Appendix K

Energy

MEMORANDUM

TO: Betty Donavanik

FROM: Mark Hagmann, P.E.

SUBJECT: Energy Calculations for 100 W. Walnut Planned Development

DATE: June 16, 2014

The purpose of this memorandum is to evaluate the potential impacts on energy. The California Environmental Quality Act (CEQA) provides that environmental impact reports (EIRs) shall include a detailed statement on significant effects of a project and "[m]itigation measures proposed to minimize significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy."[1] The State CEQA Guidelines discuss the requirements for an EIR to address potentially significant effects, and although it does not include energy specifically, it mentions the use of nonrenewable resources.[2] Provided below is a detailed analysis of the proposed Project's energy requirements.

Construction Phase Energy Requirements

During construction, the project would consume energy in three general forms: (1) the fuel energy consumed by construction vehicles and equipment; (2) electricity consumed from water used for dust control (supply and conveyance); and (3) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass. These are discussed below.

Energy Consumed by Construction Vehicles and Equipment

Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during site clearing, excavation, and construction. Fuel consumption from on-site heavy-duty construction equipment was calculated based on the equipment mix and usage factors provided in the CalEEMod construction output files included in Appendix XX, Air

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[1] *Public Resources Code Section 21000(b)(3).*

[2] *California Code of Regulations, Title 14, Division 6, Chapter 3, State CEQA Guidelines, Section 16126.2.*

Quality, of this Draft EIR. The total horsepower was then multiplied by fuel usage estimates per horsepower-hour included in Table A9-3-E of the SCAQMD's *CEQA Air Quality Handbook*. Fuel consumption from construction worker, vendor, and delivery/haul trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. A total vehicle miles travelled (VMT) was then calculated for each type of trip and divided by the corresponding county-specific miles per gallon calculated using California Air Resources Board's (CARB's) EMFAC 2011 model. EMFAC provides the total annual VMT and fuel consumed for each vehicle type. Consistent with CalEEMod, worker trips were assumed to include 50 percent light duty gasoline auto and 50 percent light duty gasoline trucks. Vendor and delivery/haul trucks were assumed to be heavy-duty diesel trucks. Please refer to attachment A for detailed calculations. A summary of diesel and gasoline consumption for both Phase 1 and Phase 2 construction is provided in Table 1.

Energy Consumed by Dust Control Water Usage

Dust generating construction activities (e.g., demolition, excavation and grading) require the use of water to control fugitive dust. Electricity is consumed as a result of water supply and conveyance. The number of gallons of water per year required for dust control was calculated based on a minimum control efficiency of 66 percent (three times daily) with an application rate of 3,020 gallons per acre per day.[3] Electricity from the supply and conveyance of water used for dust control were then calculated using CalEEMod. A summary of the electricity consumed by dust control water usage for both Phase 1 and Phase 2 construction is provided in Table 1.

Bound Energy Contained in Construction Materials

Substantial reductions in energy inputs for construction materials can be achieved by selecting building materials composed of recycled materials that require substantially less energy to produce than non-recycled materials. The incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy compared to overall local and regional demand for construction materials. It is reasonable to assume that production of building materials such

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[3] *Air and Waste Management Association Air Pollution Engineering Manual, 1992 Edition.*

Table 1
Summary of Energy Use During Construction[a]

Fuel Type	Quantity
Diesel	
Phase 1 Off Road	70,208 Gallons
Phase 1 On Road	221,748 Gallons
Subtotal	291,956 Gallons
Phase 2 Off Road	62,721 Gallons
Phase 2 On Road	265,895 Gallons
Subtotal	328,616 Gallons
Total:	**620,571 Gallons**
Gasoline	
Phase 1 Off Road	0 Gallons
Phase 1 On Road	135,061 Gallons
Subtotal	135,061 Gallons
Phase 2 Off Road	0 Gallons
Phase 2 On Road	82,579 Gallons
Subtotal	82,579 Gallons
Total:	**217,640 Gallons**
Electricity	
Phase 1 Water Consumption	25,557 kWh
Phase 2 Water Consumption	22,472 kWh
Total:	**48,029 kWh**

[a] *Detailed calculations are provided in Attachment 1.*

Source: Matrix Environmental, 2014.

as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest in minimizing the cost of doing business.

In addition, Project Design Feature G-1 of this Draft EIR would require the design of the new buildings to incorporate features to be capable of achieving at least Silver certification under LEED. Compliance with this measure would further result in use of sustainable materials and recycled content.

Operational Phase Energy Use

The operational phase would consume energy for multiple purposes including, but not limited to, building heating and cooling, refrigeration, lighting, electronics, office equipment, and commercial machinery (including kitchen appliances). Operational energy would also be consumed from energy related to water usage, and during each vehicle trip associated with these proposed uses.

On-Site Energy Requirements

The proposed Project would consume energy for interior and exterior lighting, heating/ventilating/air conditioning (HVAC), refrigeration, home electronics systems and appliances, and hearths, among other things. On-site energy requirements associated with electricity and natural gas consumption were calculated as part of the greenhouse gas analysis included in Section IV.G., Greenhouse Gas, of the Draft EIR. Excerpts of the CalEEMod output files are provided below in Attachment 1.

Consistent with Regulatory Compliance Measure G-1 (Compliance with specific mandatory requirements of CALGreen Code), the proposed Project would result in a 15 percent minimum reduction in energy use from systems covered by Title 24 and lighting. In addition, Project Design Feature G-2 would prohibit hearths installed in the residences which would substantially reduce natural gas usage associated with this use. As shown in Table 2, these measures would reduce natural gas usage by 22 percent and 12% at Project buildout.

