Draft Environmental Impact Report

SCH# 2024041028

Volume 3

Appendix C2 (Part 2) through C3

BUTTONBUSH SOLAR AND STORAGE PROJECT

by 29SC 8me, LLC.

(PP24407)

Site 1
CUP No. 17, Map 98; CUP No. 19, Map 98;
CUP No. 25, Map 99; GPA No. 4, Map 98;
SPA No. 5, Map 98; GPA No. 8, Map 99;
Williamson Act Land Use Contract Cancellations;
Farmland Security Zone Contract Cancellation;
Non-Summary Vacation, Map 99

Site 2
CUP No. 14, Map 77; CUP No. 20, Map 77;
CUP No. 18, Map 98; GPA No. 10, Map 77;
Williamson Act Land Use Contract Cancellations

Site 3
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Williamson Act Land Use Contract Cancellations

Site 4
CUP No. 16, Map 77; GPA No. 12, Map 77;
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Site 5
CUP No. 26, Map 99; CUP No. 27, Map 99;
CUP No. 28, Map 99; CUP No. 61, Map 100;
GPA No. 10, Map 99; GPA No. 31, Map 100;
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GPA No. 1, Map 54; GPA No. 13, Map 77;
Williamson Act Land Use Contract Cancellations

Kern County
Planning and Natural Resources Department
Bakersfield, CA

November 2025

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Kern County
Planning and Natural Resources Department
Bakersfield, CA

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Appendix C.2

Air Quality, Greenhouse Gas, and Energy Technical Report *(Part 2)*

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1.1. Basic Project Information

Data Field	Value
Project Name	Buttonbush Solar Onsite
Construction Start Date	7/1/2025
Operational Year	2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	16.2
Location	35.45281010000666, -119.43940020399636
County	Kern-San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2940
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	50.0	1000sqft	100	50,000	—	—	—	—

General Office Building	3.20	1000sqft	0.07	3,200	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-1-A	Use Electric or Hybrid Powered Equipment
Construction	C-5	Use Advanced Engine Tiers
Construction	C-9	Use Dust Suppressants

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	33.2	28.8	179	169	0.31	9.52	5.94	15.5	8.76	0.67	9.42	—	33,642	33,642	1.65	0.58	2.39	33,858
Mit.	10.4	10.1	31.5	206	0.30	0.60	5.94	6.54	0.60	0.67	1.26	—	33,081	33,081	1.63	0.57	2.39	33,295
% Reduced	69%	65%	82%	-22%	3%	94%	—	58%	93%	—	87%	—	2%	2%	1%	1%	—	2%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	28.7	24.6	162	186	0.38	8.70	5.43	13.5	8.00	0.63	8.54	—	38,352	38,352	2.02	0.68	0.05	38,607
Mit.	12.9	12.1	43.5	199	0.30	0.80	5.43	6.23	0.78	0.63	1.41	—	32,359	32,359	1.78	0.64	0.05	32,593
% Reduced	55%	51%	73%	-7%	21%	91%	—	54%	90%	—	84%	—	16%	16%	12%	7%	—	16%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	13.3	11.5	73.0	82.1	0.16	3.94	2.07	6.00	3.62	0.24	3.86	—	15,507	15,507	0.76	0.25	0.42	15,603
Mit.	4.96	4.58	21.2	84.5	0.12	0.39	2.07	2.30	0.38	0.24	0.59	—	12,990	12,990	0.69	0.25	0.42	13,081
% Reduced	63%	60%	71%	-3%	26%	90%	—	62%	90%	—	85%	—	16%	16%	10%	3%	—	16%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.43	2.10	13.3	15.0	0.03	0.72	0.38	1.10	0.66	0.04	0.70	—	2,567	2,567	0.13	0.04	0.07	2,583
Mit.	0.90	0.84	3.86	15.4	0.02	0.07	0.38	0.42	0.07	0.04	0.11	—	2,151	2,151	0.11	0.04	0.07	2,166
% Reduced	63%	60%	71%	-3%	26%	90%	—	62%	90%	—	85%	—	16%	16%	10%	3%	—	16%

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	12.2	10.5	71.9	55.3	0.13	3.48	3.23	6.70	3.20	0.35	3.55	—	14,459	14,459	0.69	0.25	0.98	14,551
2026	33.2	28.8	179	169	0.31	9.52	5.94	15.5	8.76	0.67	9.42	—	33,642	33,642	1.65	0.58	2.39	33,858
2027	8.60	7.26	53.1	39.4	0.11	2.72	2.09	4.81	2.50	0.22	2.72	—	11,971	11,971	0.51	0.18	0.54	12,038
2028	17.3	15.0	86.4	121	0.23	2.48	2.72	5.20	2.28	0.31	2.60	—	22,266	22,266	1.08	0.37	1.19	22,404
2029	11.2	10.0	37.0	60.5	0.15	1.32	2.72	4.04	1.22	0.31	1.53	—	16,130	16,130	0.83	0.32	1.06	16,246
2030	10.7	9.66	35.5	59.8	0.15	1.27	2.72	3.98	1.17	0.31	1.48	—	16,108	16,108	0.83	0.30	0.94	16,220
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	11.9	10.2	72.2	57.3	0.13	3.48	3.23	6.70	3.20	0.35	3.55	—	14,459	14,459	0.72	0.25	0.03	14,551
2026	20.7	17.9	112	118	0.18	6.16	3.23	8.88	5.67	0.35	5.99	—	19,183	19,183	1.07	0.37	0.04	19,321
2027	28.7	24.6	162	157	0.29	8.70	4.80	13.5	8.00	0.53	8.54	—	31,136	31,136	1.55	0.55	0.05	31,340
2028	25.2	21.6	139	164	0.34	5.18	4.80	9.98	4.76	0.53	5.30	—	34,223	34,223	1.68	0.58	0.04	34,437
2029	25.8	22.6	117	186	0.38	3.12	5.43	8.55	2.87	0.63	3.50	—	38,352	38,352	2.02	0.68	0.05	38,607

2030	10.3	9.16	35.9	63.0	0.15	1.27	2.72	3.98	1.17	0.31	1.48	—	16,097	16,097	0.89	0.32	0.02	16,213
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.30	3.69	25.9	20.2	0.05	1.25	1.13	2.38	1.15	0.12	1.28	—	5,205	5,205	0.25	0.09	0.15	5,238
2026	13.3	11.5	73.0	71.9	0.12	3.94	2.07	6.00	3.62	0.24	3.86	—	13,188	13,188	0.69	0.25	0.42	13,280
2027	8.40	7.16	49.2	42.5	0.09	2.60	1.59	4.19	2.39	0.17	2.56	—	10,178	10,178	0.47	0.16	0.23	10,238
2028	11.6	10.0	60.9	82.1	0.16	1.88	1.88	3.76	1.73	0.22	1.95	—	15,507	15,507	0.76	0.25	0.35	15,603
2029	8.70	7.70	34.5	55.4	0.12	1.06	1.94	3.01	0.98	0.23	1.20	—	12,998	12,998	0.68	0.24	0.34	13,087
2030	3.43	3.05	11.8	20.2	0.05	0.42	0.86	1.28	0.39	0.10	0.49	—	5,323	5,323	0.28	0.10	0.13	5,361
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.79	0.67	4.73	3.68	0.01	0.23	0.21	0.43	0.21	0.02	0.23	—	862	862	0.04	0.01	0.03	867
2026	2.43	2.10	13.3	13.1	0.02	0.72	0.38	1.10	0.66	0.04	0.70	—	2,183	2,183	0.11	0.04	0.07	2,199
2027	1.53	1.31	8.98	7.75	0.02	0.47	0.29	0.76	0.44	0.03	0.47	—	1,685	1,685	0.08	0.03	0.04	1,695
2028	2.13	1.83	11.1	15.0	0.03	0.34	0.34	0.69	0.32	0.04	0.36	—	2,567	2,567	0.13	0.04	0.06	2,583
2029	1.59	1.41	6.29	10.1	0.02	0.19	0.35	0.55	0.18	0.04	0.22	—	2,152	2,152	0.11	0.04	0.06	2,167
2030	0.63	0.56	2.15	3.68	0.01	0.08	0.16	0.23	0.07	0.02	0.09	—	881	881	0.05	0.02	0.02	888

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.61	3.53	10.3	79.3	0.13	0.26	3.23	3.48	0.26	0.35	0.61	—	14,137	14,137	0.67	0.25	0.98	14,228
2026	10.4	10.1	30.4	206	0.30	0.60	5.94	6.54	0.60	0.67	1.26	—	33,081	33,081	1.63	0.57	2.39	33,295
2027	1.59	1.54	8.58	59.6	0.10	0.21	2.09	2.30	0.21	0.22	0.43	—	11,649	11,649	0.50	0.18	0.54	11,715
2028	8.02	7.47	31.5	104	0.16	0.58	2.72	3.30	0.55	0.31	0.87	—	16,993	16,993	0.86	0.32	1.19	17,112
2029	6.35	6.20	11.7	88.5	0.14	0.28	2.72	2.99	0.28	0.31	0.59	—	15,412	15,412	0.80	0.31	1.06	15,526
2030	6.06	5.94	11.5	87.9	0.14	0.28	2.72	2.99	0.28	0.31	0.59	—	15,389	15,389	0.80	0.30	0.94	15,498

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.29	3.19	10.6	81.2	0.13	0.26	3.23	3.48	0.26	0.35	0.61	—	14,137	14,137	0.71	0.25	0.03	14,228
2026	6.27	6.06	20.5	132	0.17	0.34	3.23	3.48	0.34	0.35	0.65	—	18,943	18,943	1.06	0.37	0.04	19,080
2027	7.55	7.30	29.2	191	0.28	0.55	4.80	5.35	0.55	0.53	1.09	—	30,575	30,575	1.53	0.55	0.05	30,777
2028	8.94	8.31	40.7	168	0.27	0.80	4.80	5.60	0.77	0.53	1.30	—	28,627	28,627	1.45	0.53	0.04	28,823
2029	12.9	12.1	43.5	199	0.30	0.80	5.43	6.23	0.78	0.63	1.41	—	32,359	32,359	1.78	0.64	0.05	32,593
2030	5.62	5.44	11.9	91.2	0.14	0.28	2.72	2.99	0.28	0.31	0.59	—	15,377	15,377	0.86	0.31	0.02	15,491
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.20	1.16	3.77	28.8	0.05	0.09	1.13	1.22	0.09	0.12	0.22	—	5,089	5,089	0.25	0.09	0.15	5,122
2026	4.01	3.87	12.8	84.5	0.12	0.23	2.07	2.30	0.23	0.24	0.47	—	12,990	12,990	0.69	0.25	0.42	13,081
2027	1.94	1.88	8.47	56.5	0.09	0.18	1.59	1.78	0.18	0.17	0.35	—	9,953	9,953	0.46	0.16	0.23	10,012
2028	4.96	4.58	21.2	74.0	0.12	0.39	1.88	2.28	0.38	0.22	0.59	—	12,108	12,108	0.62	0.23	0.35	12,192
2029	4.57	4.40	11.9	69.4	0.11	0.25	1.94	2.19	0.24	0.23	0.47	—	11,732	11,732	0.63	0.23	0.34	11,817
2030	1.87	1.83	3.87	29.5	0.04	0.09	0.86	0.95	0.09	0.10	0.19	—	5,085	5,085	0.27	0.10	0.13	5,122
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.22	0.21	0.69	5.26	0.01	0.02	0.21	0.22	0.02	0.02	0.04	—	843	843	0.04	0.01	0.03	848
2026	0.73	0.71	2.34	15.4	0.02	0.04	0.38	0.42	0.04	0.04	0.09	—	2,151	2,151	0.11	0.04	0.07	2,166
2027	0.35	0.34	1.55	10.3	0.02	0.03	0.29	0.32	0.03	0.03	0.06	—	1,648	1,648	0.08	0.03	0.04	1,658
2028	0.90	0.84	3.86	13.5	0.02	0.07	0.34	0.42	0.07	0.04	0.11	—	2,005	2,005	0.10	0.04	0.06	2,018
2029	0.83	0.80	2.17	12.7	0.02	0.04	0.35	0.40	0.04	0.04	0.09	—	1,942	1,942	0.10	0.04	0.06	1,956
2030	0.34	0.33	0.71	5.38	0.01	0.02	0.16	0.17	0.02	0.02	0.03	—	842	842	0.05	0.02	0.02	848

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.73	1.69	0.32	2.74	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	35.0	443	478	4.35	0.02	13.1	606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.30	1.30	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	434	469	4.35	0.02	13.0	596
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.51	1.49	0.32	1.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	438	473	4.35	0.02	13.0	601
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.28	0.27	0.06	0.29	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.80	72.5	78.3	0.72	< 0.005	2.16	99.5

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Area	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.73	1.69	0.32	2.74	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	35.0	443	478	4.35	0.02	13.1	606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Area	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.30	1.30	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	434	469	4.35	0.02	13.0	596
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.09	0.31	0.46	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.6	55.6	0.01	0.01	0.02	58.7
Area	1.41	1.39	0.01	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.69	4.69	< 0.005	< 0.005	—	4.71
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.51	1.49	0.32	1.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	438	473	4.35	0.02	13.0	601
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71
Area	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	61.8	61.8	0.01	< 0.005	—	62.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08
Waste	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16
Total	0.28	0.27	0.06	0.29	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.80	72.5	78.3	0.72	< 0.005	2.16	99.5

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Area	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.73	1.69	0.32	2.74	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	35.0	443	478	4.35	0.02	13.1	606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Area	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.30	1.30	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	434	469	4.35	0.02	13.0	596
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.09	0.31	0.46	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.6	55.6	0.01	0.01	0.02	58.7
Area	1.41	1.39	0.01	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.69	4.69	< 0.005	< 0.005	—	4.71
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.51	1.49	0.32	1.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	438	473	4.35	0.02	13.0	601
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71
Area	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	61.8	61.8	0.01	< 0.005	—	62.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08
Waste	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16
Total	0.28	0.27	0.06	0.29	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.80	72.5	78.3	0.72	< 0.005	2.16	99.5

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.87	8.29	68.1	48.1	0.13	3.48	—	3.48	3.20	—	3.20	—	13,697	13,697	0.56	0.11	—	13,744
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	9.87	8.29	68.1	48.1	0.13	3.48	—	3.48	3.20	—	3.20	—	13,697	13,697	0.56	0.11	—	13,744
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.55	2.98	24.5	17.3	0.05	1.25	—	1.25	1.15	—	1.15	—	4,932	4,932	0.20	0.04	—	4,949
Dust From Material Movement	—	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	4.48	3.16	0.01	0.23	—	0.23	0.21	—	0.21	—	817	817	0.03	0.01	—	819
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	2.13	2.09	0.41	4.91	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	197	197	0.10	0.05	0.37	215
Vendor	0.18	0.14	2.79	1.90	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	474	474	0.03	0.07	0.54	497
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.7	90.7	0.01	0.01	0.07	95.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.83	1.77	0.49	6.76	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	188	188	0.13	0.05	0.01	206
Vendor	0.16	0.13	2.95	2.01	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	481	481	0.03	0.07	0.01	503
Hauling	0.03	0.02	0.59	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	92.5	92.5	0.01	0.01	< 0.005	97.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.65	0.16	2.01	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	68.1	68.1	0.04	0.02	0.06	74.5
Vendor	0.06	0.05	1.03	0.70	< 0.005	< 0.005	0.66	0.66	< 0.005	0.07	0.07	—	172	172	0.01	0.03	0.08	180
Hauling	0.01	0.01	0.20	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	32.9	32.9	< 0.005	0.01	0.01	34.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.03	0.37	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	0.01	< 0.005	0.01	12.3
Vendor	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	28.4	28.4	< 0.005	< 0.005	0.01	29.8
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.45	5.45	< 0.005	< 0.005	< 0.005	5.72

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,375	13,375	0.54	0.11	—	13,421

Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,375	13,375	0.54	0.11	—	13,421
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.46	2.37	25.9	0.04	0.09	—	0.09	0.09	—	0.09	—	4,816	4,816	0.20	0.04	—	4,833
Dust From Material Movement	—	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.43	4.74	0.01	0.02	—	0.02	0.02	—	0.02	—	797	797	0.03	0.01	—	800

Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.13	2.09	0.41	4.91	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	197	197	0.10	0.05	0.37	215
Vendor	0.18	0.14	2.79	1.90	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	474	474	0.03	0.07	0.54	497
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.7	90.7	0.01	0.01	0.07	95.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.83	1.77	0.49	6.76	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	188	188	0.13	0.05	0.01	206
Vendor	0.16	0.13	2.95	2.01	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	481	481	0.03	0.07	0.01	503
Hauling	0.03	0.02	0.59	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	92.5	92.5	0.01	0.01	< 0.005	97.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.65	0.16	2.01	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	68.1	68.1	0.04	0.02	0.06	74.5
Vendor	0.06	0.05	1.03	0.70	< 0.005	< 0.005	0.66	0.66	< 0.005	0.07	0.07	—	172	172	0.01	0.03	0.08	180
Hauling	0.01	0.01	0.20	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	32.9	32.9	< 0.005	0.01	0.01	34.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.03	0.37	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	0.01	< 0.005	0.01	12.3
Vendor	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	28.4	28.4	< 0.005	< 0.005	0.01	29.8
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.45	5.45	< 0.005	< 0.005	< 0.005	5.72

3.3. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.67	8.12	64.3	48.0	0.13	3.35	—	3.35	3.08	—	3.08	—	13,702	13,702	0.56	0.11	—	13,749
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.67	8.12	64.3	48.0	0.13	3.35	—	3.35	3.08	—	3.08	—	13,702	13,702	0.56	0.11	—	13,749
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.27	1.91	15.1	11.3	0.03	0.79	—	0.79	0.72	—	0.72	—	3,218	3,218	0.13	0.03	—	3,229
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.35	2.76	2.06	0.01	0.14	—	0.14	0.13	—	0.13	—	533	533	0.02	< 0.005	—	535
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.95	1.91	0.39	4.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	192	192	0.08	0.04	0.34	206
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	88.9	88.9	0.01	0.01	0.07	93.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.70	1.64	0.45	6.25	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	184	184	0.12	0.05	0.01	201
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.03	0.02	0.58	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.6	90.6	0.01	0.01	< 0.005	95.0
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.21	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	43.4	43.4	0.02	0.01	0.03	47.6
Vendor	0.04	0.03	0.67	0.45	< 0.005	< 0.005	0.43	0.43	< 0.005	0.05	0.05	—	110	110	0.01	0.02	0.05	115
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	21.0	21.0	< 0.005	< 0.005	0.01	22.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.02	0.22	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	7.19	7.19	< 0.005	< 0.005	0.01	7.88

Vendor	0.01	0.01	0.12	0.08	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	18.2	18.2	< 0.005	< 0.005	0.01	19.1
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66

3.4. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,380	13,380	0.54	0.11	—	13,426
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,380	13,380	0.54	0.11	—	13,426
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.30	0.30	1.55	16.9	0.03	0.06	—	0.06	0.06	—	0.06	—	3,142	3,142	0.13	0.03	—	3,153
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.05	0.05	0.28	3.09	0.01	0.01	—	0.01	0.01	—	0.01	—	520	520	0.02	< 0.005	—	522
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.95	1.91	0.39	4.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	192	192	0.08	0.04	0.34	206
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	88.9	88.9	0.01	0.01	0.07	93.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.70	1.64	0.45	6.25	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	184	184	0.12	0.05	0.01	201
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.03	0.02	0.58	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.6	90.6	0.01	0.01	< 0.005	95.0
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.21	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	43.4	43.4	0.02	0.01	0.03	47.6

Vendor	0.04	0.03	0.67	0.45	< 0.005	< 0.005	0.43	0.43	< 0.005	0.05	0.05	—	110	110	0.01	0.02	0.05	115
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	21.0	21.0	< 0.005	< 0.005	0.01	22.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.02	0.22	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	7.19	7.19	< 0.005	< 0.005	0.01	7.88
Vendor	0.01	0.01	0.12	0.08	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	18.2	18.2	< 0.005	< 0.005	0.01	19.1
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66

3.5. Tracker Foundations (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	16.2	13.6	107	99.7	0.17	6.16	—	6.16	5.67	—	5.67	—	18,055	18,055	0.73	0.15	—	18,117
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	16.2	13.6	107	99.7	0.17	6.16	—	6.16	5.67	—	5.67	—	18,055	18,055	0.73	0.15	—	18,117
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	8.26	6.93	54.4	50.9	0.09	3.15	—	3.15	2.90	—	2.90	—	9,222	9,222	0.37	0.07	—	9,253
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.51	1.27	9.93	9.29	0.02	0.57	—	0.57	0.53	—	0.53	—	1,527	1,527	0.06	0.01	—	1,532
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.87	4.78	0.97	11.3	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	481	481	0.21	0.10	0.84	515
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.08	0.06	1.19	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	0.15	203
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.26	4.10	1.13	15.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	458	458	0.29	0.12	0.02	503
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.07	0.05	1.27	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	197	197	0.01	0.03	< 0.005	207
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.22	2.14	0.53	6.58	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	236	236	0.14	0.06	0.19	259
Vendor	0.08	0.07	1.45	0.98	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.10	—	239	239	0.01	0.04	0.11	250
Hauling	0.04	0.03	0.62	0.45	< 0.005	< 0.005	0.28	0.28	< 0.005	0.03	0.03	—	99.6	99.6	0.01	0.02	0.03	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.20	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	39.1	39.1	0.02	0.01	0.03	42.8

Vendor	0.02	0.01	0.26	0.18	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	—	39.6	39.6	< 0.005	0.01	0.02	41.4
Hauling	0.01	0.01	0.11	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	16.5	16.5	< 0.005	< 0.005	0.01	17.3

3.6. Tracker Foundations (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.78	15.2	113	0.17	0.34	—	0.34	0.34	—	0.34	—	17,815	17,815	0.72	0.14	—	17,876
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.78	15.2	113	0.17	0.34	—	0.34	0.34	—	0.34	—	17,815	17,815	0.72	0.14	—	17,876
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.91	7.76	57.9	0.09	0.17	—	0.17	0.17	—	0.17	—	9,099	9,099	0.37	0.07	—	9,130
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.17	0.17	1.42	10.6	0.02	0.03	—	0.03	0.03	—	0.03	—	1,506	1,506	0.06	0.01	—	1,512
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.87	4.78	0.97	11.3	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	481	481	0.21	0.10	0.84	515
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.08	0.06	1.19	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	0.15	203
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.26	4.10	1.13	15.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	458	458	0.29	0.12	0.02	503
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.07	0.05	1.27	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	197	197	0.01	0.03	< 0.005	207
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.22	2.14	0.53	6.58	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	236	236	0.14	0.06	0.19	259
Vendor	0.08	0.07	1.45	0.98	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.10	—	239	239	0.01	0.04	0.11	250
Hauling	0.04	0.03	0.62	0.45	< 0.005	< 0.005	0.28	0.28	< 0.005	0.03	0.03	—	99.6	99.6	0.01	0.02	0.03	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.20	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	39.1	39.1	0.02	0.01	0.03	42.8
Vendor	0.02	0.01	0.26	0.18	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	—	39.6	39.6	< 0.005	0.01	0.02	41.4
Hauling	0.01	0.01	0.11	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	16.5	16.5	< 0.005	< 0.005	0.01	17.3

3.7. Tracker Foundations (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	15.9	13.3	103	99.5	0.17	5.97	—	5.97	5.50	—	5.50	—	18,055	18,055	0.73	0.15	—	18,117
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.77	2.32	17.9	17.3	0.03	1.04	—	1.04	0.96	—	0.96	—	3,145	3,145	0.13	0.03	—	3,155
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.42	3.27	3.16	0.01	0.19	—	0.19	0.17	—	0.17	—	521	521	0.02	< 0.005	—	522
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.87	1.07	14.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	448	448	0.26	0.12	0.02	492
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485

Hauling	0.07	0.05	1.26	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	< 0.005	203
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.68	0.17	2.08	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	78.7	78.7	0.04	0.02	0.06	84.7
Vendor	0.03	0.02	0.49	0.33	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	79.9	79.9	0.01	0.01	0.03	83.8
Hauling	0.01	0.01	0.21	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	33.3	33.3	< 0.005	0.01	0.01	34.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.03	0.38	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.0	13.0	0.01	< 0.005	0.01	14.0
Vendor	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	13.2	13.2	< 0.005	< 0.005	0.01	13.9
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.51	5.51	< 0.005	< 0.005	< 0.005	5.78

3.8. Tracker Foundations (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.78	15.2	113	0.17	0.34	—	0.34	0.34	—	0.34	—	17,815	17,815	0.72	0.14	—	17,876
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.31	2.65	19.7	0.03	0.06	—	0.06	0.06	—	0.06	—	3,103	3,103	0.13	0.03	—	3,113

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.48	3.60	0.01	0.01	—	0.01	0.01	—	0.01	—	514	514	0.02	< 0.005	—	515
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.87	1.07	14.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	448	448	0.26	0.12	0.02	492
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485
Hauling	0.07	0.05	1.26	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	< 0.005	203
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.68	0.17	2.08	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	78.7	78.7	0.04	0.02	0.06	84.7
Vendor	0.03	0.02	0.49	0.33	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	79.9	79.9	0.01	0.01	0.03	83.8
Hauling	0.01	0.01	0.21	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	33.3	33.3	< 0.005	0.01	0.01	34.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.03	0.38	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.0	13.0	0.01	< 0.005	0.01	14.0
Vendor	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	13.2	13.2	< 0.005	< 0.005	0.01	13.9
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.51	5.51	< 0.005	< 0.005	< 0.005	5.78

3.9. Electrical Installation (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.18	5.18	32.4	48.7	0.14	1.32	—	1.32	1.21	—	1.21	—	15,060	15,060	0.61	0.12	—	15,111
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.18	5.18	32.4	48.7	0.14	1.32	—	1.32	1.21	—	1.21	—	15,060	15,060	0.61	0.12	—	15,111
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.03	19.0	28.5	0.08	0.77	—	0.77	0.71	—	0.71	—	8,812	8,812	0.36	0.07	—	8,842
Architectural Coatings	0.43	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	3.46	5.20	0.02	0.14	—	0.14	0.13	—	0.13	—	1,459	1,459	0.06	0.01	—	1,464
Architectural Coatings	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.92	0.81	9.15	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	452	452	0.18	0.10	0.60	485
Vendor	0.16	0.13	2.63	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	437	437	0.03	0.07	0.35	459
Hauling	0.08	0.06	1.16	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	0.12	191
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.07	2.02	0.49	6.08	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	254	254	0.12	0.06	0.15	273
Vendor	0.09	0.07	1.58	1.09	< 0.005	< 0.005	1.07	1.07	< 0.005	0.11	0.11	—	257	257	0.02	0.04	0.09	270
Hauling	0.04	0.03	0.70	0.51	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	107	107	0.01	0.02	0.03	112
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.37	0.09	1.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	42.0	42.0	0.02	0.01	0.02	45.3

Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	42.6	42.6	< 0.005	0.01	0.01	44.7
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	17.7	17.7	< 0.005	< 0.005	< 0.005	18.6

3.10. Electrical Installation (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.79	0.79	4.13	44.9	0.08	0.16	—	0.16	0.16	—	0.16	—	8,390	8,390	0.34	0.07	—	8,419
Architectural Coatings	0.43	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.14	0.75	8.19	0.01	0.03	—	0.03	0.03	—	0.03	—	1,389	1,389	0.06	0.01	—	1,394
Architectural Coatings	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.92	0.81	9.15	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	452	452	0.18	0.10	0.60	485
Vendor	0.16	0.13	2.63	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	437	437	0.03	0.07	0.35	459
Hauling	0.08	0.06	1.16	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	0.12	191
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.07	2.02	0.49	6.08	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	254	254	0.12	0.06	0.15	273

Vendor	0.09	0.07	1.58	1.09	< 0.005	< 0.005	1.07	1.07	< 0.005	0.11	0.11	—	257	257	0.02	0.04	0.09	270
Hauling	0.04	0.03	0.70	0.51	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	107	107	0.01	0.02	0.03	112
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.37	0.09	1.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	42.0	42.0	0.02	0.01	0.02	45.3
Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	42.6	42.6	< 0.005	0.01	0.01	44.7
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	17.7	17.7	< 0.005	< 0.005	< 0.005	18.6

3.11. Electrical Installation (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.05	5.07	31.0	48.5	0.14	1.26	—	1.26	1.16	—	1.16	—	15,060	15,060	0.61	0.12	—	15,111
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.05	5.07	31.0	48.5	0.14	1.26	—	1.26	1.16	—	1.16	—	15,060	15,060	0.61	0.12	—	15,111

Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.00	1.68	10.3	16.1	0.05	0.42	—	0.42	0.38	—	0.38	—	4,981	4,981	0.20	0.04	—	4,998
Architectural Coatings	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	1.87	2.93	0.01	0.08	—	0.08	0.07	—	0.07	—	825	825	0.03	0.01	—	827
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.72	3.65	0.74	8.56	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	443	443	0.18	0.09	0.53	474
Vendor	0.16	0.13	2.59	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	428	428	0.03	0.06	0.30	448
Hauling	0.08	0.06	1.14	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	178	178	0.01	0.03	0.11	187

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.31	3.18	0.87	11.7	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	421	421	0.24	0.10	0.01	455
Vendor	0.15	0.11	2.76	1.89	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	435	435	0.03	0.07	0.01	456
Hauling	0.07	0.05	1.23	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	< 0.005	190
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.10	1.07	0.27	3.21	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	141	141	0.07	0.03	0.08	152
Vendor	0.05	0.04	0.88	0.61	< 0.005	< 0.005	0.61	0.61	< 0.005	0.06	0.06	—	142	142	0.01	0.02	0.04	150
Hauling	0.02	0.02	0.39	0.29	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	59.4	59.4	< 0.005	0.01	0.02	62.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.20	0.05	0.59	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	23.3	23.3	0.01	0.01	0.01	25.1
Vendor	0.01	0.01	0.16	0.11	< 0.005	< 0.005	0.11	0.11	< 0.005	0.01	0.01	—	23.6	23.6	< 0.005	< 0.005	0.01	24.8
Hauling	< 0.005	< 0.005	0.07	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	9.84	9.84	< 0.005	< 0.005	< 0.005	10.3

3.12. Electrical Installation (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.45	2.33	25.4	0.04	0.09	—	0.09	0.09	—	0.09	—	4,742	4,742	0.19	0.04	—	4,759
Architectural Coatings	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.43	4.63	0.01	0.02	—	0.02	0.02	—	0.02	—	785	785	0.03	0.01	—	788
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.72	3.65	0.74	8.56	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	443	443	0.18	0.09	0.53	474
Vendor	0.16	0.13	2.59	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	428	428	0.03	0.06	0.30	448
Hauling	0.08	0.06	1.14	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	178	178	0.01	0.03	0.11	187
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.31	3.18	0.87	11.7	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	421	421	0.24	0.10	0.01	455
Vendor	0.15	0.11	2.76	1.89	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	435	435	0.03	0.07	0.01	456
Hauling	0.07	0.05	1.23	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	< 0.005	190
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.10	1.07	0.27	3.21	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	141	141	0.07	0.03	0.08	152
Vendor	0.05	0.04	0.88	0.61	< 0.005	< 0.005	0.61	0.61	< 0.005	0.06	0.06	—	142	142	0.01	0.02	0.04	150
Hauling	0.02	0.02	0.39	0.29	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	59.4	59.4	< 0.005	0.01	0.02	62.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.20	0.05	0.59	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	23.3	23.3	0.01	0.01	0.01	25.1
Vendor	0.01	0.01	0.16	0.11	< 0.005	< 0.005	0.11	0.11	< 0.005	0.01	0.01	—	23.6	23.6	< 0.005	< 0.005	0.01	24.8
Hauling	< 0.005	< 0.005	0.07	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	9.84	9.84	< 0.005	< 0.005	< 0.005	10.3

