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## Appendix D: Operational Emission Calculations

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## Train VMT

Existing Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	12.0	58.4	261.4	0.2	6.81	6.6	22,442.6
2026 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	4.2	58.4	140.6	0.2	2.64	2.6	22,442.6
2026 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	398	1.5	612.9	4.5	62.5	150.5	0.2	2.82	2.7	24,021.7
2031 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	2.5	58.4	101.0	0.2	1.54	1.5	22,442.6
2031 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	770	1.5	1,185.8	5.3	121.0	209.2	0.4	3.18	3.1	46,474.1
2040 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	1.2	58.4	50.5	0.2	0.66	0.6	22,442.6
2040 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	842	1.5	1,296.7	2.6	132.3	114.4	0.5	1.49	1.4	50,819.7

## Train Idling

Conditions	Trips	Idle time (hr)	Idle Hours	VOC	CO	NOx	pounds per day			
							SOx	PM10	PM2.5	CO2
Existing	166	0.4	69.6	11.4	55.2	246.9	0.2	6.43	6.2	23122.7
2026 No Build	166	0.4	69.6	3.9	55.2	132.8	0.2	2.49	2.4	23122.7
2026 Build	199	0.3	54.2	3.1	42.9	103.3	0.2	1.94	1.9	17989.9
2031 No Build	166	0.4	69.6	2.4	55.2	95.4	0.2	1.45	1.4	23122.7
2031 Build	385	0.2	66.6	2.3	52.8	91.3	0.2	1.39	1.3	22126.0
2040 No Build	166	0.4	69.6	1.1	55.2	47.7	0.2	0.62	0.6	23122.7
2040 Build	421	0.2	72.7	1.1	57.6	49.8	0.2	0.65	0.6	24152.6

## Summary (lb/day)

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Existing	23.4	113.6	508.3	0.4	13.2	12.8	45,565.3
2026 No Build	8.1	113.6	273.4	0.4	5.1	5.0	45,565.3
<i>Increase from Existing</i>	<i>-15.3</i>	<i>0.0</i>	<i>-234.9</i>	<i>0.0</i>	<i>-8.1</i>	<i>-7.9</i>	<i>0.0</i>
2026 Build	7.5	105.5	253.8	0.4	4.8	4.6	42,011.5
<i>Increase from Existing</i>	<i>-15.9</i>	<i>-8.1</i>	<i>-254.5</i>	<i>0.0</i>	<i>-8.5</i>	<i>-8.2</i>	<i>-3,553.8</i>
<i>Increase from No Build</i>	<i>-0.6</i>	<i>-8.1</i>	<i>-19.6</i>	<i>0.0</i>	<i>-0.4</i>	<i>-0.4</i>	<i>-3,553.8</i>
2031 No Build	5.0	113.6	196.5	0.4	3.0	2.9	45,565.3
<i>Increase from Existing</i>	<i>-18.5</i>	<i>0.0</i>	<i>-311.8</i>	<i>0.0</i>	<i>-10.3</i>	<i>-9.9</i>	<i>0.0</i>
2031 Build	7.6	173.8	300.6	0.6	4.6	4.4	68,600.1

<i>Increase from Existing</i>	-15.8	60.2	-207.7	0.2	-8.7	-8.4	23,034.8
<i>Increase from No Build</i>	2.6	60.2	104.1	0.2	1.6	1.5	23,034.8
2040 No Build	2.3	113.6	98.2	0.4	1.3	1.2	45,565.3
<i>Increase from Existing</i>	-21.1	0.0	-410.0	0.0	-12.0	-11.6	0.0
2040 Build	3.8	190.0	164.2	0.7	2.1	2.1	74,972.3
<i>Increase from Existing</i>	-19.6	76.3	-344.0	0.3	-11.1	-10.8	29,407.0
<i>Increase from No Build</i>	1.5	76.3	66.0	0.3	0.9	0.8	29,407.0

### Summary (tons/year)

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CO2
Existing	3.49	16.95	75.84	0.06	1.98	1.92	6,799.26	6,168.19
2026 No Build	1.21	16.95	40.79	0.06	0.76	0.74	6,799.3	6,168.2
<i>Increase from Existing</i>	-2.28	0.00	-35.05	0.00	-1.21	-1.17	0.00	0.00
2026 Build	1.12	15.74	37.87	0.06	0.71	0.69	6,269.0	5,687.1
<i>Increase from Existing</i>	-2.37	-1.21	-37.98	0.00	-1.27	-1.23	-530.30	-481.08
<i>Increase from No Build</i>	-0.09	-1.21	-2.92	0.00	-0.05	-0.05	-530.30	-481.08
2031 No Build	0.74	16.95	29.32	0.06	0.45	0.43	6,799.3	6,168.2
<i>Increase from Existing</i>	-2.75	0.00	-46.53	0.00	-1.53	-1.48	0.0	0.0
2031 Build	1.13	25.93	44.85	0.09	0.68	0.66	10,236.5	9,286.4
<i>Increase from Existing</i>	-2.36	8.98	-30.99	0.03	-1.29	-1.25	3,437.3	3,118.2
<i>Increase from No Build</i>	0.39	8.98	15.53	0.03	0.24	0.23	3,437.3	3,118.2
2040 No Build	0.34	16.95	14.66	0.06	0.19	0.19	6,799.3	6,168.2
<i>Increase from Existing</i>	-3.15	0.00	-61.18	0.00	-1.78	-1.73	0.0	0.0
2040 Build	0.56	28.34	24.51	0.10	0.32	0.31	11,187.4	10,149.0
<i>Increase from Existing</i>	-2.93	11.39	-51.34	0.04	-1.66	-1.61	4,388.1	3,980.8
<i>Increase from No Build</i>	0.23	11.39	9.85	0.04	0.13	0.12	4,388.1	3,980.8

Metric Tons

### Train VMT - Mitigated

Existing Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	12.0	58.4	261.4	0.2	6.81	6.6	22,442.6
2026 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	4.2	58.4	140.6	0.2	2.64	2.6	22,442.6
2026 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	398	1.5	612.9	4.2	56.3	135.4	0.2	1.97	1.9	19,217.3
2031 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	2.5	58.4	101.0	0.2	1.54	1.5	22,442.6
2031 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	770	1.5	1,185.8	5.0	108.9	188.3	0.4	2.23	2.2	37,179.3
2040 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	1.2	58.4	50.5	0.2	0.66	0.6	22,442.6
2040 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	842	1.5	1,296.7	2.5	119.1	103.0	0.5	1.04	1.0	40,655.8

### Train Idling - Mitigated

Conditions	Trips	Idle time (hr)	Idle Hours	VOC	CO	pounds per day				
						NOx	SOx	PM10	PM2.5	CO2
Existing	166	0.4	69.6	11.4	55.2	246.9	0.2	6.43	6.2	23122.7
2026 No Build	166	0.4	69.6	3.9	55.2	132.8	0.2	2.49	2.4	23122.7
2026 Build	199	0.3	54.2	2.9	38.6	93.0	0.2	1.36	1.3	14,391.9
2031 No Build	166	0.4	69.6	2.4	55.2	95.4	0.2	1.45	1.4	23122.7
2031 Build	385	0.2	66.6	2.2	47.5	82.2	0.2	0.97	0.9	17,700.8
2040 No Build	166	0.4	69.6	1.1	55.2	47.7	0.2	0.62	0.6	23122.7
2040 Build	421	0.2	72.7	1.1	51.9	44.9	0.2	0.46	0.4	19,322.1

**Summary (lb/day) - Mitigated**

	<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Existing	23.4	113.6	508.3	0.4	13.2	12.8	45,565.3
2026 No Build	8.1	113.6	273.4	0.4	5.1	5.0	45,565.3
<i>Increase from Existing</i>	-15.3	0.0	-234.9	0.0	-8.1	-7.9	0.0
2026 Build	7.2	94.9	228.4	0.4	3.3	3.2	33,609.2
<i>Increase from Existing</i>	-16.2	-18.7	-279.9	0.0	-9.9	-9.6	-11,956.1
<i>Increase from No Build</i>	-1.0	-18.7	-45.0	0.0	-1.8	-1.7	-11,956.1
2031 No Build	5.0	113.6	196.5	0.4	3.0	2.9	45,565.3
<i>Increase from Existing</i>	-18.5	0.0	-311.8	0.0	-10.3	-9.9	0.0
2031 Build	7.2	156.4	270.5	0.6	3.2	3.1	54,880.1
<i>Increase from Existing</i>	-16.2	42.8	-237.8	0.2	-10.0	-9.7	9,314.8
<i>Increase from No Build</i>	2.2	42.8	74.0	0.2	0.2	0.2	9,314.8
2040 No Build	2.3	113.6	98.2	0.4	1.3	1.2	45,565.3
<i>Increase from Existing</i>	-21.1	0.0	-410.0	0.0	-12.0	-11.6	0.0
2040 Build	3.6	171.0	147.8	0.7	1.5	1.5	59,977.9
<i>Increase from Existing</i>	-19.8	57.3	-360.4	0.3	-11.7	-11.4	14,412.5
<i>Increase from No Build</i>	1.3	57.3	49.6	0.3	0.2	0.2	14,412.5

**Summary (tons/year) - Mitigated**

	<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>	Metric Tons <b>CO2</b>
Existing	3.49	16.95	75.84	0.06	1.98	1.92	6,799.26	6,168.19
2026 No Build	1.21	16.95	40.79	0.06	0.76	0.74	6,799.3	6,168.2
<i>Increase from Existing</i>	-2.28	0.00	-35.05	0.00	-1.21	-1.17	0.00	0.00
2026 Build	1.07	14.16	34.08	0.06	0.50	0.48	5,015.2	4,549.7
<i>Increase from Existing</i>	-2.42	-2.79	-41.76	0.00	-1.48	-1.43	-1,784.09	-1,618.50
<i>Increase from No Build</i>	-0.14	-2.79	-6.71	0.00	-0.27	-0.26	-1,784.09	-1,618.50
2031 No Build	0.74	16.95	29.32	0.06	0.45	0.43	6,799.3	6,168.2
<i>Increase from Existing</i>	-2.75	0.00	-46.53	0.00	-1.53	-1.48	0.0	0.0
2031 Build	1.07	23.34	40.36	0.09	0.48	0.46	8,189.2	7,429.1
<i>Increase from Existing</i>	-2.42	6.39	-35.48	0.03	-1.50	-1.45	1,390.0	1,260.9
<i>Increase from No Build</i>	0.34	6.39	11.05	0.03	0.03	0.03	1,390.0	1,260.9
2040 No Build	0.34	16.95	14.66	0.06	0.19	0.19	6,799.3	6,168.2
<i>Increase from Existing</i>	-3.15	0.00	-61.18	0.00	-1.78	-1.73	0.0	0.0
2040 Build	0.54	25.51	22.06	0.10	0.22	0.22	8,949.9	8,119.2
<i>Increase from Existing</i>	-2.96	8.56	-53.79	0.04	-1.75	-1.70	2,150.6	1,951.0
<i>Increase from No Build</i>	0.20	8.56	7.40	0.04	0.03	0.03	2,150.6	1,951.0

**Train VMT - Mitigated**

0.7      0.63

Existing Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	12.0	58.4	261.4	0.2	6.81	6.6	22,442.6
2026 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	4.2	58.4	140.6	0.2	2.64	2.6	22,442.6
2026 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	398	1.5	612.9	4.2	56.3	135.4	0.2	1.97	1.9	19,217.3
2031 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	2.5	58.4	101.0	0.2	1.54	1.5	22,442.6
2031 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	770	1.5	1,185.8	3.5	76.2	131.8	0.3	1.56	1.5	26,025.5
2040 No Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	331	1.7	572.6	1.2	58.4	50.5	0.2	0.66	0.6	22,442.6
2040 Build Conditions	Trips	Avg Length	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	842	1.5	1,296.7	1.6	75.0	64.9	0.3	0.66	0.6	25,613.1

**Train Idling - Mitigated**

Conditions	Trips	Idle time (hr)	Idle Hours	VOC	CO	pounds per day				
						NOx	SOx	PM10	PM2.5	CO2
Existing	166	0.4	69.6	11.4	55.2	246.9	0.2	6.43	6.2	23122.7
2026 No Build	166	0.4	69.6	3.9	55.2	132.8	0.2	2.49	2.4	23122.7
2026 Build	199	0.3	54.2	2.9	38.6	93.0	0.2	1.36	1.3	14,391.9
2031 No Build	166	0.4	69.6	2.4	55.2	95.4	0.2	1.45	1.4	23122.7
2031 Build	385	0.2	66.6	2.2	47.5	82.2	0.2	0.97	0.9	17,700.8
2040 No Build	166	0.4	69.6	1.1	55.2	47.7	0.2	0.62	0.6	23122.7
2040 Build	421	0.2	72.7	1.1	51.9	44.9	0.2	0.46	0.4	19,322.1

**Summary (lb/day) - Mitigated**

	<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Existing	23.4	113.6	508.3	0.4	13.2	12.8	45,565.3
2026 No Build	8.1	113.6	273.4	0.4	5.1	5.0	45,565.3
<i>Increase from Existing</i>	-15.3	0.0	-234.9	0.0	-8.1	-7.9	0.0
2026 Build	7.2	94.9	228.4	0.4	3.3	3.2	33,609.2
<i>Increase from Existing</i>	-16.2	-18.7	-279.9	0.0	-9.9	-9.6	-11,956.1
<i>Increase from No Build</i>	-1.0	-18.7	-45.0	0.0	-1.8	-1.7	-11,956.1
2031 No Build	5.0	113.6	196.5	0.4	3.0	2.9	45,565.3
<i>Increase from Existing</i>	-18.5	0.0	-311.8	0.0	-10.3	-9.9	0.0
2031 Build	5.7	123.8	214.0	0.5	2.5	2.5	43,726.3
<i>Increase from Existing</i>	-17.7	10.1	-294.3	0.1	-10.7	-10.4	-1,839.0
<i>Increase from No Build</i>	0.7	10.1	17.5	0.1	-0.5	-0.4	-1,839.0
2040 No Build	2.3	113.6	98.2	0.4	1.3	1.2	45,565.3
<i>Increase from Existing</i>	-21.1	0.0	-410.0	0.0	-12.0	-11.6	0.0
2040 Build	2.7	126.9	109.7	0.5	1.1	1.1	44,935.2
<i>Increase from Existing</i>	-20.7	13.3	-398.5	0.1	-12.1	-11.8	-630.1
<i>Increase from No Build</i>	0.4	13.3	11.5	0.1	-0.2	-0.2	-630.1

**Summary (tons/year) - Mitigated**

	<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>	Metric Tons <b>CO2</b>
Existing	3.49	16.95	75.84	0.06	1.98	1.92	6,799.26	6,168.19
2026 No Build	1.21	16.95	40.79	0.06	0.76	0.74	6,799.3	6,168.2
<i>Increase from Existing</i>	-2.28	0.00	-35.05	0.00	-1.21	-1.17	0.00	0.00
2026 Build	1.07	14.16	34.08	0.06	0.50	0.48	5,015.2	4,549.7
<i>Increase from Existing</i>	-2.42	-2.79	-41.76	0.00	-1.48	-1.43	-1,784.09	-1,618.50
<i>Increase from No Build</i>	-0.14	-2.79	-6.71	0.00	-0.27	-0.26	-1,784.09	-1,618.50
2031 No Build	0.74	16.95	29.32	0.06	0.45	0.43	6,799.3	6,168.2
<i>Increase from Existing</i>	-2.75	0.00	-46.53	0.00	-1.53	-1.48	0.0	0.0
2031 Build	0.85	18.47	31.93	0.07	0.38	0.37	6,524.8	5,919.2
<i>Increase from Existing</i>	-2.64	1.51	-43.91	0.01	-1.60	-1.55	-274.4	-248.9
<i>Increase from No Build</i>	0.11	1.51	2.62	0.01	-0.07	-0.07	-274.4	-248.9
2040 No Build	0.34	16.95	14.66	0.06	0.19	0.19	6,799.3	6,168.2
<i>Increase from Existing</i>	-3.15	0.00	-61.18	0.00	-1.78	-1.73	0.0	0.0
2040 Build	0.40	18.94	16.37	0.07	0.17	0.16	6,705.2	6,082.9
<i>Increase from Existing</i>	-3.09	1.98	-59.47	0.01	-1.81	-1.76	-94.0	-85.3
<i>Increase from No Build</i>	0.06	1.98	1.71	0.01	-0.03	-0.02	-94.0	-85.3

### Rail Emission Rates - 2016

<b>Pollutant</b>	<b>g/gal</b>	<b>g/mile</b>
VOC	5.48	9.5352
CO	26.6	46.284
NOx	119	207.06
SOx	0.094	0.16356
PM10	3.1	5.394
PM2.5	3.007	5.23218
CO2	10217	17777.58

### Rail Emission Rates - 2026

<b>Pollutant</b>	<b>g/gal</b>	<b>g/mile</b>
VOC	1.9	3.306
CO	26.6	46.284
NOx	64	111.36
SOx	0.094	0.16356
PM10	1.2	2.088
PM2.5	1.164	2.02536
CO2	10217	17777.58

### Rail Emission Rates - 2031

<b>Pollutant</b>	<b>g/gal</b>	<b>g/mile</b>
VOC	1.16	2.0184
CO	26.6	46.284
NOx	46	80.04
SOx	0.094	0.16356
PM10	0.7	1.218
PM2.5	0.679	1.18146
CO2	10217	17777.58

### Rail Emission Rates - 2040

<b>Pollutant</b>	<b>g/gal</b>	<b>g/mile</b>
VOC	0.53	0.9222
CO	26.6	46.284
NOx	23	40.02
SOx	0.094	0.16356
PM10	0.3	0.522
PM2.5	0.291	0.50634
CO2	10217	17777.58

## 2016 Locomotive Idling Emissions - Per Train Per Hour

Description	CO (lb/day)	VOC (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	CO2 (lb/day)
Locomotive (idling) <sup>a</sup>	0.793	0.163	3.547	0.003	0.092	332.223

### Locomotive Emission Factors<sup>b</sup>

Description	CO (g/hp-hr)	VOC (g/hp-hr)	NOx (g/hp-hr)	SOx (g/hp-hr)	PM10 (g/hp-hr)
2016 Fleet Average	1.28	0.2634615	5.7	0.00	0.1490385

#### Notes/Assumptions

g/hp-hr means grams per horsepower-hour

<sup>a</sup>Idling Emissions [lb/day] = (Emission Factor [g/hp-hr]) x (1/BSFC [hp-hr/lb]) x (Fuel Density [lb/gal]) x (Fuel Use [gal/hr]) x (Idling Time [hr/day]) x (1/453.6 [lb/g])

Locomotive rating: 3200 horsepower (hp)  
 Idling time: 1 hr/day  
 Fuel: Diesel  
 Fuel usage while idling: 15 gal/hr

<sup>b</sup> CO, VOC (HC), NOx, and PM10 (PM) emission factors from EPA's  
*Exhaust Emission Standards - 40CFR1033.101*

SOx emission factor calculated based on sulfur content of diesel fuel:

SCAQMD Rule 431.2 (Sulfur Content of Liquid Fuels) limits the sulfur content of liquid fuels sold in the District to 500 ppmw. Effective 1 Jan 2005, a refiner or importer shall not produce or supply any diesel fuel for any stationary or mobile source application in the District, unless the diesel fuel is low sulfur diesel for which the sulfur content shall not exceed 15 ppm by weight.