Energy Consumed by Dust Control Water Usage

As discussed above, electricity is consumed as a result of water supply, treatment, and conveyance. Electricity from water usage was calculated as part of the greenhouse gas analysis included in Section IV.G., Greenhouse Gas, of the Draft EIR. Excerpts of the CalEEMod output files are provided below in Attachment 1. Consistent with Regulatory Compliance Measure G-1 (Compliance with specific mandatory requirements of CALGreen

Table 2
Summary of Annual Energy Use During Operation[a]

Source	Without Project Features	With Project Features	Percent Reduction
Existing			
Electricity	479,072 kWh	479,072 kWh	-0%
Phase 1			
Mobile			
Diesel	122,552 Gallons	98,211 Gallons	-20%
Gasoline	748,399 Gallons	599,752 Gallons	-20%
Natural Gas			
Building	8,323,820 kBtu	7,547,190 kBtu	-9%
Hearth	1,921,500 kBtu	149,760 kBtu	-92%
Total	10,245,320 kBtu	7,547,190 kBtu	-25%
Electricity			
Building	9,385,580 kWh	8,370,475 kWh	-11%
Water	1,158,220 kWh	965,183 kWh	-17%
Total	10,543,800 kWh	9,335,658 kWh	-11%
Phase 2			
Mobile			
Diesel	74,050 Gallons	59,240 Gallons	-20%
Gasoline	423,946 Gallons	339,155 Gallons	-20%
Natural Gas			
Building	4,481,300 kBtu	3,833,090 kBtu	-14%
Hearth	0 kBtu	0 kBtu	-0%
Total	4,481,300 kBtu	3,833,090 kBtu	-14%
Electricity			
Building	10,872,110 kWh	9,546,210 kWh	-12%
Water	1,194,339 kWh	995,282 kWh	-17%
Total	12,066,449 kWh	10,541,492 kWh	-13%
Buildout			
Mobile			
Diesel	203,591 Gallons	163,643 Gallons	-20%

Gasoline	1,165,577 Gallons	936,873 Gallons	-20%
Natural Gas			
Building	12,805,120 kBtu	11,380,280 kBtu	-11%
Hearth	1,921,500 kBtu	149,760 kBtu	-92%
Total	14,726,620 kBtu	11,530,040 kBtu	-22%
Electricity			
Building	20,257,680 kWh	17,916,675 kWh	-12%
Water	2,352,558 kWh	1,960,465 kWh	-17%
Total	22,610,238 kWh	19,877,140 kWh	-12%

[a] *Detailed calculations are provided in Attachment 1.*

Source: Matrix Environmental, 2014.

Code), the proposed Project would result in a 20 percent minimum reduction in water use. As shown in Table 2, this measure would reduce electricity usage by 17 percent for this use at Project buildout.

Transportation Energy Use

The proposed Project would result in the consumption of fuel related to vehicular travel to and from the Project site. Annual VMT was calculated as part of the greenhouse gas analysis included in Section IV.G., Greenhouse Gas, of the Draft EIR. Based on this annual VMT, gasoline and diesel consumption rates were calculated using the county-specific miles per gallon calculated using EMFAC2011. The vehicle fleet mix was calculated consistent with the CalEEMod default for Los Angeles county. A summary of diesel and gasoline consumption is provided in Table 2.

Project features that would reduce VMT include internal capture (i.e., synergy of proposed mix of land uses) and close proximity to a transit station (less than 0.25 miles from a major transit hub, the Metro Gold Line Memorial Park Station). As shown in Table 1, these measures would reduce gasoline and diesel usage by 20 percent at Project buildout.

matrix environmental

MEMORANDUM

ATTACHMENT 1

Summary of Energy Use During Construction

Diesel	**Project Without Project Features**	**Project With Project Features**		Percent Reduction
Phase 1 Off road	70,208	70,208	Gallons	
Phase 1 On road	221,748	221,748	Gallons	
Subtotal:	291,956	291,956	Gallons	
Phase 2 Off road	62,721	62,721	Gallons	
Phase 2 On road	265,895	265,895	Gallons	
Subtotal:	328,616	328,616	Gallons	
Total:	**620,571**	**620,571**	Gallons	
Gasoline				
Phase 1 Off road	-	-		
Phase 1 On road	135,061	135,061	Gallons	
Subtotal:	135,061	135,061	Gallons	
	-			
Phase 2 Off road	-	-		
Phase 2 On road	82,579	82,579	Gallons	
Subtotal:	82,579	82,579	Gallons	
Total:	**217,640**	**217,640**	Gallons	
Electricty				
Phase 1 Water Consumption	25,557	25,557	kWh	
Phase 2 Water Consumption	22,472	22,472	kWh	
Total:	**48,029**	**48,029**	kWh	

Summary of Energy Use During Operations (Existing)

Electricty	479,072	479,072	kWh/Year	

Summary of Energy Use During Operations (Phase 1)

Mobile				
Diesel	122,552	98,211	Gallons	(0.20)
Gasoline	748,399	599,752	Gallons	(0.20)
Natural Gas (building)	8,323,820	7,547,190	kBtu/Year	(0.09)
Natural Gas (hearth)	1,921,500	149,760	kBtu/Year	(0.92)
Subtotal:	10,245,320	7,696,950	kBtu/Year	(0.25)
Electricity (building)	9,385,580	8,370,475	kWh/Year	(0.11)
Electricity (water)	1,158,220	965,183	kWh/Year	(0.17)
Subtotal:	10,543,800	9,335,658	kWh/Year	(0.11)

Summary of Energy Use During Operations (Phase 2)

Mobile				
Diesel	74,050	59,240	Gallons	(0.20)
Gasoline	423,946	339,155	Gallons	(0.20)
Natural Gas (building)	4.4813e+006	3.83309e+006	kBtu/Year	(0.14)
Natural Gas (hearth)	-	-	kBtu/Year	
Subtotal:	4,481,300	3,833,090	kBtu/Year	(0.14)
Electricity (building)	10,872,110	9,546,210	kWh/Year	(0.12)
Electricity (water)	1,194,339	995,282	kWh/Year	(0.17)
Subtotal:	12,066,449	10,541,492	kWh/Year	(0.13)

