

Appendix D
Air Quality and Greenhouse Gas Emission Modeling



Appendices

This page intentionally left blank.

**Construction
Orange County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	3.75	Acre

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	8	Precipitation Freq (Days)	30		

1.3 User Entered Comments

- Project Characteristics -
- Land Use -
- Construction Phase - Based on information provided by City.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Placeholder for demolition haul purposes.
- Off-road Equipment - Equipment based on information provided/verified by City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Trips and VMT - Based on information provided by the City.
- Demolition -
- Grading -

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					
2016	0.15	1.17	0.85	0.00	0.50	0.06	0.56	0.03	0.06	0.09	0.00	200.46	200.46	0.01	0.00	200.67
Total	0.15	1.17	0.85	0.00	0.50	0.06	0.56	0.03	0.06	0.09	0.00	200.46	200.46	0.01	0.00	200.67

Mitigated 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					
2016	0.15	1.17	0.85	0.00	0.38	0.06	0.44	0.01	0.06	0.07	0.00	200.46	200.46	0.01	0.00	200.67
Total	0.15	1.17	0.85	0.00	0.38	0.06	0.44	0.01	0.06	0.07	0.00	200.46	200.46	0.01	0.00	200.67

3.0 Construction Detail

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition (Structures) - 2016

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					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.11	0.10	0.00		0.01	0.01		0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54
Total	0.02	0.11	0.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54

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	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	12.77	12.77	0.00	0.00	12.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Total	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	14.45	14.45	0.00	0.00	14.46

Mitigated 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	0.02	0.11	0.10	0.00		0.01	0.01		0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54
Total	0.02	0.11	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54

Mitigated 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	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	12.77	12.77	0.00	0.00	12.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Total	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	14.45	14.45	0.00	0.00	14.46

3.3 Demolition (Building Pads) - 2016

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					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	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
Total	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88
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	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88

Mitigated 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	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	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

Mitigated 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	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88
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	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88

3.4 Overhead Electrical Removal - 2016

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	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12
Total	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12

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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30

Mitigated 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	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12
Total	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12

Mitigated 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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30

3.5 Demolition (Asphalt/Curb/Gutter) - 2016

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					0.14	0.00	0.14	0.02	0.00	0.02	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	2.33	2.33	0.00	0.00	2.33
Total	0.00	0.02	0.02	0.00	0.14	0.00	0.14	0.02	0.00	0.02	0.00	2.33	2.33	0.00	0.00	2.33

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	0.02	0.19	0.15	0.00	0.05	0.01	0.06	0.00	0.01	0.01	0.00	35.56	35.56	0.00	0.00	35.58
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	0.12	0.12	0.00	0.00	0.12
Total	0.02	0.19	0.15	0.00	0.05	0.01	0.06	0.00	0.01	0.01	0.00	35.68	35.68	0.00	0.00	35.70

Mitigated 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					0.06	0.00	0.06	0.01	0.00	0.01	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	2.33	2.33	0.00	0.00	2.33
Total	0.00	0.02	0.02	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00	2.33	2.33	0.00	0.00	2.33

Mitigated 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	0.02	0.19	0.15	0.00	0.05	0.01	0.05	0.00	0.01	0.01	0.00	35.56	35.56	0.00	0.00	35.58
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	0.12	0.12	0.00	0.00	0.12
Total	0.02	0.19	0.15	0.00	0.05	0.01	0.05	0.00	0.01	0.01	0.00	35.68	35.68	0.00	0.00	35.70

3.6 Grading (Fill/Subbase material) - 2016

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	0.01	0.04	0.04	0.00		0.00	0.00		0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95
Total	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95

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	0.01	0.19	0.10	0.00	0.22	0.01	0.22	0.00	0.01	0.01	0.00	56.05	56.05	0.00	0.00	56.06
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	0.39	0.39	0.00	0.00	0.39
Total	0.01	0.19	0.10	0.00	0.22	0.01	0.22	0.00	0.01	0.01	0.00	56.44	56.44	0.00	0.00	56.45

Mitigated 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	0.01	0.04	0.04	0.00		0.00	0.00		0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95
Total	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95

Mitigated 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	0.01	0.19	0.10	0.00	0.20	0.01	0.20	0.00	0.01	0.01	0.00	56.05	56.05	0.00	0.00	56.06
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	0.39	0.39	0.00	0.00	0.39
Total	0.01	0.19	0.10	0.00	0.20	0.01	0.20	0.00	0.01	0.01	0.00	56.44	56.44	0.00	0.00	56.45

3.7 Paving (Aggregate Base) - 2016

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	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67

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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

Mitigated 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	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67

Mitigated 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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

3.8 Paving (Topcoat) - 2016

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	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54

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	0.00	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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

Mitigated 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	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54

Mitigated 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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

CalEEMod Output – Construction: Summer



Appendix D

This page intentionally left blank.

Construction
Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	3.75	Acre

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)		Utility Company	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

- Project Characteristics -
- Land Use -
- Construction Phase - Based on information provided by City.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Placeholder for demolition haul purposes.
- Off-road Equipment - Equipment based on information provided/verified by City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Trips and VMT - Based on information provided by the City.

Demolition -

Grading -

Construction Off-road Equipment Mitigation -

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					
2016	9.36	85.51	61.74	0.16	77.24	3.21	80.44	0.52	3.21	3.73	0.00	16,824.50	0.00	0.52	0.00	16,835.37
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated 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					
2016	9.36	85.51	61.74	0.16	44.02	3.21	46.88	0.52	3.21	3.72	0.00	16,824.50	0.00	0.52	0.00	16,835.37
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

3.0 Construction Detail

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition (Structures) - 2016

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					1.11	0.00	1.11	0.00	0.00	0.00						0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98		1,753.23		0.17		1,756.88
Total	1.95	12.84	11.75	0.02	1.11	0.98	2.09	0.00	0.98	0.98		1,753.23		0.17		1,756.88

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	0.72	7.18	4.55	0.02	8.04	0.28	8.31	0.06	0.28	0.33		1,659.59		0.04		1,660.34
Vendor	0.04	0.47	0.32	0.00	0.04	0.01	0.05	0.00	0.01	0.02		108.73		0.00		108.77
Worker	0.05	0.04	0.53	0.00	0.15	0.00	0.16	0.01	0.00	0.01		113.46		0.01		113.58
Total	0.81	7.69	5.40	0.02	8.23	0.29	8.52	0.07	0.29	0.36		1,881.78		0.05		1,882.69

Mitigated 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					0.47	0.00	0.47	0.00	0.00	0.00						0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98	0.00	1,753.23		0.17		1,756.88
Total	1.95	12.84	11.75	0.02	0.47	0.98	1.45	0.00	0.98	0.98	0.00	1,753.23		0.17		1,756.88

Mitigated 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	0.72	7.18	4.55	0.02	7.32	0.28	7.60	0.06	0.28	0.33		1,659.59		0.04		1,660.34
Vendor	0.04	0.47	0.32	0.00	0.03	0.01	0.05	0.00	0.01	0.02		108.73		0.00		108.77
Worker	0.05	0.04	0.53	0.00	0.14	0.00	0.15	0.01	0.00	0.01		113.46		0.01		113.58
Total	0.81	7.69	5.40	0.02	7.49	0.29	7.80	0.07	0.29	0.36		1,881.78		0.05		1,882.69

3.3 Demolition (Building Pads) - 2016

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					0.74	0.00	0.74	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.74	0.00	0.74	0.00	0.00	0.00		0.00		0.00		0.00

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	0.12	1.18	0.82	0.00	1.15	0.04	1.19	0.01	0.04	0.05		244.99		0.01		245.12
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.12	1.18	0.82	0.00	1.15	0.04	1.19	0.01	0.04	0.05		244.99		0.01		245.12

Mitigated 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					0.32	0.00	0.32	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.32	0.00	0.32	0.00	0.00	0.00	0.00	0.00		0.00		0.00

Mitigated 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	0.12	1.18	0.82	0.00	1.05	0.04	1.09	0.01	0.04	0.05		244.99		0.01		245.12
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.12	1.18	0.82	0.00	1.05	0.04	1.09	0.01	0.04	0.05		244.99		0.01		245.12

3.4 Overhead Electrical Removal - 2016

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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35

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	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86

Mitigated 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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35

Mitigated 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	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86

3.5 Demolition (Asphalt/Curb/Gutter) - 2016

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					55.26	0.00	55.26	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62		1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	55.26	0.62	55.88	0.00	0.62	0.62		1,027.02		0.11		1,029.30

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	8.13	77.61	54.58	0.15	21.90	2.58	24.49	0.51	2.58	3.10		15,740.74		0.41		15,749.28
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	0.02	0.02	0.26	0.00	0.08	0.00	0.08	0.00	0.00	0.01		56.73		0.00		56.79
Total	8.15	77.63	54.84	0.15	21.98	2.58	24.57	0.51	2.58	3.11		15,797.47		0.41		15,806.07

Mitigated 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					23.62	0.00	23.62	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62	0.00	1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	23.62	0.62	24.24	0.00	0.62	0.62	0.00	1,027.02		0.11		1,029.30

Mitigated 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	8.13	77.61	54.58	0.15	19.98	2.58	22.56	0.51	2.58	3.10		15,740.74		0.41		15,749.28
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	0.02	0.02	0.26	0.00	0.07	0.00	0.07	0.00	0.00	0.01		56.73		0.00		56.79
Total	8.15	77.63	54.84	0.15	20.05	2.58	22.63	0.51	2.58	3.11		15,797.47		0.41		15,806.07

3.6 Grading (Fill/Subbase material) - 2016

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					0.14	0.00	0.14	0.02	0.00	0.02						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53		1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.14	0.53	0.67	0.02	0.53	0.55		1,089.31		0.10		1,091.36

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	2.28	37.50	20.23	0.12	48.16	1.19	49.36	0.22	1.19	1.42		12,355.83		0.11		12,358.15
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	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	2.32	37.54	20.65	0.12	48.28	1.19	49.49	0.22	1.19	1.43		12,446.60		0.11		12,449.01

Mitigated 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					0.06	0.00	0.06	0.01	0.00	0.01						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53	0.00	1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.06	0.53	0.59	0.01	0.53	0.54	0.00	1,089.31		0.10		1,091.36

Mitigated 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	2.28	37.50	20.23	0.12	43.85	1.19	45.04	0.22	1.19	1.42		12,355.83		0.11		12,358.15
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	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	2.32	37.54	20.65	0.12	43.96	1.19	45.16	0.22	1.19	1.43		12,446.60		0.11		12,449.01

3.7 Paving (Aggregate Base) - 2016

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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13		1,114.22
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13		1,114.22

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	0.11	1.17	0.79	0.00	0.09	0.04	0.13	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.21	0.04	0.26	0.01	0.04	0.05		362.59		0.01		362.79

Mitigated 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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13		1,114.22
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13		1,114.22

Mitigated 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	0.11	1.17	0.79	0.00	0.09	0.04	0.12	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.20	0.04	0.24	0.01	0.04	0.05		362.59		0.01		362.79

3.8 Paving (Topcoat) - 2016

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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03

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	0.00	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	0.11	1.17	0.79	0.00	0.09	0.04	0.13	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.21	0.04	0.26	0.01	0.04	0.05		362.59		0.01		362.79

Mitigated 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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03

Mitigated 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	0.11	1.17	0.79	0.00	0.09	0.04	0.12	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.20	0.04	0.24	0.01	0.04	0.05		362.59		0.01		362.79

CalEEMod Output – Construction: Winter



Appendix D

This page intentionally left blank.

