9.1**
D7E	14.8-20.8	**3.9-5.5**	20.8-27.2	**5.5-7.2**	27.2-34.5	**7.2-9.1**
D7R	17.8-24.4	**4.7-6.5**	24.4-31.0	**6.5-8.2**	31.0-37.6	**8.2-9.9**
D8R	22.5-32.0	**6.0-8.5**	32.0-41.5	**8.5-11.0**	41.5-51.0	**11.0-13.5**
D8T Tier 3	23.5-33.7	**6.2-8.9**	33.7-43.5	**8.9-11.5**	43.9-53.7	**11.6-14.2**
D8T Tier 4 Interim	23.9-34.3	**6.3-9.1**	34.3-44.2	**9.1-11.7**	44.6-54.6	**11.8-14.4**
D9T Tier 3	30.3-43.1	**8.0-11.4**	43.1-56.4	**11.4-14.9**	56.4-69.3	**14.9-18.3**
D9T Tier 2	28.2-40.1	**7.4-10.6**	40.1-52.5	**10.6-13.9**	52.5-64.4	**13.9-17.0**
D9T Tier 4*	31.2-44.4	**8.2-11.7**	44.4-58.1	**11.7-15.3**	58.1-71.4	**15.3-18.9**
D10T2 PLRC	39.5-56.3	**10.4-14.9**	56.3-73.3	**14.9-19.4**	73.3-90.2	**19.4-23.9**
D10T2 Tier 4	43.0-61.3	**11.4-16.3**	61.3-79.8	**16.3-21.1**	79.8-98.2	**21.1-26.0**

D11T PLHC	59.6-85.2	**15.8-22.5**	85.2-110.7	**22.5-29.3**	110.7-136.3	**29.3-36.0**
D11T Tier 4 Final	60.3-86.1	**15.9-22.8**	86.1-112.0	**22.8-29.6**	112.0-137.8	**29.6-36.4**

ıcludes DEF.

Typical Application Description
(relative to work application)

Low Pulling scrapers, most agricultural drawbar, stockpile, coal pile and finish grade applications. No impact. Intermittent full throttle operation.

Medium Production dozing in clays, sands, gravels. Push loading scrapers, borrow pit ripping, most land clearing applications. Medium impact conditions. Production landfill work.

High Heavy rock ripping. Push loading and dozing in hard rock. Working on rock surfaces. Continuous high impact conditions.

Load Factor Guide
(average engine load factor based on application description for each range)

Low 35%-50%
Medium 50%-65%
High 65%-80%

Product Link™ Information — Product link measured over hundreds of Track-Type Tractors shows that more than 90% of the machines experience an average fuel consumption equal to or lower than those shown in the Medium Application profile.

ELAYERS

del	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
1	5.7-11.7	**1.5-3.0**	9.7-15.1	**2.5-4.0**	13.2-18.9	**3.5-5.0**
3	11.8-16.9	**3.1-4.5**	16.9-21.8	**4.5-5.8**	21.8-26.8	**5.8-7.1**
7	15.3-21.9	**4.0-5.8**	21.9-28.3	**5.8-7.5**	28.3-34.9	**7.5-9.2**
R Series 2	8.5-12.3	**2.2-3.3**	12.3-15.7	**3.3-4.2**	15.7-19.5	**4.2-5.2**

ypical Application Description
elative to work application)

ow Little or no use in mud, water or on rock. Use on level, regular surfaces.

ledium Typical pipelayer use in operating conditions ranging from very good to severe.

igh	Continuous use in deep mud or water or on rock surfaces.

oad Factor Guide

ıverage engine load factor based on application description for each range)

ow	35%-50%
ledium	50%-65%
igh	65%-80%

)TOR GRADERS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
SERIES						
120K	6.7-9.9	**1.8-2.6**	9.9-15.8	**2.6-4.2**	15.8-25.4	**4.2-6.7**
120K2	6.7-9.9	**1.8-2.6**	10.2 -16.3	**2.7-4.3**	16.8-25.7	**4.3-6.8**
12K	7.0-14.6	**1.9-3.9**	14.6-23.3	**3.9-6.2**	23.3-27.3	**6.2-7.2**
140K	7.3-13.4	**1.9-3.5**	13.4-21.4	**3.5-5.7**	21.4-27.8	**5.7-7.3**
140K2	7.3-13.4	**1.9-3.5**	13.4-21.4	**3.5-5.7**	21.4-27.8	**5.7-7.3**
160K	7.5-14.0	**2.0-3.7**	14.0-22.3	**3.7-5.9**	22.3-28.4	**5.9-7.5**
SERIES						
120M	7.8-8.2	**2.1-2.2**	8.2-13.0	**2.2-3.4**	13.0-22.3	**3.4-5.9**
120M2	8.3-9.1	**2.2-2.4**	9.1-14.8	**2.4-3.9**	14.8-25.4	**3.9-6.7**
120M2 AWD	9.8-11.0	**2.6-2.9**	11.0-17.8	**2.9-4.7**	17.8-25.7	**4.7-6.8**
12M	7.9-9.6	**2.1-2.5**	9.6-15.4	**2.5-4.1**	15.4-23.8	**4.1-6.3**
12M2	8.3-11.4	**2.2-3.0**	11.4-18.5	**3.0-4.9**	18.5-27.3	**4.9-7.2**
12M2 AWD	8.7-12.1	**2.3-3.2**	12.1-19.7	**3.2-5.2**	19.7-27.6	**5.2-7.3**
140M	8.2-12.5	**2.2-3.3**	12.5-20.0	**3.3-5.3**	20.0-28.4	**5.3-7.5**
140M AWD	8.6-14.6	**2.3-3.9**	14.6-23.3	**3.9-6.2**	23.3-30.0	**6.2-7.9**
140M2	8.7-12.9	**2.3-3.4**	12.9-21.2	**3.4-5.6**	21.2-29.5	**5.6-7.8**
140M2 AWD	9.1-14.0	**2.4-3.7**	14.0-22.7	**3.7-6.0**	22.7-30.7	**6.0-8.1**
160M	8.3-12.5	**2.2-3.3**	12.5-20.0	**3.3-5.3**	20.0-29.1	**5.3-7.7**
160M2	8.7-13.2	**2.3-3.5**	13.2-21.2	**3.5-5.6**	21.2-29.9	**5.6-7.9**
160M2 AWD	9.5-14.4	**2.5-3.8**	14.4-23.1	**3.8-6.1**	23.1-31.0	**6.1-8.2**
14M	10.0-14.3	**2.6-3.8**	14.3-22.8	**3.8-6.0**	22.8-39.7	**6.0-10.5**
16M	11.9-17.5	**3.1-4.6**	17.5-27.9	**4.6-7.4**	27.9-46.6	**7.4-12.3**
24M	24.6-40.8	**6.5-10.8**	40.8-65.2	**10.8-17.2**	65.2-83.3	**17.2-22.0**

E: The K Series Motor Graders meet U.S. EPATier 2 and EU Stage II emission standards.
The M Series Motor Graders meet U.S. EPATier 3 and EU Stage IIIA emission standards.

E: The Motor Grader hourly fuel rates are taken directly from customer machines registered on Product Link worldwide. Data from the top and bottom 5% of these customer machines has been excluded from the tables because it varies widely (15-60% from the extremes shown) and therefore is not considered representative of what the remaining 90% of customer experience. Hourly fuel consumption for the 90% of machines in the tables also varies depending upon geographical region, load factor variation between models, etc. Cat machines are often used in more demanding applications which can account for differences between competitive models used in lighter duty applications. M2 Series machine data is estimated since current Product Link data is immature on these models. These values are subject to change. Consult your local dealer for ways to more accurately estimate hourly fuel consumption for specific applications.

Typical Application Description
(relative to work application)

(relative to work application)

Low — Light road maintenance. Finish grading. Plant and road mix work. Large amounts of traveling. Light snow plowing.

Medium — Haul road maintenance. Average road maintenance, road mix work, scarifying. Road construction, ditching, loose fill spreading. Land forming, land leveling and elevating grader use. Medium to heavy snow removal.

High — Heavy maintenance of hard packed roads with embedded rock. Heavy fill spreading, base material spreading and ditching. Ripping/scarifying of asphalt or concrete. Continuous high load factor. High impact. Heavy snow plowing.

Load Factor Guide

(average engine load factor based on application description for each range)

Low 35%-50%

Medium 50%-65%

High 65%-80%

) STEER LOADERS, MULTI TERRAIN LOADERS AND COMPACT TRACK LOADERS

del	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
RLD WIDE MODELS						
72D	7.0-10.1	**1.9-2.7**	10.1-13.1	**2.7-3.5**	13.1-16.1	**3.5-4.3**
72D XHP	7.6-10.9	**2.0-2.9**	10.9-14.2	**2.9-3.7**	14.2-17.5	**3.7-4.6**
99D	7.0-10.1	**1.9-2.7**	10.1-13.1	**2.7-3.5**	13.1-16.1	**3.5-4.3**
99D XHP	7.6-10.9	**2.0-2.9**	10.9-14.2	**2.9-3.7**	14.2-17.5	**3.7-4.6**
:* MODELS						
36D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
42D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
57D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
59D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
62D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
77D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
79D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
87D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**

39D (HRC)	5.6-7.5	**1.4-2.0**	7.5-9.8	**2.0-2.6**	9.8-12.0	**2.6-3.2**
' MODELS**						
36D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
42D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
57D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
59D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
62D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
77D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
79D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
87D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**
89D (LRC)	5.7-8.1	**1.5-2.2**	8.1-10.6	**2.2-2.8**	10.6-13.0	**2.8-3.4**

– Higher Regulated Countries
– Lesser Regulated Countries

ypical Application Description
elative to work application)

ow — Light utility, construction, nursery and landscaping applications. Load and carry of free flowing, low density materials on firm, smooth surfaces for short distances with minimal grades. Light snow removal.

ledium — Industrial and construction job site applications. Loading from bank or load and carry of low to medium density materials on normal surfaces with low to medium rolling resistance and slight adverse grades. Occasional use of various attachments under normal loading conditions.

igh — Continuous industrial, construction and batch plant applications. Loading from tight banks or load and carry of high density materials on rough or very soft surfaces with high rolling resistance and adverse grades. Maximum use of high flow attachments under high loading conditions.

oad Factor Guide
verage engine load factor based on application description for each range)

ow 35%-50%
ledium 50%-65%
igh 65%-80%

DERGROUND MINING — Hard Rock Articulated Trucks

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
)30	27.0-38.0	**7.1-10.0**	38.0-45.0	**10.0-11.9**	45.0-56.0	**11.9-14.8**
)45B	35.0–45.0	**9.2-11.9**	45.0-55.0	**11.9-14.5**	55.0-65.0	**14.5-17.2**
)55 Flat Haul	35.0-42.0	**9.2-11.1**	42.0-57.0	**11.1-15.0**	57.0-70.0	**15.0-18.5**
)60	45.0-55.0	**11.9-14.5**	55.0-65.0	**14.5-17.2**	65.0-80.0	**17.2-21.1**

Typical Application Description
relative to work application)

Low — Continuous operation at <80% of maximum recommended gross weight. Short to medium haul distances: 300-1000 m (**990-3300 feet**). Well maintained, level haul roads. Considerable amount of idling. Very few tray impacts. Low load factor.

Medium — Intermittent operation at less than maximum recommended gross weight. Medium to longer haul distances: 1000-5000 m (**3300-16,000 feet**). Varying haul road conditions with some adverse grades. Occasional tray impacts. Medium load factor.

High — Continuous operation at maximum recommended gross weight. Long haul distances: >5000 m (**>16,000 feet**). Poor haul road conditions with adverse/steep grades. Frequent tray impacts. High load factor.

Load Factor Guide
average engine load factor based on application description for each range)

Low — 20%-40%
Medium — 40%-60%
High — 60%-80%

CAVATORS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
HE D SERIES						
300.9D	0.9-1.4	**0.24-0.35**	1.4-1.8	**0.35-0.47**	1.8-2.3	**0.47-0.59**
301.7D	0.9-1.4	**0.24-0.35**	1.4-1.8	**0.35-0.47**	1.8-2.3	**0.47-0.59**
301.7D CR	0.9-1.4	**0.24-0.35**	1.4-1.8	**0.35-0.47**	1.8-2.3	**0.47-0.59**
302.4D	1.2-1.8	**0.31-0.47**	1.8-2.4	**0.47-0.62**	2.4-3.0	**0.62-0.78**
302.7D CR	1.2-1.8	**0.31-0.47**	1.8-2.4	**0.47-0.62**	2.4-3.0	**0.62-0.78**
303.5D CR	1.4-2.8	**0.4-0.7**	2.8-4.3	**0.7-1.1**	4.3-5.7	**1.1-1.5**
304D CR	2.0-3.9	**0.5-1.0**	3.9-5.9	**1.0-1.6**	5.9-7.8	**1.6-2.1**
305D CR	2.0-3.9	**0.5-1.0**	3.9-5.9	**1.0-1.6**	5.9-7.9	**1.6-2.1**
305.5D CR	2.2-4.4	**0.6-1.2**	4.4-6.6	**1.2-1.7**	6.6-8.8	**1.7-2.3**
307D	2.6-5.1	**0.7-1.3**	5.1-7.7	**1.3-2.0**	7.7-10.3	**2.0-2.7**
308D CR	2.6-5.1	**0.7-1.3**	5.1-7.07	**1.3-2.0**	7.7-10.3	**2.0-2.7**
HE E SERIES						
303E (Inside Japan only)	1.1-2.3	**0.3-0.6**	2.3-3.4	**0.6-0.9**	3.4-4.6	**0.9-1.2**
303.5E CR (HRC)	1.5-2.9	**0.4-0.8**	2.9-4.4	**0.8-1.2**	4.4-5.8	**1.2-1.5**
304E CR (HRC)	1.8-3.7	**0.5-1.0**	3.7-5.5	**1.0-1.5**	5.5-7.3	**1.5-1.9**
305E CR (HRC)	1.8-3.7	**0.5-1.0**	3.7-5.5	**1.0-1.5**	5.5-7.3	**1.5-1.9**
305.5E CR (HRC)	2.0-4.0	**0.5-1.1**	4.0-6.0	**1.1-1.6**	6.0-8.0	**1.6-2.1**
308E CR (HRC)	2.6-5.3	**0.7-1.4**	5.3-7.9	**1.4-2.1**	7.9-10.5	**2.1-2.8**
308E2 (HRC)	2.7-5.4	**0.7-1.4**	5.4-8.0	**1.4-2.1**	8.0-10.7	**2.1-2.8**
306E (LRC), 307E (LRC)	2.3-4.6	**0.6-1.2**	4.6-6.9	**1.2-1.8**	6.9-9.2	**1.8-2.4**
305.5E (LRC)	2.0-4.0	**0.5-1.1**	4.0-6.0	**1.1-1.6**	6.0-8.0	**1.6-2.1**
308E (LRC)	2.9-5.7	**0.8-1.5**	5.7-8.6	**1.5-2.3**	8.6-11.5	**2.3-3.0**
X D SERIES						