Summary of Energy Use During Operations (Buildout)

Mobile				
Diesel	203,591	163,643	Gallons	(0.20)
Gasoline	1,165,577	936,873	Gallons	(0.20)
Natural Gas (building)	12,805,120	11,380,280	kBtu/Year	(0.11)
Natural Gas (hearth)	1,921,500	149,760	kBtu/Year	(0.92)
Subtotal:	14,726,620	11,530,040	kBtu/Year	(0.22)
Electricity (building)	20,257,680	17,916,675	kWh/Year	(0.12)
Electricity (water)	2,352,558	1,960,465	kWh/Year	(0.17)
Subtotal:	22,610,238	19,877,140	kWh/Year	(0.12)

Calculation of Diesel Usage During Phase 1 Construction (Offroad Equipment):

PhaseName	OffRoadEquipmentType	Units	Hours	HP	Load Factor	Avg. Daily Factor	Number of Days	Diesel Fuel Usage
Demolition	Air Compressors	2	6.7	78	0.48	0.6	32	482
Demolition	Concrete/Industrial Saws	2	6.7	81	0.73	0.6	32	761
Demolition	Excavators	1	6.7	162	0.38	0.6	32	396
Demolition	Other Construction Equipment	0	2	171	0.42	0.6	32	0
Demolition	Rubber Tired Dozers	0	6.7	255	0.4	0.6	32	0
Demolition	Rubber Tired Loaders	1	6.7	199	0.36	0.6	32	461
Demolition	Sweepers/Scrubbers	1	2	64	0.46	0.6	32	57
Demolition	Tractors/Loaders/Backhoes	1	6.7	97	0.37	0.6	32	231
Demolition	Welders	1	6.7	46	0.45	0.6	32	133
Site Preparation (Holly/Peroni Infrastructure)	Air Compressors	2	6.7	78	0.48	0.6	129	1942
Site Preparation (Holly/Peroni Infrastructure)	Concrete/Industrial Saws	2	4	81	0.73	0.6	129	1831
Site Preparation (Holly/Peroni Infrastructure)	Excavators	1	6.7	162	0.38	0.6	129	1596
Site Preparation (Holly/Peroni Infrastructure)	Other Construction Equipment	0	0	171	0.42	0.6	129	0
Site Preparation (Holly/Peroni Infrastructure)	Paving Equipment	1	4	130	0.36	0.6	129	724
Site Preparation (Holly/Peroni Infrastructure)	Rollers	1	4	80	0.38	0.6	129	471
Site Preparation (Holly/Peroni Infrastructure)	Rubber Tired Dozers	0	0	255	0.4	0.6	129	0
Site Preparation (Holly/Peroni Infrastructure)	Rubber Tired Loaders	1	6.7	199	0.36	0.6	129	1858
Site Preparation (Holly/Peroni Infrastructure)	Signal Boards	4	6.7	6	0.82	0.6	129	510
Site Preparation (Holly/Peroni Infrastructure)	Skid Steer Loaders	1	6.7	64	0.37	0.6	129	614
Site Preparation (Holly/Peroni Infrastructure)	Tractors/Loaders/Backhoes	1	6.7	97	0.37	0.6	129	931
Grading (Shoring & Excavation)	Air Compressors	2	6.7	78	0.48	0.6	108	1625
Grading (Shoring & Excavation)	Bore/Drill Rigs	2	6.7	205	0.5	0.6	108	4450
Grading (Shoring & Excavation)	Cranes	1	4	226	0.29	0.6	108	849
Grading (Shoring & Excavation)	Excavators	2	8	162	0.38	0.6	108	3191
Grading (Shoring & Excavation)	Forklifts	1	6.7	89	0.2	0.6	108	386
Grading (Shoring & Excavation)	Graders	0	0	174	0.41	0.6	108	0
Grading (Shoring & Excavation)	Other Construction Equipment	0	0	171	0.42	0.6	108	0
Grading (Shoring & Excavation)	Rubber Tired Dozers	0	0	255	0.4	0.6	108	0
Grading (Shoring & Excavation)	Rubber Tired Loaders	1	8	199	0.36	0.6	108	1857
Grading (Shoring & Excavation)	Signal Boards	4	6.7	6	0.82	0.6	108	427
Grading (Shoring & Excavation)	Sweepers/Scrubbers	1	2	64	0.46	0.6	108	191
Grading (Shoring & Excavation)	Tractors/Loaders/Backhoes	1	6.7	97	0.37	0.6	108	779
Grading (Shoring & Excavation)	Trenchers	2	6.7	80	0.5	0.6	108	1737
Grading (Shoring & Excavation)	Welders	3	4	46	0.45	0.6	108	805
Foundation & Garage Concrete	Air Compressors	1	6.7	78	0.48	0.6	142	1069
Foundation & Garage Concrete	Cranes	2	4	226	0.29	0.6	142	2234
Foundation & Garage Concrete	Excavators	1	6.7	162	0.38	0.6	142	1757
Foundation & Garage Concrete	Forklifts	2	6.7	89	0.2	0.6	142	1016
Foundation & Garage Concrete	Paving Equipment	1	4	130	0.36	0.6	142	797
Foundation & Garage Concrete	Pumps	2	4	84	0.74	0.6	142	2118
Foundation & Garage Concrete	Rollers	1	4	80	0.38	0.6	142	518
Foundation & Garage Concrete	Rubber Tired Loaders	2	6.7	199	0.36	0.6	142	4089
Foundation & Garage Concrete	Skid Steer Loaders	2	6.7	64	0.37	0.6	142	1352
Foundation & Garage Concrete	Sweepers/Scrubbers	1	2	64	0.46	0.6	142	251
Foundation & Garage Concrete	Tractors/Loaders/Backhoes	2	6.7	97	0.37	0.6	142	2049
Architectural Coating	Air Compressors	0	6	78	0.48	0.6	239	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)		0		0		0.6	196	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Air Compressors	4	6.7	78	0.48	0.6	196	5900
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Cranes	2	4	226	0.29	0.6	196	3083
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Forklifts	4	6.7	89	0.2	0.6	196	2805
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Generator Sets	0	0	84	0.74	0.6	196	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Pumps	1	4	84	0.74	0.6	196	1462
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Signal Boards	24	6.7	6	0.82	0.6	196	4652
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Sweepers/Scrubbers	1	2	64	0.46	0.6	196	346
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Tractors/Loaders/Backhoes	0	6.7	97	0.37	0.6	196	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Welders	3	6.7	46	0.45	0.6	196	2446
Landscape & Finish	Air Compressors	2	6.7	78	0.48	0.6	65	978
Landscape & Finish	Forklifts	1	6.7	89	0.2	0.6	65	233
Landscape & Finish	Pavers	0	4	125	0.42	0.6	65	0
Landscape & Finish	Paving Equipment	0	4	130	0.36	0.6	65	0
Landscape & Finish	Rollers	1	4	80	0.38	0.6	65	237
Landscape & Finish	Skid Steer Loaders	2		64	0.37	0.6	65	0
Landscape & Finish	Sweepers/Scrubbers	1	2	64	0.46	0.6	65	115
Landscape & Finish	Tractors/Loaders/Backhoes	3	6.7	97	0.37	0.6	65	1407
Total Diesel Usage for Phase 1 Construction (Offroad Equipment)								**70,208 gallons of**