Diesel fuel sulfur content: 15 ppmw (as S)  
 Diesel fuel fuel density: 6.943 lb/gal  
 Higher Heating Value (HHV) of diesel fuel: 138000 Btu/gal  
 Brake Specific Fuel Consumption (BSFC): 0.37 lb/hp-hr  
 7354 Btu/hp-hr

SOx as SO2 (lb/hp-hr) = (ppmw as S/1000000) x (Fuel Density [lb/gal]) x (1 gal/138000 Btu) x  
 (1 lb-mol S/32 lb S) x (1 lb-mole SO2/1 lb-mole S) x (64 lb SO2/1 lb-mole SO2) x (BSFC [Btu/hp-hr])  
 SOx EF: 1.11E-05 lb/hp-hr  
 0.01 g/hp-hr

CO2 emission factor calculated based on carbon content of fuel

CO2 = (fuel density [g/gal]) x (44 g of CO2/12 g C) x (carbon content of diesel fuel)

CO2 EF: 10046 g/gal  
 @ 15 gal/hr: 332 lb/hr

**2026 Locomotive Idling Emissions - Per Train Per Hour**

Description	CO (lb/day)	VOC (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	CO2 (lb/day)
Locomotive (idling) <sup>a</sup>	0.793	0.057	1.908	0.003	0.036	332.223

**Locomotive Emission Factors<sup>b</sup>**

Description	CO (g/hp-hr)	VOC (g/hp-hr)	NOx (g/hp-hr)	SOx (g/hp-hr)	PM10 (g/hp-hr)
2026 Fleet Average	1.28	0.0913462	3.1	0.00	0.0576923

**Notes/Assumptions**

g/hp-hr means grams per horsepower-hour

<sup>a</sup>Idling Emissions [lb/day] = (Emission Factor [g/hp-hr]) x (1/BSFC [hp-hr/lb]) x (Fuel Density [lb/gal]) x (Fuel Use [gal/hr]) x (Idling Time [hr/day]) x (1/453.6 [lb/g])

Locomotive rating: 3200 horsepower (hp)  
 Idling time: 1 hr/day  
 Fuel: Diesel  
 Fuel usage while idling: 15 gal/hr

<sup>b</sup> CO, VOC (HC), NOx, and PM10 (PM) emission factors from EPA's  
*Exhaust Emission Standards - 40CFR1033.101*

SOx emission factor calculated based on sulfur content of diesel fuel:  
 SCAQMD Rule 431.2 (Sulfur Content of Liquid Fuels) limits the sulfur content of liquid fuels sold in the District to 500 ppmw.  
 Effective 1 Jan 2005, a refiner or importer shall not produce or supply any diesel fuel for any stationary or mobile source application in the District, unless the diesel fuel is low sulfur diesel for which the sulfur content shall not exceed 15 ppm by weight.

Diesel fuel sulfur content: 15 ppmw (as S)  
 Diesel fuel fuel density: 6.943 lb/gal  
 Higher Heating Value (HHV) of diesel fuel: 138000 Btu/gal  
 Brake Specific Fuel Consumption (BSFC): 0.37 lb/hp-hr  
 7354 Btu/hp-hr

SOx as SO2 (lb/hp-hr) = (ppmw as S/1000000) x (Fuel Density [lb/gal]) x (1 gal/138000 Btu) x  
 (1 lb-mol S/32 lb S) x (1 lb-mole SO2/1 lb-mole S) x (64 lb SO2/1 lb-mole SO2) x (BSFC [Btu/hp-hr])  
 SOx EF: 1.11E-05 lb/hp-hr  
 0.01 g/hp-hr

CO2 emission factor calculated based on carbon content of fuel

CO2 = (fuel density [g/gal]) x (44 g of CO2/12 g C) x (carbon content of diesel fuel)

CO2 EF: 10046 g/gal  
 @ 15 gal/hr: 332 lb/hr

**2031 Locomotive Idling Emissions - Per Train Per Hour**

Description	CO (lb/day)	VOC (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	CO2 (lb/day)
Locomotive (idling) <sup>a</sup>	0.793	0.035	1.371	0.003	0.021	332.223

**Locomotive Emission Factors<sup>b</sup>**

Description	CO (g/hp-hr)	VOC (g/hp-hr)	NOx (g/hp-hr)	SOx (g/hp-hr)	PM10 (g/hp-hr)
2031 Fleet Average	1.28	0.0557692	2.2	0.00	0.0336538

**Notes/Assumptions**

g/hp-hr means grams per horsepower-hour

<sup>a</sup>Idling Emissions [lb/day] = (Emission Factor [g/hp-hr]) x (1/BSFC [hp-hr/lb]) x (Fuel Density [lb/gal]) x (Fuel Use [gal/hr]) x (Idling Time [hr/day]) x (1/453.6 [lb/g])

Locomotive rating: 3200 horsepower (hp)  
 Idling time: 1 hr/day  
 Fuel: Diesel  
 Fuel usage while idling: 15 gal/hr

<sup>b</sup> CO, VOC (HC), NOx, and PM10 (PM) emission factors from EPA's  
*Exhaust Emission Standards - 40CFR1033.101*

SOx emission factor calculated based on sulfur content of diesel fuel:  
 SCAQMD Rule 431.2 (Sulfur Content of Liquid Fuels) limits the sulfur content of liquid fuels sold in the District to 500 ppmw.  
 Effective 1 Jan 2005, a refiner or importer shall not produce or supply any diesel fuel for any stationary or mobile source application in the District, unless the diesel fuel is low sulfur diesel for which the sulfur content shall not exceed 15 ppm by weight.

Diesel fuel sulfur content: 15 ppmw (as S)  
 Diesel fuel fuel density: 6.943 lb/gal  
 Higher Heating Value (HHV) of diesel fuel: 138000 Btu/gal  
 Brake Specific Fuel Consumption (BSFC): 0.37 lb/hp-hr  
 7354 Btu/hp-hr

SOx as SO2 (lb/hp-hr) = (ppmw as S/1000000) x (Fuel Density [lb/gal]) x (1 gal/138000 Btu) x  
 (1 lb-mol S/32 lb S) x (1 lb-mole SO2/1 lb-mole S) x (64 lb SO2/1 lb-mole SO2) x (BSFC [Btu/hp-hr])  
 SOx EF: 1.11E-05 lb/hp-hr  
 0.01 g/hp-hr

CO2 emission factor calculated based on carbon content of fuel

CO2 = (fuel density [g/gal]) x (44 g of CO2/12 g C) x (carbon content of diesel fuel)

CO2 EF: 10046 g/gal  
 @ 15 gal/hr: 332 lb/hr

## 2040 Locomotive Idling Emissions - Per Train Per Hour

Description	CO (lb/day)	VOC (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)
Locomotive (idling) <sup>a</sup>	0.793	0.016	0.686	0.003	0.009

### Locomotive Emission Factors<sup>b</sup>

Description	CO (g/hp-hr)	VOC (g/hp-hr)	NOx (g/hp-hr)	SOx (g/hp-hr)	PM10 (g/hp-hr)
2040 Fleet Average	1.28	0.0254808	1.1	0.00	0.0144231

#### Notes/Assumptions

g/hp-hr means grams per horsepower-hour

<sup>a</sup>Idling Emissions [lb/day] = (Emission Factor [g/hp-hr]) x (1/BSFC [hp-hr/lb]) x (Fuel Density [lb/gal]) x (Fuel Use [gal/hr]) x (Idling Time [hr/day]) x (1/453.6 [lb/g])

Locomotive rating: 3200 horsepower (hp)  
 Idling time: 1 hr/day  
 Fuel: Diesel  
 Fuel usage while idling: 15 gal/hr

<sup>b</sup> CO, VOC (HC), NOx, and PM10 (PM) emission factors from EPA's  
*Exhaust Emission Standards - 40CFR1033.101*

SOx emission factor calculated based on sulfur content of diesel fuel:

SCAQMD Rule 431.2 (Sulfur Content of Liquid Fuels) limits the sulfur content of liquid fuels sold in the District to 500 ppmw. Effective 1 Jan 2005, a refiner or importer shall not produce or supply any diesel fuel for any stationary or mobile source applicable in the District, unless the diesel fuel is low sulfur diesel for which the sulfur content shall not exceed 15 ppm by weight.

Diesel fuel sulfur content: 15 ppmw (as S)  
 Diesel fuel fuel density: 6.943 lb/gal  
 Higher Heating Value (HHV) of diesel fuel: 138000 Btu/gal  
 Brake Specific Fuel Consumption (BSFC): 0.37 lb/hp-hr  
 7354 Btu/hp-hr

SOx as SO2 (lb/hp-hr) = (ppmw as S/1000000) x (Fuel Density [lb/gal]) x (1 gal/138000 Btu) x  
 (1 lb-mol S/32 lb S) x (1 lb-mole SO2/1 lb-mole S) x (64 lb SO2/1 lb-mole SO2) x (BSFC [Btu/hp-hr])  
 SOx EF: 1.11E-05 lb/hp-hr  
 0.01 g/hp-hr

CO2 emission factor calculated based on carbon content of fuel

CO2 = (fuel density [g/gal]) x (44 g of CO2/12 g C) x (carbon content of diesel fuel)

CO2 EF: 10046 g/gal  
 @ 15 gal/hr: 332 lb/hr

<b>CO2</b>
<b>(lb/day)</b>
332.223

ation

hr])

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**South Coast Air Basin, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Regional Shopping Center	410.60	1000sqft	9.43	410,600.00	0
Strip Mall	159.40	1000sqft	3.66	159,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	12			<b>Operational Year</b>	2031
<b>Utility Company</b>	Los Angeles Department of Water & Power				
<b>CO2 Intensity (lb/MW hr)</b>	834	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

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Project Characteristics - Intensity factor from LADWP 2017 Power Strategic Long-Term Resource Plan

Land Use - Regional Shopping Center represents the new passenger concourse space not included in the retail or office uses

Construction Phase - Construction is calculated separately

Off-road Equipment - Construction is calculated separately

Trips and VMT - Construction is calculated separately

Architectural Coating - Construction is calculated separately

Vehicle Trips - Trip rates from traffic analysis

Energy Use - .

Energy Mitigation - CalEEMod includes 2013 Title 24. 2016 Title 24 is 5% more energy efficient for non-residential uses

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	300,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	900,000.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	1227.89	834
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblVehicleTrips	ST_TR	2.46	0.49
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	42.04	8.10
tblVehicleTrips	SU_TR	1.05	0.21
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	20.43	3.94
tblVehicleTrips	WD_TR	11.03	2.21
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	44.32	8.54

## 2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

**2.2 Overall Operational**  
**Unmitigated Operational**

	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					
Area	2.4469	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
Energy	6.7200e-003	0.0611	0.0514	3.7000e-004		4.6500e-003	4.6500e-003		4.6500e-003	4.6500e-003	0.0000	3,124.9600	3,124.9600	0.1076	0.0232	3,134.5710
Mobile	0.1920	1.0994	2.0832	9.5400e-003	0.9621	5.7800e-003	0.9678	0.2577	5.3700e-003	0.2630	0.0000	889.0200	889.0200	0.0377	0.0000	889.9630
Waste						0.0000	0.0000		0.0000	0.0000	127.1535	0.0000	127.1535	7.5146	0.0000	315.0175
Water						0.0000	0.0000		0.0000	0.0000	15.0865	356.7331	371.8196	1.5619	0.0392	422.5358
<b>Total</b>	<b>2.6456</b>	<b>1.1606</b>	<b>2.1422</b>	<b>9.9100e-003</b>	<b>0.9621</b>	<b>0.0105</b>	<b>0.9725</b>	<b>0.2577</b>	<b>0.0101</b>	<b>0.2677</b>	<b>142.2400</b>	<b>4,370.7279</b>	<b>4,512.9679</b>	<b>9.2219</b>	<b>0.0624</b>	<b>4,762.1031</b>

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**2.2 Overall Operational**

**Mitigated Operational**

	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					
Area	2.4469	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
Energy	6.4700e-003	0.0588	0.0494	3.5000e-004		4.4700e-003	4.4700e-003		4.4700e-003	4.4700e-003	0.0000	3,076.5651	3,076.5651	0.1060	0.0229	3,086.0229
Mobile	0.1920	1.0994	2.0832	9.5400e-003	0.9621	5.7800e-003	0.9678	0.2577	5.3700e-003	0.2630	0.0000	889.0200	889.0200	0.0377	0.0000	889.9630
Waste						0.0000	0.0000		0.0000	0.0000	127.1535	0.0000	127.1535	7.5146	0.0000	315.0175
Water						0.0000	0.0000		0.0000	0.0000	15.0865	356.7331	371.8196	1.5619	0.0392	422.5358
<b>Total</b>	<b>2.6454</b>	<b>1.1583</b>	<b>2.1402</b>	<b>9.8900e-003</b>	<b>0.9621</b>	<b>0.0103</b>	<b>0.9723</b>	<b>0.2577</b>	<b>9.8700e-003</b>	<b>0.2675</b>	<b>142.2400</b>	<b>4,322.3331</b>	<b>4,464.5731</b>	<b>9.2202</b>	<b>0.0620</b>	<b>4,713.5550</b>

	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
<b>Percent Reduction</b>	<b>0.01</b>	<b>0.20</b>	<b>0.09</b>	<b>0.20</b>	<b>0.00</b>	<b>1.72</b>	<b>0.02</b>	<b>0.00</b>	<b>1.79</b>	<b>0.07</b>	<b>0.00</b>	<b>1.11</b>	<b>1.07</b>	<b>0.02</b>	<b>0.59</b>	<b>1.02</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	1/4/2021	1/3/2021	5	20	

**Acres of Grading (Site Preparation Phase): 0**

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**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**



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**3.2 Architectural Coating - 2021**

**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					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

	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					
Mitigated	0.1920	1.0994	2.0832	9.5400e-003	0.9621	5.7800e-003	0.9678	0.2577	5.3700e-003	0.2630	0.0000	889.0200	889.0200	0.0377	0.0000	889.9630
Unmitigated	0.1920	1.0994	2.0832	9.5400e-003	0.9621	5.7800e-003	0.9678	0.2577	5.3700e-003	0.2630	0.0000	889.0200	889.0200	0.0377	0.0000	889.9630

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	66.30	14.70	6.30	162,224	162,224
Regional Shopping Center	0.00	0.00	0.00		
Strip Mall	1,361.28	1,291.14	628.04	2,371,600	2,371,600
Total	1,427.58	1,305.84	634.34	2,533,824	2,533,824

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

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**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752
Regional Shopping Center	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752
Strip Mall	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

	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					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,012.5662	3,012.5662	0.1048	0.0217	3,021.6436
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,058.4100	3,058.4100	0.1064	0.0220	3,067.6255
NaturalGas Mitigated	6.4700e-003	0.0588	0.0494	3.5000e-004		4.4700e-003	4.4700e-003		4.4700e-003	4.4700e-003	0.0000	63.9990	63.9990	1.2300e-003	1.1700e-003	64.3793
NaturalGas Unmitigated	6.7200e-003	0.0611	0.0514	3.7000e-004		4.6500e-003	4.6500e-003		4.6500e-003	4.6500e-003	0.0000	66.5500	66.5500	1.2800e-003	1.2200e-003	66.9455

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**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	312300	1.6800e-003	0.0153	0.0129	9.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	16.6655	16.6655	3.2000e-004	3.1000e-004	16.7646
Regional Shopping Center	673384	3.6300e-003	0.0330	0.0277	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	35.9343	35.9343	6.9000e-004	6.6000e-004	36.1479
Strip Mall	261416	1.4100e-003	0.0128	0.0108	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.9502	13.9502	2.7000e-004	2.6000e-004	14.0331
<b>Total</b>		<b>6.7200e-003</b>	<b>0.0611</b>	<b>0.0514</b>	<b>3.7000e-004</b>		<b>4.6400e-003</b>	<b>4.6400e-003</b>		<b>4.6400e-003</b>	<b>4.6400e-003</b>	<b>0.0000</b>	<b>66.5500</b>	<b>66.5500</b>	<b>1.2800e-003</b>	<b>1.2300e-003</b>	<b>66.9455</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	297270	1.6000e-003	0.0146	0.0122	9.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	15.8635	15.8635	3.0000e-004	2.9000e-004	15.9577
Regional Shopping Center	649774	3.5000e-003	0.0319	0.0268	1.9000e-004		2.4200e-003	2.4200e-003		2.4200e-003	2.4200e-003	0.0000	34.6744	34.6744	6.6000e-004	6.4000e-004	34.8805
Strip Mall	252250	1.3600e-003	0.0124	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4611	13.4611	2.6000e-004	2.5000e-004	13.5410
<b>Total</b>		<b>6.4600e-003</b>	<b>0.0588</b>	<b>0.0494</b>	<b>3.5000e-004</b>		<b>4.4700e-003</b>	<b>4.4700e-003</b>		<b>4.4700e-003</b>	<b>4.4700e-003</b>	<b>0.0000</b>	<b>63.9990</b>	<b>63.9990</b>	<b>1.2200e-003</b>	<b>1.1800e-003</b>	<b>64.3793</b>

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**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	389700	147.4220	5.1300e-003	1.0600e-003	147.8662
Regional Shopping Center	5.5431e+006	2,096.9328	0.0729	0.0151	2,103.2512
Strip Mall	2.1519e+006	814.0552	0.0283	5.8600e-003	816.5081
<b>Total</b>		<b>3,058.4100</b>	<b>0.1064</b>	<b>0.0220</b>	<b>3,067.6255</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	382800	144.8117	5.0400e-003	1.0400e-003	145.2481
Regional Shopping Center	5.46077e+006	2,065.7894	0.0718	0.0149	2,072.0140
Strip Mall	2.11994e+006	801.9650	0.0279	5.7700e-003	804.3815
<b>Total</b>		<b>3,012.5662</b>	<b>0.1048</b>	<b>0.0217</b>	<b>3,021.6436</b>

**6.0 Area Detail**

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**6.1 Mitigation Measures Area**

	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					
Mitigated	2.4469	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
Unmitigated	2.4469	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159

**6.2 Area by SubCategory**

Unmitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2781					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.1681					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
<b>Total</b>	<b>2.4469</b>	<b>7.0000e-005</b>	<b>7.6200e-003</b>	<b>0.0000</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0149</b>	<b>0.0149</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.0159</b>

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**6.2 Area by SubCategory**

**Mitigated**

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2781					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.1681					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6200e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
<b>Total</b>	<b>2.4469</b>	<b>7.0000e-005</b>	<b>7.6200e-003</b>	<b>0.0000</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0149</b>	<b>0.0149</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.0159</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

Link US - 2031 Operational Emissions - South Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	371.8196	1.5619	0.0392	422.5358
Unmitigated	371.8196	1.5619	0.0392	422.5358

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.33201 / 3.26801	41.6910	0.1751	4.3900e-003	47.3777
Regional Shopping Center	30.4142 / 18.6409	237.8084	0.9990	0.0250	270.2455
Strip Mall	11.8072 / 7.23665	92.3202	0.3878	9.7200e-003	104.9126
<b>Total</b>		<b>371.8196</b>	<b>1.5619</b>	<b>0.0392</b>	<b>422.5358</b>

## Link US - 2031 Operational Emissions - South Coast Air Basin, Annual

**7.2 Water by Land Use****Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.33201 / 3.26801	41.6910	0.1751	4.3900e-003	47.3777
Regional Shopping Center	30.4142 / 18.6409	237.8084	0.9990	0.0250	270.2455
Strip Mall	11.8072 / 7.23665	92.3202	0.3878	9.7200e-003	104.9126
<b>Total</b>		<b>371.8196</b>	<b>1.5619</b>	<b>0.0392</b>	<b>422.5358</b>

**8.0 Waste Detail****8.1 Mitigation Measures Waste**

Link US - 2031 Operational Emissions - South Coast Air Basin, Annual

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	127.1535	7.5146	0.0000	315.0175
Unmitigated	127.1535	7.5146	0.0000	315.0175

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	27.9	5.6635	0.3347	0.0000	14.0310
Regional Shopping Center	431.13	87.5155	5.1720	0.0000	216.8159
Strip Mall	167.37	33.9746	2.0078	0.0000	84.1706
<b>Total</b>		<b>127.1535</b>	<b>7.5146</b>	<b>0.0000</b>	<b>315.0175</b>

Link US - 2031 Operational Emissions - South Coast Air Basin, Annual

**8.2 Waste by Land Use**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	27.9	5.6635	0.3347	0.0000	14.0310
Regional Shopping Center	431.13	87.5155	5.1720	0.0000	216.8159
Strip Mall	167.37	33.9746	2.0078	0.0000	84.1706
<b>Total</b>		<b>127.1535</b>	<b>7.5146</b>	<b>0.0000</b>	<b>315.0175</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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Link US - 2031 Operational Emissions - South Coast Air Basin, Annual

## **11.0 Vegetation**

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Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**Link US - 2031 Operational Emissions**  
**South Coast Air Basin, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Regional Shopping Center	410.60	1000sqft	9.43	410,600.00	0
Strip Mall	159.40	1000sqft	3.66	159,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	12			<b>Operational Year</b>	2031
<b>Utility Company</b>	Los Angeles Department of Water & Power				
<b>CO2 Intensity (lb/MW hr)</b>	834	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

## Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

Project Characteristics - Intensity factor from LADWP 2017 Power Strategic Long-Term Resource Plan

Land Use - Regional Shopping Center represents the new passenger concourse space not included in the retail or office uses

Construction Phase - Construction is calculated separately

Off-road Equipment - Construction is calculated separately

Trips and VMT - Construction is calculated separately

Architectural Coating - Construction is calculated separately

Vehicle Trips - Trip rates from traffic analysis

Energy Use - .