3.13. Mechanical Installation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	12.8	10.6	81.7	108	0.23	2.48	—	2.48	2.28	—	2.28	—	21,174	21,174	0.86	0.17	—	21,246
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	12.8	10.6	81.7	108	0.23	2.48	—	2.48	2.28	—	2.28	—	21,174	21,174	0.86	0.17	—	21,246
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.13	6.77	52.1	68.9	0.15	1.58	—	1.58	1.46	—	1.46	—	13,508	13,508	0.55	0.11	—	13,555
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	9.51	12.6	0.03	0.29	—	0.29	0.27	—	0.27	—	2,236	2,236	0.09	0.02	—	2,244
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.31	4.22	0.84	9.82	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	461	461	0.18	0.10	0.67	494
Vendor	0.17	0.13	2.69	1.83	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	446	446	0.03	0.07	0.40	469
Hauling	0.08	0.06	1.17	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	0.13	194

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.75	3.62	1.00	13.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	438	438	0.26	0.12	0.02	482
Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.07	0.05	1.25	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	189	189	0.01	0.03	< 0.005	198
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.43	2.35	0.58	7.11	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	282	282	0.13	0.06	0.19	304
Vendor	0.11	0.08	1.76	1.20	< 0.005	< 0.005	1.17	1.17	< 0.005	0.12	0.12	—	287	287	0.02	0.05	0.11	301
Hauling	0.05	0.04	0.77	0.56	< 0.005	< 0.005	0.34	0.35	< 0.005	0.04	0.04	—	119	119	0.01	0.02	0.03	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.44	0.43	0.11	1.30	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	46.7	46.7	0.02	0.01	0.03	50.3
Vendor	0.02	0.01	0.32	0.22	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	47.5	47.5	< 0.005	0.01	0.02	49.8
Hauling	0.01	0.01	0.14	0.10	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	19.7	19.7	< 0.005	< 0.005	0.01	20.7

3.14. Mechanical Installation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.46	3.06	26.8	91.9	0.16	0.58	—	0.58	0.55	—	0.55	—	15,898	15,898	0.64	0.13	—	15,953
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	3.46	3.06	26.8	91.9	0.16	0.58	—	0.58	0.55	—	0.55	—	15,898	15,898	0.64	0.13	—	15,953
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	2.21	1.95	17.1	58.6	0.10	0.37	—	0.37	0.35	—	0.35	—	10,142	10,142	0.41	0.08	—	10,177
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.40	0.36	3.12	10.7	0.02	0.07	—	0.07	0.06	—	0.06	—	1,679	1,679	0.07	0.01	—	1,685
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.31	4.22	0.84	9.82	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	461	461	0.18	0.10	0.67	494
Vendor	0.17	0.13	2.69	1.83	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	446	446	0.03	0.07	0.40	469
Hauling	0.08	0.06	1.17	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	0.13	194
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.75	3.62	1.00	13.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	438	438	0.26	0.12	0.02	482
Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.07	0.05	1.25	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	189	189	0.01	0.03	< 0.005	198
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	2.43	2.35	0.58	7.11	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	282	282	0.13	0.06	0.19	304
Vendor	0.11	0.08	1.76	1.20	< 0.005	< 0.005	1.17	1.17	< 0.005	0.12	0.12	—	287	287	0.02	0.05	0.11	301
Hauling	0.05	0.04	0.77	0.56	< 0.005	< 0.005	0.34	0.35	< 0.005	0.04	0.04	—	119	119	0.01	0.02	0.03	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.44	0.43	0.11	1.30	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	46.7	46.7	0.02	0.01	0.03	50.3
Vendor	0.02	0.01	0.32	0.22	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	47.5	47.5	< 0.005	0.01	0.02	49.8
Hauling	0.01	0.01	0.14	0.10	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	19.7	19.7	< 0.005	< 0.005	0.01	20.7

3.15. Mechanical Installation (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11.5	9.53	74.6	107	0.23	1.79	—	1.79	1.65	—	1.65	—	21,175	21,175	0.86	0.17	—	21,248
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84	1.53	12.0	17.2	0.04	0.29	—	0.29	0.26	—	0.26	—	3,398	3,398	0.14	0.03	—	3,410
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.34	0.28	2.19	3.13	0.01	0.05	—	0.05	0.05	—	0.05	—	563	563	0.02	< 0.005	—	565
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.57	0.55	0.13	1.67	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	69.5	69.5	0.03	0.02	0.04	75.0
Vendor	0.03	0.02	0.43	0.30	< 0.005	< 0.005	0.29	0.29	< 0.005	0.03	0.03	—	70.6	70.6	< 0.005	0.01	0.02	74.1
Hauling	0.01	0.01	0.19	0.14	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.01	30.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.02	0.30	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.5	11.5	0.01	< 0.005	0.01	12.4
Vendor	< 0.005	< 0.005	0.08	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	11.7	11.7	< 0.005	< 0.005	< 0.005	12.3
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.10

3.16. Mechanical Installation (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32	2.94	26.5	91.7	0.16	0.52	—	0.52	0.50	—	0.50	—	15,900	15,900	0.64	0.13	—	15,954
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.47	4.25	14.7	0.03	0.08	—	0.08	0.08	—	0.08	—	2,551	2,551	0.10	0.02	—	2,560
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.78	2.69	< 0.005	0.02	—	0.02	0.01	—	0.01	—	422	422	0.02	< 0.005	—	424
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.57	0.55	0.13	1.67	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	69.5	69.5	0.03	0.02	0.04	75.0
Vendor	0.03	0.02	0.43	0.30	< 0.005	< 0.005	0.29	0.29	< 0.005	0.03	0.03	—	70.6	70.6	< 0.005	0.01	0.02	74.1
Hauling	0.01	0.01	0.19	0.14	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.01	30.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.02	0.30	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.5	11.5	0.01	< 0.005	0.01	12.4
Vendor	< 0.005	< 0.005	0.08	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	11.7	11.7	< 0.005	< 0.005	< 0.005	12.3
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.10

3.17. Underground Cabling (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.06	6.77	49.9	36.5	0.11	2.72	—	2.72	2.50	—	2.50	—	11,429	11,429	0.46	0.09	—	11,468
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.06	6.77	49.9	36.5	0.11	2.72	—	2.72	2.50	—	2.50	—	11,429	11,429	0.46	0.09	—	11,468
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	4.61	3.87	28.5	20.9	0.06	1.55	—	1.55	1.43	—	1.43	—	6,531	6,531	0.26	0.05	—	6,553
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.71	5.21	3.81	0.01	0.28	—	0.28	0.26	—	0.26	—	1,081	1,081	0.04	0.01	—	1,085
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.33	0.07	0.79	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	35.3	35.3	0.02	0.01	0.06	37.8
Vendor	0.18	0.14	2.73	1.85	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	456	456	0.03	0.07	0.44	478
Hauling	0.02	0.02	0.32	0.23	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.2	51.2	< 0.005	0.01	0.04	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.29	0.08	1.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	33.6	33.6	0.02	0.01	< 0.005	36.9
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	52.2	52.2	< 0.005	0.01	< 0.005	54.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.17	0.04	0.51	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	19.4	19.4	0.01	< 0.005	0.01	20.8
Vendor	0.09	0.07	1.60	1.09	< 0.005	< 0.005	1.05	1.05	< 0.005	0.11	0.11	—	262	262	0.02	0.04	0.11	275
Hauling	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	29.5	29.5	< 0.005	< 0.005	0.01	31.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.45
Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	43.4	43.4	< 0.005	0.01	0.02	45.5

Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.88	4.88	< 0.005	< 0.005	< 0.005	5.13

3.18. Underground Cabling (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	1.05	5.46	56.8	0.10	0.21	—	0.21	0.21	—	0.21	—	11,107	11,107	0.45	0.09	—	11,145
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	1.05	5.46	56.8	0.10	0.21	—	0.21	0.21	—	0.21	—	11,107	11,107	0.45	0.09	—	11,145
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.60	3.12	32.4	0.06	0.12	—	0.12	0.12	—	0.12	—	6,347	6,347	0.26	0.05	—	6,368
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.11	0.57	5.92	0.01	0.02	—	0.02	0.02	—	0.02	—	1,051	1,051	0.04	0.01	—	1,054
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.33	0.07	0.79	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	35.3	35.3	0.02	0.01	0.06	37.8
Vendor	0.18	0.14	2.73	1.85	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	456	456	0.03	0.07	0.44	478
Hauling	0.02	0.02	0.32	0.23	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.2	51.2	< 0.005	0.01	0.04	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.29	0.08	1.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	33.6	33.6	0.02	0.01	< 0.005	36.9
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	52.2	52.2	< 0.005	0.01	< 0.005	54.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.17	0.04	0.51	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	19.4	19.4	0.01	< 0.005	0.01	20.8
Vendor	0.09	0.07	1.60	1.09	< 0.005	< 0.005	1.05	1.05	< 0.005	0.11	0.11	—	262	262	0.02	0.04	0.11	275
Hauling	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	29.5	29.5	< 0.005	< 0.005	0.01	31.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.45
Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	43.4	43.4	< 0.005	0.01	0.02	45.5
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.88	4.88	< 0.005	< 0.005	< 0.005	5.13

3.19. Underground Cabling (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.03	6.74	48.7	36.5	0.11	2.69	—	2.69	2.47	—	2.47	—	11,430	11,430	0.46	0.09	—	11,469
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	5.34	4.00	0.01	0.29	—	0.29	0.27	—	0.27	—	1,253	1,253	0.05	0.01	—	1,257
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	0.97	0.73	< 0.005	0.05	—	0.05	0.05	—	0.05	—	207	207	0.01	< 0.005	—	208
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.27	0.07	1.01	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	32.9	32.9	0.02	0.01	< 0.005	36.2

Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.1	51.1	< 0.005	0.01	< 0.005	53.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.63	3.63	< 0.005	< 0.005	< 0.005	3.91
Vendor	0.02	0.01	0.30	0.21	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	49.2	49.2	< 0.005	0.01	0.02	51.7
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.54	5.54	< 0.005	< 0.005	< 0.005	5.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.65
Vendor	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	8.15	8.15	< 0.005	< 0.005	< 0.005	8.55
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96

3.20. Underground Cabling (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	1.05	5.46	56.8	0.10	0.21	—	0.21	0.21	—	0.21	—	11,108	11,108	0.45	0.09	—	11,146
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.12	0.60	6.22	0.01	0.02	—	0.02	0.02	—	0.02	—	1,217	1,217	0.05	0.01	—	1,222
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	202	202	0.01	< 0.005	—	202
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.27	0.07	1.01	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	32.9	32.9	0.02	0.01	< 0.005	36.2
Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.1	51.1	< 0.005	0.01	< 0.005	53.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.63	3.63	< 0.005	< 0.005	< 0.005	3.91
Vendor	0.02	0.01	0.30	0.21	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	49.2	49.2	< 0.005	0.01	0.02	51.7
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.54	5.54	< 0.005	< 0.005	< 0.005	5.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.65
Vendor	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	8.15	8.15	< 0.005	< 0.005	< 0.005	8.55
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.09	0.09	0.02	0.22	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.01	13.3
General Office Building	0.02	0.01	0.28	0.21	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.03	45.5
Total	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.08	0.08	0.02	0.30	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	11.8	11.8	0.01	< 0.005	< 0.005	12.8
General Office Building	0.02	0.01	0.30	0.22	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	44.2	44.2	< 0.005	0.01	< 0.005	46.4
Total	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.97	1.97	< 0.005	< 0.005	< 0.005	2.12

General Office Building	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.24	7.24	< 0.005	< 0.005	< 0.005	7.59
Total	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.09	0.09	0.02	0.22	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.01	13.3
General Office Building	0.02	0.01	0.28	0.21	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.03	45.5
Total	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.08	0.08	0.02	0.30	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	11.8	11.8	0.01	< 0.005	< 0.005	12.8
General Office Building	0.02	0.01	0.30	0.22	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	44.2	44.2	< 0.005	0.01	< 0.005	46.4
Total	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.97	1.97	< 0.005	< 0.005	< 0.005	2.12

General Office Building	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.24	7.24	< 0.005	< 0.005	< 0.005	7.59
Total	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	54.9	54.9	0.01	< 0.005	—	55.4

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	6.94	6.94	< 0.005	< 0.005	—	7.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	61.8	61.8	0.01	< 0.005	—	62.4

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	54.9	54.9	0.01	< 0.005	—	55.4

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	6.94	6.94	< 0.005	< 0.005	—	7.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	61.8	61.8	0.01	< 0.005	—	62.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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

General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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

General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.41	0.38	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Total	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Total	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipm	0.41	0.38	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Total	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Total	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.51	0.51	< 0.005	< 0.005	—	0.52
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	0.21	0.21	0.13	< 0.005	—	3.57
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.51	0.51	< 0.005	< 0.005	—	0.52
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	0.21	0.21	0.13	< 0.005	—	3.57
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.53	0.00	5.53	0.55	0.00	—	19.4
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.27	0.00	0.27	0.03	0.00	—	0.93
Total	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.53	0.00	5.53	0.55	0.00	—	19.4
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.27	0.00	0.27	0.03	0.00	—	0.93
Total	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.15	2.15
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.15	2.15
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	7/1/2025	4/30/2026	5.00	218	Phase 1
Tracker Foundations	Building Construction	4/15/2026	3/30/2027	5.00	250	Phase 2
Electrical Installation	Building Construction	3/8/2029	6/18/2030	5.00	334	Phase 5
Mechanical Installation	Building Construction	2/10/2028	3/23/2029	5.00	292	Phase 4
Underground Cabling	Trenching	3/15/2027	2/25/2028	5.00	250	Phase 3

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	4.00	8.00	187	0.41

Site Preparation	Off-Highway Trucks	Diesel	Average	7.00	4.00	402	0.38
Site Preparation	Plate Compactors	Diesel	Average	3.00	8.00	24.9	0.43
Site Preparation	Rubber Tired Loaders	Diesel	Average	3.00	8.00	203	0.36
Site Preparation	Rough Terrain Forklifts	Diesel	Average	4.00	8.00	130	0.40
Site Preparation	Skid Steer Loaders	Diesel	Average	4.00	8.00	75.0	0.37
Site Preparation	Crawler Tractors	Diesel	Average	1.00	5.00	212	0.43
Tracker Foundations	Generator Sets	Diesel	Average	4.00	8.00	49.9	0.74
Tracker Foundations	Air Compressors	Diesel	Average	1.00	8.00	49.9	0.48
Tracker Foundations	Off-Highway Trucks	Diesel	Average	7.00	4.00	402	0.38
Tracker Foundations	Other Construction Equipment	Diesel	Average	1.00	2.00	172	0.42
Tracker Foundations	Rough Terrain Forklifts	Diesel	Average	7.00	8.00	100	0.40
Tracker Foundations	Rubber Tired Loaders	Diesel	Average	1.00	8.00	203	0.36
Tracker Foundations	Other General Industrial Equipment	Diesel	Average	9.00	8.00	158	0.42
Tracker Foundations	Skid Steer Loaders	Diesel	Average	9.00	8.00	75.0	0.37
Electrical Installation	Air Compressors	Diesel	Average	3.00	8.00	49.9	0.48
Electrical Installation	Off-Highway Trucks	Diesel	Average	9.00	4.00	402	0.38
Electrical Installation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	203	0.36
Electrical Installation	Rough Terrain Forklifts	Diesel	Average	5.00	8.00	100	0.40
Electrical Installation	Trenchers	Diesel	Average	3.00	8.00	78.0	0.50
Electrical Installation	Excavators	Diesel	Average	3.00	8.00	212	0.38
Mechanical Installation	Generator Sets	Diesel	Average	11.0	8.00	49.9	0.74
Mechanical Installation	Air Compressors	Diesel	Average	20.0	8.00	49.9	0.48
Mechanical Installation	Off-Highway Trucks	Diesel	Average	8.00	4.00	402	0.38
Mechanical Installation	Other Construction Equipment	Diesel	Average	1.00	2.00	172	0.42

Mechanical Installation	Rough Terrain Forklifts	Diesel	Average	9.00	8.00	100	0.40
Mechanical Installation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	203	0.36
Mechanical Installation	Skid Steer Loaders	Diesel	Average	1.00	8.00	75.0	0.37
Mechanical Installation	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Underground Cabling	Excavators	Diesel	Average	4.00	8.00	212	0.38
Underground Cabling	Trenchers	Diesel	Average	1.00	8.00	300	0.50
Underground Cabling	Off-Highway Trucks	Diesel	Average	7.00	4.00	402	0.38
Underground Cabling	Plate Compactors	Diesel	Average	3.00	8.00	24.9	0.43
Underground Cabling	Rubber Tired Loaders	Diesel	Average	1.00	8.00	203	0.36
Underground Cabling	Skid Steer Loaders	Diesel	Average	4.00	8.00	75.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Tier 4 Final	4.00	8.00	187	0.41
Site Preparation	Off-Highway Trucks	Diesel	Tier 4 Final	7.00	4.00	402	0.38
Site Preparation	Plate Compactors	Electric	Average	3.00	8.00	24.9	0.43
Site Preparation	Rubber Tired Loaders	Diesel	Tier 4 Final	3.00	8.00	203	0.36
Site Preparation	Rough Terrain Forklifts	Diesel	Tier 4 Final	4.00	8.00	130	0.40
Site Preparation	Skid Steer Loaders	Diesel	Tier 4 Final	4.00	8.00	75.0	0.37
Site Preparation	Crawler Tractors	Diesel	Tier 4 Final	1.00	5.00	212	0.43
Tracker Foundations	Generator Sets	Diesel	Tier 4 Final	4.00	8.00	49.9	0.74
Tracker Foundations	Air Compressors	Electric	Average	1.00	8.00	49.9	0.48
Tracker Foundations	Off-Highway Trucks	Diesel	Tier 4 Final	7.00	4.00	402	0.38
Tracker Foundations	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	172	0.42
Tracker Foundations	Rough Terrain Forklifts	Diesel	Tier 4 Final	7.00	8.00	100	0.40

Tracker Foundations	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	203	0.36
Tracker Foundations	Other General Industrial Equipment	Diesel	Tier 4 Final	9.00	8.00	158	0.42
Tracker Foundations	Skid Steer Loaders	Diesel	Tier 4 Final	9.00	8.00	75.0	0.37
Electrical Installation	Air Compressors	Electric	Average	3.00	8.00	49.9	0.48
Electrical Installation	Off-Highway Trucks	Diesel	Tier 4 Final	9.00	4.00	402	0.38
Electrical Installation	Rubber Tired Loaders	Diesel	Tier 4 Final	4.00	8.00	203	0.36
Electrical Installation	Rough Terrain Forklifts	Diesel	Tier 4 Final	5.00	8.00	100	0.40
Electrical Installation	Trenchers	Diesel	Tier 4 Final	3.00	8.00	78.0	0.50
Electrical Installation	Excavators	Diesel	Tier 4 Final	3.00	8.00	212	0.38
Mechanical Installation	Generator Sets	Diesel	Average	10.0	8.00	49.9	0.74
Mechanical Installation	Generator Sets	Electric	Average	1.00	8.00	49.9	0.74
Mechanical Installation	Air Compressors	Electric	Average	20.0	8.00	49.9	0.48
Mechanical Installation	Off-Highway Trucks	Diesel	Tier 4 Final	8.00	4.00	402	0.38
Mechanical Installation	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	172	0.42
Mechanical Installation	Rough Terrain Forklifts	Diesel	Tier 4 Final	9.00	8.00	100	0.40
Mechanical Installation	Rubber Tired Loaders	Diesel	Tier 4 Final	4.00	8.00	203	0.36
Mechanical Installation	Skid Steer Loaders	Diesel	Tier 4 Final	1.00	8.00	75.0	0.37
Mechanical Installation	Generator Sets	Electric	Average	1.00	8.00	14.0	0.74
Underground Cabling	Excavators	Diesel	Tier 4 Final	4.00	8.00	212	0.38
Underground Cabling	Trenchers	Diesel	Tier 4 Final	1.00	8.00	300	0.50
Underground Cabling	Off-Highway Trucks	Diesel	Tier 4 Final	7.00	4.00	402	0.38
Underground Cabling	Plate Compactors	Electric	Average	3.00	8.00	24.9	0.43

Underground Cabling	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	203	0.36
Underground Cabling	Skid Steer Loaders	Diesel	Tier 4 Final	4.00	8.00	75.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	534	0.25	LDA,LDT1,LDT2
Site Preparation	Vendor	252	0.25	HHDT,MHDT
Site Preparation	Hauling	34.0	0.25	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Tracker Foundations	—	—	—	—
Tracker Foundations	Worker	1,334	0.25	LDA,LDT1,LDT2
Tracker Foundations	Vendor	252	0.25	HHDT,MHDT
Tracker Foundations	Hauling	74.0	0.25	HHDT
Tracker Foundations	Onsite truck	—	—	HHDT
Underground Cabling	—	—	—	—
Underground Cabling	Worker	100	0.25	LDA,LDT1,LDT2
Underground Cabling	Vendor	252	0.25	HHDT,MHDT
Underground Cabling	Hauling	20.0	0.25	HHDT
Underground Cabling	Onsite truck	—	—	HHDT
Mechanical Installation	—	—	—	—
Mechanical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Mechanical Installation	Vendor	252	0.25	HHDT,MHDT
Mechanical Installation	Hauling	74.0	0.25	HHDT
Mechanical Installation	Onsite truck	—	—	HHDT
Electrical Installation	—	—	—	—

Electrical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Electrical Installation	Vendor	252	0.25	HHDT,MHDT
Electrical Installation	Hauling	74.0	0.25	HHDT
Electrical Installation	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	534	0.25	LDA,LDT1,LDT2
Site Preparation	Vendor	252	0.25	HHDT,MHDT
Site Preparation	Hauling	34.0	0.25	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Tracker Foundations	—	—	—	—
Tracker Foundations	Worker	1,334	0.25	LDA,LDT1,LDT2
Tracker Foundations	Vendor	252	0.25	HHDT,MHDT
Tracker Foundations	Hauling	74.0	0.25	HHDT
Tracker Foundations	Onsite truck	—	—	HHDT
Underground Cabling	—	—	—	—
Underground Cabling	Worker	100	0.25	LDA,LDT1,LDT2
Underground Cabling	Vendor	252	0.25	HHDT,MHDT
Underground Cabling	Hauling	20.0	0.25	HHDT
Underground Cabling	Onsite truck	—	—	HHDT
Mechanical Installation	—	—	—	—
Mechanical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Mechanical Installation	Vendor	252	0.25	HHDT,MHDT
Mechanical Installation	Hauling	74.0	0.25	HHDT
Mechanical Installation	Onsite truck	—	—	HHDT
Electrical Installation	—	—	—	—

Electrical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Electrical Installation	Vendor	252	0.25	HHDT,MHDT
Electrical Installation	Hauling	74.0	0.25	HHDT
Electrical Installation	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	67%	67%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Electrical Installation	0.00	0.00	79,800	26,600	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	504	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	0.00	0%
General Office Building	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005
2029	0.00	204	0.03	< 0.005
2030	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	40.0	40.0	40.0	14,600	10.0	10.0	10.0	3,650
General Office Building	18.0	18.0	18.0	6,570	4.50	4.50	4.50	1,643

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	40.0	40.0	40.0	14,600	10.0	10.0	10.0	3,650

General Office Building	18.0	18.0	18.0	6,570	4.50	4.50	4.50	1,643

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	79,800	26,600	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	593,207	204	0.0330	0.0040	0.00
General Office Building	75,028	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	593,207	204	0.0330	0.0040	0.00
General Office Building	75,028	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	0.00	2,280,960
General Office Building	568,748	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	0.00	2,280,960
General Office Building	568,748	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	62.0	—

General Office Building	2.98	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	62.0	—
General Office Building	2.98	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	21.4	annual days of extreme heat
Extreme Precipitation	0.00	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	82.5
AQ-PM	95.4
AQ-DPM	5.76
Drinking Water	96.1
Lead Risk Housing	81.4
Pesticides	94.1
Toxic Releases	50.9
Traffic	0.71
Effect Indicators	—
CleanUp Sites	7.71
Groundwater	85.3

Haz Waste Facilities/Generators	67.6
Impaired Water Bodies	0.00
Solid Waste	86.5
Sensitive Population	—
Asthma	42.4
Cardio-vascular	67.5
Low Birth Weights	15.4
Socioeconomic Factor Indicators	—
Education	86.9
Housing	79.3
Linguistic	95.6
Poverty	87.8
Unemployment	61.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—

Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	0.0
Asthma ER Admissions	55.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	0.0
Cognitively Disabled	64.4
Physically Disabled	74.5

Heart Attack ER Admissions	23.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	0.0
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	68.4
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	1.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	96.4
Traffic Density	0.0
Traffic Access	0.0
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Modeling battery storage station as general light industrial. Assuming maximum square footage allowed for the land use.
Construction: Construction Phases	No demolition phase anticipated. Phasing based on example project provided and totals approx. 60 months.
Construction: Off-Road Equipment	Equipment, operating hours, and horsepower were based on the Bellefield solar project assumptions. Bellefield assumptions for generator sets, air compressors, and plate compactors that exceeded the maximum horsepower for that equipment were reduced to match the maximum.
Construction: Trips and VMT	Adjusted using list of construction trip assumptions.

Construction: On-Road Fugitive Dust	Assuming a quarter mile unpaved road distance for haul and vendor trucks, assuming 100% paved for worker vehicles. Assuming watering of unpaved roads and limiting speed to 15 mph in accordance with MDAQMD rule 8021. Limiting speed to 15 mph translates to a 66.6% reduction according to the WRAP fugitive dust handbook.
Operations: Vehicle Data	Passenger trips in light industry, trucks in office building.
Operations: Water and Waste Water	Assuming 7 acre-feet of outdoor water use for solar panels per year. Office building uses a septic tank.
Operations: Refrigerants	Added "Other commercial A/C and heat pumps" to represent SF6 emissions from substations.
Operations: Energy Use	Assuming that the project does not result in natural gas consumption.
Operations: Fleet Mix	Passenger trips in light industry and trucks in office building.

Attainment Status San Joaquin Valley Air Basin

Criteria Pollutants	Averaging Time	State Designation	Federal Designation
Ozone (O_3)	1-hour	Nonattainment/Severe	—
	8-hour	Nonattainment	Nonattainment/Extreme[1]
Nitrogen Dioxide (NO_2)	1-hour	Attainment	Attainment/Unclassified[2]
	Annual	Attainment	Attainment
Sulfur Dioxide (SO_2)	All	Attainment	Attainment/Unclassified[2]
Carbon Monoxide (CO)	All	Attainment/Unclassified[2]	Attainment/Unclassified[2]
Particulates (as PM_{10})	24-hour	Nonattainment	Attainment
	Annual	Nonattainment	—
Particulates (as $PM_{2.5}$)	24-hour	—	Nonattainment
	Annual	Nonattainment	Nonattainment
Lead (Pb)	All	Attainment	Attainment/Unclassified[2]
Sulfates (as SO_4)	24-hour	Attainment	—
Hydrogen Sulfide (H_2S)	1-hour	Unclassified[2]	—
Vinyl Chloride (C_2H_3Cl)	24-hour	Attainment	—
Visibility	8-hour	Unclassified[2]	—

Sources: SJVAPCD 2014a, CARB 2014, EPA 2015a

Notes:

[1] The 0.08 ppmv federal 8-hour ozone standard applied until 2008; 0.075 ppmv thereafter

[2] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassified

Ambient Air Quality Standards

Criteria Pollutants	Averaging Time	California Standards		Federal Standards	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	180	—	—
	8-hour	0.07	137	0.07	137
Nitrogen Dioxide (NO_2)	1-hour	0.18	339	0.100	188
	Annual	0.03	57	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	0.075	196
	3-hour Secondary	—	—	0.50	1,300
	24-hour	0.04	105	0.14	367
	Annual	—	—	0.03	79
Carbon Monoxide (CO)	1-hour	20	22,900	35	40,100
	8-hour	9	10,300	9	10,300
	Lake Tahoe (8-hr)	6	6,900	—	—
Particulates (as PM_{10})	24-hour	—	50	—	150
	Annual	—	20	—	—
Particulates (as $PM_{2.5}$)	24-hour	—	—	—	35
	Annual Primary	—	12	—	12
	Annual Secondary	—	—	—	15
Lead (Pb)	30-day	—	1.5	—	—
	3-month (rolling)	—	—	—	0.15
Sulfates (as SO_4)	24-hour	—	25	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	—	—
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	—	—
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%.		—	—

Source: CARB 2015c

Notes:

ppmv = parts per million by volume

µg/m^3 = micrograms per cubic meter

The 1.5 µg/m^3 federal quarterly lead standard applied until 2008; 0.15 µg/m^3 rolling 3-month average thereafter

For gases, ug/m^3 calculated from ppmv based on molecular weight and standard conditions:

Standard Temperature	25	°C for ambient air monitoring
Standard Molar Volume	24.465	liter/g-mole for ambient air monitoring

The thresholds of significance for Ambient Air Quality are based on the California Ambient Air Quality Standard (CAAQS) and National Ambient Air Quality Standard (NAAQS). A project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any California Ambient Air Quality Standard (CAAQS) / National Ambient Air Quality Standard (NAAQS).