Notes: Equipment assumptions are provide in the CalEEMod output files and fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E

Calculation of Diesel Usage During Phase 1 Construction (Offroad Equipment):

PhaseName	OffRoadEquipmentType	Units	Hours	HP	Load Factor	Avg. Daily Factor	Number of Days	Diesel Fuel Usage
Demolition	Air Compressors	2	6.7	78	0.48	0.6	34	512
Demolition	Concrete/Industrial Saws	2	6.7	81	0.73	0.6	34	808
Demolition	Excavators	1	6.7	162	0.38	0.6	34	421
Demolition	Other Construction Equipment	0	2	171	0.42	0.6	34	0
Demolition	Rubber Tired Dozers	0	6.7	255	0.4	0.6	34	0
Demolition	Rubber Tired Loaders	1	6.7	199	0.36	0.6	34	490
Demolition	Sweepers/Scrubbers	1	2	64	0.46	0.6	34	60
Demolition	Tractors/Loaders/Backhoes	1	6.7	97	0.37	0.6	34	245
Demolition	Welders	1	6.7	46	0.45	0.6	34	141
Grading (Shoring & Excavation)	Air Compressors	2	6.7	78	0.48	0.6	106	1595
Grading (Shoring & Excavation)	Bore/Drill Rigs	2	6.7	205	0.5	0.6	106	4368
Grading (Shoring & Excavation)	Cranes	1	4	226	0.29	0.6	106	834
Grading (Shoring & Excavation)	Excavators	2	8	162	0.38	0.6	106	3132
Grading (Shoring & Excavation)	Forklifts	1	6.7	89	0.2	0.6	106	379
Grading (Shoring & Excavation)	Graders	0	0	174	0.41	0.6	106	0
Grading (Shoring & Excavation)	Other Construction Equipment	0	0	171	0.42	0.6	106	0
Grading (Shoring & Excavation)	Rubber Tired Dozers	0	0	255	0.4	0.6	106	0
Grading (Shoring & Excavation)	Rubber Tired Loaders	1	8	199	0.36	0.6	106	1823
Grading (Shoring & Excavation)	Signal Boards	4	6.7	6	0.82	0.6	106	419
Grading (Shoring & Excavation)	Sweepers/Scrubbers	1	2	64	0.46	0.6	106	187
Grading (Shoring & Excavation)	Tractors/Loaders/Backhoes	1	6.7	97	0.37	0.6	106	765
Grading (Shoring & Excavation)	Trenchers	2	6.7	80	0.5	0.6	106	1704
Grading (Shoring & Excavation)	Welders	3	4	46	0.45	0.6	106	790
Foundation & Garage Concrete	Air Compressors	1	6.7	78	0.48	0.6	144	1084
Foundation & Garage Concrete	Cranes	2	4	226	0.29	0.6	144	2265
Foundation & Garage Concrete	Excavators	1	6.7	162	0.38	0.6	144	1782
Foundation & Garage Concrete	Forklifts	2	6.7	89	0.2	0.6	144	1030
Foundation & Garage Concrete	Paving Equipment	1	4	130	0.36	0.6	144	809
Foundation & Garage Concrete	Pumps	2	4	84	0.74	0.6	144	2148
Foundation & Garage Concrete	Rollers	1	4	80	0.38	0.6	144	525
Foundation & Garage Concrete	Rubber Tired Loaders	2	6.7	199	0.36	0.6	144	4147
Foundation & Garage Concrete	Skid Steer Loaders	2	6.7	64	0.37	0.6	144	1371
Foundation & Garage Concrete	Sweepers/Scrubbers	1	2	64	0.46	0.6	144	254
Foundation & Garage Concrete	Tractors/Loaders/Backhoes	2	6.7	97	0.37	0.6	144	2078
Architectural Coating	Air Compressors	0	6	78	0.48	0.6	239	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)		0		0		0.6	195	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Air Compressors	4	6.7	78	0.48	0.6	195	5870
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Cranes	2	4	226	0.29	0.6	195	3067
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Forklifts	4	6.7	89	0.2	0.6	195	2791
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Generator Sets	0	0	84	0.74	0.6	195	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Pumps	2	4	84	0.74	0.6	195	2909
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Signal Boards	26	6.7	6	0.82	0.6	195	5014
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Sweepers/Scrubbers	2	2	64	0.46	0.6	195	689
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Tractors/Loaders/Backhoes	0	6.7	97	0.37	0.6	195	0
Building Construction (Office Steel/Precaste and Res Frame/Skin)	Welders	4	6.7	46	0.45	0.6	195	3245
Landscape & Finish	Air Compressors	2	6.7	78	0.48	0.6	65	978
Landscape & Finish	Forklifts	1	6.7	89	0.2	0.6	65	233
Landscape & Finish	Pavers	0	4	125	0.42	0.6	65	0
Landscape & Finish	Paving Equipment	0	4	130	0.36	0.6	65	0
Landscape & Finish	Rollers	1	4	80	0.38	0.6	65	237
Landscape & Finish	Skid Steer Loaders	2		64	0.37	0.6	65	0
Landscape & Finish	Sweepers/Scrubbers	1	2	64	0.46	0.6	65	115
Landscape & Finish	Tractors/Loaders/Backhoes	3	6.7	97	0.37	0.6	65	1407
Total Diesel Usage for Phase 2 Construction (Offroad Equipment)								**62,721 gallons of**

