

Initial Study/Mitigated Negative Declaration

Kindred Church Expansion Project

Development Project Number: DEV2020-00016

Appendix C – Energy Calculations

Prepared for | Planning Services Division
City of Anaheim
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Energy Use Summary

Construction Phase (gallons/construction period)	Gasoline	Diesel
Construction Vehicles	17	3,981
Worker Trips	3,964	16
Vendor Trips	734	10
Haul Trucks	1	1,002
Total	4,716	5,009

Operations Phase (gallons/year)	Gasoline	Diesel	Natural Gas (kBTU/yr)	Electricity (kWh/yr)
Church	10,530	129	0	152,255
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
All Land Uses	10,530	129	0	152,255

Operations Onroad Energy Use

Year: 2022

Vehicle Types	MPG by Fuel Type			Population by Fuel Type			
	GAS	DSL	ELEC	GAS	DSL	ELEC	Total
LDA	30.8	48.7		6,542,832	58,938	127,533	6,601,770
LDT1	26.5	22.6		736,906	387	5,339	737,293
LDT2	24.7	35.7		2,246,303	14,235	22,590	2,260,537
LHDT1	10.5	21.6		175,903	119,381		295,284
LHDT2	9.2	19.5		30,010	47,336		77,346
MCY	36.4			295,960			295,960
MDV	20.0	27.4		1,579,640	33,349	11,658	1,612,989
MH	5.2	10.6		35,098	12,759		47,857
MHDT	5.1	10.7		25,445	123,310		148,755
HHDT	4.2	6.7		73	108,362		108,440
OBUS	5.0	8.5		5,859	4,274		10,234
SBUS	9.1	7.6		2,631	6,631		9,262
LBUS	4.9	6.0		952	14	17	966

Trips/Day Land Use	Trips/day Weekday	Trips/day Saturday	Trips/day Sunday	Total Weekly	VMT/day Weekday	VMT/day Saturday	VMT/day Sunday	Trip Length
Church	80.00	272.00	272.00	944	469	1,593	1,593	5.86

Total **80** **272** **272**

Fleet Mix Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHDT	OBUS	UBUS	MCY	SBUS	MH	Total
Church	0.614215	0.040586	0.209252	0.126005	0	0	0	0	0.001578	0.001284	0.005047	0.001028	0.001005	100.0%

Vehicle Trips

Weekday Trips	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
Church	49	3	17	10	0	0	0	0	0	0	0	0	0	80	468.57
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Total	49	3	17	10	0	0	0	0	0	0	0	0	0	80	

Saturday Trips	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
Church	167	11	57	34	0	0	0	0	0	0	1	0	0	272	1,503.14
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Total	167	11	57	34	0	0	0	0	0	0	1	0	0	272	

Sunday Trips	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
Church	167	11	57	34	0	0	0	0	0	0	1	0	0	272	1,593.14
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Total	167	11	57	34	0	0	0	0	0	0	1	0	0	272	

Gallons of Fuel

Gasoline	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total
Church	5,674	441	2,424	1,774	0	0	0	0	52	75	40	9	41	10,530
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5,674	441	2,424	1,774	0	0	0	0	52	75	40	9	41	10,530
														10,530 Total Gallons

Diesel	LDA	LDT1	LDT2	MDV	OBUS	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total
Church	32	0	11	27	0	0	0	0	22	1	0	28	7	129
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	32	0	11	27	0	0	0	0	22	1	0	28	7	129
														129 Total Gallons

10,659 Total Gallons

Offroad Construction Equipment Energy Use

PhaseName	OffRoadEquipmentType	OffRoadEquipmentUnitAmount	UsageHours	HorsePower	Load Factor	Horsepower Category	Num Days	Year	Fuel Consumption Rate (gal/hour)	Fuel Type	Total Fuel Consumption (gal/construction period)
Demolition	Concrete/Industrial Saws	0	0	81	0.73	100	50	2021	4.7	Gasoline	0
Demolition	Rubber Tired Dozers	1	8	247	0.4	300	50	2021	4.5	Diesel	714
Demolition	Tractors/Loaders/Backhoes	3	8	97	0.37	100	50	2021	1.6	Diesel	705
Grading	Graders	0	0	187	0.41	175	30	2021	3.1	Diesel	0
Grading	Rubber Tired Dozers	1	8	247	0.4	300	30	2021	4.5	Diesel	429
Grading	Tractors/Loaders/Backhoes	3	7	97	0.37	100	30	2021	1.6	Diesel	370
Building Construction	Cranes	1	8	231	0.29	300	100	2021	3.3	Diesel	763
Building Construction	Forklifts	0	0	89	0.2	100	100	2021	2.0	Diesel	0
Building Construction	Generator Sets	0	0	84	0.74	100	100	2021	5.2	Gasoline	0
Building Construction	Tractors/Loaders/Backhoes	2	6	97	0.37	100	100	2021	1.6	Diesel	705
Building Construction	Welders	0	0	46	0.45	50	100	2021	2.4	Gasoline	0
Paving	Cement and Mortar Mixers	1	8	9	0.56	25	10	2021	0.4	Gasoline	17
Paving	Pavers	1	8	130	0.42	100	10	2021	1.7	Diesel	58
Paving	Paving Equipment	1	8	132	0.36	100	10	2021	1.6	Diesel	47
Paving	Rollers	2	8	80	0.38	100	10	2021	1.7	Diesel	103
Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	100	10	2021	1.6	Diesel	47
Architectural Coating	Air Compressors	1	6	78	0.48	100	10	2021	1.3	Diesel	38
									Total	Gasoline	17
									Total	Diesel	3,981