**Construction
Orange County, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	3.75	Acre

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	8	Precipitation Freq (Days)	30		

1.3 User Entered Comments

- Project Characteristics -
- Land Use -
- Construction Phase - Based on information provided by City.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Placeholder for demolition haul purposes.
- Off-road Equipment - Equipment based on information provided/verified by City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
- Trips and VMT - Based on information provided by the City.
- Demolition -

Grading -

Construction Off-road Equipment Mitigation -

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					
2016	9.77	88.10	69.81	0.16	77.24	3.26	80.49	0.52	3.26	3.78	0.00	16,677.92	0.00	0.54	0.00	16,689.21
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated 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					
2016	9.77	88.10	69.81	0.16	44.02	3.26	46.93	0.52	3.26	3.78	0.00	16,677.92	0.00	0.54	0.00	16,689.21
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

3.0 Construction Detail

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition (Structures) - 2016

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					1.11	0.00	1.11	0.00	0.00	0.00						0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98			1,753.23	0.17		1,756.88
Total	1.95	12.84	11.75	0.02	1.11	0.98	2.09	0.00	0.98	0.98			1,753.23	0.17		1,756.88

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	0.74	7.55	4.93	0.02	8.04	0.28	8.32	0.06	0.28	0.34			1,652.54	0.04		1,653.31
Vendor	0.05	0.49	0.36	0.00	0.04	0.02	0.05	0.00	0.02	0.02			108.03	0.00		108.08
Worker	0.05	0.05	0.49	0.00	0.15	0.00	0.16	0.01	0.00	0.01			106.05	0.01		106.16
Total	0.84	8.09	5.78	0.02	8.23	0.30	8.53	0.07	0.30	0.37			1,866.62	0.05		1,867.55

Mitigated 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					0.47	0.00	0.47	0.00	0.00	0.00						0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98	0.00	1,753.23		0.17		1,756.88
Total	1.95	12.84	11.75	0.02	0.47	0.98	1.45	0.00	0.98	0.98	0.00	1,753.23		0.17		1,756.88

Mitigated 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	0.74	7.55	4.93	0.02	7.32	0.28	7.60	0.06	0.28	0.34		1,652.54		0.04		1,653.31
Vendor	0.05	0.49	0.36	0.00	0.03	0.02	0.05	0.00	0.02	0.02		108.03		0.00		108.08
Worker	0.05	0.05	0.49	0.00	0.14	0.00	0.15	0.01	0.00	0.01		106.05		0.01		106.16
Total	0.84	8.09	5.78	0.02	7.49	0.30	7.80	0.07	0.30	0.37		1,866.62		0.05		1,867.55

3.3 Demolition (Building Pads) - 2016

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					0.74	0.00	0.74	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.74	0.00	0.74	0.00	0.00	0.00		0.00		0.00		0.00

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	0.13	1.22	0.93	0.00	1.15	0.04	1.19	0.01	0.04	0.05		242.98		0.01		243.11
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.13	1.22	0.93	0.00	1.15	0.04	1.19	0.01	0.04	0.05		242.98		0.01		243.11

Mitigated 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					0.32	0.00	0.32	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.32	0.00	0.32	0.00	0.00	0.00	0.00	0.00		0.00		0.00

Mitigated 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	0.13	1.22	0.93	0.00	1.05	0.04	1.09	0.01	0.04	0.05		242.98		0.01		243.11
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.13	1.22	0.93	0.00	1.05	0.04	1.09	0.01	0.04	0.05		242.98		0.01		243.11

3.4 Overhead Electrical Removal - 2016

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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35

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	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93

Mitigated 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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35

Mitigated 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	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93

3.5 Demolition (Asphalt/Curb/Gutter) - 2016

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					55.26	0.00	55.26	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62		1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	55.26	0.62	55.88	0.00	0.62	0.62		1,027.02		0.11		1,029.30

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	8.53	80.19	62.66	0.15	21.90	2.63	24.54	0.51	2.63	3.15		15,597.87		0.43		15,606.83
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	0.03	0.25	0.00	0.08	0.00	0.08	0.00	0.00	0.01		53.03		0.00		53.08
Total	8.56	80.22	62.91	0.15	21.98	2.63	24.62	0.51	2.63	3.16		15,650.90		0.43		15,659.91

Mitigated 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					23.62	0.00	23.62	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62	0.00	1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	23.62	0.62	24.24	0.00	0.62	0.62	0.00	1,027.02		0.11		1,029.30

Mitigated 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	8.53	80.19	62.66	0.15	19.98	2.63	22.61	0.51	2.63	3.15		15,597.87		0.43		15,606.83
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	0.03	0.25	0.00	0.07	0.00	0.07	0.00	0.00	0.01		53.03		0.00		53.08
Total	8.56	80.22	62.91	0.15	20.05	2.63	22.68	0.51	2.63	3.16		15,650.90		0.43		15,659.91

3.6 Grading (Fill/Subbase material) - 2016

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					0.14	0.00	0.14	0.02	0.00	0.02						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53		1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.14	0.53	0.67	0.02	0.53	0.55		1,089.31		0.10		1,091.36

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	2.37	40.31	20.83	0.12	48.16	1.19	49.36	0.22	1.19	1.42		12,355.83		0.11		12,358.17
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	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93
Total	2.41	40.35	21.23	0.12	48.28	1.19	49.49	0.22	1.19	1.43		12,440.67		0.11		12,443.10

Mitigated 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					0.06	0.00	0.06	0.01	0.00	0.01						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53	0.00	1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.06	0.53	0.59	0.01	0.53	0.54	0.00	1,089.31		0.10		1,091.36

Mitigated 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	2.37	40.31	20.83	0.12	43.85	1.19	45.04	0.22	1.19	1.42		12,355.83		0.11		12,358.17
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	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	2.41	40.35	21.23	0.12	43.96	1.19	45.16	0.22	1.19	1.43		12,440.67		0.11		12,443.10

3.7 Paving (Aggregate Base) - 2016

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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13		1,114.22
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13		1,114.22

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	0.12	1.22	0.90	0.00	0.09	0.04	0.13	0.01	0.04	0.04		270.07		0.01		270.19
Worker	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.16	1.26	1.30	0.00	0.21	0.04	0.26	0.01	0.04	0.05		354.91		0.01		355.12

Mitigated 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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13		1,114.22
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13		1,114.22

Mitigated 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	0.12	1.22	0.90	0.00	0.09	0.04	0.12	0.01	0.04	0.04		270.07		0.01		270.19
Worker	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.16	1.26	1.30	0.00	0.20	0.04	0.24	0.01	0.04	0.05		354.91		0.01		355.12

3.8 Paving (Topcoat) - 2016

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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03

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	0.00	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	0.12	1.22	0.90	0.00	0.09	0.04	0.13	0.01	0.04	0.04		270.07		0.01		270.19
Worker	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.16	1.26	1.30	0.00	0.21	0.04	0.26	0.01	0.04	0.05		354.91		0.01		355.12

Mitigated 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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03

Mitigated 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	0.12	1.22	0.90	0.00	0.09	0.04	0.12	0.01	0.04	0.04		270.07		0.01		270.19
Worker	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.16	1.26	1.30	0.00	0.20	0.04	0.24	0.01	0.04	0.05		354.91		0.01		355.12

CalEEMod Output – Construction Mitigated: Annual



Appendix D

This page intentionally left blank.

**Construction-Mitigated
Orange County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	3.75	Acre

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	8	Precipitation Freq (Days)	30		

1.3 User Entered Comments

Project Characteristics -
 Land Use -
 Construction Phase - Mitigation extends demolition of AC/curb/gutter activities by 20 days to a total of 25 days.
 Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
 Off-road Equipment - Placeholder for demolition haul purposes.
 Off-road Equipment - Equipment based on information provided/verified by City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
 Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
 Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
 Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
 Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.
 Trips and VMT - Based on information provided by the City.
 Demolition -

Grading -
 Construction Off-road Equipment Mitigation -

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					
2016	0.17	1.26	0.93	0.00	0.72	0.07	0.79	0.03	0.07	0.09	0.00	211.73	211.73	0.01	0.00	211.97
Total	0.17	1.26	0.93	0.00	0.72	0.07	0.79	0.03	0.07	0.09	0.00	211.73	211.73	0.01	0.00	211.97

Mitigated 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					
2016	0.17	1.26	0.93	0.00	0.59	0.07	0.65	0.01	0.07	0.08	0.00	211.73	211.73	0.01	0.00	211.97
Total	0.17	1.26	0.93	0.00	0.59	0.07	0.65	0.01	0.07	0.08	0.00	211.73	211.73	0.01	0.00	211.97

3.0 Construction Detail

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition (Structures) - 2016

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					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.11	0.10	0.00		0.01	0.01		0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54
Total	0.02	0.11	0.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54

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	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	12.77	12.77	0.00	0.00	12.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Total	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	14.45	14.45	0.00	0.00	14.46

Mitigated 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	0.02	0.11	0.10	0.00		0.01	0.01		0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54
Total	0.02	0.11	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	13.52	13.52	0.00	0.00	13.54

Mitigated 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	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	12.77	12.77	0.00	0.00	12.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.00	0.00	0.84
Total	0.01	0.06	0.04	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	14.45	14.45	0.00	0.00	14.46

3.3 Demolition (Building Pads) - 2016

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					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	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
Total	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88
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	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88

Mitigated 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	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	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

Mitigated 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	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88
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	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.88	1.88	0.00	0.00	1.88

3.4 Overhead Electrical Removal - 2016

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	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12
Total	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12

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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30

Mitigated 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	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12
Total	0.02	0.19	0.09	0.00		0.01	0.01		0.01	0.01	0.00	25.08	25.08	0.00	0.00	25.12

Mitigated 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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30

3.5 Demolition (Asphalt/Curb/Gutter) - 2016

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					0.14	0.00	0.14	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.11	0.10	0.00		0.01	0.01		0.01	0.01	0.00	13.04	13.04	0.00	0.00	13.07
Total	0.02	0.11	0.10	0.00	0.14	0.01	0.15	0.02	0.01	0.03	0.00	13.04	13.04	0.00	0.00	13.07

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	0.02	0.19	0.15	0.00	0.27	0.01	0.28	0.00	0.01	0.01	0.00	35.56	35.56	0.00	0.00	35.58
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	0.69	0.69	0.00	0.00	0.69
Total	0.02	0.19	0.15	0.00	0.27	0.01	0.28	0.00	0.01	0.01	0.00	36.25	36.25	0.00	0.00	36.27

Mitigated 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					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.11	0.10	0.00		0.01	0.01		0.01	0.01	0.00	13.04	13.04	0.00	0.00	13.07
Total	0.02	0.11	0.10	0.00	0.06	0.01	0.07	0.01	0.01	0.02	0.00	13.04	13.04	0.00	0.00	13.07

Mitigated 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	0.02	0.19	0.15	0.00	0.25	0.01	0.25	0.00	0.01	0.01	0.00	35.56	35.56	0.00	0.00	35.58
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	0.69	0.69	0.00	0.00	0.69
Total	0.02	0.19	0.15	0.00	0.25	0.01	0.25	0.00	0.01	0.01	0.00	36.25	36.25	0.00	0.00	36.27

3.6 Grading (Fill/Subbase material) - 2016

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	0.01	0.04	0.04	0.00		0.00	0.00		0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95
Total	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95

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	0.01	0.19	0.10	0.00	0.22	0.01	0.22	0.00	0.01	0.01	0.00	56.05	56.05	0.00	0.00	56.06
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	0.39	0.39	0.00	0.00	0.39
Total	0.01	0.19	0.10	0.00	0.22	0.01	0.22	0.00	0.01	0.01	0.00	56.44	56.44	0.00	0.00	56.45

Mitigated 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	0.01	0.04	0.04	0.00		0.00	0.00		0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95
Total	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.94	4.94	0.00	0.00	4.95

Mitigated 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	0.01	0.19	0.10	0.00	0.20	0.01	0.20	0.00	0.01	0.01	0.00	56.05	56.05	0.00	0.00	56.06
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	0.39	0.39	0.00	0.00	0.39
Total	0.01	0.19	0.10	0.00	0.20	0.01	0.20	0.00	0.01	0.01	0.00	56.44	56.44	0.00	0.00	56.45

3.7 Paving (Aggregate Base) - 2016

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	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67

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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

Mitigated 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	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.16	0.12	0.00		0.01	0.01		0.01	0.01	0.00	16.63	16.63	0.00	0.00	16.67

Mitigated 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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

3.8 Paving (Topcoat) - 2016

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	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54

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	0.00	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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

Mitigated 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	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01	0.00	17.50	17.50	0.00	0.00	17.54

Mitigated 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	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	4.06	0.00	0.00	4.06
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.30	0.00	0.00	1.30
Total	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	0.00	0.00	5.36

CalEEMod Output – Construction Mitigated: Summer



Appendix D

This page intentionally left blank.

**Construction-Mitigated
Orange County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	3.75	Acre

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	8	Precipitation Freq (Days)	30		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Mitigation extends demolition of AC/curb/gutter activities by 20 days to a total of 25 days.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Placeholder for demolition haul purposes.

Off-road Equipment - Equipment based on information provided/verified by City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Trips and VMT - Based on information provided by the City.