Conversion Chart - Based on State/Federal AAQS

Criteria Pollutants	Averaging Time	California Standards			Federal Standards		
		ppmv	µg/m^3	Factor	ppmv	µg/m^3	Factor
Ozone (O_3)	1-hour	0.09	180	2000	—	—	—
	8-hour	0.07	137	1957.143	0.07	137	1957.143
Nitrogen Dioxide (NO_2)	1-hour	0.18	339	1883.333	0.1	188	1880
	Annual	0.03	57	1900	0.053	100	1886.792
Sulfur Dioxide (SO_2)	1-hour	0.25	655	2620	0.075	196	2613.333
	3-hour Secondary	—	—	—	0.5	1300	2600
	24-hour	0.04	105	2625	0.14	367	2621.429
	Annual	—	—	—	0.03	78.64287	2621.429
Carbon Monoxide (CO)	1-hour	20	22900	1145.6	35	40100	1145.6
	8-hour	9	10300	1145.6	9	10300	1145.6
	Lake Tahoe (8-hr)	6	6900	1145.6	—	—	—
Particulates (as PM_{10})	24-hour	—	50	1	—	150	1
	Annual	—	20	1	—	—	—
Particulates (as $PM_{2.5}$)	24-hour	—	—	—	—	35	1
	Annual Primary	—	12	1	—	12	1
	Annual Secondary	—	—	—	—	15	1
Lead (Pb)	30-day	—	1.5	1	—	—	—
	3-month (rolling)	—	—	—	—	0.15	1
Sulfates (as SO_4)	24-hour	—	25	1	—	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03	41.78969	1392.99	—	—	—
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	25.54591	2554.591	—	—	—

SJVAPCD Significant Impact Levels

Pollutant	Averaging Period	SILs (µg/m^3)		
		Class I	Class II*	Class III
$PM_{2.5}$	24-hour	**	0.2	**
	Annual	**	1.2	**
Fugitive $PM_{2.5}$	24-hour	—	0.63	—
	Annual	—	2.5	—
PM_{10}	24-hour	0.2	5	—
	Annual	0.32	1	—
Fugitive PM_{10}	24-hour	—	10.4	—
	Annual	—	2.08	—
CO	1-hour	—	2000	—
	8-hour	—	500	—
NO_2	1-hour	—	7.5	—
	Annual	0.1	1	—
SO_2	1-hour	—	7.8	—
	3-hour	1	25	—
	24-hour	0.2	5	—
	Annual	0.08	1	—

Source: SJVAPCD APR-1925

* Only Class II SILs applicable for District use

Ambient Air Quality Analysis - Buttonbush Solar Project

Table 1. Max Emission Rates (lbs/day) for Project - Unmitigated

Max Rates	ROG	NO_X	CO	SO_X	PM_{10} - Exhaust	PM_{10} - Fugitive	$PM_{2.5}$ - Exhaust	$PM_{2.5}$ - Fugitive
	28.76	179.47	186.27	0.38	9.52	5.94	8.76	0.67
Total OnSite, lbs/day	28.76	179.47	186.27	0.38	9.52	5.94	8.76	0.67
Daily Max, g/s	0.45	2.83	2.93	0.01	0.15	0.09	0.14	0.01
Hourly Max lbs/hr	3.60	22.43	23.28	0.05	1.19	0.74	1.09	0.08

Note: Conversion assumes 8 hr workday

Table 2. AERMOD Maximum Impact X/Q, (ug/m^3)/(g/s)

Max 1-Hour	Max 3-Hour	Max 8-Hour	Max 24-Hour	Max Annual
8.93	3.92	3.51	2.42	0.83

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)

Pollutant	CAS No.	Hr. Max (g/s) (from Table 1)	X/Q (ug/m3)/(g/s) (from Table 2)	NO_X to NO_2 Conversion	Project Concentration (ug/m3)	Scaled Rate (lbs/hr)
1-hour CO	630080	2.93	8.93	—	26.20	23.284
8-hour CO	630080	2.93	3.51	—	10.30	20.955
1-hour NO_2	10102440	2.83	8.93	80%	20.19	22.434
Annual NO_2	10102440	2.83	0.83	100%	2.33	2.243
24-hour PM_{10} - Exhaust	85101	0.15	2.42	—	0.36	0.714
24-hour PM_{10} - Fugitive	85101	0.09	2.42	—	0.23	0.000
Annual PM_{10} - Exhaust	85101	0.15	0.83	—	0.12	0.119
Annual PM_{10} - Fugitive	85102	0.09	0.83	—	0.08	0.000
24-hour $PM_{2.5}$ - Exhaust	88101	0.14	2.42	—	0.33	0.657
24-hour $PM_{2.5}$ - Fugitive	88101	0.01	2.42	—	0.03	0.000
Annual $PM_{2.5}$ - Exhaust	88101	0.14	0.83	—	0.11	0.109
Annual $PM_{2.5}$ - Fugitive	88101	0.01	0.83	—	0.01	0.000
1-hour SO_2	7449095	0.01	8.93	—	0.05	0.048
24-hour SO_2	7449095	0.01	2.42	—	0.01	0.029
Annual SO_2	7449095	0.01	0.83	—	0.00	0.005

Table 4. Level 1 AAQA for Buttonbush Solar Project									
Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2019-2021)		Project Contribution (ug/m3)	Cumulative Concentration (ug/m3)	AAQS Threshold (ug/m3)	Step 1 Significance	SIL (ug/m3)	Step 2 Significance
		ppmv	ug/m^3						
1-hour CO	State	2.8	3,208	26.20	3,234	22,900	PASS	2000	Step 1
	Federal	2.8	3,208	26.20	3,234	40,100	PASS	2000	Step 1
8-hour CO	State	1.6	1,833	10.30	1,843	10,300	PASS	500	Step 1
	Federal	1.6	1,833	10.30	1,843	10,300	PASS	500	Step 1
1-hour NO_2	State	0.049	92	20.19	112	339	PASS	7.5	Step 1
	Federal	0.049	92	20.19	112	188	PASS	7.5	Step 1
Annual NO_2	State	0.008	15	2.33	18	57	PASS	1	Step 1
	Federal	0.008	15	2.33	17	100	PASS	1	Step 1
1-hour SO_2	State	0.016	42	0.05	42	655	PASS	7.5	Step 1
	Federal	0.016	42	0.05	42	196	PASS	7.8	Step 1
24-Hour SO_2	State	0.002	5	0.01	5	105	PASS	5	Step 1
	Federal	0.002	5	0.01	5	367	PASS	5	Step 1
Annual SO_2	Federal	0.000	1	0.00	1	79	PASS	1	Step 1
24-hour PM_{10} - Exhaust	State	--	439	0.36	440	50	Step 2	5	PASS
	Federal	--	438	0.36	438	150	Step 2	5	PASS
24-hour PM_{10} - Fugitive	State	--	439	0.23	440	50	Step 2	10.4	PASS
	Federal	--	438	0.23	438	150	Step 2	10.4	PASS
Annual PM_{10} - Exhaust	State	--	49	0.12	49	20	Step 2	1	PASS
Annual PM_{10} - Fugitive	State	--	49	0.08	49	20	Step 2	2.08	PASS
24-hour $PM_{2.5}$ - Exhaust	Federal	--	151	0.33	151	35	Step 2	1.2	PASS
24-hour $PM_{2.5}$ - Fugitive	Federal	--	151	0.03	151	35	Step 2	2.5	PASS
Annual $PM_{2.5}$ - Exhaust	State	--	20	0.11	20	12	Step 2	0.2	PASS
	Federal*	--	20	0.11	20	9	Step 2	0.2	PASS
Annual $PM_{2.5}$ - Fugitive	State	--	20	0.01	20	12	Step 2	0.63	PASS
	Federal*	--	20	0.01	20	9	Step 2	0.63	PASS

Sources:

CARB. 2016. "Ambient Air Quality Standards." May 4, 2016. Accessed August 2017. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2017. "iADAM: Air Quality Data Statistics." Accessed August 2017. http://www.arb.ca.gov/adam/topfour/topfour1.php.

SJVAPCD. 2014. APR 1925 (Policy for District Rule 2201 AAQA Modeling). April 2014.

Notes:

Annual PM2.5 federal monitoring data not available, therefore used state monitoring data. State SO2 data not available so federal data used

Ambient Air Quality Analysis - Buttonbush Solar Project

Table 1. Max Emission Rates (lbs/day) for Project - Mitigated

Max Rates	ROG	NO_X	CO	SO_X	PM_{10} - Exhaust	PM_{10} - Fugitive	$PM_{2.5}$ - Exhaust	$PM_{2.5}$ - Fugitive
	12.14	43.47	199.11	0.30	0.80	5.43	0.78	0.63
Total OnSite, lbs/day	12.14	43.47	199.11	0.30	0.80	5.43	0.78	0.63
Daily Max, g/s	0.19	0.68	3.14	0.00	0.01	0.09	0.01	0.01
Hourly Max lbs/hr	1.52	5.43	24.89	0.04	0.10	0.68	0.10	0.08

Note: Conversion assumes 8 hr workday

Table 2. AERMOD Maximum Impact X/Q, $(ug/m^3)/(g/s)$

Max 1-Hour	Max 3-Hour	Max 8-Hour	Max 24-Hour	Max Annual
8.93	3.92	3.51	2.42	0.83

Note: These concentrations are based on the AERMOD Results Summary Report

Table 3. Project Contribution Concentrations (ug/m3)

Pollutant	CAS No.	Hr. Max (g/s) (from Table 1)	X/Q (ug/m3)/(g/s) (from Table 2)	NO_X to NO_2 Conversion	Project Concentration (ug/m3)	Scaled Rate (lbs/hr)
1-hour CO	630080	3.14	8.93	—	28.00	24.889
8-hour CO	630080	3.14	3.51	—	11.01	22.400
1-hour NO_2	10102440	0.68	8.93	80%	4.89	5.434
Annual NO_2	10102440	0.68	0.83	100%	0.57	0.543
24-hour PM_{10} - Exhaust	85101	0.01	2.42	—	0.03	0.060
24-hour PM_{10} - Fugitive	85101	0.09	2.42	—	0.21	0.000
Annual PM_{10} - Exhaust	85101	0.01	0.83	—	0.01	0.010
Annual PM_{10} - Fugitive	85102	0.09	0.83	—	0.07	0.000
24-hour $PM_{2.5}$ - Exhaust	88101	0.01	2.42	—	0.03	0.059
24-hour $PM_{2.5}$ - Fugitive	88101	0.01	2.42	—	0.02	0.000
Annual $PM_{2.5}$ - Exhaust	88101	0.01	0.83	—	0.01	0.010
Annual $PM_{2.5}$ - Fugitive	88101	0.01	0.83	—	0.01	0.000
1-hour SO_2	7449095	0.00	8.93	—	0.04	0.038
24-hour SO_2	7449095	0.00	2.42	—	0.01	0.023
Annual SO_2	7449095	0.00	0.83	—	0.00	0.004

Table 4. Level 1 AAQA for Buttonbush Solar Project									
Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2019-2021)		Project Contribution (ug/m3)	Cumulative Concentration (ug/m3)	AAQS Threshold (ug/m3)	Step 1 Significance	SIL (ug/m3)	Step 2 Significance
		ppmv	ug/m^3						
1-hour CO	State	2.8	3,208	28.00	3,236	22,900	PASS	2000	Step 1
	Federal	2.8	3,208	28.00	3,236	40,100	PASS	2000	Step 1
8-hour CO	State	1.6	1,833	11.01	1,844	10,300	PASS	500	Step 1
	Federal	1.6	1,833	11.01	1,844	10,300	PASS	500	Step 1
1-hour NO_2	State	0.049	92	4.89	97	339	PASS	7.5	Step 1
	Federal	0.049	92	4.89	97	188	PASS	7.5	Step 1
Annual NO_2	State	0.008	15	0.57	16	57	PASS	1	Step 1
	Federal	0.008	15	0.57	16	100	PASS	1	Step 1
1-hour SO_2	State	0.016	42	0.04	42	655	PASS	7.5	Step 1
	Federal	0.016	42	0.04	42	196	PASS	7.8	Step 1
24-Hour SO_2	State	0.002	5	0.01	5	105	PASS	5	Step 1
	Federal	0.002	5	0.01	5	367	PASS	5	Step 1
Annual SO_2	Federal	0.000	1	0.00	1	79	PASS	1	Step 1
24-hour PM_{10} - Exhaust	State	--	439	0.03	439	50	Step 2	5	PASS
	Federal	--	438	0.03	438	150	Step 2	5	PASS
24-hour PM_{10} - Fugitive	State	--	439	0.21	440	50	Step 2	10.4	PASS
	Federal	--	438	0.21	438	150	Step 2	10.4	PASS
Annual PM_{10} - Exhaust	State	--	49	0.01	49	20	Step 2	1	PASS
Annual PM_{10} - Fugitive	State	--	49	0.07	49	20	Step 2	2.08	PASS
24-hour $PM_{2.5}$ - Exhaust	Federal	--	151	0.03	151	35	Step 2	1.2	PASS
24-hour $PM_{2.5}$ - Fugitive	Federal	--	151	0.02	151	35	Step 2	2.5	PASS
Annual $PM_{2.5}$ - Exhaust	State	--	20	0.01	20	12	Step 2	0.2	PASS
	Federal*	--	20	0.01	20	9	Step 2	0.2	PASS
Annual $PM_{2.5}$ - Fugitive	State	--	20	0.01	20	12	Step 2	0.63	PASS
	Federal*	--	20	0.01	20	9	Step 2	0.63	PASS

Sources:

CARB. 2016. "Ambient Air Quality Standards." May 4, 2016. Accessed August 2017. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2017. "iADAM: Air Quality Data Statistics." Accessed August 2017. http://www.arb.ca.gov/adam/topfour/topfour1.php.

SJVAPCD. 2014. APR 1925 (Policy for District Rule 2201 AAQA Modeling). April 2014.

Notes:

Annual PM2.5 federal monitoring data not available, therefore used state monitoring data. State SO2 data not available so federal data used

```
  *** AERMOD - VERSION 23132  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
08/20/24
 *** AERMET - VERSION  18081 ***   ***
                       ***        05:41:22

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                          ***      MODEL SETUP OPTIONS SUMMARY
***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses RURAL Dispersion Only.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
      * CCVR_Sub - Meteorological data includes CCVR substitutions
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: ALL

 **Model Calculates  4 Short Term Average(s) of:   1-HR   3-HR   8-HR  24-HR
     and Calculates PERIOD Averages

 **This Run Includes:    714 Source(s);     1   Source Group(s); and  204058
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    714 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                 and:      0 SWPOINT source(s)
```

```
 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  18081

 **Output Options Selected:
          Model Outputs Tables of PERIOD Averages by Receptor
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m   for Missing Hours
                                                                 b   for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    77.00 ;  Decay
Coef. =    0.000    ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                             ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      4.9 MB of RAM.

 **Input Runstream File:          C:\Users\apoll\Desktop\HRAs\Buttonbush\AQIA\AAQA -
BEEST 11.22.23\BB AAQA_2007-2011_ALL_1.DTA
 **Output Print File:             C:\Users\apoll\Desktop\HRAs\Buttonbush\AQIA\AAQA -
BEEST 11.22.23\BB AAQA_2007-2011_ALL_1.LST

 **Detailed Error/Message File:   C:\Users\apoll\Desktop\HRAs\Buttonbush\AQIA\AAQA -
BEEST 11.22.23\AAQA_01.err
 **File for Summary of Results:   C:\Users\apoll\Desktop\HRAs\Buttonbush\AQIA\AAQA -
BEEST 11.22.23\BB AAQA_2007-2011_ALL_1.SUM
  *** AERMOD - VERSION 23132  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
08/20/24
 *** AERMET - VERSION  18081 ***   ***
                      ***        05:41:22

                                 PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                       *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                          (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
```

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           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: C:\Users\apoll\Desktop\HRAs\Buttonbush\Wasco_2007-2011.SFC
Met Version: 18081
Profile file: C:\Users\apoll\Desktop\HRAs\Buttonbush\Wasco_2007-2011.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 99010 Upper air station no.: 66666
Name: UNKNOWN Name: UNKNOWN

Year: 2007 Year: 2007

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF	WS	WD	HT	REF TA	HT
07	01	01	1	01	-1.0	0.066	-9.000	-9.000	-999.	40.	26.2	0.04	0.72	1.00	0.50	311.	15.0	278.8	2.0	
07	01	01	1	02	-2.2	0.075	-9.000	-9.000	-999.	50.	17.3	0.04	0.72	1.00	1.00	308.	15.0	278.2	2.0	
07	01	01	1	03	-2.2	0.075	-9.000	-9.000	-999.	50.	17.3	0.04	0.72	1.00	1.00	314.	15.0	278.0	2.0	
07	01	01	1	04	-2.2	0.075	-9.000	-9.000	-999.	50.	17.3	0.04	0.72	1.00	1.00	313.	15.0	277.6	2.0	
07	01	01	1	05	-1.0	0.066	-9.000	-9.000	-999.	40.	26.3	0.04	0.72	1.00	0.50	303.	15.0	277.2	2.0	
07	01	01	1	06	-1.0	0.067	-9.000	-9.000	-999.	41.	26.6	0.04	0.72	1.00	0.50	252.	15.0	277.0	2.0	
07	01	01	1	07	-1.0	0.067	-9.000	-9.000	-999.	41.	26.6	0.04	0.72	1.00	0.50	245.	15.0	276.8	2.0	
07	01	01	1	08	-2.1	0.074	-9.000	-9.000	-999.	48.	17.2	0.04	0.72	0.61	1.00	243.	15.0	276.8	2.0	
07	01	01	1	09	14.3	0.096	0.291	0.007	62.	71.	-5.6	0.04	0.72	0.34	1.00	277.	15.0	278.2	2.0	
07	01	01	1	10	54.6	0.140	0.686	0.005	214.	126.	-4.5	0.04	0.72	0.25	1.50	301.	15.0	280.2	2.0	
07	01	01	1	11	83.5	0.146	0.978	0.005	405.	134.	-3.4	0.04	0.72	0.22	1.50	304.	15.0	281.2	2.0	
07	01	01	1	12	98.6	0.155	1.189	0.007	617.	146.	-3.4	0.04	0.72	0.21	1.50	296.	15.0	282.4	2.0	
07	01	01	1	13	99.0	0.149	1.257	0.008	726.	137.	-3.0	0.04	0.72	0.21	1.50	313.	15.0	283.2	2.0	
07	01	01	1	14	84.8	0.146	1.231	0.008	795.	134.	-3.3	0.04	0.72	0.22	1.50	329.	15.0	284.0	2.0	
07	01	01	1	15	56.6	0.135	1.096	0.008	839.	119.	-3.9	0.03	0.72	0.25	1.50	342.	15.0	284.4	2.0	
07	01	01	1	16	16.9	0.057	0.737	0.008	851.	35.	-1.0	0.03	0.72	0.34	0.50	334.	15.0	284.5	2.0	
07	01	01	1	17	-0.8	0.061	-9.000	-9.000	-999.	36.	24.6	0.03	0.72	0.60	0.50	161.	15.0	283.9	2.0	
07	01	01	1	18	-2.1	0.074	-9.000	-9.000	-999.	48.	17.0	0.03	0.72	1.00	1.00	157.	15.0	282.8	2.0	
07	01	01	1	19	-7.4	0.122	-9.000	-9.000	-999.	102.	21.9	0.03	0.72	1.00	2.10	174.	15.0	281.8	2.0	
07	01	01	1	20	-11.6	0.153	-9.000	-9.000	-999.	144.	28.0	0.03	0.72	1.00	2.60	177.	15.0	281.1	2.0	
07	01	01	1	21	-14.3	0.175	-9.000	-9.000	-999.	176.	34.1	0.07	0.72	1.00	2.60	190.	15.0	280.8	2.0	
07	01	01	1	22	-14.3	0.175	-9.000	-9.000	-999.	176.	34.1	0.07	0.72	1.00	2.60	202.	15.0	280.2	2.0	
07	01	01	1	23	-14.9	0.180	-9.000	-9.000	-999.	184.	35.8	0.07	0.72							

```
1.00   2.60   210.    15.0  280.0    2.0
 07 01 01   1 24  -21.5  0.218  -9.000 -9.000 -999.  244.     52.3  0.07   0.72
1.00   3.10   220.    15.0  279.8    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD  AMB_TMP sigmaA  sigmaW  sigmaV
 07 01 01 01   15.0 1  311.    0.50    278.8   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 23132  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
08/20/24
 *** AERMET - VERSION  18081 ***   ***
                       ***        05:41:22

                                  PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                      *** THE SUMMARY OF MAXIMUM PERIOD ( 43824
HRS) RESULTS ***


                                   ** CONC OF ALL      IN MICROGRAMS/M**3
            **


                       NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV,
ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -

ALL       1ST HIGHEST VALUE IS       0.82646 AT (  273081.73,  3926029.66,    80.06,
   80.06,    0.00)  DC
          2ND HIGHEST VALUE IS       0.81696 AT (  273244.57,  3925448.46,    80.14,
   80.14,    0.00)  DC
          3RD HIGHEST VALUE IS       0.79809 AT (  273358.86,  3925520.17,    80.09,
   80.09,    0.00)  DC
          4TH HIGHEST VALUE IS       0.79698 AT (  277740.31,  3922655.06,    93.55,
   93.55,    0.00)  DC
          5TH HIGHEST VALUE IS       0.79681 AT (  273368.78,  3925542.15,    80.09,
   80.09,    0.00)  DC
          6TH HIGHEST VALUE IS       0.79619 AT (  273299.35,  3925388.30,    80.17,
   80.17,    0.00)  DC
          7TH HIGHEST VALUE IS       0.79363 AT (  273273.49,  3925900.46,    80.10,
   80.10,    0.00)  DC
          8TH HIGHEST VALUE IS       0.79144 AT (  277762.07,  3922645.60,    93.55,
   93.55,    0.00)  DC
          9TH HIGHEST VALUE IS       0.78714 AT (  277783.83,  3922636.13,    93.55,
```

RESULTS ***

                                    ** CONC OF ALL   IN MICROGRAMS/M**3
            **

                                                          DATE
                                         NETWORK
GROUP ID   AVERAGE CONC   (YYMMDDHH)   RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)   OF   TYPE GRID-ID
- - - -

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF ALL IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	NETWORK TYPE	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF	TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	2.41686c ON 07120424:	AT	(272789.30, 3925665.49, 80.02, 80.02, 0.00)	DC		