:X D SERIES						
312D (Tier 3)	4.0-7.5	**1.1-2.0**	7.5-11.5	**2.0-3.0**	11.5-15.2	**3.0-4.0**
320D (STD Tier 3)	6.0-12.0	**1.6-3.2**	12.0-18.0	**3.2-4.8**	18.0-24.0	**4.8-6.3**
320D (HHP Tier 3)	6.5-12.5	**1.7-3.3**	12.5-18.5	**3.3-4.9**	18.5-24.8	**4.9-6.6**
321D CR (STD Tier 3)	6.0-12.0	**1.6-3.2**	12.0-18.0	**3.2-4.8**	18.0-24.0	**4.8-6.3**
321D CR (HHP Tier 3)	6.5-12.5	**1.7-3.3**	12.5-18.5	**3.3-4.9**	18.5-24.8	**4.9-6.6**
324D (STD Tier 2)	6.5-13.5	**1.7-3.6**	13.5-20.0	**3.6-5.3**	20.0-26.6	**5.3-7.0**
324D (HHP Tier 2)	7.5-15.5	**2.0-4.1**	15.5-23.0	**4.1-6.1**	23.0-30.4	**6.1-8.0**
324D (STD Tier 3)	7.0-14.0	**1.8-3.7**	14.0-21.0	**3.7-5.5**	21.0-28.0	**5.5-7.4**
324D (HHP Tier 3)	8.0-16.0	**2.1-4.2**	16.0-24.0	**4.2-6.3**	24.0-32.0	**6.3-8.5**
328D CR (Tier 3)	8.5-17.5	**2.2-4.6**	17.5-26.0	**4.6-6.9**	26.0-34.5	**6.9-9.1**
329D (STD Tier 2)	7.5-15.5	**2.0-4.1**	15.5-23.0	**4.1-6.1**	23.0-30.5	**6.1-8.1**
329D (HHP Tier 2)	8.5-16.5	**2.2-4.4**	16.5-24.5	**4.4-6.5**	24.5-33.0	**6.5-8.7**
329D (STD Tier 3)	8.0-16.0	**2.1-4.2**	16.0-24.0	**4.2-6.3**	24.0-32.0	**6.3-8.5**
329D (HHP Tier 3)	8.5-17.5	**2.2-4.6**	17.5-26.0	**4.6-6.9**	26.0-34.5	**6.9-9.1**
349D (Tier 2)	14.5-29.0	**3.8-7.7**	29.0-43.3	**7.7-11.4**	43.3-58.0	**11.4-15.3**
349D (Tier 3)	15.5-30.5	**4.1-8.1**	30.5-45.6	**8.1-12.0**	45.6-61.0	**12.0-16.1**
374D (Tier 2)	18.0-35.5	**4.8-9.4**	35.5-53.6	**9.4-14.2**	53.6-71.5	**14.2-18.9**
374D (Tier 3)	19.0-37.5	**5.0-9.9**	37.5-56.4	**9.9-14.9**	56.4-75.5	**14.9-19.9**
390D (C18 Tier 2)	19.5-38.5	**5.2-10.2**	38.5-58.0	**10.2-15.3**	58.0-77.0	**15.3-20.3**
390D (C18 Tier 3)	20.5-41.5	**5.4-11.0**	41.5-62.0	**11.0-16.4**	62.0-82.5	**16.4-21.8**

application of these machines is to be used for scrap handling, the LOW hourly fuel consumption rate would typically apply.
: Fuel consumption rates for 320D through 390D include machine at idle per load factor definition.

CAVATORS						
odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
EX D2 SERIES						

312D2 (STDTier 2)	3.6-7.1	**1.0-1.9**	7.1-10.7	**1.9-2.8**	10.7-14.2	**2.8-3.8**
312D2 (ECOTier 2)	3.1-6.2	**0.8-1.6**	6.2-9.3	**1.6-2.5**	9.3-12.4	**2.5-3.3**
312D2 GC (STDTier 2)	3.1-6.2	**0.8-1.6**	6.2-9.3	**1.6-2.5**	9.3-12.4	**2.5-3.3**
313D2 (STDTier 2)	3.6-7.1	**1.0-1.9**	7.1-10.7	**1.9-2.8**	10.7-14.2	**2.8-3.8**
313D2 (ECOTier 2)	3.1-6.2	**0.8-1.6**	6.2-9.3	**1.6-2.5**	9.3-12.4	**2.5-3.3**
318D2 (STDTier 2)	4.5-8.9	**1.2-2.4**	8.9-13.4	**2.4-3.5**	13.4-17.8	**3.5-4.7**
318D2 (ECOTier 2)	3.9-7.8	**1.0-2.1**	7.8-11.8	**2.1-3.1**	11.8-15.7	**3.1-4.1**
320D2 (SHPTier 2)	5.3-13.3	**1.4-3.5**	13.3-18.6	**3.5-4.9**	18.6-26.5	**4.9-7.0**
320D2 GC (STDTier 2)	4.6-11.5	**1.2-3.0**	11.5-16.1	**3.0-4.3**	16.1-23.0	**4.3-6.1**
323D2 GC (HHPTier 2)	5.4-13.5	**1.4-3.6**	13.5-18.9	**3.6-5.0**	18.9-27.0	**5.0-7.1**
336D2 (ECOTier 2)	11.0-19.0	**2.9-5.0**	19.0-26.0	**5.0-6.9**	26.0-32.0	**6.9-8.5**
336D2 (HHPTier 2)	14.0-24.0	**3.7-6.3**	24.0-33.0	**6.3-8.7**	33.0-41.0	**8.7-10.8**
336D2 (ECOTier 3)	11.0-19.5	**2.9-5.1**	19.5-28.5	**5.1-7.5**	28.5-35.0	**7.5-9.2**
336D2 (HHPTier 3)	14.0-25.0	**3.7-6.6**	24.0-36.0	**6.6-9.5**	36.0-44.5	**9.5-11.8**
:X E SERIES						
312E (ECO Tier 4 Interim)	3.2-6.3	**0.8-1.7**	6.3-9.5	**1.7-2.5**	9.5-12.6	**2.5-3.3**
312E (HHP Tier 4 Interim)	3.6-7.1	**1.0-1.9**	7.1-10.7	**1.9-2.8**	10.7-14.2	**2.8-3.7**
314E (HHPTier 4 Interim)	3.1-6.2	**0.8-1.6**	6.2-9.3	**1.6-2.5**	9.3-12.4	**2.5-3.3**
314E (ECOTier 4 Interim)	2.9-5.7	**0.8-1.5**	5.7-8.6	**1.5-2.3**	8.6-11.5	**2.3-3.0**
314EL (HHPTier 4 Interim)	3.4-6.8	**0.9-1.8**	6.8-10.2	**1.8-2.7**	10.2-13.7	**2.7-3.6**
314EL (ECOTier 4 Interim)	2.7-5.4	**0.7-1.4**	5.4-8.1	**1.4-2.1**	8.1-10.8	**2.1-2.8**
316E (ECO Tier 4 Interim)	3.9-7.8	**1.0-2.1**	7.8-11.7	**2.1-3.1**	11.7-15.7	**3.1-4.1**
316E (HPP Tier 4 Interim)	4.5-9.1	**1.2-2.4**	9.1-13.6	**2.4-3.6**	13.6-18.2	**3.6-4.8**
318E (ECO Tier 4 Interim)	3.9-7.8	**1.0-2.1**	7.8-11.7	**2.1-3.1**	11.7-15.7	**3.1-4.1**
318E (HPP Tier 4 Interim)	4.5-9.1	**1.2-2.4**	9.1-13.6	**2.4-3.6**	13.6-18.2	**3.6-4.8**
320E (ECO Tier 4 Interim)	4.6-9.2	**1.2-2.4**	9.2-13.8	**2.4-3.5**	13.8-18.3	**3.5-4.7**
320E (STD Tier 4 Interim)	5.5-11.0	**1.4-2.8**	11.0-16.4	**2.8-4.2**	16.4-21.9	**4.2-21.9**
320E (HHP Tier 4 Interim)	5.9-11.9	**1.5-3.1**	11.9-17.8	**3.1-4.6**	17.8-23.8	**4.6-6.1**
323E (ECO Tier 4 Interim)	4.6-9.2	**1.2-2.4**	9.2-13.8	**2.4-3.5**	13.8-18.3	**3.5-4.7**
323E (STD Tier 4 Interim)	5.5-11.0	**1.4-2.8**	11.0-16.4	**2.8-4.2**	16.4-21.9	**4.2-21.9**
323E (HHP Tier 4 Interim)	5.9-11.9	**1.5-3.1**	11.9-17.8	**3.1-4.6**	17.8-23.8	**4.6-6.1**
324E (ECO Tier 4 Interim)	5.7-11.4	**1.5-2.9**	11.4-17.1	**2.9-4.4**	17.1-22.9	**4.4-5.9**
324E (STD Tier 4 Interim)	6.4-12.8	**1.6-3.3**	12.8-19.2	**3.3-4.9**	19.2-25.6	**4.9-6.6**
324E (HHP Tier 4 Interim)	7.2-14.4	**1.9-3.7**	14.4-21.6	**3.7-5.6**	21.6-28.9	**5.6-7.4**
329E (ECO Tier 4 Interim)	6.8-13.5	**1.7-3.5**	13.5-20.3	**3.5-5.2**	20.3-27.0	**5.2-6.9**
329E (STD Tier 4 Interim)	7.3-14.6	**1.9-3.8**	14.6-21.9	**3.8-5.6**	21.9-29.2	**5.6-7.5**
329E (HHP Tier 4 Interim)	8.6-17.1	**2.2-4.4**	17.1-25.7	**4.4-6.6**	25.7-34.3	**6.6-8.8**
336E (ECOTier 4 Interim)	9.5-19.0	**2.5-5.0**	19.0-29.0	**5.0-7.7**	29.0-38.0	**7.7-10.0**
336E (STDTier 4 Interim)	10.5-21.5	**2.8-5.7**	21.5-32.0	**5.7-8.5**	32.0-42.0	**8.5-11.1**
336E (HHPTier 4 Interim)	12.0-24.0	**3.2-6.3**	24.0-36.0	**6.3-9.5**	36.0-47.5	**9.5-12.5**
336EH (ECOTier 4 Interim)	12.0-20.5	**3.2-5.4**	20.5-29.5	**5.4-7.8**	29.5-41.0	**7.8-10.8**
336EH (STDTier 4 Interim)	13.0-22.0	**3.4-5.8**	22.0-31.5	**5.8-8.3**	31.5-44.0	**8.3-11.6**
336EH (HHPTier 4 Interim)	14.5-25.0	**3.8-6.6**	25.0-36.0	**6.6-9.5**	36.0-50.0	**9.5-13.2**
349E (C13 Tier 4 Interim)	15.0-30.5	**4.0-8.1**	30.5-45.5	**8.1-12.0**	45.5-60.5	**12.0-16.0**

CAVATORS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
ACK MATERIAL HANDLERS						
385C MH	48-60	**12.7-15.8**	60-74	**15.8-19.5**	74-82	**19.5-21.7**
HEEL HEX AND ATERIAL HANDLER						
M313D	8.0-12.0	**2.1-3.2**	12.0-16.0	**3.2-4.2**	16.0-19.0	**4.2-5.0**
M315D	9.0-13.0	**2.4-3.4**	13.0-18.0	**3.4-4.8**	18.0-21.0	**4.8-5.5**
M316D	8.0-12.0	**2.1-3.2**	12.0-17.0	**3.2-4.5**	17.0-20.0	**4.5-5.3**
M318D	9.0-13.0	**2.4-3.4**	13.0-18.0	**3.4-4.8**	18.0-22.0	**4.8-5.8**
M318D MH	—	—	—	—	—	—
M322D	11.0-17.0	**2.9-4.5**	17.0-23.0	**4.5-6.1**	23.0-26.0	**6.0-6.9**
M322D MH	—	—	—	—	—	—
M325D MH	13-18	**3.4-4.8**	19-23	**5.0-6.1**	24-28	**6.3-7.4**
M325D LMH	14-20	**3.7-5.3**	21-26	**5.5-6.9**	27-32	**7.1-8.5**
MH3037	15-17	**4.0-4.5**	18-20	**4.8-5.3**	21-23	**5.5-6.1**
MH3049	17-19	**4.5-5.0**	20-22	**5.3-5.8**	23-25	**6.1-6.6**
MH3059	20-22	**5.3-5.8**	23-25	**6.1-6.6**	26-28	**6.9-7.4**

Mini HEX

ypical Application Description

relative to work application)

.ow — Mostly shallow depth urban utility construction where excavator sets pipe and digs in sandy loam or free flowing, low density material. Little traveling and little or no impact.

Medium — Most residential pipeline and cabling applications. Continuous mass excavation and trenching in natural bed clay soils. Some traveling and steady, full throttle operation.

ligh — Continuous trenching or truck loading in rock or shot rock soils. Most pipeline applications in hard rocky material. Large amount of travel over rough ground. Constant high load factor and high impact.

.oad Factor Guide
average engine load factor based on application description for each range)

.ow	20%-40%
Medium	40%-60%
ligh	60%-80%

)0 Series
pical Application Description
elative to work application)

ow	Mostly shallow depth urban utility construction where excavator sets pipe and digs less than 50% of the daily work schedule. Sandy loam, free flowing, low density material. Little traveling and little or no impact.
edium	Most residential sewer applications. Continuous mass excavation and trenching in natural bed clay soils. Digging 60-85% of the daily work schedule. Most log loading applications. Some traveling and steady, full throttle operation.
igh	Continuous trenching or truck loading in rock or shot rock soils. Most pipeline applications in hard rocky material. Digging 90-95% of the daily work schedule. Large amount of travel

in hard rocky material. Digging 90-95% of the daily work schedule. Large amount of travel over rough ground. Working on rock floor with constant high load factor and high impact.

ad Factor Guide (Tier 2, Tier 3 and Tier 4 Interim HEXSM, only)

verage engine load factor based on application description for each range)

w	20%-40%
edium	40%-60%
gh	60%-80%

Series

pical Application Description

elative to work application)

w	Urban utility construction application in sandy loam, low density material. Digging less than 50% of the daily work schedule. Rehandling and scrap handling applications.
edium	Residential sewer applications in natural bed clay. Continuous digging in sandy clay/gravel. Digging 60-85% of the daily work schedule. Site development and lumber yard applications. Most logging applications.
gh	Pipeline applications in hard rocky material. Continuous digging in rock/natural bed clay. Digging 90-95% of the daily work schedule. High impact, using hammer, working in forests and quarries.

ad Factor Guide

verage engine load factor based on application description for each range)

w	20%-40%
edium	40%-60%
gh	60%-80%

ONT SHOVELS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
90	43.0-48.0	**11.4-12.7**	62.0-68.0	**16.4-18.0**	71.0-78.0	**18.8-20.6**
30B (Tier 1)	—	—	120.2	**31.6**	160.3	**42.2**
30B (Tier 1)	—	—	232.5	**61.2**	310.0	**81.6**

Typical Application Description
(relative to work application)

Low — Continuous loading in loose banks or stockpile. Light, easy work with, considerable idling. Good underfoot conditions.

Medium — Continuous loading in well-shot rock or fairly tight bank. Steady cycling with frequent periods of idle. Good underfoot conditions; dry floor, little impact or sliding on undercarriage. Minimal travel time (3%-6%).

High — Continuous loading in poorly-shot rock, virgin or lightly-blasted tight banks. Steady cycling in hard to dig material. Adverse underfoot conditions; rough floors, high impact and/or sliding on undercarriage.

