

**APPENDIX A**  
**Species List**





**APPENDIX B**

**Criteria Pollutant and GHG Emissions Data**

## Emissions Summaries

### Criteria Emissions

Activity	Category	Criteria Emissions (lbs/d)				
		ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Lighting Installation	Offroad	1.27	8.44	14.50	0.67	0.62
	Vendors	0.01	0.16	0.23	0.02	0.01
	Employees	0.01	0.58	0.06	0.02	0.01
<i>Maximum Daily</i>		<i>1.3</i>	<i>9.2</i>	<i>14.8</i>	<i>0.7</i>	<i>0.6</i>

### GHG Emissions

Activity	Category	GHG Emissions (tonnes)			
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Lighting Installation	Offroad	4.96	0.0015	N/A	5.00
	Vendors	0.10	0.0000	0.0000	0.12
	Employees	1.11	0.0001	0.0001	1.14
<i>Grand Total for Project</i>		<i>6.2</i>	<i>0.002</i>	<i>0.000</i>	<i>6.3</i>
<b>Amortized</b>					<b>0.21</b>

## Construction Employee Commute

### Construction Employee Vehicle Activity

Activity	Total Trips (days)	Trips per day	Round Trip (mi)	VMT per day	Total VMT (mi)
Lighting Installation	13	8	30	240	3,120

### Construction Employee Criteria Emissions

Activity	Pounds per Day				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Lighting Installation	0.014	0.583	0.055	0.025	0.011

### Construction Employee GHG Emissions

Activity	Total Tonnes			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Lighting Installation	1.11	0.0001	0.0001	1.14

## Vendors

### Vendors Vehicle Activity

Vehicle Type (EMFAC)	# Days	Trips per day	Round Trip (mi)	VMT per day	Total VMT (mi)
T6 instate const	3	1	12	12	36
LHD1	2	2	24	48	96
<i>Project Total</i>				<b>60</b>	<b>132</b>

### Vendors Criteria Emissions

Vehicle Type (EMFAC)	Maximum Pounds per Day				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
T6 instate const	0.005	0.017	0.088	0.007	0.004
LHD1	0.009	0.143	0.137	0.010	0.005
<i>Daily Maximum</i>	<b>0.01</b>	<b>0.16</b>	<b>0.23</b>	<b>0.02</b>	<b>0.01</b>

### Vendors GHG Emissions

Vehicle Type (EMFAC)	Total Tonnes			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2e</sub>
T6 instate const	0.042	0.00002	0.00002	0.049
LHD1	0.062	0.00003	0.00002	0.070
<i>Project Total</i>	<b>0.10</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.12</b>

## Offroad Equipment

Equipment Activity	Equipment Type	Activity				
		BHP	Load Factor	Length (wkday)	hrs / day	total hours
	Aerial Lift	63	0.31	8	8	64
	Bore/Drill Rig	221	0.50	6	5	30
	Cement and Mortar Mixer	9	0.56	6	5	30
	Crane	231	0.29	6	5	30
	Truck Crane	150	0.29	3	8	24
	Tractors/Loaders/Backhoes	97	0.37	13	5	65

Criteria Emissions	Equipment Type	Criteria Emissions (lbs/d)				
		ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
	Aerial Lift	0.04	1.09	0.71	0.02	0.02
	Bore/Drill Rig	0.19	1.31	2.62	0.07	0.07
	Cement and Mortar Mixer	0.04	0.19	0.23	0.01	0.01
	Crane	0.36	1.58	4.26	0.18	0.17
	Truck Crane	0.48	2.81	5.03	0.27	0.25
	Tractors/Loaders/Backhoes	0.17	1.46	1.64	0.12	0.11
	<i>Maximum Daily</i>	<i>1.3</i>	<i>8.4</i>	<i>14.5</i>	<i>0.7</i>	<i>0.6</i>

GHG Emissions	Equipment Type	GHG Emissions (tonnes)		
		CO <sub>2</sub>	CH <sub>4</sub>	CO <sub>2</sub> e
	Aerial Lift	0.61	0.0002	0.62
	Bore/Drill Rig	1.61	0.0005	1.62
	Cement and Mortar Mixer	0.09	0.0000	0.09
	Crane	0.99	0.0003	1.00
	Truck Crane	0.51	0.0002	0.52
	Tractors/Loaders/Backhoes	1.15	0.0004	1.16
	<i>Total</i>	<i>5.0</i>	<i>0.002</i>	<i>5.0</i>



