

Energy Use Summary

Construction Phase (gallons/construction period)	Gasoline	Diesel
Construction Vehicles	46,522	21,426
Worker Trips	26,049	124
Vendor Trips	2,904	48
Haul Trucks	0	252
Total	75,475	21,850

Operations Phase (gallons/year)	Gasoline	Diesel	Natural Gas (kBTU/yr)	Electricity (kWh/yr)
Library	242,820	24,997	767,695	167,381
Office Park	54,109	5,570	345,164	229,683
Apartments	65,182	6,710	1,362,885	293,878
Civic Center	65,301	7,785	584,123	388,694
All Land Uses	427,413	45,062	3,059,867	1,079,636

Operations Onroad Energy Use

Year 2024

Vehicle Types	MPG by Fuel Type			Population by Fuel Type			
	GAS	DSL	ELEC	GAS	DSL	ELEC	Total
LDA	32.5	51.2		6,721,891	65,702	176,700	6,787,593
LDT1	27.8	23.2		779,749	337	9,098	780,085
LDT2	26.3	37.5		2,324,382	16,867	35,655	2,341,248
LHDT1	10.8	22.2		174,005	131,545		305,550
LHDT2	9.4	20.0		30,199	52,581		82,780
MCY	36.2			313,846			313,846
MDV	21.3	28.8		1,599,677	38,790	21,547	1,638,467
MH	5.3	10.8		34,296	13,472		47,768
MHDT	5.2	11.3		25,804	127,715		153,519
HHDT	4.4	7.2		74	112,561		112,635
OBUS	5.2	8.8		5,954	4,446		10,401
SBUS	9.3	7.8		2,938	6,710		9,648
UBUS	5.3	5.7		963	10	16	974

Trips/Day Land Use	Trips/day Saturday	Trips/day Sunday	Trips/day Sunday	Total Weekly	VMT/day Weekday	VMT/day Saturday	VMT/day Sunday	Trip Length
Library	1,297.00	1,442.00	755.00	865	19,651	21,548	11,485	15.15
Office Park	371	55	25	1934.9	5,622	829	382	15.15
Apartments	430	479	369	2998	5,066	5,644	4,348	11.78
Civic Center	467	0	0	2335	7,078	0	0	15.16

Total 2,565 1,976 1,152

Fleet Mix Land Use	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	OBUS	UBUS	MCY	SBUS	MH	Total
Library	0.503650546	0.034372777	0.225023583	0.140848532	0.030177562	0.00887857	0.015963024	0.008141109	0.000603849	0.000427296	0.026520656	0.001051268	0.004341209	100.0%
Office Park	0.503650546	0.034372777	0.225023583	0.140848532	0.030177562	0.00887857	0.015963024	0.008141109	0.000603849	0.000427296	0.026520656	0.001051268	0.004341209	100.0%
Apartments	0.503650546	0.034372777	0.225023583	0.140848532	0.030177562	0.00887857	0.015963024	0.008141109	0.000603849	0.000427296	0.026520656	0.001051268	0.004341209	100.0%
Civic Center	0.503650546	0.034372777	0.225023583	0.140848532	0.030177562	0.00887857	0.015963024	0.008141109	0.000603849	0.000427296	0.026520656	0.001051268	0.004341209	100.0%

Vehicle Trips

Weekday Trips	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
Library	653	45	292	183	39	12	21	11	1	1	34	1	6	1,297	19,651.26
Office Park	187	13	83	62	11	3	6	3	0	0	10	0	2	371	5,622.39
Apartments	217	15	97	61	13	4	7	4	0	0	11	0	2	430	5,066.44
Civic Center	235	16	105	66	14	4	7	4	0	0	12	0	2	467	7,077.60
Total	1292	88	577	361	77	23	41	21	2	1	68	3	11	2,565	