Notes: Equipment assumptions are provide in the CalEEMod output files and fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E

EMFAC2011 Emissions Inventory
Region Type: County
Region: Los Angeles
Calendar Year: 2014
Season: Annual
Vehicle Classification: EMFAC2011 Categories

Region	Veh_Class	Fuel	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_GAS (1000 gallons/day)		
Los Angele	LDA	GAS	Aggregatec	3611852	1.24E+08	22766127	5595.867	22.07279	
Los Angele	LDT1	GAS	Aggregatec	400502.2	13852119	2433741	727.9151	19.02986	
Los Angele	LDT2	GAS	Aggregatec	1140446	41417462	7179079	2553.751	16.21829	
					Composite LDA/LDT1/LDT2:			19.84843	miles per gallon
Los Angele	T7 tractor construction	DSL	Aggregatec	2002.179	152067.3	0	0	5.627894	miles per gallon

Calculation of Gasoline and Diesel Usage During Phase 1 Construction (Onroad Vehicles):

	Daily Worker	Daily Vendor		Total Worker	Total Vendor		Trip Length (miles)			Total Length (miles)			Avg. Daily Factor	Gallons of Fuel	
PhaseName	Trips	Trips	Days	Trips	Trips	Total Haul Trips	Worker	Vendor	Haul	Worker	Vendor	Haul	(worker and vendor)	Gasoline	Diesel
Demolition	30	0	32	960	0	416	14.7	10	15	14112	0	6240	0.6	427	1,109
Site Preparation (Holly/Peroni Infrastr	50	16	129			2064									
Grading (Shoring & Excavation)	75	36	108	8100	3888	38880	14.7	10	15	119070	38880	583200	0.6	3,599	107,772
Foundation & Garage Concrete	340	196	142	48280	27832	0	14.7	10	15	709716	278320	0	0.6	21,454	29,672
Building Construction	1225	248	196	240100	48608	0	14.7	15.8	15	3529470	768006.4	0	0.6	106,693	81,879
Landscape & Finish	100	19	65	6500	1235	0	14.7	10	15	95550	12350	0	0.6	2,888	1,317
												Total:		135,061	221,748
Worker miles per gallon =	19.8	gasoline													
Vendor/Haul miles per gallon =	5.6	diesel													

Notes: Consistent with CalEEMod worker vehicles are assumed to be gasoline and 50% LDA, 25%LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy Duty Trucks (T7).

Calculation of Gasoline and Diesel Usage During Phase 2 Construction (Onroad Vehicles):

	Daily Worker	Daily Vendor		Total Worker	Total Vendor		Trip Length (miles)			Total Length (miles)			Avg. Daily Factor	Gallons of Fuel	
PhaseName	Trips	Trips	Days	Trips	Trips	Total Haul Trips	Worker	Vendor	Haul	Worker	Vendor	Haul	(worker and vendor)	Gasoline	Diesel
Demolition	25	0	34	850	0	416	14.7	10	15	12495	0	6240	0.6	378	1,109
Grading (Shoring & Excavation)	70	36	106	7420	3816	38880	14.7	10	15	109074	38160	583200	0.6	3,297	107,695
Foundation & Garage Concrete	310	172	144	44640	24768	0	14.7	10	15	656208	247680	0	0.6	19,837	26,406
Building Construction	650	336	195	126750	65520	0	14.7	18.57	15	1863225	1216706	0	0.6	56,324	129,715
Landscape & Finish	95	14	65	6175	910	0	14.7	10	15	90772.5	9100	0	0.6	2,744	970
												Total:		82,579	265,895

Worker miles per gallon =	19.8	gasoline
Vendor/Haul miles per gallon =	5.6	diesel

Notes: Consistent with CalEEMod worker vehicles are assumed to be gasoline and 50% LDA, 25%LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy Duty Trucks (T7).

Water Usage for Control of Fugitive Dust during Construction:

Phase 1	Days		Average Daily Acreage Disturbed	Gallons Per Year	Electricity (Kwhr)
Demolition	32		5	483200	4,700
Grading (Shoring & Ex	129		5	1947900	18,947
Foundation & Garage (	108		0	0	-
Building Construction	196		0	0	-
Landscape & Finish	65		1	196300	1,909
	65	Subtotal:		2,627,400	25,557

Phase 2	Days		Average Daily Acreage Disturbed	Gallons Per Year	
Demolition	34		5	513400	4,994
Grading (Shoring & Ex	106		5	1600600	15,569
Foundation & Garage (	144		0	0	-
Building Construction	195		0	0	-
Landscape & Finish	65		1	196300	1,909
		Subtotal:		2,310,300	22,472
		Total:		4,937,700	48,029

Notes: Gallons per year of water usage for dust control is calculated based on a minimum control efficiency of 66% (three times daily) with an application rate of 3,020 gal/acre/day (Air & Waste Management Association Air Pollution Engineering Manual (1992 Edition)) and average of 26 construction days per month.