### 2018 Offroad Emission Factors

Equipment Type	BHP	Load Factor	Emission Factor (g/bhp-hr)						
			ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>	CH <sub>4</sub>
Aerial Lift	63	0.31	0.122	3.167	2.064	0.057	0.052	490.5	0.153
Bore/Drill Rig	221	0.50	0.155	1.073	2.153	0.061	0.056	484.6	0.151
Cement and Mortar Mixer	9	0.56	0.661	3.469	4.142	0.163	0.163	568.3	0.059
Crane	231	0.29	0.483	2.134	5.773	0.250	0.230	491.4	0.153
Truck Crane	150	0.29	0.621	3.666	6.557	0.351	0.323	491.4	0.153
Tractors/Loaders/Backhoes	97	0.37	0.420	3.692	4.154	0.294	0.271	494.1	0.154

*From: CalEEMod Users Guide - Appendix D (September 2016)*

**EMFAC2014 (v1.0.7) Emission Rates**

**Calendar Year 2018**

*EMFAC2011 Vehicle Categories*

*Los Angeles County portion of South Coast Air Basin*

Vehicle Info			Emission Factor (grams/mile)											
Type	Fuel	VMT	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>			PM <sub>2.5</sub>			CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
						Exhaust	TW+BW	Total	Exhaust	TW+BW	Total			
LDA	GAS	122,982,245	0.0230	0.9448	0.0811	0.0022	0.0448	0.0470	0.0021	0.0178	0.0198	324.33	0.0278	0.0294
LDA	DSL	1,074,098	0.0419	0.3732	0.1697	0.0252	0.0448	0.0700	0.0241	0.0178	0.0419	298.09	0.6037	0.5554
LDT1	GAS	10,617,868	0.0647	2.4843	0.2358	0.0043	0.0448	0.0490	0.0039	0.0178	0.0217	379.60	0.0315	0.0433
LDT1	DSL	13,439	0.1944	1.0914	1.0837	0.1443	0.0448	0.1890	0.1380	0.0178	0.1558	408.61	0.6037	0.5554
LDT2	GAS	46,052,939	0.0297	1.2195	0.1334	0.0022	0.0448	0.0469	0.0020	0.0178	0.0198	433.87	0.0315	0.0433
LDT2	DSL	75,825	0.0236	0.1945	0.0651	0.0069	0.0448	0.0516	0.0066	0.0178	0.0243	384.44	0.6037	0.5554
<b>Weighted Average for Employees</b>			<b>0.027</b>	<b>1.101</b>	<b>0.104</b>	<b>0.002</b>	<b>0.045</b>	<b>0.047</b>	<b>0.002</b>	<b>0.018</b>	<b>0.020</b>	<b>355.4</b>	<b>0.0289</b>	<b>0.0338</b>
LHD1	GAS	2,348,454	0.0812	1.9575	0.4159	0.0017	0.0844	0.0862	0.0016	0.0348	0.0364	747.72	0.0315	0.0433
LHD1	DSL	1,702,860	0.0937	0.5258	2.5098	0.0210	0.0884	0.1095	0.0201	0.0358	0.0559	501.46	0.6037	0.5554
<b>Weighted Average for LHD1</b>			<b>0.086</b>	<b>1.356</b>	<b>1.296</b>	<b>0.010</b>	<b>0.086</b>	<b>0.096</b>	<b>0.009</b>	<b>0.035</b>	<b>0.045</b>	<b>644.2</b>	<b>0.2720</b>	<b>0.2586</b>
T6 instate const	DSL	319,713	0.199	0.6404	3.3392	0.1146	0.1423	0.2570	0.1097	0.0589	0.1685	1,172.61	0.6037	0.5554

Notes: - Criteria and CO<sub>2</sub> factors come from 2014 EMFAC2014 (v1.0.7) and represent Estimated Annual Emission Rates for Los Angeles County in the South Coast Air Basin for the calendar year 2018

- CH<sub>4</sub> and N<sub>2</sub>O factors come from Local Government Operations Protocol: For the quantification and reporting of greenhouse gas emissions inventories. Version 1.1. California Air Resources Board, California Climate Action Registry, ICLEI - Local Governments for Sustainability, and The Climate Registry. May 2010

- Employee Weighted Average is 68.6% LDA + 5.9% LDT1 + 25.5% LDT2 based on VMT

## Construction Data

Activity	Soccer	Comments
Start of Project	February-18	<i>Work will not be constant but sproadic</i>
End of Project	July-18	
Nearest concrete asphalt disposal (1-way miles)	6	<i>Hansen Aggregates</i>
Nearest everything else disposal (1-way miles)	12	<i>Downtown Diversion</i>

### Equipment List

Activity	Off-road	Vendors (On-road)
Includes: installation of lighting system, installation of new scoreboard, install pads for electrical cabinets, dig/fill of electrical trenches and light pole holes	Truck-mounted Crane Crane Aerial Lift Bore/Drill Rig Backhoe Cement and Mortar Mixer	Flatbed truck (T6 instate construction small)  Dump trucks - if needed (LDH1)

### Estimate of Employees

# Equip	# Emp
4	5
Plus	3
<b>Total</b>	<b>8</b>