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of   0   Fatal Error Message(s)
 A Total of   1   Warning Message(s)
 A Total of   8383   Informational Message(s)

```
A Total of       43824  Hours Were Processed

A Total of        8383  Calm Hours Identified

A Total of          0   Missing Hours Identified (  0.00 Percent)


   ******** FATAL ERROR MESSAGES ********
             ***   NONE  ***


   ********   WARNING MESSAGES   ********
ME W187    7836       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Buttonbush Solar Onsite
Construction Start Date	7/1/2025
Operational Year	2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	16.2
Location	35.45281010000666, -119.43940020399636
County	Kern-San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2940
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	50.0	1000sqft	100	50,000	—	—	—	—

General Office Building	3.20	1000sqft	0.07	3,200	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-1-A	Use Electric or Hybrid Powered Equipment
Construction	C-5	Use Advanced Engine Tiers
Construction	C-9	Use Dust Suppressants

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	33.2	28.8	179	169	0.31	9.52	5.94	15.5	8.76	0.67	9.42	—	33,642	33,642	1.65	0.58	2.39	33,858
Mit.	10.4	10.1	31.5	206	0.30	0.60	5.94	6.54	0.60	0.67	1.26	—	33,081	33,081	1.63	0.57	2.39	33,295
% Reduced	69%	65%	82%	-22%	3%	94%	—	58%	93%	—	87%	—	2%	2%	1%	1%	—	2%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	28.7	24.6	162	186	0.38	8.70	5.43	13.5	8.00	0.63	8.54	—	38,352	38,352	2.02	0.68	0.05	38,607
Mit.	12.9	12.1	43.5	199	0.30	0.80	5.43	6.23	0.78	0.63	1.41	—	32,359	32,359	1.78	0.64	0.05	32,593
% Reduced	55%	51%	73%	-7%	21%	91%	—	54%	90%	—	84%	—	16%	16%	12%	7%	—	16%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	13.3	11.5	73.0	82.1	0.16	3.94	2.07	6.00	3.62	0.24	3.86	—	15,507	15,507	0.76	0.25	0.42	15,603
Mit.	4.96	4.58	21.2	84.5	0.12	0.39	2.07	2.30	0.38	0.24	0.59	—	12,990	12,990	0.69	0.25	0.42	13,081
% Reduced	63%	60%	71%	-3%	26%	90%	—	62%	90%	—	85%	—	16%	16%	10%	3%	—	16%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.43	2.10	13.3	15.0	0.03	0.72	0.38	1.10	0.66	0.04	0.70	—	2,567	2,567	0.13	0.04	0.07	2,583
Mit.	0.90	0.84	3.86	15.4	0.02	0.07	0.38	0.42	0.07	0.04	0.11	—	2,151	2,151	0.11	0.04	0.07	2,166
% Reduced	63%	60%	71%	-3%	26%	90%	—	62%	90%	—	85%	—	16%	16%	10%	3%	—	16%

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	12.2	10.5	71.9	55.3	0.13	3.48	3.23	6.70	3.20	0.35	3.55	—	14,459	14,459	0.69	0.25	0.98	14,551
2026	33.2	28.8	179	169	0.31	9.52	5.94	15.5	8.76	0.67	9.42	—	33,642	33,642	1.65	0.58	2.39	33,858
2027	8.60	7.26	53.1	39.4	0.11	2.72	2.09	4.81	2.50	0.22	2.72	—	11,971	11,971	0.51	0.18	0.54	12,038
2028	17.3	15.0	86.4	121	0.23	2.48	2.72	5.20	2.28	0.31	2.60	—	22,266	22,266	1.08	0.37	1.19	22,404
2029	11.2	10.0	37.0	60.5	0.15	1.32	2.72	4.04	1.22	0.31	1.53	—	16,130	16,130	0.83	0.32	1.06	16,246
2030	10.7	9.66	35.5	59.8	0.15	1.27	2.72	3.98	1.17	0.31	1.48	—	16,108	16,108	0.83	0.30	0.94	16,220
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	11.9	10.2	72.2	57.3	0.13	3.48	3.23	6.70	3.20	0.35	3.55	—	14,459	14,459	0.72	0.25	0.03	14,551
2026	20.7	17.9	112	118	0.18	6.16	3.23	8.88	5.67	0.35	5.99	—	19,183	19,183	1.07	0.37	0.04	19,321
2027	28.7	24.6	162	157	0.29	8.70	4.80	13.5	8.00	0.53	8.54	—	31,136	31,136	1.55	0.55	0.05	31,340
2028	25.2	21.6	139	164	0.34	5.18	4.80	9.98	4.76	0.53	5.30	—	34,223	34,223	1.68	0.58	0.04	34,437
2029	25.8	22.6	117	186	0.38	3.12	5.43	8.55	2.87	0.63	3.50	—	38,352	38,352	2.02	0.68	0.05	38,607

2030	10.3	9.16	35.9	63.0	0.15	1.27	2.72	3.98	1.17	0.31	1.48	—	16,097	16,097	0.89	0.32	0.02	16,213
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.30	3.69	25.9	20.2	0.05	1.25	1.13	2.38	1.15	0.12	1.28	—	5,205	5,205	0.25	0.09	0.15	5,238
2026	13.3	11.5	73.0	71.9	0.12	3.94	2.07	6.00	3.62	0.24	3.86	—	13,188	13,188	0.69	0.25	0.42	13,280
2027	8.40	7.16	49.2	42.5	0.09	2.60	1.59	4.19	2.39	0.17	2.56	—	10,178	10,178	0.47	0.16	0.23	10,238
2028	11.6	10.0	60.9	82.1	0.16	1.88	1.88	3.76	1.73	0.22	1.95	—	15,507	15,507	0.76	0.25	0.35	15,603
2029	8.70	7.70	34.5	55.4	0.12	1.06	1.94	3.01	0.98	0.23	1.20	—	12,998	12,998	0.68	0.24	0.34	13,087
2030	3.43	3.05	11.8	20.2	0.05	0.42	0.86	1.28	0.39	0.10	0.49	—	5,323	5,323	0.28	0.10	0.13	5,361
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.79	0.67	4.73	3.68	0.01	0.23	0.21	0.43	0.21	0.02	0.23	—	862	862	0.04	0.01	0.03	867
2026	2.43	2.10	13.3	13.1	0.02	0.72	0.38	1.10	0.66	0.04	0.70	—	2,183	2,183	0.11	0.04	0.07	2,199
2027	1.53	1.31	8.98	7.75	0.02	0.47	0.29	0.76	0.44	0.03	0.47	—	1,685	1,685	0.08	0.03	0.04	1,695
2028	2.13	1.83	11.1	15.0	0.03	0.34	0.34	0.69	0.32	0.04	0.36	—	2,567	2,567	0.13	0.04	0.06	2,583
2029	1.59	1.41	6.29	10.1	0.02	0.19	0.35	0.55	0.18	0.04	0.22	—	2,152	2,152	0.11	0.04	0.06	2,167
2030	0.63	0.56	2.15	3.68	0.01	0.08	0.16	0.23	0.07	0.02	0.09	—	881	881	0.05	0.02	0.02	888

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.61	3.53	10.3	79.3	0.13	0.26	3.23	3.48	0.26	0.35	0.61	—	14,137	14,137	0.67	0.25	0.98	14,228
2026	10.4	10.1	30.4	206	0.30	0.60	5.94	6.54	0.60	0.67	1.26	—	33,081	33,081	1.63	0.57	2.39	33,295
2027	1.59	1.54	8.58	59.6	0.10	0.21	2.09	2.30	0.21	0.22	0.43	—	11,649	11,649	0.50	0.18	0.54	11,715
2028	8.02	7.47	31.5	104	0.16	0.58	2.72	3.30	0.55	0.31	0.87	—	16,993	16,993	0.86	0.32	1.19	17,112
2029	6.35	6.20	11.7	88.5	0.14	0.28	2.72	2.99	0.28	0.31	0.59	—	15,412	15,412	0.80	0.31	1.06	15,526
2030	6.06	5.94	11.5	87.9	0.14	0.28	2.72	2.99	0.28	0.31	0.59	—	15,389	15,389	0.80	0.30	0.94	15,498

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.29	3.19	10.6	81.2	0.13	0.26	3.23	3.48	0.26	0.35	0.61	—	14,137	14,137	0.71	0.25	0.03	14,228
2026	6.27	6.06	20.5	132	0.17	0.34	3.23	3.48	0.34	0.35	0.65	—	18,943	18,943	1.06	0.37	0.04	19,080
2027	7.55	7.30	29.2	191	0.28	0.55	4.80	5.35	0.55	0.53	1.09	—	30,575	30,575	1.53	0.55	0.05	30,777
2028	8.94	8.31	40.7	168	0.27	0.80	4.80	5.60	0.77	0.53	1.30	—	28,627	28,627	1.45	0.53	0.04	28,823
2029	12.9	12.1	43.5	199	0.30	0.80	5.43	6.23	0.78	0.63	1.41	—	32,359	32,359	1.78	0.64	0.05	32,593
2030	5.62	5.44	11.9	91.2	0.14	0.28	2.72	2.99	0.28	0.31	0.59	—	15,377	15,377	0.86	0.31	0.02	15,491
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.20	1.16	3.77	28.8	0.05	0.09	1.13	1.22	0.09	0.12	0.22	—	5,089	5,089	0.25	0.09	0.15	5,122
2026	4.01	3.87	12.8	84.5	0.12	0.23	2.07	2.30	0.23	0.24	0.47	—	12,990	12,990	0.69	0.25	0.42	13,081
2027	1.94	1.88	8.47	56.5	0.09	0.18	1.59	1.78	0.18	0.17	0.35	—	9,953	9,953	0.46	0.16	0.23	10,012
2028	4.96	4.58	21.2	74.0	0.12	0.39	1.88	2.28	0.38	0.22	0.59	—	12,108	12,108	0.62	0.23	0.35	12,192
2029	4.57	4.40	11.9	69.4	0.11	0.25	1.94	2.19	0.24	0.23	0.47	—	11,732	11,732	0.63	0.23	0.34	11,817
2030	1.87	1.83	3.87	29.5	0.04	0.09	0.86	0.95	0.09	0.10	0.19	—	5,085	5,085	0.27	0.10	0.13	5,122
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.22	0.21	0.69	5.26	0.01	0.02	0.21	0.22	0.02	0.02	0.04	—	843	843	0.04	0.01	0.03	848
2026	0.73	0.71	2.34	15.4	0.02	0.04	0.38	0.42	0.04	0.04	0.09	—	2,151	2,151	0.11	0.04	0.07	2,166
2027	0.35	0.34	1.55	10.3	0.02	0.03	0.29	0.32	0.03	0.03	0.06	—	1,648	1,648	0.08	0.03	0.04	1,658
2028	0.90	0.84	3.86	13.5	0.02	0.07	0.34	0.42	0.07	0.04	0.11	—	2,005	2,005	0.10	0.04	0.06	2,018
2029	0.83	0.80	2.17	12.7	0.02	0.04	0.35	0.40	0.04	0.04	0.09	—	1,942	1,942	0.10	0.04	0.06	1,956
2030	0.34	0.33	0.71	5.38	0.01	0.02	0.16	0.17	0.02	0.02	0.03	—	842	842	0.05	0.02	0.02	848

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.73	1.69	0.32	2.74	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	35.0	443	478	4.35	0.02	13.1	606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.30	1.30	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	434	469	4.35	0.02	13.0	596
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.51	1.49	0.32	1.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	438	473	4.35	0.02	13.0	601
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.28	0.27	0.06	0.29	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.80	72.5	78.3	0.72	< 0.005	2.16	99.5

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Area	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.73	1.69	0.32	2.74	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	35.0	443	478	4.35	0.02	13.1	606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Area	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.30	1.30	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	434	469	4.35	0.02	13.0	596
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.09	0.31	0.46	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.6	55.6	0.01	0.01	0.02	58.7
Area	1.41	1.39	0.01	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.69	4.69	< 0.005	< 0.005	—	4.71
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.51	1.49	0.32	1.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	438	473	4.35	0.02	13.0	601
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71
Area	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	61.8	61.8	0.01	< 0.005	—	62.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08
Waste	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16
Total	0.28	0.27	0.06	0.29	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.80	72.5	78.3	0.72	< 0.005	2.16	99.5

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Area	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.73	1.69	0.32	2.74	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	35.0	443	478	4.35	0.02	13.1	606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Area	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.30	1.30	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	434	469	4.35	0.02	13.0	596
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.09	0.31	0.46	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.6	55.6	0.01	0.01	0.02	58.7
Area	1.41	1.39	0.01	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.69	4.69	< 0.005	< 0.005	—	4.71
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	373	373	0.06	0.01	—	377
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Waste	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Total	1.51	1.49	0.32	1.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	35.0	438	473	4.35	0.02	13.0	601
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71
Area	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	61.8	61.8	0.01	< 0.005	—	62.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08
Waste	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16
Total	0.28	0.27	0.06	0.29	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.80	72.5	78.3	0.72	< 0.005	2.16	99.5

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.87	8.29	68.1	48.1	0.13	3.48	—	3.48	3.20	—	3.20	—	13,697	13,697	0.56	0.11	—	13,744
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	9.87	8.29	68.1	48.1	0.13	3.48	—	3.48	3.20	—	3.20	—	13,697	13,697	0.56	0.11	—	13,744
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.55	2.98	24.5	17.3	0.05	1.25	—	1.25	1.15	—	1.15	—	4,932	4,932	0.20	0.04	—	4,949
Dust From Material Movement	—	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	4.48	3.16	0.01	0.23	—	0.23	0.21	—	0.21	—	817	817	0.03	0.01	—	819
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	2.13	2.09	0.41	4.91	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	197	197	0.10	0.05	0.37	215
Vendor	0.18	0.14	2.79	1.90	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	474	474	0.03	0.07	0.54	497
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.7	90.7	0.01	0.01	0.07	95.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.83	1.77	0.49	6.76	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	188	188	0.13	0.05	0.01	206
Vendor	0.16	0.13	2.95	2.01	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	481	481	0.03	0.07	0.01	503
Hauling	0.03	0.02	0.59	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	92.5	92.5	0.01	0.01	< 0.005	97.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.65	0.16	2.01	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	68.1	68.1	0.04	0.02	0.06	74.5
Vendor	0.06	0.05	1.03	0.70	< 0.005	< 0.005	0.66	0.66	< 0.005	0.07	0.07	—	172	172	0.01	0.03	0.08	180
Hauling	0.01	0.01	0.20	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	32.9	32.9	< 0.005	0.01	0.01	34.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.03	0.37	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	0.01	< 0.005	0.01	12.3
Vendor	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	28.4	28.4	< 0.005	< 0.005	0.01	29.8
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.45	5.45	< 0.005	< 0.005	< 0.005	5.72

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,375	13,375	0.54	0.11	—	13,421

Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,375	13,375	0.54	0.11	—	13,421
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.46	2.37	25.9	0.04	0.09	—	0.09	0.09	—	0.09	—	4,816	4,816	0.20	0.04	—	4,833
Dust From Material Movement	—	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.43	4.74	0.01	0.02	—	0.02	0.02	—	0.02	—	797	797	0.03	0.01	—	800

Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.13	2.09	0.41	4.91	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	197	197	0.10	0.05	0.37	215
Vendor	0.18	0.14	2.79	1.90	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	474	474	0.03	0.07	0.54	497
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.7	90.7	0.01	0.01	0.07	95.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.83	1.77	0.49	6.76	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	188	188	0.13	0.05	0.01	206
Vendor	0.16	0.13	2.95	2.01	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	481	481	0.03	0.07	0.01	503
Hauling	0.03	0.02	0.59	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	92.5	92.5	0.01	0.01	< 0.005	97.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.65	0.16	2.01	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	68.1	68.1	0.04	0.02	0.06	74.5
Vendor	0.06	0.05	1.03	0.70	< 0.005	< 0.005	0.66	0.66	< 0.005	0.07	0.07	—	172	172	0.01	0.03	0.08	180
Hauling	0.01	0.01	0.20	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	32.9	32.9	< 0.005	0.01	0.01	34.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.03	0.37	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	0.01	< 0.005	0.01	12.3
Vendor	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	28.4	28.4	< 0.005	< 0.005	0.01	29.8
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.45	5.45	< 0.005	< 0.005	< 0.005	5.72

3.3. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.67	8.12	64.3	48.0	0.13	3.35	—	3.35	3.08	—	3.08	—	13,702	13,702	0.56	0.11	—	13,749
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.67	8.12	64.3	48.0	0.13	3.35	—	3.35	3.08	—	3.08	—	13,702	13,702	0.56	0.11	—	13,749
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.27	1.91	15.1	11.3	0.03	0.79	—	0.79	0.72	—	0.72	—	3,218	3,218	0.13	0.03	—	3,229
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.35	2.76	2.06	0.01	0.14	—	0.14	0.13	—	0.13	—	533	533	0.02	< 0.005	—	535
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.95	1.91	0.39	4.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	192	192	0.08	0.04	0.34	206
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	88.9	88.9	0.01	0.01	0.07	93.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.70	1.64	0.45	6.25	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	184	184	0.12	0.05	0.01	201
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.03	0.02	0.58	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.6	90.6	0.01	0.01	< 0.005	95.0
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.21	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	43.4	43.4	0.02	0.01	0.03	47.6
Vendor	0.04	0.03	0.67	0.45	< 0.005	< 0.005	0.43	0.43	< 0.005	0.05	0.05	—	110	110	0.01	0.02	0.05	115
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	21.0	21.0	< 0.005	< 0.005	0.01	22.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.02	0.22	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	7.19	7.19	< 0.005	< 0.005	0.01	7.88

Vendor	0.01	0.01	0.12	0.08	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	18.2	18.2	< 0.005	< 0.005	0.01	19.1
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66

3.4. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,380	13,380	0.54	0.11	—	13,426
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.27	6.59	72.1	0.12	0.25	—	0.25	0.25	—	0.25	—	13,380	13,380	0.54	0.11	—	13,426
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.30	0.30	1.55	16.9	0.03	0.06	—	0.06	0.06	—	0.06	—	3,142	3,142	0.13	0.03	—	3,153
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.05	0.05	0.28	3.09	0.01	0.01	—	0.01	0.01	—	0.01	—	520	520	0.02	< 0.005	—	522
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.95	1.91	0.39	4.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	192	192	0.08	0.04	0.34	206
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.04	0.03	0.55	0.40	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	88.9	88.9	0.01	0.01	0.07	93.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.70	1.64	0.45	6.25	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	184	184	0.12	0.05	0.01	201
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.03	0.02	0.58	0.41	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	90.6	90.6	0.01	0.01	< 0.005	95.0
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.21	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	43.4	43.4	0.02	0.01	0.03	47.6

Vendor	0.04	0.03	0.67	0.45	< 0.005	< 0.005	0.43	0.43	< 0.005	0.05	0.05	—	110	110	0.01	0.02	0.05	115
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	21.0	21.0	< 0.005	< 0.005	0.01	22.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.02	0.22	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	7.19	7.19	< 0.005	< 0.005	0.01	7.88
Vendor	0.01	0.01	0.12	0.08	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	18.2	18.2	< 0.005	< 0.005	0.01	19.1
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66

3.5. Tracker Foundations (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	16.2	13.6	107	99.7	0.17	6.16	—	6.16	5.67	—	5.67	—	18,055	18,055	0.73	0.15	—	18,117
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	16.2	13.6	107	99.7	0.17	6.16	—	6.16	5.67	—	5.67	—	18,055	18,055	0.73	0.15	—	18,117
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	8.26	6.93	54.4	50.9	0.09	3.15	—	3.15	2.90	—	2.90	—	9,222	9,222	0.37	0.07	—	9,253
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.51	1.27	9.93	9.29	0.02	0.57	—	0.57	0.53	—	0.53	—	1,527	1,527	0.06	0.01	—	1,532
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.87	4.78	0.97	11.3	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	481	481	0.21	0.10	0.84	515
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.08	0.06	1.19	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	0.15	203
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.26	4.10	1.13	15.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	458	458	0.29	0.12	0.02	503
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.07	0.05	1.27	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	197	197	0.01	0.03	< 0.005	207
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.22	2.14	0.53	6.58	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	236	236	0.14	0.06	0.19	259
Vendor	0.08	0.07	1.45	0.98	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.10	—	239	239	0.01	0.04	0.11	250
Hauling	0.04	0.03	0.62	0.45	< 0.005	< 0.005	0.28	0.28	< 0.005	0.03	0.03	—	99.6	99.6	0.01	0.02	0.03	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.20	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	39.1	39.1	0.02	0.01	0.03	42.8

Vendor	0.02	0.01	0.26	0.18	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	—	39.6	39.6	< 0.005	0.01	0.02	41.4
Hauling	0.01	0.01	0.11	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	16.5	16.5	< 0.005	< 0.005	0.01	17.3

3.6. Tracker Foundations (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.78	15.2	113	0.17	0.34	—	0.34	0.34	—	0.34	—	17,815	17,815	0.72	0.14	—	17,876
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.78	15.2	113	0.17	0.34	—	0.34	0.34	—	0.34	—	17,815	17,815	0.72	0.14	—	17,876
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.91	7.76	57.9	0.09	0.17	—	0.17	0.17	—	0.17	—	9,099	9,099	0.37	0.07	—	9,130
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.17	0.17	1.42	10.6	0.02	0.03	—	0.03	0.03	—	0.03	—	1,506	1,506	0.06	0.01	—	1,512
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.87	4.78	0.97	11.3	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	481	481	0.21	0.10	0.84	515
Vendor	0.18	0.14	2.76	1.88	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	465	465	0.03	0.07	0.50	487
Hauling	0.08	0.06	1.19	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	0.15	203
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.26	4.10	1.13	15.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	458	458	0.29	0.12	0.02	503
Vendor	0.16	0.12	2.92	1.98	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	472	472	0.03	0.07	0.01	494
Hauling	0.07	0.05	1.27	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	197	197	0.01	0.03	< 0.005	207
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.22	2.14	0.53	6.58	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	236	236	0.14	0.06	0.19	259
Vendor	0.08	0.07	1.45	0.98	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.10	—	239	239	0.01	0.04	0.11	250
Hauling	0.04	0.03	0.62	0.45	< 0.005	< 0.005	0.28	0.28	< 0.005	0.03	0.03	—	99.6	99.6	0.01	0.02	0.03	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.41	0.39	0.10	1.20	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	39.1	39.1	0.02	0.01	0.03	42.8
Vendor	0.02	0.01	0.26	0.18	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	—	39.6	39.6	< 0.005	0.01	0.02	41.4
Hauling	0.01	0.01	0.11	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	16.5	16.5	< 0.005	< 0.005	0.01	17.3

3.7. Tracker Foundations (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	15.9	13.3	103	99.5	0.17	5.97	—	5.97	5.50	—	5.50	—	18,055	18,055	0.73	0.15	—	18,117
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.77	2.32	17.9	17.3	0.03	1.04	—	1.04	0.96	—	0.96	—	3,145	3,145	0.13	0.03	—	3,155
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.42	3.27	3.16	0.01	0.19	—	0.19	0.17	—	0.17	—	521	521	0.02	< 0.005	—	522
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.87	1.07	14.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	448	448	0.26	0.12	0.02	492
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485

Hauling	0.07	0.05	1.26	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	< 0.005	203
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.68	0.17	2.08	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	78.7	78.7	0.04	0.02	0.06	84.7
Vendor	0.03	0.02	0.49	0.33	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	79.9	79.9	0.01	0.01	0.03	83.8
Hauling	0.01	0.01	0.21	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	33.3	33.3	< 0.005	0.01	0.01	34.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.03	0.38	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.0	13.0	0.01	< 0.005	0.01	14.0
Vendor	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	13.2	13.2	< 0.005	< 0.005	0.01	13.9
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.51	5.51	< 0.005	< 0.005	< 0.005	5.78

3.8. Tracker Foundations (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.78	15.2	113	0.17	0.34	—	0.34	0.34	—	0.34	—	17,815	17,815	0.72	0.14	—	17,876
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.31	2.65	19.7	0.03	0.06	—	0.06	0.06	—	0.06	—	3,103	3,103	0.13	0.03	—	3,113

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	0.48	3.60	0.01	0.01	—	0.01	0.01	—	0.01	—	514	514	0.02	< 0.005	—	515
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.87	1.07	14.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	448	448	0.26	0.12	0.02	492
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485
Hauling	0.07	0.05	1.26	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	193	193	0.01	0.03	< 0.005	203
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.68	0.17	2.08	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	78.7	78.7	0.04	0.02	0.06	84.7
Vendor	0.03	0.02	0.49	0.33	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	79.9	79.9	0.01	0.01	0.03	83.8
Hauling	0.01	0.01	0.21	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	33.3	33.3	< 0.005	0.01	0.01	34.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.03	0.38	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.0	13.0	0.01	< 0.005	0.01	14.0
Vendor	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	13.2	13.2	< 0.005	< 0.005	0.01	13.9
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.51	5.51	< 0.005	< 0.005	< 0.005	5.78

3.9. Electrical Installation (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.18	5.18	32.4	48.7	0.14	1.32	—	1.32	1.21	—	1.21	—	15,060	15,060	0.61	0.12	—	15,111
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.18	5.18	32.4	48.7	0.14	1.32	—	1.32	1.21	—	1.21	—	15,060	15,060	0.61	0.12	—	15,111
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.03	19.0	28.5	0.08	0.77	—	0.77	0.71	—	0.71	—	8,812	8,812	0.36	0.07	—	8,842
Architectural Coatings	0.43	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	3.46	5.20	0.02	0.14	—	0.14	0.13	—	0.13	—	1,459	1,459	0.06	0.01	—	1,464
Architectural Coatings	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.92	0.81	9.15	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	452	452	0.18	0.10	0.60	485
Vendor	0.16	0.13	2.63	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	437	437	0.03	0.07	0.35	459
Hauling	0.08	0.06	1.16	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	0.12	191
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.07	2.02	0.49	6.08	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	254	254	0.12	0.06	0.15	273
Vendor	0.09	0.07	1.58	1.09	< 0.005	< 0.005	1.07	1.07	< 0.005	0.11	0.11	—	257	257	0.02	0.04	0.09	270
Hauling	0.04	0.03	0.70	0.51	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	107	107	0.01	0.02	0.03	112
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.37	0.09	1.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	42.0	42.0	0.02	0.01	0.02	45.3

Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	42.6	42.6	< 0.005	0.01	0.01	44.7
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	17.7	17.7	< 0.005	< 0.005	< 0.005	18.6

3.10. Electrical Installation (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.79	0.79	4.13	44.9	0.08	0.16	—	0.16	0.16	—	0.16	—	8,390	8,390	0.34	0.07	—	8,419
Architectural Coatings	0.43	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.14	0.75	8.19	0.01	0.03	—	0.03	0.03	—	0.03	—	1,389	1,389	0.06	0.01	—	1,394
Architectural Coatings	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.01	3.92	0.81	9.15	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	452	452	0.18	0.10	0.60	485
Vendor	0.16	0.13	2.63	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	437	437	0.03	0.07	0.35	459
Hauling	0.08	0.06	1.16	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	0.12	191
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.07	2.02	0.49	6.08	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	254	254	0.12	0.06	0.15	273

Vendor	0.09	0.07	1.58	1.09	< 0.005	< 0.005	1.07	1.07	< 0.005	0.11	0.11	—	257	257	0.02	0.04	0.09	270
Hauling	0.04	0.03	0.70	0.51	< 0.005	< 0.005	0.32	0.32	< 0.005	0.03	0.03	—	107	107	0.01	0.02	0.03	112
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.37	0.09	1.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	42.0	42.0	0.02	0.01	0.02	45.3
Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	42.6	42.6	< 0.005	0.01	0.01	44.7
Hauling	0.01	0.01	0.13	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	17.7	17.7	< 0.005	< 0.005	< 0.005	18.6

3.11. Electrical Installation (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.05	5.07	31.0	48.5	0.14	1.26	—	1.26	1.16	—	1.16	—	15,060	15,060	0.61	0.12	—	15,111
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	6.05	5.07	31.0	48.5	0.14	1.26	—	1.26	1.16	—	1.16	—	15,060	15,060	0.61	0.12	—	15,111

Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.00	1.68	10.3	16.1	0.05	0.42	—	0.42	0.38	—	0.38	—	4,981	4,981	0.20	0.04	—	4,998
Architectural Coatings	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	1.87	2.93	0.01	0.08	—	0.08	0.07	—	0.07	—	825	825	0.03	0.01	—	827
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.72	3.65	0.74	8.56	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	443	443	0.18	0.09	0.53	474
Vendor	0.16	0.13	2.59	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	428	428	0.03	0.06	0.30	448
Hauling	0.08	0.06	1.14	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	178	178	0.01	0.03	0.11	187

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.31	3.18	0.87	11.7	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	421	421	0.24	0.10	0.01	455
Vendor	0.15	0.11	2.76	1.89	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	435	435	0.03	0.07	0.01	456
Hauling	0.07	0.05	1.23	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	< 0.005	190
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.10	1.07	0.27	3.21	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	141	141	0.07	0.03	0.08	152
Vendor	0.05	0.04	0.88	0.61	< 0.005	< 0.005	0.61	0.61	< 0.005	0.06	0.06	—	142	142	0.01	0.02	0.04	150
Hauling	0.02	0.02	0.39	0.29	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	59.4	59.4	< 0.005	0.01	0.02	62.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.20	0.05	0.59	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	23.3	23.3	0.01	0.01	0.01	25.1
Vendor	0.01	0.01	0.16	0.11	< 0.005	< 0.005	0.11	0.11	< 0.005	0.01	0.01	—	23.6	23.6	< 0.005	< 0.005	0.01	24.8
Hauling	< 0.005	< 0.005	0.07	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	9.84	9.84	< 0.005	< 0.005	< 0.005	10.3

3.12. Electrical Installation (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.36	7.05	76.7	0.13	0.27	—	0.27	0.27	—	0.27	—	14,339	14,339	0.58	0.12	—	14,389
Architectural Coatings	0.74	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.45	2.33	25.4	0.04	0.09	—	0.09	0.09	—	0.09	—	4,742	4,742	0.19	0.04	—	4,759
Architectural Coatings	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.43	4.63	0.01	0.02	—	0.02	0.02	—	0.02	—	785	785	0.03	0.01	—	788
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.72	3.65	0.74	8.56	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	443	443	0.18	0.09	0.53	474
Vendor	0.16	0.13	2.59	1.81	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	428	428	0.03	0.06	0.30	448
Hauling	0.08	0.06	1.14	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	178	178	0.01	0.03	0.11	187
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.31	3.18	0.87	11.7	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	421	421	0.24	0.10	0.01	455
Vendor	0.15	0.11	2.76	1.89	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	435	435	0.03	0.07	0.01	456
Hauling	0.07	0.05	1.23	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	182	182	0.01	0.03	< 0.005	190
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.10	1.07	0.27	3.21	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	141	141	0.07	0.03	0.08	152
Vendor	0.05	0.04	0.88	0.61	< 0.005	< 0.005	0.61	0.61	< 0.005	0.06	0.06	—	142	142	0.01	0.02	0.04	150
Hauling	0.02	0.02	0.39	0.29	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	59.4	59.4	< 0.005	0.01	0.02	62.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.20	0.05	0.59	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	23.3	23.3	0.01	0.01	0.01	25.1
Vendor	0.01	0.01	0.16	0.11	< 0.005	< 0.005	0.11	0.11	< 0.005	0.01	0.01	—	23.6	23.6	< 0.005	< 0.005	0.01	24.8
Hauling	< 0.005	< 0.005	0.07	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	9.84	9.84	< 0.005	< 0.005	< 0.005	10.3

3.13. Mechanical Installation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	12.8	10.6	81.7	108	0.23	2.48	—	2.48	2.28	—	2.28	—	21,174	21,174	0.86	0.17	—	21,246
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	12.8	10.6	81.7	108	0.23	2.48	—	2.48	2.28	—	2.28	—	21,174	21,174	0.86	0.17	—	21,246
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.13	6.77	52.1	68.9	0.15	1.58	—	1.58	1.46	—	1.46	—	13,508	13,508	0.55	0.11	—	13,555
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	9.51	12.6	0.03	0.29	—	0.29	0.27	—	0.27	—	2,236	2,236	0.09	0.02	—	2,244
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.31	4.22	0.84	9.82	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	461	461	0.18	0.10	0.67	494
Vendor	0.17	0.13	2.69	1.83	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	446	446	0.03	0.07	0.40	469
Hauling	0.08	0.06	1.17	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	0.13	194

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.75	3.62	1.00	13.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	438	438	0.26	0.12	0.02	482
Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.07	0.05	1.25	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	189	189	0.01	0.03	< 0.005	198
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.43	2.35	0.58	7.11	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	282	282	0.13	0.06	0.19	304
Vendor	0.11	0.08	1.76	1.20	< 0.005	< 0.005	1.17	1.17	< 0.005	0.12	0.12	—	287	287	0.02	0.05	0.11	301
Hauling	0.05	0.04	0.77	0.56	< 0.005	< 0.005	0.34	0.35	< 0.005	0.04	0.04	—	119	119	0.01	0.02	0.03	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.44	0.43	0.11	1.30	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	46.7	46.7	0.02	0.01	0.03	50.3
Vendor	0.02	0.01	0.32	0.22	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	47.5	47.5	< 0.005	0.01	0.02	49.8
Hauling	0.01	0.01	0.14	0.10	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	19.7	19.7	< 0.005	< 0.005	0.01	20.7

3.14. Mechanical Installation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.46	3.06	26.8	91.9	0.16	0.58	—	0.58	0.55	—	0.55	—	15,898	15,898	0.64	0.13	—	15,953
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	3.46	3.06	26.8	91.9	0.16	0.58	—	0.58	0.55	—	0.55	—	15,898	15,898	0.64	0.13	—	15,953
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	2.21	1.95	17.1	58.6	0.10	0.37	—	0.37	0.35	—	0.35	—	10,142	10,142	0.41	0.08	—	10,177
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.40	0.36	3.12	10.7	0.02	0.07	—	0.07	0.06	—	0.06	—	1,679	1,679	0.07	0.01	—	1,685
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.31	4.22	0.84	9.82	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	461	461	0.18	0.10	0.67	494
Vendor	0.17	0.13	2.69	1.83	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	446	446	0.03	0.07	0.40	469
Hauling	0.08	0.06	1.17	0.86	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	0.13	194
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.75	3.62	1.00	13.5	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	438	438	0.26	0.12	0.02	482
Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.07	0.05	1.25	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	189	189	0.01	0.03	< 0.005	198
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	2.43	2.35	0.58	7.11	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	282	282	0.13	0.06	0.19	304
Vendor	0.11	0.08	1.76	1.20	< 0.005	< 0.005	1.17	1.17	< 0.005	0.12	0.12	—	287	287	0.02	0.05	0.11	301
Hauling	0.05	0.04	0.77	0.56	< 0.005	< 0.005	0.34	0.35	< 0.005	0.04	0.04	—	119	119	0.01	0.02	0.03	125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.44	0.43	0.11	1.30	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	46.7	46.7	0.02	0.01	0.03	50.3
Vendor	0.02	0.01	0.32	0.22	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	47.5	47.5	< 0.005	0.01	0.02	49.8
Hauling	0.01	0.01	0.14	0.10	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	19.7	19.7	< 0.005	< 0.005	0.01	20.7

3.15. Mechanical Installation (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11.5	9.53	74.6	107	0.23	1.79	—	1.79	1.65	—	1.65	—	21,175	21,175	0.86	0.17	—	21,248
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84	1.53	12.0	17.2	0.04	0.29	—	0.29	0.26	—	0.26	—	3,398	3,398	0.14	0.03	—	3,410
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.34	0.28	2.19	3.13	0.01	0.05	—	0.05	0.05	—	0.05	—	563	563	0.02	< 0.005	—	565
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.57	0.55	0.13	1.67	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	69.5	69.5	0.03	0.02	0.04	75.0
Vendor	0.03	0.02	0.43	0.30	< 0.005	< 0.005	0.29	0.29	< 0.005	0.03	0.03	—	70.6	70.6	< 0.005	0.01	0.02	74.1
Hauling	0.01	0.01	0.19	0.14	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.01	30.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.02	0.30	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.5	11.5	0.01	< 0.005	0.01	12.4
Vendor	< 0.005	< 0.005	0.08	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	11.7	11.7	< 0.005	< 0.005	< 0.005	12.3
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.10

3.16. Mechanical Installation (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32	2.94	26.5	91.7	0.16	0.52	—	0.52	0.50	—	0.50	—	15,900	15,900	0.64	0.13	—	15,954
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.47	4.25	14.7	0.03	0.08	—	0.08	0.08	—	0.08	—	2,551	2,551	0.10	0.02	—	2,560
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.78	2.69	< 0.005	0.02	—	0.02	0.01	—	0.01	—	422	422	0.02	< 0.005	—	424
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.51	3.39	0.93	12.6	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	429	429	0.24	0.10	0.02	464
Vendor	0.15	0.11	2.80	1.91	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	444	444	0.03	0.07	0.01	466
Hauling	0.07	0.05	1.24	0.89	< 0.005	< 0.005	0.56	0.57	< 0.005	0.06	0.06	—	185	185	0.01	0.03	< 0.005	195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.57	0.55	0.13	1.67	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	69.5	69.5	0.03	0.02	0.04	75.0
Vendor	0.03	0.02	0.43	0.30	< 0.005	< 0.005	0.29	0.29	< 0.005	0.03	0.03	—	70.6	70.6	< 0.005	0.01	0.02	74.1
Hauling	0.01	0.01	0.19	0.14	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.01	30.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.02	0.30	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.5	11.5	0.01	< 0.005	0.01	12.4
Vendor	< 0.005	< 0.005	0.08	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	11.7	11.7	< 0.005	< 0.005	< 0.005	12.3
Hauling	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.10

3.17. Underground Cabling (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.06	6.77	49.9	36.5	0.11	2.72	—	2.72	2.50	—	2.50	—	11,429	11,429	0.46	0.09	—	11,468
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.06	6.77	49.9	36.5	0.11	2.72	—	2.72	2.50	—	2.50	—	11,429	11,429	0.46	0.09	—	11,468
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	4.61	3.87	28.5	20.9	0.06	1.55	—	1.55	1.43	—	1.43	—	6,531	6,531	0.26	0.05	—	6,553
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.71	5.21	3.81	0.01	0.28	—	0.28	0.26	—	0.26	—	1,081	1,081	0.04	0.01	—	1,085
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.33	0.07	0.79	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	35.3	35.3	0.02	0.01	0.06	37.8
Vendor	0.18	0.14	2.73	1.85	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	456	456	0.03	0.07	0.44	478
Hauling	0.02	0.02	0.32	0.23	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.2	51.2	< 0.005	0.01	0.04	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.29	0.08	1.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	33.6	33.6	0.02	0.01	< 0.005	36.9
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	52.2	52.2	< 0.005	0.01	< 0.005	54.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.17	0.04	0.51	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	19.4	19.4	0.01	< 0.005	0.01	20.8
Vendor	0.09	0.07	1.60	1.09	< 0.005	< 0.005	1.05	1.05	< 0.005	0.11	0.11	—	262	262	0.02	0.04	0.11	275
Hauling	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	29.5	29.5	< 0.005	< 0.005	0.01	31.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.45
Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	43.4	43.4	< 0.005	0.01	0.02	45.5

Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.88	4.88	< 0.005	< 0.005	< 0.005	5.13

3.18. Underground Cabling (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	1.05	5.46	56.8	0.10	0.21	—	0.21	0.21	—	0.21	—	11,107	11,107	0.45	0.09	—	11,145
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	1.05	5.46	56.8	0.10	0.21	—	0.21	0.21	—	0.21	—	11,107	11,107	0.45	0.09	—	11,145
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.60	3.12	32.4	0.06	0.12	—	0.12	0.12	—	0.12	—	6,347	6,347	0.26	0.05	—	6,368
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.11	0.57	5.92	0.01	0.02	—	0.02	0.02	—	0.02	—	1,051	1,051	0.04	0.01	—	1,054
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.33	0.07	0.79	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	35.3	35.3	0.02	0.01	0.06	37.8
Vendor	0.18	0.14	2.73	1.85	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	456	456	0.03	0.07	0.44	478
Hauling	0.02	0.02	0.32	0.23	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.2	51.2	< 0.005	0.01	0.04	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.29	0.08	1.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	33.6	33.6	0.02	0.01	< 0.005	36.9
Vendor	0.16	0.12	2.89	1.96	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	463	463	0.03	0.07	0.01	485
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	52.2	52.2	< 0.005	0.01	< 0.005	54.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.17	0.04	0.51	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	19.4	19.4	0.01	< 0.005	0.01	20.8
Vendor	0.09	0.07	1.60	1.09	< 0.005	< 0.005	1.05	1.05	< 0.005	0.11	0.11	—	262	262	0.02	0.04	0.11	275
Hauling	0.01	0.01	0.19	0.13	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	29.5	29.5	< 0.005	< 0.005	0.01	31.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.45
Vendor	0.02	0.01	0.29	0.20	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	—	43.4	43.4	< 0.005	0.01	0.02	45.5
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	4.88	4.88	< 0.005	< 0.005	< 0.005	5.13

3.19. Underground Cabling (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.03	6.74	48.7	36.5	0.11	2.69	—	2.69	2.47	—	2.47	—	11,430	11,430	0.46	0.09	—	11,469
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	5.34	4.00	0.01	0.29	—	0.29	0.27	—	0.27	—	1,253	1,253	0.05	0.01	—	1,257
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	0.97	0.73	< 0.005	0.05	—	0.05	0.05	—	0.05	—	207	207	0.01	< 0.005	—	208
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.27	0.07	1.01	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	32.9	32.9	0.02	0.01	< 0.005	36.2

Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.1	51.1	< 0.005	0.01	< 0.005	53.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.63	3.63	< 0.005	< 0.005	< 0.005	3.91
Vendor	0.02	0.01	0.30	0.21	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	49.2	49.2	< 0.005	0.01	0.02	51.7
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.54	5.54	< 0.005	< 0.005	< 0.005	5.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.65
Vendor	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	8.15	8.15	< 0.005	< 0.005	< 0.005	8.55
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96

3.20. Underground Cabling (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	1.05	5.46	56.8	0.10	0.21	—	0.21	0.21	—	0.21	—	11,108	11,108	0.45	0.09	—	11,146
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.12	0.60	6.22	0.01	0.02	—	0.02	0.02	—	0.02	—	1,217	1,217	0.05	0.01	—	1,222
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	1.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	202	202	0.01	< 0.005	—	202
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.27	0.07	1.01	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	32.9	32.9	0.02	0.01	< 0.005	36.2
Vendor	0.15	0.12	2.85	1.93	< 0.005	< 0.005	1.92	1.92	< 0.005	0.20	0.20	—	454	454	0.03	0.07	0.01	475
Hauling	0.02	0.01	0.34	0.24	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	—	51.1	51.1	< 0.005	0.01	< 0.005	53.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.01	0.09	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.63	3.63	< 0.005	< 0.005	< 0.005	3.91
Vendor	0.02	0.01	0.30	0.21	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	49.2	49.2	< 0.005	0.01	0.02	51.7
Hauling	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	5.54	5.54	< 0.005	< 0.005	< 0.005	5.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.65
Vendor	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	8.15	8.15	< 0.005	< 0.005	< 0.005	8.55
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.09	0.09	0.02	0.22	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.01	13.3
General Office Building	0.02	0.01	0.28	0.21	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.03	45.5
Total	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.08	0.08	0.02	0.30	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	11.8	11.8	0.01	< 0.005	< 0.005	12.8
General Office Building	0.02	0.01	0.30	0.22	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	44.2	44.2	< 0.005	0.01	< 0.005	46.4
Total	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.97	1.97	< 0.005	< 0.005	< 0.005	2.12

General Office Building	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.24	7.24	< 0.005	< 0.005	< 0.005	7.59
Total	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.09	0.09	0.02	0.22	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.01	13.3
General Office Building	0.02	0.01	0.28	0.21	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.03	45.5
Total	0.11	0.10	0.30	0.43	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	55.8	55.8	0.01	0.01	0.04	58.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.08	0.08	0.02	0.30	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	11.8	11.8	0.01	< 0.005	< 0.005	12.8
General Office Building	0.02	0.01	0.30	0.22	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	44.2	44.2	< 0.005	0.01	< 0.005	46.4
Total	0.10	0.09	0.32	0.51	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	56.0	56.0	0.01	0.01	< 0.005	59.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.97	1.97	< 0.005	< 0.005	< 0.005	2.12

General Office Building	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.24	7.24	< 0.005	< 0.005	< 0.005	7.59
Total	0.02	0.02	0.06	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	< 0.005	9.71

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	54.9	54.9	0.01	< 0.005	—	55.4

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	6.94	6.94	< 0.005	< 0.005	—	7.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	61.8	61.8	0.01	< 0.005	—	62.4

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	332	332	0.05	0.01	—	335
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	41.9	41.9	0.01	< 0.005	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	373	373	0.06	0.01	—	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	54.9	54.9	0.01	< 0.005	—	55.4

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	6.94	6.94	< 0.005	< 0.005	—	7.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	61.8	61.8	0.01	< 0.005	—	62.4

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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

General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	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

General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.41	0.38	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Total	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Total	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipm	0.41	0.38	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Total	1.62	1.59	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.14	1.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.21	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78
Total	0.26	0.25	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.78

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.51	0.51	< 0.005	< 0.005	—	0.52
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	0.21	0.21	0.13	< 0.005	—	3.57
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	3.08	3.08	< 0.005	< 0.005	—	3.12
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	1.25	1.25	0.78	< 0.005	—	21.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	4.34	4.34	0.78	< 0.005	—	24.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.51	0.51	< 0.005	< 0.005	—	0.52
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.00	0.21	0.21	0.13	< 0.005	—	3.57
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.72	0.72	0.13	< 0.005	—	4.08

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.53	0.00	5.53	0.55	0.00	—	19.4
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.27	0.00	0.27	0.03	0.00	—	0.93
Total	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	33.4	0.00	33.4	3.34	0.00	—	117
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.60	0.00	1.60	0.16	0.00	—	5.61
Total	—	—	—	—	—	—	—	—	—	—	—	35.0	0.00	35.0	3.50	0.00	—	123
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.53	0.00	5.53	0.55	0.00	—	19.4
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.27	0.00	0.27	0.03	0.00	—	0.93
Total	—	—	—	—	—	—	—	—	—	—	—	5.80	0.00	5.80	0.58	0.00	—	20.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.15	2.15
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.15	2.15
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.16	2.16

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	7/1/2025	4/30/2026	5.00	218	Phase 1
Tracker Foundations	Building Construction	4/15/2026	3/30/2027	5.00	250	Phase 2
Electrical Installation	Building Construction	3/8/2029	6/18/2030	5.00	334	Phase 5
Mechanical Installation	Building Construction	2/10/2028	3/23/2029	5.00	292	Phase 4
Underground Cabling	Trenching	3/15/2027	2/25/2028	5.00	250	Phase 3

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	4.00	8.00	187	0.41

Site Preparation	Off-Highway Trucks	Diesel	Average	7.00	4.00	402	0.38
Site Preparation	Plate Compactors	Diesel	Average	3.00	8.00	24.9	0.43
Site Preparation	Rubber Tired Loaders	Diesel	Average	3.00	8.00	203	0.36
Site Preparation	Rough Terrain Forklifts	Diesel	Average	4.00	8.00	130	0.40
Site Preparation	Skid Steer Loaders	Diesel	Average	4.00	8.00	75.0	0.37
Site Preparation	Crawler Tractors	Diesel	Average	1.00	5.00	212	0.43
Tracker Foundations	Generator Sets	Diesel	Average	4.00	8.00	49.9	0.74
Tracker Foundations	Air Compressors	Diesel	Average	1.00	8.00	49.9	0.48
Tracker Foundations	Off-Highway Trucks	Diesel	Average	7.00	4.00	402	0.38
Tracker Foundations	Other Construction Equipment	Diesel	Average	1.00	2.00	172	0.42
Tracker Foundations	Rough Terrain Forklifts	Diesel	Average	7.00	8.00	100	0.40
Tracker Foundations	Rubber Tired Loaders	Diesel	Average	1.00	8.00	203	0.36
Tracker Foundations	Other General Industrial Equipment	Diesel	Average	9.00	8.00	158	0.42
Tracker Foundations	Skid Steer Loaders	Diesel	Average	9.00	8.00	75.0	0.37
Electrical Installation	Air Compressors	Diesel	Average	3.00	8.00	49.9	0.48
Electrical Installation	Off-Highway Trucks	Diesel	Average	9.00	4.00	402	0.38
Electrical Installation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	203	0.36
Electrical Installation	Rough Terrain Forklifts	Diesel	Average	5.00	8.00	100	0.40
Electrical Installation	Trenchers	Diesel	Average	3.00	8.00	78.0	0.50
Electrical Installation	Excavators	Diesel	Average	3.00	8.00	212	0.38
Mechanical Installation	Generator Sets	Diesel	Average	11.0	8.00	49.9	0.74
Mechanical Installation	Air Compressors	Diesel	Average	20.0	8.00	49.9	0.48
Mechanical Installation	Off-Highway Trucks	Diesel	Average	8.00	4.00	402	0.38
Mechanical Installation	Other Construction Equipment	Diesel	Average	1.00	2.00	172	0.42

Mechanical Installation	Rough Terrain Forklifts	Diesel	Average	9.00	8.00	100	0.40
Mechanical Installation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	203	0.36
Mechanical Installation	Skid Steer Loaders	Diesel	Average	1.00	8.00	75.0	0.37
Mechanical Installation	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Underground Cabling	Excavators	Diesel	Average	4.00	8.00	212	0.38
Underground Cabling	Trenchers	Diesel	Average	1.00	8.00	300	0.50
Underground Cabling	Off-Highway Trucks	Diesel	Average	7.00	4.00	402	0.38
Underground Cabling	Plate Compactors	Diesel	Average	3.00	8.00	24.9	0.43
Underground Cabling	Rubber Tired Loaders	Diesel	Average	1.00	8.00	203	0.36
Underground Cabling	Skid Steer Loaders	Diesel	Average	4.00	8.00	75.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Tier 4 Final	4.00	8.00	187	0.41
Site Preparation	Off-Highway Trucks	Diesel	Tier 4 Final	7.00	4.00	402	0.38
Site Preparation	Plate Compactors	Electric	Average	3.00	8.00	24.9	0.43
Site Preparation	Rubber Tired Loaders	Diesel	Tier 4 Final	3.00	8.00	203	0.36
Site Preparation	Rough Terrain Forklifts	Diesel	Tier 4 Final	4.00	8.00	130	0.40
Site Preparation	Skid Steer Loaders	Diesel	Tier 4 Final	4.00	8.00	75.0	0.37
Site Preparation	Crawler Tractors	Diesel	Tier 4 Final	1.00	5.00	212	0.43
Tracker Foundations	Generator Sets	Diesel	Tier 4 Final	4.00	8.00	49.9	0.74
Tracker Foundations	Air Compressors	Electric	Average	1.00	8.00	49.9	0.48
Tracker Foundations	Off-Highway Trucks	Diesel	Tier 4 Final	7.00	4.00	402	0.38
Tracker Foundations	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	172	0.42
Tracker Foundations	Rough Terrain Forklifts	Diesel	Tier 4 Final	7.00	8.00	100	0.40

Tracker Foundations	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	203	0.36
Tracker Foundations	Other General Industrial Equipment	Diesel	Tier 4 Final	9.00	8.00	158	0.42
Tracker Foundations	Skid Steer Loaders	Diesel	Tier 4 Final	9.00	8.00	75.0	0.37
Electrical Installation	Air Compressors	Electric	Average	3.00	8.00	49.9	0.48
Electrical Installation	Off-Highway Trucks	Diesel	Tier 4 Final	9.00	4.00	402	0.38
Electrical Installation	Rubber Tired Loaders	Diesel	Tier 4 Final	4.00	8.00	203	0.36
Electrical Installation	Rough Terrain Forklifts	Diesel	Tier 4 Final	5.00	8.00	100	0.40
Electrical Installation	Trenchers	Diesel	Tier 4 Final	3.00	8.00	78.0	0.50
Electrical Installation	Excavators	Diesel	Tier 4 Final	3.00	8.00	212	0.38
Mechanical Installation	Generator Sets	Diesel	Average	10.0	8.00	49.9	0.74
Mechanical Installation	Generator Sets	Electric	Average	1.00	8.00	49.9	0.74
Mechanical Installation	Air Compressors	Electric	Average	20.0	8.00	49.9	0.48
Mechanical Installation	Off-Highway Trucks	Diesel	Tier 4 Final	8.00	4.00	402	0.38
Mechanical Installation	Other Construction Equipment	Diesel	Tier 4 Final	1.00	2.00	172	0.42
Mechanical Installation	Rough Terrain Forklifts	Diesel	Tier 4 Final	9.00	8.00	100	0.40
Mechanical Installation	Rubber Tired Loaders	Diesel	Tier 4 Final	4.00	8.00	203	0.36
Mechanical Installation	Skid Steer Loaders	Diesel	Tier 4 Final	1.00	8.00	75.0	0.37
Mechanical Installation	Generator Sets	Electric	Average	1.00	8.00	14.0	0.74
Underground Cabling	Excavators	Diesel	Tier 4 Final	4.00	8.00	212	0.38
Underground Cabling	Trenchers	Diesel	Tier 4 Final	1.00	8.00	300	0.50
Underground Cabling	Off-Highway Trucks	Diesel	Tier 4 Final	7.00	4.00	402	0.38
Underground Cabling	Plate Compactors	Electric	Average	3.00	8.00	24.9	0.43

Underground Cabling	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	203	0.36
Underground Cabling	Skid Steer Loaders	Diesel	Tier 4 Final	4.00	8.00	75.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	534	0.25	LDA,LDT1,LDT2
Site Preparation	Vendor	252	0.25	HHDT,MHDT
Site Preparation	Hauling	34.0	0.25	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Tracker Foundations	—	—	—	—
Tracker Foundations	Worker	1,334	0.25	LDA,LDT1,LDT2
Tracker Foundations	Vendor	252	0.25	HHDT,MHDT
Tracker Foundations	Hauling	74.0	0.25	HHDT
Tracker Foundations	Onsite truck	—	—	HHDT
Underground Cabling	—	—	—	—
Underground Cabling	Worker	100	0.25	LDA,LDT1,LDT2
Underground Cabling	Vendor	252	0.25	HHDT,MHDT
Underground Cabling	Hauling	20.0	0.25	HHDT
Underground Cabling	Onsite truck	—	—	HHDT
Mechanical Installation	—	—	—	—
Mechanical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Mechanical Installation	Vendor	252	0.25	HHDT,MHDT
Mechanical Installation	Hauling	74.0	0.25	HHDT
Mechanical Installation	Onsite truck	—	—	HHDT
Electrical Installation	—	—	—	—

Electrical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Electrical Installation	Vendor	252	0.25	HHDT,MHDT
Electrical Installation	Hauling	74.0	0.25	HHDT
Electrical Installation	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	534	0.25	LDA,LDT1,LDT2
Site Preparation	Vendor	252	0.25	HHDT,MHDT
Site Preparation	Hauling	34.0	0.25	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Tracker Foundations	—	—	—	—
Tracker Foundations	Worker	1,334	0.25	LDA,LDT1,LDT2
Tracker Foundations	Vendor	252	0.25	HHDT,MHDT
Tracker Foundations	Hauling	74.0	0.25	HHDT
Tracker Foundations	Onsite truck	—	—	HHDT
Underground Cabling	—	—	—	—
Underground Cabling	Worker	100	0.25	LDA,LDT1,LDT2
Underground Cabling	Vendor	252	0.25	HHDT,MHDT
Underground Cabling	Hauling	20.0	0.25	HHDT
Underground Cabling	Onsite truck	—	—	HHDT
Mechanical Installation	—	—	—	—
Mechanical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Mechanical Installation	Vendor	252	0.25	HHDT,MHDT
Mechanical Installation	Hauling	74.0	0.25	HHDT
Mechanical Installation	Onsite truck	—	—	HHDT
Electrical Installation	—	—	—	—

Electrical Installation	Worker	1,334	0.25	LDA,LDT1,LDT2
Electrical Installation	Vendor	252	0.25	HHDT,MHDT
Electrical Installation	Hauling	74.0	0.25	HHDT
Electrical Installation	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	67%	67%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Electrical Installation	0.00	0.00	79,800	26,600	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	504	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	0.00	0%
General Office Building	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005
2029	0.00	204	0.03	< 0.005
2030	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	40.0	40.0	40.0	14,600	10.0	10.0	10.0	3,650
General Office Building	18.0	18.0	18.0	6,570	4.50	4.50	4.50	1,643

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	40.0	40.0	40.0	14,600	10.0	10.0	10.0	3,650

General Office Building	18.0	18.0	18.0	6,570	4.50	4.50	4.50	1,643

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	79,800	26,600	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	593,207	204	0.0330	0.0040	0.00
General Office Building	75,028	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	593,207	204	0.0330	0.0040	0.00
General Office Building	75,028	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	0.00	2,280,960
General Office Building	568,748	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	0.00	2,280,960
General Office Building	568,748	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	62.0	—

General Office Building	2.98	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	62.0	—
General Office Building	2.98	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	21.4	annual days of extreme heat
Extreme Precipitation	0.00	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	82.5
AQ-PM	95.4
AQ-DPM	5.76
Drinking Water	96.1
Lead Risk Housing	81.4
Pesticides	94.1
Toxic Releases	50.9
Traffic	0.71
Effect Indicators	—
CleanUp Sites	7.71
Groundwater	85.3

Haz Waste Facilities/Generators	67.6
Impaired Water Bodies	0.00
Solid Waste	86.5
Sensitive Population	—
Asthma	42.4
Cardio-vascular	67.5
Low Birth Weights	15.4
Socioeconomic Factor Indicators	—
Education	86.9
Housing	79.3
Linguistic	95.6
Poverty	87.8
Unemployment	61.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—

Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	0.0
Asthma ER Admissions	55.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	0.0
Cognitively Disabled	64.4
Physically Disabled	74.5

Heart Attack ER Admissions	23.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	0.0
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	68.4
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	1.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	96.4
Traffic Density	0.0
Traffic Access	0.0
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Modeling battery storage station as general light industrial. Assuming maximum square footage allowed for the land use.
Construction: Construction Phases	No demolition phase anticipated. Phasing based on example project provided and totals approx. 60 months.
Construction: Off-Road Equipment	Equipment, operating hours, and horsepower were based on the Bellefield solar project assumptions. Bellefield assumptions for generator sets, air compressors, and plate compactors that exceeded the maximum horsepower for that equipment were reduced to match the maximum.
Construction: Trips and VMT	Adjusted using list of construction trip assumptions.

Construction: On-Road Fugitive Dust	Assuming a quarter mile unpaved road distance for haul and vendor trucks, assuming 100% paved for worker vehicles. Assuming watering of unpaved roads and limiting speed to 15 mph in accordance with MDAQMD rule 8021. Limiting speed to 15 mph translates to a 66.6% reduction according to the WRAP fugitive dust handbook.
Operations: Vehicle Data	Passenger trips in light industry, trucks in office building.
Operations: Water and Waste Water	Assuming 7 acre-feet of outdoor water use for solar panels per year. Office building uses a septic tank.
Operations: Refrigerants	Added "Other commercial A/C and heat pumps" to represent SF6 emissions from substations.
Operations: Energy Use	Assuming that the project does not result in natural gas consumption.
Operations: Fleet Mix	Passenger trips in light industry and trucks in office building.