Load Factor Guide
(average engine load factor based on application description for each range)

Low 20%-50%
Medium 50%-80%
High 80%-100%

DRAULIC MINING SHOVELS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
15/6015 FS	66-80	**17-21**	80-93	**21-25**	93-106	**25-28**
18/6018 FS	105-126	**28-33**	126-147	**33-39**	147-168	**39-44**
30/6030 FS	134-161	**35-43**	161-188	**43-50**	188-215	**50-57**
40/6040 FS	180-216	**48-57**	216-252	**57-67**	252-288	**67-76**
50/6050 FS	229-275	**60-73**	275-321	**73-85**	321-367	**85-97**
60/6060 FS	276-331	**73-87**	331-387	**87-102**	387-442	**102-117**

90 FS	402-483	**106-128**	483-563	**128-149**	563-644	**149-170**

Typical Application Description
(relative to work application)

Low	Light duty work with a considerable amount of idling.
Medium	Continuous loading operations with frequent idling periods. (Applies for the vast majority of applications)
High	Continuous hard digging operations with rare idling periods.

Load Factor Guide
(average engine load factor based on application description for each range)

Low	50%-60%
Medium	60%-70%
High	70%-80%

wning & Operating Costs

⑧ Hourly Fuel Consumption Tables
- Wheel Tractor-Scrapers
- Backhoe Loaders

HEEL TRACTOR-SCRAPERS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
1H Tier 4 Final*	28.0-39.4	**7.4-10.4**	39.4-50.7	**10.4-13.4**	50.7-62.1	**13.4-16.4**
3K Tier 4 Final*	32.2-43.2	**8.5-11.4**	43.2-54.5	**11.4-14.4**	54.5-68.1	**14.4-18.0**
7K Tier 4 Final*	42.0-61.7	**11.1-16.3**	61.7-81.4	**16.3-21.5**	81.4-106.7	**21.5-28.2**
1G Tier 3	34.1-48.5	**9.0-12.8**	48.5-62.8	**12.8-16.6**	62.8-77.6	**16.6-20.5**
7G Tier 3	48.8-72.1	**12.9-19.1**	72.3-95.8	**19.1-25.3**	95.8-125.3	**25.3-33.1**
7G Tier 3	66.6-98.8	**17.6-26.1**	98.8-131.0	**26.1-34.6**	131.0-163.2	**34.6-43.1**

hine requires the use of DEF fluid with a consumption rate approximately 2-3% of diesel fuel.

Typical Application Description
(relative to work application)

Low	Level or favorable grades on good haul roads and low rolling resistance. Easy-loading materials, partial loads. No impact. Average use, but with considerable idling.
Medium	Adverse and favorable grades with varying loading and haul road conditions. Long and short hauls, near full. Some impact. Typical road building use.

short hauls, near full. Some impact. Typical road building use.

High Rough haul roads. Loading heavy clay, continuous high total resistance conditions with steady cycling. Overloading. High impact conditions, such as loading ripped rock.

Load Factor Guide

(average engine load factor based on application description for each range)

Low 35%-50%
Medium 50%-65%
High 65%-80%

CKHOE LOADERS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
6E (Tier 2) 56 kW/**75 hp**	1.9-7.9	**0.5-2.1**	7.9-12.1	**2.1-3.2**	12.1-14.4	**3.2-3.8**
6E (Tier 2) 68.5 kW/**92 hp**	2.6-11.7	**0.7-3.1**	11.7-16.7	**3.1-4.4**	16.7-18.9	**4.4-5.0**
6F (Tier 4 Interim) 70 kW/**94 hp**	2.6-12.4	**0.7-3.3**	12.4-17.4	**3.3-4.6**	17.4-19.0	**4.6-5.0**
0F (Tier 2) 74.5 kW/**100 hp**	2.6-11.7	**0.7-3.1**	11.7-17.4	**3.1-4.6**	17.4-20.1	**4.6-5.3**
0F (Tier 4 Interim) 74.5 kW/**100 hp**	2.9-13.6	**0.8-3.6**	13.6-18.9	**3.6-5.0**	18.9-19.7	**5.0-5.2**
2F (Tier 2) 56.5 kW/**75 hp**	1.9-7.9	**0.5-2.1**	7.9-12.1	**2.1-3.2**	12.1-14.4	**3.2-3.8**
2F (Tier 2) 68.5 kW/**92 hp**	2.6-11.7	**0.7-3.1**	11.7-16.7	**3.1-4.4**	16.7-18.9	**4.4-5.0**
8F (Tier 2) 70 kW/**94 hp**	2.6-11.0	**0.7-2.9**	11.0-16.7	**2.9-4.4**	16.7-19.3	**4.4-5.1**
8F (Tier 2) 74.5 kW/**100 hp**	2.6-11.7	**0.7-3.1**	11.7-17.4	**3.1-4.6**	17.4-20.1	**4.6-5.3**
8F (Stage 3a) 70 kW/**94 hp**	2.6-11.0	**0.7-2.9**	11.0-16.7	**2.9-4.4**	16.7-19.3	**4.4-5.1**
8F (Stage 3a) 74.5 kW/**100 hp**	2.6-11.4	**0.7-3.0**	11.4-17.0	**3.0-4.5**	17.0-20.8	**4.5-5.5**
8F (Stage 3b) 70 kW/**94 hp**	2.6-12.4	**0.7-3.3**	12.4-17.4	**3.3-4.6**	17.4-19.0	**4.6-5.0**
8F (Stage 3b) 74.5 kW/**100 hp**	2.9-13.6	**0.8-3.6**	13.6-18.9	**3.6-5.0**	18.9-19.7	**5.0-5.2**
0F (Tier 2) 74.5 kW/**100 hp**	2.6-11.7	**0.7-3.1**	11.7-17.4	**3.1-4.6**	17.4-20.1	**4.6-5.3**
0F (Tier 4 Interim) 86 kW/**115 hp**	3.1-14.8	**0.8-3.9**	14.8-20.9	**3.9-5.5**	20.9-22.8	**5.5-6.0**
2F (Tier 2) 74.5 kW/**100 hp**	2.6-11.7	**0.7-3.1**	11.7-17.4	**3.1-4.6**	17.4-20.1	**4.6-5.3**
2F (Stage 3a) 74.5 kW/**100 hp**	2.6-11.4	**0.7-3.0**	11.4-17.0	**3.0-4.5**	17.0-20.8	**4.5-5.5**
2F (Stage 3b) 82 kW/**110 hp**	2.9-13.7	**0.8-3.6**	13.7-19.0	**3.6-5.0**	19.0-21.9	**5.0-5.8**
4F (Tier 2) 68.5 kW/**92 hp**	2.6-11.7	**0.7-3.1**	11.7-16.7	**3.1-4.4**	16.7-18.9	**4.4-5.0**
4F (Tier 2) 74.5 kW/**100 hp**	2.6-11.7	**0.7-3.1**	11.7-17.4	**3.1-4.6**	17.4-20.1	**4.6-5.3**
4F (Stage 3a) 70 kW/**94 hp**	2.6-11.0	**0.7-2.9**	11.0-16.7	**2.9-4.4**	16.7-19.3	**4.4-5.1**
4F (Stage 3a) 74.5 kW/**100 hp**	2.6-11.4	**0.7-3.0**	11.4-17.0	**3.0-4.5**	17.0-20.8	**4.5-5.5**
4F (Stage 3b) 74.5 kW/**100 hp**	2.9-13.6	**0.8-3.6**	13.6-18.9	**3.6-5.0**	18.9-19.7	**5.0-5.2**
4F (Tier 2) 74.5 kW/**100 hp**	2.6-11.7	**0.7-3.1**	11.7-17.4	**3.1-4.6**	17.4-20.1	**4.6-5.3**
4F (Stage 3a) 74.5 kW/**100 hp**	2.6-11.4	**0.7-3.0**	11.4-17.0	**3.0-4.5**	17.0-20.8	**4.5-5.5**
4F (Stage 3b) 82 kW/**110 hp**	2.9-13.7	**0.8-3.6**	13.7-19.0	**3.6-5.0**	19.0-21.9	**5.0-5.8**
0E (Tier 3) 102 kW/**137 hp**	3.1-13.6	**0.8-3.6**	13.6-21.9	**3.6-5.8**	21.9-26.1	**5.8-6.9**
0F (Tier 4 Interim) 106 kW/**142 hp**	3.3-16.2	**0.9-4.3**	16.2-23.1	**4.3-6.1**	23.1-27.1	**6.1-7.2**

4.01

Backhoe Loaders
Typical Application Description
(relative to work application)

Low — Light duty utility applications with intermittent cycles in light to medium soil. Trenching depths less than 1.83 m (**6 feet**).

Medium — General utility applications with regular cycles in medium to heavy soil. Dig depths to 3.05 m (**10 feet**). Occasional use of constant flow implements.

High — Production applications or digging in rock. Dig depths over 3.05 m (**10 feet**). Long cycle times or regular use of constant flow implements.

Load Factor Guide
(average engine load factor based on application description for each range)

Low 20%-40%
Medium 40%-65%
High 65%-80%

REST PRODUCTS

lodel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
OREST MACHINE						
320D FM	11.5-14.0	**3.0-3.7**	17.0-19.0	**4.5-5.0**	20.5-22.5	**5.4-6.0**
322C LL	25.0-28.0	**6.5-7.5**	26.0-29.0	**7.0-7.5**	27.0-30.0	**7.5-8.0**
324D FM	14.0-19.0	**3.7-5.1**	23.0-27.0	**6.1-7.1**	27.0-32.0	**7.2-8.5**
325C LL	26.0-29.0	**7.0-7.5**	27.0-30.0	**7.0-8.0**	29.0-32.0	**7.5-8.5**
325D FM	14.0-19.0	**3.7-5.1**	23.0-27.0	**6.1-7.1**	27.0-32.0	**7.2-8.5**
330C LL	36.0-40.0	**9.5-10.5**	37.0-41.0	**10.0-11.0**	38.0-42.0	**10.0-11.0**
330D FM	19.0-24.0	**5.0-6.3**	29.0-33.0	**7.7-8.7**	34.0-39.0	**9.0-10.3**
568 LL Tier 4	19.0-24.0	**5.0-6.3**	29.0-33.0	**7.7-8.7**	34.0-39.0	**9.0-10.3**
568 GF Tier 4	19.0-24.0	**5.0-6.3**	29.0-33.0	**7.7-8.7**	34.0-39.0	**9.0-10.3**
RACK FELLER BUNCHER						
511 (2290)	25.0-28.0	**6.5-7.5**	28.0-34.0	**7.5-9.0**	36.0-42.0	**9.5-11.0**
521 (2390)	27.0-33.0	**7.0-8.5**	33.0-36.0	**8.5-9.5**	36.0-44.0	**9.5-11.5**
522 (2391)	27.0-33.0	**7.0-8.5**	33.0-36.0	**8.5-9.5**	36.0-44.0	**9.5-11.5**
532 (2491)	28.0-34.0	**7.5-9.0**	34.0-38.0	**9.0-10.0**	38.0-45.0	**10.0-12.0**
541 Series 2Tier 3 (2590)	28.0-34.0	**7.5-9.0**	34.0-38.0	**9.0-10.0**	38.0-45.0	**10.0-12.0**
551	28.0-34.0	**7.5-9.0**	34.0-38.0	**9.0-10.0**	38.0-45.0	**10.0-12.0**
552 Series 2Tier 3	30.0-34.0	**8.0-9.0**	34.0-40.0	**9.0-10.5**	40.0-49.0	**10.5-13.0**
/HEEL FELLER BUNCHER						
553CTier 3	18.9-22.7	**5.0-6.0**	22.7-26.5	**6.0-7.0**	26.5-32.2	**7.0-8.5**
563CTier 4 Interim	18.9-22.7	**5.0-6.0**	22.7-26.5	**6.0-7.0**	26.5-32.2	**7.0-8.5**
573CTier 4 Interim	18.9-22.7	**5.0-6.0**	22.7-26.5	**6.0-7.0**	26.5-32.2	**7.0-8.5**
RACK SKIDDERS						
527	13.2-18.9	**3.5-5.0**	18.9-23.6	**5.0-6.25**	23.6-32.2	**6.25-8.5**
/HEEL SKIDDERS						
525C	17.0-18.9	**4.5-5.0**	18.9-20.8	**5.0-5.5**	20.8-24.6	**5.5-6.5**
535C	17.4-19.7	**4.6-5.2**	19.7-22.0	**5.2-5.8**	22.0-25.4	**5.8-6.7**

545C	18.2-20.1	**4.8-5.3**	20.1-22.0	**5.3-5.8**	22.0-28.0	**5.8-7.4**
NUCKLEBOOM LOADER						
529 Tier 3	12.04	**3.31**	19.47	**5.36**	25.58	**7.04**
559C Tier 4 Interim	12.91	**3.55**	19.69	**5.42**	25.96	**7.15**
579 Tier 4 Interim	12.91	**3.55**	19.69	**5.42**	25.96	**7.15**
RACK HARVESTER						
501HD Tier 3	14.0	**3.7**	16.3	**4.3**	20.8	**5.5**
/HEEL HARVESTER	—	—	—	—	—	—
ORWARDERS						
564 Tier 3	13.2	**3.5**	15.0	**4.0**	17.0	**4.5**
574 Tier 3	14.4	**3.8**	15.9	**4.2**	17.8	**4.7**
584 Tier 3	12.5	**3.3**	14.0	**3.7**	17.0	**4.5**
584HD Tier 3	13.0	**3.4**	14.3	**3.8**	18.9	**5.0**

/heel Skidders
Typical Application Description
relative to work application)

.ow	Intermittent skidding for short distances, no decking. Good underfoot conditions; dry floor, few if any stumps, flat/level terrain with low skidding resistance.
Medium	Continuous turning, steady skidding for medium distances with moderate decking. Good underfoot conditions; dry floor with few stumps, gradual rolling/moderate terrain with medium skidding resistance.
High	Continuous turning, steady skidding for long distances with frequent decking. Poor underfoot conditions; wet floor, numerous stumps, steep terrain with high skidding resistance.

.oad Factor Guide — 517

.ow	Skidding loads less than 4536 kg **(10,000 lb)** in flat terrain (0-8% grade) with low skidding resistance.
Medium	Skidding loads up to 4536 kg **(10,000 lb)** in moderate terrain (8-30% grade) with medium skidding resistance.
High	Skidding loads over 4536 kg **(10,000 lb)** in steep terrain (over 30% grade) with high skidding resistance.

.oad Factor Guide — 525B

.ow	Skidding loads less than 4500 kg **(10,000 lb)** in flat terrain (0-5% grade) with low skidding resistance.
Medium	Skidding loads up to 6800 kg **(15,000 lb)** in moderate terrain (5-10% grade) with average

Medium Skidding loads up to 6800 kg **(15,000 lb)** in moderate terrain (5-10% grade) with average skidding resistance

High Skidding loads over 6800 kg **(15,000 lb)** in steep terrain (over 10% grade) with high skidding resistance.

Load Factor Guide — 527

Low Skidding loads less than 6360 kg **(14,000 lb)** in flat terrain (0-8% grade) with low skidding resistance.

Medium Skidding loads up to 6360 kg **(14,000 lb)** in moderate terrain (8-30% grade) with medium skidding resistance.

High Skidding loads over 6360 kg **(14,000 lb)** in steep terrain (over 30% grade) with high skidding resistance.