Demolition -
 Grading -
 Construction Off-road Equipment Mitigation -

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					
2016	3.42	44.96	27.94	0.13	48.43	1.73	50.16	0.25	1.73	1.98	0.00	13,535.91	0.00	0.22	0.00	13,540.60
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated 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					
2016	3.42	44.96	27.94	0.13	44.02	1.73	45.75	0.24	1.73	1.97	0.00	13,535.91	0.00	0.22	0.00	13,540.60
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

3.0 Construction Detail

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition (Structures) - 2016

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					1.11	0.00	1.11	0.00	0.00	0.00						0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98		1,753.23		0.17		1,756.88
Total	1.95	12.84	11.75	0.02	1.11	0.98	2.09	0.00	0.98	0.98		1,753.23		0.17		1,756.88

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	0.72	7.18	4.55	0.02	8.04	0.28	8.31	0.06	0.28	0.33		1,659.59		0.04		1,660.34
Vendor	0.04	0.47	0.32	0.00	0.04	0.01	0.05	0.00	0.01	0.02		108.73		0.00		108.77
Worker	0.05	0.04	0.53	0.00	0.15	0.00	0.16	0.01	0.00	0.01		113.46		0.01		113.58
Total	0.81	7.69	5.40	0.02	8.23	0.29	8.52	0.07	0.29	0.36		1,881.78		0.05		1,882.69

Mitigated 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					0.47	0.00	0.47	0.00	0.00	0.00						0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98	0.00	1,753.23		0.17		1,756.88
Total	1.95	12.84	11.75	0.02	0.47	0.98	1.45	0.00	0.98	0.98	0.00	1,753.23		0.17		1,756.88

Mitigated 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	0.72	7.18	4.55	0.02	7.32	0.28	7.60	0.06	0.28	0.33		1,659.59		0.04		1,660.34
Vendor	0.04	0.47	0.32	0.00	0.03	0.01	0.05	0.00	0.01	0.02		108.73		0.00		108.77
Worker	0.05	0.04	0.53	0.00	0.14	0.00	0.15	0.01	0.00	0.01		113.46		0.01		113.58
Total	0.81	7.69	5.40	0.02	7.49	0.29	7.80	0.07	0.29	0.36		1,881.78		0.05		1,882.69

3.3 Demolition (Building Pads) - 2016

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					0.74	0.00	0.74	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.74	0.00	0.74	0.00	0.00	0.00		0.00		0.00		0.00

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	0.12	1.18	0.82	0.00	1.15	0.04	1.19	0.01	0.04	0.05		244.99		0.01		245.12
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.12	1.18	0.82	0.00	1.15	0.04	1.19	0.01	0.04	0.05		244.99		0.01		245.12

Mitigated 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					0.32	0.00	0.32	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.32	0.00	0.32	0.00	0.00	0.00	0.00	0.00		0.00		0.00

Mitigated 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	0.12	1.18	0.82	0.00	1.05	0.04	1.09	0.01	0.04	0.05		244.99		0.01		245.12
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.12	1.18	0.82	0.00	1.05	0.04	1.09	0.01	0.04	0.05		244.99		0.01		245.12

3.4 Overhead Electrical Removal - 2016

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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35

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	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86

Mitigated 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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35

Mitigated 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	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86

3.5 Demolition (Asphalt/Curb/Gutter) - 2016

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					9.87	0.00	9.87	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62		1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	9.87	0.62	10.49	0.00	0.62	0.62		1,027.02		0.11		1,029.30

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	1.45	13.86	9.75	0.03	21.48	0.46	21.94	0.09	0.46	0.55		2,810.85		0.07		2,812.37
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	0.02	0.02	0.26	0.00	0.08	0.00	0.08	0.00	0.00	0.01		56.73		0.00		56.79
Total	1.47	13.88	10.01	0.03	21.56	0.46	22.02	0.09	0.46	0.56		2,867.58		0.07		2,869.16

Mitigated 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					4.22	0.00	4.22	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62	0.00	1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	4.22	0.62	4.84	0.00	0.62	0.62	0.00	1,027.02		0.11		1,029.30

Mitigated 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	1.45	13.86	9.75	0.03	19.56	0.46	20.02	0.09	0.46	0.55		2,810.85		0.07		2,812.37
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	0.02	0.02	0.26	0.00	0.07	0.00	0.07	0.00	0.00	0.01		56.73		0.00		56.79
Total	1.47	13.88	10.01	0.03	19.63	0.46	20.09	0.09	0.46	0.56		2,867.58		0.07		2,869.16

3.6 Grading (Fill/Subbase material) - 2016

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					0.14	0.00	0.14	0.02	0.00	0.02						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53		1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.14	0.53	0.67	0.02	0.53	0.55		1,089.31		0.10		1,091.36

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	2.28	37.50	20.23	0.12	48.16	1.19	49.36	0.22	1.19	1.42		12,355.83		0.11		12,358.15
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	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	2.32	37.54	20.65	0.12	48.28	1.19	49.49	0.22	1.19	1.43		12,446.60		0.11		12,449.01

Mitigated 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					0.06	0.00	0.06	0.01	0.00	0.01						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53	0.00	1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.06	0.53	0.59	0.01	0.53	0.54	0.00	1,089.31		0.10		1,091.36

Mitigated 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	2.28	37.50	20.23	0.12	43.85	1.19	45.04	0.22	1.19	1.42		12,355.83		0.11		12,358.15
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	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	2.32	37.54	20.65	0.12	43.96	1.19	45.16	0.22	1.19	1.43		12,446.60		0.11		12,449.01

3.7 Paving (Aggregate Base) - 2016

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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13		1,114.22
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13		1,114.22

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	0.11	1.17	0.79	0.00	0.09	0.04	0.13	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.21	0.04	0.26	0.01	0.04	0.05		362.59		0.01		362.79

Mitigated 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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13		1,114.22
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13		1,114.22

Mitigated 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	0.11	1.17	0.79	0.00	0.09	0.04	0.12	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.20	0.04	0.24	0.01	0.04	0.05		362.59		0.01		362.79

3.8 Paving (Topcoat) - 2016

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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03

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	0.00	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	0.11	1.17	0.79	0.00	0.09	0.04	0.13	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.12	0.00	0.13	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.21	0.04	0.26	0.01	0.04	0.05		362.59		0.01		362.79

Mitigated 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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03

Mitigated 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	0.11	1.17	0.79	0.00	0.09	0.04	0.12	0.01	0.04	0.04		271.82		0.01		271.93
Worker	0.04	0.04	0.42	0.00	0.11	0.00	0.12	0.00	0.00	0.01		90.77		0.00		90.86
Total	0.15	1.21	1.21	0.00	0.20	0.04	0.24	0.01	0.04	0.05		362.59		0.01		362.79

CalEEMod Output – Construction Mitigated: Winter



Appendix D

This page intentionally left blank.

**Construction-Mitigated
Orange County, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	3.75	Acre

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Utility Company	Southern California Edison
Climate Zone	8	Precipitation Freq (Days)	30		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Mitigation extends demolition of AC/curb/gutter activities by 20 days to a total of 25 days.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Placeholder for demolition haul purposes.

Off-road Equipment - Equipment based on information provided/verified by City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Off-road Equipment - Equipment based on information provided/verified by the City. HP and LF based on 2011OffRoad ratings per CARB recommendation.

Trips and VMT - Based on information provided by the City.

Demolition -
 Grading -
 Construction Off-road Equipment Mitigation -

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					
2016	3.51	47.77	28.51	0.13	48.43	1.73	50.16	0.25	1.73	1.98	0.00	13,529.98	0.00	0.22	0.00	13,534.69
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Mitigated 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					
2016	3.51	47.77	28.51	0.13	44.02	1.73	45.75	0.24	1.73	1.97	0.00	13,529.98	0.00	0.22	0.00	13,534.69
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

3.0 Construction Detail

3.1 Mitigation Measures Construction

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

3.2 Demolition (Structures) - 2016

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					1.11	0.00	1.11	0.00	0.00	0.00							0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98		1,753.23		0.17			1,756.88
Total	1.95	12.84	11.75	0.02	1.11	0.98	2.09	0.00	0.98	0.98		1,753.23		0.17			1,756.88

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	0.74	7.55	4.93	0.02	8.04	0.28	8.32	0.06	0.28	0.34		1,652.54		0.04		1,653.31
Vendor	0.05	0.49	0.36	0.00	0.04	0.02	0.05	0.00	0.02	0.02		108.03		0.00		108.08
Worker	0.05	0.05	0.49	0.00	0.15	0.00	0.16	0.01	0.00	0.01		106.05		0.01		106.16
Total	0.84	8.09	5.78	0.02	8.23	0.30	8.53	0.07	0.30	0.37		1,866.62		0.05		1,867.55

Mitigated 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					0.47	0.00	0.47	0.00	0.00	0.00							0.00
Off-Road	1.95	12.84	11.75	0.02		0.98	0.98		0.98	0.98	0.00	1,753.23		0.17			1,756.88
Total	1.95	12.84	11.75	0.02	0.47	0.98	1.45	0.00	0.98	0.98	0.00	1,753.23		0.17			1,756.88

Mitigated 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	0.74	7.55	4.93	0.02	7.32	0.28	7.60	0.06	0.28	0.34		1,652.54		0.04		1,653.31
Vendor	0.05	0.49	0.36	0.00	0.03	0.02	0.05	0.00	0.02	0.02		108.03		0.00		108.08
Worker	0.05	0.05	0.49	0.00	0.14	0.00	0.15	0.01	0.00	0.01		106.05		0.01		106.16
Total	0.84	8.09	5.78	0.02	7.49	0.30	7.80	0.07	0.30	0.37		1,866.62		0.05		1,867.55

3.3 Demolition (Building Pads) - 2016

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					0.74	0.00	0.74	0.00	0.00	0.00							0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00			0.00
Total	0.00	0.00	0.00	0.00	0.74	0.00	0.74	0.00	0.00	0.00		0.00		0.00			0.00

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	0.13	1.22	0.93	0.00	1.15	0.04	1.19	0.01	0.04	0.05		242.98		0.01		243.11
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.13	1.22	0.93	0.00	1.15	0.04	1.19	0.01	0.04	0.05		242.98		0.01		243.11

Mitigated 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					0.32	0.00	0.32	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	0.00	0.00	0.00	0.00	0.32	0.00	0.32	0.00	0.00	0.00	0.00	0.00		0.00		0.00

Mitigated 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	0.13	1.22	0.93	0.00	1.05	0.04	1.09	0.01	0.04	0.05		242.98		0.01		243.11
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	0.13	1.22	0.93	0.00	1.05	0.04	1.09	0.01	0.04	0.05		242.98		0.01		243.11

3.4 Overhead Electrical Removal - 2016

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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48		1,675.72		0.12		1,678.35

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	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93

Mitigated 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	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35
Total	1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48	0.00	1,675.72		0.12		1,678.35

Mitigated 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	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93

3.5 Demolition (Asphalt/Curb/Gutter) - 2016

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					9.87	0.00	9.87	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62		1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	9.87	0.62	10.49	0.00	0.62	0.62		1,027.02		0.11		1,029.30

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	1.52	14.32	11.19	0.03	21.48	0.47	21.95	0.09	0.47	0.56		2,785.33		0.08		2,786.93
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	0.03	0.25	0.00	0.08	0.00	0.08	0.00	0.00	0.01		53.03		0.00		53.08
Total	1.55	14.35	11.44	0.03	21.56	0.47	22.03	0.09	0.47	0.57		2,838.36		0.08		2,840.01

Mitigated 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					4.22	0.00	4.22	0.00	0.00	0.00						0.00
Off-Road	1.21	7.89	6.89	0.01		0.62	0.62		0.62	0.62	0.00	1,027.02		0.11		1,029.30
Total	1.21	7.89	6.89	0.01	4.22	0.62	4.84	0.00	0.62	0.62	0.00	1,027.02		0.11		1,029.30

Mitigated 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	1.52	14.32	11.19	0.03	19.56	0.47	20.03	0.09	0.47	0.56		2,785.33		0.08		2,786.93
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	0.03	0.25	0.00	0.07	0.00	0.07	0.00	0.00	0.01		53.03		0.00		53.08
Total	1.55	14.35	11.44	0.03	19.63	0.47	20.10	0.09	0.47	0.57		2,838.36		0.08		2,840.01

3.6 Grading (Fill/Subbase material) - 2016

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					0.14	0.00	0.14	0.02	0.00	0.02						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53		1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.14	0.53	0.67	0.02	0.53	0.55		1,089.31		0.10		1,091.36

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	2.37	40.31	20.83	0.12	48.16	1.19	49.36	0.22	1.19	1.42		12,355.83		0.11		12,358.17
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	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93
Total	2.41	40.35	21.23	0.12	48.28	1.19	49.49	0.22	1.19	1.43		12,440.67		0.11		12,443.10

Mitigated 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					0.06	0.00	0.06	0.01	0.00	0.01						0.00
Off-Road	1.10	7.43	7.28	0.01		0.53	0.53		0.53	0.53	0.00	1,089.31		0.10		1,091.36
Total	1.10	7.43	7.28	0.01	0.06	0.53	0.59	0.01	0.53	0.54	0.00	1,089.31		0.10		1,091.36

Mitigated 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	2.37	40.31	20.83	0.12	43.85	1.19	45.04	0.22	1.19	1.42		12,355.83		0.11		12,358.17
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	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	2.41	40.35	21.23	0.12	43.96	1.19	45.16	0.22	1.19	1.43		12,440.67		0.11		12,443.10

3.7 Paving (Aggregate Base) - 2016

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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13			1,114.22
Paving	0.30					0.00	0.00		0.00	0.00							0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68		1,111.54		0.13			1,114.22