CalEEMod Default: Each gallon of delivered potable water in Southern California is associated with 0.009727 kWhr of electricity).

EMFAC2011 Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2016
Season: Annual
Vehicle Classification: EMFAC2007 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_GAS (1000 gallo	Fuel_DSL (1000 gallons/day)		
South Coas	2016	Annual	LDA	GAS	Aggregatec	Aggregatec	5792946	197227585.3	36554822	8702.393	0		
South Coas	2016	Annual	LDA	DSL	Aggregatec	Aggregatec	19944.38	641906.7725	118879.9	0	20.92368		
South Coas	2016	Annual	LDT1	GAS	Aggregatec	Aggregatec	679603.8	23162319.54	4131718	1180.899	0		
South Coas	2016	Annual	LDT1	DSL	Aggregatec	Aggregatec	986.7277	32799.68335	5390.438	0	1.1015		
South Coas	2016	Annual	LDT2	GAS	Aggregatec	Aggregatec	1906231	69273763.33	12003786	4145.804	0		
South Coas	2016	Annual	LDT2	DSL	Aggregatec	Aggregatec	909.5953	32749.32759	5384.245	0	1.083479		
South Coas	2016	Annual	LHD1	GAS	Aggregatec	Aggregatec	284690.6	12366184.3	4241466	930.8355	0		
South Coas	2016	Annual	LHD1	DSL	Aggregatec	Aggregatec	90210.03	3795072.061	1134729	0	197.834		
South Coas	2016	Annual	LHD2	GAS	Aggregatec	Aggregatec	29939.19	1297406.09	446049.3	97.97908	0		
South Coas	2016	Annual	LHD2	DSL	Aggregatec	Aggregatec	30260.04	1255797.096	380633.2	0	65.60775		
South Coas	2016	Annual	MCY	GAS	Aggregatec	Aggregatec	227541.6	1670667.586	455037.7	41.95667	0		
South Coas	2016	Annual	MDV	GAS	Aggregatec	Aggregatec	1578951	53597082.47	9841016	4075.01	0		
South Coas	2016	Annual	MDV	DSL	Aggregatec	Aggregatec	1602.617	55714.55887	9491.371	0	1.820078		
South Coas	2016	Annual	MH	GAS	Aggregatec	Aggregatec	61440.65	687733.2402	6146.523	48.68237	0		
South Coas	2016	Annual	MH	DSL	Aggregatec	Aggregatec	10737.48	117391.92	1073.748	0	13.07592		
South Coas	2016	Annual	OBUS	GAS	Aggregatec	Aggregatec	7059.94	279800.0529	322415.2	22.555	0		
South Coas	2016	Annual	OBUS	DSL	Aggregatec	Aggregatec	5888.305	462410.8364	0	0	68.17204		
South Coas	2016	Annual	SBUS	GAS	Aggregatec	Aggregatec	1539.034	55328.03626	6156.135	5.155739	0		
South Coas	2016	Annual	SBUS	DSL	Aggregatec	Aggregatec	4728.28	173445.121	0	0	24.10532		
South Coas	2016	Annual	T6	GAS	Aggregatec	Aggregatec	23872.25	1138606.917	477636	87.84788	0		
South Coas	2016	Annual	T6	DSL	Aggregatec	Aggregatec	84940.37	4933187.862	0	0	554.2305		
South Coas	2016	Annual	T7	GAS	Aggregatec	Aggregatec	1631.331	241446.7458	32639.67	19.12008	0		
South Coas	2016	Annual	T7	DSL	Aggregatec	Aggregatec	78771.49	11259565.23	0	0	2023.301		
South Coas	2016	Annual	UBUS	GAS	Aggregatec	Aggregatec	1816.281	195045.2553	7265.125	17.92242	0		
South Coas	2016	Annual	UBUS	DSL	Aggregatec	Aggregatec	7196.83	771338.9875	28787.32	0	194.8977		
												MPG	Gallons per Mile
Totals								384,724,348		19,376.16	3,166.15	**17.1**	**0.059**
Total (Gas)								361192968.9	0.938836			**18.6**	**0.054**
Total (DSL)								23531379.45	0.061164			**7.4**	**0.135**