Energy Mitigation - CalEEMod includes 2013 Title 24. 2016 Title 24 is 5% more energy efficient for non-residential uses

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	300,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	900,000.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	1227.89	834
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblVehicleTrips	ST_TR	2.46	0.49
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	42.04	8.10
tblVehicleTrips	SU_TR	1.05	0.21
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	20.43	3.94
tblVehicleTrips	WD_TR	11.03	2.21
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	44.32	8.54

## 2.0 Emissions Summary

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Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**2.2 Overall Operational**  
**Unmitigated Operational**

	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					
Area	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0369	0.3350	0.2814	2.0100e-003		0.0255	0.0255		0.0255	0.0255		401.9662	401.9662	7.7000e-003	7.3700e-003	404.3548
Mobile	1.2634	6.5449	13.0640	0.0602	5.9568	0.0351	5.9919	1.5930	0.0326	1.6256		6,179.6997	6,179.6997	0.2513		6,185.9832
<b>Total</b>	<b>14.7096</b>	<b>6.8804</b>	<b>13.4064</b>	<b>0.0622</b>	<b>5.9568</b>	<b>0.0608</b>	<b>6.0176</b>	<b>1.5930</b>	<b>0.0583</b>	<b>1.6513</b>		<b>6,581.7971</b>	<b>6,581.7971</b>	<b>0.2594</b>	<b>7.3700e-003</b>	<b>6,590.4778</b>

**Mitigated Operational**

	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					
Area	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0354	0.3221	0.2706	1.9300e-003		0.0245	0.0245		0.0245	0.0245		386.5576	386.5576	7.4100e-003	7.0900e-003	388.8547
Mobile	1.2634	6.5449	13.0640	0.0602	5.9568	0.0351	5.9919	1.5930	0.0326	1.6256		6,179.6997	6,179.6997	0.2513		6,185.9832
<b>Total</b>	<b>14.7082</b>	<b>6.8676</b>	<b>13.3956</b>	<b>0.0622</b>	<b>5.9568</b>	<b>0.0598</b>	<b>6.0166</b>	<b>1.5930</b>	<b>0.0573</b>	<b>1.6503</b>		<b>6,566.3886</b>	<b>6,566.3886</b>	<b>0.2591</b>	<b>7.0900e-003</b>	<b>6,574.9777</b>

Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

	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
Percent Reduction	0.01	0.19	0.08	0.13	0.00	1.61	0.02	0.00	1.68	0.06	0.00	0.23	0.23	0.11	3.80	0.24

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	1/4/2021	1/3/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48

#### Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction



Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**3.2 Architectural Coating - 2021**

**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					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**

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Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**4.1 Mitigation Measures Mobile**

	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					
Mitigated	1.2634	6.5449	13.0640	0.0602	5.9568	0.0351	5.9919	1.5930	0.0326	1.6256		6,179.6997	6,179.6997	0.2513		6,185.9832
Unmitigated	1.2634	6.5449	13.0640	0.0602	5.9568	0.0351	5.9919	1.5930	0.0326	1.6256		6,179.6997	6,179.6997	0.2513		6,185.9832

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	66.30	14.70	6.30	162,224	162,224
Regional Shopping Center	0.00	0.00	0.00		
Strip Mall	1,361.28	1,291.14	628.04	2,371,600	2,371,600
<b>Total</b>	<b>1,427.58</b>	<b>1,305.84</b>	<b>634.34</b>	<b>2,533,824</b>	<b>2,533,824</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752
Regional Shopping Center	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752
Strip Mall	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

	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					
NaturalGas Mitigated	0.0354	0.3221	0.2706	1.9300e-003		0.0245	0.0245		0.0245	0.0245		386.5576	386.5576	7.4100e-003	7.0900e-003	388.8547
NaturalGas Unmitigated	0.0369	0.3350	0.2814	2.0100e-003		0.0255	0.0255		0.0255	0.0255		401.9662	401.9662	7.7000e-003	7.3700e-003	404.3548

Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	855.616	9.2300e-003	0.0839	0.0705	5.0000e-004		6.3800e-003	6.3800e-003		6.3800e-003	6.3800e-003		100.6608	100.6608	1.9300e-003	1.8500e-003	101.2589
Regional Shopping Center	1844.89	0.0199	0.1809	0.1519	1.0900e-003		0.0138	0.0138		0.0138	0.0138		217.0456	217.0456	4.1600e-003	3.9800e-003	218.3354
Strip Mall	716.208	7.7200e-003	0.0702	0.0590	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.2598	84.2598	1.6100e-003	1.5400e-003	84.7605
<b>Total</b>		<b>0.0369</b>	<b>0.3350</b>	<b>0.2814</b>	<b>2.0100e-003</b>		<b>0.0255</b>	<b>0.0255</b>		<b>0.0255</b>	<b>0.0255</b>		<b>401.9662</b>	<b>401.9662</b>	<b>7.7000e-003</b>	<b>7.3700e-003</b>	<b>404.3548</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.814438	8.7800e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003		95.8163	95.8163	1.8400e-003	1.7600e-003	96.3857
Regional Shopping Center	1.7802	0.0192	0.1745	0.1466	1.0500e-003		0.0133	0.0133		0.0133	0.0133		209.4358	209.4358	4.0100e-003	3.8400e-003	210.6804
Strip Mall	0.691097	7.4500e-003	0.0678	0.0569	4.1000e-004		5.1500e-003	5.1500e-003		5.1500e-003	5.1500e-003		81.3056	81.3056	1.5600e-003	1.4900e-003	81.7887
<b>Total</b>		<b>0.0354</b>	<b>0.3221</b>	<b>0.2706</b>	<b>1.9400e-003</b>		<b>0.0245</b>	<b>0.0245</b>		<b>0.0245</b>	<b>0.0245</b>		<b>386.5576</b>	<b>386.5576</b>	<b>7.4100e-003</b>	<b>7.0900e-003</b>	<b>388.8547</b>

**6.0 Area Detail**

Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**6.1 Mitigation Measures Area**

	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					
Mitigated	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Unmitigated	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398

**6.2 Area by SubCategory**

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5800e-003	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0610</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>		<b>0.1398</b>

Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

**6.2 Area by SubCategory**

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5800e-003	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0610</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>		<b>0.1398</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

Fire Pumps and Emergency Generators

## Link US - 2031 Operational Emissions - South Coast Air Basin, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**Link US - 2031 Operational Emissions**  
**South Coast Air Basin, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Regional Shopping Center	410.60	1000sqft	9.43	410,600.00	0
Strip Mall	159.40	1000sqft	3.66	159,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	12			<b>Operational Year</b>	2031
<b>Utility Company</b>	Los Angeles Department of Water & Power				
<b>CO2 Intensity (lb/MW hr)</b>	834	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

## Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

Project Characteristics - Intensity factor from LADWP 2017 Power Strategic Long-Term Resource Plan

Land Use - Regional Shopping Center represents the new passenger concourse space not included in the retail or office uses

Construction Phase - Construction is calculated separately

Off-road Equipment - Construction is calculated separately

Trips and VMT - Construction is calculated separately

Architectural Coating - Construction is calculated separately

Vehicle Trips - Trip rates from traffic analysis

Energy Use - .

Energy Mitigation - CalEEMod includes 2013 Title 24. 2016 Title 24 is 5% more energy efficient for non-residential uses

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	300,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	900,000.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	1227.89	834
tblTripsAndVMT	WorkerTripNumber	38.00	0.00
tblVehicleTrips	ST_TR	2.46	0.49
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	42.04	8.10
tblVehicleTrips	SU_TR	1.05	0.21
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	20.43	3.94
tblVehicleTrips	WD_TR	11.03	2.21
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	44.32	8.54

## 2.0 Emissions Summary

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Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**2.2 Overall Operational**

**Unmitigated Operational**

	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					
Area	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0369	0.3350	0.2814	2.0100e-003		0.0255	0.0255		0.0255	0.0255		401.9662	401.9662	7.7000e-003	7.3700e-003	404.3548
Mobile	1.2010	6.5632	12.5385	0.0571	5.9568	0.0353	5.9921	1.5930	0.0328	1.6258		5,865.1054	5,865.1054	0.2558		5,871.5007
<b>Total</b>	<b>14.6472</b>	<b>6.8987</b>	<b>12.8809</b>	<b>0.0591</b>	<b>5.9568</b>	<b>0.0610</b>	<b>6.0178</b>	<b>1.5930</b>	<b>0.0584</b>	<b>1.6514</b>		<b>6,267.2028</b>	<b>6,267.2028</b>	<b>0.2639</b>	<b>7.3700e-003</b>	<b>6,275.9953</b>

**Mitigated Operational**

	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					
Area	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0354	0.3221	0.2706	1.9300e-003		0.0245	0.0245		0.0245	0.0245		386.5576	386.5576	7.4100e-003	7.0900e-003	388.8547
Mobile	1.2010	6.5632	12.5385	0.0571	5.9568	0.0353	5.9921	1.5930	0.0328	1.6258		5,865.1054	5,865.1054	0.2558		5,871.5007
<b>Total</b>	<b>14.6458</b>	<b>6.8859</b>	<b>12.8701</b>	<b>0.0591</b>	<b>5.9568</b>	<b>0.0600</b>	<b>6.0168</b>	<b>1.5930</b>	<b>0.0575</b>	<b>1.6505</b>		<b>6,251.7943</b>	<b>6,251.7943</b>	<b>0.2636</b>	<b>7.0900e-003</b>	<b>6,260.4952</b>

Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

	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
Percent Reduction	0.01	0.19	0.08	0.14	0.00	1.61	0.02	0.00	1.68	0.06	0.00	0.25	0.25	0.11	3.80	0.25

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	1/4/2021	1/3/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48

#### Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction



Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**3.2 Architectural Coating - 2021**

**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					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**

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Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**4.1 Mitigation Measures Mobile**

	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					
Mitigated	1.2010	6.5632	12.5385	0.0571	5.9568	0.0353	5.9921	1.5930	0.0328	1.6258		5,865.1054	5,865.1054	0.2558		5,871.5007
Unmitigated	1.2010	6.5632	12.5385	0.0571	5.9568	0.0353	5.9921	1.5930	0.0328	1.6258		5,865.1054	5,865.1054	0.2558		5,871.5007

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	66.30	14.70	6.30	162,224	162,224
Regional Shopping Center	0.00	0.00	0.00		
Strip Mall	1,361.28	1,291.14	628.04	2,371,600	2,371,600
Total	1,427.58	1,305.84	634.34	2,533,824	2,533,824

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752
Regional Shopping Center	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752
Strip Mall	0.554622	0.041562	0.206751	0.111062	0.012660	0.005774	0.022378	0.035217	0.002175	0.001476	0.004853	0.000718	0.000752

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Exceed Title 24

	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					
NaturalGas Mitigated	0.0354	0.3221	0.2706	1.9300e-003		0.0245	0.0245		0.0245	0.0245		386.5576	386.5576	7.4100e-003	7.0900e-003	388.8547
NaturalGas Unmitigated	0.0369	0.3350	0.2814	2.0100e-003		0.0255	0.0255		0.0255	0.0255		401.9662	401.9662	7.7000e-003	7.3700e-003	404.3548

Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	855.616	9.2300e-003	0.0839	0.0705	5.0000e-004		6.3800e-003	6.3800e-003		6.3800e-003	6.3800e-003		100.6608	100.6608	1.9300e-003	1.8500e-003	101.2589
Regional Shopping Center	1844.89	0.0199	0.1809	0.1519	1.0900e-003		0.0138	0.0138		0.0138	0.0138		217.0456	217.0456	4.1600e-003	3.9800e-003	218.3354
Strip Mall	716.208	7.7200e-003	0.0702	0.0590	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003		84.2598	84.2598	1.6100e-003	1.5400e-003	84.7605
<b>Total</b>		<b>0.0369</b>	<b>0.3350</b>	<b>0.2814</b>	<b>2.0100e-003</b>		<b>0.0255</b>	<b>0.0255</b>		<b>0.0255</b>	<b>0.0255</b>		<b>401.9662</b>	<b>401.9662</b>	<b>7.7000e-003</b>	<b>7.3700e-003</b>	<b>404.3548</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.814438	8.7800e-003	0.0799	0.0671	4.8000e-004		6.0700e-003	6.0700e-003		6.0700e-003	6.0700e-003		95.8163	95.8163	1.8400e-003	1.7600e-003	96.3857
Regional Shopping Center	1.7802	0.0192	0.1745	0.1466	1.0500e-003		0.0133	0.0133		0.0133	0.0133		209.4358	209.4358	4.0100e-003	3.8400e-003	210.6804
Strip Mall	0.691097	7.4500e-003	0.0678	0.0569	4.1000e-004		5.1500e-003	5.1500e-003		5.1500e-003	5.1500e-003		81.3056	81.3056	1.5600e-003	1.4900e-003	81.7887
<b>Total</b>		<b>0.0354</b>	<b>0.3221</b>	<b>0.2706</b>	<b>1.9400e-003</b>		<b>0.0245</b>	<b>0.0245</b>		<b>0.0245</b>	<b>0.0245</b>		<b>386.5576</b>	<b>386.5576</b>	<b>7.4100e-003</b>	<b>7.0900e-003</b>	<b>388.8547</b>

**6.0 Area Detail**

Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**6.1 Mitigation Measures Area**

	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					
Mitigated	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Unmitigated	13.4094	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398

**6.2 Area by SubCategory**

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5800e-003	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0610</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>		<b>0.1398</b>

Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

**6.2 Area by SubCategory**

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5800e-003	5.5000e-004	0.0610	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0610</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>		<b>0.1398</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

Fire Pumps and Emergency Generators

## Link US - 2031 Operational Emissions - South Coast Air Basin, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Link US - 2040 Operational Emissions - South Coast Air Basin, Summary Report

**Link US - 2040 Operational Emissions  
South Coast, Summary Report**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Regional Shopping Center	410.60	1000sqft	9.43	410,600.00	0
Strip Mall	159.40	1000sqft	3.66	159,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	12			<b>Operational Year</b>	2040
<b>Utility Company</b>	Los Angeles Department of Water & Power				
<b>CO2 Intensity (lb/MW hr)</b>	1135	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments**

Only CalEEMod defaults were used.

Project Characteristics - Intensity factor from <https://data.lacity.org/A-Livable-and-Sustainable-City/LADWP-CO2-Generation/e5ni-eqan/10>

Land Use - Regional Shopping Center represents the new passenger concourse space not included in the retail or office uses

Construction Phase - Construction is calculated separately

Off-road Equipment -

Off-road Equipment - Construction is calculated separately

Trips and VMT - Construction is calculated separately

Grading - Construction is calculated separately

Vehicle Trips - Trip rates from traffic analysis





Link US - 2040 Operational Emissions - South Coast Air Basin, Summer

**Link US - 2040 Operational Emissions**  
**South Coast Air Basin, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Regional Shopping Center	410.60	1000sqft	9.43	410,600.00	0
Strip Mall	159.40	1000sqft	3.66	159,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	12			<b>Operational Year</b>	2040
<b>Utility Company</b>	Los Angeles Department of Water & Power				
<b>CO2 Intensity (lb/MW hr)</b>	1135	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Intensity factor from <https://data.lacity.org/A-Livable-and-Sustainable-City/LADWP-CO2-Generation/e5ni-eqan/10>

Land Use - Regional Shopping Center represents the new passenger concourse space not included in the retail or office uses

Construction Phase - Construction is calculated separately

Off-road Equipment -

Off-road Equipment - Construction is calculated separately

Trips and VMT - Construction is calculated separately

Grading - Construction is calculated separately

Vehicle Trips - Trip rates from traffic analysis

Vehicle Emission Factors -



## 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					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Maximum</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

	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
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 2.2 Overall Operational

### Unmitigated Operational

	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					
Area	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0371	0.3369	0.2830	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.2869	404.2869	7.7500e-003	7.4100e-003	406.6893
Mobile	0.9412	6.4764	10.2667	0.0568	5.9594	0.0230	5.9825	1.5938	0.0214	1.6153		5,856.4839	5,856.4839	0.2210		5,862.0097
<b>Total</b>	<b>14.3877</b>	<b>6.8138</b>	<b>10.6106</b>	<b>0.0589</b>	<b>5.9594</b>	<b>0.0488</b>	<b>6.0083</b>	<b>1.5938</b>	<b>0.0472</b>	<b>1.6411</b>		<b>6,260.9021</b>	<b>6,260.9021</b>	<b>0.2291</b>	<b>7.4100e-003</b>	<b>6,268.8388</b>

**Mitigated Operational**

	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						
Area	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0356	0.3240	0.2721	1.9400e-003		0.0246	0.0246		0.0246	0.0246			388.7623	388.7623	7.4500e-003	7.1300e-003	391.0725
Mobile	0.9412	6.4764	10.2667	0.0568	5.9594	0.0230	5.9825	1.5938	0.0214	1.6153			5,856.4839	5,856.4839	0.2210		5,862.0097
<b>Total</b>	<b>14.3862</b>	<b>6.8009</b>	<b>10.5997</b>	<b>0.0588</b>	<b>5.9594</b>	<b>0.0479</b>	<b>6.0073</b>	<b>1.5938</b>	<b>0.0463</b>	<b>1.6401</b>			<b>6,245.3775</b>	<b>6,245.3775</b>	<b>0.2288</b>	<b>7.1300e-003</b>	<b>6,253.2220</b>

	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
Percent Reduction	0.01	0.19	0.10	0.14	0.00	2.01	0.02	0.00	2.07	0.06	0.00	0.25	0.25	0.13	3.78	0.25

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/16/2017	3/15/2017	5	10	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	
Site Preparation	Rubber Tired Dozers		0	8.00	247	0.40



Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**

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#### 4.1 Mitigation Measures Mobile

	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					
Mitigated	0.9412	6.4764	10.2667	0.0568	5.9594	0.0230	5.9825	1.5938	0.0214	1.6153		5,856.4839	5,856.4839	0.2210		5,862.0097
Unmitigated	0.9412	6.4764	10.2667	0.0568	5.9594	0.0230	5.9825	1.5938	0.0214	1.6153		5,856.4839	5,856.4839	0.2210		5,862.0097

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	66.30	14.70	6.30	162,224	162,224
Regional Shopping Center	0.00	0.00	0.00		
Strip Mall	1,361.28	1,291.14	628.04	2,371,600	2,371,600
Total	1,427.58	1,305.84	634.34	2,533,824	2,533,824

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727
Regional Shopping Center	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727
Strip Mall	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

Exceed Title 24

	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					
NaturalGas Mitigated	0.0356	0.3240	0.2721	1.9400e-003		0.0246	0.0246		0.0246	0.0246		388.7623	388.7623	7.4500e-003	7.1300e-003	391.0725
NaturalGas Unmitigated	0.0371	0.3369	0.2830	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.2869	404.2869	7.7500e-003	7.4100e-003	406.6893

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	lb/day										lb/day						
General Office Building	859.726	9.2700e-003	0.0843	0.0708	5.1000e-004		6.4100e-003	6.4100e-003		6.4100e-003	6.4100e-003			101.1442	101.1442	1.9400e-003	1.8500e-003	101.7453
Regional Shopping Center	1856.14	0.0200	0.1820	0.1529	1.0900e-003		0.0138	0.0138		0.0138	0.0138			218.3691	218.3691	4.1900e-003	4.0000e-003	219.6667
Strip Mall	720.575	7.7700e-003	0.0706	0.0593	4.2000e-004		5.3700e-003	5.3700e-003		5.3700e-003	5.3700e-003			84.7736	84.7736	1.6200e-003	1.5500e-003	85.2773
<b>Total</b>		<b>0.0371</b>	<b>0.3369</b>	<b>0.2830</b>	<b>2.0200e-003</b>		<b>0.0256</b>	<b>0.0256</b>		<b>0.0256</b>	<b>0.0256</b>			<b>404.2869</b>	<b>404.2869</b>	<b>7.7500e-003</b>	<b>7.4000e-003</b>	<b>406.6894</b>