```
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                       ***        06:16:06

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                          ***      MODEL SETUP OPTIONS SUMMARY
***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses RURAL Dispersion Only.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
      * CCVR_Sub - Meteorological data includes CCVR substitutions
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR

 **This Run Includes:    763 Source(s);     1   Source Group(s); and    5759
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    763 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                 and:      0 SWPOINT source(s)


 **Model Set To Continue RUNning After the Setup Testing.
```

```
 **The AERMET Input Meteorological Data Version Date:  18081

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m   for Missing Hours
                                                                 b   for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    77.00 ;  Decay
Coef. =    0.000    ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.

 **Input Runstream File:          C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM10
Solar Unmit 8.2.23\PM10 Solar Unmit BEEST_2007
 **Output Print File:             C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM10
Solar Unmit 8.2.23\PM10 Solar Unmit BEEST_2007

 **Detailed Error/Message File:   C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM10
Solar Unmit 8.2.23\AAQA_01.err
 **File for Summary of Results:   C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM10
Solar Unmit 8.2.23\PM10 Solar Unmit BEEST_2007
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                      ***        06:16:06

                                 PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                          ***  METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                              (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
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           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\Wasco_2007-2011.SFC
Met Version: 18081
Profile file: ..\Wasco_2007-2011.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 99010 Upper air station no.: 66666
Name: UNKNOWN Name: UNKNOWN

Year: 2007 Year: 2007

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN

```
ALBEDO  REF  WS   WD     HT  REF TA   HT
- - - -
```

```
1.00   3.10   220.    15.0  279.8    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD  AMB_TMP sigmaA  sigmaW  sigmaV
 07 01 01 01   15.0 1  311.    0.50    278.8   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                       ***        06:16:06

                                  PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                                *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                    ** CONC OF PM_10    IN MICROGRAMS/M**3
            **

                                                        DATE
                                          NETWORK
GROUP ID                              AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)   OF   TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS       0.18982c ON 11122824: AT (  284702.08,
3923112.34,    87.81,    87.81,    0.00)  DC
         HIGH   2ND HIGH VALUE IS       0.18831c ON 07120424: AT (  284702.08,
3923112.34,    87.81,    87.81,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP   = GRIDPOLR
                      DC   = DISCCART
                      DP   = DISCPOLR
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                       ***        06:16:06

                                  PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*
```

```
*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of          0    Fatal Error Message(s)
A Total of          1    Warning Message(s)
A Total of       8383    Informational Message(s)

A Total of      43824    Hours Were Processed

A Total of       8383    Calm Hours Identified

A Total of          0    Missing Hours Identified (  0.00 Percent)


   ******** FATAL ERROR MESSAGES ********
             ***   NONE  ***


   ********   WARNING MESSAGES   ********
ME W187    1917       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

```
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:15:47

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                          ***      MODEL SETUP OPTIONS SUMMARY
***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses RURAL Dispersion Only.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
      * CCVR_Sub - Meteorological data includes CCVR substitutions
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: PM_10

 **Model Calculates  1 Short Term Average(s) of:  24-HR

 **This Run Includes:    714 Source(s);     1   Source Group(s); and     200
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    714 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                 and:      0 SWPOINT source(s)


 **Model Set To Continue RUNning After the Setup Testing.
```

```
 **The AERMET Input Meteorological Data Version Date:  18081

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m   for Missing Hours
                                                                 b   for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    77.00 ;  Decay
Coef. =    0.000    ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                             ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.8 MB of RAM.

 **Input Runstream File:          C:\Users\apoll\Desktop\HRAs\PM Solar 12.13.24\PM10
Solar Mit 11.10.23\PM10 Mit_2007-2011_PM_10_0
 **Output Print File:             C:\Users\apoll\Desktop\HRAs\PM Solar 12.13.24\PM10
Solar Mit 11.10.23\PM10 Mit_2007-2011_PM_10_0

 **File for Summary of Results:   C:\Users\apoll\Desktop\HRAs\PM Solar 12.13.24\PM10
Solar Mit 11.10.23\PM10 Mit_2007-2011_PM_10_0
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:15:47

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                       *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                            (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
```

```
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

                NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                    *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                          (METERS/SEC)

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:15:47

                                    PAGE   3
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                      *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

   Surface file:   C:\Users\apoll\Desktop\HRAs\Wasco_2007-2011.SFC
                Met Version:  18081
   Profile file:   C:\Users\apoll\Desktop\HRAs\Wasco_2007-2011.PFL

   Surface format: FREE

   Profile format: FREE

   Surface station no.:    99010                 Upper air station no.:    66666
                  Name: UNKNOWN                                   Name:  UNKNOWN

                  Year:  2007                                      Year:   2007

 First 24 hours of scalar data
 YR MO DY JDY HR    H0     U*       W*  DT/DZ ZICNV ZIMCH  M-O LEN   Z0   BOWEN
ALBEDO  REF  WS   WD     HT  REF TA    HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
- - - - - - - - - - - - - - - - - - - -
 07 01 01   1 01   -1.0  0.066  -9.000 -9.000 -999.   40.     26.2  0.04   0.72
1.00   0.50   311.    15.0  278.8    2.0
 07 01 01   1 02   -2.2  0.075  -9.000 -9.000 -999.   50.     17.3  0.04   0.72
1.00   1.00   308.    15.0  278.2    2.0
 07 01 01   1 03   -2.2  0.075  -9.000 -9.000 -999.   50.     17.3  0.04   0.72
1.00   1.00   314.    15.0  278.0    2.0
 07 01 01   1 04   -2.2  0.075  -9.000 -9.000 -999.   50.     17.3  0.04   0.72
1.00   1.00   313.    15.0  277.6    2.0
 07 01 01   1 05   -1.0  0.066  -9.000 -9.000 -999.   40.     26.3  0.04   0.72
1.00   0.50   303.    15.0  277.2    2.0
 07 01 01   1 06   -1.0  0.067  -9.000 -9.000 -999.   41.     26.6  0.04   0.72
1.00   0.50   252.    15.0  277.0    2.0
 07 01 01   1 07   -1.0  0.067  -9.000 -9.000 -999.   41.     26.6  0.04   0.72
1.00   0.50   245.    15.0  276.8    2.0
 07 01 01   1 08   -2.1  0.074  -9.000 -9.000 -999.   48.     17.2  0.04   0.72
0.61   1.00   243.    15.0  276.8    2.0
 07 01 01   1 09   14.3  0.096   0.291  0.007   62.   71.     -5.6  0.04   0.72
0.34   1.00   277.    15.0  278.2    2.0
 07 01 01   1 10   54.6  0.140   0.686  0.005  214.  126.     -4.5  0.04   0.72
0.25   1.50   301.    15.0  280.2    2.0
 07 01 01   1 11   83.5  0.146   0.978  0.005  405.  134.     -3.4  0.04   0.72
0.22   1.50   304.    15.0  281.2    2.0
 07 01 01   1 12   98.6  0.155   1.189  0.007  617.  146.     -3.4  0.04   0.72
0.21   1.50   296.    15.0  282.4    2.0
 07 01 01   1 13   99.0  0.149   1.257  0.008  726.  137.     -3.0  0.04   0.72
0.21   1.50   313.    15.0  283.2    2.0
 07 01 01   1 14   84.8  0.146   1.231  0.008  795.  134.     -3.3  0.04   0.72
0.22   1.50   329.    15.0  284.0    2.0
 07 01 01   1 15   56.6  0.135   1.096  0.008  839.  119.     -3.9  0.03   0.72
0.25   1.50   342.    15.0  284.4    2.0
 07 01 01   1 16   16.9  0.057   0.737  0.008  851.   35.     -1.0  0.03   0.72
0.34   0.50   334.    15.0  284.5    2.0
 07 01 01   1 17   -0.8  0.061  -9.000 -9.000 -999.   36.     24.6  0.03   0.72
0.60   0.50   161.    15.0  283.9    2.0
 07 01 01   1 18   -2.1  0.074  -9.000 -9.000 -999.   48.     17.0  0.03   0.72
1.00   1.00   157.    15.0  282.8    2.0
 07 01 01   1 19   -7.4  0.122  -9.000 -9.000 -999.  102.     21.9  0.03   0.72
1.00   2.10   174.    15.0  281.8    2.0
 07 01 01   1 20  -11.6  0.153  -9.000 -9.000 -999.  144.     28.0  0.03   0.72
1.00   2.60   177.    15.0  281.1    2.0
 07 01 01   1 21  -14.3  0.175  -9.000 -9.000 -999.  176.     34.1  0.07   0.72
1.00   2.60   190.    15.0  280.8    2.0
 07 01 01   1 22  -14.3  0.175  -9.000 -9.000 -999.  176.     34.1  0.07   0.72
1.00   2.60   202.    15.0  280.2    2.0
 07 01 01   1 23  -14.9  0.180  -9.000 -9.000 -999.  184.     35.8  0.07   0.72
1.00   2.60   210.    15.0  280.0    2.0
 07 01 01   1 24  -21.5  0.218  -9.000 -9.000 -999.  244.     52.3  0.07   0.72
1.00   3.10   220.    15.0  279.8    2.0
```

```
 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD  AMB_TMP sigmaA  sigmaW  sigmaV
 07 01 01 01   15.0 1  311.    0.50    278.8   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:15:47

                                  PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                              *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                    ** CONC OF PM_10    IN MICROGRAMS/M**3
            **

                                                    DATE
                                       NETWORK
GROUP ID                            AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)   OF   TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS       0.09625c ON 11122824: AT (  272221.10,
3926037.14,    80.04,    80.04,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP   = GRIDPOLR
                      DC   = DISCCART
                      DP   = DISCPOLR
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:15:47

                                  PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------
```

```
 A Total of         0    Fatal Error Message(s)
 A Total of       493    Warning Message(s)
 A Total of      8383    Informational Message(s)

 A Total of     43824    Hours Were Processed

 A Total of      8383    Calm Hours Identified

 A Total of         0    Missing Hours Identified (  0.00 Percent)


    ******** FATAL ERROR MESSAGES ********
              ***   NONE  ***


    ********   WARNING MESSAGES   ********
 ME W187    1462       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 CN W732     72          AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007010324
 CN W732     216         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007010924
 CN W732     336         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007011424
 CN W732     792         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020224
 CN W732     816         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020324
 CN W732     840         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020424
 CN W732     912         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020724
 CN W732     960         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020924
 CN W732    1104         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007021524
 CN W732    1248         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007022124
 CN W732    1704         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007031224
 CN W732    1728         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007031324
 CN W732    1776         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007031524
 CN W732    2040         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007032624
 CN W732    2400         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007041024
 CN W732    2544         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007041624
```

```
 CN W732    2784         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007042624
 CN W732    2880         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007043024
 CN W732    3096         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007050924
 CN W732    3288         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007051724
 CN W732    3312         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007051824
 CN W732    3480         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007052524
 CN W732    3504         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007052624
 CN W732    3600         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007053024
 CN W732    3624         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007053124
 CN W732    3648         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060124
 CN W732    3672         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060224
 CN W732    3696         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060324
 CN W732    3720         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060424
 CN W732    3816         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060824
 CN W732    3840         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060924
 CN W732    3936         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007061324
 CN W732    4032         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007061724
 CN W732    4080         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007061924
 CN W732    4104         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062024
 CN W732    4152         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062224
 CN W732    4176         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062324
 CN W732    4224         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062524
 CN W732    4272         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062724
 CN W732    4296         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062824
 CN W732    4320         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062924
```

 CN W732   4392   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070224
 CN W732   4416   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070324
 CN W732   4440   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070424
 CN W732   4488   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070624
 CN W732   4560   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070924
 CN W732   4584   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071024
 CN W732   4632   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071224
 CN W732   4656   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071324
 CN W732   4680   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071424
 CN W732   4704   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071524
 CN W732   4752   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071724
 CN W732   4776   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071824
 CN W732   4848   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007072124
 CN W732   4992   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007072724
 CN W732   5016   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007072824
 CN W732   5064   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007073024
 CN W732   5112   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007080124
 CN W732   5160   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007080324
 CN W732   5256   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007080724
 CN W732   5280   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007080824
 CN W732   5520   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007081824
 CN W732   5544   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007081924
 CN W732   5592   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007082124
 CN W732   5784   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007082924
 CN W732   6000   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007090724

 CN W732   6048   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007090924
 CN W732   6072   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007091024
 CN W732   6144   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007091324
 CN W732   6168   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007091424
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 CN W732   6456   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007092624
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2007092724
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2007101824
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2007102824
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2007103124
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2007110824
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2007111724
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2007111824
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2007111924
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2007120524
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2007121424
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2007122324
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2007122424

 CN W732   8616   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007122524
 CN W732   8712   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007122924
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2008011024
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2008011224
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2008021124
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2008050324
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2008050624

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2008050824
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2008050924
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2008051424
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2008051724
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2008062624
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2008070124
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2008070624
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2008070924
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2008071124
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2008081324
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2008082424
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2008082824
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 CN W732   14784         AVER:  24-hr avg, < 18 hours of data, calms policy used.
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 CN W732   14880         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2008091124
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2008121124
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2008122924
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2009052524

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2009072924
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2009103124
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2010010624
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2010021324
 CN W732   27384   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010021424
 CN W732   27408   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010021524
 CN W732   27528   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010022024
 CN W732   27648   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010022524
 CN W732   27840   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010030524
 CN W732   28008   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010031224
 CN W732   28560   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010040424
 CN W732   28848   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010041624
 CN W732   28872   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010041724
 CN W732   28920   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010041924
 CN W732   29376   AVER: 24-hr avg, < 18 hours of data, calms policy used.
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2010051324
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 CN W732   29640   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010051924
 CN W732   29760   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010052424
 CN W732   29808   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010052624
 CN W732   29928   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010053124

 CN W732   29976   AVER: 24-hr avg, < 18 hours of data, calms policy used.
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 CN W732   30000   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010060324
 CN W732   30048   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2010060524
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2010061824
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2010062024
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2010062524
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2010081924
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2010090324
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2011061224

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2011063024
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2011071324
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2011071624
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2011081224
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2011091824
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2011091924
 CN W732   41376   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2011092024
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2011092624
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2011092724
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2011101224
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2011101324

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2011102224
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2011102924
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2011103124
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2011110824
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2011120824
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2011120924
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2011121124
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2011121424
 CN W732   43440         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2011121524
 CN W732   43512         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2011121824
 CN W732   43536         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2011121924
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 CN W732   43632         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2011122324
 CN W732   43704         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2011122624
 CN W732   43728         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2011122724
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CN W732   43776   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2011122924

```
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                       ***        20:24:01

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                          ***      MODEL SETUP OPTIONS SUMMARY
***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses RURAL Dispersion Only.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
      * CCVR_Sub - Meteorological data includes CCVR substitutions
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: PM_2.5

 **Model Calculates  1 Short Term Average(s) of:  24-HR

 **This Run Includes:    763 Source(s);     1   Source Group(s); and    5759
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    763 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                 and:      0 SWPOINT source(s)


 **Model Set To Continue RUNning After the Setup Testing.
```

```
 **The AERMET Input Meteorological Data Version Date:  18081

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m   for Missing Hours
                                                                 b   for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    77.00 ;  Decay
Coef. =    0.000    ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.9 MB of RAM.