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	0.12	1.22	0.90	0.00	0.09	0.04	0.13	0.01	0.04	0.04		270.07		0.01			270.19
Worker	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00			84.93
Total	0.16	1.26	1.30	0.00	0.21	0.04	0.26	0.01	0.04	0.05		354.91		0.01			355.12

Mitigated 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	1.42	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13			1,114.22
Paving	0.30					0.00	0.00		0.00	0.00							0.00
Total	1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68	0.00	1,111.54		0.13			1,114.22

Mitigated 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	0.12	1.22	0.90	0.00	0.09	0.04	0.12	0.01	0.04	0.04		270.07		0.01		270.19
Worker	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.16	1.26	1.30	0.00	0.20	0.04	0.24	0.01	0.04	0.05		354.91		0.01		355.12

3.8 Paving (Topcoat) - 2016

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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71		1,169.22		0.13		1,172.03

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	0.00	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	0.12	1.22	0.90	0.00	0.09	0.04	0.13	0.01	0.04	0.04		270.07		0.01		270.19
Worker	0.04	0.04	0.40	0.00	0.12	0.00	0.13	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.16	1.26	1.30	0.00	0.21	0.04	0.26	0.01	0.04	0.05		354.91		0.01		355.12

Mitigated 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	1.49	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03
Paving	0.30					0.00	0.00		0.00	0.00						0.00
Total	1.79	10.20	7.47	0.01		0.71	0.71		0.71	0.71	0.00	1,169.22		0.13		1,172.03

Mitigated 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	0.12	1.22	0.90	0.00	0.09	0.04	0.12	0.01	0.04	0.04		270.07		0.01		270.19
Worker	0.04	0.04	0.40	0.00	0.11	0.00	0.12	0.00	0.00	0.01		84.84		0.00		84.93
Total	0.16	1.26	1.30	0.00	0.20	0.04	0.24	0.01	0.04	0.05		354.91		0.01		355.12

CalEEMod Input Worksheets



Appendix D

This page intentionally left blank.

CalEEMod Construction Run Land Use Inputs - Buildout

Type	LandUseUnitAmount	LandUseSizeMetric	LotAcreage	LandUseSquareFeet	Population
Other Asphalt *3.75 acres per 1/4 mile section	15*	Acre	15*		
Project Location:	Orange County				
Climate Zone:	8				
Operation Year					
Land Use Setting	Urban				
Utility Company	SCE				
Source Area Receptor:	17				

Demolition

Building (1/4 mile section)	19,125	building square footage
<i>Total Haul Trips (per 1/4 mile section)</i>	343	trip ends
<i>1-way haul distance</i>	20	miles
Building Pads (per 1/4 mile section)	590	Tons
<i>Total Haul Trips (per 1/4 mile section)</i>	98	trip ends
<i>1-way haul distance</i>	10	miles
Asphalt Debris (per 1/4 mile section)	12,911	Tons
<i>Total Haul Trips (per 1/4 mile section)</i>	2,043	trip ends
<i>1-way haul distance</i>	9	miles

Soil Haul: Road Grading

	Total (CY)	Amount Per 1/4 Mile Section (CY)	Haul Truck Capacity (CY)*	Round Trips Per 1/4 Mile Section	Trip Ends Per 1/4 Mile Section
<i>Import</i>	24,725	6,181	6	1,030	2,060
<i>Export</i>	24,725	6,181	6	1,030	2,060
total	49,450	12,363		2,060	4,121
<i>1-way haul distance</i>	10	miles			

*Assumes haul truck as Medium Heavy Truck (MHDT) in CalEEMod

Construction Phasing (Per 1/4 Mile Section)*

5-Day Work Week

Phase Name	Start Date**	End Date**	CalEEMod	Duration (Mos)
			Days*	
Demolition (Structures)	1/1/2016	1/25/2016	17	0.8
Demolition (Building Pads)	1/1/2016	1/25/2016	17	0.8
Demolition (OHE Removal)	1/26/2016	3/10/2016	33	1.5
Demolition (AC/Curb/Gutter)	3/11/2016	3/17/2016	5	0.2
Grading (Subfill/base)	3/18/2016	3/31/2016	10	0.5
Paving (Aggregate Base)	4/1/2016	5/17/2016	33	1.5
Pavement (Topcoat)	5/18/2016	7/1/2016	33	1.5

*Based on information provided and verified by the City and IBI Group.

**The total duration is based on best available information at time of analysis. Actual construction schedule may vary.

Construction Phasing (Per 1/4 Mile Section) - Mitigated*

5-Day Work Week

Phase Name	Start Date**	End Date**	CalEEMod	Duration (Mos)
			Days*	
Demolition (Structures)	1/1/2016	1/25/2016	17	0.8
Demolition (Building Pads)	1/1/2016	1/25/2016	17	0.8
Demolition (OHE Removal)	1/26/2016	3/10/2016	33	1.5
Demolition (AC/Curb/Gutter)	3/11/2016	4/19/2016	28	1.3
Grading (Subfill/base)	4/20/2016	5/3/2016	10	0.5
Paving (Aggregate Base)	5/4/2016	6/17/2016	33	1.5
Pavement (Topcoat)	6/20/2016	8/3/2016	33	1.5

*Based on information provided and verified by the City and IBI Group.

**The total duration is based on best available information at time of analysis. Actual construction schedule may vary.

Construction Equipment Mix

Type of Equipment	Pieces of Equipment	Hrs Op	HP	LF	Worker Trips/Day	CalEEMod Vendor Trips	Total Haul Trips	1-way Haul Trip Length
Building/Building Pad Demolition					Default	Default+4	343	20
Tractors/Loaders/Backhoes	3	8	98	0.37				
Water Truck	2					4		
Building/Building Pad Demolition					Default	Default	98	10
Share equipment above								
Removal/Relocation of Overhead Electrical (OHE)					Default	Default		
Cranes	2		226	0.29				
Tractors/Loaders/Backhoes	1	8	98	0.37				
Demolition of Asphalt/Curb/Gutter					Default	Default	470	9
Tractors/Loaders/Backhoes	1	8	98	0.37				
Crushing Processing Equipment	1	8	85	0.78				
Excavation/Removal of Fill/Sub-Base Material					Default	Default	4,121	10
Tractors/Loaders/Backhoes	3	8	98	0.37				
Foundation (Aggregate Base/Base)					Default	Default + 10		
Paving Machine	1	8	131	0.36				
Roller	2	8	84	0.38				
Vendor Trips (assume 10/day)						10		
Paving (Topcoat)					Default	Default + 10		
Paver	1	8	126	0.42				
Roller	2	8	84	0.38				
Vendor Trips (assume 10/day)						10		

Existing Pavement Volume to Weight Conversion

Location	Total SF of 1/4 Mile Roadway Section ¹	Assumed Thickness (inch) ²	Asphalt Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf) ³	AC Mass (lbs)	AC Mass (tons)
Asphalt	106,125	5.41	573,833	45	25,822,487	12911.24

¹ Based on estimated total of 424,500 square feet of project site as provided by the City.

² Geo-Logic Associates. 2013, March 26. *Geotechnical Reconnaissance Proposed Warner Avenue Widening Main Treet to Grand Avenue.*

³http://www.reade.com/Particle_Briefings/spec_gra2.html

Asphalt Thickness Calculation

Core Sample	Asphalt Concrete Thickness (inches)
1-110	5.75
1-111	5.75
1-112	5.50
1-113	6.75
1-114	7.75
1-115	6.00
16-67	4.50
12-68	4.60
12-69	4.50
12-70	4.25
2-81	4.00
2-82	5.60
2-83	6.50
2-84	4.25
Average Thickness	5.41

Source: Geo-Logic Associates. 2013, March 26. *Geotechnical Reconnaissance Proposed Warner Avenue Widening Main Treet to Grand Avenue.*

Demo Haul Trip Calculation

Conversion factors*

0.046 ton/SF

1.2641662 tons/cy

0.791035229 CY/ton

Asphalt Demo Haul Trips (Asphalt in Tons and Haul Truck in CY given)

Tons	Haul Truck (CY)	Haul Truck (Ton)	Round Trips	Total Trip Ends
12911.24	10	12.64	1021	2043
461.12	10	12.64	36	73

*CalEEMod User's Guide Version 2011.1, Appendix A

EquipmentTypeID	OFFROAD2011 Adj			OFFROAD2011 Adj		Max-Average HP Used in CalEEMod Run
	ARB LF	COMPARE TO		ARB HP	COMPARE TO	
		CalEEMod Default LF	Percent Change			
Air Compressors	NA	0.48		NA	78	78
Baggage Tug	0.37	NA		74	NA	74
Belt Loader	0.34	NA		75	NA	75
Bobtail	0.37	NA		144	NA	144
Bore/Drill Rigs	0.50	0.75	-33%	206	82	206
Cargo Loader	0.34	NA		117	NA	117
Cargo Tractor	0.36	NA		94	NA	94
Cement and Mortar Mixers	NA	0.56		NA	9	9
Concrete/Industrial Saws	NA	0.73		NA	81	81
Cranes	0.29	0.43	-33%	226	208	226
Crawler Tractors	0.43	0.64	-33%	208	82	208
Crushing/Proc. Equipment	NA	0.78		NA	85	85
Drill Rig (Mobile)	0.50	NA		238	NA	238
Dumpers/Tenders	NA	0.38		NA	16	16
Excavators	0.38	0.57	-33%	163	157	163
Forklift (GSE)	0.20	NA		107	NA	107
Forklifts	0.20	0.30	-33%	89	149	149
Generator Sets	NA	0.74		NA	84	84
Graders	0.41	0.61	-33%	175	162	175
Lift (GSE)	0.34	NA		95	NA	95
Off-Highway Tractors	0.44	0.65	-33%	123	160	160
Off-Highway Trucks	0.38	0.57	-33%	400	381	400
Other Construction Equipment	0.42	0.62	-33%	172	327	327
Other General Industrial Equipment	0.34	0.51	-33%	88	150	150
Other GSE	0.34	NA		108	NA	108
Other Material Handling Equipment	0.40	0.59	-33%	167	196	196
Passenger Stand	0.40	NA		70	NA	70
Pavers	0.42	0.62	-33%	126	89	126
Paving Equipment	0.36	0.53	-33%	131	82	131
Plate Compactors	NA	0.43		NA	8	8
Pressure Washers	NA	0.30		NA	13	13
Pumps	NA	0.74		NA	84	84
Rollers	0.38	0.56	-33%	81	84	84
Rough Terrain Forklifts	0.40	0.60	-33%	100	83	100
Rubber Tired Dozers	0.40	0.59	-33%	255	358	358
Rubber Tired Loaders	0.36	0.54	-33%	200	87	200
Scrapers	0.48	0.72	-33%	362	356	362
Signal Boards	NA	0.82		NA	6	6
Skid Steer Loaders	0.37	0.55	-33%	65	37	65
Surfacing Equipment	0.30	0.45	-33%	254	392	392
Sweepers/Scrubbers	0.46	0.68	-33%	64	88	88
Tractors/Loaders/Backhoes	0.37	0.55	-33%	98	75	98
Welders	NA	0.45		NA	46	46

Source: OFFROAD2011 and CalEEMod

CalEEMod Emissions Worksheets



Appendix D

This page intentionally left blank.