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	lb/day										lb/day						
General Office Building	0.818342	8.8300e-003	0.0802	0.0674	4.8000e-004		6.1000e-003	6.1000e-003		6.1000e-003	6.1000e-003			96.2756	96.2756	1.8500e-003	1.7700e-003	96.8477
Regional Shopping Center	1.79089	0.0193	0.1756	0.1475	1.0500e-003		0.0133	0.0133		0.0133	0.0133			210.6931	210.6931	4.0400e-003	3.8600e-003	211.9451
Strip Mall	0.695246	7.5000e-003	0.0682	0.0573	4.1000e-004		5.1800e-003	5.1800e-003		5.1800e-003	5.1800e-003			81.7937	81.7937	1.5700e-003	1.5000e-003	82.2797
<b>Total</b>		<b>0.0356</b>	<b>0.3240</b>	<b>0.2721</b>	<b>1.9400e-003</b>		<b>0.0246</b>	<b>0.0246</b>		<b>0.0246</b>	<b>0.0246</b>			<b>388.7623</b>	<b>388.7623</b>	<b>7.4600e-003</b>	<b>7.1300e-003</b>	<b>391.0725</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	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					
Mitigated	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398
Unmitigated	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398

**6.2 Area by SubCategory**

**Unmitigated**

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5700e-003	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0609</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>			<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>	<b>0.1398</b>

### Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5700e-003	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0609</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>			<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>	<b>0.1398</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 10.0 Stationary Equipment

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### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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### Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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### User Defined Equipment

Equipment Type	Number
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## 11.0 Vegetation

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Link US - 2040 Operational Emissions - South Coast Air Basin, Winter

**Link US - 2040 Operational Emissions**  
**South Coast Air Basin, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Regional Shopping Center	410.60	1000sqft	9.43	410,600.00	0
Strip Mall	159.40	1000sqft	3.66	159,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	12			<b>Operational Year</b>	2040
<b>Utility Company</b>	Los Angeles Department of Water & Power				
<b>CO2 Intensity (lb/MW hr)</b>	1135	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Intensity factor from <https://data.lacity.org/A-Livable-and-Sustainable-City/LADWP-CO2-Generation/e5ni-eqan/10>

Land Use - Regional Shopping Center represents the new passenger concourse space not included in the retail or office uses

Construction Phase - Construction is calculated separately

Off-road Equipment -

Off-road Equipment - Construction is calculated separately

Trips and VMT - Construction is calculated separately

Grading - Construction is calculated separately

Vehicle Trips - Trip rates from traffic analysis

Vehicle Emission Factors -



**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					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	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
Percent Reduction	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

**2.2 Overall Operational**

**Unmitigated Operational**

	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					
Area	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0371	0.3369	0.2830	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.2869	404.2869	7.7500e-003	7.4100e-003	406.6893
Mobile	0.8992	6.4622	9.8572	0.0539	5.9594	0.0231	5.9825	1.5938	0.0215	1.6153		5,559.6273	5,559.6273	0.2264		5,565.2879
Total	14.3457	6.7997	10.2010	0.0559	5.9594	0.0489	6.0084	1.5938	0.0473	1.6412		5,964.0455	5,964.0455	0.2345	7.4100e-003	5,972.1170

**Mitigated Operational**

	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						
Area	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004		0.1398
Energy	0.0356	0.3240	0.2721	1.9400e-003		0.0246	0.0246		0.0246	0.0246			388.7623	388.7623	7.4500e-003	7.1300e-003	391.0725
Mobile	0.8992	6.4622	9.8572	0.0539	5.9594	0.0231	5.9825	1.5938	0.0215	1.6153			5,559.6273	5,559.6273	0.2264		5,565.2879
<b>Total</b>	<b>14.3443</b>	<b>6.7867</b>	<b>10.1902</b>	<b>0.0559</b>	<b>5.9594</b>	<b>0.0479</b>	<b>6.0074</b>	<b>1.5938</b>	<b>0.0463</b>	<b>1.6402</b>			<b>5,948.5209</b>	<b>5,948.5209</b>	<b>0.2342</b>	<b>7.1300e-003</b>	<b>5,956.5002</b>

	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
Percent Reduction	0.01	0.19	0.11	0.14	0.00	2.00	0.02	0.00	2.07	0.06	0.00	0.26	0.26	0.13	3.78	0.26

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/16/2017	3/15/2017	5	10	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40



Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**4.0 Operational Detail - Mobile**

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#### 4.1 Mitigation Measures Mobile

	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					
Mitigated	0.8992	6.4622	9.8572	0.0539	5.9594	0.0231	5.9825	1.5938	0.0215	1.6153		5,559.6273	5,559.6273	0.2264		5,565.2879
Unmitigated	0.8992	6.4622	9.8572	0.0539	5.9594	0.0231	5.9825	1.5938	0.0215	1.6153		5,559.6273	5,559.6273	0.2264		5,565.2879

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	66.30	14.70	6.30	162,224	162,224
Regional Shopping Center	0.00	0.00	0.00		
Strip Mall	1,361.28	1,291.14	628.04	2,371,600	2,371,600
Total	1,427.58	1,305.84	634.34	2,533,824	2,533,824

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727
Regional Shopping Center	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727
Strip Mall	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

Exceed Title 24

	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					
NaturalGas Mitigated	0.0356	0.3240	0.2721	1.9400e-003		0.0246	0.0246		0.0246	0.0246		388.7623	388.7623	7.4500e-003	7.1300e-003	391.0725
NaturalGas Unmitigated	0.0371	0.3369	0.2830	2.0200e-003		0.0256	0.0256		0.0256	0.0256		404.2869	404.2869	7.7500e-003	7.4100e-003	406.6893

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	lb/day										lb/day						
General Office Building	859.726	9.2700e-003	0.0843	0.0708	5.1000e-004		6.4100e-003	6.4100e-003		6.4100e-003	6.4100e-003			101.1442	101.1442	1.9400e-003	1.8500e-003	101.7453
Regional Shopping Center	1856.14	0.0200	0.1820	0.1529	1.0900e-003		0.0138	0.0138		0.0138	0.0138			218.3691	218.3691	4.1900e-003	4.0000e-003	219.6667
Strip Mall	720.575	7.7700e-003	0.0706	0.0593	4.2000e-004		5.3700e-003	5.3700e-003		5.3700e-003	5.3700e-003			84.7736	84.7736	1.6200e-003	1.5500e-003	85.2773
<b>Total</b>		<b>0.0371</b>	<b>0.3369</b>	<b>0.2830</b>	<b>2.0200e-003</b>		<b>0.0256</b>	<b>0.0256</b>		<b>0.0256</b>	<b>0.0256</b>			<b>404.2869</b>	<b>404.2869</b>	<b>7.7500e-003</b>	<b>7.4000e-003</b>	<b>406.6894</b>

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	lb/day										lb/day						
General Office Building	0.818342	8.8300e-003	0.0802	0.0674	4.8000e-004		6.1000e-003	6.1000e-003		6.1000e-003	6.1000e-003			96.2756	96.2756	1.8500e-003	1.7700e-003	96.8477
Regional Shopping Center	1.79089	0.0193	0.1756	0.1475	1.0500e-003		0.0133	0.0133		0.0133	0.0133			210.6931	210.6931	4.0400e-003	3.8600e-003	211.9451
Strip Mall	0.695246	7.5000e-003	0.0682	0.0573	4.1000e-004		5.1800e-003	5.1800e-003		5.1800e-003	5.1800e-003			81.7937	81.7937	1.5700e-003	1.5000e-003	82.2797
<b>Total</b>		<b>0.0356</b>	<b>0.3240</b>	<b>0.2721</b>	<b>1.9400e-003</b>		<b>0.0246</b>	<b>0.0246</b>		<b>0.0246</b>	<b>0.0246</b>			<b>388.7623</b>	<b>388.7623</b>	<b>7.4600e-003</b>	<b>7.1300e-003</b>	<b>391.0725</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	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					
Mitigated	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398
Unmitigated	13.4094	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398

**6.2 Area by SubCategory**

**Unmitigated**

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5700e-003	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0609</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>			<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>	<b>0.1398</b>

### Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.5238					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.5700e-003	5.5000e-004	0.0609	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004			0.1313	0.1313	3.4000e-004	0.1398
<b>Total</b>	<b>13.4094</b>	<b>5.5000e-004</b>	<b>0.0609</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>			<b>0.1313</b>	<b>0.1313</b>	<b>3.4000e-004</b>	<b>0.1398</b>

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## 10.0 Stationary Equipment

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### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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### Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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### User Defined Equipment

Equipment Type	Number
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## 11.0 Vegetation

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Link US - 2040 Operational Emissions - South Coast Air Basin, Annual

**Link US - 2040 Operational Emissions  
South Coast Air Basin, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	0.69	30,000.00	0
Regional Shopping Center	410.60	1000sqft	9.43	410,600.00	0
Strip Mall	159.40	1000sqft	3.66	159,400.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	12			<b>Operational Year</b>	2040
<b>Utility Company</b>	Los Angeles Department of Water & Power				
<b>CO2 Intensity (lb/MW hr)</b>	1135	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Intensity factor from <https://data.lacity.org/A-Livable-and-Sustainable-City/LADWP-CO2-Generation/e5ni-eqan/10>

Land Use - Regional Shopping Center represents the new passenger concourse space not included in the retail or office uses

Construction Phase - Construction is calculated separately

Off-road Equipment -

Off-road Equipment - Construction is calculated separately

Trips and VMT - Construction is calculated separately

Grading - Construction is calculated separately

Vehicle Trips - Trip rates from traffic analysis

Vehicle Emission Factors -



**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					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Maximum</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

	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
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

**2.2 Overall Operational**  
**Unmitigated Operational**

	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					
Area	2.4469	7.0000e-005	7.6100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
Energy	6.7600e-003	0.0615	0.0517	3.7000e-004		4.6700e-003	4.6700e-003		4.6700e-003	4.6700e-003	0.0000	4,339.8982	4,339.8982	0.1105	0.0238	4,349.7567
Mobile	0.1440	1.0823	1.6347	9.0100e-003	0.9625	3.7900e-003	0.9663	0.2578	3.5300e-003	0.2613	0.0000	843.1540	843.1540	0.0333	0.0000	843.9866

Waste						0.0000	0.0000		0.0000	0.0000	127.1535	0.0000	127.1535	7.5146	0.0000	315.0175
Water						0.0000	0.0000		0.0000	0.0000	15.0865	485.4821	500.5686	1.5619	0.0392	551.2848
<b>Total</b>	<b>2.5976</b>	<b>1.1439</b>	<b>1.6939</b>	<b>9.3800e-003</b>	<b>0.9625</b>	<b>8.4900e-003</b>	<b>0.9710</b>	<b>0.2578</b>	<b>8.2300e-003</b>	<b>0.2660</b>	<b>142.2400</b>	<b>5,668.5491</b>	<b>5,810.7892</b>	<b>9.2203</b>	<b>0.0630</b>	<b>6,060.0614</b>

**Mitigated Operational**

	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					
Area	2.4469	7.0000e-005	7.6100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
Energy	6.5000e-003	0.0591	0.0497	3.5000e-004		4.4900e-003	4.4900e-003		4.4900e-003	4.4900e-003	0.0000	4,271.9809	4,271.9809	0.1087	0.0234	4,281.6794
Mobile	0.1440	1.0823	1.6347	9.0100e-003	0.9625	3.7900e-003	0.9663	0.2578	3.5300e-003	0.2613	0.0000	843.1540	843.1540	0.0333	0.0000	843.9866
Waste						0.0000	0.0000		0.0000	0.0000	127.1535	0.0000	127.1535	7.5146	0.0000	315.0175
Water						0.0000	0.0000		0.0000	0.0000	15.0865	485.4821	500.5686	1.5619	0.0392	551.2848
<b>Total</b>	<b>2.5974</b>	<b>1.1415</b>	<b>1.6920</b>	<b>9.3600e-003</b>	<b>0.9625</b>	<b>8.3100e-003</b>	<b>0.9708</b>	<b>0.2578</b>	<b>8.0500e-003</b>	<b>0.2659</b>	<b>142.2400</b>	<b>5,600.6318</b>	<b>5,742.8719</b>	<b>9.2186</b>	<b>0.0626</b>	<b>5,991.9841</b>

	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
<b>Percent Reduction</b>	<b>0.01</b>	<b>0.21</b>	<b>0.12</b>	<b>0.21</b>	<b>0.00</b>	<b>2.12</b>	<b>0.02</b>	<b>0.00</b>	<b>2.19</b>	<b>0.07</b>	<b>0.00</b>	<b>1.20</b>	<b>1.17</b>	<b>0.02</b>	<b>0.64</b>	<b>1.12</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/16/2017	3/15/2017	5	10	

**Acres of Grading (Site Preparation Phase): 0**

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

**3.2 Site Preparation - 2017**

**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Unmitigated Construction Off-Site**



Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

#### 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

	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					
Mitigated	0.1440	1.0823	1.6347	9.0100e-003	0.9625	3.7900e-003	0.9663	0.2578	3.5300e-003	0.2613	0.0000	843.1540	843.1540	0.0333	0.0000	843.9866
Unmitigated	0.1440	1.0823	1.6347	9.0100e-003	0.9625	3.7900e-003	0.9663	0.2578	3.5300e-003	0.2613	0.0000	843.1540	843.1540	0.0333	0.0000	843.9866

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	66.30	14.70	6.30	162,224	162,224
Regional Shopping Center	0.00	0.00	0.00		
Strip Mall	1,361.28	1,291.14	628.04	2,371,600	2,371,600
<b>Total</b>	<b>1,427.58</b>	<b>1,305.84</b>	<b>634.34</b>	<b>2,533,824</b>	<b>2,533,824</b>

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727
Regional Shopping Center	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727
Strip Mall	0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.000710	0.000727

#### 5.0 Energy Detail

Historical Energy Use: N

#### 5.1 Mitigation Measures Energy

Exceed Title 24

	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					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,207.6169	4,207.6169	0.1075	0.0222	4,216.9330
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,272.9640	4,272.9640	0.1092	0.0226	4,282.4247
NaturalGas Mitigated	6.5000e-003	0.0591	0.0497	3.5000e-004	4.4900e-003	4.4900e-003	4.4900e-003	4.4900e-003	4.4900e-003	4.4900e-003	0.0000	64.3640	64.3640	1.2300e-003	1.1800e-003	64.7464
NaturalGas Unmitigated	6.7600e-003	0.0615	0.0517	3.7000e-004	4.6700e-003	4.6700e-003	4.6700e-003	4.6700e-003	4.6700e-003	4.6700e-003	0.0000	66.9342	66.9342	1.2800e-003	1.2300e-003	67.3320

#### 5.2 Energy by Land Use - NaturalGas

##### Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	313800	1.6900e-003	0.0154	0.0129	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	16.7456	16.7456	3.2000e-004	3.1000e-004	16.8451
Regional Shopping Center	677490	3.6500e-003	0.0332	0.0279	2.0000e-004		2.5200e-003	2.5200e-003		2.5200e-003	2.5200e-003	0.0000	36.1535	36.1535	6.9000e-004	6.6000e-004	36.3683
Strip Mall	263010	1.4200e-003	0.0129	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0352	14.0352	2.7000e-004	2.6000e-004	14.1186
<b>Total</b>		<b>6.7600e-003</b>	<b>0.0615</b>	<b>0.0517</b>	<b>3.7000e-004</b>		<b>4.6700e-003</b>	<b>4.6700e-003</b>		<b>4.6700e-003</b>	<b>4.6700e-003</b>	<b>0.0000</b>	<b>66.9342</b>	<b>66.9342</b>	<b>1.2800e-003</b>	<b>1.2300e-003</b>	<b>67.3320</b>

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	298695	1.6100e-003	0.0146	0.0123	9.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	15.9395	15.9395	3.1000e-004	2.9000e-004	16.0342
Regional Shopping Center	653675	3.5200e-003	0.0320	0.0269	1.9000e-004		2.4400e-003	2.4400e-003		2.4400e-003	2.4400e-003	0.0000	34.8826	34.8826	6.7000e-004	6.4000e-004	35.0899
Strip Mall	253765	1.3700e-003	0.0124	0.0105	7.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	13.5419	13.5419	2.6000e-004	2.5000e-004	13.6223
<b>Total</b>		<b>6.5000e-003</b>	<b>0.0591</b>	<b>0.0497</b>	<b>3.5000e-004</b>		<b>4.5000e-003</b>	<b>4.5000e-003</b>		<b>4.5000e-003</b>	<b>4.5000e-003</b>	<b>0.0000</b>	<b>64.3640</b>	<b>64.3640</b>	<b>1.2400e-003</b>	<b>1.1800e-003</b>	<b>64.7464</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	399600	205.7250	5.2600e-003	1.0900e-003	206.1805

Regional Shopping Center	5.69092e+006	2,929.8392	0.0749	0.0155	2,936.3261
Strip Mall	2.20928e+006	1,137.3998	0.0291	6.0100e-003	1,139.9181
<b>Total</b>		<b>4,272.9640</b>	<b>0.1092</b>	<b>0.0226</b>	<b>4,282.4247</b>

### Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	392370	202.0028	5.1600e-003	1.0700e-003	202.4501
Regional Shopping Center	5.60469e+006	2,885.4476	0.0737	0.0153	2,891.8363
Strip Mall	2.17581e+006	1,120.1665	0.0286	5.9200e-003	1,122.6466
<b>Total</b>		<b>4,207.6169</b>	<b>0.1075</b>	<b>0.0222</b>	<b>4,216.9330</b>

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

	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					
Mitigated	2.4469	7.0000e-005	7.6100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159
Unmitigated	2.4469	7.0000e-005	7.6100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159

## 6.2 Area by SubCategory

### Unmitigated

	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	
SubCategory	tons/yr										MT/yr						
Architectural Coating	0.2781					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.1681					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159	
<b>Total</b>	<b>2.4469</b>	<b>7.0000e-005</b>	<b>7.6100e-003</b>	<b>0.0000</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0149</b>	<b>0.0149</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.0159</b>	

### Mitigated

	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	
SubCategory	tons/yr										MT/yr						
Architectural Coating	0.2781					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.1681					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-004	7.0000e-005	7.6100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0149	0.0149	4.0000e-005	0.0000	0.0159	
<b>Total</b>	<b>2.4469</b>	<b>7.0000e-005</b>	<b>7.6100e-003</b>	<b>0.0000</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>		<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0149</b>	<b>0.0149</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.0159</b>	

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	500.5686	1.5619	0.0392	551.2848
Unmitigated	500.5686	1.5619	0.0392	551.2848

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.33201 / 3.26801	56.1272	0.1751	4.3900e-003	61.8139
Regional Shopping Center	30.4142 / 18.6409	320.1537	0.9990	0.0250	352.5908
Strip Mall	11.8072 / 7.23665	124.2876	0.3878	9.7200e-003	136.8801
<b>Total</b>		<b>500.5686</b>	<b>1.5619</b>	<b>0.0392</b>	<b>551.2848</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
--	--------------------	-----------	-----	-----	------

Land Use	Mgal	MT/yr			
General Office Building	5.33201 / 3.26801	56.1272	0.1751	4.3900e-003	61.8139
Regional Shopping Center	30.4142 / 18.6409	320.1537	0.9990	0.0250	352.5908
Strip Mall	11.8072 / 7.23665	124.2876	0.3878	9.7200e-003	136.8801
<b>Total</b>		<b>500.5686</b>	<b>1.5619</b>	<b>0.0392</b>	<b>551.2848</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	127.1535	7.5146	0.0000	315.0175
Unmitigated	127.1535	7.5146	0.0000	315.0175

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	27.9	5.6635	0.3347	0.0000	14.0310