 **Input Runstream File:          C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM2.5
Solar Unmit 8.2.23\PM2.5 Solar Unmit BEEST_20
 **Output Print File:             C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM2.5
Solar Unmit 8.2.23\PM2.5 Solar Unmit BEEST_20

 **Detailed Error/Message File:   C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM10
Solar Unmit 8.2.23\AAQA_01.err
 **File for Summary of Results:   C:\Users\apoll\Desktop\HARP2\HARP\Buttonbush\PM2.5
Solar Unmit 8.2.23\PM2.5 Solar Unmit BEEST_20
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                       ***        20:24:01

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                        ***  METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                            (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
```

```
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\Wasco_2007-2011.SFC
Met Version: 18081
Profile file: ..\Wasco_2007-2011.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 99010 Upper air station no.: 66666
Name: UNKNOWN Name: UNKNOWN

Year: 2007 Year: 2007

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN

```
ALBEDO  REF  WS   WD     HT  REF TA   HT
- - - -
```

```
1.00   3.10   220.    15.0  279.8    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD  AMB_TMP sigmaA  sigmaW  sigmaV
 07 01 01 01   15.0 1  311.    0.50    278.8   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                       ***        20:24:01

                                  PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                                *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                    ** CONC OF PM_2.5   IN MICROGRAMS/M**3
            **

                                                        DATE
                                          NETWORK
GROUP ID                              AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)   OF   TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS       0.10161c ON 11122824: AT (  284702.08,
3923112.34,    87.81,    87.81,    0.00)  DC
         HIGH   2ND HIGH VALUE IS       0.10080c ON 07120424: AT (  284702.08,
3923112.34,    87.81,    87.81,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP   = GRIDPOLR
                      DC   = DISCCART
                      DP   = DISCPOLR
  *** AERMOD - VERSION 22112  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
08/02/23
 *** AERMET - VERSION  18081 ***   ***
                       ***        20:24:01

                                  PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*
```

```
*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of          0    Fatal Error Message(s)
A Total of          1    Warning Message(s)
A Total of       8383    Informational Message(s)

A Total of      43824    Hours Were Processed

A Total of       8383    Calm Hours Identified

A Total of          0    Missing Hours Identified (  0.00 Percent)


   ******** FATAL ERROR MESSAGES ********
             ***   NONE  ***


   ********   WARNING MESSAGES   ********
ME W187    1917       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

```
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc                ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:35:59

                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                          ***      MODEL SETUP OPTIONS SUMMARY
***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses RURAL Dispersion Only.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
      * CCVR_Sub - Meteorological data includes CCVR substitutions
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: PM_2.5

 **Model Calculates  1 Short Term Average(s) of:  24-HR

 **This Run Includes:    714 Source(s);     1   Source Group(s); and     200
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    714 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                 and:      0 SWPOINT source(s)


 **Model Set To Continue RUNning After the Setup Testing.
```

```
 **The AERMET Input Meteorological Data Version Date:  18081

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m   for Missing Hours
                                                                 b   for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    77.00 ;  Decay
Coef. =    0.000    ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                             ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.8 MB of RAM.

 **Input Runstream File:          C:\Users\apoll\Desktop\HRAs\PM Solar
12.13.24\PM2.5 Solar Mit 11.13.23\PM2.5 Solar Mit BEEST_200
 **Output Print File:             C:\Users\apoll\Desktop\HRAs\PM Solar
12.13.24\PM2.5 Solar Mit 11.13.23\PM2.5 Solar Mit BEEST_200

 **File for Summary of Results:   C:\Users\apoll\Desktop\HRAs\PM Solar
12.13.24\PM2.5 Solar Mit 11.13.23\PM2.5 Solar Mit BEEST_200
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:35:59

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                       *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                            (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
```

```
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1  1 1  1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

                NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                    *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                          (METERS/SEC)

                                                 1.54,   3.09,   5.14,   8.23,
10.80,
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:35:59

                                    PAGE   3
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                      *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL
DATA ***

   Surface file:   C:\Users\apoll\Desktop\HRAs\Wasco_2007-2011.SFC
                Met Version:  18081
   Profile file:   C:\Users\apoll\Desktop\HRAs\Wasco_2007-2011.PFL

   Surface format: FREE

   Profile format: FREE

   Surface station no.:    99010                 Upper air station no.:    66666
                  Name: UNKNOWN                                   Name:  UNKNOWN

                  Year:  2007                                      Year:   2007

 First 24 hours of scalar data
 YR MO DY JDY HR    H0     U*       W*  DT/DZ ZICNV ZIMCH  M-O LEN   Z0   BOWEN
ALBEDO  REF  WS   WD     HT  REF TA    HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
- - - - - - - - - - - - - - - - - - - -
 07 01 01   1 01   -1.0  0.066  -9.000 -9.000 -999.   40.     26.2  0.04   0.72
1.00   0.50   311.    15.0  278.8    2.0
 07 01 01   1 02   -2.2  0.075  -9.000 -9.000 -999.   50.     17.3  0.04   0.72
1.00   1.00   308.    15.0  278.2    2.0
 07 01 01   1 03   -2.2  0.075  -9.000 -9.000 -999.   50.     17.3  0.04   0.72
1.00   1.00   314.    15.0  278.0    2.0
 07 01 01   1 04   -2.2  0.075  -9.000 -9.000 -999.   50.     17.3  0.04   0.72
1.00   1.00   313.    15.0  277.6    2.0
 07 01 01   1 05   -1.0  0.066  -9.000 -9.000 -999.   40.     26.3  0.04   0.72
1.00   0.50   303.    15.0  277.2    2.0
 07 01 01   1 06   -1.0  0.067  -9.000 -9.000 -999.   41.     26.6  0.04   0.72
1.00   0.50   252.    15.0  277.0    2.0
 07 01 01   1 07   -1.0  0.067  -9.000 -9.000 -999.   41.     26.6  0.04   0.72
1.00   0.50   245.    15.0  276.8    2.0
 07 01 01   1 08   -2.1  0.074  -9.000 -9.000 -999.   48.     17.2  0.04   0.72
0.61   1.00   243.    15.0  276.8    2.0
 07 01 01   1 09   14.3  0.096   0.291  0.007   62.   71.     -5.6  0.04   0.72
0.34   1.00   277.    15.0  278.2    2.0
 07 01 01   1 10   54.6  0.140   0.686  0.005  214.  126.     -4.5  0.04   0.72
0.25   1.50   301.    15.0  280.2    2.0
 07 01 01   1 11   83.5  0.146   0.978  0.005  405.  134.     -3.4  0.04   0.72
0.22   1.50   304.    15.0  281.2    2.0
 07 01 01   1 12   98.6  0.155   1.189  0.007  617.  146.     -3.4  0.04   0.72
0.21   1.50   296.    15.0  282.4    2.0
 07 01 01   1 13   99.0  0.149   1.257  0.008  726.  137.     -3.0  0.04   0.72
0.21   1.50   313.    15.0  283.2    2.0
 07 01 01   1 14   84.8  0.146   1.231  0.008  795.  134.     -3.3  0.04   0.72
0.22   1.50   329.    15.0  284.0    2.0
 07 01 01   1 15   56.6  0.135   1.096  0.008  839.  119.     -3.9  0.03   0.72
0.25   1.50   342.    15.0  284.4    2.0
 07 01 01   1 16   16.9  0.057   0.737  0.008  851.   35.     -1.0  0.03   0.72
0.34   0.50   334.    15.0  284.5    2.0
 07 01 01   1 17   -0.8  0.061  -9.000 -9.000 -999.   36.     24.6  0.03   0.72
0.60   0.50   161.    15.0  283.9    2.0
 07 01 01   1 18   -2.1  0.074  -9.000 -9.000 -999.   48.     17.0  0.03   0.72
1.00   1.00   157.    15.0  282.8    2.0
 07 01 01   1 19   -7.4  0.122  -9.000 -9.000 -999.  102.     21.9  0.03   0.72
1.00   2.10   174.    15.0  281.8    2.0
 07 01 01   1 20  -11.6  0.153  -9.000 -9.000 -999.  144.     28.0  0.03   0.72
1.00   2.60   177.    15.0  281.1    2.0
 07 01 01   1 21  -14.3  0.175  -9.000 -9.000 -999.  176.     34.1  0.07   0.72
1.00   2.60   190.    15.0  280.8    2.0
 07 01 01   1 22  -14.3  0.175  -9.000 -9.000 -999.  176.     34.1  0.07   0.72
1.00   2.60   202.    15.0  280.2    2.0
 07 01 01   1 23  -14.9  0.180  -9.000 -9.000 -999.  184.     35.8  0.07   0.72
1.00   2.60   210.    15.0  280.0    2.0
 07 01 01   1 24  -21.5  0.218  -9.000 -9.000 -999.  244.     52.3  0.07   0.72
1.00   3.10   220.    15.0  279.8    2.0
```

```
 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD  AMB_TMP sigmaA  sigmaW  sigmaV
 07 01 01 01   15.0 1  311.    0.50    278.8   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:35:59

                                  PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

                                              *** THE SUMMARY OF HIGHEST 24-HR
RESULTS ***


                                    ** CONC OF PM_2.5   IN MICROGRAMS/M**3
            **

                                                    DATE
                                       NETWORK
GROUP ID                           AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)   OF   TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS       0.02059c ON 11122824: AT (  272221.10,
3926037.14,    80.04,    80.04,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP   = GRIDPOLR
                      DC   = DISCCART
                      DP   = DISCPOLR
  *** AERMOD - VERSION 24142  ***   ***
C:\Users\apoll\Desktop\HRAs\Buttonbush\AAQA\AAQA.isc               ***
07/25/25
 *** AERMET - VERSION  18081 ***   ***
                       ***        12:35:59

                                  PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  NODRYDPLT  NOWETDPLT  RURAL  ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------
```

```
 A Total of         0    Fatal Error Message(s)
 A Total of       493    Warning Message(s)
 A Total of      8383    Informational Message(s)

 A Total of     43824    Hours Were Processed

 A Total of      8383    Calm Hours Identified

 A Total of         0    Missing Hours Identified (  0.00 Percent)


    ******** FATAL ERROR MESSAGES ********
              ***   NONE  ***


    ********   WARNING MESSAGES   ********
 ME W187    1462       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 CN W732     72          AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007010324
 CN W732     216         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007010924
 CN W732     336         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007011424
 CN W732     792         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020224
 CN W732     816         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020324
 CN W732     840         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020424
 CN W732     912         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020724
 CN W732     960         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007020924
 CN W732    1104         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007021524
 CN W732    1248         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007022124
 CN W732    1704         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007031224
 CN W732    1728         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007031324
 CN W732    1776         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007031524
 CN W732    2040         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007032624
 CN W732    2400         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007041024
 CN W732    2544         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007041624
```