Saturday Trips	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
Library	726	50	324	203	44	13	23	12	1	1	38	2	6	1,442	21,848.20
Office Park	28	2	12	8	2	0	1	0	0	0	1	0	0	55	828.96
Apartments	241	16	108	67	14	4	8	4	0	0	13	1	2	479	5,643.78
Civic Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total	995	68	445	278	60	18	32	16	1	1	52	2	9	1,976	

Sunday Trips	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
Library	382	26	171	107	23	7	12	6	0	0	20	1	3	758	11,484.70
Office Park	13	1	6	4	1	0	0	0	0	0	1	0	0	25	381.90
Apartments	186	13	83	52	11	3	6	3	0	0	10	0	2	369	4,347.71
Civic Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total	560	40	259	162	35	10	18	9	1	0	31	1	5	1,152	

Gallons of Fuel

Gasoline	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total
Library	105,045	8,463	58,014	44,183	10,932	2,369	3,524	8	456	549	5,011	236	4,029	242,820
Office Park	23,408	1,896	12,828	9,846	2,436	528	785	2	102	122	1,117	52	896	54,109
Apartments	28,198	2,272	15,573	11,860	2,935	636	946	2	123	147	1,345	63	1,082	65,182
Civic Center	28,250	2,276	15,602	11,882	2,940	637	948	2	123	148	1,348	63	1,083	65,301
	184,900	14,896	102,117	77,771	19,243	4,171	6,204	15	803	966	8,821	415	7,092	427,413

Total Gallons Gasoline

Diesel	LDA	LDT1	LDT2	MDV	OBUS	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total
Library	652	4	295	792	4,006	1,926	8,009	7,689	200	5	0	643	775	24,997
Office Park	145	1	66	176	893	429	1,785	45	45	1	0	143	173	5,570
Apartments	175	1	79	212	1,075	517	2,150	2,064	54	1	0	173	208	6,710
Civic Center	203	1	92	247	1,248	600	2,494	2,395	62	2	0	200	241	7,785
	1,176	8	533	1,427	7,221	3,472	14,437	13,862	361	10	0	1,159	1,397	45,062

Total Gallons Diesel

472,475 Total Gallons of Diesel and Gasoline

25 Average MPG

Utilities

	NaturalGas Use	Electricity Use
Land Use	kBTU/yr	kWh/yr
Library	767,695	167,381
Office Park	345,164	229,683
Apartments	1,362,885	293,878
Civic Center	584,123	388,694
	0	
	0	
Total	3,059,867	1,079,636

