

APPENDIX A

AIR QUALITY MODEL RUNS

(Construction emissions were calculated using a shorter time frame as a worst case. With the longer construction period, short-term emissions would be the same or less.)

Park 2 Playa

1.0 Project Characteristics

Location

Los Angeles-South Coast - County

Operational year

2014

Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	2.7	1000sqft

2.0 Construction Characteristics

Construction Phases

Phase Name	Start Date	End Date	Days per Week	Days per Phase
Grading Yr1	2013/06/01	2013/06/13	5	9
Paving Yr1	2013/06/14	2013/06/20	5	5
Grading Yr2	2014/06/01	2014/06/09	5	6

Offroad

Phase	Equipment Type	Pieces of Equipment	Hours per Day	HP	LF
Grading Yr1	Concrete/Industrial Saws	0	8	81	0.73
Grading Yr1	Rubber Tired Dozers	0	1	358	0.59
Grading Yr1	Tractors/Loaders/Backhoes	2	6	75	0.55
Paving Yr1	Cement and Mortar Mixers	4	6	9	0.56
Paving Yr1	Pavers	1	7	89	0.62
Paving Yr1	Rollers	1	7	84	0.56
Paving Yr1	Tractors/Loaders/Backhoes	1	7	75	0.55
Grading Yr2	Concrete/Industrial Saws	0	8	81	0.73
Grading Yr2	Rubber Tired Dozers	0	1	358	0.59
Grading Yr2	Tractors/Loaders/Backhoes	2	6	75	0.55

Onroad

Phase	Worker Trips	Vendor Trips	Hauling Trips	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Grading Yr1	5	0	104	12.7	7.4	20
Paving Yr1	18	0	0	12.7	7.4	20
Grading Yr2	5	0	64	12.7	7.4	20

Paving

Acres to be Paved 0.06

Park 2 Playa
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	2.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	
Climate Zone	11		2.2		
		Precipitation Freq (Days)			
					33

1.3 User Entered Comments

Construction Phase - Grading Yr1: 6/1/13-6/13/13
 Paving Yr1: 6/14/13-6/20/13
 Grading Yr2: 6/1/14-6/9/14
 Off-road Equipment - 1 Loader 1 Backhoe
 Off-road Equipment - 1 Loader 1 Backhoe

Notes: Blue shading indicates PM10 data revised from non-CalEEMod calculations to correct error in CalEEMod

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2013	2.48	14.66	11.09	0.02	0.47	1.21	1.68	0.04	1.21	1.22	0.00	1,647.10	0.00	0.22	0.00	1,651.74
2014	1.35	10.62	7.80	0.02	0.44	0.64	1.08	0.03	0.64	0.67	0.00	1,573.67	0.00	0.10	0.00	1,575.74
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

3.0 Construction Detail

3.2 Grading Yr1 - 2013

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	lb/day										lb/day					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00						0.00
Off-Road	0.83	5.47	4.23	0.01		0.46	0.46		0.46	0.46		619.61		0.07		621.17
Total	0.83	5.47	4.23	0.01	0.01	0.46	0.47	0.00	0.46	0.46		619.61		0.07		621.17

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	lb/day										lb/day					
Hauling	0.68	6.68	3.93	0.01	0.38	0.29	0.67	0.03	0.29	0.32		967.98		0.03		968.67
Vendor	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
Worker	0.04	0.04	0.37	0.00	0.08	0.00	0.08	0.00	0.00	0.01		59.52		0.00		59.59
Total	0.72	6.72	4.30	0.01	0.46	0.29	0.75	0.03	0.29	0.33		1,027.50		0.03		1,028.26

3.3 Paving Yr1 - 2013

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	lb/day										lb/day					
Off-Road	2.32	14.52	9.76	0.02		1.20	1.20		1.20	1.20		1,408.52		0.21		1,412.88
Paving	0.03					0.00	0.00		0.00	0.00						0.00
Total	2.35	14.52	9.76	0.02		1.20	1.20		1.20	1.20		1,408.52		0.21		1,412.88

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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.13	0.14	1.33	0.00	0.28	0.01	0.29	0.01	0.01	0.02		214.26		0.01		214.54
Total	0.13	0.14	1.33	0.00	0.28	0.01	0.29	0.01	0.01	0.02		214.26		0.01		214.54

3.4 Grading Yr2 - 2014

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	lb/day										lb/day					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00						0.00
Off-Road	0.76	5.09	4.20	0.01		0.40	0.40		0.40	0.40		619.61		0.07		621.03
Total	0.76	5.09	4.20	0.01	0.01	0.40	0.41	0.00	0.40	0.40		619.61		0.07		621.03

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	lb/day										lb/day					
Hauling	0.56	5.49	3.27	0.01	0.35	0.23	0.58	0.03	0.23	0.26		895.51		0.03		896.08
Vendor	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
Worker	0.03	0.04	0.34	0.00	0.08	0.00	0.08	0.00	0.00	0.01		58.55		0.00		58.63
Total	0.59	5.53	3.61	0.01	0.43	0.23	0.66	0.03	0.23	0.27		954.06		0.03		954.71

Fugitive PM from Hauling

$$EF = k(s/2)^{0.65}(w/3)^{1.5}$$

Formula for emission factor (EF)
from CalEEMod Appendix A

EF	k-PM10 #	sl	w
0.001633	0.016	0.1	2.4

k = particle size multiplier; PM10 factor from USEPA AP-42
sl = silt loading, g/m², CalEEMod default (for public roads)
w = average vehicle weight, tons, CalEEMod default (for public roads)

$$\text{Emissions} = \text{EF} * \text{miles}$$

	Grading Yr1	Grading Yr2
trips	104	64
vMT/trip	20	20
VMT	2080	1280
days	9	6
VMT/day	231	213
PM10	0.38	0.35

Park 2 Playa
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
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1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company
Climate Zone	11		2.2	
		Precipitation Freq (Days)		
			33	

1.3 User Entered Comments

Construction Phase - Grading Yr1: 6/1/13-6/13/13
 Paving Yr1: 6/14/13-6/20/13
 Grading Yr2: 6/1/14-6/9/14
 Off-road Equipment - 1 Loader 1 Backhoe
 Off-road Equipment - 1 Loader 1 Backhoe

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					
2013	0.01	0.09	0.07	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	10.43	10.43	0.00	0.00	10.45
2014	0.00	0.03	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	4.29	4.29	0.00	0.00	4.30
Total	0.01	0.12	0.09	0.00	0.01	0.01	0.03	0.00	0.01	0.01	0.00	14.72	14.72	0.00	0.00	14.75

3.0 Construction Detail

3.2 Grading Yr1 - 2013

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					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.53	2.53	0.00	0.00	2.54
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	2.53	0.00	0.00	2.54

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	0.00	0.03	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	3.96	3.96	0.00	0.00	3.97
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.00	0.00	0.25
Total	0.00	0.03	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.21	4.21	0.00	0.00	4.22

3.3 Paving Yr1 - 2013

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	0.01	0.04	0.02	0.00		0.00	0.00		0.00	0.00	0.00	3.19	3.19	0.00	0.00	3.20
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.04	0.02	0.00		0.00	0.00		0.00	0.00	0.00	3.19	3.19	0.00	0.00	3.20

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.50
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.50

3.4 Grading Yr2 - 2014

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					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00	0.00	1.69	1.69	0.00	0.00	1.69
Total	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	1.69	0.00	0.00	1.69

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	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	2.44	0.00	0.00	2.45
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.00	0.00	0.16
Total	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.60	2.60	0.00	0.00	2.61