```
 CN W732    2784         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007042624
 CN W732    2880         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007043024
 CN W732    3096         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007050924
 CN W732    3288         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007051724
 CN W732    3312         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007051824
 CN W732    3480         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007052524
 CN W732    3504         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007052624
 CN W732    3600         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007053024
 CN W732    3624         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007053124
 CN W732    3648         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060124
 CN W732    3672         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060224
 CN W732    3696         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060324
 CN W732    3720         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060424
 CN W732    3816         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060824
 CN W732    3840         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007060924
 CN W732    3936         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007061324
 CN W732    4032         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007061724
 CN W732    4080         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007061924
 CN W732    4104         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062024
 CN W732    4152         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062224
 CN W732    4176         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062324
 CN W732    4224         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062524
 CN W732    4272         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062724
 CN W732    4296         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062824
 CN W732    4320         AVER:  24-hr avg, < 18 hours of data, calms policy used.
2007062924
```

 CN W732   4392   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070224
 CN W732   4416   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070324
 CN W732   4440   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070424
 CN W732   4488   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070624
 CN W732   4560   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007070924
 CN W732   4584   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071024
 CN W732   4632   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071224
 CN W732   4656   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071324
 CN W732   4680   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071424
 CN W732   4704   AVER: 24-hr avg, < 18 hours of data, calms policy used.
2007071524
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2007090724

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2007122324
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2007122424

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2009072924
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Appendix C.3

Miscellaneous Air Quality Attachments

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Appendix C.3.1

The Carl Moyer Program Guidelines

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THE CARL MOYER PROGRAM GUIDELINES

2017 Revisions

VOLUME I: PROGRAM OVERVIEW, PROGRAM ADMINISTRATION AND PROJECT CRITERIA









Approved by the Board: APRIL 27, 2017

California Environmental Protection Agency

Air Resources Board



In Memory of Dr. Carl Moyer

(1937 - 1997)

This program is named in honor of the late Dr. Carl Moyer, whose extraordinary dedication, hard work, vision and leadership made this program possible. He created and masterminded this program, in a noble effort to unite business and government in the name of public interest to improve California's air quality.

This update was a collaborative effort and has benefited from the valuable contributions of the participating air quality management districts and air pollution control districts, and all other stakeholders. The Air Resources Board appreciates the considerable efforts of air district staff both in the development of these guidelines as well as the day-to-day implementation of the Carl Moyer Memorial Air Quality Standards Attainment Program.

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EXECUTIVE SUMMARY

Since 1998, the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program or Program) has cost-effectively reduced smog-forming and toxic emissions. Approximately $1 billion has been allocated to date and the Program continues to provide over $60 million in grant funding each year to clean up older polluting engines throughout California. The regulatory, technological and incentives landscape has changed significantly since the creation of the Moyer Program and to address evolving needs, the Legislature has periodically modified the Program to better serve California. Most recently, Senate Bill (SB) 513 (Beall, 2015) has provided new opportunities for the Program to contribute significant emission reductions alongside implemented regulations, advance zero and near-zero technologies, and combine program funds with those of other incentive programs.

This report addresses the implementation of SB 513 by the Air Resources Board (ARB or Board) and California's air pollution control and air quality management districts (air districts) through new guidelines to serve California's air quality goals. SB 513 requires the Board to adopt updated guidelines by July 1, 2017.

California's strategic plans for air quality and mobility, including the State Implementation Plan (SIP) and the Sustainable Freight Action Plan, point to the need for combustion engines to transition to zero and near-zero emission alternatives. This move is critical to California's clean air mission, to the attainment of health-based air quality standards, and to meeting future transportation goals without harm to public health and the environment. Public incentive funds are an increasingly important part of this transition. Incentives both encourage customers to purchase cleaner technologies and stimulate the marketplace to manufacture cleaner technologies.

Collaboration is paramount to the Moyer Program's ongoing success. The changes made through SB 513 were supported and informed by a coalition that included air districts, environmental organizations, industry stakeholders, equipment dealers, and consumers. Many different alternatives and approaches were considered. The result was a working group consensus on new program objectives and improvements essential to continuing program value. In turn, ARB staff developed and conducted public workshops on a proposal to implement those program improvements. Three key changes to the program are described below.

Cost-effectiveness. SB 513 specified that the Board consider the cost of technology and the cost of regulations in establishing a new limit. Staff proposes a tiered cost-effectiveness approach that will allow the Program to more effectively incentivize deployment of cleaner technologies. This two-step approach would support both conventional diesel clean-up projects and emerging technologies at appropriate funding levels. First, staff proposes to increase the general cost-effectiveness limit from the current $18,260 up to $30,000 per weighted ton of emission reductions. This reflects the cost-effectiveness of more recent regulations and will enable more meaningful grants for cleaner engines at the required standard. For advanced technology projects that are zero-emission, or alternatively meet the cleanest certified optional standard applicable

by source category, staff proposes that air districts be given the option to apply a cost-effectiveness limit of up to $100,000 per weighted ton, limited to the increment of emissions reductions beyond those achieved at the required standard. This higher limit would provide additional incentive to turn engines and fleets over to the cleanest certified technologies now emerging in the marketplace.

Infrastructure. SB 513 provides broader opportunity for air districts to support infrastructure projects. The staff proposes to provide air districts with the ability to fund infrastructure projects where the greatest penetration of commercially available advanced technology vehicles and equipment exists. These categories include commercial battery charging and alternative fueling stations for on-road and off-road vehicles and equipment, and continued support for marine shore power electrification and stationary agricultural projects. To provide project selection transparency for publicly accessible projects staff proposes requiring a competitive bid process when the project includes public access. Air districts would retain the flexibility to select projects that meet their local needs and priorities. Per SB 513, infrastructure projects would not be required to meet a cost-effectiveness limit.

Project Co-Funding. As envisioned in SB 513, leveraging of funds allows air districts to work with grant applicants to co-fund projects with other incentive programs up to the cost of the project, without penalizing project cost-effectiveness. Project cost sharing supports the deployment of the cleanest technologies statewide by providing opportunities to co-fund private, local, State and federal funding to cover technology costs. Staff proposes the following safeguards consistent with SB 513: the requirements of all contributing programs must be met, incentives must not exceed the total project costs, there can be no double counting of emission reductions for SIP credit, and the applicant should provide a 15 percent cost share for private sector projects.

Even as the 2017 Guidelines would implement the program improvements directed by SB 513, they retain the Moyer Program's longstanding core objectives. The proposed Guidelines are intended to:

- Ensure continued program accountability and good stewardship of public funds;
- Ensure Moyer projects provide emission reductions that the U.S. Environmental Protection Agency (EPA) will find creditable in the SIP;
- Emphasize reduction in communities with higher pollutant exposure, including communities of minority and low-income populations;
- Provide sufficient incentive to encourage California businesses to participate in and benefit from the program, getting surplus emission reductions within cost-effectiveness limits.

This report describes Moyer Program context and background, and explains how a renewed Moyer Program can support the changing landscape of clean air technology in

and beyond California. Staff's proposed changes will ensure that Moyer can assist the technology shifts that bring California closer to the clean air future called for in our State's strategies.

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(The Carl Moyer 2017 Guidelines are comprised of two Volumes. Volume I includes the program overview, program administration, source category chapters and appendices. Volume II includes the On-Road and Off-Road Voucher Incentive Programs, and the Agricultural Assistance Program.)

THE CARL MOYER PROGRAM GUIDELINES

PART 1 of 3

PROGRAM OVERVIEW, PROGRAM ADMINISTRATION AND PROJECT CRITERIA

CHAPTER 1: PROGRAM OVERVIEW

The Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program or program) is a grant program that funds the incremental cost of cleaner-than-required engines, equipment, and other sources of air pollution. Since 1998, the Moyer Program has been successful in reducing smog-forming and toxic emissions cost-effectively. Although air pollution regulations have significantly reduced emissions and improved air quality across the State, many areas of California continue to experience unhealthy air. The Moyer Program complements California's regulatory program by providing incentives to obtain early or extra emission reductions, especially from emission sources in minority and low-income communities and areas disproportionately impacted by air pollution. Incentives encourage customers to purchase cleaner technologies, and stimulate the marketplace to manufacture cleaner technologies. Although the Moyer Program has grown in scope, it retains its primary objective of obtaining cost-effective and surplus emission reductions to be credited toward California's legally-enforceable obligations in the State Implementation Plan (SIP) – California's road map for attaining health-based national ambient air quality standards.

The 2017 Moyer Program Guidelines (Guidelines) update the program to meet new opportunities provided by Senate Bill 513 (SB 513, Beall, 2015). These changes – cost-effectiveness limits that recognize technology and regulatory costs, the ability to leverage Moyer dollars with project co-funding, added eligibility for infrastructure projects – enable the Moyer Program to fully support emission reductions within the changing landscape of clean air technology.

This program update arrives in time to support the multiple strategic planning efforts that are relying on emission reductions from incentive programs. California's strategic plans for air quality and mobility, including both the Proposed 2016 State Strategy for the SIP and the Sustainable Freight Action Plan, point to the need for combustion engines to transition to zero and near-zero emission alternatives. This move is critical to the State's clean air mission, to the attainment of air quality standards, and to meeting future transportation goals without harm to public health and the environment. The Moyer Program is particularly important among mobile source strategies identified for the SIP, contributing reductions needed toward ozone attainment milestones in the South Coast Air Basin in 2023 and 2031.

The Guideline updates were developed in close and continuing consultation with air quality management districts and air pollution control districts (air districts), who ultimately implement Moyer Program projects. This includes the formation of several teams with specific responsibilities in re-crafting the guidelines, and input from larger group and rural sections meetings. A total of five public workshops were held to collect input from the public, including initial workshops in the San Joaquin Valley and South Coast air basins.

A. Background

The Moyer Program has been a successful and popular air pollution reduction program. Since 1998, Moyer Program grants have enabled the owners of diesel engines to go beyond regulatory requirements by retrofitting, repowering, or replacing their engines to gain early or extra emission reductions. Over the past 18 years more than $900 million in program grants have cleaned up over 50,000 engines, reducing oxides of nitrogen (NOx) and reactive organic gases (ROG) by 178,000 tons and toxic diesel particulate matter (PM) by 6,500 tons. Moyer incentive funds have not only removed old, dirty equipment that would have otherwise remained in operation for years to come, but have benefited the economy by increasing consumer demand for newer and cleaner technologies.

The Moyer Program has been successfully implemented through the cooperative efforts of the Air Resources Board (ARB) and California's air pollution control and air quality management districts (air districts). The Health and Safety Code (H&SC) directs ARB to oversee the program by managing and distributing funds; developing and revising guidelines, protocols, and criteria for covered vehicle projects; and determining methodologies to evaluate project cost-effectiveness. Air districts follow the Board-approved Guidelines to select, fund, and monitor specific clean air projects in their areas, providing grants to public and private entities for the incremental cost of cleaner-than-required engines and/or equipment.

Air districts enjoy considerable flexibility in implementing the Moyer Program. Each air district may focus its funds on specific source categories, to tailor projects to meet local air quality objectives while still ensuring the proper and responsible use of State funds.

Emission reductions funded through the Moyer Program must be permanent, surplus, quantifiable, and enforceable in order to meet the underlying statutory provisions and be SIP-creditable. To ensure that projects are surplus to regulations, funded projects must not be required by any federal, State or local rule or regulation. In most cases project life – the period in which surplus emission reductions are delivered – must be at least three years, so that the program does not fund actions that would otherwise be taken to comply with regulatory deadlines, as well as to help ensure cost-effectiveness. A maximum project life is also established to ensure that the emission reductions remain real for a specified period.

The Guidelines require that emission control technologies be certified or verified by ARB or by U.S. EPA when ARB does not have an applicable certification or verification program. Robust administrative requirements also help ensure emission reductions are enforceable and are achieved for the life of a project. Grantees sign contracts or agreements enforceable for the life of a project. Their replaced engines must be scrapped. Incentive program review by ARB and fiscal audits by Department of Finance help ensure Moyer funds are serving the purpose of achieving expected emission reductions.

1. **Project Types**. The Moyer Program funds clean air projects involving a wide variety of vehicles and equipment. Typical project types include:

   (A) **Replacement.** An older vehicle or piece of equipment that includes an engine with remaining useful life is replaced with a newer, cleaner vehicle or piece of equipment. On-road trucks and buses may be replaced through a fleet modernization contract or through a voucher incentive program (VIP). Off-road equipment also may be replaced under contract or through off-road VIP. In all cases, the older vehicles and equipment are scrapped.

   (B) **Repower.** A newer, cleaner engine is installed in place of a higher-polluting engine in an existing vehicle or piece of equipment.

   (C) **Retrofit**. An emission control system is added to an in-use engine, vehicle or piece of equipment.

   (D) **Vehicle Retirement (car scrap).** Light duty scrap programs pay the owners of older, more polluting vehicles that still have remaining useful life to voluntarily retire those vehicles earlier than they would have otherwise.

   (E) **Infrastructure.** Moyer funds provide for the installation of fueling or energy infrastructure to fuel or power covered sources. Though infrastructure does not directly deliver emission reductions, it enables the advanced clean vehicles and equipment that do.

More details on eligible project types can be found in the source category chapters of the Guidelines. Other projects may be eligible; interested applicants should reference the details in each section and consult with their local air district for additional solicitation material, program brochures, and to discuss potential Moyer Program projects.

2. **Funding Sources**. The Moyer Program has been funded through a variety of mechanisms since its inception in 1998. In the program's first four years, the California Legislature funded the Moyer Program through annual budget appropriations. Voter approval of *Proposition 40: The California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002* provided program funding for the fifth and sixth years.

   Bills enacted in 2004 (SB 1107 and Assembly Bill (AB) 923) provided for continuous funding of the Moyer Program thereafter. The program is currently authorized at $69 million per year from these sources:

   (A) **Smog Abatement Fee.** SB 1107 adjusted the smog abatement fee collected for new vehicles registered by the Department of Motor Vehicles (DMV) from $6 to $12, while extending the new vehicle Smog Check exemption period. This additional fee is directed to fund the Moyer Program (H&SC § 44091.1). SB 1107 funds do not have a sunset date.

(B) **Tire Fee.** AB 923 adjusted the tire fee that is assessed on purchasers of new tires from $1 per tire to $1.75 per tire (Public Resources Code section 42885). This legislation was due to sunset in 2015; AB 8 extended that date through 2023.

ARB receives from DMV the funds from the additional $6 portion of smog abatement fees, and from the Board of Equalization the funds from the additional $0.75 portion of tire fees. ARB distributes these funds, currently about $65 million per year to air districts following a statutory formula (H&SC § 44299.2).

In addition, AB 923 gave air district governing boards the authority to increase the vehicle registration surcharge by $2 to pay for specific clean air incentive programs, including projects eligible for grants under the Moyer Program. AB 923 $2 DMV funds have become the primary source of the 15 percent Moyer match required of air districts receiving more than the minimum allocation. Nineteen air districts have adopted the $2 Motor Vehicle Registration fee, providing these air districts about $50 million per year for incentive projects. The $2 DMV surcharge fees are sent directly by DMV to the air districts.

B. Program Legislative History

The Moyer Program was created in 1998 when $25 million was included in the fiscal year 1998-1999 State budget to fund a lower-emission heavy-duty engine incentive program. ARB adopted the first set of Moyer Program Guidelines in early 1999, and legislation (AB 1571) enacted in 1999 formally established the statutory framework for the program (H&SC § 44275 et seq.). The program initially focused on reducing NOx emissions from heavy-duty diesel engines in order to implement a strategy in the 1994 California SIP for ozone that called for the early introduction of cleaner engines. The scope of the program has expanded over the years with statutory changes adding both new covered pollutants and new source categories.

Legislation enacted in 2001 (AB 1390) required air districts with a population of over 1 million to expend 50 percent of Moyer Program funds for projects that operate or are based in environmental justice areas (H&SC § 43023.5).

Legislation enacted in 2004 (AB 923 and Senate Bill (SB) 1107) provided increased and continued funding through 2015 while significantly expanding the Moyer Program. AB 923 expanded the Moyer Program to include light-duty vehicle projects and agricultural sources of air pollution as defined in Health and Safety Code section 39011.5(a). AB 923 also expanded the Moyer Program from a NOx focused incentive program to include projects that also reduce reactive organic gases and fine particulate matter (PM_{10}). This change allowed the Moyer Program to more comprehensively address California's air pollution challenges, including the air toxic risk associated with emissions from diesel engines. Additional legislation enacted in 2004 (AB 1394) directed ARB to include in the Moyer Program heavy-duty fleet modernization projects that reduce NOx and/or PM_{10} emissions through the replacement of old trucks.

Legislation enacted in 2005 (SB 467) required ARB to revise the Moyer Program Guidelines to include projects in which an applicant turns in off-road equipment powered by internal combustion engines and replaces that equipment with new zero-emission technologies.

Legislation enacted in 2006 (SB 225) provided additional resources for program administration to address the expansion of the program. This legislation increased allowable expenditures for air districts' program administration from 2 percent of program funds for outreach to 5 percent for air districts with one million or more inhabitants and to 10 percent for those with less than one million inhabitants. ARB was provided 4 percent of program funds for outreach, oversight, and administration. These additional resources enabled ARB and the air districts to improve program accessibility, efficiency and accountability.

Legislation enacted in 2009 (SBx2 3) allows a maximum project life of 10 years for off-road farm equipment projects. This legislation also allows for funding of these off-road farm equipment projects up to the compliance date as determined by statute, regulation or rule.

Legislation enacted in 2010 (AB 1507) required ARB to revise the Guidelines by July 1, 2011, to allow for the combination of Moyer Program funds with funds designed to reduce greenhouse gas emissions from federal programs or the Alternative and Renewable Fuel and Vehicle Technology Program without including them in the cost-effectiveness calculation for the Moyer Program funds.

Legislation enacted in 2013 (AB 8) extended funding of AB 923 tire fees ($1.75 per tire) through year 2023, effectively reauthorizing the Moyer Program and associated local funds through that year. AB 8 also directed ARB to convene a working group and work with local air districts to evaluate the Moyer Program and provide recommendations for program changes. The efforts of this working group led to SB 513.

Signed by the Governor in 2015, SB 513 provided new flexibilities that allow the Moyer Program to continue to make a viable contribution to emission reductions in California into the future. SB 513 was implemented in two phases; the early revisions became effective January 1, 2016, following a public meeting and 45-day public comment period, under authority delegated to the Executive Officer. Remaining updates are scheduled for consideration by the Board in April 2017. The most noteworthy changes enabled by SB 513 included:

1. Updating cost-effectiveness criteria, authorizing the Board, in collaboration with the air districts, to establish and revise cost-effectiveness limits to account for the costs of technology and regulation;

2. Allowing for a separate school bus cost-effectiveness limit to allow the Program to fund at the levels equivalent to the Lower-Emission School Bus Program. This change has already been implemented through the amendment of the 2011 Guidelines that became effective January 1, 2016.

3. Expanded opportunities for infrastructure projects; and

4. Allowing project co-funding without penalizing cost-effectiveness.

C. Summary of Changes for the 2017 Guidelines

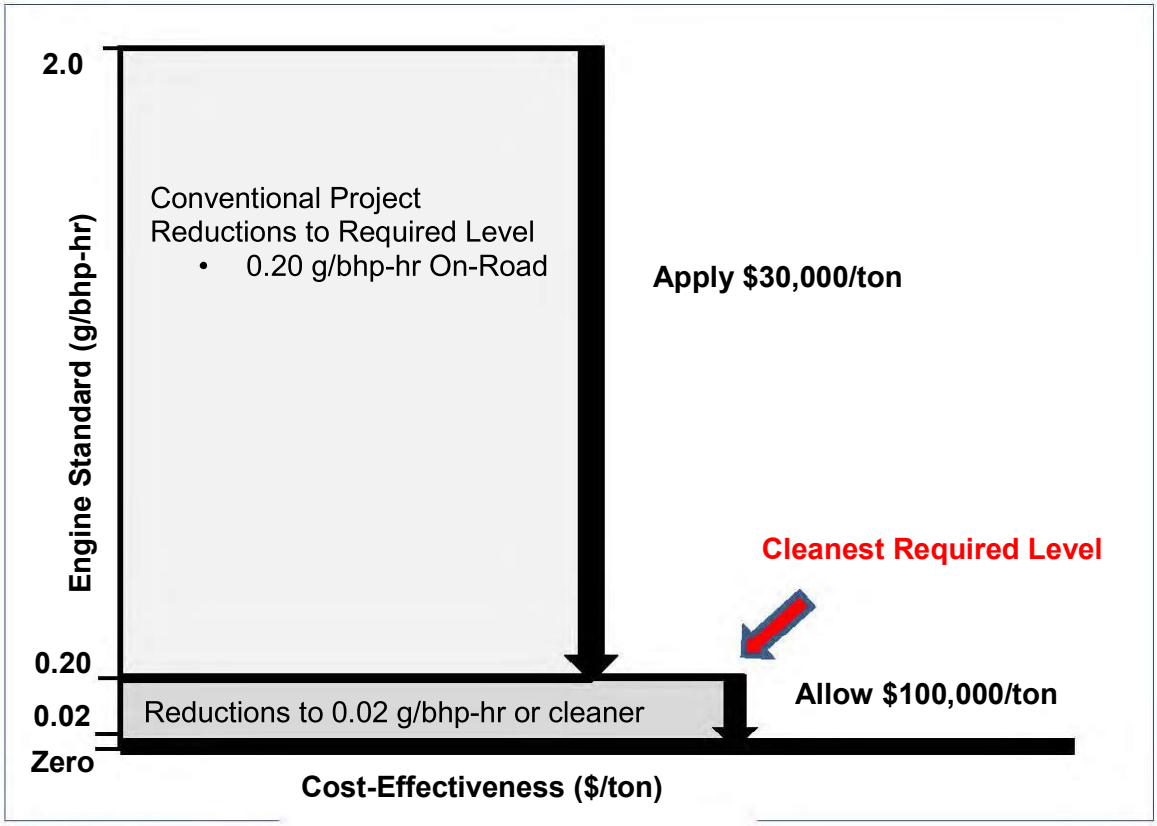
The 2017 Guidelines are proposed as an update to the Moyer Program to reflect the opportunity and flexibility provided by SB 513. The key program changes to be implemented through these Guidelines include the following. (Additional detail is included in the Staff Report issued to accompany Board consideration of these Guidelines.)

1. **Establish New Cost-Effectiveness Limits.** SB 513 specified that the Board, in collaboration with the air districts, should consider the cost of technology and the cost of regulations in establishing cost-effectiveness values. The proposed Guidelines include a tiered cost-effectiveness approach that will allow the program to meet dual needs – supporting both conventional projects and emerging technologies. The general cost-effectiveness limit would be increased from the current $18,260 up to $30,000 per weighted ton of emission reductions (particulate matter (PM) reductions would still be weighted by a factor of 20 due to diesel PM toxicity). The increase in the base limit reflects more recent regulatory costs and will enable more meaningful grants for cleaner engines at the required standard.

   For advanced technology engines that are zero-emission or, alternatively, meet the cleanest optional standard level certified, the proposal allows air districts to choose to apply a cost-effectiveness limit of up to $100,000 per weighted ton. This higher limit would provide additional incentive to turn engines and fleets over to the cleanest certified technologies now emerging in the marketplace.

   Figure 1 below illustrates how the dual cost-effectiveness limits would be implemented under the proposed change for an on-road engine meeting the 0.02 g/bhp-hr Optional Low NOx standard.

Figure 1: Illustration of Dual Cost-Effectiveness Limit for On-Road Projects



2. **School Buses**: Note that a separate cost-effectiveness limit of $276,230 per weighted ton will continue to apply to school bus projects, to enable consistency with the funding levels used in California's Lower-Emission School Bus program as directed by SB 513. This program change has already been made, through a revision to the Moyer Program 2011 Guidelines effective January 1, 2016.

3. **Expansion of Infrastructure Program**. SB513 provided new opportunities to fund installation of fueling or energy infrastructure for zero and near zero alternative vehicles and equipment and other projects that enable clean air technologies. Under SB 513, infrastructure projects are not subject to the cost-effectiveness limit. Infrastructure categories included in the chapter are commercial battery charging and alternative fueling stations for on-road and off-road vehicles and equipment, and continued support for marine shore power electrification and stationary agricultural electrification projects. Proposed funding limits for infrastructure projects are as follows:

   (A) Up to 50 percent of eligible costs for all projects;

   (B) Up to an additional 10 percent (total of 60 percent) for publicly accessible stations;

(C) Up to an additional 15 percent (total of 65 percent) for projects including on-site solar or wind power generation;

(D) Up to 100 percent for electric charging stations and alternative fueling stations for school buses. This is consistent with recent Board direction to consider opportunities for funding to assist public school buses.

To provide project selection transparency for public accessible projects staff proposes requiring a competitive bid process when the project includes access to the public. The proposal also provides flexibility for air districts to select projects that meet their local needs and priorities.

4. **Opportunity to Co-Fund Moyer Projects with Other Public Funds.** Proposed Guideline changes would provide now opportunities for Moyer Program funds to co-fund projects with other incentive programs without a cost-effectiveness penalty, as provided for in SB 513. Co-funding would allow projects to be approved with support from multiple program grants up to the total eligible cost of the project. Moyer Program and AB 923 funds would continue to be subject to cost-effectiveness limits (except in the case of infrastructure), regardless of whether such thresholds apply in other contributing programs. There is no limit on the number of co-funding sources that can be used to fund a project, as long as the total project costs are not exceeded and a 15 percent applicant cost share requirement is met for private sector projects. Provisions in the General Criteria and Program Administration Chapters would safeguard against double counting of emission reductions, and the Moyer Program will account for all emission reductions for SIP purposes. Projects would still be required to meet the individual requirements of each funding source.

5. **Changes to Program Administration**. Program administration affects air district implementation of all Moyer projects, and ARB staff has worked with air districts to streamline and reorganize the administrative requirements that ensure program accountability. A major reporting update made in SB 513 was changing the two year expenditure deadline for grant funds to a four year liquidation deadline. Guideline changes to reflect this provide additional time to complete more complex projects, while contract execution will serve as an interim milestone for progress tracking. Another key change to the chapter is the phase-in of accounting principles, as recommended by California Department of Finance, to improve fiscal transparency and lower the cost of program audits. The updated Guidelines also provide air districts procedures for redirection of unallocated grant funds to districts with ready projects.

6. **Changes to the On-Road Sections**. This version of the Guidelines would merge previous 2011 Guideline chapters 4, 5 and 6 into one comprehensive chapter for heavy-duty trucks and buses. The On-Road Voucher Incentive Program (VIP) program would remain separate in Part II of the Guidelines. A significant change in the on-road section is the addition of funding caps for new technologies such as Optional NOx and zero emission engines. Staff also

modified VIP funding caps for conventional project types. The fleet size limit of ten or less vehicles was removed; however, fleets larger than ten would have to use cleaner engine technology.

7. **Changes to the Off-Road Sections**. The proposed 2017 Guidelines would combine previous chapters 7, 8, 9 and 10 into one off-road equipment chapter, while Off-Road VIP remains separate. Staff proposes to extend the eligibility for large fleets (more than 5,000 horsepower) to one additional opportunity after January 1, 2017. This will provide large fleets a path to add Tier 4 final equipment while retaining broader opportunity for medium fleets within this time frame. Program changes also allow equipment with Tier 3 engines and portable equipment to be eligible for equipment replacement.

8. **Changes to the Locomotive Section**. Program guidelines would be updated for locomotive projects to require all new equipment be Tier 4 or cleaner. Staff also proposes to allow the reuse and/or the recycling of the baseline chassis while still requiring the baseline engine to be destroyed. Idle limiting devices and retrofit projects would no longer be eligible for funding.

9. **Changes to the Marine Section**. For marine projects, proposed changes would include allowing the cleanest technologies to be eligible for the highest maximum percentage of eligible cost, and allowing compliant Tier 2 engines to be repowered. Vessels that are compliant with the Commercial Harbor Craft replacement schedule would become eligible for the same funding amounts as unregulated vessels. Provisions would also be added for hybrid system vessel retrofits.

10. **Emissions Estimates and Deterioration**. Staff proposes that project evaluation consider the emissions that occur due to deterioration of vehicles and equipment emission controls over time. Deterioration rates used in ARB emissions inventories are available for on-road trucks and off-road equipment. Including these factors in Moyer Program emissions and cost-effectiveness calculations for both old and new equipment will better reflect real-world engine emissions over project lives, and align Moyer calculation methods with those used in ARB planning inventories and SIP air quality modeling.

11. **Other Changes.**

    (A) New purchase projects that expand fleets would no longer be eligible projects, due to SIP creditability concerns.

    (B) The baseline vehicle for Light Duty Vehicle projects must have an engine model year of 2003 or older.

    (C) Only minor changes are proposed for the Agricultural Assistance Program (Part III).

(D) Appendices have been re-worked. Calculations in Appendix C are updated to improve the flow of calculations; formulas have been added to account for engine deterioration and calculate the new dual cost-effectiveness limits. Emission factors have been updated in Appendix D and now include deterioration. The appendices for acronyms, definitions and references have been updated. Previous appendices E and G have been removed, with cost-effectiveness information moved to Appendix C and capital recovery tables moved to Appendix D.

CHAPTER 2: GENERAL CRITERIA

The criteria listed below apply to all Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) projects. In addition to the criteria below, Moyer Program projects must also meet the additional project criteria found in the applicable source category chapter and the Program Administration Chapter. In cases where there is a conflict between the Guidelines and statute, the Moyer Program statutory provisions take precedence over the Guidelines. In cases where the source category requirements conflict with either the criteria listed below or Program Administration requirements, the source category requirements take precedence.

A. Covered emission reductions obtained through Moyer Program projects must not be required by any federal, State or local rule or regulation, memorandum of agreement, memorandum of understanding, settlement agreement, mitigation requirement, or other legal mandate.

B. If a Moyer Program project contract has not been fully executed prior to the approval date of an air quality management district or air pollution control district (air district) governing board or Air Resources Board (ARB) rule or regulation (or the promulgation date of a federal regulation) the air district must consider the rule or regulation when evaluating a project's eligibility. If a Moyer Program project contract has been fully executed prior to that date, the air district does not need to consider the rule in evaluating whether the project's emission reductions are surplus.

C. An air district must consider all applicable rules or regulations when determining eligibility for a project. If an existing contract is amended to increase the total Moyer Program funding of the project, then the air district must reevaluate eligibility and consider all applicable rules or regulations. If the total dollars do not increase, then the air district does not need to reevaluate eligibility.

D. A grant applicant subject to an in-use regulation may be eligible to receive funding through the Moyer Program if the applicant has met all compliance requirements of applicable regulations. Documentation of regulatory compliance must be provided by applicants to air districts prior to funding.

E. Participating air districts retain the authority to impose additional more stringent requirements in order to address local concerns.

F. No project funded by the Moyer Program may be used for credit under any federal or State emission averaging, banking or trading program throughout the contract term. No covered emission reductions generated by the Moyer Program may be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity throughout the contract term (Health and Safety Code (H&SC) § 44281(b)).

G. The new engine, vehicle, or equipment must remain in service for the entire contract term, which must extend to the end of the project life. Throughout the contract term, the emission reductions funded by the Moyer Program must not be used to generate credits or compliance extensions and must be excluded when determining regulatory compliance (H&SC § 44281(b)).

H. The State Board and the air districts shall take all appropriate and necessary actions to ensure that all covered emission reductions achieved from a Moyer Program project are creditable in the State Implementation Plans (SIP) and are enforceable, surplus, quantifiable and permanent (H&SC § 44286(g)).

I. When Moyer funds are used for co-funded projects, the Moyer Program will account for all covered emission reductions for SIP purposes (H&SC § 44287.2(a)(4)).

J. ARB will provide protocols for calculating surplus covered emission reductions over the life of representative project types (H&SC § 44283(c)).

K. Engines operating under flexibility provided by an enforcement discretion advisory, mail-out or other advisory issued by ARB, an air district, or the United States Environmental Protection Agency (U.S. EPA) are not eligible for funding.

L. Projects funded by the Moyer Program must be included when determining the size of the fleet for regulatory compliance.

M. Projects selected for funding must meet cost-effectiveness limits per weighted ton of oxides of nitrogen (NOx), reactive organic gases, and particulate matter reduced, as calculated in accordance with Appendix C, except in the case of infrastructure projects.

N. Moyer funds, all local air district AB 923 funds, and match funds must be included in the project cost-effectiveness calculation and are subject to cost-effectiveness limits (H&SC § 44283(d)). Funds from sources other than those listed here are not required to be included in the project cost-effectiveness calculation (H&SC § 44287.2(a)).

O. Applicants must report to air districts all private or public financial incentives applied for or used to co-fund Moyer projects (H&SC § 44283(g)). The air district must ensure that the sum of the other incentive funds and the Moyer funds does not exceed the total project cost (H&SC § 44287.2(b)). Appendix C contains an example of the calculation methodology.

P. Projects co-funded with Moyer and other public funds must meet all requirements of the contributing programs. Grantees from non-public entities must provide at least 15 percent of the Moyer eligible cost from non-public sources.

Q. Moyer Program grants can be no greater than a project's incremental cost. Incremental cost is defined in Appendix B, and some source category chapters provide additional guidance.

R. Moyer Program funds cannot be used to pay for energy or fuel costs. However, local funds under an air district's budget authority or fiduciary control (i.e., match or other local funds) may be used to fund energy or fuel costs other than standard gasoline or diesel fuel, when those costs are integral to a project receiving grant funding under the Moyer Program (H&SC § 44283(f)).

S. Projects must have at least 75 percent of their total activity for the project life in California, unless otherwise stated in the source category chapters. Activity outside of California is excluded from the covered emission reductions used to determine grant funding and SIP emissions benefits.

T. Project engines and retrofits must use only the fuel allowed by the engine certification or retrofit device verification during the project life. Fuel additives are prohibited unless specifically allowed in the engine certification or retrofit device verification.

U. Emission reduction technologies must be certified or verified by ARB. If an ARB certification or verification process does not exist or if engines or retrofits are preempted from ARB certification/verification, then an engine or retrofit must be certified/verified to Federal standards as applicable. For the purposes of the Moyer Program, a technology granted a conditional certification/verification by ARB is considered certified/verified. An ARB certification process may not exist for some zero-emission technologies. See the relevant source category chapter for specific requirements for zero-emission technologies.

V. In circumstances where an eligible vehicle or piece of equipment has more than one engine, the air district may choose to base the cost-effectiveness calculation on overall vehicle/equipment emission reductions rather than on a per engine basis. The project must meet the current project cost-effectiveness limit.

W. Prior to destruction, an engine that is required to be dismantled may be used as a test engine for purposes of retrofit or fuel verification. This can occur as long as the engine complies with the requirements of the guidelines, and the old engine must be destroyed before a payment to the grantee is issued for the new engine.

X. Funding is not available for projects where a spark-ignition engine (i.e., natural gas, gasoline, etc.) is replaced with a diesel engine.

Y. For repower and replacement projects the replacement engine must achieve an annual NOx emissions benefit of at least 15 percent to receive any funding for NOx reductions.

Z. For a repower project, the installation of the engine must be completed in a manner that does not void the engine warranty provided by the manufacturer or any remaining warranty provided by the equipment/vehicle manufacturer.

AA. No public monies are allowed for the support of any sectarian or denominational school, or any school not under the exclusive control of the officers of the public schools. (Cal. Const. Art. 16 § 5 and Art. 9 § 8).

BB. The revised cost-effectiveness limit and capital recovery factors may be used by air districts once the Board adopts the updated Moyer Program Guidelines, but must be used by July 1 following its adoption. ARB will update the cost-effectiveness limit and capital recovery factors annually through a Mail-Out.

CC. ARB may approve, on a case-by-case basis, projects that vary from the requirements of these Guidelines or that do not meet all eligibility criteria in the Guidelines. Projects with case-by-case approvals must provide permanent, surplus, quantifiable, enforceable, cost-effective emission reduction benefits in California for the full contract term. Additional information regarding approval of case-by-case projects is found in the Program Administration chapter.

CHAPTER 3: PROGRAM ADMINISTRATION

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CHAPTER 3: PROGRAM ADMINISTRATION

This chapter describes the administrative requirements that the Air Resources Board (ARB), air quality management districts or air pollution control districts (air districts), and interested parties must follow to ensure that Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) projects achieve State Implementation Plan (SIP)-creditable emission reductions.

A. Background

An air district may choose to require more stringent administrative procedures in implementing its local program. Some source category chapters of the Moyer Program Guidelines (Guidelines) give additional administrative requirements. In a case where the source category requirements conflict with requirements specified in this chapter, the source category requirements take precedence.

These Guidelines must be used for all projects funded with fiscal year 2017-18 (Moyer Program Year 20) and subsequent years' funds. The 2017 Guidelines may be utilized for previous year funds after the Board approval date, and applied to projects for which contracts are fully executed after the Board approval date. When an air district begins applying the 2017 Guidelines to projects, it must continue to apply only the 2017 Guidelines to all subsequently funded projects. ARB will follow these 2017 Guidelines for administration of the Moyer Program following Board approval.

For projects funded using fiscal year 2016-17 (Year 19) and previously awarded funds, an air district may use either the 2011 Guidelines or these 2017 Guidelines, with any applicable program advisories and mail-outs. An air district may not apply elements of both Guidelines to a project.

B. Grant Fund Allocation and Solicitation

1. **Grant Funds Notification**. During each fiscal year, ARB will send a solicitation letter to each air district's Air Pollution Control Officer (APCO) with notification that Moyer Program funds for that year are available. Enclosures with the letter will include the application for funds, a tentative allocation of regular program funds (not including State Reserve funds) for all air districts showing a breakdown of project and administrative funds, and any associated match funds requirement.

2. **Tentative and Final Funds Allocation**. After a review of projected revenues for the current fiscal year, a tentative funds allocation for all air districts will be determined by ARB under the requirements of Health and Safety Code (H&SC) section 44299.2(a); it may include funds returned or reverted to ARB under section 44287(j). Following receipt and review of air district applications, ARB will determine a final funds allocation that (a) considers any update in projected revenues and (b) redistributes any funds declined by air districts to other air districts that have requested additional funds. This redistribution will also follow

the allocation requirements of Health and Safety Code section 44299.2(a). The typical timeline for the initial allocation, air district application, final allocation, disbursement and subsequent expenditure of a fiscal year's grant funds is provided in Table 3-1.

Table 3-1
Moyer Program Regular Funds Timeline

Date	Action
By end of January	ARB sends application packet to air districts
By end of March	Air districts apply to ARB for funds
By end of April	ARB notifies air districts of final awards
By end of May	Air districts return signed grant agreements
June 30 of Following Year	Target date for contracts to be executed
June 30 of Second Year	Deadline for air districts to receive fund disbursements.
June 30 of Fourth Year	Deadline for air districts to liquidate funds

3. **State Reserve Funds**. ARB may direct up to ten percent of Moyer Program funds available each fiscal year to eligible projects selected in accordance with Health and Safety Code section 44286(d). ARB shall annually post on its website a solicitation packet for State Reserve projects. The solicitation packet will include the application requirements and due date, project eligibility criteria, and project selection criteria.

C. Air District Applications for Grant Funds

1. **Air District Options**. An air district may consider the following options upon receiving the solicitation:

   (A) Accept the tentative allocation in full without change, and commit to the associated match funds amount;

   (B) Accept the tentative allocation but request additional funds, and commit to the associated match funds amount;

   (C) Accept the minimum allocation of $200,000, with no match requirement;

   (D) Accept the minimum allocation and authorize the funds be designated to the Rural Assistance Program, for the current year and up to four additional years unless rescinded in a future year;

   (E) Accept the tentative allocation and authorize the funds be designated to a lead air district for Moyer Program funding in the region, for the current year and up to four additional years unless rescinded in a future year;

   (F) Decline an allocation. In this case the air district's share of funds will be redistributed with the final funds allocation.

2. **Application and Resolution**. Within 60 calendar days of the date of the solicitation letter, an air district accepting or designating funds will provide ARB a completed application indicating the option chosen above and signed by the APCO. The application will include a board resolution or minute order that supports the option chosen, and will indicate the district is maintaining a Moyer Program Policies and Procedures manual that meet the requirements of this section. For air districts accepting funds the resolution or minute order will commit the district to participate in the Moyer Program, comply with Program requirements, and commit to providing matching funds if requesting funds above the minimum allocation. If the air district board is unable to consider the Moyer Program application within the 60 days following the solicitation letter, the application will indicate when a resolution or minute order will be considered by the board.

3. **Match Funds**. An air district requesting the tentative allocation or a greater amount must make a match funds commitment equal to 15 percent of State funds requested. The district will indicate on its application the source of match funds. An air district may account for up to 15 percent of its match requirement with in-kind contributions. Sources and requirements for match funds are described in Section I of this chapter.

4. **Policies and Procedures**. To remain eligible for continued funding, an air district will maintain a Moyer Program Policies and Procedures Manual. The manual will focus on the district's local implementation of the Moyer Program Guidelines, including roles and responsibilities within the district and local application of Moyer Program policies. Air district staff will review the manual at least once a year and make it available when requested by ARB staff or a member of the public. The manual will include at least the following elements:

   (A) Roles and responsibilities within the air district for program implementation, including staff or positions responsible for: responding to ARB funding solicitations; evaluation, selection and inspection of projects; and obtaining governing board approval for program participation and projects to be funded;

   (B) Identification of the project source categories supported by the air district Moyer Program, and the schedule for solicitation and review of applications to be submitted under these source categories;

   (C) Procedures for project selection, including cost-effectiveness or other criteria applied to rank projects, or whether projects are selected in order of application receipt (first-come, first-serve); and any procedures that vary by source category;

   (D) Procedures for notifying successful applicants of their grant awards, and for notifying applicants who have not been awarded grants;

(E) Where applicable, project selection procedures that ensure priority for funding projects that will reduce air pollution in communities with the most significant exposure to air pollution (H&SC § 43023.5);

(F) Where applicable, the procedures for selecting projects to be funded with Moyer Program match funds;

(G) The method for calculating interest earned on Moyer Program funds held by the air district;

(H) Procedures for grantees to submit program invoices and receive payment, including itemization required to limit reimbursement to eligible costs, conditions for progress or partial payment, and practices for withheld payments pending grantee reporting;

(I) Methods the air district will use to verify the destruction of engines and equipment when required, consistent with minimum standards specified in these Guidelines by source category;

(J) Methods the air district will use to store and retrieve digital photographs documenting project inspections along with associated project-specific information;

(K) Procedures, schedules and required content for grantee reports;

(L) The types of acceptable documentation for establishing historical annual usage, and procedures for considering and granting usage waiver requests, including supporting information to be provided by the grantee;

(M) Procedures for working with nonperforming grantees to gain full compliance with contracts and program requirements;

(N) Any air district program requirements that are more stringent than those specified in Moyer Program Guidelines and Mail-Outs;

(O) Any ARB approvals of air district program elements that vary from those required by Moyer Program Guidelines and Mail-Outs, e.g., methods of ensuring engine or equipment destruction that vary from those specified in the source category chapters.

D. Grant Application Review and Grant Award

1. **Review Period**. ARB will review an application immediately upon receipt and, when necessary, provide the air district with a written explanation of what is missing from the application within ten working days of its receipt. ARB will approve completed applications that fulfill all criteria no later than 60 working days after receipt, including time for ARB review and comment on air district Policies and Procedures if desired (H&SC § 44287(m)).

2. **Conditional Approval**. ARB may elect to approve an application that is missing a particular item and make the submittal of that item a Special Term and Condition of the Grant Agreement. For example, sometimes air district staff is unable to obtain a board resolution or minute order before the application

deadline. In such a case, ARB may allow a board resolution or minute order to be submitted with the signed Grant Agreement or prior to the air district's initial disbursement.