Offroad Construction Equipment Energy Use

PhaseName	OffRoadEquipmentType	OffRoadEquipment		UsageHours	HorsePower	Load Factor	Horsepower Category	Num Days	Year	Fuel Consumption Rate (gal/hour)	Fuel Type	Total Fuel Consumption (gal/construction period)
		entUnitAmount										
Phase 1Demolition	Concrete/Industrial Saws	1.00		8.00	33.0	0.73	100	20	2023	4.7	Gasoline	551
Phase 1Demolition	Rubber Tired Dozers	1.00		8.00	367	0.40	300	20	2023	4.5	Diesel	286
Phase 1Demolition	Tractors/Loaders/Backhoes	3.00		8.00	84.0	0.37	100	20	2023	1.6	Diesel	283
Phase 1Site Preparation	Graders	1.00		8.00	148	0.41	175	2	2023	3.2	Diesel	21
Phase 1Site Preparation	Rubber Tired Dozers	1.00		7.00	367	0.40	300	2	2023	4.5	Diesel	25
Phase 1Site Preparation	Tractors/Loaders/Backhoes	1.00		8.00	84.0	0.37	100	2	2023	1.6	Diesel	9
Phase 1Grading	Graders	1.00		8.00	148	0.41	175	4	2023	3.2	Diesel	41
Phase 1Grading	Rubber Tired Dozers	1.00		8.00	367	0.40	300	4	2023	4.5	Diesel	57
Phase 1Grading	Tractors/Loaders/Backhoes	2.00		7.00	84.0	0.37	100	4	2023	1.6	Diesel	33
Phase 1Building Construction	Cranes	1.00		6.00	367	0.29	300	200	2023	3.3	Diesel	1,141
Phase 1Building Construction	Forklifts	1.00		6.00	82.0	0.20	100	200	2023	2.0	Diesel	481
Phase 1Building Construction	Generator Sets	1.00		8.00	14.0	0.74	100	200	2023	5.2	Gasoline	6,150
Phase 1Building Construction	Tractors/Loaders/Backhoes	1.00		6.00	84.0	0.37	100	200	2023	1.6	Diesel	707
Phase 1Building Construction	Welders	3.00		8.00	46.0	0.45	50	200	2023	2.4	Gasoline	5,207
Phase 1Paving	Cement and Mortar Mixers	1.00		6.00	10.0	0.56	25	10	2023	0.4	Gasoline	13
Phase 1Paving	Pavers	1.00		6.00	81.0	0.42	100	10	2023	1.7	Diesel	44
Phase 1Paving	Paving Equipment	1.00		8.00	89.0	0.36	100	10	2023	1.6	Diesel	47
Phase 1Paving	Rollers	1.00		7.00	36.0	0.38	100	10	2023	1.7	Diesel	45
Phase 1Paving	Tractors/Loaders/Backhoes	1.00		8.00	84.0	0.37	100	10	2023	1.6	Diesel	47
Phase 1Architectural Coating	Air Compressors	1.00		6.00	37.0	0.48	100	10	2023	1.3	Diesel	38
Phase 2Demolition	Concrete/Industrial Saws	1.00		8.00	33.0	0.73	100	20.0	2023	4.7	Gasoline	551
Phase 2Demolition	Rubber Tired Dozers	1.00		8.00	367	0.4	300	20.0	2023	4.5	Diesel	286
Phase 2Demolition	Tractors/Loaders/Backhoes	3.00		8.00	84.0	0.37	100	20.0	2023	1.6	Diesel	283
Phase 2Site Preparation	Graders	1.00		8.00	148	0.41	175	2.00	2023	3.2	Diesel	21
Phase 2Site Preparation	Rubber Tired Dozers	1.00		7.00	367	0.40	300	2.00	2023	4.5	Diesel	25
Phase 2Site Preparation	Tractors/Loaders/Backhoes	1.00		8.00	84.0	0.37	100	2.00	2023	1.6	Diesel	9
Phase 2Grading	Graders	1.00		8.00	148	0.41	175	4.00	2023	3.2	Diesel	41
Phase 2Grading	Rubber Tired Dozers	1.00		8.00	367	0.40	300	4.00	2023	4.5	Diesel	57
Phase 2Grading	Tractors/Loaders/Backhoes	2.00		7.00	84.0	0.37	100	4.00	2023	1.6	Diesel	33
Phase 2Building Construction	Cranes	1.00		6.00	367	0.29	300	200	2023	3.3	Diesel	1,141
Phase 2Building Construction	Forklifts	1.00		6.00	82.0	0.20	100	200	2023	2.0	Diesel	481
Phase 2Building Construction	Generator Sets	1.00		8.00	14.0	0.74	100	200	2023	5.2	Gasoline	6,150
Phase 2Building Construction	Tractors/Loaders/Backhoes	1.00		6.00	84.0	0.37	100	200	2023	1.6	Diesel	707
Phase 2Building Construction	Welders	3.00		8.00	46.0	0.45	50	200	2023	2.4	Gasoline	5,207
Phase 2Paving	Cement and Mortar Mixers	1.00		6.00	10.0	0.56	25	10.0	2023	0.4	Gasoline	13
Phase 2Paving	Pavers	1.00		6.00	81.0	0.42	100	10.0	2023	1.7	Diesel	44
Phase 2Paving	Paving Equipment	1.00		8.00	89.0	0.36	100	10.0	2023	1.6	Diesel	47
Phase 2Paving	Rollers	1.00		7.00	36.0	0.38	100	10.0	2023	1.7	Diesel	45
Phase 2Paving	Tractors/Loaders/Backhoes	1.00		8.00	84.0	0.37	100	10.0	2023	1.6	Diesel	47
Phase 2Architectural Coating	Air Compressors	1.00		6.00	37.0	0.48	100	10.0	2023	1.3	Diesel	38
Phase 3Demolition	Concrete/Industrial Saws	1.00		8.00	33.0	0.73	100	20.0	2023	4.7	Gasoline	551
Phase 3Demolition	Excavators	3.00		8.00	36.0	0.38	175	20.0	2023	2.9	Diesel	526
Phase 3Demolition	Rubber Tired Dozers	2.00		8.00	367	0.40	300	20.0	2023	4.5	Diesel	572
Phase 3Site Preparation	Rubber Tired Dozers	3.00		8.00	367	0.40	300	10.0	2023	4.5	Diesel	429
Phase 3Site Preparation	Tractors/Loaders/Backhoes	4.00		8.00	84.0	0.37	100	10.0	2023	1.6	Diesel	189
Phase 3Grading	Excavators	1.00		8.00	36.0	0.38	175	20.0	2023	2.9	Diesel	175
Phase 3Grading	Graders	1.00		8.00	148	0.41	175	20.0	2023	3.2	Diesel	207
Phase 3Grading	Rubber Tired Dozers	1.00		8.00	367	0.40	300	20.0	2023	4.5	Diesel	286