Regional Construction Emissions Worksheet

Demolition (Structures)

	2014	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		1.95	12.84	11.75	0.02	0.47	0.98	1.45	0	0.98	0.98
Offsite											
		0.74	7.55	4.93	0.02	0.43	0.28	0.71	0.06	0.28	0.34
		0.05	0.49	0.36	0	0.03	0.02	0.05	0	0.02	0.02
		0.05	0.05	0.49	0	0.14	0	0.15	0.01	0	0.01
		0.84	8.09	5.78	0.02	0.60	0.3	0.91	0.07	0.3	0.37
TOTAL	2014	2.79	20.93	17.53	0.04	1.07	1.28	2.36	0.07	1.28	1.35

Demolition (Building Pads Haul)

	2014	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		0	0	0	0	0.32	0	0.32	0	0	0
Offsite											
		0.13	1.22	0.93	0	0.06	0.04	0.10	0.01	0.04	0.05
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0.13	1.22	0.93	0	0.06	0.04	0.10	0.01	0.04	0.05
TOTAL	2014	0.13	1.22	0.93	0.00	0.38	0.04	0.42	0.01	0.04	0.05

Demolition (Structures+Building Pads)

		2.92	22.15	18.46	0.04	1.45	1.32	2.78	0.08	1.32	1.40
--	--	-------------	--------------	--------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

Overhead Electrical Removal

	2014	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		1.39	11.29	5.51	0.02		0.48	0.48		0.48	0.48
Offsite		0.04	0.04	0.4	0	0.11	0	0.12	0	0	0.01
TOTAL	2014	1.43	11.33	5.91	0.02	0.11	0.48	0.60	0.00	0.48	0.49

Demolition (Asphalt/Curb/Gutter)

	2014	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		1.21	7.89	6.89	0.01	23.62	0.62	24.24	0	0.62	0.62
Offsite											
		8.53	80.19	62.66	0.15	4.00	2.63	6.63	0.51	2.63	3.15
		0	0	0	0	0	0	0	0	0	0
		0.03	0.03	0.25	0	0.07	0	0.07	0	0	0.01
		8.56	80.22	62.91	0.15	4.07	2.63	6.70	0.51	2.63	3.16
TOTAL	2014	9.77	88.11	69.80	0.16	27.69	3.25	30.94	0.51	3.25	3.78

Grading (Subfill/Base)

	2014	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		1.1	7.43	7.28	0.01	0.06	0.53	0.59	0.01	0.53	0.54
Offsite											
		2.37	40.31	20.83	0.12	4.39	1.19	5.58	0.22	1.19	1.42
		0	0	0	0	0	0	0	0	0	0
		0.04	0.04	0.4	0	0.11	0	0.12	0	0	0.01
		2.41	40.35	21.23	0.12	4.50	1.19	5.70	0.22	1.19	1.43
TOTAL	2014	3.51	47.78	28.51	0.13	4.56	1.72	6.29	0.23	1.72	1.97

Paving (Aggregate Base)

	2014	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		1.72	9.68	7.11	0.01		0.68	0.68		0.68	0.68
Offsite		0.16	1.26	1.3	0	0.2	0.04	0.24	0.01	0.04	0.05
TOTAL	2014	1.88	10.94	8.41	0.01	0.20	0.72	0.92	0.01	0.72	0.73

Paving (Topcoat)

	2014	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		1.79	10.2	7.47	0.01		0.71	0.71		0.71	0.71
Offsite		0.16	1.26	1.3	0	0.2	0.04	0.24	0.01	0.04	0.05
TOTAL	2014	1.95	11.46	8.77	0.01	0.20	0.75	0.95	0.01	0.75	0.76

MAX DAILY

		9.77	88.11	69.80	0.16	27.69	3.25	30.94	0.51	3.25	3.78
--	--	-------------	--------------	--------------	-------------	--------------	-------------	--------------	-------------	-------------	-------------

Regional Thresholds		75	100	550	150			150			55
Exceeds Thresholds?		No	No	No	No			No			No

Maximum Daily Emission

Note: Includes the correction for Haul (on-road) PM10 Fugitive dust for which CalEEMod incorrectly calculates emissions over the entire duration emitted on one day.

LST Construction Emissions Worksheet

Demolition (Structures)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		12.84	11.75	0.47	0.98	1.45	0	0.98	0.98
TOTAL	2014	12.84	11.75	0.47	0.98	1.45	0.00	0.98	0.98
Demolition (Building Pads Haul)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		0	0	0.32	0	0.32	0	0	0
TOTAL	2014	0.00	0.00	0.32	0.00	0.32	0.00	0.00	0.00
Demolition (Structures+Building Pads)		12.84	11.75	0.79	0.98	1.77	0.00	0.98	0.98
Overhead Electrical Removal									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		11.29	5.51	0	0.48	0.48	0	0.48	0.48
TOTAL	2014	11.29	5.51	0.00	0.48	0.48	0.00	0.48	0.48
Demolition (Asphalt/Curb/Gutter)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		7.89	6.89	23.62	0.62	24.24	0	0.62	0.62
TOTAL	2014	7.89	6.89	23.62	0.62	24.24	0.00	0.62	0.62
Grading (Subfill/Base)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		7.43	7.28	0.06	0.53	0.59	0.01	0.53	0.54
TOTAL	2014	7.43	7.28	0.06	0.53	0.59	0.01	0.53	0.54
Paving (Aggregate Base)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		9.68	7.11	0	0.68	0.68	0	0.68	0.68
TOTAL	2014	9.68	7.11	0.00	0.68	0.68	0.00	0.68	0.68
Paving (Topcoat)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		10.2	7.47	0	0.71	0.71	0	0.71	0.71
TOTAL	2014	10.20	7.47	0.00	0.71	0.71	0.00	0.71	0.71
MAX DAILY		12.84	11.75	23.62	0.98	24.24	0.01	0.98	0.98
Regional Thresholds		98	600			5.00			3.50
Exceeds Thresholds?		No	No			Yes			No
Maximum Daily Emission									

Note: Includes the correction for Haul (on-road) PM10 Fugitive dust for which CalEEMod incorrectly calculates emissions over the entire duration emitted on one day.

LST Construction Emissions Worksheet - Mitigated

Demolition (Structures)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		12.84	11.75	0.47	0.98	1.45	0	0.98	0.98
TOTAL	2014	12.84	11.75	0.47	0.98	1.45	0.00	0.98	0.98
Demolition (Building Pads Haul)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		0	0	0.32	0	0.32	0	0	0
TOTAL	2014	0.00	0.00	0.32	0.00	0.32	0.00	0.00	0.00
Demolition (Structures+Building Pads)		12.84	11.75	0.79	0.98	1.77	0.00	0.98	0.98
Overhead Electrical Removal									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		11.29	5.51	0	0.48	0.48	0	0.48	0.48
TOTAL	2014	11.29	5.51	0.00	0.48	0.48	0.00	0.48	0.48
Demolition (Asphalt/Curb/Gutter)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		7.89	6.89	4.22	0.62	4.84	0	0.62	0.62
TOTAL	2014	7.89	6.89	4.22	0.62	4.84	0.00	0.62	0.62
Grading (Subfill/Base)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		7.43	7.28	0.06	0.53	0.59	0.01	0.53	0.54
TOTAL	2014	7.43	7.28	0.06	0.53	0.59	0.01	0.53	0.54
Paving (Aggregate Base)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		9.68	7.11	0	0.68	0.68	0	0.68	0.68
TOTAL	2014	9.68	7.11	0.00	0.68	0.68	0.00	0.68	0.68
Paving (Topcoat)									
	2014	NOx	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Onsite		10.2	7.47	0	0.71	0.71	0	0.71	0.71
TOTAL	2014	10.20	7.47	0.00	0.71	0.71	0.00	0.71	0.71
MAX DAILY		12.84	11.75	4.22	0.98	4.84	0.01	0.98	0.98
Regional Thresholds		98	600			5.00			3.50
Exceeds Thresholds?		No	No			No			No

Maximum Daily Emission

Note: Includes the correction for Haul (on-road) PM10 Fugitive dust for which CalEEMod incorrectly calculates emissions over the entire duration emitted on one day.

GHG Summary

Emissions Per 1/4 Mile Sections

Source	Buildout MTons/Year
Year 2020 Baseline	3,700
Year 2020 With Project	3,737
<i>Net Difference</i>	37
Amortized Construction Emissions*	7
Total All Sectors	43

*Total construction emissions are amortized over 30 years.

Source	Buildout MTons/Year
Year 2035 Baseline	3,721
Year 2035 With Project	3,875
<i>Net Difference</i>	155
Amortized Construction Emissions*	7
Total All Sectors	162

*Total construction emissions are amortized over 30 years.

Emissions for Entire Roadway

Source	Buildout MTons/Year
Year 2020 Baseline	3,700
Year 2020 With Project	3,737
<i>Net Difference</i>	37
Amortized Construction Emissions**	27
Total All Sectors	63

Source	Buildout MTons/Year
Year 2035 Baseline	3,721
Year 2035 With Project	3,875
<i>Net Difference</i>	155
Amortized Construction Emissions**	27
Total All Sectors	182

**Total construction emissions are multiplied by a factor of 4 and are amortized over 30 years.

Warner Avenue Emissions Inventory

Scenario	Segment	Trips/Day*	Vehicle Miles Traveled**	Total Annual Segment	
				Total Daily Segment VMT	VMT***
Year 2012 (Table 7-1)	Btwn Main and Halladay	28,640	0.65	18,616	6,459,752
Year 2012 (Table 7-1)	Btwn Standard and Grand	23,814	0.35	8,335	2,892,210
Year 2012 - Baseline			1	26,951	9,351,962
Year 2012 (Table 7-2)	Btwn Main and Halladay	29,833	0.65	19,391	6,728,833
Year 2012 (Table 7-2)	Btwn Standard and Grand	24,920	0.35	8,722	3,026,534
Year 2012 - With Project			1	28,113	9,755,367
Year 2020 (Table 7-3)	Btwn Main and Halladay	29,091	0.65	18,909	6,561,475
Year 2020 (Table 7-3)	Btwn Standard and Grand	26,369	0.35	9,229	3,202,515
Year 2020 - Baseline			1	28,138	9,763,990
Year 2020 (Table 7-4)	Btwn Main and Halladay	29,164	0.65	18,957	6,577,940
Year 2020 (Table 7-4)	Btwn Standard and Grand	27,030	0.35	9,461	3,282,794
Year 2020 - With Project			1	28,417	9,860,734
Year 2035 (Table 7-5)	Btwn Main and Halladay	29,955	0.5	14,978	5,197,193
Year 2035 (Table 7-5)	Btwn Standard and Grand	31,921	0.5	15,961	5,538,294
Year 2035 - Baseline			1	30,938	10,735,486
Year 2035 (Table 7-6)	Btwn Main and Halladay	30,174	0.50	15,087	5,235,189
Year 2035 (Table 7-6)	Btwn Standard and Grand	34,278	0.50	17,139	5,947,233
Year 2035 - With Project			1	32,226	11,182,422

Vehicle Miles Traveled 1 mile <---Warner Avenue Project is 1 mile in length

*Trips information obtained from Tables 7-1 (Baseline 2012), 7-2 (2012 + Project), 7-3 (No Project 2020), 7-4 (Project 2020), 7-5 (No Project 2035) and 7-6 (Project 2035), TTRfinal2012-11-06.pdf document

**The distance between Main Street and Halladay Street is measured at 0.5 mile, the distance between Halladay Street and Standard Avenue is measured at 0.15 mile, and the distance between Standard Avenue to Grand Avenue is measured at 0.35 mile. The 0.15 mile distance between Halladay Street and Standard Avenue is added to segment with the higher ADT volume. Distances were measured using Google Earth measuring tool.

***Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

CRITERIA AIR POLLUTANTS

	lbs/day					
	ROG	NOx	CO	SOx	PM10	PM2.5
Year 2012 - Baseline	19	44	176	0	4	2
Year 2012 - With Project	20	46	184	0	4	2
Net Change	1	2	8	0	0	0
Year 2020 - Baseline	12	23	97	0	4	2
Year 2020 - With Project	12	23	98	0	4	2
Net Change	0	0	1	0	0	0
Year 2035 - Baseline	9	14	66	0	4	2
Year 2035 - With Project	9	15	69	0	4	2
Net Change	0	1	3	0	0	0

Daily emissions multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

Source: EMFAC2011-SG

GHG EMISSIONS

	MTons/year			w/Project Compared to 2012 Baseline
	N ₂ O	CO ₂	CO ₂ e	
Year 2012 - Baseline	7	4,425	4,494	194
Year 2012 - With Project	7	4,616	4,687	
Net Change	0	191	194	
Year 2020 - Baseline	4	3,664	3,700	-757
Year 2020 - With Project	4	3,701	3,737	
Net Change	0	36	37	
Year 2035 - Baseline	2	3,698	3,721	-618
Year 2035 - With Project	2	3,852	3,875	
Net Change	0	154	155	

Source: EMFAC2011-SG

Note: MTons = metric tons; CO₂e = carbon dioxide-equivalent. Adjusted BAU Includes Pavley and the Low Carbon Fuel Standard (LCFS).

State and Federal Fuel Efficiency Improvements + Low Carbon Fuel Standard (LCFS)

The Federal Government has adopted and has implemented improved Federal Corporate Economy Fuel Efficiency (CAFE) Standards for vehicles that correspond with the California Assembly Bill 1493 (AB 1493) Pavley I Fuel Efficiency Standards. In addition, the State of California has adopted the Low Carbon Fuel Standard (LCFS). In January 2012, the California Air Resources Board (CARB) adopted the Advanced Clean Car Program which implements the Pavley II Fuel Efficiency Standards and projects that by 2025, one in every seven new cars sold will be electric vehicles (PHEV or PEV). However, the Pavley II Advanced Clean Car Program is not included in the transportation emissions reductions and therefore reductions are conservative.

On December 29, 2011, the U.S. District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the court's rulings preliminarily enjoins the CARB from enforcing the regulation during the pendency of the litigation. In January 2012, CARB appealed the decision and on April 23, 2012, the Ninth Circuit Court granted CARB's motion for a stay of the injunction while it continues to consider CARB's appeal of the lower court's decision.

EMFAC2011 Modeling Spreadsheets



Appendix D

This page intentionally left blank.