Regional Shopping Center	431.13	87.5155	5.1720	0.0000	216.8159
Strip Mall	167.37	33.9746	2.0078	0.0000	84.1706
<b>Total</b>		<b>127.1535</b>	<b>7.5146</b>	<b>0.0000</b>	<b>315.0175</b>

**Mitigated**

Land Use	Waste Disposed tons	Total CO2 MT/yr	CH4 MT/yr	N2O MT/yr	CO2e MT/yr
General Office Building	27.9	5.6635	0.3347	0.0000	14.0310
Regional Shopping Center	431.13	87.5155	5.1720	0.0000	216.8159
Strip Mall	167.37	33.9746	2.0078	0.0000	84.1706
<b>Total</b>		<b>127.1535</b>	<b>7.5146</b>	<b>0.0000</b>	<b>315.0175</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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## 11.0 Vegetation

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## Appendix E: Health Risk Assessment

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Link Us Dispersion Analysis Results

Operations - Unmitigated Concentrations

		Risk at 1 ug/m3	Existing Conc	Risk	2026 NB	2026 B	2031 NB	2031 B	2040 NB	2040 B						
William Mead Homes	Residential	592.3	1.53693	910.3	0.59585	352.9	0.50693	300.3	0.34751	205.8	0.56323	333.6	0.14895	88.2	0.26391	156.3
William Mead Homes	Residential	592.3	1.17416	695.5	0.45521	269.6	0.38358	227.2	0.26548	157.2	0.42473	251.6	0.11379	67.4	0.19901	117.9
Mozaic Apartments	Residential	592.3	1.44599	856.5	0.56107	332.3	0.40627	240.6	0.3265	193.4	0.33017	195.6	0.13993	82.9	0.1546	91.6
Mission Road Residences	Residential	592.3	0.36014	213.3	0.13966	82.7	0.20373	120.7	0.0814	48.2	0.21959	130.1	0.03489	20.7	0.10289	60.9
Mission Road Residences	Residential	592.3	0.33853	200.5	0.13127	77.8	0.18602	110.2	0.07652	45.3	0.20146	119.3	0.0328	19.4	0.09439	55.9
One Santa Fe Apartments	Residential	592.3	0.15143	89.7	0.05872	34.8	0.05762	34.1	0.03423	20.3	0.06061	35.9	0.01467	8.7	0.0284	16.8
Utah Street Elementary School	School	22.5	0.32153	7.2	0.12467	2.8	0.14841	3.3	0.07268	1.6	0.1606	3.6	0.03115	0.7	0.07525	1.7
Mendez High School	School	22.5	0.32611	7.3	0.12645	2.8	0.16302	3.7	0.07372	1.7	0.1767	4.0	0.03159	0.7	0.08279	1.9
Ann Street Elementary School	School	22.5	1.48066	33.3	0.57403	12.9	0.53173	12.0	0.33479	7.5	0.59126	13.3	0.14349	3.2	0.27704	6.2
Twin Towers Correctional Facility	Commercial Worker	45.4	0.83813	38.1	0.3251	14.8	0.25175	11.4	0.18935	8.6	0.23683	10.8	0.08115	3.7	0.11093	5.0
Los Angeles Men's Central Jail	Commercial Worker	45.4	0.94566	42.9	0.3667	16.6	0.27113	12.3	0.21374	9.7	0.27933	12.7	0.09161	4.2	0.13086	5.9
Metro Offices	Commercial Worker	45.4	1.1194	50.8	0.43421	19.7	0.34901	15.8	0.25289	11.5	0.32944	15.0	0.10839	4.9	0.15431	7.0
Terminal Annex Alameda Street	Commercial Worker	45.4	1.05863	48.1	0.41072	18.6	0.29003	13.2	0.23908	10.9	0.24538	11.1	0.10247	4.7	0.11491	5.2

Link Us Dispersion Analysis Results

Construction - Unmitigated Concentrations

		Risk at 1 ug/m3	Above-Grade		At-Grade	
			Conc	Risk	Conc	Risk
William Mead Homes	Residential	368.2	0.0448	16.5	0.06843	25.2
William Mead Homes	Residential	368.2	0.04026	14.8	0.06149	22.6
Mozaic Apartments	Residential	368.2	0.23087	85.0	0.35259	129.8
Mission Road Residences	Residential	368.2	0.01593	5.9	0.02433	9.0
Mission Road Residences	Residential	368.2	0.0132	4.9	0.02016	7.4
One Santa Fe Apartments	Residential	368.2	0.00177	0.7	0.0027	1.0
Utah Street Elementary School	School	15.6	0.00909	0.1	0.01388	0.2
Mendez High School	School	15.6	0.01044	0.2	0.01594	0.2
Ann Street Elementary School	School	15.6	0.06071	0.9	0.09272	1.4
Twin Towers Correctional Facility	Commercial Worker	10.9	0.16149	1.8	0.24662	2.7
Los Angeles Men's Central Jail	Commercial Worker	10.9	0.10186	1.1	0.15557	1.7
Metro Offices	Commercial Worker	10.9	0.49109	5.4	0.75	8.2
Terminal Annex Alameda Street	Commercial Worker	10.9	0.17055	1.9	0.26047	2.8

Construction - Mitigated Concentrations

		Risk at 1 ug/m3	Above-Grade		At-Grade	
			Conc	Risk	Conc	Risk
William Mead Homes	Residential	368.2	0.00442	1.6	0.00716	2.6
William Mead Homes	Residential	368.2	0.00397	1.5	0.00644	2.4
Mozaic Apartments	Residential	368.2	0.02277	8.4	0.03691	13.6
Mission Road Residences	Residential	368.2	0.00157	0.6	0.00255	0.9
Mission Road Residences	Residential	368.2	0.0013	0.5	0.00211	0.8
One Santa Fe Apartments	Residential	368.2	0.00017	0.1	0.00028	0.1
Utah Street Elementary School	School	15.6	0.0009	0.0	0.00145	0.0
Mendez High School	School	15.6	0.00103	0.0	0.00167	0.0
Ann Street Elementary School	School	15.6	0.00599	0.1	0.00971	0.2
Twin Towers Correctional Facility	Commercial Worker	10.9	0.01593	0.2	0.02582	0.3
Los Angeles Men's Central Jail	Commercial Worker	10.9	0.01005	0.1	0.01628	0.2
Metro Offices	Commercial Worker	10.9	0.04844	0.5	0.07851	0.9
Terminal Annex Alameda Street	Commercial Worker	10.9	0.01682	0.2	0.02727	0.3

**METRO LINKUS Construction Modeled DPM Concentrations [ug/m<sup>3</sup>]**

*12/10/2018 Revised*

Revised 12/10/2018 Construction Above Grade Unmitigated	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m <sup>3</sup> ]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.0448	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.23087	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.00545	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.16149	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.05454	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.00177	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.49109	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.01593	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.0132	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.01044	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.00909	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.17697	86.07	86.07	0	ANNUAL	ALL	5
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.17055	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.10186	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.17525	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.04026	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.06071	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.05582	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.09734	86.28	86.28	0	ANNUAL	ALL	5	

*11/19/2018 Rerun Model*

Revised 12/10/2018 Construction Above Grade Mitigated	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m <sup>3</sup> ]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.00442	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.02277	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.00054	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.01593	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.00538	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.00017	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.04844	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.00157	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.00130	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.00103	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.00090	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.01746	86.07	86.07	0	ANNUAL	ALL	5
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.01682	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.01005	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.01729	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.00397	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.00599	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.00551	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.00960	86.28	86.28	0	ANNUAL	ALL	5	

Revised 12/10/2018 Construction At- Grade Unmitigated	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m^3]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.06843	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.35259	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.00833	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.24662	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.08330	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.00270	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.75000	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.02433	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.02016	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.01594	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.01388	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.27028	86.07	86.07	0	ANNUAL	ALL	5
	(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.26047	86.48	86.48	0	ANNUAL	ALL	5
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.15557	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.26764	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.06149	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.09272	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.08525	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.14866	86.28	86.28	0	ANNUAL	ALL	5	

Revised 12/10/2018 Construction At- Grade Mitigated	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m^3]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.00716	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.03691	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.00087	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.02582	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.00872	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.00028	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.07851	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.00255	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.00211	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.00167	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.00145	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.02829	86.07	86.07	0	ANNUAL	ALL	5
	(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.02727	86.48	86.48	0	ANNUAL	ALL	5
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.01628	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.02802	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.00644	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.00971	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.00892	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.01556	86.28	86.28	0	ANNUAL	ALL	5	

**METRO LINKUS Operation Modeled DPM Concentrations [ug/m<sup>3</sup>]**

**Rev-2 Operation Emission - Unmitigated**

2016 Baseline	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m <sup>3</sup> ]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	1.53693	89.05	89.05	0	ANNUAL	ALL	5
ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	1.44599	90.06	90.06	0	ANNUAL	ALL	5	
ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.21438	82.03	82.03	0	ANNUAL	ALL	5	
ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.83813	86.94	86.94	0	ANNUAL	ALL	5	
ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	1.13848	88.03	88.03	0	ANNUAL	ALL	5	
ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.15143	81.1	81.1	0	ANNUAL	ALL	5	
ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	1.1194	87.89	91.33	0	ANNUAL	ALL	5	
(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.36014	83.69	83.69	0	ANNUAL	ALL	5	
(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.33853	82.8	82.8	0	ANNUAL	ALL	5	
(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.32611	82.73	82.73	0	ANNUAL	ALL	5	
(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.32153	82.66	82.66	0	ANNUAL	ALL	5	
(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	1.07861	86.07	86.07	0	ANNUAL	ALL	5	
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	1.05863	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.94566	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	1.05032	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	1.17416	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	1.48066	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	1.62149	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.98665	86.28	86.28	0	ANNUAL	ALL	5	

2026 No-Build	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m <sup>3</sup> ]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.59585	89.05	89.05	0	ANNUAL	ALL	5
ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.56107	90.06	90.06	0	ANNUAL	ALL	5	
ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.08313	82.03	82.03	0	ANNUAL	ALL	5	
ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.3251	86.94	86.94	0	ANNUAL	ALL	5	
ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.44142	88.03	88.03	0	ANNUAL	ALL	5	
ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.05872	81.1	81.1	0	ANNUAL	ALL	5	
ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.43421	87.89	91.33	0	ANNUAL	ALL	5	
(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.13966	83.69	83.69	0	ANNUAL	ALL	5	
(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.13127	82.8	82.8	0	ANNUAL	ALL	5	
(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.12645	82.73	82.73	0	ANNUAL	ALL	5	
(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.12467	82.66	82.66	0	ANNUAL	ALL	5	
(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.41849	86.07	86.07	0	ANNUAL	ALL	5	
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.41072	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.3667	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.40752	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.45521	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.57403	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.62863	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.38286	86.28	86.28	0	ANNUAL	ALL	5	

2026 Build	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m^3]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.50693	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.40627	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.09126	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.25175	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.33692	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.05762	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.34901	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.20373	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.18602	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.16302	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.14841	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.30314	86.07	86.07	0	ANNUAL	ALL	5
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.29003	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.27113	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.30166	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.38358	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.53173	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.60292	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.30103	86.28	86.28	0	ANNUAL	ALL	5	

11/21/2018 rerun using revised emission numbers

2031 No- Build	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m^3]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.34751	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.3265	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.04846	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.18935	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.25738	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.03423	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.25289	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.0814	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.07652	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.07372	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.07268	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.24357	86.07	86.07	0	ANNUAL	ALL	5
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.23908	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.21374	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.23718	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.26548	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.33479	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.36664	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.22276	86.28	86.28	0	ANNUAL	ALL	5	

2031 Build	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m^3]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.56323	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.33017	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.09771	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.23683	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.36177	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.06061	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.32944	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.21959	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.20146	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.1767	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.1606	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.25291	86.07	86.07	0	ANNUAL	ALL	5
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.24538	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.27933	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.25286	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.42473	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.59126	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.67144	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.24629	86.28	86.28	0	ANNUAL	ALL	5	

2040 No- Build	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m^3]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.14895	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.13993	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.02077	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.08115	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.11031	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.01467	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.10839	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.03489	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.0328	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.03159	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.03115	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.10439	86.07	86.07	0	ANNUAL	ALL	5
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.10247	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.09161	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.10165	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.11379	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.14349	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.15714	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.09547	86.28	86.28	0	ANNUAL	ALL	5	

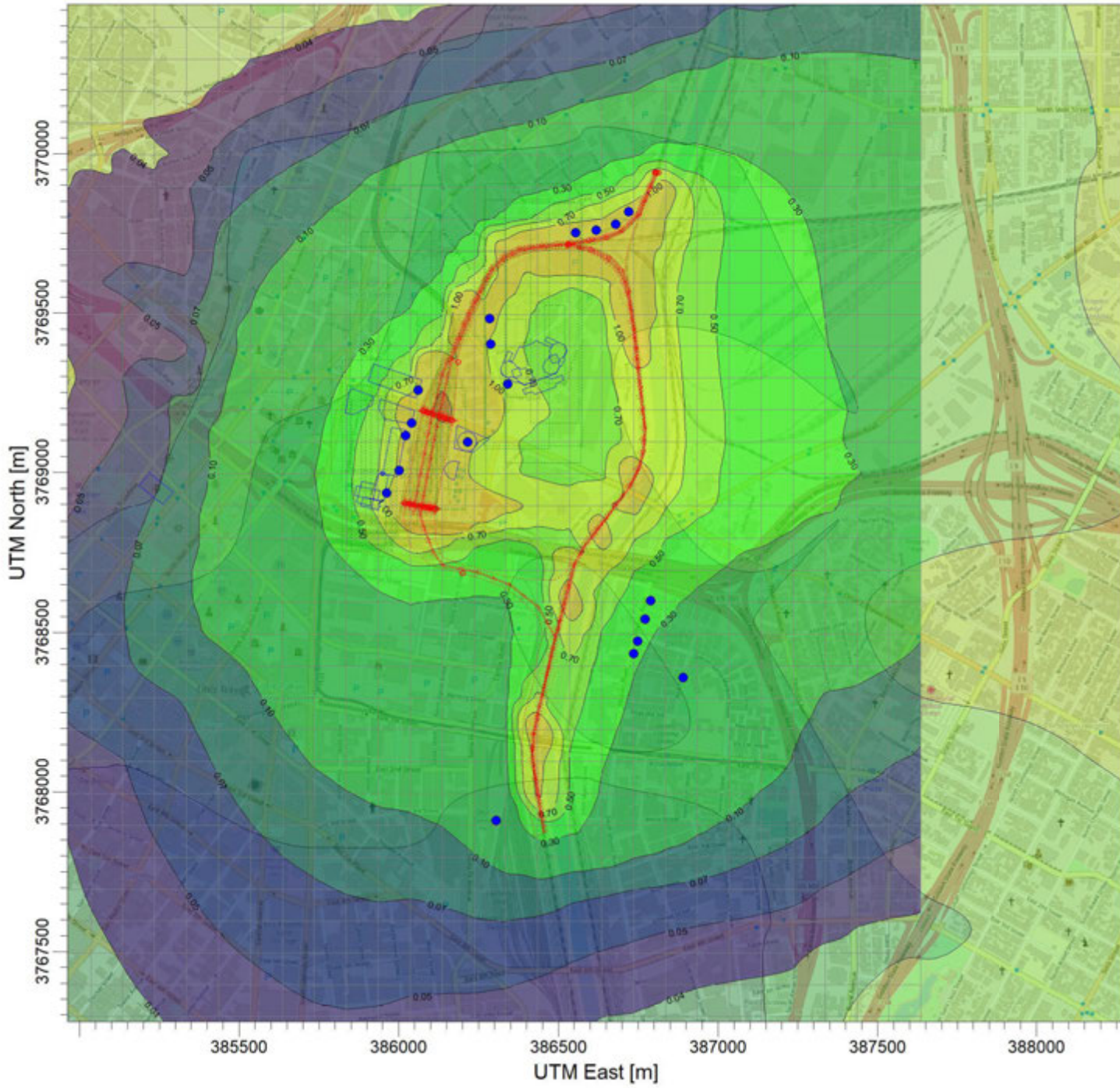
2040 Build	Discrete Receptor ID (Group Name)	Sensitive Receptor	Street Location (Los Angeles)	X	Y	Concentration (AVERAGE CONC) [ug/m <sup>3</sup> ]	Elevation (ZELEV)	Hill Heights (ZHILL)	Flagpole (ZFLAG)	Averagin Period (AVE)	Source Group (GRP)	Num Years (NUM YRS)
	ARC1 (ARCREC)	William Mead Homes	Bolero Lane	386554.29	3769752.53	0.26391	89.05	89.05	0	ANNUAL	ALL	5
	ARC2 (ARCREC)	Mozaic Apartments	Union Station Driveway	386040.13	3769154.79	0.1546	90.06	90.06	0	ANNUAL	ALL	5
	ARC3 (ARCREC)	K-12 School	Park Paseo St	386891.05	3768359.8	0.04578	82.03	82.03	0	ANNUAL	ALL	5
	ARC4 (ARCREC)	Twin Towers Correctional Facility	Bauchet Street	386341.41	3769277.46	0.11093	86.94	86.94	0	ANNUAL	ALL	5
	ARC5 (ARCREC)	Los Angeles Men's Central Jail	Bauchet Street	386283.86	3769482.56	0.1695	88.03	88.03	0	ANNUAL	ALL	5
	ARC6 (ARCREC)	One Sante Fe Apartments	Santa Fe Avenue	386304.23	3767912	0.0284	81.1	81.1	0	ANNUAL	ALL	5
	ARC7 (ARCREC)	Metro Offices	N. Vignes Street	386214.89	3769095.39	0.15431	87.89	91.33	0	ANNUAL	ALL	5
	(ARCREC)-1	Residential	Mission Road	386788.16	3768599.79	0.10289	83.69	83.69	0	ANNUAL	ALL	5
	(ARCREC)-2	Residential	Mission Road	386771.84	3768542.02	0.09439	82.8	82.8	0	ANNUAL	ALL	5
	(ARCREC)-3	Residential	Mission Road	386747.98	3768474.21	0.08279	82.73	82.73	0	ANNUAL	ALL	5
	(ARCREC)-4	Residential	Mission Road	386735.42	3768434.02	0.07525	82.66	82.66	0	ANNUAL	ALL	5
	(ARCREC)-5	Northend Outside Union Station	Union Station Driveway	386020.88	3769115.91	0.11843	86.07	86.07	0	ANNUAL	ALL	5
(ARCREC)-6	USPO Terminal Annex	Cesar E Chavez Ave.	386061.06	3769257.82	0.11491	86.48	86.48	0	ANNUAL	ALL	5	
(ARCREC)-7	Los Angeles Men's Central Jail	Vignes Street	386288.36	3769402.23	0.13086	88.72	88.72	0	ANNUAL	ALL	5	
(ARCREC)-8	Trimana Fresh Food Market	Union Station Driveway	386000.79	3769006.66	0.11841	86.17	86.17	0	ANNUAL	ALL	5	
(ARCREC)-9	William Mead Homes	Bolero Lane	386720.35	3769817.9	0.19901	86.86	86.86	0	ANNUAL	ALL	5	
(ARCREC)-10	William Mead Homes	Bolero Lane	386678.91	3769778.97	0.27704	87.27	87.27	0	ANNUAL	ALL	5	
(ARCREC)-11	William Mead Homes	Bolero Lane	386618.63	3769760.13	0.31461	88.18	88.18	0	ANNUAL	ALL	5	
(ARCREC)-12	Metropolitan Water	Union Station Driveway	385961.86	3768935.08	0.11533	86.28	86.28	0	ANNUAL	ALL	5	

PROJECT TITLE:

**METRO LINKUS DPM Isopleth Concentrations  
PM10 (Assume DPM) in ug/L**

COMMENTS:

Operations  
2016 Baseline  
Un-Mitigated  
Annual Averages



ug/m<sup>3</sup>

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL  
Max: 3.72 [ug/m<sup>3</sup>] at (386135.34, 3769195.66)



SOURCES:

**35**

RECEPTORS:

**1519**

OUTPUT TYPE:

**Concentration**

MAX:

**3.72 ug/m<sup>3</sup>**

COMPANY NAME:

MODELER:

DATE:

**12/7/2018**

SCALE:

1:18,495



PROJECT NO.:

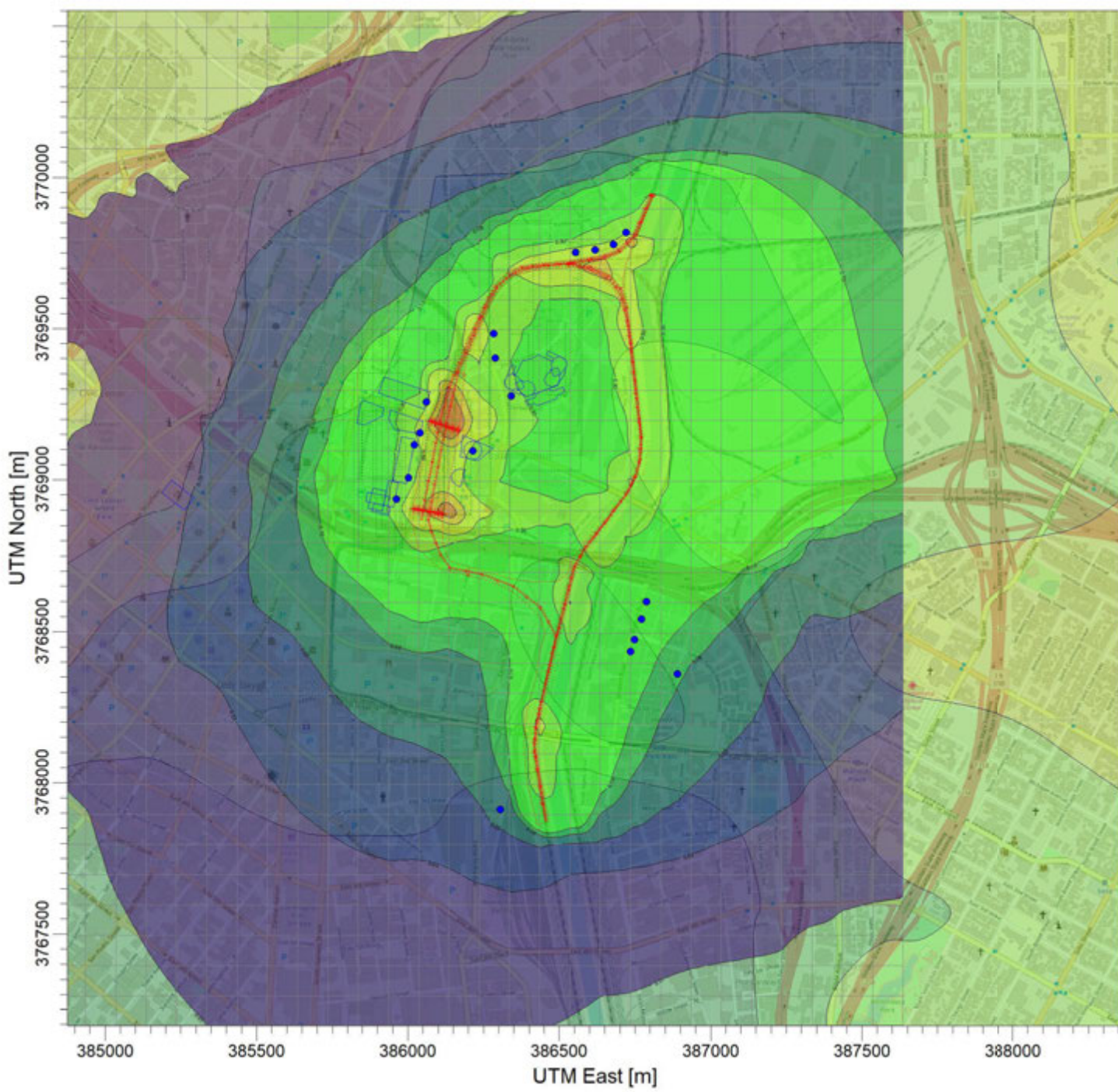
**HDR-LINKUSrev2**

PROJECT TITLE:

**METRO LINKUS DPM Isopleth Concentrations  
PM10 (Assume DPM) in ug/L**

COMMENTS:

Operations Unmitigated  
2026 No-Build  
Annual Averages



ug/m<sup>3</sup>

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL  
Max: 1.44 [ug/m<sup>3</sup>] at (386135.34, 3769195.66)



SOURCES:

**35**

RECEPTORS:

**1519**

OUTPUT TYPE:

**Concentration**

MAX:

**1.44 ug/m<sup>3</sup>**

COMPANY NAME:

**ZMassociates  
Environmental Corp.**

MODELER:

**Thomas Miller**

DATE:

**12/7/2018**

SCALE:

1:19,470



PROJECT NO.:

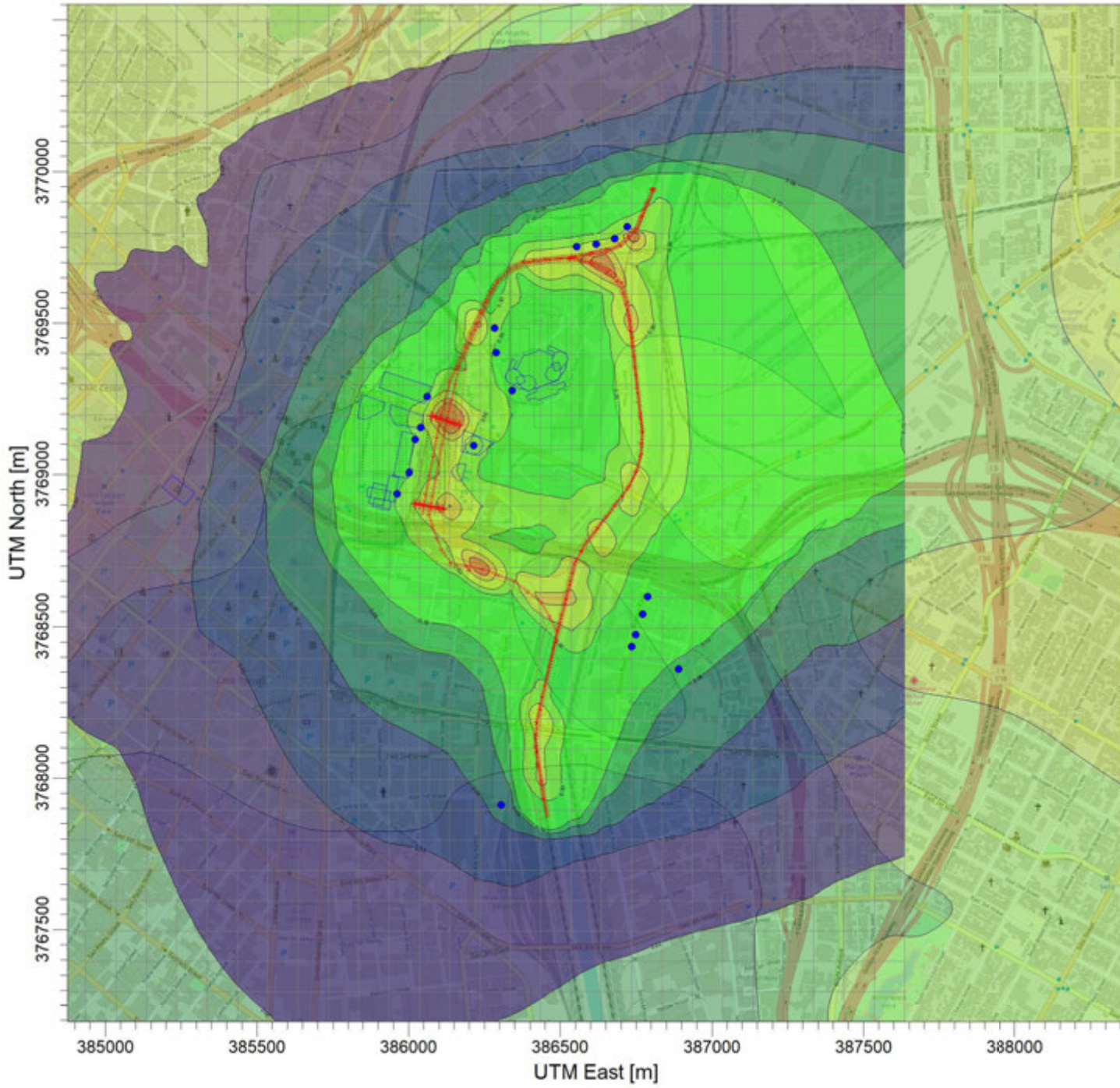
**HDR-LINKUS**

PROJECT TITLE:

**METRO LINKUS DPM Isopleth Concentrations  
PM10 (Assume DPM) in ug/L**

COMMENTS:

Operations Unmitigated  
2026 Build  
Annual Averages



ug/m<sup>3</sup>

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL  
Max: 1.53 [ug/m<sup>3</sup>] at (386135.34, 3769195.66)



SOURCES:

**35**

RECEPTORS:

**1519**

OUTPUT TYPE:

**Concentration**

MAX:

**1.53 ug/m<sup>3</sup>**

COMPANY NAME:

**ZMassociates  
Environmental Corp.**

MODELER:

**Thomas Miller**

DATE:

**12/7/2018**

SCALE:

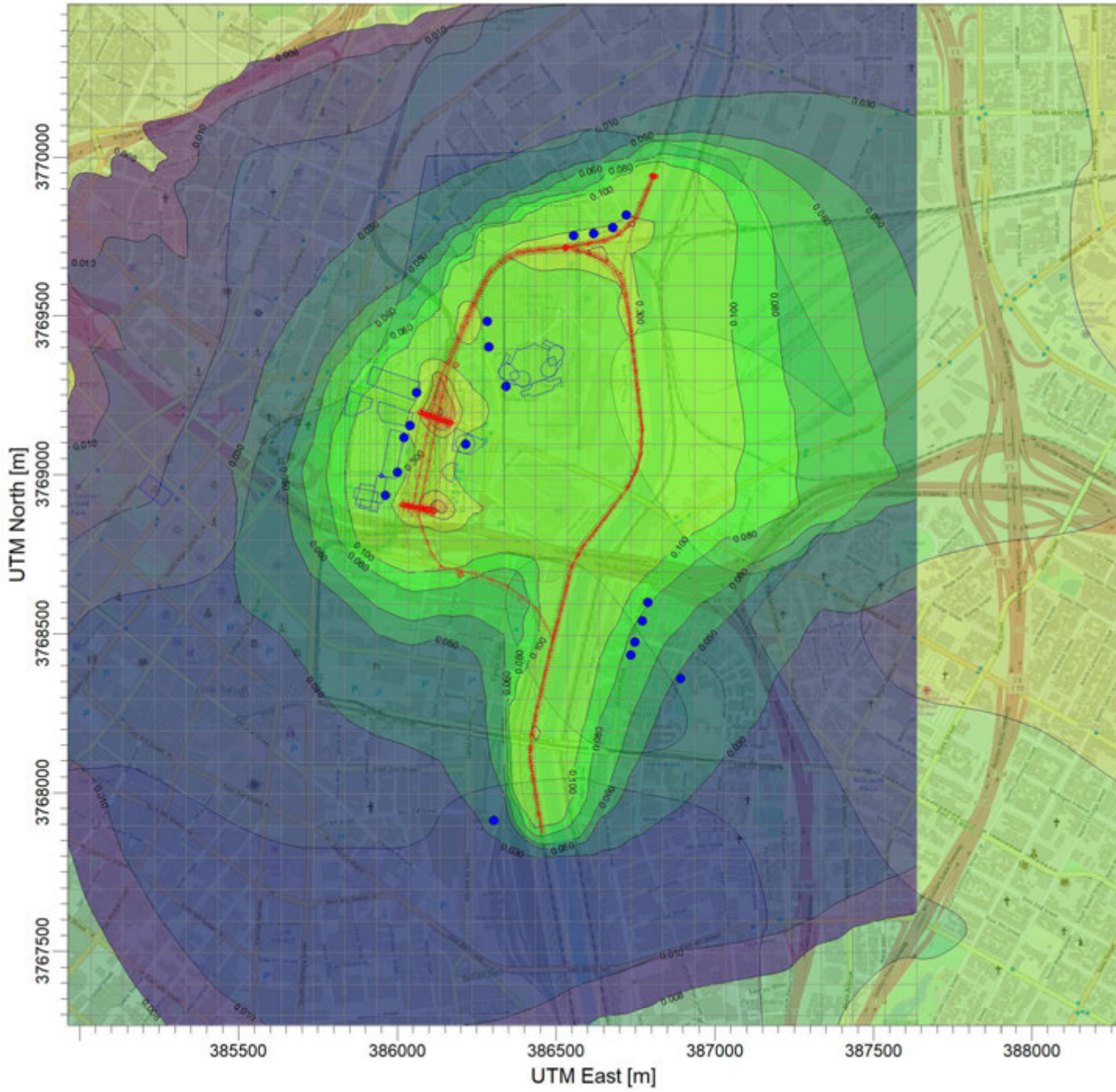
1:19,470



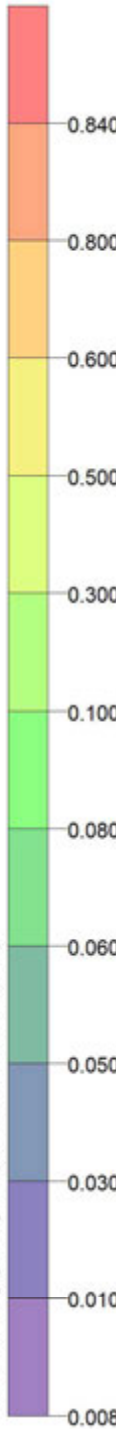
PROJECT NO.:

**HDR-LINKUS**

PROJECT TITLE:  
**METRO LINKUS DPM Isopleth Concentrations**  
**PM10 (Assume DPM) in ug/L**



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL  
 Max: 0.840 [ug/m^3] at (386135.34, 3769195.66)



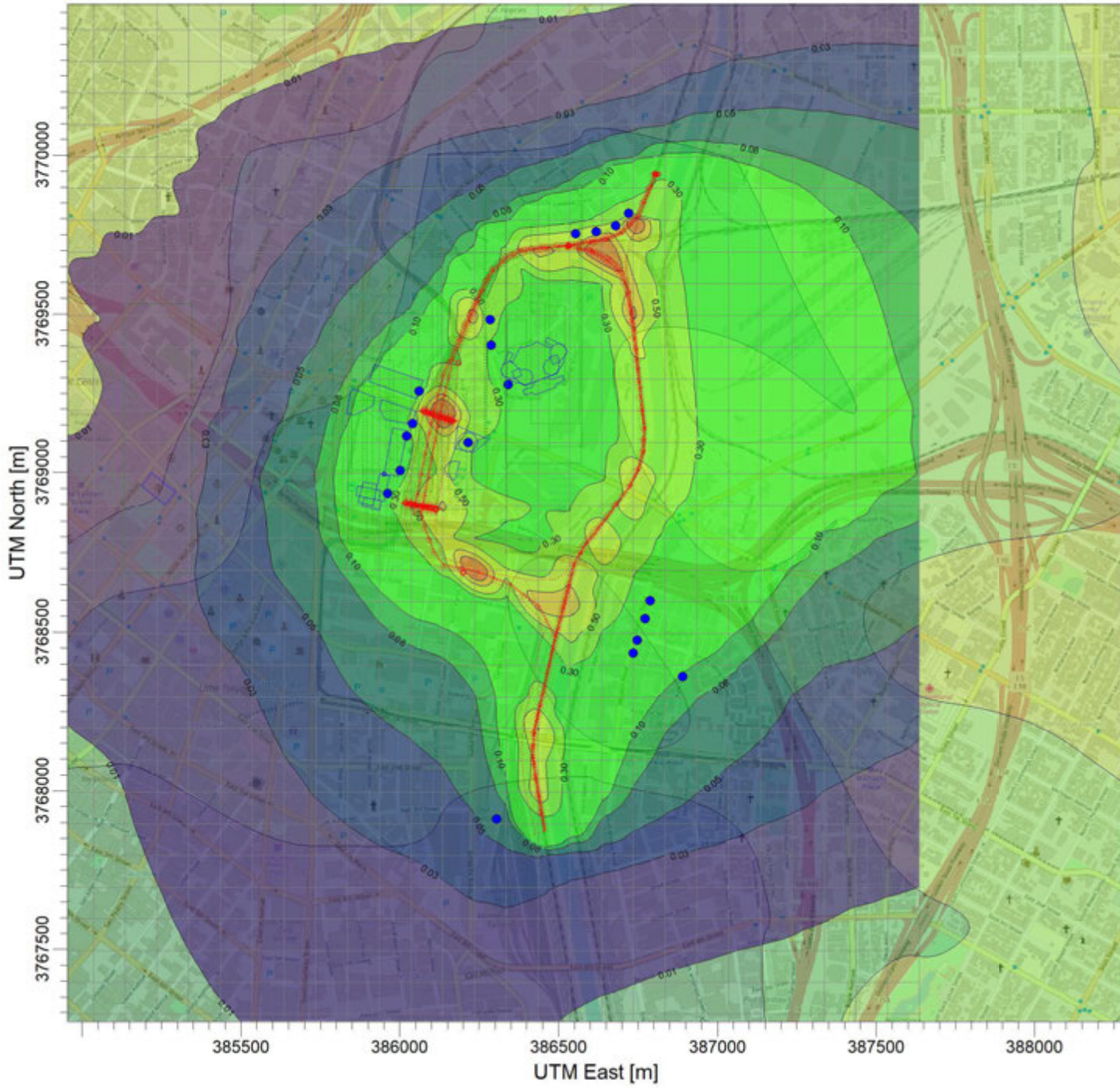
COMMENTS: Operations 2031 No Build Un-Mitigated Annual Averages	
SOURCES:	<b>35</b>
RECEPTORS:	<b>1519</b>
OUTPUT TYPE:	<b>Concentration</b>
MAX:	<b>0.840 ug/m^3</b>
COMPANY NAME:	
MODELER:	
DATE:	<b>12/7/2018</b>
SCALE:	1:18,653
PROJECT NO.:	<b>HDR-LINKUSrev2</b>

PROJECT TITLE:

**METRO LINKUS DPM Isopleth Concentrations  
PM10 (Assume DPM) in ug/L**

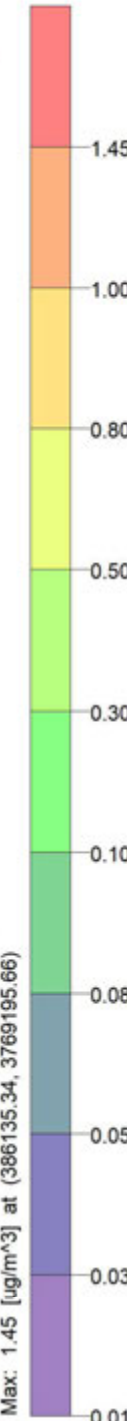
COMMENTS:

Operations  
2031 Build  
Un-Mitigated  
Annual Averages



ug/m<sup>3</sup>

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL  
Max: 1.45 [ug/m<sup>3</sup>] at (386135.34, 3769195.66)



SOURCES:

**35**

RECEPTORS:

**1519**

OUTPUT TYPE:

**Concentration**

MAX:

**1.45 ug/m<sup>3</sup>**

COMPANY NAME:

MODELER:

DATE:

**12/8/2018**

SCALE:

1:18,587



PROJECT NO.:

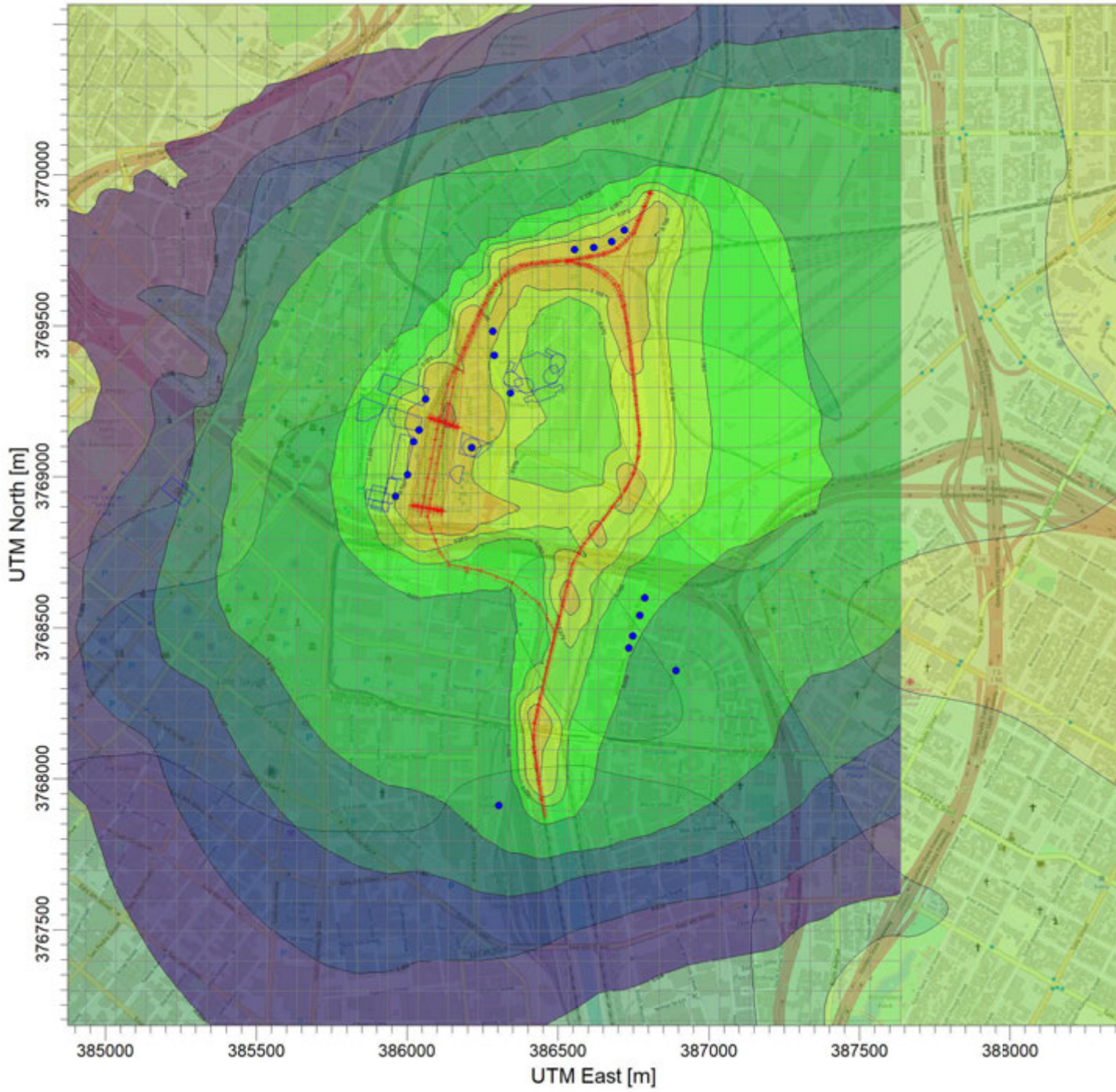
**HDR-LINKUSrev2**

PROJECT TITLE:

**METRO LINKUS DPM Isopleth Concentrations  
PM10 (Assume DPM) in ug/L**

COMMENTS:

Operations Unmitigated  
2040 No Build  
Annual Averages



ug/m<sup>3</sup>

0.360

0.300

0.100

0.070

0.050

0.030

0.010

0.007

0.005

0.004

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL  
Max: 0.360 [ug/m<sup>3</sup>] at (386135.34, 3769195.66)

SOURCES:

**35**

RECEPTORS:

**1519**

OUTPUT TYPE:

**Concentration**

MAX:

**0.360 ug/m<sup>3</sup>**

COMPANY NAME:

**ZMassociates  
Environmental Corp.**

MODELER:

**Thomas Miller**

DATE:

**12/8/2018**

SCALE:

1:19,636

0 0.5 km

PROJECT NO.:

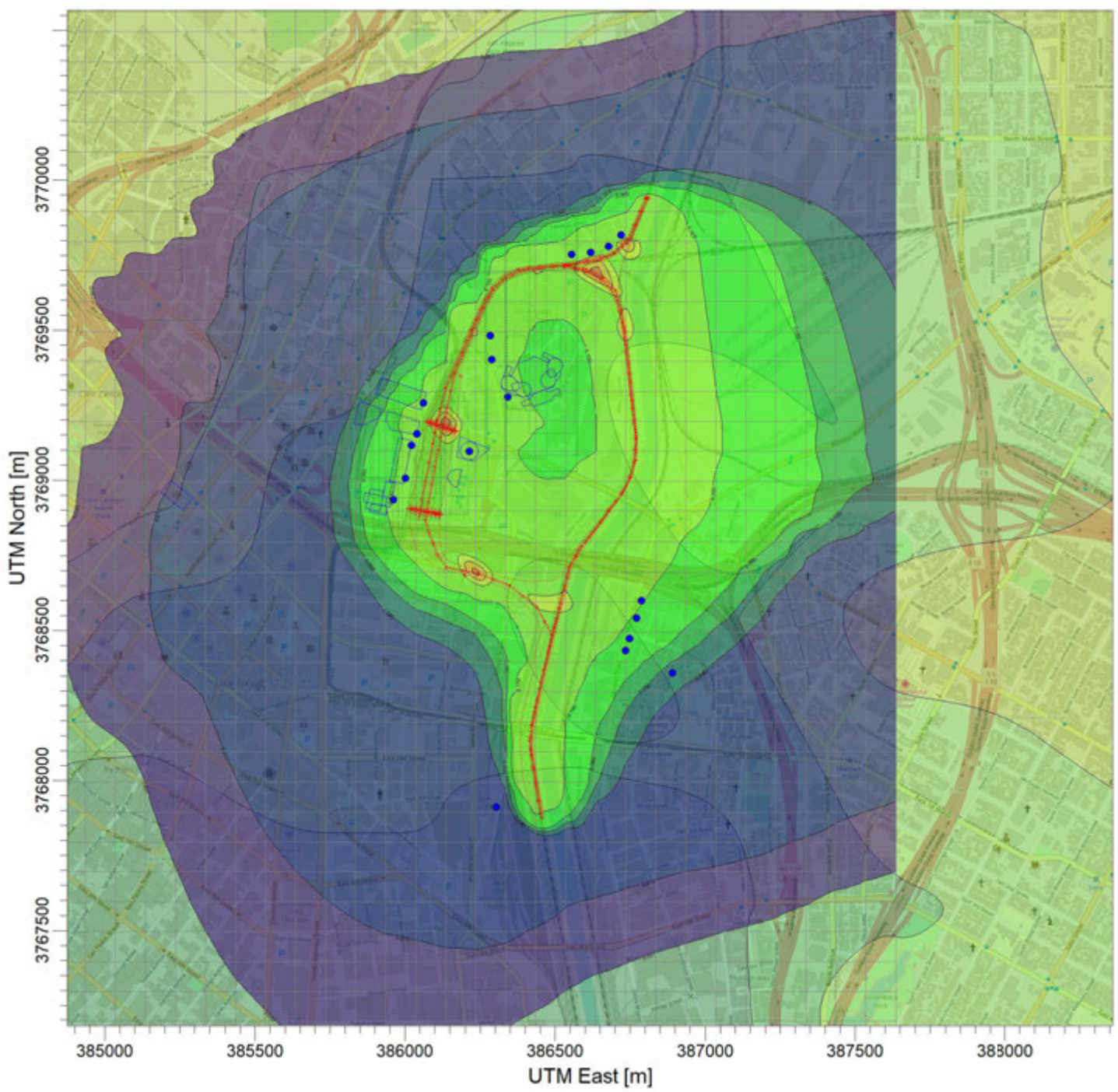
**HDR-LINKUS**

PROJECT TITLE:

**METRO LINKUS DPM Isopleth Concentrations  
PM10 (Assume DPM) in ug/L**

COMMENTS:

Operations Unmitigated  
2040 Build  
Annual Averages



ug/m<sup>3</sup>

0.678

0.600

0.500

0.400

0.100

0.060

0.050

0.040

0.010

0.007

PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL  
Max: 0.678 [ug/m<sup>3</sup>] at (386135.34, 3769195.66)

SOURCES:

**35**

RECEPTORS:

**1519**

OUTPUT TYPE:

**Concentration**

MAX:

**0.678 ug/m<sup>3</sup>**

COMPANY NAME:

**ZMassociates  
Environmental Corp.**

MODELER:

**Thomas Miller**

DATE:

**12/8/2018**

SCALE:

1:19,636

0 0.5 km

PROJECT NO.:

**HDR-LINKUS**

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## Appendix F: Carbon Monoxide Hot-Spot Analysis

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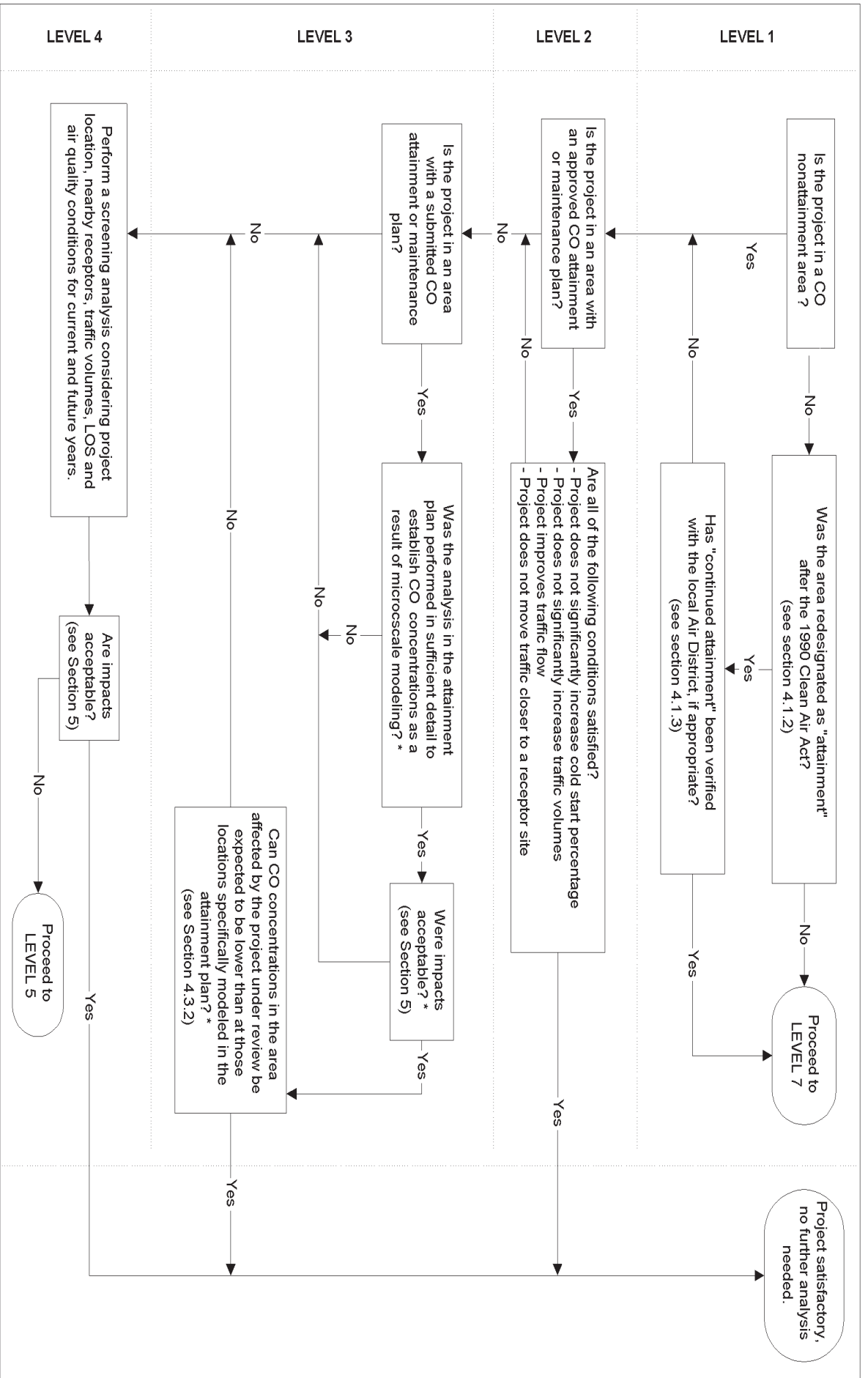
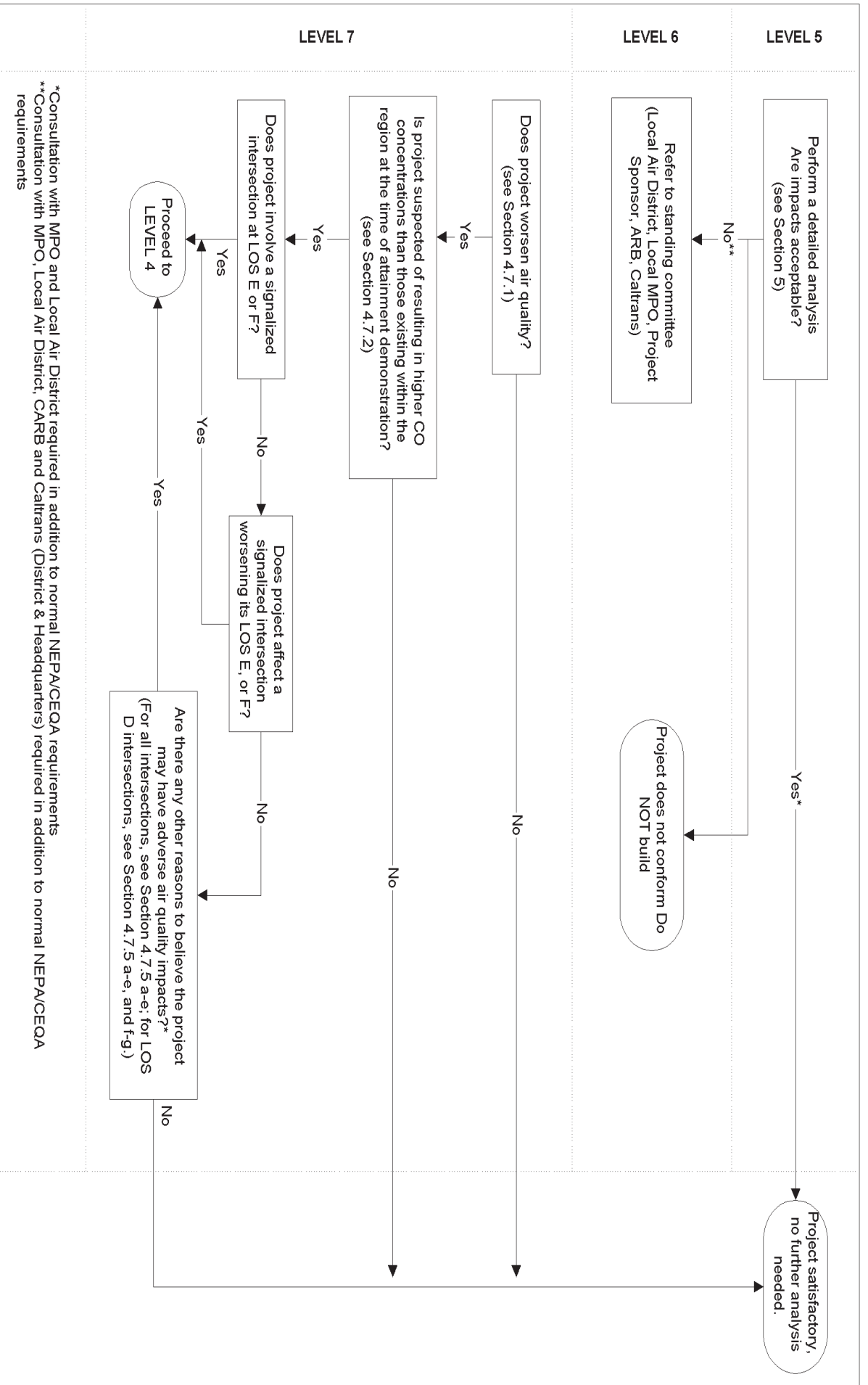


Figure 3. Local CO Analysis

4-10



\*Consultation with MPO and Local Air District required in addition to normal NEPA/CEQA requirements  
 \*\*Consultation with MPO, Local Air District, CARB and Caltrans (District & Headquarters) required in addition to normal NEPA/CEQA requirements