EMFAC2011 Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2007 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_GAS (1000 gallons/day)	Fuel_DSL (1000 gallons/day)
South Coas	2020	Annual	LDA	GAS	Aggregated	Aggregated	5,962,903	203,195,464	37,640,937	8,935.02	0.00
South Coas	2020	Annual	LDA	DSL	Aggregated	Aggregated	20,499	657,371	125,683	0.00	21.18
South Coas	2020	Annual	LDT1	GAS	Aggregated	Aggregated	698,686	23,776,980	4,227,852	1,207.52	0.00
South Coas	2020	Annual	LDT1	DSL	Aggregated	Aggregated	1,013	34,846	5,837	0.00	1.15
South Coas	2020	Annual	LDT2	GAS	Aggregated	Aggregated	1,980,366	72,336,808	12,463,753	4,307.47	0.00
South Coas	2020	Annual	LDT2	DSL	Aggregated	Aggregated	946	34,112	5,848	0.00	1.11
South Coas	2020	Annual	LHD1	GAS	Aggregated	Aggregated	302,688	13,021,681	4,509,593	971.12	0.00
South Coas	2020	Annual	LHD1	DSL	Aggregated	Aggregated	97,218	4,040,404	1,222,884	0.00	210.12
South Coas	2020	Annual	LHD2	GAS	Aggregated	Aggregated	31,499	1,360,186	469,281	101.67	0.00
South Coas	2020	Annual	LHD2	DSL	Aggregated	Aggregated	32,172	1,314,224	404,681	0.00	68.45
South Coas	2020	Annual	MCY	GAS	Aggregated	Aggregated	238,649	1,755,415	477,250	44.20	0.00
South Coas	2020	Annual	MDV	GAS	Aggregated	Aggregated	1,649,350	55,656,936	10,194,301	4,224.44	0.00
South Coas	2020	Annual	MDV	DSL	Aggregated	Aggregated	1,669	56,813	10,064	0.00	1.84
South Coas	2020	Annual	MH	GAS	Aggregated	Aggregated	64,998	731,934	6,502	51.07	0.00
South Coas	2020	Annual	MH	DSL	Aggregated	Aggregated	11,405	123,378	1,141	0.00	13.74
South Coas	2020	Annual	OBUS	GAS	Aggregated	Aggregated	7,258	274,476	331,460	21.89	0.00
South Coas	2020	Annual	OBUS	DSL	Aggregated	Aggregated	6,260	502,138	0	0.00	73.15
South Coas	2020	Annual	SBUS	GAS	Aggregated	Aggregated	1,618	58,153	6,473	5.32	0.00
South Coas	2020	Annual	SBUS	DSL	Aggregated	Aggregated	4,757	172,040	0	0.00	23.86
South Coas	2020	Annual	T6	GAS	Aggregated	Aggregated	25,026	1,200,687	500,719	90.70	0.00
South Coas	2020	Annual	T6	DSL	Aggregated	Aggregated	88,451	5,274,432	0	0.00	587.80
South Coas	2020	Annual	T7	GAS	Aggregated	Aggregated	1,686	230,158	33,740	18.05	0.00
South Coas	2020	Annual	T7	DSL	Aggregated	Aggregated	86,280	12,834,988	0	0.00	2,295.96
South Coas	2020	Annual	UBUS	GAS	Aggregated	Aggregated	1,890	202,978	7,562	18.50	0.00
South Coas	2020	Annual	UBUS	DSL	Aggregated	Aggregated	7,395	792,664	29,581	0.00	195.47

					MPG	Gallons per Mile
Totals	399,639,267		19,996.96	3,493.82	**17.0**	**0.059**
Total (Gas)	373801857.4	0.93534817			**18.7**	**0.053**
Total (DSL)	25837409.98	0.06465183			**7.4**	**0.135**

Pasadena Parsons Site-Existing

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1,361.00	Space	12.25	544,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2013
Utility Company	Pasadena Water & Power				
CO2 Intensity (lb/MWhr)	1664.14	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2013

5.0 Energy Detail

5.3 Energy by Land Use - Electricity

	Electricity Use				
Land Use	kWh/yr				
Parking Lot	479072				
Total	**479072**				

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Pasadena Parsons Site Phase 1

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	210.00	1000sqft	2.26	210,000.00	0
Enclosed Parking with Elevator	1,536.00	Space	2.00	614,400.00	0
Quality Restaurant	10.00	1000sqft	0.20	10,000.00	0
Apartments Low Rise	475.00	Dwelling Unit	2.26	475,000.00	969

4.0 Operational Detail - Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,731.25	2,968.75	2517.50	9,344,690	7,488,639
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	1,778.70	382.20	157.50	4,341,241	3,478,979
Quality Restaurant	819.00	859.20	657.00	1,141,183	914,520
Total	5,328.95	4,210.15	3,332.00	14,827,114	11,882,138

	Without Project Features		With Project Features	
	Gasoline	Diesel	Gasoline	Diesel
Miles/Gallon	18.6	7.4	18.6	7.4
% Fleet Mix	0.938836	0.061164	0.938836	0.061164
Total (Gallons):	748,399	122,552	599,752	98,211

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use
Land Use	kBTU/yr
Apartments Low Rise	3.69842e+006
Enclosed Parking with Elevator	0
General Office Building	2.2953e+006
Quality Restaurant	2.3301e+006
Total	**8.32E+06**

Mitigated

	NaturalGas Use
Land Use	kBTU/yr
Enclosed Parking with Elevator	0
General Office Building	1.96329e+006
Quality Restaurant	2.26226e+006
Apartments Low Rise	3.32164e+006
Total	**7.55E+06**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use
Land Use	kWh/yr
Apartments Low Rise	1.72412e+006
Enclosed Parking with Elevator	4.14106e+006
General Office Building	3.0513e+006
Quality Restaurant	469100
Total	**9.39E+06**

Mitigated

	Electricity Use
Land Use	kWh/yr
Apartments Low Rise	1.65295e+006
Enclosed Parking with Elevator	3.53741e+006
General Office Building	2.73914e+006
Quality Restaurant	440975
Total	**8.37E+06**

6.0 Area Detail

Hearth	149760	kbtu/yr														

7.0 Water Detail

Mitigated

	Indoor/Outdoor	Electricity		
Land Use	Mgal	kWh/yr		
Apartments Low Rise	24.7585 / 15.6086	426916.55		
Enclosed Parking with Elevator	0 / 0	0		
General Office Building	29.8593 / 18.3008	509778.56		
Quality Restaurant	2.42827 / 0.154996	28488.154		
Total		**965183.26**		

CalEEMod Default: Inside water--Each gallon of delivered, treated, and distributed potable water in Southern California is associated with 0.01111 kWhr of electricity
CalEEMod Default: Outside water--Each gallon of delivered potable water in Southern California is associated with 0.009727 kWhr of electricity

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Pasadena Parsons Site-Phase 2

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	410.00	1000sqft	3.60	410,000.00	0
Quality Restaurant	0.00	1000sqft	0.00	0.00	0
Apartments Low Rise	0.00	Dwelling Unit	0.00	0.00	0
Enclosed Parking with Elevator	1,823.00	Space	2.00	729,200.00	0