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
'0G Tier 4 Final†	19.7-29.5	**5.2-7.7**	29.5-39.3	**7.7-10.3**	39.3-49.2	**10.3-12.9**
'0G	18.3-27.5	**4.8-7.3**	27.5-36.6	**7.3-9.7**	36.6-45.8	**9.7-12.1**
'2G Tier 4 Final†	23.5-35.3	**6.2-9.3**	35.3-47.1	**9.3-12.4**	47.1-58.9	**12.4-15.4**
'2G	22.0-32.9	**5.8-8.7**	32.9-43.9	**8.7-11.6**	43.9-54.9	**11.6-14.5**
'3E	27.4-41.2	**7.2-10.9**	41.2-54.9	**10.9-14.5**	54.9-68.6	**14.5-18.1**
'3G	29.0-43.5	**7.7-11.5**	43.5-58.0	**11.5-15.3**	58.0-72.5	**15.3-19.2**
'3G Tier 4 Final	29.0-43.5	**7.7-11.5**	43.5-58.1	**11.5-15.4**	58.1-72.6	**15.4-19.2**
'5G	30.9-46.3	**8.2-12.2**	46.3-61.7	**12.2-16.3**	61.7-77.1	**16.3-20.4**
'5G Tier 4 Final	30.9-46.4	**8.2-12.3**	46.4-61.9	**12.3-16.4**	61.9-77.4	**16.4-20.4**
'7D	37.5-56.3	**9.9-14.9**	56.3-75.0	**14.9-19.8**	75.0-93.8	**19.8-24.8**
'7G	37.5-56.2	**9.9-14.8**	56.2-75.0	**14.8-19.8**	75.0-93.7	**19.8-24.8**
'7G Tier 4 Final	38.7-58.0	**10.2-15.3**	58.0-77.4	**15.3-20.4**	77.4-96.7	**20.4-25.5**
5C**	53.7-80.6	**14.2-21.3**	80.6-107.5	**21.3-28.4**	107.5-134.4	**28.4-35.5**
5D****	54.2-81.4	**14.3-21.5**	81.4-108.5	**21.5-28.7**	108.5-135.6	**28.7-35.8**
9D 1900 HP**	70.6-105.9	**18.7-28.0**	105.9-141.2	**28.0-37.3**	141.2-176.5	**37.3-46.6**
9D 2100 HP*	74.9-112.4	**19.8-29.7**	112.4-149.9	**29.7-39.6**	149.9-187.4	**39.6-49.5**
9D 2100 HP****	79.7-119.5	**21.1-31.6**	119.5-159.3	**31.6-42.1**	159.3-199.1	**42.1-52.6**
3D**	90.8-136.2	**24.0-36.0**	136.2-181.6	**36.0-48.0**	181.6-227.0	**48.0-60.0**
T4400D AC****	89.1-133.6	**23.5-35.3**	133.6-178.1	**35.3-47.0**	178.1-222.6	**47.0-58.8**
3F****	96.7-145.0	**25.5-38.3**	145.0-193.3	**38.3-51.1**	193.3-241.7	**51.1-63.9**
3F HAA	90.7-136.0	**24.0-35.9**	136.0-181.4	**35.9-47.9**	181.4-226.7	**47.9-59.9**
5F****	123.3-184.9	**32.6-48.9**	184.9-246.6	**48.9-65.2**	246.6-308.2	**65.2-81.4**
T5300D AC****	126.1-189.3	**33.3-50.0**	189.3-252.1	**50.0-66.6**	252.1-315.3	**66.6-83.3**
7F****	146.8-220.3	**38.8-58.2**	220.3-293.7	**58.2-77.6**	293.7-367.1	**77.6-97.0**
7F HAA***	147.9-221.8	**39.1-58.6**	221.8-295.8	**58.6-78.2**	295.8-369.7	**78.2-97.7**

EPA Tier 1 Capable.
EPA Tier 1 Certified.
EPA Tier 2 Capable.
EPA Tier 2 Certified.
Machine requires the use of DEF fluid with a consumption rate approximately 2-3% of diesel fuel.
E: Load factors above 50% may be experienced in many applications.

Typical Application Description

(relative to work application)

Low — Continuous operation at an average gross weight less than recommended. Excellent haul roads. No overloading, low load factor.

Medium — Continuous operation at an average gross weight approaching recommended. Minimal overloading, good haul roads, moderate load factor.

High — Continuous operation at or above maximum recommended gross weight. Overloading, poor haul roads, high load factor.

Load Factor Guide

(average engine load factor based on application description for each range)

Low 20%-30%

Medium 30%-40%

High 40%-50%

E: For best results, use Caterpillar Fleet Production and Cost Analysis (FPC) to simulate cycle time, fuel burn, and production. For Application Specific Performance inquiries, contact Factory Representative or visit catminer.cat.com/stb for more information.

LEHANDLERS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
l210	5.1-6.8	**1.3-1.8**	8.5-10.1	**2.2-2.6**	11.8-13.5	**3.1-3.5**
l215	5.1-6.8	**1.3-1.8**	8.5-10.1	**2.2-2.6**	11.8-13.5	**3.1-3.5**
l220B (59-74 kW/**80-99 hp**)	5.0-7.0	**1.3-1.8**	10.0-14.0	**2.6-3.7**	13.0-17.0	**3.4-4.5**
l220B (92 kW/**123 hp**)	5.0-8.0	**1.3-2.1**	10.0-16.0	**2.6-4.2**	13.0-20.0	**3.4-5.3**
l330B (59-74 kW/**80-99 hp**)	5.0-7.0	**1.3-1.8**	10.0-14.0	**2.6-3.7**	13.0-17.0	**3.4-4.5**
l330B (92 kW/**123 hp**)	5.0-8.0	**1.3-2.1**	10.0-16.0	**2.6-4.2**	13.0-20.0	**3.4-5.3**
l340B	5.0-7.0	**1.3-1.8**	10.0-14.0	**2.6-3.7**	13.0-17.0	**3.4-4.5**
l350B	5.0-7.0	**1.3-1.8**	10.0-14.0	**2.6-3.7**	13.0-17.0	**3.4-4.5**
l355B	5.0-7.0	**1.3-1.8**	10.0-14.0	**2.6-3.7**	13.0-17.0	**3.4-4.5**
l360B	5.0-7.0	**1.3-1.8**	10.0-14.0	**2.6-3.7**	13.0-17.0	**3.4-4.5**
l460B	5.0-7.0	**1.3-1.8**	10.0-14.0	**2.6-3.7**	13.0-17.0	**3.4-4.5**
l560B (59-74 kW/**80-99 hp**)	5.0-9.0	**1.3-2.4**	10.0-15.0	**2.6-4.0**	13.0-17.5	**3.4-4.6**
l560B (92 kW/**123 hp**)	5.0-9.0	**1.3-2.4**	10.0-17.0	**2.6-4.5**	13.0-21.0	**3.4-5.5**
l580B	5.0-6.0	**1.3-1.6**	9.0-10.7	**2.4-2.8**	16.0-18.3	**4.2-4.8**

Typical Application Description
relative to work application)

Low — Light to moderate, intermittent, utility applications with frequent periods of idling and limited travel.

Medium — General construction applications with moderate amounts of travel.

High — Continuous production applications with near capacity loading and extended lifts.

.oad Factor Guide
average engine load factor based on application description for each range)

.ow	20%-30%
Medium	30%-40%
High	40%-50%

EEL DOZERS/SOIL COMPACTORS/LANDFILL COMPACTORS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
4F	21.0-25.0	**5.5-6.5**	26.0-30.0	**7.0-8.0**	36.0-40.0	**9.5-10.5**
5F	26.0-30.0	**7.0-8.0**	36.0-42.0	**9.5-11.0**	44.0-47.0	**11.5-12.5**
6F	26.0-30.0	**7.0-8.0**	36.0-42.0	**9.5-11.0**	44.0-47.0	**11.5-12.5**
4H	28.9-33.8	**7.9-8.9**	39.8-45.8	**10.5-12.1**	53.7-59.7	**14.2-15.8**

5H	37.8-43.8	**10.0-11.6**	53.7-67.3	**14.2-17.8**	63.7-69.7	**16.8-18.4**
6H	34.0-35.8	**8.4-9.4**	39.8-43.8	**10.5-11.6**	47.8-51.7	**12.6-13.6**
4K	34.6-43.4	**9.1-11.4**	48.2-52.2	**12.7-13.8**	67.6-74.0	**17.8-19.5**
6H	39.8-43.8	**10.5-11.6**	47.8-51.7	**12.6-14.0**	55.7-59.7	**14.7-18.0**
4H	42.0-50.0	**11.0-13.0**	54.0-62.0	**14.0-16.0**	65.0-73.0	**17.0-19.0**
4K	49.2-64.4	**13.0-17.0**	64.4-79.5	**17.0-21.0**	79.5-94.6	**21.0-25.0**

Wheel Dozers
Typical Application Description
(relative to work application)

Low — Light utility and stockpile work. Pulling compactors. Dozing loose fill. Considerable idling or travel with no load and no impact.

Medium — Production dozing, push loading in clays, sands, silts, loose gravels. Shovel clean-up. Normal compaction.

High — Heavy production dozing in rock. Push-loading in rocky, bouldery borrow pits. Heavy landfill compactor work. High impact conditions.

Load Factor Guide
(average engine load factor based on application description for each range)

Low — 35%-50%
Medium — 50%-65%
High — 65%-80%

Soil Compactors/Landfill Compactors
Typical Application Description
(relative to work application)

Low — No dozing or very light spreading on a flat or downhill surface. Machine has support equipment dozing and spreading trash while compactor simply travels over flat surface multiple times.

Medium — Compactor primary use is compacting already spread material. Compactor assists in dozing and spreading during peak periods of day and possibly working slopes of no steeper than a 4:1.

High — Compactor is possibly only machine for operation. Machine will doze and spread material alone and then compact it with multiple passes working on steep slopes and possibly uphill.

Load Factor Guide
(average engine load factor based on application description for each range)

Low — 35%-50%
Medium — 50%-65%
High — 65%-80%

MPACTION EQUIPMENT						
odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
IL COMPACTORS						
CS-323C	8.0-13.0	**2.0-3.5**	11.0-15.0	**3.0-4.0**	11.0-19.0	**3.0-5.0**
CP-323C	8.0-13.0	**2.0-3.5**	11.0-15.0	**3.0-4.0**	11.0-19.0	**3.0-5.0**
CS-431C	8.0-11.0	**2.0-3.0**	11.0-13.0	**3.0-3.5**	11.0-15.0	**3.0-4.0**
CS-531D	11.0-13.0	**3.0-3.4**	12.0-14.0	**3.2-3.7**	13.0-16.0	**3.4-4.2**
CS-423E	4.5-6.4	**1.2-1.7**	6.4-9.5	**1.7-2.5**	9.5-12.9	**2.5-3.4**
CS-533E	5.7-9.5	**1.5-2.5**	9.5-13.2	**2.5-3.5**	13.2-17.0	**3.5-4.5**
CP-533E	5.7-9.5	**1.5-2.5**	9.5-13.2	**2.5-3.5**	13.2-17.0	**3.5-4.5**
CS-563E	12.0-14.0	**3.2-3.7**	14.0-17.0	**3.7-4.5**	17.0-20.0	**4.5-5.3**
CP-563E	12.0-14.0	**3.2-3.7**	14.0-17.0	**3.7-4.5**	17.0-20.0	**4.5-5.3**
CS-573E	12.0-15.0	**3.2-4.0**	14.0-18.0	**3.7-4.8**	17.0-21.0	**4.5-5.6**
CP-573E	12.0-15.0	**3.2-4.0**	14.0-18.0	**3.7-4.8**	17.0-21.0	**4.5-5.6**
CS-583E	15.0-17.0	**4.0-4.5**	17.0-19.0	**4.5-5.0**	19.0-23.0	**5.0-6.0**
CS-663E	15.0-17.0	**4.0-4.5**	17.0-19.0	**4.5-5.0**	19.0-23.0	**5.0-6.0**
CP-663E	15.0-17.0	**4.0-4.5**	17.0-19.0	**4.5-5.0**	19.0-23.0	**5.0-6.0**
CS-683E	17.0-19.0	**4.5-5.0**	19.0-21.0	**5.0-5.5**	22.5-24.5	**6.0-6.5**
CS44	5.8-7.8	**1.5-2.1**	7.8-11.9	**2.1-3.1**	11.9-15.7	**3.1-4.2**
CP44	5.8-7.8	**1.5-2.1**	7.8-11.9	**2.1-3.1**	11.9-15.7	**3.1-4.2**
CS54	5.7-9.5	**1.5-2.5**	9.5-13.2	**2.5-3.5**	13.2-17.0	**3.5-4.5**
CS56	7.6-9.5	**2.0-2.5**	9.5-15.1	**2.5-4.0**	15.1-22.7	**4.0-6.0**
CP56	7.6-9.5	**2.0-2.5**	9.5-15.1	**2.5-4.0**	15.1-22.7	**4.0-6.0**
CS64	7.6-9.5	**2.0-2.5**	9.5-15.1	**2.5-4.0**	15.1-26.5	**4.0-7.0**
CP64	7.6-9.5	**2.0-2.5**	9.5-15.1	**2.5-4.0**	15.1-26.5	**4.0-7.0**
CS74	9.5-11.4	**2.5-3.0**	11.4-15.1	**3.0-4.0**	15.1-26.5	**4.0-7.0**
CP74	9.5-11.4	**2.5-3.0**	11.4-15.1	**3.0-4.0**	15.1-26.5	**4.0-7.0**
CS76	11.4-13.3	**3.0-3.5**	13.3-17.0	**3.5-4.5**	17.0-26.5	**4.5-7.0**
CP76	11.4-13.3	**3.0-3.5**	13.3-17.0	**3.5-4.5**	17.0-26.5	**4.5-7.0**

CS76 XT	11.4-13.3	**3.0-3.5**	13.3-17.0	**3.5-4.5**	17.0-26.5	**4.5-7.0**
CS54B	6.3-10.5	**1.7-2.8**	10.5-14.5	**2.8-3.9**	14.5-18.7	**3.9-5.0**
CP54B	6.3-10.5	**1.7-2.8**	10.5-14.5	**2.8-3.9**	14.5-18.7	**3.9-5.0**
CS56B	8.4-10.5	**2.2-2.8**	10.5-16.6	**2.8-4.4**	16.6-25.0	**4.4-6.6**
CP56B	8.4-10.5	**2.2-2.8**	10.5-16.6	**2.8-4.4**	16.6-25.0	**4.4-6.6**
CS64B	6.3-10.5	**1.7-2.8**	10.5-14.5	**2.8-3.9**	14.5-18.7	**3.9-5.0**
CS66B	8.4-10.5	**2.2-2.8**	10.5-16.6	**2.8-4.4**	16.6-25.0	**4.4-6.6**
CS68B	8.4-10.5	**2.2-2.8**	10.5-16.6	**2.8-4.4**	16.6-29.2	**4.4-7.7**
CP68B	8.4-10.5	**2.2-2.8**	10.5-16.6	**2.8-4.4**	16.6-29.2	**4.4-7.7**
CS74B	10.5-12.5	**2.8-3.3**	12.5-16.6	**3.3-4.4**	16.6-29.2	**4.4-7.7**
CP74B	10.5-12.5	**2.8-3.3**	12.5-16.6	**3.3-4.4**	16.6-29.2	**4.4-7.7**
CS76B	12.5-14.9	**3.3-3.9**	14.9-18.7	**3.9-5.0**	18.7-29.2	**5.0-7.7**
CS78B	12.5-14.9	**3.3-3.9**	14.9-18.7	**3.9-5.0**	18.7-29.2	**5.0-7.7**