Year 2012 - Baseline

Based on EMFAC2011

Emission year		Daily						
2012		26,951						
	Percent of VMT	Adjust % VMT	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	0.04%	0.10%	0	1	0	0	0	0
LDA	51.25%	50.28%	7	6	66	0	1	1
LDT1	5.75%	5.64%	2	1	16	0	0	0
LDT2	19.11%	18.75%	3	4	30	0	1	0
LHD1	4.02%	3.94%	1	5	8	0	0	0
LHD2	0.59%	0.58%	0	1	1	0	0	0
MCY	0.46%	0.45%	1	0	8	0	0	0
MDV	15.62%	15.32%	3	4	33	0	0	0
MH	0.22%	0.06%	0	0	0	0	0	0
Motor Coach	0.04%	0.01%	0	0	0	0	0	0
OBUS	0.06%	0.15%	0	0	2	0	0	0
PTO	0.02%	0.03%	0	0	0	0	0	0
SBUS	0.05%	0.13%	0	1	1	0	0	0
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.00%	0	0	0	0	0	0
T6 instate construction heavy	0.04%	0.07%	0	0	0	0	0	0
T6 instate construction smal	0.11%	0.20%	0	1	0	0	0	0
T6 instate heavy	0.24%	0.44%	0	2	0	0	0	0
T6 instate small	0.68%	1.25%	0	4	1	0	0	0
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.03%	0.05%	0	0	0	0	0	0
T6 utility	0.00%	0.01%	0	0	0	0	0	0
T6TS	0.27%	0.49%	0	1	6	0	0	0
T7 Ag	0.00%	0.00%	0	0	0	0	0	0
T7 CAIRP	0.18%	0.23%	0	1	0	0	0	0
T7 CAIRP construction	0.01%	0.02%	0	0	0	0	0	0
T7 NNOOS	0.20%	0.26%	0	1	0	0	0	0
T7 NOOS	0.07%	0.08%	0	1	0	0	0	0
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.21%	0.27%	0	1	0	0	0	0
T7 public	0.01%	0.02%	0	0	0	0	0	0
T7 Single	0.10%	0.12%	0	1	0	0	0	0
T7 single construction	0.04%	0.05%	0	0	0	0	0	0
T7 SWCV	0.03%	0.04%	0	0	0	0	0	0
T7 tractor	0.26%	0.33%	0	2	1	0	0	0
T7 tractor construction	0.03%	0.04%	0	0	0	0	0	0
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.03%	0.03%	0	0	1	0	0	0
UBUS	0.21%	0.53%	0	3	2	0	0	0
TOTAL	100%	100%	19	44	176	0	4	2

Based on the emission factors for Orange - South Coast Air Basin

Year 2012 - With Project

Based on EMFAC2011

Emission year		Daily						
2012		28,113						
	Percent of VMT	Adjust % VMT	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	0.04%	0.10%	0	1	0	0	0	0
LDA	51.25%	50.28%	8	6	68	0	1	1
LDT1	5.75%	5.64%	2	1	16	0	0	0
LDT2	19.11%	18.75%	3	4	32	0	1	0
LHD1	4.02%	3.94%	1	5	9	0	0	0
LHD2	0.59%	0.58%	0	1	1	0	0	0
MCY	0.46%	0.45%	1	0	8	0	0	0
MDV	15.62%	15.32%	3	4	34	0	0	0
MH	0.22%	0.06%	0	0	0	0	0	0
Motor Coach	0.04%	0.01%	0	0	0	0	0	0
OBUS	0.06%	0.15%	0	0	2	0	0	0
PTO	0.02%	0.03%	0	0	0	0	0	0
SBUS	0.05%	0.13%	0	1	1	0	0	0
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.00%	0	0	0	0	0	0
T6 instate construction heavy	0.04%	0.07%	0	0	0	0	0	0
T6 instate construction smal	0.11%	0.20%	0	1	0	0	0	0
T6 instate heavy	0.24%	0.44%	0	2	0	0	0	0
T6 instate small	0.68%	1.25%	0	5	1	0	0	0
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.03%	0.05%	0	0	0	0	0	0
T6 utility	0.00%	0.01%	0	0	0	0	0	0
T6TS	0.27%	0.49%	0	1	6	0	0	0
T7 Ag	0.00%	0.00%	0	0	0	0	0	0
T7 CAIRP	0.18%	0.23%	0	1	0	0	0	0
T7 CAIRP construction	0.01%	0.02%	0	0	0	0	0	0
T7 NNOOS	0.20%	0.26%	0	1	0	0	0	0
T7 NOOS	0.07%	0.08%	0	1	0	0	0	0
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.21%	0.27%	0	1	0	0	0	0
T7 public	0.01%	0.02%	0	0	0	0	0	0
T7 Single	0.10%	0.12%	0	1	0	0	0	0
T7 single construction	0.04%	0.05%	0	0	0	0	0	0
T7 SWCV	0.03%	0.04%	0	0	0	0	0	0
T7 tractor	0.26%	0.33%	0	3	1	0	0	0
T7 tractor construction	0.03%	0.04%	0	0	0	0	0	0
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.03%	0.03%	0	0	1	0	0	0
UBUS	0.21%	0.53%	0	4	2	0	0	0
TOTAL	100%	100%	20	46	184	0	4	2

Based on the emission factors for Orange - South Coast Air Basin

Year 2020 - Baseline

Based on EMFAC2011

Emission year		Daily						
2020		28,138						
	Percent of VMT	Adjust % VMT	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	0.05%	0.11%	0	0	0	0	0	0
LDA	50.89%	50.23%	3	3	31	0	1	1
LDT1	5.64%	5.57%	1	1	8	0	0	0
LDT2	19.32%	19.07%	2	2	16	0	1	0
LHD1	4.19%	4.14%	1	3	6	0	0	0
LHD2	0.59%	0.58%	0	1	1	0	0	0
MCY	0.47%	0.47%	1	0	7	0	0	0
MDV	15.08%	14.89%	2	2	22	0	0	0
MH	0.23%	0.06%	0	0	0	0	0	0
Motor Coach	0.05%	0.01%	0	0	0	0	0	0
OBUS	0.05%	0.13%	0	0	1	0	0	0
PTO	0.03%	0.03%	0	0	0	0	0	0
SBUS	0.05%	0.13%	0	1	0	0	0	0
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.00%	0	0	0	0	0	0
T6 instate construction heavy	0.06%	0.10%	0	0	0	0	0	0
T6 instate construction smal	0.16%	0.26%	0	0	0	0	0	0
T6 instate heavy	0.27%	0.42%	0	1	0	0	0	0
T6 instate small	0.76%	1.20%	0	1	0	0	0	0
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.03%	0.05%	0	0	0	0	0	0
T6 utility	0.01%	0.01%	0	0	0	0	0	0
T6TS	0.30%	0.47%	0	0	2	0	0	0
T7 Ag	0.00%	0.00%	0	0	0	0	0	0
T7 CAIRP	0.23%	0.22%	0	0	0	0	0	0
T7 CAIRP construction	0.02%	0.02%	0	0	0	0	0	0
T7 NNOOS	0.26%	0.25%	0	0	0	0	0	0
T7 NOOS	0.08%	0.08%	0	0	0	0	0	0
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.32%	0.31%	0	2	1	0	0	0
T7 public	0.01%	0.01%	0	0	0	0	0	0
T7 Single	0.12%	0.12%	0	0	0	0	0	0
T7 single construction	0.06%	0.05%	0	0	0	0	0	0
T7 SWCV	0.04%	0.04%	0	0	0	0	0	0
T7 tractor	0.33%	0.31%	0	1	0	0	0	0
T7 tractor construction	0.04%	0.04%	0	0	0	0	0	0
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.03%	0.03%	0	0	1	0	0	0
UBUS	0.22%	0.54%	0	3	2	0	0	0
TOTAL	100%	100%	12	23	97	0	4	2

Based on the emission factors for Orange - South Coast Air Basin

Year 2020 - With Project

Based on EMFAC2011

Emission year		Daily							
2020		28,417							
	Percent of VMT	Adjust % VMT	ROG	NOx	CO	SOx	PM10	PM2.5	
All Other Buses	0.05%	0.11%	0	0	0	0	0	0	
LDA	50.89%	50.23%	3	3	31	0	1	1	
LDT1	5.64%	5.57%	1	1	8	0	0	0	
LDT2	19.32%	19.07%	2	2	16	0	1	0	
LHD1	4.19%	4.14%	1	4	6	0	0	0	
LHD2	0.59%	0.58%	0	1	1	0	0	0	
MCY	0.47%	0.47%	1	0	7	0	0	0	
MDV	15.08%	14.89%	2	2	22	0	0	0	
MH	0.23%	0.06%	0	0	0	0	0	0	
Motor Coach	0.05%	0.01%	0	0	0	0	0	0	
OBUS	0.05%	0.13%	0	0	1	0	0	0	
PTO	0.03%	0.03%	0	0	0	0	0	0	
SBUS	0.05%	0.13%	0	1	0	0	0	0	
T6 Ag	0.00%	0.00%	0	0	0	0	0	0	
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0	
T6 CAIRP small	0.00%	0.00%	0	0	0	0	0	0	
T6 instate construction heavy	0.06%	0.10%	0	0	0	0	0	0	
T6 instate construction smal	0.16%	0.26%	0	0	0	0	0	0	
T6 instate heavy	0.27%	0.42%	0	1	0	0	0	0	
T6 instate small	0.76%	1.20%	0	1	0	0	0	0	
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0	
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0	
T6 public	0.03%	0.05%	0	0	0	0	0	0	
T6 utility	0.01%	0.01%	0	0	0	0	0	0	
T6TS	0.30%	0.47%	0	0	3	0	0	0	
T7 Ag	0.00%	0.00%	0	0	0	0	0	0	
T7 CAIRP	0.23%	0.22%	0	0	0	0	0	0	
T7 CAIRP construction	0.02%	0.02%	0	0	0	0	0	0	
T7 NNOOS	0.26%	0.25%	0	0	0	0	0	0	
T7 NOOS	0.08%	0.08%	0	0	0	0	0	0	
T7 other port	0.00%	0.00%	0	0	0	0	0	0	
T7 POAK	0.00%	0.00%	0	0	0	0	0	0	
T7 POLA	0.32%	0.31%	0	2	1	0	0	0	
T7 public	0.01%	0.01%	0	0	0	0	0	0	
T7 Single	0.12%	0.12%	0	0	0	0	0	0	
T7 single construction	0.06%	0.05%	0	0	0	0	0	0	
T7 SWCV	0.04%	0.04%	0	0	0	0	0	0	
T7 tractor	0.33%	0.31%	0	1	0	0	0	0	
T7 tractor construction	0.04%	0.04%	0	0	0	0	0	0	
T7 utility	0.00%	0.00%	0	0	0	0	0	0	
T7IS	0.03%	0.03%	0	0	1	0	0	0	
UBUS	0.22%	0.54%	0	3	2	0	0	0	
TOTAL	100%	100%	12	23	98	0	4	2	

Based on the emission factors for Orange - South Coast Air Basin

Year 2035 - Baseline

Based on EMFAC2011

Emission year		Daily							
2035		30,938							
		lbs/day							
	Percent of VMT	Adjust % VMT	ROG	NOx	CO	SOx	PM10	PM2.5	
All Other Buses	0.06%	0.13%	0	0	0	0	0	0	
LDA	47.75%	47.58%	2	2	24	0	2	1	
LDT1	5.96%	5.94%	1	0	4	0	0	0	
LDT2	20.40%	20.33%	2	1	12	0	1	0	
LHD1	4.37%	4.35%	1	2	4	0	0	0	
LHD2	0.63%	0.63%	0	0	0	0	0	0	
MCY	0.30%	0.30%	1	0	4	0	0	0	
MDV	15.90%	15.84%	2	1	13	0	1	0	
MH	0.38%	0.06%	0	0	0	0	0	0	
Motor Coach	0.06%	0.01%	0	0	0	0	0	0	
OBUS	0.04%	0.10%	0	0	1	0	0	0	
PTO	0.04%	0.03%	0	0	0	0	0	0	
SBUS	0.05%	0.11%	0	0	0	0	0	0	
T6 Ag	0.00%	0.00%	0	0	0	0	0	0	
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0	
T6 CAIRP small	0.00%	0.01%	0	0	0	0	0	0	
T6 instate construction heavy	0.05%	0.08%	0	0	0	0	0	0	
T6 instate construction smal	0.16%	0.23%	0	0	0	0	0	0	
T6 instate heavy	0.29%	0.43%	0	0	0	0	0	0	
T6 instate small	0.87%	1.26%	0	1	0	0	0	0	
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0	
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0	
T6 public	0.04%	0.06%	0	0	0	0	0	0	
T6 utility	0.01%	0.01%	0	0	0	0	0	0	
T6TS	0.31%	0.45%	0	0	1	0	0	0	
T7 Ag	0.00%	0.00%	0	0	0	0	0	0	
T7 CAIRP	0.28%	0.20%	0	0	0	0	0	0	
T7 CAIRP construction	0.02%	0.01%	0	0	0	0	0	0	
T7 NNOOS	0.32%	0.23%	0	0	0	0	0	0	
T7 NOOS	0.10%	0.07%	0	0	0	0	0	0	
T7 other port	0.00%	0.00%	0	0	0	0	0	0	
T7 POAK	0.00%	0.00%	0	0	0	0	0	0	
T7 POLA	0.63%	0.45%	0	1	0	0	0	0	
T7 public	0.02%	0.01%	0	0	0	0	0	0	
T7 Single	0.15%	0.11%	0	0	0	0	0	0	
T7 single construction	0.05%	0.04%	0	0	0	0	0	0	
T7 SWCV	0.05%	0.04%	0	0	0	0	0	0	
T7 tractor	0.40%	0.28%	0	0	0	0	0	0	
T7 tractor construction	0.04%	0.03%	0	0	0	0	0	0	
T7 utility	0.00%	0.00%	0	0	0	0	0	0	
T7IS	0.04%	0.03%	0	0	1	0	0	0	
UBUS	0.24%	0.57%	0	2	1	0	0	0	
TOTAL	100%	100%	9	14	66	0	4	2	