Phase 3Grading	Tractors/Loaders/Backhoes	3.00	8.00	84.0	0.37	100	20.0	2023	1.6	Diesel	283
Phase 3Building Construction	Cranes	1.00	7.00	367	0.29	300	230	2023	3.3	Diesel	1,530
Phase 3Building Construction	Forklifts	3.00	8.00	82.0	0.20	100	230	2023	2.0	Diesel	2,213
Phase 3Building Construction	Generator Sets	1.00	8.00	14.0	0.74	100	230	2023	5.2	Gasoline	7,073
Phase 3Building Construction	Tractors/Loaders/Backhoes	3.00	7.00	84.0	0.37	100	230	2023	1.6	Diesel	2,846
Phase 3Building Construction	Welders	1.00	8.00	46.0	0.45	50	230	2023	2.4	Gasoline	1,996
Phase 3Paving	Pavers	2.00	8.00	81.0	0.42	100	20.0	2023	1.7	Diesel	233
Phase 3Paving	Paving Equipment	2.00	8.00	89.0	0.36	100	20.0	2023	1.6	Diesel	189
Phase 3Paving	Rollers	2.00	8.00	36.0	0.38	100	20.0	2023	1.7	Diesel	206
Phase 3Architectural Coating	Air Compressors	1.00	6.00	37.0	0.48	100	20.0	2023	1.3	Diesel	76
Phase 4Demolition	Concrete/Industrial Saws	1.00	8.00	33.0	0.73	100	20.0	2023	4.7	Gasoline	551
Phase 4Demolition	Rubber Tired Dozers	1.00	8.00	367	0.40	300	20.0	2023	4.5	Diesel	286
Phase 4Demolition	Tractors/Loaders/Backhoes	3.00	8.00	84.0	0.37	100	20.0	2023	1.6	Diesel	283
Phase 4Site Preparation	Graders	1.00	8.00	148	0.41	175	3.00	2023	3.2	Diesel	31
Phase 4Site Preparation	Scrapers	1.00	8.00	423	0.48	300	3.00	2023	5.5	Diesel	64
Phase 4Site Preparation	Tractors/Loaders/Backhoes	1.00	7.00	84.0	0.37	100	3.00	2023	1.6	Diesel	12
Phase 4Grading	Graders	1.00	8.00	148	0.41	175	6.00	2023	3.2	Diesel	62
Phase 4Grading	Rubber Tired Dozers	1.00	8.00	367	0.40	300	6.00	2023	4.5	Diesel	86
Phase 4Grading	Tractors/Loaders/Backhoes	2.00	7.00	84.0	0.37	100	6.00	2023	1.6	Diesel	49
Phase 4Building Construction	Cranes	1.00	8.00	367	0.29	300	220	2023	3.3	Diesel	1,673
Phase 4Building Construction	Forklifts	2.00	7.00	82.0	0.20	100	220	2023	2.0	Diesel	1,235
Phase 4Building Construction	Generator Sets	1.00	8.00	14.0	0.74	100	220	2023	5.2	Gasoline	6,765
Phase 4Building Construction	Tractors/Loaders/Backhoes	1.00	6.00	84.0	0.37	100	220	2023	1.6	Diesel	778
Phase 4Building Construction	Welders	3.00	8.00	46.0	0.45	50	220	2023	2.4	Gasoline	5,728
Phase 4Paving	Cement and Mortar Mixers	1.00	8.00	10.0	0.56	25	10.0	2023	0.4	Gasoline	17
Phase 4Paving	Pavers	1.00	8.00	81.0	0.42	100	10.0	2023	1.7	Diesel	58
Phase 4Paving	Paving Equipment	1.00	8.00	89.0	0.36	100	10.0	2023	1.6	Diesel	47
Phase 4Paving	Rollers	2.00	8.00	36.0	0.38	100	10.0	2023	1.7	Diesel	103
Phase 4Paving	Tractors/Loaders/Backhoes	1.00	8.00	84.0	0.37	100	10.0	2023	1.6	Diesel	47
Phase 4Architectural Coating	Air Compressors	1.00	6.00	37.0	0.48	100	10.0	2023	1.3	Diesel	38
										Total	
										Total	
										Gasoline	46,522
										Diesel	21,426