MPACTION EQUIPMENT

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
SPHALT COMPACTORS						
CB-434D	5.7-7.6	**1.5-2.0**	7.6-11.4	**2.0-3.0**	11.4-15.2	**3.0-4.0**
CB-534D	5.7-7.6	**1.5-2.0**	7.6-11.4	**2.0-3.0**	11.4-15.2	**3.0-4.0**
CB-534D XW	5.7-7.6	**1.5-2.0**	7.6-11.4	**2.0-3.0**	11.4-15.2	**3.0-4.0**
CB-564D	8.6	**2.3**	10.4	**2.8**	13.3	**3.5**
CB54	8.5	**2.2**	9.4	**2.5**	11.0	**2.9**
CB64	8.5	**2.2**	9.4	**2.5**	11.0	**2.9**
CB44B	6.8	**1.8**	8.3	**2.2**	10.2	**2.7**
CD44B	6.8	**1.8**	8.3	**2.2**	10.2	**2.7**

CB54B	7.9	**2.1**	9.5	**2.5**	10.9	**2.9**
CD54B	6.8	**1.8**	8.3	**2.2**	10.2	**2.7**
IEUMATIC TIRED COMPACTORS						
PS-150C	8.0-11.0	**2.0-3.0**	11.0-13.0	**3.0-3.5**	13.0-15.0	**3.5-4.0**
PS-200B	8.0-11.0	**2.0-3.0**	11.0-13.0	**3.0-3.5**	13.0-15.0	**3.5-4.0**
PS-300C	13.0-15.0	**3.5-4.0**	15.0-17.0	**4.0-4.5**	17.0-23.0	**4.5-6.0**
PF-300C	13.0-15.0	**3.5-4.0**	15.0-17.0	**4.0-4.5**	17.0-23.0	**4.5-6.0**
PS-360C	7.4-9.8	**1.9-2.6**	9.8-12.4	**2.6-3.3**	12.4-14.5	**3.3-4.6**
CW14	8.0-11.0	**2.1-2.9**	11.0-13.0	**2.9-3.4**	13.0-15.0	**3.4-4.0**
CW34	7.4-9.8	**2.0-2.6**	9.8-12.4	**2.6-3.3**	12.4-14.5	**3.3-3.8**

Asphalt Compactors
Typical Application Description
relative to work application)

Low	Asphalt mix, 25-50 mm (**1-2 inch**) lifts. Static finish rolling, all lifts.
Medium	Asphalt mix, 51-100 mm (**2-4 inch**) lifts.
High	Asphalt mix, 101-150 mm (**4-6 inch**) lifts. Prepare granular base lifts.

Vibratory Soil Compactors
Typical Application Description
relative to work application)

Low	Granular soil not compacted to high density (<95 Proctor). Residential street work with lift thicknesses from 51-100 mm (**2-4 inch**) working the initial compaction. Level ground, minimal slopes and intermittent periods of waiting for base work completion or material delivery. Speeds in the middle of the low range (2-3 km/h [1-2 mph]). Minimal start and stop of the vibe function.
Medium	Granular soil compacted to density (>95 Proctor). Cohesive soils with padded drum and low/normal moisture content, blading <25%. Continuous operation on thicker lifts 101-200 mm (**4-8 inch**) or doing the final passes on stiffer materials or working at the top end of the low speed range. Working on slopes greater than 5% or rapid directional changes combined with start and stop of the vibe function.
High	Cohesive soil with padded drum and high moisture content. Combined high load factors from the medium duty application. Working on thick lifts 201-300 mm (**8-12 inch**), slopes greater than 15%, or applications requiring significant blade work. An example would be trench work with backfilling.

Load Factor Guide
average engine load factor based on application description for each range)

Low	Vibration 20-40%
Medium	Vibration 40-60%
High	Vibration 60-100%

Pneumatic Compactors
Typical Application Description
relative to work application)

Low	Asphalt mix, all lifts. Intermediate or finish rolling, chip seal. Level ground.
Medium	Asphalt mix, all lifts. Intermediate or finish rolling. Granular base breakdown <100 mm (**<4 inch**). Moderate grade.
High	Granular base or cold in place breakdown roller >100 mm (**4 inch**) lifts. Intermediate or finish rolling. Steep grades.

Load Factor Guide

average engine load factor based on application description for each range)
Low Vibration 30%-50%
Medium Vibration 50%-80%
High Vibration 80%-100%

MPACTION EQUIPMENT — UTILITY COMPACTORS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
314B, CB14B XW	1.5	**0.40**	1.9	**0.50**	2.2	**0.58**
3-214D	2.0-3.0	**0.5-1.0**	2.5-3.5	**0.5-1.0**	3.0-4.0	**1.0-1.5**
322	4.0	**1.06**	5.5	**1.45**	7.0	**1.85**
3-224D	2.0-4.0	**0.5-1.0**	3.0-4.0	**0.5-1.0**	3.5-4.5	**1.0-1.5**
3-225D	2.0-3.0	**0.5-1.0**	2.5-3.5	**0.5-1.0**	3.0-4.0	**1.0-1.5**
324, CB24 XT	4.0	**1.06**	5.5	**1.45**	7.0	**1.85**
C24	3.0	**0.79**	5.0	**1.32**	7.0	**1.85**
332	4.0	**1.06**	5.5	**1.45**	7.0	**1.85**
3-334E	3.8-5-7	**1.0-1.5**	5.7-7.0	**1.5-1.8**	7.0-10.0	**1.8-2.6**
3-335E	3.5-5.5	**0.9-1.4**	5.5-6.5	**1.4-1.7**	6.5-9.0	**1.7-2.4**
334, CB34 XW	2.0-3.2	**0.53-0.83**	3.2-4.5	**0.83-1.19**	4.5-6.0	**1.19-1.59**
C34	2.0-3.2	**0.53-0.83**	3.2-4.5	**0.83-1.19**	4.5-6.0	**1.19-1.59**

Utility Compactors — CB14, CB22, CB24, CB32, CC24

Typical Application Description
(relative to work application)
Low Asphalt mix, 25-50 mm (**1-2 inch**) lifts. Static finish rolling, all lifts.
Medium Asphalt mix, 25-50 mm (**1-2 inch**) lifts. Normal working conditions with vibe and static.
High Asphalt mix, 25-50 mm (**1-2 inch**) lifts. May include some soil compaction.

Load Factor Guide
(average engine load factor based on application description for each range)
Low Vibration 10-30%
Medium Vibration 30-60%
High Vibration 60-85%

Utility Compactors — CB34, CC34
Typical Application Description
(relative to work application)
Low Asphalt mix, 25-50 mm (**1-2 inch**) lifts. Static finish rolling, all lifts.
Medium Asphalt mix, 51-100 mm (**2-4 inch**) lifts.
High Asphalt mix, 101-150 mm (**4-6 inch**) lifts. Prepare granular base lifts.

Load Factor Guide
(average engine load factor based on application description for each range)
Low Vibration 20-40%
Medium Vibration 40-70%
High Vibration 80-100%

PHALT PAVERS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
P500E (106 kW/**142 hp**)	7.6-9.5	**2.0-2.5**	9.5-11.4	**2.5-3.0**	11.4-15.1	**3.0-4.0**
P555E (106 kW/**142 hp**)	7.6-9.5	**2.0-2.5**	9.5-11.4	**2.5-3.0**	11.4-15.1	**3.0-4.0**
P600D (129 kW/**174 hp**)	7.6-11.4	**2.0-3.0**	11.4-17.0	**3.0-4.5**	17.0-22.7	**4.5-6.0**
P655D (129 kW/**174 hp**)	7.6-11.4	**2.0-3.0**	11.4-17.0	**3.0-4.5**	17.0-24.6	**4.5-6.5**
P1000D (167 kW/**224 hp**)	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-24.6	**5.0-6.5**
P1055D (167 kW/**224 hp**)	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-26.5	**5.0-7.0**
P1000E (168 kW/**225 hp**)	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-24.6	**5.0-6.5**
P1055E (168 kW/**225 hp**)	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-26.5	**5.0-7.0**
S600D (129 kW/**174 hp**)	7.6-11.4	**2.0-3.0**	11.4-17.0	**3.0-4.5**	17.0-22.7	**4.5-6.0**
S655D (129 kW/**174 hp**)	7.6-11.4	**2.0-3.0**	11.4-17.0	**3.0-4.5**	17.0-24.6	**4.5-6.5**
S-260D	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-24.6	**5.0-6.5**
S-2455D	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-26.5	**5.0-7.0**
S1000E (168 kW/**225 hp**)	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-24.6	**5.0-6.5**
S1055E (168 kW/**225 hp**)	9.5-15.1	**2.5-4.0**	15.1-18.9	**4.0-5.0**	18.9-26.5	**5.0-7.0**

E: The above fuel usage rates assume typical idle times for screed warm up and machine clean up.

Typical Application Description

(relative to work application)

Low Narrow width paving, low production.
Medium 3-4 m (**10-12 feet**) width, 50-75 mm (**2-3 inch**) lift.
High Wide width, deep lift paving.

Load Factor Guide

(average engine load factor based on application description for each range)

Low 20%-30%
Medium 30%-40%
High 40%-50%

)LD PLANERS

lodel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
M102	15.6-22.3	**4.1-5.9**	22.3-29.0	**5.9-7.7**	29.0-35.7	**7.7-9.4**
M200	38.7-55.3	**10.2-14.6**	55.3-71.8	**14.6-19.0**	71.8-88.4	**19.0-23.4**
M201	45.5-60.6	**12.0-16.0**	60.6-83.4	**16.0-22.0**	83.4-106.1	**22.0-28.0**
M465	37.0-45.0	**10.0-12.0**	45.0-57.0	**12.0-15.0**	60.0-76.0	**16.0-20.0**
M565B	37.0-53.0	**10.0-14.0**	53.0-68.0	**14.0-18.0**	72.0-87.0	**19.0-23.0**

Typical Application Description
(relative to work application)
Low 50 mm (**2 inches**) or less cutting depth, 80% load cycle.
Medium 100 mm (**4 inches**) cutting depth.
High Steady, full depth.

Load Factor Guide
(average engine load factor based on application description for each range)
Low 35%-50%
Medium 50%-65%
High 65%-80%

)AD RECLAIMERS/SOIL STABILIZERS

lodel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
M250C	26.5-34.1	**7.0-9.0**	34.1-41.6	**9.0-11.0**	41.6-53.0	**11.0-14.0**
M300	26.5-34.1	**7.0-9.0**	34.1-41.6	**9.0-11.0**	41.6-53.0	**11.0-14.0**
M350B	53.1-68.2	**14.0-18.0**	68.2-83.4	**18.0-22.0**	83.4-94.8	**22.0-25.0**
M500	45.4-56.7	**12.0-15.0**	60.5-68.1	**16.0-18.0**	75.7-87.1	**20.0-23.0**

Typical Application Description
(relative to work application)
Low 150 mm **(6 inches)** soil/100 mm **(4 inches)** asphalt.
Medium 305 mm **(12 inches)** soil/150 mm **(6 inches)** asphalt.
High 457 mm **(18 inches)** soil/305 mm **(12 inches)** asphalt.

Load Factor Guide
(average engine load factor based on application description for each range)
Low 35%-60%
Medium 60%-80%
High 80%-90%

ACK LOADERS

lodel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal

53D	12.2-19.1	**3.2 -5.1**	19.1-24.4	**5.1-6.4**	24.4-29.6	**6.4-7.8**
63D	15.7-22.5	**4.2-5.9**	24.7-29.2	**6.5-7.7**	29.2-36.0	**7.7-9.5**
73D	24.5-28.4	**6.5-7.5**	28.4-37.8	**7.5-10.0**	37.8-45.0	**10.0-11.9**

Typical Application Description
(relative to work application)

Low — Site clearing of small vegetation, stripping top soil, carrying to stockpile. Backfilling and grading. Intermittent truck loading from stockpile. Free flowing, low density materials with standard bucket. Large amounts of idling. No impact.

Medium — Bank excavation, bank or stockpile loading. Intermittent ripping, basement digging of natural bed clays, sands, silts, gravels. Load and carry. Steady full throttle operation.

High — Loading shot rock, cobbles, glacial till, caliche. Continuous work on rock surfaces. Continuous excavating and loading from bank. High density materials in standard bucket. Land clearing and steel mill work. Large amount of ripping in tight, rocky materials. High impact conditions.

Load Factor Guide
(average engine load factor based on application description for each range)

Low 35%-50%
Medium 50%-65%
High 65%-80%

Product Link Information — Product Link measured over hundreds of Track-Type Loaders shows that more than 90% of the machines experience an average fuel consumption equal to or lower than those shown in the Low Application profile.

HEEL LOADERS AND INTEGRATED TOOLCARRIERS

odel	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S. gal
)1C (Inside Japan only)	0.0-1.5	**0.0-0.4**	1.5-3.4	**0.4-0.9**	3.4-4.9	**0.9-1.3**
)2C, 903C (Inside Japan only)	0.0-2.3	**0.0-0.6**	2.3-4.5	**0.6-1.2**	4.5-6.8	**1.2-1.8**
)6H2 (LRC)	0.0-4.2	**0.0-1.1**	4.2-8.3	**1.1-2.2**	8.3-12.1	**2.2-3.2**
)6H2 (HRC)	0.0-4.2	**0.0-1.1**	4.2-7.9	**1.1-2.1**	7.9-12.1	**2.1-3.2**
)7H2 (LRC)	0.0-4.2	**0.0-1.1**	4.2-8.3	**1.1-2.2**	8.3-12.1	**2.2-3.2**
)7H2 (HRC)	0.0-4.2	**0.0-1.1**	4.2-7.9	**1.1-2.1**	7.9-12.1	**2.1-3.2**
)8H2 (LRC)	0.0-4.2	**0.0-1.1**	4.2-8.3	**1.1-2.2**	8.3-12.1	**2.2-3.2**
)8H2 (HRC)	0.0-4.2	**0.0-1.1**	4.2-7.9	**1.1-2.1**	7.9-12.1	**2.1-3.2**
)4G2, IT14G2	5.0-6.5	**1.0-2.0**	8.0-10.5	**2.0-2.5**	11.5-13.0	**3.0-3.5**
)4K	3.5-5.9	**0.9-1.6**	5.5-8.9	**1.5-2.3**	8.5-11.8	**2.3-3.7**
)0K	3.6-6.2	**0.9-1.6**	5.8-9.3	**1.5-2.5**	9.0-12.5	**2.4-4.0**
)8K	3.6-6.2	**0.9-1.6**	5.9-9.4	**1.5-2.5**	9.0-12.5	**2.4-4.0**
)0H*	8.0-11.5	**2.1-3.0**	11.5-14.8	**3.0-3.9**	14.8-18.6	**3.9-4.9**
)0K/962K*	7.8-11.1	**2.1-2.9**	11.1-13.8	**2.9-3.6**	13.8-18.2	**3.6-4.8**
)2H, IT62H*	8.9-11.9	**2.4-3.1**	11.9-15.1	**3.1-4.0**	15.1-18.9	**4.0-5.0**
)2K*	8.6-11.5	**2.3-3.0**	11.5-14.6	**3.0-3.9**	14.6-18.3	**3.9-4.8**
)6H*	9.6-13.6	**2.5-3.6**	13.6-17.0	**3.6-4.5**	17.0-20.8	**4.5-5.5**
)6K*	10.3-14.2	**2.7-3.8**	14.2-17.8	**3.8-4.7**	17.8-22.4	**4.7-5.9**
)6K XE*	8.5-11.6	**2.3-3.1**	11.6-14.3	**3.1-3.8**	14.3-18.2	**3.8-4.8**
)2H*	12.4-17.0	**3.3-4.5**	17.0-21.1	**4.5-5.6**	21.1-26.0	**5.6-6.9**
)2K*	11.5-15.7	**3.0-4.2**	15.7-19.7	**4.2-5.2**	19.7-24.5	**5.2-6.5**
)0H*	15.4-20.7	**4.1-5.5**	20.7-26.2	**5.5-6.9**	26.2-33.2	**6.9-8.8**
)0K*	14.4-19.6	**3.8-5.2**	19.6-24.9	**5.2-6.6**	24.9-32.6	**6.6-8.6**
)6H*	19.0-27.3	**5.0-7.2**	27.3-35.8	**7.2-9.5**	35.8-44.3	**9.5-11.7**