4.0 Operational Detail - Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
General Office Building	3,472.70	746.20	307.50	8,475,756	6,780,573
Quality Restaurant	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	3,472.70	746.20	307.50	8,475,756	6,780,573

	Without Project Features		With Project Features	
	Gasoline	Diesel	Gasoline	Diesel
Miles/Gallon	18.7	7.4	18.7	7.4
% Fleet Mix	0.93534817	0.06465183	0.93534817	0.06465183
Total (Gallons):	423,946	74,050	339,155	59,240

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					
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
General Office Building	4.4813e+006	0.0242	0.2197	0.1845	1.3200e-003		0.0167	0.0167		0.0167	0.0167						240.5946
Quality Restaurant	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total	**4.4813e+006**	**0.0242**	**0.2197**	**0.1845**	**1.3200e-003**		**0.0167**	**0.0167**		**0.0167**	**0.0167**						**240.5946**

Mitigated

	NaturalGas Use																
Land Use	kBTU/yr																
Enclosed Parking with Elevator	0																
General Office Building	3.83309e+006																
Quality Restaurant	0																
Apartments Low Rise	0																
Total	**3.83309e+006**																

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	0				0.0000
Enclosed Parking with Elevator	4.91481e+006				3,715.4038
General Office Building	5.9573e+006				4,503.4872
Quality Restaurant	0				0.0000
Total	**10872110**				**8,218.8910**

Mitigated

	Electricity Use				
Land Use	kWh/yr				
Apartments Low Rise	0				
Enclosed Parking with Elevator	4.19837e+006				
General Office Building	5.34784e+006				
Quality Restaurant	0				
Total	**9546210**				

6.0 Area Detail

SubCategory																
Hearth	0	kbtu/yr														

7.0 Water Detail

	Indoor/Outdoor Use	Electricity Use		
Land Use	Mgal	kWh/yr		
Apartments Low Rise	0 / 0	0		
Enclosed Parking with Elevator	0 / 0	0		
General Office Building	56.2957 / 35.7302	995282.29		
Quality Restaurant	0 / 0	0		
Total		**995,282**		

CalEEMod Default: Inside water--Each gallon of delivered, treated, and distributed potable water in Southern California is associated with 0.01111 kWhr of electricity
CalEEMod Default: Outside water--Each gallon of delivered potable water in Southern California is associated with 0.009727 kWhr of electricity

CalEEMod Version: CalEEMod.2013.2.2 Page 1 of 1 Date: 4/8/2014 9:02 PM

Pasadena Parsons Site-Buildout

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	620.00	1000sqft	5.86	620,000.00	0
Enclosed Parking with Elevator	3,359.00	Space	4.00	1,343,600.00	0
Quality Restaurant	10.00	1000sqft	0.20	10,000.00	0
Apartments Low Rise	475.00	Dwelling Unit	2.26	475,000.00	969

4.0 Operational Detail - Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	2,731.25	2,968.75	2517.50	9,344,690	7,511,114
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	5,251.40	1,128.40	465.00	12,816,997	10,302,100
Quality Restaurant	819.00	859.20	657.00	1,141,183	917,265
Total	8,801.65	4,956.35	3,639.50	23,302,870	18,730,479

	Without Project Features		With Project Features	
	Gasoline	Diesel	Gasoline	Diesel
Miles/Gallon	18.7	7.4	18.7	7.4
% Fleet Mix	0.93534817	0.06465183	0.935348	0.06465183
Total (Gallons):	1,165,577	203,591	936,873	163,643

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.530094	0.057664	0.178835	0.124843	0.039181	0.006319	0.017052	0.034445	0.002509	0.003148	0.003693	0.000531	0.001685

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

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					
Apartments Low Rise	3.69842e+006	0.0199	0.1704	0.0725	1.0900e-003		0.0138	0.0138		0.0138	0.0138						198.5630
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
General Office Building	6.7766e+006	0.0365	0.3322	0.2790	1.9900e-003		0.0253	0.0253		0.0253	0.0253						363.8260
Quality Restaurant	2.3301e+006	0.0126	0.1142	0.0960	6.9000e-004		8.6800e-003	8.6800e-003		8.6800e-003	8.6800e-003						125.0997
Total	**1.28E+007**	**0.0690**	**0.6168**	**0.4475**	**3.7700e-003**		**0.0477**	**0.0477**		**0.0477**	**0.0477**						**687.4887**

Mitigated

	NaturalGas Use																
Land Use	kBTU/yr																
Enclosed Parking with Elevator	0																
General Office Building	5.79638e+006																
Quality Restaurant	2.26226e+006																
Apartments Low Rise	3.32164e+006																
Total	**1.14E+007**																

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.72412e+006				1,303.3690
Enclosed Parking with Elevator	9.05586e+006				6,845.8812

General Office Building	9.0086e+006				6,810.1514
Quality Restaurant	469100				354.6214
Total	**2.03E+07**				**15,314.0229**

Mitigated

	Electricity Use				
Land Use	kWh/yr				
Apartments Low Rise	1.65295e+006				
Enclosed Parking with Elevator	7.73578e+006				
General Office Building	8.08697e+006				
Quality Restaurant	440975				
Total	**1.79E+07**				

6.0 Area Detail

Hearth	149760	kbtu/yr														

7.0 Water Detail

7.2 Water by Land Use

	Indoor/Outdoor Use	Electricity Use		
Land Use	Mgal	kWh/yr		
Apartments Low Rise	24.7585 / 15.6086	426916.55		
Enclosed Parking with Elevator	0 / 0	0		
General Office Building	88.1559 / 54.0311	1505060.7		
Quality Restaurant	2.42827 / 0.154996	28488.154		
Total		**1960465.4**		