Based on the emission factors for Orange - South Coast Air Basin

Year 2035 - With Project

Based on EMFAC2011

Emission year		Daily							
2035		32,226							
		lbs/day							
	Percent of VMT	Adjust % VMT	ROG	NOx	CO	SOx	PM10	PM2.5	
All Other Buses	0.06%	0.13%	0	0	0	0	0	0	
LDA	47.75%	47.58%	2	2	25	0	2	1	
LDT1	5.96%	5.94%	1	0	4	0	0	0	
LDT2	20.40%	20.33%	2	1	12	0	1	0	
LHD1	4.37%	4.35%	1	2	4	0	0	0	
LHD2	0.63%	0.63%	0	0	0	0	0	0	
MCY	0.30%	0.30%	1	0	5	0	0	0	
MDV	15.90%	15.84%	2	1	14	0	1	0	
MH	0.38%	0.06%	0	0	0	0	0	0	
Motor Coach	0.06%	0.01%	0	0	0	0	0	0	
OBUS	0.04%	0.10%	0	0	1	0	0	0	
PTO	0.04%	0.03%	0	0	0	0	0	0	
SBUS	0.05%	0.11%	0	0	0	0	0	0	
T6 Ag	0.00%	0.00%	0	0	0	0	0	0	
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0	
T6 CAIRP small	0.00%	0.01%	0	0	0	0	0	0	
T6 instate construction heavy	0.05%	0.08%	0	0	0	0	0	0	
T6 instate construction smal	0.16%	0.23%	0	0	0	0	0	0	
T6 instate heavy	0.29%	0.43%	0	0	0	0	0	0	
T6 instate small	0.87%	1.26%	0	1	0	0	0	0	
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0	
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0	
T6 public	0.04%	0.06%	0	0	0	0	0	0	
T6 utility	0.01%	0.01%	0	0	0	0	0	0	
T6TS	0.31%	0.45%	0	0	1	0	0	0	
T7 Ag	0.00%	0.00%	0	0	0	0	0	0	
T7 CAIRP	0.28%	0.20%	0	0	0	0	0	0	
T7 CAIRP construction	0.02%	0.01%	0	0	0	0	0	0	
T7 NNOOS	0.32%	0.23%	0	0	0	0	0	0	
T7 NOOS	0.10%	0.07%	0	0	0	0	0	0	
T7 other port	0.00%	0.00%	0	0	0	0	0	0	
T7 POAK	0.00%	0.00%	0	0	0	0	0	0	
T7 POLA	0.63%	0.45%	0	1	1	0	0	0	
T7 public	0.02%	0.01%	0	0	0	0	0	0	
T7 Single	0.15%	0.11%	0	0	0	0	0	0	
T7 single construction	0.05%	0.04%	0	0	0	0	0	0	
T7 SWCV	0.05%	0.04%	0	0	0	0	0	0	
T7 tractor	0.40%	0.28%	0	0	0	0	0	0	
T7 tractor construction	0.04%	0.03%	0	0	0	0	0	0	
T7 utility	0.00%	0.00%	0	0	0	0	0	0	
T7IS	0.04%	0.03%	0	0	1	0	0	0	
UBUS	0.24%	0.57%	0	2	1	0	0	0	
TOTAL	100%	100%	9	15	69	0	4	2	

Based on the emission factors for Orange - South Coast Air Basin

GHG Emissions Year 2012 - Baseline (MTons/Year)

Based on EMFAC2011

Emission year	Annual VMT				GWP	GWP		
2012	9,351,962				310	1	MTons	
Percent of VMT	Adjust % VMT	NOx	N2O	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS	
All Other Buses	0.04%	0.10%	0.1	0	11	11	11	11
LDA	51.25%	50.28%	0.9	0	1,703	1,712	1,614	1,623
LDT1	5.75%	5.64%	0.2	0	220	222	210	212
LDT2	19.11%	18.75%	0.6	0	865	871	833	839
LHD1	4.02%	3.94%	0.8	0	219	227	218	226
LHD2	0.59%	0.58%	0.2	0	31	33	31	32
MCY	0.46%	0.45%	0.1	0	6	7	6	7
MDV	15.62%	15.32%	0.6	0	897	903	875	881
MH	0.22%	0.06%	0.0	0	4	4	4	4
Motor Coach	0.04%	0.01%	0.0	0	2	2	2	2
OBUS	0.06%	0.15%	0.0	0	9	10	9	10
PTO	0.02%	0.03%	0.0	0	6	6	6	6
SBUS	0.05%	0.13%	0.1	0	15	16	15	16
T6 Ag	0.00%	0.00%	0.0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0.0	0	0	0	0	0
T6 CAIRP small	0.00%	0.00%	0.0	0	1	1	1	1
T6 instate construction heavy	0.04%	0.07%	0.1	0	8	8	8	8
T6 instate construction small	0.11%	0.20%	0.1	0	22	23	22	23
T6 instate heavy	0.24%	0.44%	0.3	0	47	51	47	50
T6 instate small	0.68%	1.25%	0.7	0	132	139	131	138
T6 OOS heavy	0.00%	0.00%	0.0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0.0	0	0	0	0	0
T6 public	0.03%	0.05%	0.0	0	5	6	5	6
T6 utility	0.00%	0.01%	0.0	0	1	1	1	1
T6TS	0.27%	0.49%	0.1	0	28	30	28	30
T7 Ag	0.00%	0.00%	0.0	0	0	1	0	1
T7 CAIRP	0.18%	0.23%	0.2	0	39	41	39	41
T7 CAIRP construction	0.01%	0.02%	0.0	0	3	3	3	3
T7 NNOOS	0.20%	0.26%	0.2	0	44	46	44	46
T7 NOOS	0.07%	0.08%	0.1	0	14	15	14	15
T7 other port	0.00%	0.00%	0.0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0.0	0	0	0	0	0
T7 POLA	0.21%	0.27%	0.2	0	46	48	46	48
T7 public	0.01%	0.02%	0.0	0	3	3	3	3
T7 Single	0.10%	0.12%	0.2	0	20	22	20	22
T7 single construction	0.04%	0.05%	0.1	0	8	8	8	8
T7 SWCV	0.03%	0.04%	0.1	0	8	8	8	8
T7 tractor	0.26%	0.33%	0.4	0	53	57	53	57
T7 tractor construction	0.03%	0.04%	0.0	0	6	6	6	6
T7 utility	0.00%	0.00%	0.0	0	0	0	0	0
T7IS	0.03%	0.03%	0.0	0	2	2	2	2
UBUS	0.21%	0.53%	0.5	0	101	107	101	106
TOTAL		100%	7.0	0	4,582	4,650	4,425	4,494

N2O emissions were calculated using an off-model adjustment provided by CARB in AB 32 Technical Appendices. The off-model adjustment uses a linear regression correlating N2O with NOx. (N2O = 0.0167 + 0.0318 x NOx)

Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

Based on the emission factors for Orange - South Coast Air Basin

GHG Emissions Year 2012 - With Project (MTons/Year)

Based on EMFAC2011

	Emission year	Annual VMT	GWP		GWP			
	2012	9,755,367	310		1		MTons	
	Percent of VMT	Adjust % VMT	NOx	N2O	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
All Other Buses	0.04%	0.10%	0	0	11	12	11	12
LDA	51.25%	50.28%	1	0	1,776	1,785	1,684	1,693
LDT1	5.75%	5.64%	0	0	229	231	219	221
LDT2	19.11%	18.75%	1	0	902	908	869	875
LHD1	4.02%	3.94%	1	0	229	237	228	236
LHD2	0.59%	0.58%	0	0	32	34	32	34
MCY	0.46%	0.45%	0	0	7	7	7	7
MDV	15.62%	15.32%	1	0	935	942	912	919
MH	0.22%	0.06%	0	0	4	4	4	4
Motor Coach	0.04%	0.01%	0	0	2	2	2	2
OBUS	0.06%	0.15%	0	0	10	10	9	10
PTO	0.02%	0.03%	0	0	6	7	6	7
SBUS	0.05%	0.13%	0	0	15	17	15	17
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.00%	0	0	1	1	1	1
T6 instate construction heavy	0.04%	0.07%	0	0	8	9	8	9
T6 instate construction small	0.11%	0.20%	0	0	23	24	22	24
T6 instate heavy	0.24%	0.44%	0	0	49	53	49	53
T6 instate small	0.68%	1.25%	1	0	138	145	137	144
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.03%	0.05%	0	0	6	6	6	6
T6 utility	0.00%	0.01%	0	0	1	1	1	1
T6TS	0.27%	0.49%	0	0	29	31	29	31
T7 Ag	0.00%	0.00%	0	0	0	1	0	1
T7 CAIRP	0.18%	0.23%	0	0	40	43	40	42
T7 CAIRP construction	0.01%	0.02%	0	0	3	3	3	3
T7 NNOOS	0.20%	0.26%	0	0	46	48	46	48
T7 NOOS	0.07%	0.08%	0	0	15	16	15	16
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.21%	0.27%	0	0	48	50	48	50
T7 public	0.01%	0.02%	0	0	3	3	3	3
T7 Single	0.10%	0.12%	0	0	21	23	21	23
T7 single construction	0.04%	0.05%	0	0	8	9	8	9
T7 SWCV	0.03%	0.04%	0	0	8	9	8	9
T7 tractor	0.26%	0.33%	0	0	55	59	55	59
T7 tractor construction	0.03%	0.04%	0	0	6	7	6	7
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.03%	0.03%	0	0	2	2	2	2
UBUS	0.21%	0.53%	1	0	106	111	105	111
TOTAL		100%	7	0	4,779	4,851	4,616	4,687

N2O emissions were calculated using an off-model adjustment provided by CARB in AB 32 Technical Appendices. The off-model adjustment uses a linear regression correlating N2O with NOx. (N2O = 0.0167 + 0.0318 x NOx)

Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

Based on the emission factors for Orange - South Coast Air Basin

GHG Emissions Year 2020 - Baseline (MTons/Year)

Based on EMFAC2011

	Emission year	Annual VMT	GWP		GWP		MTons	
	2020	9,763,990	310	1	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
	Percent of VMT	Adjust % VMT	NOx	N2O	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
All Other Buses	0.05%	0.11%	0	0	13	13	11	12
LDA	50.89%	50.23%	0	0	1,780	1,784	1,228	1,232
LDT1	5.64%	5.57%	0	0	228	229	166	167
LDT2	19.32%	19.07%	0	0	917	920	692	694
LHD1	4.19%	4.14%	1	0	240	246	216	222
LHD2	0.59%	0.58%	0	0	33	34	29	30
MCY	0.47%	0.47%	0	0	8	8	7	7
MDV	15.08%	14.89%	0	0	915	918	726	730
MH	0.23%	0.06%	0	0	4	4	4	4
Motor Coach	0.05%	0.01%	0	0	2	2	2	2
OBUS	0.05%	0.13%	0	0	8	9	7	8
PTO	0.03%	0.03%	0	0	6	6	5	6
SBUS	0.05%	0.13%	0	0	15	16	13	14
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.00%	0	0	1	1	0	0
T6 instate construction heavy	0.06%	0.10%	0	0	11	11	10	10
T6 instate construction small	0.16%	0.26%	0	0	28	29	26	26
T6 instate heavy	0.27%	0.42%	0	0	47	48	42	43
T6 instate small	0.76%	1.20%	0	0	131	133	118	120
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.03%	0.05%	0	0	6	6	5	5
T6 utility	0.01%	0.01%	0	0	1	1	1	1
T6TS	0.30%	0.47%	0	0	28	29	25	26
T7 Ag	0.00%	0.00%	0	0	0	0	0	0
T7 CAIRP	0.23%	0.22%	0	0	39	40	35	36
T7 CAIRP construction	0.02%	0.02%	0	0	4	4	3	3
T7 NNOOS	0.26%	0.25%	0	0	45	45	40	41
T7 NOOS	0.08%	0.08%	0	0	15	15	13	13
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.32%	0.31%	0	0	55	58	50	52
T7 public	0.01%	0.01%	0	0	3	3	3	3
T7 Single	0.12%	0.12%	0	0	21	21	19	19
T7 single construction	0.06%	0.05%	0	0	9	9	8	9
T7 SWCV	0.04%	0.04%	0	0	7	7	6	7
T7 tractor	0.33%	0.31%	0	0	53	54	48	49
T7 tractor construction	0.04%	0.04%	0	0	7	7	6	6
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.03%	0.03%	0	0	2	2	1	2
UBUS	0.22%	0.54%	0	0	105	109	94	99
TOTAL		100%	4	0	4,787	4,823	3,664	3,700