0.67

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)6H	19.0-27.3	5.0-7.2	27.3-35.8	7.2-9.5	35.8-44.3	9.5-11.7
38H*	28.0-40.1	**7.4-10.6**	40.1-52.6	**10.6-13.9**	52.6-65.1	**13.9-17.2**
38K*	23.8-34.1	**6.3-9.0**	34.1-44.7	**9.0-11.8**	44.7-55.3	**11.8-14.6**
)0H*	42.0-58.3	**11.1-15.4**	58.3-75.0	**15.4-19.8**	75.0-91.6	**19.8-24.2**
)2K*	53.0-75.7	**14.0-20.0**	75.7-98.4	**20.0-26.0**	98.4-121.0	**26.0-32.0**
)3K*	61.3-87.4	**16.2-23.1**	87.4-113.6	**23.1-30.3**	113.6-140.0	**30.0-37.0**
)4F*	87.0-123.0	**23.0-32.5**	123.0-160.0	**32.5-42.4**	160.0-197.0	**42.2-52.0**

Medium and Large Wheel Loader (i.e. 950 through 980) and Large Wheel Loader (i.e. 988 through 994) hourly fuel rates are taken directly from customer chines registered on Product Link worldwide. Data from the top and bottom 5% of these customer machines has been excluded from the tables because it varies ely (15-60% from the extremes shown) and therefore is not considered representative of what the remaining 90% of customers experience. Hourly fuel sumption for the 90% of machines in the tables also varies depending upon geographical region, load factor variation between units, etc. Cat machines often used in more demanding applications which can account for differences between competitive models used in lighter duty applications. Consult your l Cat dealer for ways to more accurately estimate hourly fuel consumption for specific applications.

E: Medium Wheel Loaders
H Series: Not available in all regions. Contact your local Cat dealer for product availability.
Cat K Series: Tier 4 Interim/Stage IIIB
Only available in North America and Europe. Contact your local Cat dealer for product availability.

Compact Wheel Loaders
Typical Application Description
(relative to work application)

Low — Light industrial or construction site duties. Moving light loads with bucket or pallet forks. Not continuous duty, considerable idle time. Machine could be working on average 2 hours or less per day.

Medium — Intermittent aggregate truck loading from stockpile, hopper charging or load and carry on firm, smooth surfaces for short distances with minimal grades. Free flowing, low density materials. Light utility, industrial and construction applications. Light snowplowing.

High	Continuous truck loading from stockpile and hopper charging. Loading from bank or load and carry on normal surfaces with low to medium rolling resistance and slight adverse grades. Low to medium density materials in properly sized bucket. Assumes normal travel distances associated with high productivity stockpile load-out and batch plant applications.

Load Factor Guide
(percent of available horsepower required for each work application)

Low	0%-25%
Medium	25%-50%
High	50%-75%

Small, Medium and Large Wheel Loaders and Integrated Toolcarriers
Typical Application Description
(relative to work application)

Low	Intermittent aggregate truck loading from stockpile, hopper charging or load and carry on firm, smooth surfaces for short distances with minimal grades. Free flowing, low density materials. Light utility, industrial and construction applications. Light snowplowing. Most logging applications where there is considerable idling.
Medium	Continuous truck loading from stockpile and hopper charging. Loading from bank or load and carry on normal surfaces with low to medium rolling resistance and slight adverse grades. Low to medium density materials in properly sized bucket. Assumes normal travel distances associated with high productivity stockpile load-out and batch plant applications.
High	Loading shot rock (large loaders) from a face. Steady loading from very tight banks. Continuous work on rough or very soft surfaces with high rolling resistance. Load and carry in hard digging material with longer travel distances on poor surfaces with adverse grades. Handling high density materials with counterweighted machine.

Small and Medium Wheel Loader and Integrated Toolcarrier
Load Factor Guide
(average engine load factor based on application description for each range)
Fuel rates can vary for a specific load factor depending on model and application, therefore some overlap is shown in the load factor table.

Low	15%-30%
Medium	25%-35%
High	30%-45%

Large Wheel Loaders
Load Factor Guide
(average engine load factor based on application description for each range)

Low	35%-50%
Medium	50%-65%
High	65%-80%

Diesel engine power to Fuel Consumption table - Naturally aspirated Engines

Table based on fuel consumed at 240 g/kW hour

Power Unit			Fuel Consumption per hour			
hp	kW	kVA	lb	kg	liter	US gal
1	0.75	0.93	0.40	0.18	0.21	0.06
1.07	0.8	1	0.43	0.19	0.23	0.06
1.34	1	1.25	0.54	0.24	0.29	0.08
5	3.73	4.66	2.00	0.90	1.07	0.28
7	5.22	6.52	2.80	1.30	1.49	0.39

hp	kW	kVA	lb	kg	liter	US gal
10	7.46	9.32	4.00	1.80	2.13	0.56
12	9	11	4.80	2.20	2.56	0.68
15	11	14	6.00	2.70	3.20	0.85
18	13	17	7.20	3.25	3.84	1.01
20	15	19	8.00	3.50	4.26	1.13
22	16	21	8.80	4.00	4.69	1.24
25	19	23	10	4.5	5.33	1.41
35	26	33	14	6.4	7.46	1.97
50	37	47	20	9.1	10.66	2.82

hp	kW	kVA	lb	kg	liter	US gal
55	41	51	22	10	11.7	3.09
60	45	56	24	10.9	12.8	3.38
65	48	61	26	11.8	13.9	3.67
75	56	70	30	13.6	16	4.23
80	60	75	32	14.5	17.1	4.52
100	75	93	40	18	21.3	5.63

hp	kW	kVA	lb	kg	liter	US gal
120	89	112	48	22	25.6	6.76
150	112	140	60	27	32	8.45
200	149	186	80	36	42.6	11.25
220	164	205	88	40	46.9	12.39

300	224	280	120	54	63.9	16.88
310	231	289	124	56	66.1	17.46
350	261	326	140	80	64	19.71

hp	kW	kVA	lb	kg	liter	US gal
400	298	373	160	73	85.3	22.53
450	336	419	180	82	95.9	25.33
500	373	466	200	91	106.6	28.16
600	447	559	240	109	128	33.8
750	559	699	300	136	160	42.3
1000	746	932	400	181	213	56.3
hp	kW	kVA	lb	kg	liter	US gal

Approximate guide only, subject to change without notice

BDC for engine manuals and specs

https://barringtondieselclub.co.za/

Diesel engine power to Fuel Consumption turbocharged engines

Table based on fuel consumed at 192 g/kW hour

Power Unit			Fuel Consumption per hour			
hp	kW	kVA	lb	kg	liter	US gal
1	0.75	0.93	0.32	0.144	0.17	0.045
1.07	0.8	1	0.344	0.152	0.18	0.048
1.34	1	1.25	0.432	0.192	0.23	0.061
5	3.73	4.66	1.6	0.720	0.85	0.226
7	5.22	6.52	2.24	1.040	1.19	0.315

hp	kW	kVA	lb	kg	liter	US gal
10	7.46	9.32	3.2	1.440	1.70	0.450
12	9	11	3.84	1.760	2.05	0.541
15	11	14	4.8	2.160	2.56	0.676
18	13	17	5.76	2.600	3.07	0.811
20	15	19	6.4	2.800	3.41	0.900
22	16	21	7.04	3.200	3.75	0.991
25	19	23	8	3.600	4.26	1.126

35	26	33	11.2	5.120	5.97	1.577
50	37	47	16	7.280	8.53	2.253

hp	kW	kVA	lb	kg	liter	US gal
55	41	51	17.6	8.000	9.36	2.472
60	45	56	19.2	8.720	10.24	2.705
65	48	61	20.8	9.440	11.12	2.938
75	56	70	24	10.880	12.80	3.384
80	60	75	25.6	11.600	13.68	3.616
100	75	93	32	14.400	17.04	4.504

hp	kW	kVA	lb	kg	liter	US gal
120	89	112	38.4	17.600	20.48	5.408
150	112	140	48	21.600	25.60	6.760
200	149	186	64	28.800	34.08	9.000
220	164	205	70.4	32.000	37.52	9.910
300	224	280	96	43.200	51.12	13.500
310	231	289	99.2	44.800	52.88	13.968
350	261	326	112	64.000	51.20	15.768

hp	kW	kVA	lb	kg	liter	US gal
400	298	373	128	58.400	68.24	18.024
450	336	419	144	65.600	76.72	20.264
500	373	466	160	72.800	85.28	22.530
600	447	559	192	87.200	102.40	27.040
750	559	699	240	108.800	128.00	33.840
1000	746	932	320	144.800	170.40	45.040
hp	kW	kVA	lb	kg	liter	US gal

Approximate guide only, subject to change without notice

Table 2. EMFAC2017 Results - Construction

Vehicle Class	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)	Fuel	VMT (miles per day)	Fuel (1,000 gal per day)	Fuel Efficiency (miles per gallon)
LDA	GAS	154,312,637	5,096.55	30.28	DSL	1,405,949	29.72	47.31
LDT1	GAS	17,402,686	666.55	26.11	DSL	6,756	0.31	21.82
LDT2	GAS	52,851,239	2,173.39	24.32	DSL	384,253	11.04	34.80
			Average (LDA, LDT1, LDT2)	**27.75**				**37.81**
T7 Tractor Construction	DSL	250,084	37.80	6.62				

Construction Worker Fleet Mix

LDA	50%
LDT1	25%
LDT2	25%

Vendor and Delivery/Haul Truck Fleet Mix

HHDT	100%

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: Air District
Region: Antelope Valley AQMD
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2022	LDA	Aggregated	Aggregated	GAS	4040504.833	154312636.5	19063483.35	5096.55014
LOS ANGELES	2022	LDA	Aggregated	Aggregated	DSL	35580.70761	1405948.594	168445.7609	29.71915281
LOS ANGELES	2022	LDA	Aggregated	Aggregated	ELEC	79346.01523	3237232.352	396260.3789	0
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	GAS	466456.294	17402686.02	2155709.822	666.5509097
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	DSL	276.3592923	6755.981354	979.1709586	0.309652997
LOS ANGELES	2022	LDT1	Aggregated	Aggregated	ELEC	3550.873409	146697.1661	17760.7296	0
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	GAS	1395327.914	52851239.49	6550846.129	2173.392058
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	DSL	9029.025545	384253.17	44544.01587	11.04279173
LOS ANGELES	2022	LDT2	Aggregated	Aggregated	ELEC	14572.87567	476540.0157	73737.31066	0
LOS ANGELES	2022	T7 tractor constr	Aggregated	Aggregated	DSL	3625.325785	250084.1249	16389.95692	37.80397958
									8015.368685
									8015368.685

Gas	7936.493108	7936493.108	2896819984	2,925,609,569.96
Diesel	41.07159754	41071.59754	14991133.1	
Electricity	0	0	0	

4.5.4

Project Operational Energy Calculations

ITC Operational - MSF

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Automobile Care Center	78.00	1000sqft	1.79	78,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2026
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Operation only.

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3181	1.0000e-005	9.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9400e-003	1.9400e-003	1.0000e-005	0.0000	2.0600e-003
Energy	8.7900e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003	0.0000	296.9971	296.9971	0.0103	3.3900e-003	298.2653
Mobile	0.2970	1.3917	2.7888	0.0102	0.8733	8.0900e-003	0.8814	0.2340	7.5100e-003	0.2415	0.0000	950.1960	950.1960	0.0483	0.0000	951.4045
Waste						0.0000	0.0000		0.0000	0.0000	60.4832	0.0000	60.4832	3.5745	0.0000	149.8445
Water						0.0000	0.0000		0.0000	0.0000	2.3281	46.3663	48.6944	0.2410	6.0400e-003	56.5208
Total	**0.6239**	**1.4716**	**2.8569**	**0.0107**	**0.8733**	**0.0142**	**0.8875**	**0.2340**	**0.0136**	**0.2476**	**62.8113**	**1,293.5613**	**1,356.3726**	**3.8742**	**9.4300e-003**	**1,456.0372**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3181	1.0000e-005	9.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9400e-003	1.9400e-003	1.0000e-005	0.0000	2.0600e-003
Energy	8.7900e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003	0.0000	294.3503	294.3503	0.0102	3.3700e-003	295.6091
Mobile	0.2970	1.3917	2.7888	0.0102	0.8733	8.0900e-003	0.8814	0.2340	7.5100e-003	0.2415	0.0000	950.1960	950.1960	0.0483	0.0000	951.4045
Waste						0.0000	0.0000		0.0000	0.0000	60.4832	0.0000	60.4832	3.5745	0.0000	149.8445
Water						0.0000	0.0000		0.0000	0.0000	1.8625	39.3061	41.1686	0.1929	4.8500e-003	47.4376
Total	**0.6239**	**1.4716**	**2.8569**	**0.0107**	**0.8733**	**0.0142**	**0.8875**	**0.2340**	**0.0136**	**0.2476**	**62.3457**	**1,283.8543**	**1,346.2000**	**3.8260**	**8.2200e-003**	**1,444.2978**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.74**	**0.75**	**0.75**	**1.24**	**12.83**	**0.81**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/30/2026	12/29/2026	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2970	1.3917	2.7888	0.0102	0.8733	8.0900e-003	0.8814	0.2340	7.5100e-003	0.2415	0.0000	950.1960	950.1960	0.0483	0.0000	951.4045
Unmitigated	0.2970	1.3917	2.7888	0.0102	0.8733	8.0900e-003	0.8814	0.2340	7.5100e-003	0.2415	0.0000	950.1960	950.1960	0.0483	0.0000	951.4045

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	1,850.16	1,850.16	926.64	2,301,656	2,301,656
Total	1,850.16	1,850.16	926.64	2,301,656	2,301,656

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	16.60	8.40	6.90	33.00	48.00	19.00	21	51	28

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Automobile Care Center	0.544210	0.044379	0.208611	0.117175	0.014456	0.006301	0.020907	0.032661	0.002589	0.001903	0.005267	0.000705	0.000834

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	207.3566	207.3566	8.5600e-003	1.7700e-003	208.0984
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	210.0034	210.0034	8.6700e-003	1.7900e-003	210.7547
NaturalGas Mitigated	8.7900e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003	0.0000	86.9937	86.9937	1.6700e-003	1.5900e-003	87.5106
NaturalGas Unmitigated	8.7900e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003	0.0000	86.9937	86.9937	1.6700e-003	1.5900e-003	87.5106