Onroad Construction Energy Use

Year 2023

Vehicle Types	MPG by Fuel Type			Population by Fuel Type			
	GAS	DSL	ELEC	GAS	DSL	ELEC	Total
LDA	31.7	50.0		6,635,002	62,493	150,700	6,697,495
LDT1	27.2	22.9		758,468	361	7,123	758,828
LDT2	25.5	36.7		2,285,150	15,595	28,810	2,300,745
LHDT1	10.7	21.9		174,910	125,545		300,455
LHDT2	9.3	19.8		30,103	50,003		80,106
MCY	36.4			305,045			305,045
MDV	20.7	28.1		1,589,863	36,128	16,377	1,625,991
MH	5.2	10.7		34,680	13,123		47,802
MHDT	5.1	11.2		25,624	122,124		147,749
HHDT	4.3	7.1		75	109,819		109,894
OBUS	5.1	8.7		5,955	4,287		10,242
SBUS	9.2	7.7		2,784	6,672		9,455
UBUS	5.1	5.9		958	13	16	971

Input							Gasoline Consumption			Diesel Consumption		
Phase Name	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker	Vendor	Haul	Worker	Vendor	Haul
Demolition	231	0	90	18.5	10.2	20.0						
Site Preparation	139	0	0	18.5	10.2	20.0						
Grading	185	0	0	18.5	10.2	20.0						
Building Construction	140	30	0	18.5	10.2	20.0						
Paving	231	0	0	18.5	10.2	20.0						
Architectural Coating	28	0	0	18.5	10.2	20.0						
Adjusted												
Demolition	4625	0	90	18.5	10.2	20.0	3,327	0	0	16	0	252
Site Preparation	277.5	0	0	18.5	10.2	20.0	200	0	0	1	0	0
Grading	740	0	0	18.5	10.2	20.0	532	0	0	3	0	0
Building Construction	27972	6018	0	18.5	10.2	20.0	20,124	2,904	0	96	48	0
Paving	2312.5	0	0	18.5	10.2	20.0	1,664	0	0	8	0	0
Architectural Coating	279.35	0	0	18.5	10.2	20.0	201	0	0	1	0	0
Total							26,049	2,904	0	124	48	252