N2O emissions were calculated using an off-model adjustment provided by CARB in AB 32 Technical Appendices. The off-model adjustment uses a linear regression correlating N2O with NOx. (N2O = 0.0167 + 0.0318 x NOx)

Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

Based on the emission factors for Orange - South Coast Air Basin

GHG Emissions Year 2020 - With Project (MTons/Year)

Based on EMFAC2011

	Emission year	Annual VMT	GWP		GWP		MTons	
	2020	9,860,734	310	1	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
	Percent of VMT	Adjust % VMT	NOx	N2O	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
All Other Buses	0.05%	0.11%	0	0	13	13	11	12
LDA	50.89%	50.23%	0	0	1,798	1,802	1,240	1,245
LDT1	5.64%	5.57%	0	0	230	231	168	169
LDT2	19.32%	19.07%	0	0	926	929	699	701
LHD1	4.19%	4.14%	1	0	243	248	218	224
LHD2	0.59%	0.58%	0	0	33	34	30	31
MCY	0.47%	0.47%	0	0	8	8	7	7
MDV	15.08%	14.89%	0	0	924	928	733	737
MH	0.23%	0.06%	0	0	4	4	4	4
Motor Coach	0.05%	0.01%	0	0	2	2	2	2
OBUS	0.05%	0.13%	0	0	8	9	8	8
PTO	0.03%	0.03%	0	0	6	6	5	6
SBUS	0.05%	0.13%	0	0	15	16	13	14
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.00%	0	0	1	1	0	0
T6 instate construction heavy	0.06%	0.10%	0	0	11	11	10	10
T6 instate construction small	0.16%	0.26%	0	0	29	29	26	26
T6 instate heavy	0.27%	0.42%	0	0	47	48	42	44
T6 instate small	0.76%	1.20%	0	0	133	134	119	121
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.03%	0.05%	0	0	6	6	5	5
T6 utility	0.01%	0.01%	0	0	1	1	1	1
T6TS	0.30%	0.47%	0	0	29	29	26	26
T7 Ag	0.00%	0.00%	0	0	0	0	0	0
T7 CAIRP	0.23%	0.22%	0	0	40	41	36	37
T7 CAIRP construction	0.02%	0.02%	0	0	4	4	3	3
T7 NNOOS	0.26%	0.25%	0	0	45	46	41	41
T7 NOOS	0.08%	0.08%	0	0	15	15	13	14
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.32%	0.31%	0	0	56	58	50	53
T7 public	0.01%	0.01%	0	0	3	3	3	3
T7 Single	0.12%	0.12%	0	0	21	21	19	19
T7 single construction	0.06%	0.05%	0	0	9	10	8	9
T7 SWCV	0.04%	0.04%	0	0	7	8	6	7
T7 tractor	0.33%	0.31%	0	0	54	55	48	50
T7 tractor construction	0.04%	0.04%	0	0	7	7	6	6
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.03%	0.03%	0	0	2	2	1	2
UBUS	0.22%	0.54%	0	0	106	110	95	100
TOTAL		100%	4	0	4,834	4,870	3,701	3,737

N2O emissions were calculated using an off-model adjustment provided by CARB in AB 32 Technical Appendices. The off-model adjustment uses a linear regression correlating N2O with NOx. (N2O = 0.0167 + 0.0318 x NOx)

Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

Based on the emission factors for Orange - South Coast Air Basin

GHG Emissions Year 2035 - Baseline (MTons/Year)

Based on EMFAC2011

	Emission year	Annual VMT	GWP		GWP			
	2035	10,735,486	310	1	MTons	MTons		
	Percent of VMT	Adjust % VMT	NOx	N2O	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
All Other Buses	0.06%	0.13%	0	0	16	16	14	14
LDA	47.75%	47.58%	0	0	1,853	1,856	1,105	1,108
LDT1	5.96%	5.94%	0	0	268	269	166	166
LDT2	20.40%	20.33%	0	0	1,073	1,075	731	733
LHD1	4.37%	4.35%	0	0	278	281	250	253
LHD2	0.63%	0.63%	0	0	39	39	35	35
MCY	0.30%	0.30%	0	0	5	6	5	5
MDV	15.90%	15.84%	0	0	1,072	1,074	753	755
MH	0.38%	0.06%	0	0	5	5	4	4
Motor Coach	0.06%	0.01%	0	0	2	2	2	2
OBUS	0.04%	0.10%	0	0	7	7	6	6
PTO	0.04%	0.03%	0	0	6	6	5	5
SBUS	0.05%	0.11%	0	0	15	15	13	14
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.01%	0	0	1	1	1	1
T6 instate construction heavy	0.05%	0.08%	0	0	9	10	8	9
T6 instate construction small	0.16%	0.23%	0	0	28	28	25	25
T6 instate heavy	0.29%	0.43%	0	0	51	52	46	47
T6 instate small	0.87%	1.26%	0	0	151	152	136	137
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.04%	0.06%	0	0	7	7	6	7
T6 utility	0.01%	0.01%	0	0	1	1	1	1
T6TS	0.31%	0.45%	0	0	29	30	26	27
T7 Ag	0.00%	0.00%	0	0	0	0	0	0
T7 CAIRP	0.28%	0.20%	0	0	39	40	35	36
T7 CAIRP construction	0.02%	0.01%	0	0	3	3	3	3
T7 NNOOS	0.32%	0.23%	0	0	44	45	40	41
T7 NOOS	0.10%	0.07%	0	0	15	15	13	13
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.63%	0.45%	0	0	85	86	76	78
T7 public	0.02%	0.01%	0	0	3	3	3	3
T7 Single	0.15%	0.11%	0	0	20	21	18	19
T7 single construction	0.05%	0.04%	0	0	7	7	6	6
T7 SWCV	0.05%	0.04%	0	0	7	7	6	7
T7 tractor	0.40%	0.28%	0	0	53	53	47	48
T7 tractor construction	0.04%	0.03%	0	0	5	5	5	5
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.04%	0.03%	0	0	2	2	2	2
UBUS	0.24%	0.57%	0	0	115	118	103	106
TOTAL	100%	100%	2	0	5,315	5,337	3,698	3,721

N2O emissions were calculated using an off-model adjustment provided by CARB in AB 32 Technical Appendices. The off-model adjustment uses a linear regression correlating N2O with NOx. (N2O = 0.0167 + 0.0318 x NOx)

Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

Based on the emission factors for Orange - South Coast Air Basin

GHG Emissions Year 2035 - With Project (MTons/Year)

Based on EMFAC2011

	Emission year	Annual VMT	GWP		GWP		MTons	
	2035	11,182,422	310	1	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
	Percent of VMT	Adjust % VMT	NOx	N2O	CO2	CO2e	CO2w/Pavley + LCF	CO2e w/ Pavley + LCFS
All Other Buses	0.06%	0.13%	0	0	17	17	15	15
LDA	47.75%	47.58%	0	0	1,930	1,933	1,151	1,154
LDT1	5.96%	5.94%	0	0	279	280	172	173
LDT2	20.40%	20.33%	0	0	1,118	1,120	761	763
LHD1	4.37%	4.35%	0	0	289	293	260	264
LHD2	0.63%	0.63%	0	0	40	41	36	37
MCY	0.30%	0.30%	0	0	6	6	5	6
MDV	15.90%	15.84%	0	0	1,117	1,119	785	787
MH	0.38%	0.06%	0	0	5	5	4	4
Motor Coach	0.06%	0.01%	0	0	2	2	2	2
OBUS	0.04%	0.10%	0	0	7	7	7	7
PTO	0.04%	0.03%	0	0	6	6	6	6
SBUS	0.05%	0.11%	0	0	15	16	14	14
T6 Ag	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP heavy	0.00%	0.00%	0	0	0	0	0	0
T6 CAIRP small	0.00%	0.01%	0	0	1	1	1	1
T6 instate construction heavy	0.05%	0.08%	0	0	10	10	9	9
T6 instate construction small	0.16%	0.23%	0	0	29	29	26	26
T6 instate heavy	0.29%	0.43%	0	0	53	54	48	49
T6 instate small	0.87%	1.26%	0	0	157	158	141	143
T6 OOS heavy	0.00%	0.00%	0	0	0	0	0	0
T6 OOS small	0.00%	0.00%	0	0	0	0	0	0
T6 public	0.04%	0.06%	0	0	7	8	7	7
T6 utility	0.01%	0.01%	0	0	1	1	1	1
T6TS	0.31%	0.45%	0	0	31	31	27	28
T7 Ag	0.00%	0.00%	0	0	0	0	0	0
T7 CAIRP	0.28%	0.20%	0	0	41	41	37	37
T7 CAIRP construction	0.02%	0.01%	0	0	3	3	3	3
T7 NNOOS	0.32%	0.23%	0	0	46	47	42	42
T7 NOOS	0.10%	0.07%	0	0	15	15	14	14
T7 other port	0.00%	0.00%	0	0	0	0	0	0
T7 POAK	0.00%	0.00%	0	0	0	0	0	0
T7 POLA	0.63%	0.45%	0	0	88	90	80	81
T7 public	0.02%	0.01%	0	0	3	3	3	3
T7 Single	0.15%	0.11%	0	0	21	22	19	19
T7 single construction	0.05%	0.04%	0	0	7	7	7	7
T7 SWCV	0.05%	0.04%	0	0	7	8	7	7
T7 tractor	0.40%	0.28%	0	0	55	55	49	50
T7 tractor construction	0.04%	0.03%	0	0	6	6	5	5
T7 utility	0.00%	0.00%	0	0	0	0	0	0
T7IS	0.04%	0.03%	0	0	2	2	2	2
UBUS	0.24%	0.57%	0	0	120	123	108	111
TOTAL	100%	100%	2	0	5,537	5,560	3,852	3,875

N2O emissions were calculated using an off-model adjustment provided by CARB in AB 32 Technical Appendices. The off-model adjustment uses a linear regression correlating N2O with NOx. (N2O = 0.0167 + 0.0318 x NOx)

Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

Based on the emission factors for Orange - South Coast Air Basin

24-Hour Roadway Segment Counts (With Classification)



Appendix D

This page intentionally left blank.

Construction Localized Significance Thresholds



Appendix D

This page intentionally left blank.

Construction Localized Significance Thresholds

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)
17	1.50	25	82

Source Receptor Distance (meters)	Central Orange County	Equipment	Acres/8-hr Day	Equipment Used	Hours of Operation	Acres
	25	Tractors	0.5	3	8	1.5
NOx	98	Graders	0.5	0	0	0
CO	600	Dozers	0.5	0	0	0
PM10	5.00	Scrapers	1	0	0	0
PM2.5	3.50				Acres	1.50

	Acres	25	50	100	200	500
NOx	1	81	83	98	123	192
	2	115	114	125	148	205
CO	1	98	99	112	136	199
	2	485	753	1128	2109	6841
PM10	1	715	1041	1547	2685	7493
	2	600	897	1338	2397	7167
PM2.5	1	4	12	28	60	158
	2	6	19	35	68	166
PM2.5	1	5	16	32	64	162
	2	3	4	9	22	85
PM2.5	1	4	6	11	25	92
	2	4	5	10	24	89
Central Orange County						
1.50 Acres						
	25	50	100	200	500	
NOx	98	99	112	136	199	
CO	600	897	1338	2397	7167	
PM10	5	16	32	64	162	
PM2.5	4	5	10	24	89	

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
17	1	17	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction LSTs are based on the distance of grading activities to the nearest residential building. While the recreational uses to the west are considered sensitive receptors, these uses would primarily be occupied outside the hours when construction activities occur (e.g., weekday evenings and weekends). Furthermore, recreational receptors would be onsite for a short duration; and according to SCAQMD's LST methodology, criteria air pollutants with 24-hour averaging standard (PM10 and PM2.5, which are the main LSTs of concern) are not applicable.