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	1.6302e+006	8.7900e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003	0.0000	86.9937	86.9937	1.6700e-003	1.5900e-003	87.5106
Total		**8.7900e-003**	**0.0799**	**0.0671**	**4.8000e-004**		**6.0700e-003**	**6.0700e-003**		**6.0700e-003**	**6.0700e-003**	**0.0000**	**86.9937**	**86.9937**	**1.6700e-003**	**1.5900e-003**	**87.5106**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	1.6302e+006	8.7900e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003	0.0000	86.9937	86.9937	1.6700e-003	1.5900e-003	87.5106
Total		**8.7900e-003**	**0.0799**	**0.0671**	**4.8000e-004**		**6.0700e-003**	**6.0700e-003**		**6.0700e-003**	**6.0700e-003**	**0.0000**	**86.9937**	**86.9937**	**1.6700e-003**	**1.5900e-003**	**87.5106**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	659100	210.0034	8.6700e-003	1.7900e-003	210.7547
Total		**210.0034**	**8.6700e-003**	**1.7900e-003**	**210.7547**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	650793	207.3566	8.5600e-003	1.7700e-003	208.0984
Total		**207.3566**	**8.5600e-003**	**1.7700e-003**	**208.0984**

6.0 Area Detail

6.1 Mitigation Measures Area

ITC Operational - MSF - Los Angeles-South Coast County, Annual

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3181	1.0000e-005	9.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9400e-003	1.9400e-003	1.0000e-005	0.0000	2.0600e-003
Unmitigated	0.3181	1.0000e-005	9.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9400e-003	1.9400e-003	1.0000e-005	0.0000	2.0600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0362					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2819					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9400e-003	1.9400e-003	1.0000e-005	0.0000	2.0600e-003
Total	**0.3181**	**1.0000e-005**	**9.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9400e-003**	**1.9400e-003**	**1.0000e-005**	**0.0000**	**2.0600e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0362					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2819					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9400e-003	1.9400e-003	1.0000e-005	0.0000	2.0600e-003
Total	**0.3181**	**1.0000e-005**	**9.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9400e-003**	**1.9400e-003**	**1.0000e-005**	**0.0000**	**2.0600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	41.1686	0.1929	4.8500e-003	47.4376
Unmitigated	48.6944	0.2410	6.0400e-003	56.5208

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	7.33833 / 4.49768	48.6944	0.2410	6.0400e-003	56.5208
Total		**48.6944**	**0.2410**	**6.0400e-003**	**56.5208**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	5.87066 / 4.22333	41.1686	0.1929	4.8500e-003	47.4376
Total		**41.1686**	**0.1929**	**4.8500e-003**	**47.4376**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	60.4832	3.5745	0.0000	149.8445
Unmitigated	60.4832	3.5745	0.0000	149.8445

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	297.96	60.4832	3.5745	0.0000	149.8445
Total		**60.4832**	**3.5745**	**0.0000**	**149.8445**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	297.96	60.4832	3.5745	0.0000	149.8445
Total		**60.4832**	**3.5745**	**0.0000**	**149.8445**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

4.5.5

Operational Vehicle Fuel Calculations

Table 1. On road Vehicles - Operational

Scenario	Annual VMT	Fuel Consumption (		
		Gasoline	Diesel	Total
2016 (Baseline) Non-Event w/out ITC	998,811,151	42,971,924	5,982,867	48,954,790
2016 (Baseline) Non-Event w/ ITC	992,253,218	42,689,781	5,943,585	48,633,366

Table 2. Fuel Consumption Summary

Fuel	Fuel Efficiency (MPG)	%Fleet
Gasoline	22.1	94.9%
Diesel	8.2	4.9%
Natural Gas	3.6	0.2%

Notes:

Percent fleet based on VMT from EMFAC2017 as shown in ***Table 3: EMFAC2017 Emissions Inventory-Operations***

Annual VMT obtained from Project's Traffic Study

Fuel efficiency based on calculations in ***Table 3: EMFAC2017 Emissions Inventory-Operations,*** *from EMFAC2017.*

Table 3. EMFAC2017 Emissions Inventory - Operations

Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	259,391,978	11,760	22.1	94.9
DSL	13,389,830	1,637	8.2	4.9
Natural Gas	469,435	131	3.6	0.2

Note: Fuel percentage based on VMT.
Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Los Angeles
Calendar Year: 2016
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2016	All Other Buses	Aggregated	Aggregated	DSL	2138.46	113209.2828	17963.064	12.6442534
LOS ANGELES	2016	LDA	Aggregated	Aggregated	DSL	21067.71865	806255.9688	95644.925	20.4228593
LOS ANGELES	2016	LDT1	Aggregated	Aggregated	DSL	447.735448	11734.43885	1630.2595	0.56137869
LOS ANGELES	2016	LDT2	Aggregated	Aggregated	DSL	3466.986687	164337.0143	17141.479	5.6469697
LOS ANGELES	2016	LHD1	Aggregated	Aggregated	DSL	38408.49639	1540709.488	483130.57	78.655844
LOS ANGELES	2016	LHD2	Aggregated	Aggregated	DSL	15549.02758	614559.8744	195587.21	34.7948328
LOS ANGELES	2016	MDV	Aggregated	Aggregated	DSL	7944.23717	346725.2087	39168.525	15.4927421
LOS ANGELES	2016	MH	Aggregated	Aggregated	DSL	4371.697839	45082.92559	437.16978	4.55008908
LOS ANGELES	2016	Motor Coach	Aggregated	Aggregated	DSL	661.3628765	80747.15687	9655.898	13.9648582
LOS ANGELES	2016	PTO	Aggregated	Aggregated	DSL	0	72318.33803	0	15.7732451
LOS ANGELES	2016	SBUS	Aggregated	Aggregated	DSL	3694.44	116700.4578	42633.325	16.0978939
LOS ANGELES	2016	T6 Ag	Aggregated	Aggregated	DSL	12.38	121.613821	54.472	0.01450087
LOS ANGELES	2016	T6 CAIRP heavy	Aggregated	Aggregated	DSL	291.4373506	57826.53333	4254.9853	5.83142459
LOS ANGELES	2016	T6 CAIRP small	Aggregated	Aggregated	DSL	150.5312505	8032.845108	2197.7563	0.85742753
LOS ANGELES	2016	T6 instate construct	Aggregated	Aggregated	DSL	2250.634547	144074.8956	10175.031	15.782558
LOS ANGELES	2016	T6 instate construct	Aggregated	Aggregated	DSL	8107.002839	379850.1347	36651.445	41.6328043
LOS ANGELES	2016	T6 instate heavy	Aggregated	Aggregated	DSL	8492.719331	1125302.629	98004.804	119.526876
LOS ANGELES	2016	T6 instate small	Aggregated	Aggregated	DSL	34741.30911	1622910.396	400909.89	178.193747
LOS ANGELES	2016	T6 OOS heavy	Aggregated	Aggregated	DSL	167.0542432	33132.24678	2438.992	3.34125716

LOS ANGELES	2016	T6 OOS small	Aggregated	Aggregated	DSL	86.34894989	4606.228323	1260.6947	0.49168981
LOS ANGELES	2016	T6 Public	Aggregated	Aggregated	DSL	4559.28	67137.50149	13829.816	9.31807226
LOS ANGELES	2016	T6 utility	Aggregated	Aggregated	DSL	961.4275752	16228.68586	11056.417	1.91620049
LOS ANGELES	2016	T7 Ag	Aggregated	Aggregated	DSL	5.07	152.7751829	22.308	0.02886847
LOS ANGELES	2016	T7 CAIRP	Aggregated	Aggregated	DSL	4901.512431	985492.3764	71562.081	162.044108
LOS ANGELES	2016	T7 CAIRP constructi	Aggregated	Aggregated	DSL	514.335215	103490.2491	2325.2895	16.4514541
LOS ANGELES	2016	T7 NNOOS	Aggregated	Aggregated	DSL	5771.178606	1201370.729	84259.208	190.7716
LOS ANGELES	2016	T7 NOOS	Aggregated	Aggregated	DSL	1925.850234	387200.5792	28117.413	64.8064614
LOS ANGELES	2016	T7 POLA	Aggregated	Aggregated	DSL	7075.548193	784275.8764	53774.166	147.056775
LOS ANGELES	2016	T7 Public	Aggregated	Aggregated	DSL	5204	105353.9187	15785.467	20.3661484
LOS ANGELES	2016	T7 Single	Aggregated	Aggregated	DSL	5731.88	364209.6056	66145.101	61.2619508
LOS ANGELES	2016	T7 single constructi	Aggregated	Aggregated	DSL	3985.749545	256740.2729	18019.419	42.6074756
LOS ANGELES	2016	T7 SWCV	Aggregated	Aggregated	DSL	2945.58425	120099.9107	11487.779	60.0082604
LOS ANGELES	2016	T7 tractor	Aggregated	Aggregated	DSL	10352.77225	1471080.058	131480.21	235.618161
LOS ANGELES	2016	T7 tractor construct	Aggregated	Aggregated	DSL	3086.428192	211788.1215	13953.622	35.3252684
LOS ANGELES	2016	T7 utility	Aggregated	Aggregated	DSL	387.0776208	7851.467152	4451.3926	1.34809117
LOS ANGELES	2016	UBUS	Aggregated	Aggregated	DSL	166.2637	19120.19484	665.0548	3.62894002
LOS ANGELES	2016	LDA	Aggregated	Aggregated	GAS	3820615.273	155045643.9	17965828	5900.92598
LOS ANGELES	2016	LDT1	Aggregated	Aggregated	GAS	382082.9751	14449261.88	1721498.3	644.396323
LOS ANGELES	2016	LDT2	Aggregated	Aggregated	GAS	1263434.518	49644392.92	5869399.9	2497.99562
LOS ANGELES	2016	LHD1	Aggregated	Aggregated	GAS	111308.0354	4144401.088	1658323.9	418.752957
LOS ANGELES	2016	LHD2	Aggregated	Aggregated	GAS	17376.20245	618067.3362	258879.53	71.734405
LOS ANGELES	2016	MCY	Aggregated	Aggregated	GAS	137181.9733	1007078.771	274363.95	28.2249393
LOS ANGELES	2016	MDV	Aggregated	Aggregated	GAS	874873.145	32065700.16	4027451.6	1931.5156
LOS ANGELES	2016	MH	Aggregated	Aggregated	GAS	20553.28162	191118.542	2056.1503	39.8061822
LOS ANGELES	2016	OBUS	Aggregated	Aggregated	GAS	4148.222243	199383.2655	82997.631	42.0683137
LOS ANGELES	2016	SBUS	Aggregated	Aggregated	GAS	796.0779378	34984.39772	3184.3118	4.01732495
LOS ANGELES	2016	T6TS	Aggregated	Aggregated	GAS	15101.0826	803001.3185	302142.46	170.289714
LOS ANGELES	2016	T7IS	Aggregated	Aggregated	GAS	112.4702183	6348.550496	2250.3041	1.80325527
LOS ANGELES	2016	UBUS	Aggregated	Aggregated	GAS	442.7049674	32431.22399	1770.8199	8.04748812
LOS ANGELES	2016	LDA	Aggregated	Aggregated	ELEC	29408.68509	1064830.67	149783.47	0
LOS ANGELES	2016	LDT1	Aggregated	Aggregated	ELEC	875.2472185	25722.5354	4157.0519	0
LOS ANGELES	2016	LDT2	Aggregated	Aggregated	ELEC	1531.06502	56514.7472	7857.2702	0
LOS ANGELES	2016	MDV	Aggregated	Aggregated	ELEC	91.43724084	1879.144368	389.94576	0
LOS ANGELES	2016	UBUS	Aggregated	Aggregated	ELEC	14	1217.553685	56	0
LOS ANGELES	2016	T7 SWCV	Aggregated	Aggregated	NG	1388.21575	56190.0208	5414.0414	27.4664129
LOS ANGELES	2016	UBUS	Aggregated	Aggregated	NG	3903.218967	413244.597	15612.876	103.324045

	VMT Sum	Fuel Sum	Fuel Sum/Year
Diesel	13389830	1636.835087	**597,444,807**
Gas	259391978	11759.5781	**4,292,246,007**
Natural Gas	469434.6178	130.7904581	**47,738,517**
			4,937,429,331

Table 1. On road Vehicles - Operational

Scenario	Annual VMT	Fuel Consumption (		
		Gasoline	Diesel	Total
2026 (Future) Non-Event w/out ITC	1,245,731,160	39,280,333	7,441,883	46,722,216
2026 (Future) Non-Event w/ ITC	1,235,569,208	38,959,907	7,381,177	46,341,084
2026 (Future) Event w/out ITC	1,346,432,106	42,455,631	8,043,461	50,499,092
2026 (Future) Event w/ ITC	1,316,518,609	41,512,400	7,864,761	49,377,161

Table 2. Fuel Consumption Summary

Fuel	Fuel Efficiency (MPG)	%Fleet
Gasoline	29.5	92.9%
Diesel	11.6	6.9%
Natural Gas	3.4	0.2%

Notes:

Percent fleet based on VMT from EMFAC2017 as shown in ***Table 3: EMFAC2017 Emissions Inventory-Operations***

Annual VMT obtained from Project's Traffic Study

Fuel efficiency based on calculations in ***Table 3: EMFAC2017 Emissions Inventory-Operations,*** *from EMFAC2017.*

Table 3. EMFAC2017 Emissions Inventory - Operations

Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	272,510,146	9,249	29.5	92.9
DSL	20,395,211	1,766	11.6	6.9
Natural Gas	588,459	172	3.4	0.2

Note: Fuel percentage based on VMT.
Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Los Angeles
Calendar Year: 2026
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2026	All Other Buses	Aggregated	Aggregated	DSL	2800.332487	163193.3522	23522.793	14.7067726
LOS ANGELES	2026	LDA	Aggregated	Aggregated	DSL	42630.17183	1610940.873	203193.82	30.766779
LOS ANGELES	2026	LDT1	Aggregated	Aggregated	DSL	197.4956096	4859.849358	713.06455	0.20906581
LOS ANGELES	2026	LDT2	Aggregated	Aggregated	DSL	12200.61346	472830.6278	59382.108	12.253695
LOS ANGELES	2026	LHD1	Aggregated	Aggregated	DSL	84468.87954	3343656.583	1062512.2	144.512028
LOS ANGELES	2026	LHD2	Aggregated	Aggregated	DSL	34321.65125	1304546.096	431723.2	62.6691264
LOS ANGELES	2026	MDV	Aggregated	Aggregated	DSL	26598.92965	968712.2721	129119.27	32.4270623
LOS ANGELES	2026	MH	Aggregated	Aggregated	DSL	7291.804859	72792.55398	729.18049	6.53964514
LOS ANGELES	2026	Motor Coach	Aggregated	Aggregated	DSL	775.6781102	99483.67703	11324.9	14.167554
LOS ANGELES	2026	PTO	Aggregated	Aggregated	DSL	0	82221.22142	0	15.4105743
LOS ANGELES	2026	SBUS	Aggregated	Aggregated	DSL	3950.104551	124601.8222	45583.659	15.6381513
LOS ANGELES	2026	T6 Ag	Aggregated	Aggregated	DSL	12.60057105	81.48968032	55.442513	0.00949899
LOS ANGELES	2026	T6 CAIRP heavy	Aggregated	Aggregated	DSL	389.0796144	71870.33589	5680.5624	5.56505661
LOS ANGELES	2026	T6 CAIRP small	Aggregated	Aggregated	DSL	209.7931498	10191.58691	3062.98	0.86032265
LOS ANGELES	2026	T6 instate construct	Aggregated	Aggregated	DSL	2765.722415	172769.4835	12503.724	15.7066178
LOS ANGELES	2026	T6 instate construct	Aggregated	Aggregated	DSL	8746.373021	458684.4357	39542.012	40.8079792
LOS ANGELES	2026	T6 instate heavy	Aggregated	Aggregated	DSL	12801.74439	1619119.143	147730.36	133.983811
LOS ANGELES	2026	T6 instate small	Aggregated	Aggregated	DSL	44035.36383	2175484.205	508161.99	191.961277
LOS ANGELES	2026	T6 OOS heavy	Aggregated	Aggregated	DSL	225.6799622	41749.92709	3294.9274	3.23124405