Figure 3 (cont.) Local CO Analysis

Figure 7-2. Year 2031 No Build Peak Hour Traffic Volumes

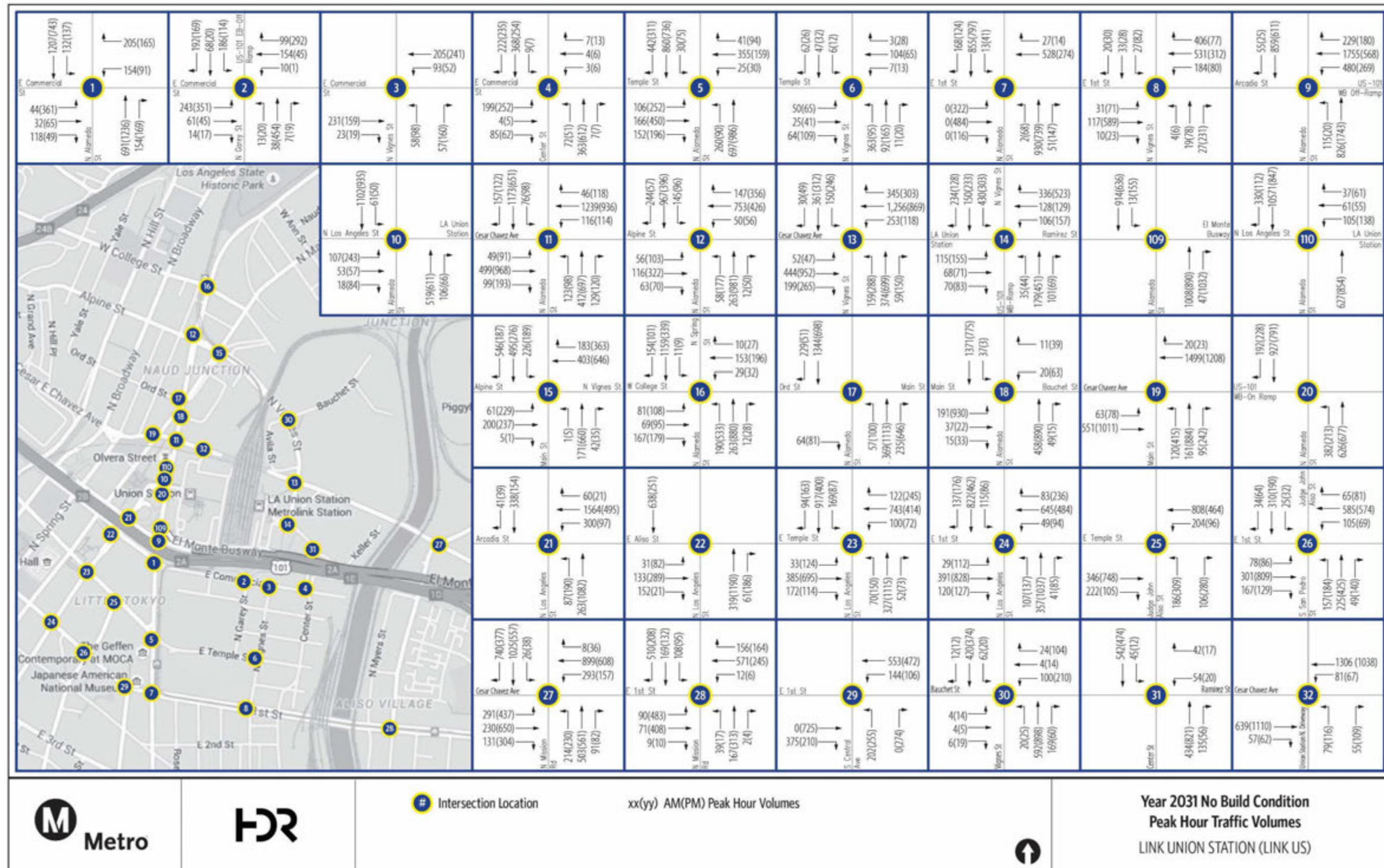


Figure 7-3. Year 2040 No Build Peak Hour Traffic Volumes

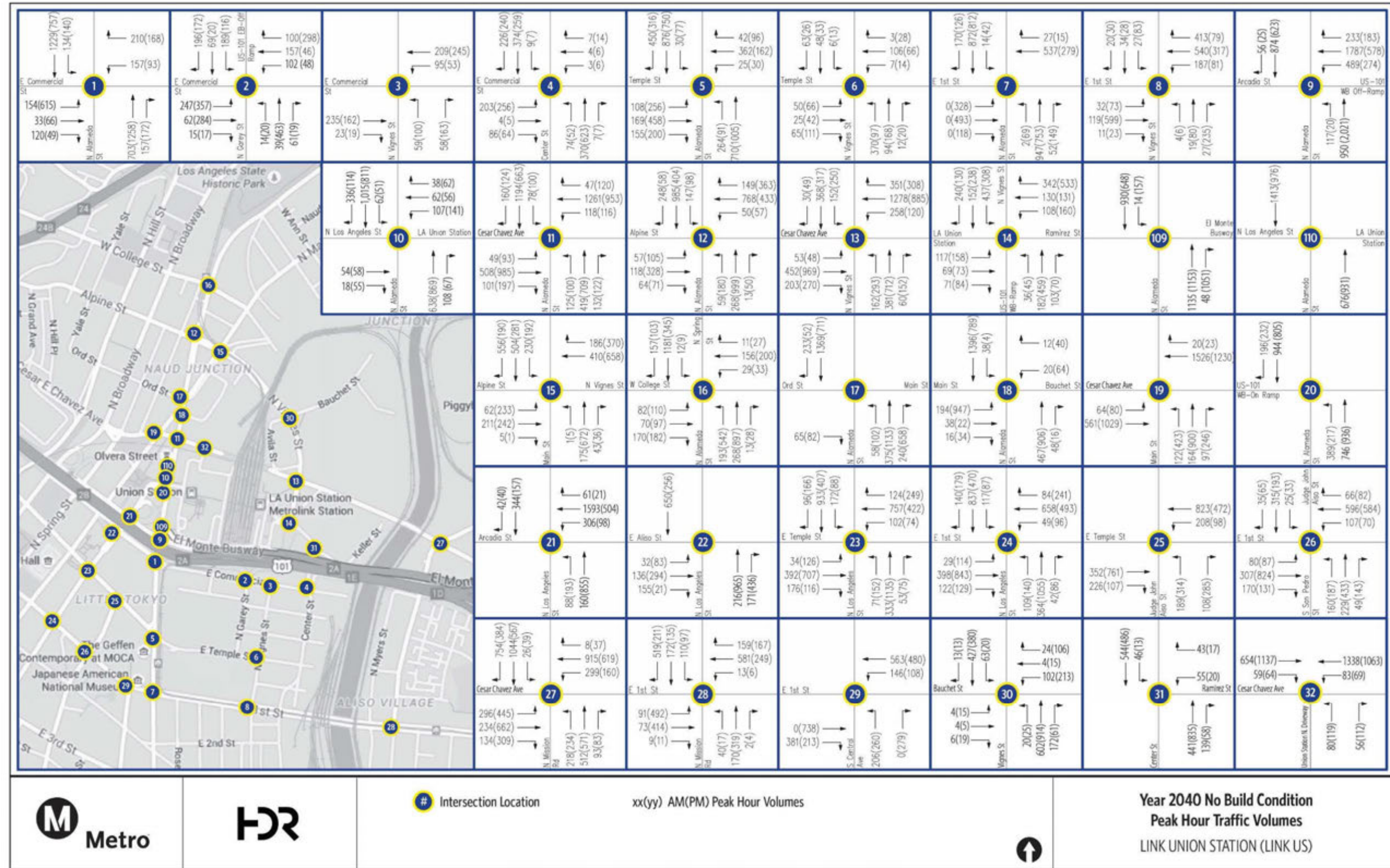


Figure 7-30. Year 2031 plus Project - Peak Hour Traffic Volumes

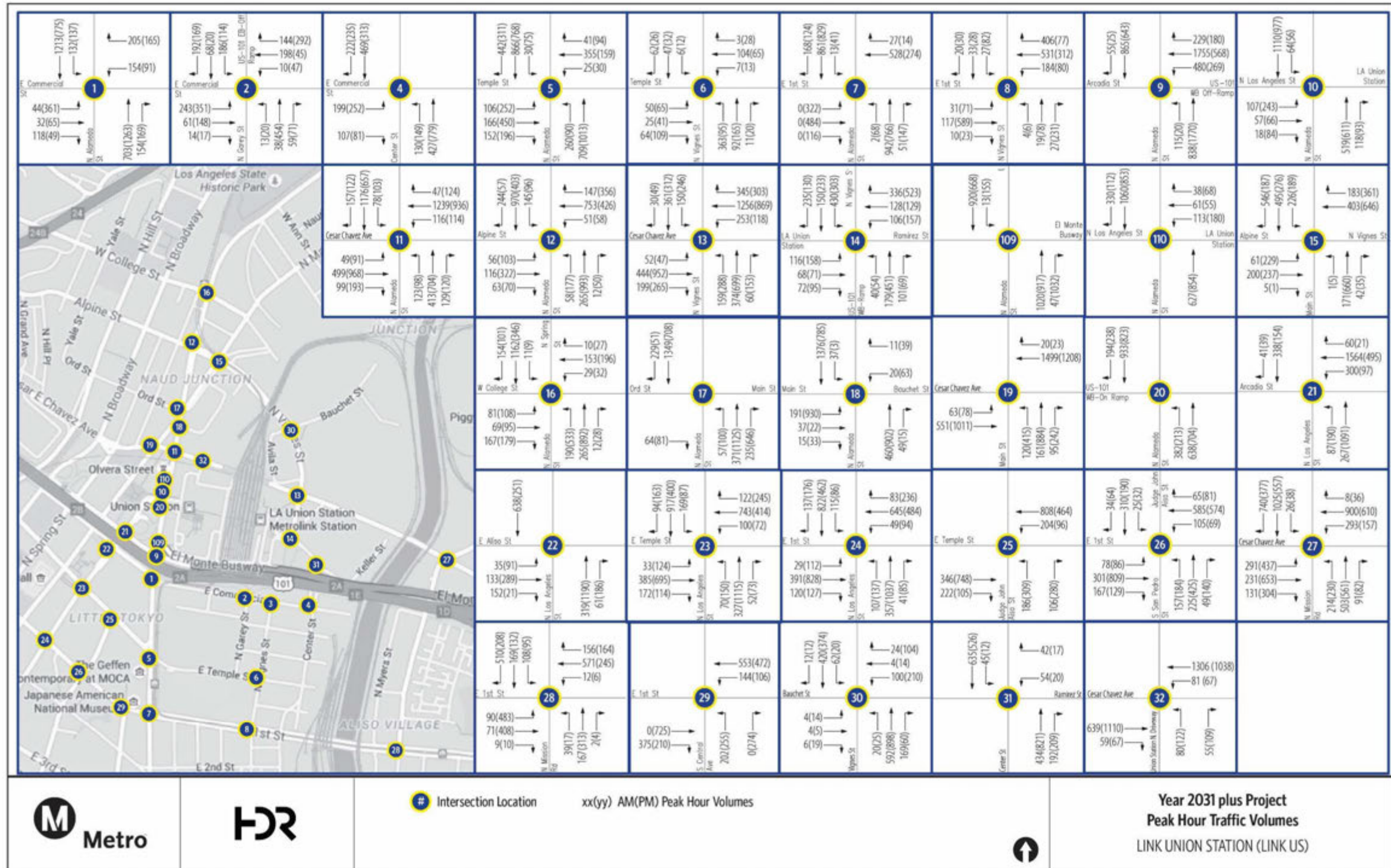


Figure 7-31. Year 2040 plus Project - Peak Hour Traffic Volumes

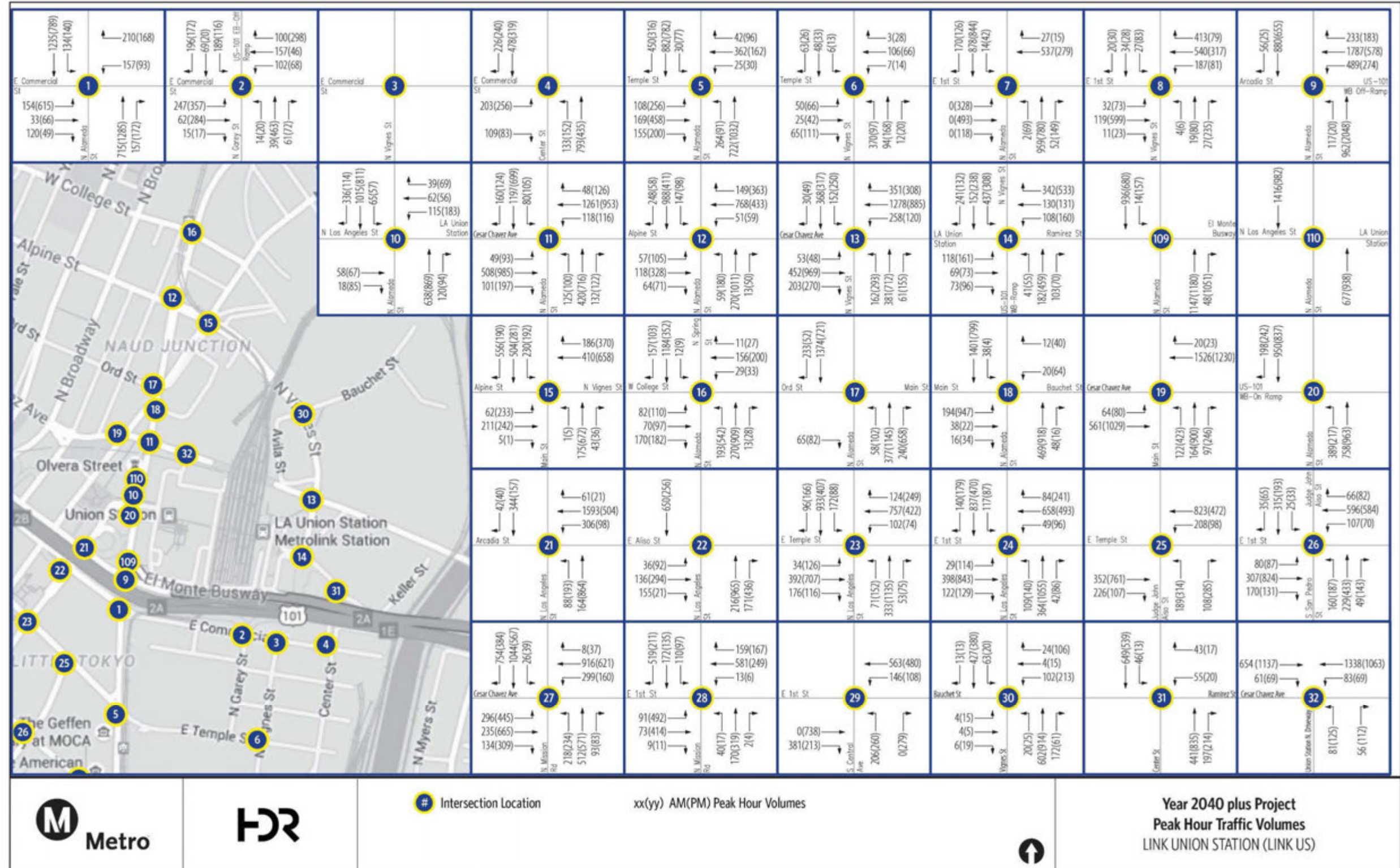


Table 12-1. Level of Service Summary

Intersection	Intersection	Year 2031 No Build						Year 2031 with Project						Year 2040 No Build						Year 2040 with Project					
		AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1	Alameda Street and Commercial Street	29.1	0.57	C	35.1	0.86	D	29.5	0.58	C	35.4	0.87	D	31.6	0.62	C	47.8	0.98	D	32.0	0.63	C	49.2	0.99	D
2	Garey Street and Commercial Street	31.3	0.39	C	34.1	0.49	C	62.9	0.63	E	62.9	0.73	E	31.3	0.39	C	34.6	0.49	C	55.5	0.65	E	42.3	0.73	D
3	Vignes Street and Commercial Street <sup>a</sup>	9.8	0.39	A	10.1	0.40	B	NA	NA	NA	NA	NA	NA	9.8	0.39	A	10.2	0.41	B	NA	NA	NA	NA	NA	NA
4	Center Street and Commercial Street <sup>a</sup>	17.2	0.71	C	57.5	1.18	F	83.0	1.27	F	157.4	1.62	F	18.0	0.73	C	62.5	1.22	F	90.7	1.3	F	166.5	1.65	F
5	Alameda Street and Temple Street	14.6	0.67	B	16.7	0.74	B	14.7	0.68	B	15.8	0.75	B	16.3	0.69	B	16.9	0.75	B	16.3	0.69	B	16.9	0.77	B
6	Vignes Street and Temple Street <sup>a</sup>	15.4	0.72	C	9.9	0.42	A	15.4	0.72	C	9.9	0.42	A	15.9	0.73	C	10	0.43	A	15.9	0.73	C	10	0.43	A
7	Alameda Street and First Street	18.3	0.54	B	17.3	0.61	B	18.3	0.55	B	17.9	0.63	B	18.5	0.55	B	16.2	0.63	B	18.5	0.56	B	16.2	0.64	B
8	Vignes Street and First Street	20.2	0.51	C	27.6	0.59	C	20.2	0.51	C	27.5	0.59	C	21.1	0.51	C	26.9	0.59	C	21.1	0.51	C	26.6	0.59	C
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	0.88	C	14.6	0.62	B	21.2	0.88	C	14.5	0.62	B	90.3	0.89	F	15.7	0.69	B	90.0	0.90	F	15.6	0.69	B
10	Alameda Street and Los Angeles Street EB <sup>a</sup>	12.1	0.32	B	12.4	0.34	B	11.7	0.33	B	12.6	0.35	B	28.0	0.65	C	15.5	0.59	B	28.1	0.66	C	14.2	0.62	B
110	Alameda Street and Los Angeles Street WB <sup>a</sup>	4.3	0.34	A	5.7	0.30	A	4.4	0.34	A	7.0	0.33	A	0.1	0.45	A	0.2	0.31	A	0.1	0.45	A	0.2	0.32	A
11	Alameda Street and Cesar Chavez Avenue	20.7	0.77	C	17.1	0.69	B	20.9	0.77	C	16.9	0.69	B	29.7	0.87	C	21.1	0.75	C	29.7	0.87	C	21.2	0.75	C
12	Alameda Street and Vignes Street/Alpine Street	11.6	0.58	B	13.8	0.62	B	13.7	0.58	B	18.1	0.62	B	12.5	0.59	B	14.4	0.63	B	12.5	0.59	B	14.5	0.63	B
13	Vignes Street and Cesar Chavez Avenue	18.5	0.78	B	25.1	0.86	C	19.9	0.78	B	25.9	0.86	C	18.1	0.79	B	21	0.88	C	18.1	0.79	B	21.1	0.88	C
14	Vignes Street and Ramirez Street	23.3	0.43	C	24.5	0.53	C	23.4	0.43	C	24.8	0.54	C	23.3	0.43	C	26	0.54	C	23.3	0.43	C	25.9	0.55	C
15	Vignes Street and Main Street	27.2	0.59	C	74.6	1.01	E	17.6	0.60	B	50.7	0.99	D	18.8	0.6	B	62.8	1.04	E	18.8	0.6	B	63.8	1.07	E
16	Alameda Street/Spring Street and College Street	16.5	0.61	B	17.7	0.71	B	16.5	0.62	B	17.9	0.71	B	16.8	0.63	B	16.8	0.73	B	16.8	0.63	B	17.1	0.73	B
17	Alameda Street and Main Street/Ord Street <sup>a</sup>	0.7	0.34	A	0.7	0.41	A	0.7	0.34	A	0.7	0.41	A	0.7	0.35	A	0.7	0.42	A	0.7	0.35	A	0.7	0.42	A
18	Alameda Street and Main Street/Bauchet Street	5.8	0.42	A	9.6	0.57	A	5.7	0.42	A	9.8	0.58	A	5.3	0.42	A	14	0.6	B	5.3	0.42	A	14.3	0.6	B
19	Main Street and Cesar Chavez Avenue	7.7	0.44	A	19.8	0.64	B	7.7	0.44	A	19.8	0.64	B	7.1	0.45	A	19.6	0.67	B	7.1	0.45	A	19.4	0.67	B
20	Alameda Street and Northbound US-101 <sup>b</sup>																								
21	Los Angeles Street and Arcadia Street	7.7	0.59	A	4.8	0.52	A	7.8	0.59	A	5.1	0.52	A	8.9	0.62	A	5.9	0.44	A	9.0	0.62	A	6.0	0.44	A
22	Los Angeles Street and Aliso Street	9.4	0.30	A	11.8	0.61	B	9.5	0.30	A	11.7	0.62	B	10.1	0.3	B	12.1	0.64	B	10.2	0.3	B	12.2	0.64	B
23	Los Angeles Street and Temple Street	15.2	0.61	B	17.6	0.78	B	15.2	0.61	B	17.6	0.78	B	15.1	0.62	B	18	0.82	B	15.1	0.62	B	18	0.82	B
24	Los Angeles Street and First Street	15.2	0.55	B	20.7	0.90	C	15.2	0.55	B	20.7	0.90	C	14.1	0.56	B	21.9	0.97	C	14.1	0.56	B	21.9	0.97	C
25	Judge John Aiso Street and Temple Street	8.3	0.40	A	8.0	0.43	A	8.2	0.40	A	7.7	0.43	A	7.8	0.41	A	8.2	0.44	A	7.8	0.41	A	8.1	0.44	A
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	0.44	B	15.3	0.66	B	15.6	0.44	B	15.3	0.66	B	16.1	0.45	B	15.4	0.67	B	16.1	0.45	B	15.3	0.67	B
27	Mission Road and Cesar Chavez Avenue	58.0	1.11	E	25.6	0.89	C	58.1	1.11	E	25.7	0.89	C	59.7	1.21	E	26.6	0.92	C	59.7	1.21	E	26.6	0.92	C
28	Mission Road and First Street	25.8	0.81	C	33.2	0.89	C	25.8	0.81	C	33.2	0.89	C	26.9	0.83	C	36.9	0.93	D	26.9	0.83	C	36.9	0.93	D
29	Central Avenue and First Street	8.8	0.33	A	11.3	0.49	B	8.8	0.33	A	11.3	0.49	B	9.1	0.33	A	11.4	0.5	B	9.1	0.33	A	11.3	0.5	B

Table 12-1. Level of Service Summary

Intersection	Intersection	Year 2031 No Build						Year 2031 with Project						Year 2040 No Build						Year 2040 with Project					
		AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
30	Vignes Street and Bauchet Street	11.4	0.29	B	20.0	0.49	B	11.1	0.29	B	20.0	0.49	B	11.8	0.29	B	20.9	0.5	C	11.9	0.29	B	20.5	0.5	C
31	Ramirez Street and Center Street	1.7	0.24	A	0.6	0.35	A	1.7	0.2	A	0.6	0.35	A	1.8	0.21	A	0.7	0.36	A	1.7	0.28	A	0.7	0.37	A
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	0.54	B	14.0	0.51	B	13.6	0.54	B	14.0	0.51	B	13.0	0.54	B	14.1	0.52	B	13.0	0.54	B	14.1	0.53	B

Notes:

<sup>a</sup> Non-signalized intersection

<sup>b</sup> Freeway on-ramp, neither signalized nor STOP-sign controlled

LOS = level of service; Sec = Seconds; V/C = Volume to Capacity; WB = Westbound; EB = Eastbound; NA = Not Applicable