LOS ANGELES	2026	T6 OOS small	Aggregated	Aggregated	DSL	119.9294131	5787.78576	1750.9694	0.48934619
LOS ANGELES	2026	T6 Public	Aggregated	Aggregated	DSL	4690.801659	74019.76899	14228.765	8.40530375
LOS ANGELES	2026	T6 utility	Aggregated	Aggregated	DSL	1065.167469	17699.00912	12249.426	1.68388318
LOS ANGELES	2026	T7 Ag	Aggregated	Aggregated	DSL	6.694377464	46.60745615	29.455261	0.00898467
LOS ANGELES	2026	T7 CAIRP	Aggregated	Aggregated	DSL	6505.60652	1212416.535	94981.855	157.981449
LOS ANGELES	2026	T7 CAIRP constructi	Aggregated	Aggregated	DSL	678.1059612	124101.8208	3065.6907	15.4106025
LOS ANGELES	2026	T7 NNOOS	Aggregated	Aggregated	DSL	7884.227738	1477930.836	115109.72	181.290279
LOS ANGELES	2026	T7 NOOS	Aggregated	Aggregated	DSL	2595.359427	476381.6564	37892.248	63.7953814
LOS ANGELES	2026	T7 POLA	Aggregated	Aggregated	DSL	9021.171763	1324204.723	68560.905	201.09714
LOS ANGELES	2026	T7 Public	Aggregated	Aggregated	DSL	5739.247789	116253.6081	17409.052	18.7136803
LOS ANGELES	2026	T7 Single	Aggregated	Aggregated	DSL	6206.38116	414082.5057	71620.778	57.9373319
LOS ANGELES	2026	T7 single constructi	Aggregated	Aggregated	DSL	4393.341203	307873.7913	19862.125	41.7315082
LOS ANGELES	2026	T7 SWCV	Aggregated	Aggregated	DSL	939.2729169	38375.94141	3663.1644	18.8656244
LOS ANGELES	2026	T7 tractor	Aggregated	Aggregated	DSL	14241.95942	1741713.209	180872.88	220.315993
LOS ANGELES	2026	T7 tractor construct	Aggregated	Aggregated	DSL	3735.353838	253968.7724	16887.389	34.7352578
LOS ANGELES	2026	T7 utility	Aggregated	Aggregated	DSL	421.8226018	8555.598013	4850.9599	1.30579906
LOS ANGELES	2026	UBUS	Aggregated	Aggregated	DSL	27.0834	4008.967815	108.3336	0.59035316
LOS ANGELES	2026	LDA	Aggregated	Aggregated	GAS	4187855.626	151809382.5	19744735	4507.98601
LOS ANGELES	2026	LDT1	Aggregated	Aggregated	GAS	521800.4367	18505351.89	2419987.4	642.24552
LOS ANGELES	2026	LDT2	Aggregated	Aggregated	GAS	1500002.767	54105073.64	7049551.1	1946.71286
LOS ANGELES	2026	LHD1	Aggregated	Aggregated	GAS	107090.5754	3784880.978	1595490	343.718587
LOS ANGELES	2026	LHD2	Aggregated	Aggregated	GAS	18657.16584	635997.9639	277963.97	66.3795912
LOS ANGELES	2026	MCY	Aggregated	Aggregated	GAS	207060.5269	1375739.644	414121.05	38.7642651
LOS ANGELES	2026	MDV	Aggregated	Aggregated	GAS	980977.1626	33032008.24	4562970.7	1467.66773
LOS ANGELES	2026	MH	Aggregated	Aggregated	GAS	19677.43918	198228.5303	1968.531	36.2498783
LOS ANGELES	2026	OBUS	Aggregated	Aggregated	GAS	4004.531	155211.1283	80122.656	29.2130691
LOS ANGELES	2026	SBUS	Aggregated	Aggregated	GAS	1807.69297	70232.26885	7230.7719	7.31833849
LOS ANGELES	2026	T6TS	Aggregated	Aggregated	GAS	15276.18019	832629.6901	305645.81	154.650402
LOS ANGELES	2026	T7IS	Aggregated	Aggregated	GAS	51.32177248	6638.276215	1026.846	1.46915147
LOS ANGELES	2026	UBUS	Aggregated	Aggregated	GAS	475.0405217	34373.91642	1900.1621	7.1148495
LOS ANGELES	2026	LDA	Aggregated	Aggregated	ELEC	141707.4632	5984519.434	702863.43	0
LOS ANGELES	2026	LDT1	Aggregated	Aggregated	ELEC	8699.999924	376311.3184	43466.244	0
LOS ANGELES	2026	LDT2	Aggregated	Aggregated	ELEC	32175.25695	964442.2436	160887.13	0
LOS ANGELES	2026	MDV	Aggregated	Aggregated	ELEC	20789.14044	637906.6851	104765.07	0
LOS ANGELES	2026	UBUS	Aggregated	Aggregated	ELEC	14	1217.553685	56	0
LOS ANGELES	2026	T7 SWCV	Aggregated	Aggregated	NG	3293.213673	134130.7037	12843.533	56.1068639
LOS ANGELES	2026	UBUS	Aggregated	Aggregated	NG	4287.27204	454328.237	17149.088	115.565806

	VMT Sum	Fuel Sum	Fuel Sum/Year
Diesel	20395210.67	1765.784178	**644,511,225**
Gas	272510145.9	9249.490259	**3,376,063,945**
Natural Gas	588458.9407	171.6726696	**62,660,524**
			4,083,235,694

Table 1. On road Vehicles - Operational

Scenario	Annual VMT	Fuel Consumption (		
		Gasoline	Diesel	Total
2045 (Future) Non-Event w/out ITC	1,369,204,193	33,718,722	7,996,175	41,714,897
2045 (Future) Non-Event w/ ITC	1,357,349,494	33,426,782	7,926,943	41,353,725
2045 (Future) Event w/out ITC	1,469,905,139	36,198,634	8,584,270	44,782,905
2045 (Future) Event w/ ITC	1,433,075,931	35,291,660	8,369,187	43,660,847

Table 2. Fuel Consumption Summary

Fuel	Fuel Efficiency (MPG)	%Fleet
Gasoline	37.1	91.4%
Diesel	14.4	8.4%
Natural Gas	3.6	0.2%

Notes:

Percent fleet based on VMT from EMFAC2017 as shown in ***Table 3: EMFAC2017 Emissions Inventory-Operations***

Annual VMT obtained from Project's Traffic Study

Fuel efficiency based on calculations in ***Table 3: EMFAC2017 Emissions Inventory-Operations,*** *from EMFAC2017.*

Table 3. EMFAC2017 Emissions Inventory - Operations

Fuel	VMT (miles/day)	Fuel Consumption (1,000 gal/day)	Fuel Efficiency (miles per gallon)	Fuel Percentage
GAS	284,617,654	7,669	37.1	91.4
DSL	26,050,423	1,811	14.4	8.4
Natural Gas	719,351	201	3.6	0.2

Note: Fuel percentage based on VMT.
Fuel efficiency calculated using fuel consumption and VMT from EMFAC2017.

Buildout

EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Los Angeles
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
LOS ANGELES	2045	All Other Buses	Aggregated	Aggregated	DSL	4160.446695	217622.7163	34947.752	17.1112367
LOS ANGELES	2045	LDA	Aggregated	Aggregated	DSL	58620.54216	1871522.657	276646.85	30.4461662
LOS ANGELES	2045	LDT1	Aggregated	Aggregated	DSL	99.01748743	2948.130769	449.65056	0.09306953
LOS ANGELES	2045	LDT2	Aggregated	Aggregated	DSL	18888.93099	592209.7663	88558.648	12.8189248
LOS ANGELES	2045	LHD1	Aggregated	Aggregated	DSL	143747.3637	4419777.453	1808161	166.071204
LOS ANGELES	2045	LHD2	Aggregated	Aggregated	DSL	58478.77848	1731691.395	735589.47	72.3826014
LOS ANGELES	2045	MDV	Aggregated	Aggregated	DSL	42211.98811	1247535.498	196887.72	34.8459151
LOS ANGELES	2045	MH	Aggregated	Aggregated	DSL	11462.39772	91376.82184	1146.2398	7.12686895
LOS ANGELES	2045	Motor Coach	Aggregated	Aggregated	DSL	985.931923	123212.6205	14394.606	14.6194559
LOS ANGELES	2045	PTO	Aggregated	Aggregated	DSL	0	96559.54668	0	14.5151294
LOS ANGELES	2045	SBUS	Aggregated	Aggregated	DSL	4551.398088	144413.8002	52522.503	13.8175228
LOS ANGELES	2045	T6 Ag	Aggregated	Aggregated	DSL	5.488105617	4.523188915	24.147665	0.00083426
LOS ANGELES	2045	T6 CAIRP heavy	Aggregated	Aggregated	DSL	545.8363808	89064.85254	7969.2112	5.83351066
LOS ANGELES	2045	T6 CAIRP small	Aggregated	Aggregated	DSL	301.5507018	12674.06432	4402.6402	0.93088368
LOS ANGELES	2045	T6 instate construct	Aggregated	Aggregated	DSL	2307.374395	154488.997	10431.55	12.1478781
LOS ANGELES	2045	T6 instate construct	Aggregated	Aggregated	DSL	8410.459373	415909.0141	38023.36	30.8719481
LOS ANGELES	2045	T6 instate heavy	Aggregated	Aggregated	DSL	21369.45158	2132030.517	246600.51	147.752507
LOS ANGELES	2045	T6 instate small	Aggregated	Aggregated	DSL	62538.96006	2799610.732	721690.93	208.014273
LOS ANGELES	2045	T6 OOS heavy	Aggregated	Aggregated	DSL	315.4744926	51828.14664	4605.9276	3.39348449

LOS ANGELES	2045	T6 OOS small	Aggregated	Aggregated	DSL	173.5312419	7187.232024	2533.5561	0.52904548
LOS ANGELES	2045	T6 Public	Aggregated	Aggregated	DSL	5594.801474	86866.578	16970.898	7.93605794
LOS ANGELES	2045	T6 utility	Aggregated	Aggregated	DSL	1208.402646	20134.26458	13896.63	1.61731244
LOS ANGELES	2045	T7 CAIRP	Aggregated	Aggregated	DSL	7211.501205	1500409.665	105287.92	148.602327
LOS ANGELES	2045	T7 CAIRP constructi	Aggregated	Aggregated	DSL	635.4569327	110970.7885	2872.8761	11.2500083
LOS ANGELES	2045	T7 NNOOS	Aggregated	Aggregated	DSL	11226.27016	1828916.252	163903.54	191.055854
LOS ANGELES	2045	T7 NOOS	Aggregated	Aggregated	DSL	2865.834749	589562.0706	41841.187	59.8004655
LOS ANGELES	2045	T7 POLA	Aggregated	Aggregated	DSL	12028.61716	2507404.939	91417.49	274.452297
LOS ANGELES	2045	T7 Public	Aggregated	Aggregated	DSL	6562.655557	132956.4921	19906.722	15.8905217
LOS ANGELES	2045	T7 Single	Aggregated	Aggregated	DSL	6089.311924	486293.1777	70269.815	53.9743069
LOS ANGELES	2045	T7 single constructi	Aggregated	Aggregated	DSL	3609.153513	275298.1155	16316.843	29.9352598
LOS ANGELES	2045	T7 SWCV	Aggregated	Aggregated	DSL	98.00302906	4002.963247	382.21181	1.83646651
LOS ANGELES	2045	T7 tractor	Aggregated	Aggregated	DSL	16613.44806	2069084.855	210990.79	196.113434
LOS ANGELES	2045	T7 tractor construct	Aggregated	Aggregated	DSL	3059.37014	227096.7078	13831.293	24.2397542
LOS ANGELES	2045	T7 utility	Aggregated	Aggregated	DSL	481.2637037	9757.956806	5534.5326	1.10323878
LOS ANGELES	2045	UBUS	Aggregated	Aggregated	DSL	0	0	0	0
LOS ANGELES	2045	LDA	Aggregated	Aggregated	GAS	4751020.081	150405108.3	22333884	3673.21739
LOS ANGELES	2045	LDT1	Aggregated	Aggregated	GAS	688085.8398	20759661.39	3158780.6	588.690603
LOS ANGELES	2045	LDT2	Aggregated	Aggregated	GAS	1843259.518	57318729.87	8590032.6	1606.41169
LOS ANGELES	2045	LHD1	Aggregated	Aggregated	GAS	121193.9758	3810879.099	1805609.7	296.87249
LOS ANGELES	2045	LHD2	Aggregated	Aggregated	GAS	22324.8176	672125.3068	332606.52	60.1296775
LOS ANGELES	2045	MCY	Aggregated	Aggregated	GAS	295582.3083	1523709.895	591164.62	43.7533169
LOS ANGELES	2045	MDV	Aggregated	Aggregated	GAS	1182417.529	34574043.71	5466805.9	1182.57773
LOS ANGELES	2045	MH	Aggregated	Aggregated	GAS	23767.40038	209666.0345	2377.6907	32.8323914
LOS ANGELES	2045	OBUS	Aggregated	Aggregated	GAS	4282.060074	145896.4647	85675.458	23.218056
LOS ANGELES	2045	SBUS	Aggregated	Aggregated	GAS	3270.931289	111935.2572	13083.725	10.0198137
LOS ANGELES	2045	T6TS	Aggregated	Aggregated	GAS	18881.31426	902721.2629	377777.34	142.413548
LOS ANGELES	2045	T7IS	Aggregated	Aggregated	GAS	73.41229088	8391.910547	1468.8331	1.53007778
LOS ANGELES	2045	UBUS	Aggregated	Aggregated	GAS	527.5566572	38138.55255	2110.2266	6.97617863
LOS ANGELES	2045	LDA	Aggregated	Aggregated	ELEC	310027.7052	10073972.23	1469713.1	0
LOS ANGELES	2045	LDT1	Aggregated	Aggregated	ELEC	26549.24356	825890.5826	124055.08	0
LOS ANGELES	2045	LDT2	Aggregated	Aggregated	ELEC	84454.45584	1869730.253	398476.59	0
LOS ANGELES	2045	MDV	Aggregated	Aggregated	ELEC	62154.10603	1367053.685	292578.12	0
LOS ANGELES	2045	T7 SWCV	Aggregated	Aggregated	NG	5137.471294	209465.5453	20036.138	71.458606
LOS ANGELES	2045	UBUS	Aggregated	Aggregated	NG	4802.397532	509885.2599	19209.59	129.642675

	VMT Sum	Fuel Sum	Fuel Sum/Year
Diesel	26050423.31	1811.129763	**661,062,364**

Gas	284617653.8	7668.642963	**2,799,054,682**
Natural Gas	719350.8052	201.1012806	**73,401,967**
			3,533,519,012