3. **Policies and Procedures Review**. The grant application includes the air district's statement that it is maintaining a manual of current policies and procedures consistent with the requirements above. ARB may choose to review an air district's Policies and Procedures Manual, and an air district may request ARB's review of its manual's completeness and consistency with these Guidelines. ARB comments on an air district's Policies and Procedures Manual will be provided by email or in other written format. An air district's policies and procedures as implemented can only be fully evaluated during a program review process.

4. **Grant Award Notification and Signature**. ARB will prepare and submit to qualifying air districts each year a notification of final grant awards, accompanied by a Grant Agreement for review and signature. A deadline for air district acceptance of the grant award will be specified in a cover letter sent with the Grant Agreement. The Grant Agreement package will include two copies of a cover sheet indicating the amounts of funds granted for projects and for administration, the required amount of match funds if applicable, any Special Terms and Conditions, and General Terms and Conditions for the grant. The district APCO will sign both copies of the cover sheet and return them with original signatures to ARB. Following signature by ARB Budgets Chief, ARB will return one original copy to the air district for its records.

E. Fund Disbursement

1. **Procedure**. ARB may disburse funds following signature of the Grant Agreement by both parties. To obtain funds the air district will submit a completed current Grant Disbursement Request Form, available on the Moyer Program website. The Grant Disbursement Request Form must include an original signature by a party authorized and designated by the air district's Governing Board. Any Special Terms and Conditions in the Grant Agreement must be met before ARB will disburse funds associated with the grant award. Disbursement requests must be received by ARB by May 15 each year to ensure payment within the fiscal year. Any funds not disbursed by June 30 two years following the award will be reallocated to all districts in the subsequent grant cycle.

2. **Initial and Additional Disbursements**. An air district may request an initial disbursement of $200,000 or 10 percent of its project funds, whichever is greater. The air district may request additional disbursements when the criteria below have been met.

   (A) The preceding Yearly Report demonstrates on-time liquidation consistent with Health and Safety Code section 44287(j); or if not, any funds not

liquidated on time have been received by ARB. ARB will not require a return of funds under executed contract. ARB may require an air district to change the funding years from which funds are assigned to projects in the statewide database (Clean Air Reporting Log or CARL) to facilitate on-time liquidation.

(B) The Grant Disbursement Request Form is accompanied by a list of projects under executed contract with invoices pending, approved by an air district governing board, or under air district staff review for eligibility and funding. The total cost of the projects listed should equal or exceed the amount of the disbursement request.

3. **Administration Funds**. An air district may also request some or all of its administrative funds with an initial disbursement. The air district will receive one check for both program administration and project funds, but must account for the expenditure of administration and project funds separately.

F. Redirection of Funds

1. **Procedure**. An air district may redirect funds to another air district or the Rural Assistance Program by submitting to ARB the items below. For funds already disbursed by ARB and due for liquidation by June 30 of the current fiscal year, the air district must submit these items no later than March 31 to allow time for processing new grant agreements. For funds not yet disbursed by ARB and due for disbursement by June 30 of the current fiscal year, the air district must submit these items no later than March 15 to allow time for processing new grant agreements and subsequent processing of a disbursement request for the air district receiving the redirected funds. A redirection request includes:

   (A) The Moyer Program Redirection of Funds form, with the appropriate portions completed in consultation with ARB staff and indicating the sums of project and administrative funds to be redirected, which may include interest or other earned funds due for liquidation;

   (B) Resolutions or minute orders adopted by the boards of the air districts transferring and receiving funds that authorize the redirection;

   (C) A memorandum of understanding (MOU) or equivalent signed by the air pollution control officers of the affected air districts. The MOU must:

      (1) Specify the details and conditions of the redirection of funds;

      (2) Identify which air district is responsible for any required match associated with the redirected funds;

      (3) Identify the funding year and the associated liquidation deadline for the redirected funds;

      (4) Specify how and when payment will be made to the air district receiving the funds, including one of the following:

a. If the transferring air district has not submitted a disbursement request to ARB, the MOU will specify that the air district that is receiving the funds will submit the request to ARB following ARB approval of revised grant agreements.
b. If the transferring air district has the funds already, the MOU will specify that it will pay the receiving air district directly, following ARB approval of revised grant agreements.

2. **Amended Grant Agreements**. After receiving the items above from the transferring air district, ARB staff will develop new or amended grant agreements. District APCOs must sign and return the grant agreement cover sheets for signature by the ARB Budgets Chief. After ARB signature of both revised grant agreements, the receiving air district may request either a disbursement of funds from ARB or payment from the transferring air district. An air district receiving funds from another district will submit a copy of the check to Moyer Program staff.

3. **Retention of Administrative Funds**. Air districts redirecting project funds but retaining, with approval of the receiving air district, associated administrative funds must provide to ARB by the close of the fiscal year in which the funds were transferred a description of how administrative funds were utilized for the period since the grant award, including but not limited to the following:

   (A) A summary of air district activities to solicit project applications, including copies of any written grant solicitations and lists of potential applicants to which outreach was directed;

   (B) A list of project applications submitted and reviewed;

   (C) A breakdown of staff time devoted to Moyer Program activities;

   (D) A summary of any Moyer Program training activities for air district staff.

G. Rural Assistance Program

1. **Purpose**. The Rural Assistance Program (RAP) is a partnership among rural air districts, the California Air Pollution Control Officers Association (CAPCOA), and ARB to enhance rural air district participation in the Moyer Program. RAP facilitates air district participation by streamlining the grant administrative process and by encouraging the pooling of financial and technical resources. The reduction in cost and staff resources lowers the threshold for participation in the Moyer Program and maximizes project funding in rural areas.

2. **Designation or Redirection to RAP**. An air district may designate funds to RAP in its application for Moyer Program funds (see Section C.1.(D)). An air district may also redirect funds to RAP after it has executed a grant with ARB, but must do so by March 1 of the year by which funds must be disbursed, as shown in the example timeline below. RAP funds that have been disbursed to air districts and

subsequently returned to ARB will be reallocated to other RAP projects whenever possible.

Table 3-2
Example RAP Funds Calendar:
Moyer Program Year 18 (Fiscal Year 2015-2016)

January–April 2016	Air district applies for funds and executes Year 18 Grant Agreement; funds are designated to RAP.
March 1, 2018	Deadline to redirect air district's grant funds to RAP
June 30, 2018	Deadline for air districts to receive fund disbursements. Target date to expend Year 18 grant award.
June 30, 2020	Deadline to liquidate Year 18 grant award

3. Roles and Responsibilities among RAP Program partners are as follows:

(A) ARB notifies CAPCOA of funds designated or redirected to RAP, and develops and administers grant agreements between ARB and recipient air districts.

(B) CAPCOA selects a program administrator, which may be CAPCOA staff, an air district, or a third party. CAPCOA also establishes criteria for project selection and approves projects selected by the Program Administrator.

(C) The RAP Program Administrator provides outreach for RAP, prepares the application and project solicitation, performs initial application screening, ensures project eligibility, ranks projects based on CAPCOA criteria, selects projects, and determines recipient air districts.

(D) Donor air districts designate all or a portion of their Moyer allocations to RAP on their Moyer grant award application, or redirect grant funds already accepted to RAP using the procedure in Section F of these Guidelines. Air district boards approve designation or redirection of RAP funds via resolution or minute order.

(E) Recipient air districts sign grant agreements with ARB to accept funds for RAP projects, maintain a Policies and Procedures Manual, and are responsible for grant obligations, including contracts with grantees for project implementation, project inspections, monitoring and reporting. Air district boards approve receipt of RAP funds via resolution or minute order.

H. AB 923 - $2 Motor Vehicle Fee

1. **Project Eligibility**. State law allows air districts to collect an additional $2 motor vehicle registration surcharge (MV Fee) (H&SC § 44223) which must be used to fund the following project categories (summarized) (H&SC § 44229(b)):

   (A) Projects eligible for grants under the Moyer Program.

   (B) The new purchase, retrofit, repower or add-on equipment for previously unregulated agricultural sources of air pollution (Agricultural Assistance Program, H&SC § 39011.5).

   (C) Purchase of new school buses or the repower or retrofit of emissions control equipment for existing school buses pursuant to the Lower-Emission School Bus Program adopted by the Board.

   (D) An accelerated vehicle retirement or repair program that is adopted by ARB.

   (E) Onboard natural gas tank replacements in existing school buses 14 years or older or the enhancement of deteriorating natural gas fueling dispensers of fueling infrastructure pursuant to the Lower-Emission School Bus Program adopted by the Board.

   (F) Alternative fuel and electric infrastructure projects solicited and selected through a competitive bid process.

2. **Match**. $2 MV Fees used to meet the Moyer Program match fund requirement (See Section I) are subject to the same eligibility, reporting, review and auditing requirements as State-provided Moyer Program funds. $2 MV Fee funds used to meet the match requirement are not required to be expended within two years from the date of their collection. However, air districts must expend sufficient match funds to meet the obligations for the Moyer Program funds received each year.

3. **Reporting and Oversight**. Reporting and oversight of the $2 MV Fee depends upon whether the fee is used to meet the Moyer Program's match requirement and whether the air district takes SIP credit for $2 MV Fee projects. Table 3-3 summarizes the various scenarios for treatment of $2 MV Fee funds and projects. Sections M and R of this chapter further describe $2 DMV fee reporting and oversight.

Table 3-3
Summary of $2 MV Fee Requirements and Oversight

Requirement	$2 MV Fee Used as Match	$2 MV Fee Used for SIP Credit	$2 MV Fee Not Match/ not SIP
Liquidation of funds within four years	[a]	--	--
Meet full and complete Moyer Program Guideline criteria	√	--	--
Subject to ARB Incentive Program Review	√	--	[b]
Subject to ARB project eligibility evaluation (e.g., cost-effective and surplus)	√	√	√
Fiscal reporting to ARB (list total funds expended in seven basic categories)	√	√	√
Detailed reporting to ARB (project specifics submitted in current database)	√	√	--

[a] Sufficient funds must be liquidated, regardless of their year of origin or source, to provide the required match by that year's liquidation deadline. For example, for Year 18, air districts must complete liquidation of applicable Year 18 match funds by June 30, 2020. When those funds were received is not a factor in determining this deadline.

[b] Non-match projects funded with AB 923 $2 MV Fee may be evaluated by ARB in conjunction with Incentive Program Review. Evaluation of these projects will be limited to project eligibility. Any irregularities regarding non-match AB 923 $2 MV Fee project eligibility must be reported separately from Incentive Program Review findings.

I. Air District Match Funds

1. **Requirement**. Air districts participating in the Moyer Program are required to provide match funding. Air districts implementing the Moyer Program must commit match funds equaling 15 percent of the regular Moyer Program funds received. An air district receiving the minimum grant award of $200,000 is exempt from this match requirement.

2. **Federal Funds**. Air districts may use federal funds as Moyer Program match if written confirmation is received from the administering federal agency (for example, the United States Environmental Protection Agency) that (1) the administering agency has no objection to the air district using those funds as match, and (2) the emission benefits obtained from those funds will not be used by the administering agency in a State Implementation Plan. The air district must also ensure that it will not use such funds as match for any other program and that the use of the funds as Moyer Program match does not conflict with any State or local requirements regarding the funds. If this option is used, supporting documentation must be included in all relevant project files.

3. **Program Basis**. Air districts may meet their matching fund requirement on an overall program basis rather than a project-by-project basis. In other words, air

districts do not need to provide match funds towards each project funded, but must fund enough projects (in total or in part) with match funds in order to meet the match requirement. Match funds are included in cost-effectiveness calculations and subject to the same cost-effectiveness limits as other Moyer program funds.

4. **Match Fund Sources.** Match funds may be any funds under an air district's budget authority or fiduciary control that are committed to be expended in accordance with Moyer program requirements. Match funds may also be provided by a port authority, or a local government teamed with an air district. Match funds provided by a port authority or a local government shall not exceed 30 percent of the total required matching funds in any air district that applies for more than $300,000 of the state board funds (H&SC § 44287(e)). Port authorities may participate through projects involving their own equipment, or by soliciting port tenants to apply for project funding.

5. **In-Kind Contributions**. Up to 15 percent of an air district's match requirement may be fulfilled through in-kind contributions (H&SC § 44287(h)). Air districts may use any funds under their budget authority, except for Moyer Program administrative funds and interest or other funds earned on Moyer Program funds, to cover their in-kind contributions. When using air district funds for in-kind match, air districts must follow all relevant statute, guidelines, and other legal requirements for expending such funds. In-kind contributions have the same expenditure timeline as match funds. Air district in-kind match funds spent on program administration and outreach must meet the documentation requirements in Section J.

6. **Eligible Projects**. Match funds may be used to pay for any project that meets all Moyer Program criteria. Match funds may also be used to pay for the incremental cost of electricity or alternative fuels serving a Moyer program eligible source category.

J. Air District Administration Funds

1. **Air District Funding**. Air districts with one million or more inhabitants may use up to 6.25 percent of their Moyer Program funds on program outreach and administration, while air districts with under one million inhabitants may use up to 12.5 percent of their Moyer Program funds (H&SC § 44299.1(c)-(d)). Air districts shall maintain an outreach program consistent with Health and Safety Code section 44290.

2. **Allowable Costs**. Table 3-4 lists allowable administration costs and documentation that the air district is required to maintain for Moyer Program administrative funds. Air districts will make available the documentation shown in the table for review during ARB or other State agency monitoring visits, reviews and audits. Such administrative records for a given funding year must be retained for a minimum of five years following the applicable funding year

liquidation deadline. For example, for Year 16 (fiscal year 2013-2014) funds, the funding year liquidation deadline is June 30, 2018, and administrative records would be retained through June 30, 2023.

Table 3-4
Administration and Outreach Costs and Documentation

Allowable Cost	Required Documentation
Air district staff time	Personnel documentation that may include timesheets or output of labor tracking software; duty statements or job descriptions indicating percentage of staff time; or written summaries of Moyer Program staff activities with time estimates by activity or task.
Consultant fees	Consultant contracts and invoices
Printing and mailing costs	Receipts and invoices. Copies of solicitations and outreach materials indicating availability of grants
Travel expenses	Receipts and invoices. Travel cost criteria must be consistent with written air district travel policies for other air district programs, cited in the Policies and Procedures Manual or local administrative manual.
Indirect costs	Indirect cost calculation methodologies must be described or cited in the Policies and Procedures Manual or local administrative manual, and calculated costs must be documented.

3. **Mitigation for Unallowable Costs**. An air district that charges unallowable costs for program administration or outreach must substitute eligible administration and outreach expenses equal to the dollar amount found ineligible, or return the funds for the unallowable cost to ARB.

K. Accounting Principles

Air districts must establish accounting practices for Moyer Program funds consistent with the requirements below, as early as practicable and no later than July 1, 2019.

1. **Moyer Funds Account**. Moyer Program funds (Moyer funds) must be accounted for as separate funds within the air district's general ledger following generally accepted accounting principles (GAAP). An air district receiving a total allocation of one percent or more of all Fiscal Year 2016-17 Moyer Program funds must use a Special Revenue Fund for Moyer funds accounting. Other air districts may use a Trust Fund.

2. **Timing of Recognition in Financial Statements**. Moyer Program grants are voluntary non-exchange transactions to the air district. As such the air district should recognize revenues in the fiscal period when all eligibility requirements have been met and the resources are available. For reference see Governmental Accounting Standards Board (GASB) Statements 33 and 34.

3. **Required Financial Statements**. Financial statements containing at minimum the following account balances and transaction classes, as applicable, will be prepared at least annually.

   (A) Balance Sheet:

      (1) Cash and Cash Equivalents (cash, investment pools, petty cash)

      (2) Moyer Program Fund Revenue Receivable (grant funding from ARB)

      (3) Recapture Revenue Receivable (recapture funds receivable from grant participants for unmet contractual obligations)

      (4) Salvage Revenue Receivable (revenue receivable from retired equipment sold or auctioned for scrap metal)

      (5) Accounts Payable (vendor invoices pending for Moyer projects)

      (6) Fund Balance

         a. Restricted for Air District Projects
         b. Restricted for State Reserve, Multi-District, RAP Projects
         c. Restricted for Administration and Operating Costs

   (B) **Statement of Revenues, Expenditures, and Changes in Fund Balance:**

      (1) Revenue Subsidiary Ledgers

         a. Regular Moyer Funds Project Revenue
         b. State Reserve and Multi-District Project Revenue
         c. Rural Assistance Program Project Revenue
         d. Administration and Operating Revenue
         e. Recapture Revenue
         f. Salvage Revenue
         g. Interest Revenue

      (2) Expenditure Subsidiary Ledgers:

         a. Project Expenditures (from regular Moyer grant, recapture, salvage, interest)
         b. State Reserve and Multi-District Project Expenditures
         c. Rural Assistance Program Project Expenditures
         d. Administration and Operating Expenditures including indirect costs

      (3) Awards Returned: Moyer Program air district money returned to ARB for reallocation

      (4) Transfers In/Out

4. **Interest Revenue**. Any interest earned on investment of Moyer fund cash balances must be deposited in the Moyer funds account and used to fund

Moyer-eligible projects, or to fund administration up to the portion provided for in Health and Safety Code section 44299.1(c)-(d), or be remitted to ARB.

(A) An air district electing not to invest Moyer Program fund cash balances but investing other cash balances should deposit the Moyer Program funds in a separate checking account to clearly indicate that no such moneys were invested.

(B) When invested, Moyer Program funds should receive equitable pro-rated interest earned on the total funds invested. As State funds, Moyer Program funds may be invested only in accounts or instruments that reflect the risk appetite of the State. For reference see Office of the State Treasurer Local Agency Investment Guidelines. Any loss from investments not made in accordance with standards set forth in California Government Codes must be covered by the air district.

5. **Recapture and Salvage Revenue**. Revenues earned or collected by the air district through Moyer Program resources, including revenues obtained through salvage and sale of scrapped equipment, must be reported and either retained as a supplemental source of funds for Moyer projects or forwarded to ARB for deposit to the Air Pollution Control Fund. If recaptured funds or salvage revenues are invested, such revenues must meet the requirements of Section K.4.(B) above. Air districts are not required to earn funds through program actions, or expected to base business decisions on their ability to generate returns or collect funds through program activity.

6. **Expenditures for Moyer Program Projects**. All project expenditures out of the Moyer funds account must meet the Moyer Program Guidelines current at the time of contract execution, including any revisions to those Guidelines in effect at the time of contract execution.

7. **Reporting Requirements**. No later than six months after the air district fiscal year end, the district will append to its Yearly Report a Balance Sheet and a Statement of Revenues, Expenditures and Changes in Fund Balance, in formats consistent with GAAP.

8. **Records Retention**. Grant receipts and expenditure documents including invoices, contracts, vouchers, personnel and payroll records should be retained for five years after the grant liquidation period or the last recorded grant transaction, whichever is later.

L. Co-funding Moyer Program Projects with Other Funding Sources

1. **Purpose**. Senate Bill 513 (Beall, 2015) provides new opportunities to co-fund Moyer Program projects with other funding sources. These Guidelines specify requirements that apply when multiple funding sources are proposed to support a Moyer Program eligible project. All co-funded projects must adhere to the Moyer Program objective to achieve cost-effective and surplus emission reductions to

be credited toward California's legally enforceable obligations in the SIP (H&SC § 44286(g)). There is no limit on the number of co-funding sources to fund a project as long as total project costs are not exceeded and the applicant cost share requirement is met.

2. **Designation of Non-Moyer Funds**: Funds other than Moyer Program grant funds may be used to co-fund Moyer Program eligible projects, when all program criteria associated with each funding source are met. Funding sources are grouped into the following categories. Definitions of these categories can be found in Appendix B.

   (A) Federal funds;

   (B) State funds;

   (C) Local funds;

   (D) Penalty funds;

   (E) Other applied funds.

3. **Mitigation Funds**. Mitigation funds may be used to co-fund a Moyer project if an air district submits a request for a case-by-case determination in accordance with Section U and receives ARB approval.

4. **Cost-effectiveness Calculation**. The non-Moyer funds described above are not required to be included in Moyer project cost-effectiveness calculations (H&SC § 44287.2(a)). Match funds and all AB 923 $2 DMV Fees are required to be included in project cost-effectiveness calculations.

5. **Applicant Cost Share**. An applicant that is not a public entity must provide at least 15 percent of a project's Moyer eligible cost from non-public sources. The applicant cost share cannot be covered through in-kind contributions. An air district may request a case-by-case determination from ARB to waive all or part of an applicant's cost share, in accordance with Section U. In its waiver request, an air district must identify the source(s) and amount(s) of the proposed project's funding and explain the reasons for the cost share waiver, discussing at a minimum either or both of the following factors:

   (A) The public benefit of the project that is above and beyond the emission reductions achieved;

   (B) How the project will advance newer and cleaner technology.

6. **Applicant Disclosure and Payment**. The sum of project funding from all sources may not exceed the total project cost (H&SC § 44287.2(b)). Applicants must disclose all sources of funding applied for at the time of the Moyer project application, and again when submitting each invoice to the air district, prior to payment of Moyer Program grant funds (H&SC § 44283(g)). An air district may not issue payment of Moyer Program grant funds until all funding sources have

been identified and verified and the air district can ensure that the sum of the grants awarded to the project, including both Moyer and non-Moyer funds, does not exceed the total project cost.

7. **Emission Reductions**. All covered emission reductions achieved from a project with multiple funding sources will be credited as reductions from the Moyer Program to ensure proper SIP accounting, improve the likelihood of federal credit, and avoid risk of double-counted reductions. Other emission reductions, such as greenhouse gases, may be claimed by other programs that co-fund a project.

8. **Reporting of Project Data**. For co-funded projects an air district will report in CARL consistent with the reporting requirements of Section M. The air district will also report other co-funding sources and funding amounts. When reporting project funding sources to CARL, air districts will categorize certain co-funding sources as specified below.

   (A) Funding from investor owned utilities will be reported as "other applied funds," and funding from publicly owned utilities as "local funds."

   (B) Supplemental environmental project funds will be reported as "other applied funds."

   (C) Funds from local transit agencies will be reported as "local funds."

M. Yearly Report

1. **Reporting Requirement**. Each year by June 30, ARB will prepare and make available to air districts a certification form with instructions for completion of the Yearly Report. Air districts will complete, certify and submit the Yearly Report by August 29. An air district that has designated to another air district or the Rural Assistance Program all grant funds for all years covered in the Yearly Report is not required to complete a report.

2. **Reporting in CARL**. Air districts will report project information in the Clean Air Reporting Log (CARL) database, either via CARL forms or batch import, sufficient to populate the required data fields and to calculate covered emission reductions and cost-effectiveness for source categories where required. The air district will ensure the information in CARL is complete, correct, and supported by documentation. The air district will report on projects funded in whole or part with these funds:

   (A) Granted Moyer Program funds;

   (B) Match funds;

   (C) Interest and other non-grant revenues earned to support the Moyer Program;

   (D) Multi-district and State Reserve funds;

(E) Rural Assistance Program funds;

(F) Non-Moyer funds as specified in Section L;

(G) AB 923 $2 DMV fees used for projects claimed for SIP credit;

(H) Other funds that ARB oversees relative to the Moyer Program.

3. **Report Content**. The Yearly Report will include the following information as of June 30, the end of the past fiscal year:

(A) Output generated by the Required Reports utility of CARL for the default years specified in the utility.

(B) Contract execution and liquidation status of Moyer Program funds, including match funds, earned interest funds, multi-district and State Reserve funds, RAP funds, and other funds for which the air district has a Moyer Program obligation during the fiscal years covered by the report. Funds will be reported relative to the progress milestones identified in Sections N and O below.

(C) A funding summary by project type of non-match projects funded with AB 923 $2 MV fees when no SIP credit is claimed. Projects funded with AB 923 $2 DMV fee funds not used as match and not claimed for SIP credit need not be entered into CARL, but the air district will summarize in the Yearly Report the amounts of such funds expended for each of the project categories identified in Section H.1.

(D) For the most recent fiscal year, additional funds available to the Moyer Program from the following sources. These funds will be included in the target for the funding year due for liquidation in four years unless the air district directs ARB staff to include them in an earlier year target.

(1) The amount of any interest accrued on Moyer Program funds held in local accounts. An air district may choose to designate in the Yearly Report all or a portion of this interest for remittance to ARB.

(2) Funds recaptured from liquidated projects, including funds provided back to the air district following ARB enforcement actions, identified by project name and funding year.

(3) Non-grant revenue earned for the Moyer Program by the air district, such as from the sale of scrapped engines or equipment.

(E) A list of any projects identified as non-performing and a brief narrative of any related enforcement actions.

(F) The portion of match funds to be met through in-kind contributions, as provided in Section I.5.

4. **Report Certification and Documentation.** The air district APCO, Chief Financial Officer (CFO), and Moyer Program administrator must sign and certify that the project and fiscal information contained within the Yearly Report is, to the

best of their knowledge, accurate and complete. The APCO may also serve as the Moyer Program Administrator. The APCO may designate an alternate to the CFO if the designated alternate is someone other than the APCO or Program Administrator. The air district will maintain documents in support of the report at the air district office, and make them available to ARB staff upon request.

5. **Project Eligibility**. Receipt of a Yearly Report by ARB does not imply ARB approval of project eligibility. Air district staff is responsible for project approval and funding eligibility determinations. Air districts that are found to have funded ineligible projects will be required to substitute eligible projects equal to the amount found ineligible or return the ineligible amount to ARB.

N. Progress Tracking

1. **Progress Milestones**. To support timely emission reductions and track progress toward statutory fund liquidation requirements, air districts and ARB will work together to meet recommended progress milestones as follows. After execution of a grant agreement with ARB for Moyer Program funds, air districts will make every effort to have 50 percent of the project funds awarded under executed contract by June 30 of the next calendar year, and 100 percent of the project funds under executed contract by June 30 of the second calendar year after the agreement. Air districts will also make every effort to have 50 percent of project funds liquidated within two years, and 75 percent of project funds liquidated within three years. Similar progress milestones apply to any match funds associated with granted project funds. Progress will be reported in Yearly Reports. Table 3-5 shows an example of progress milestones for the 2018 Yearly Report.

Table 3-5
Example Progress Milestones: 2018 Yearly Report

Timeline	Fiscal Year	Funding Year	Milestone
1 year	2016-17	19	50% of project funds under executed contract
2 years	2015-16	18	100% of projects funds under executed contract
			50% of project funds liquidated
3 years	2014-15	17	75% of project funds liquidated
4 years	2013-14	16	100% of grant funds liquidated (Section O)

2. **Cumulative Tracking**. ARB will provide tools in CARL to track district progress toward milestones. Except in the case of a four-year funds liquidation deadline, districts may track progress on a cumulative basis. In the table above, for

example, an air district demonstrating the portion of funding year 17 project funds liquidated would count any funds liquidated from funding years 18 to 20.

3. **Funding Targets**. To assist cumulative tracking and reporting, ARB will maintain in CARL appropriate progress tracking targets for each funding year. These funding targets will include the total funds required to meet contract execution and liquidation progress milestones. ARB will adjust progress tracking targets to account for the movement of funds into and out of an air district's account, including redirected funds, RAP grants, adjustments for in-kind match, and other changes agreed to in consultation with districts.

4. **Execution Progress for Vouchers**. For Moyer voucher programs, the voucher issue date is used in lieu of executed contract date to gauge progress in contract execution.

5. **Cancelled Contracts**. Any funds associated with an engine, vehicle, or equipment cancelled from a contract prior to the liquidation of the contract as a whole will no longer be considered executed beginning at the time of the cancellation.

6. **Follow-up Actions**. Progress milestones are advisory in nature. ARB liaisons and management will work with air districts that do not demonstrate sufficient progress toward contract execution and project liquidation targets in the Yearly Report. When an air district cannot demonstrate at least one-half of funds are under contract after two years, and one-half of funds liquidated after three years, the district will append to the Yearly Report a progress statement. The statement will address the reasons for delays in executing contracts or completing payment for projects, and the schedule for follow-up actions. Such actions may include specific steps to improve progress or the redirection of funds to air districts better equipped to meet statutory liquidation deadlines.

O. Funding Year Liquidation

1. **Liquidation Requirement**. By June 30 of each year, air districts must have liquidated all Moyer Program funds associated with the funding year four calendar years prior, as well as interest, recaptured funds, and other funds added to the funding target for that year. For example, funds awarded for Year 18 (fiscal year 2015-2016) must be fully liquidated by June 30, 2020. Before submitting the Yearly Report an air district may attempt to resolve an apparent liquidation shortfall by modifying in the CARL database the funding years from which funds are assigned to projects.

2. **Match Liquidation**. Match funds must be liquidated by the same liquidation deadline as the Moyer Program funds with which they are associated regardless of the date such funds were collected by the air district.

3. **Liquidation Terms**. Air districts are advised of the distinction between project liquidation used for cumulative progress tracking in Section N and funding year

liquidation as required in this section. Project liquidation is demonstrated when all funded equipment in a project are paid-in-full and post-inspected; liquidated projects are credited in cumulative progress tracking. Funding year liquidation is demonstrated when all funds assigned to a funding year have been paid out in full, with the exception of any withheld payments. Liquidated projects are credited in cumulative progress tracking.

4. **Data Completion**. A funding year that has been liquidated by an air district and all associated projects will be removed from cumulative tracking. Projects associated with liquidated funding years may not be revised in or removed from the CARL database after the funding year is liquidated, except in unusual circumstances following consultation with and written approval by ARB staff.

5. **Withheld Payments**. For completed projects for which all invoices have been paid except for a small amount withheld pending grantee reporting, both the paid funds and the withheld funds will be considered liquidated for the purpose of funding year liquidation. Withheld payment practices must be addressed in the project's contract and in the air district's Policies and Procedures Manual. Withheld progress payments considered to be liquidated per this section that are not ultimately paid to the grantee due to non-performance will be reported as recaptured funds.

P. Return and Reallocation of Funds

1. **Return of Unliquidated Funds**. If the Yearly Report identifies a liquidation shortfall that cannot be resolved through reassignment of liquidated funds from more recent years, and the remaining unliquidated funds are not under executed contract, the air district must submit and ARB must receive a check for the shortfall amount by September 28 (i.e., 90 days after the June 30 liquidation deadline and 30 days after the Yearly Report deadline). ARB will provide Instructions for the return of funds in the Yearly Report certification form. No additional disbursements will be made to the air district until funds subject to return have been received by ARB.

2. **Return of Other Funds**. An air district choosing to remit to ARB all or a portion of earned interest, or to return other funds following consultation with ARB, may do so following instructions in the Yearly Report certification form.

3. **Reallocation**. ARB will add funds returned by air districts to the subsequent cycle of Moyer Program funding, following the allocation requirements of Health and Safety Code section 44299.2.

Q. Program Nonperformance

1. **Monitoring Nonperformance**. As directed by Health and Safety Code section 44291(d), ARB monitors air district programs to ensure that participating air districts conduct their programs consistent with the criteria and guidelines established by the Board. Program non-performance is an air district's

non-compliance with program Guidelines or statute that is not corrected by the air district in a timely or satisfactory fashion. ARB may become aware of possible air district non-performance through Yearly Reports, Incentive Program Review, district self-reporting or other means. Examples of program non-compliance with program guidelines or statute include, but are not limited to, the following:

(A) Failure to return unliquidated funds within 90 days of the liquidation deadline (H&SC § 44287(j));

(B) Misuse of Moyer Program funds, including funding of ineligible projects;

(C) Insufficient or improper program oversight and enforcement, including widespread deficiencies in project contracting, inspections, reviews or audits;

(D) Insufficient, incomplete, or inaccurate project documentation;

(E) Failure to submit timely and accurate reports to ARB;

(F) Other non-compliance with program guidelines or statute.

2. **Nonperformance Procedures**. When ARB determines that an air district program is not complying with program guidelines, the ARB liaison and manager will work with air district staff to understand the issues, and develop a plan and timeline to resolve them. If the ARB Branch Chief determines that the issues related to program nonperformance have not been resolved, ARB will send by email to the air district program contact a program nonperformance notification, that contains the following:

   (A) Description of the unresolved issues, including pertinent details such as names of involved persons and projects, dates, dollar amounts, and citations of relevant program guidelines sections, Health and Safety Code sections, and regulations; and

   (B) Possible solutions to the problem, if some have been identified, and/or an offer ARB assistance; and

   (C) Arrangements for a possible meeting between the ARB Branch Chief and the air district APCO to agree on a plan and timeline for resolving the problem. The plan and timeline shall be recorded by the ARB air district liaison and emailed to the air district APCO within five business days of the meeting.

3. **Withholding of Funds by ARB**. Lacking satisfactory resolution of the issues that have resulted in the nonperformance notification, the ARB Executive Officer will determine if the nonperformance warrants withholding funds that have been granted to the air district and not yet awarded to approved projects. If so, ARB will send a letter of program non-performance to the district APCO. The letter will set a public meeting to be held at the air district's offices (or other appropriate

facility within the air district). The purpose of the meeting will be to consider public comments prior to withholding any funds.

R. Incentive Program Review

1. **Purpose**. ARB conducts Incentive Program Reviews to help ensure that air district programs achieve expected emission reductions and are implemented in a manner consistent with these Guidelines and State law (H&SC § 44291, 39500). ARB Incentive Program Reviews place emphasis on collaboration with the affected air district in the review process. Features of this approach include a joint initial review of project files, ongoing and regular communication with air district staff throughout the file review process, and where possible an opportunity for districts to correct problems prior to their inclusion as findings in the final report.

2. **Scale of Review**. ARB uses a risk-based approach to select specific air district programs and projects to review, and to select fiscal years within the scope of each review. Air districts are selected for Incentive Program Review based on identified need or with consideration of program funding amount. ARB's objective is to review over a five-year period air district programs receiving at least 80 percent of Moyer Program funds. Air district implementation of other State incentive programs will be selected as appropriate for review at the same time as the Moyer Program review.

3. **Fiscal Compliance Audits**. ARB may also contract with independent auditors including the California Department of Finance Office of State Audits and Evaluations, to conduct audits of incentive program fiscal compliance. The independent auditors will conduct these audits in accordance with Generally Accepted Government Auditing Standards, and will prepare reports on the results of the audits including any findings. ARB retains final authority with respect to corrective measures and follow-up, in consultation with the air district.

4. **ARB Responsibilities**. ARB will conduct Incentive Program Reviews in a manner that reflects its entrusted accountability and responsibilities.

   (A) ARB will generally define the scope of a Moyer Program review to cover a period of up to five fiscal years not covered in the previous review. The scope of years within review may vary for other incentive programs. Once a funding year is reviewed, ARB will not review it again unless warranted. ARB may investigate possible fraud or misuse of funds in any program year.

   (B) ARB will maintain open channels of communication with the air district during the review. ARB will fully explain the review's scope and procedure at the beginning of the process, discuss preferred channels of communication with the air district, inform the air district of potential issues as they unfold, provide full and ongoing opportunity for air district input, provide the air district opportunities to correct problems that arise during

the review process, thoroughly discuss any findings and recommendations with the air district before and during the exit interview, and provide the air district an opportunity to formally respond to the Incentive Program Review report.

(C) To ensure objectivity and predictability, ARB will base its findings and recommendations on State law, applicable guidelines and Mail-Outs, grant agreements, email communications between ARB and the air district, the air district's Policies and Procedures Manual, case-by-case determinations, and the air district's local requirements.

(D) All Incentive Program Review reports, air district responses, and related documents shall be made available to the public via posting on ARB's Moyer Program website.

(E) ARB will conduct follow-up activities to ensure any deficiencies remaining following review are promptly and effectively mitigated. ARB will offer its assistance to air districts working to correct deficiencies.

5. **Air District Responsibilities**. Air district staff and management will participate in entrance and exit interviews, support collaborative review and open communication with ARB staff, ensure that program files and other requested information are available to reviewing staff of ARB and the Department of Finance, work to fully and promptly mitigate deficiencies identified during the review, work to resolve any disagreements, and request assistance from ARB as necessary.

6. **DMV Fee Project Evaluation**. AB 923 $2 MV Fee projects are subject to Incentive Program Review or evaluation as follows:

(A) A Moyer Program match project funded with the AB 923 $2 MV Fees will be subject to the same review and oversight requirements and protocols as other Moyer Program match projects.

(B) A non-match project funded with the AB 923 $2 MV Fee may be evaluated by ARB in conjunction with an Incentive Program Review. Evaluation of these projects will be limited to project eligibility. Any irregularities regarding non-match AB 923 $2 MV Fee project eligibility will be reported separately from other Incentive Program Review findings.

S. Requirements for Project Applications

1. **Data Required for CARL**. Project applications must include the information needed for calculation of project cost-effectiveness in the CARL database.

2. **Existing Engine Usage**. Project applications must include documentation of existing engine usage, such as miles traveled, hours operated, or fuel consumed per year, for 24 months or as specified in these guidelines by source category.

This information will be used to evaluate project cost-effectiveness and the maximum grant award amount.

3. **Active Duty Military Applicants**. If an applicant has been on active military duty at any time during the previous 24 months, documentation prior to deployment and covering the same length of time as the deployment period may be used to meet the title, registration, usage, and operation in California requirements as applicable for each source category. The applicant must submit a copy of DD Form 214, Certificate of Release or Discharge from Active Duty to verify military service during the deployment period.

4. **Third Party Signature**. Applications must include a signature and date section for third parties. A third party may complete an application or part of an application on an owner's behalf if the vehicle, engine, or equipment owner signs and dates the application.

5. **Applicant Certification**. Project applications must include language informing the applicant that by signing and submitting the application, the applicant certifies under penalty of perjury that the information in the application is accurate and true. In addition, the application must include the following statements that the applicant or the applicant's designee must certify as accurate and true:

   (A) A disclosure statement consistent with Section L.6. of this chapter, specifying whether the applicant has submitted an application for incentive funds to any other entity or program for the same equipment (for example, repowering of the same engine). The applicant must disclose to whom other applications were submitted, whether funds have been awarded or may be awarded, and the amount or potential amount of other funding.

   (B) A regulatory compliance statement certifying that the applicant is currently in compliance with all federal, State, and local air quality rules and regulations at time of application submittal, and is not aware of any outstanding or pending enforcement actions.

6. **Applicant Non-Disclosure**. An applicant who is found to have applied for or received incentive funds from another entity or program for the same project without disclosing that information as required by these Guidelines shall be disqualified from funding for that project from all sources within the control of an air district or ARB. The air district or ARB may also seek civil penalties for such non-disclosure.

7. **Subsequent Applications**. An applicant may re-apply for project funding if a previous application for the same project has been rejected by the air district and is no longer being considered for funding.

T. Application Evaluation and Project Selection

1. **Review for Completeness**. Air districts must review all applications for completeness upon receipt, and notify an applicant within 30 working days of receipt if the application is not complete (H&SC § 44288(a)). The air district must make every effort to clearly state to the applicant what is required to make the application complete. The application and all correspondence with the applicant should be kept in the applicant's project file. Additionally, the record of each project's rating and ranking as applicable, receipt date, and other project selection criteria must be maintained with the project file.

2. **Credibility**. Air districts are responsible for determining that project applications are credible, made in good faith, and in compliance with the Moyer Program and its objectives.

3. **Eligibility**. Air districts must ensure that the emission reductions provided by selected projects are eligible and surplus to adopted regulations and other legal requirements. This should include checking to ensure the project meets the minimum requirements in the appropriate source category chapter, including:

   (A) Documentation of historical vehicle, equipment, or engine usage;

   (B) Documentation of project costs;

   (C) Engine or retrofit device Executive Orders, if applicable;

   (D) Proof of a vehicle compliance check as needed for on-road projects;

   (E) Other documentation identified in the source category chapter.

4. **Application Tracking**. Air districts must have a system for tracking applications. CARL may be used to satisfy this requirement if an air district enters the data from all applications received into this database, whether the application is provided funding or not. Air districts not using CARL will track the information needed to populate required CARL data fields. A tracking system is not required for air districts receiving under one-half percent of the current fiscal year total Moyer Program Funds, or $450,000, whichever is less.

5. **Project Selection**. After reviewing applications for project eligibility, the air district must follow its Policies and Procedures Manual in selecting projects to fund. Projects approved for funding must meet all applicable requirements of these guidelines.

6. **Communities with Most Significant Exposure**. Air districts with a population of one million or more residents must select projects from their applicant pools in a way that ensures that 50 percent or more of their Moyer Program funds are expended to reduce air pollution in communities with the most significant exposure to air pollution, including communities of minority and low-income populations (H&SC § 43023.5). Air districts may track this on a cumulative basis.

7. **Project Evaluation**. An air district must evaluate projects to ensure each project selected for funding meets the emission reduction and cost-effectiveness

requirements of the Moyer Program as applicable. Projects may not be funded when CARL indicates these requirements are not met. In such cases, an air district representative believing a project should qualify may contact his or her ARB liaison to further evaluate project eligibility.

8. **Recordkeeping**. The air district must maintain a file for each project selected for funding. Files may be retained in an electronic format if complete and easily accessible. Unless otherwise specified by source category or in Section K.8., project files must be retained three years following the end of the contract term. In the event final payment has not been issued prior to the end of the contract term, the three-year clock is re-started upon final payment. Applications for unfunded projects must be kept a minimum of two years following the solicitation period, or two years from receipt if there is not a specified solicitation period.

9. **Subsequent Application and Double-Counting**. Moyer Program participants that received funding and are still under contract may not apply for funding for the same project from the Moyer Program (including a Voucher Incentive Program), from the Proposition 1B Goods Movement Emission Reduction Program, or any other program.

    (A) If an air district chooses to amend a contract to reduce the term, the amended project must be cost-effective during the reduced contract term, based on the cost-effectiveness values and limit that applied when the original contract was executed. If an air district agrees to accept a prorated repayment of the Moyer Program grant, the repayment and amended contract execution must both occur prior to the execution of any new contract for funding.

    (B) Emissions reductions from previously funded projects must not be included as emissions benefits of any subsequent project for the Moyer Program (including a Voucher Incentive Program) or the Proposition 1B Goods Movement Emission Reduction Program.

U. Case-by-Case Determination Process

1. **Limitations**. ARB Moyer Program staff may approve on a case-by-case basis a project that varies from specific requirements of these Guidelines only if such approval will not adversely affect achievement of surplus, quantifiable, enforceable and permanent emission reductions. Case-by-case approvals also may not result in an exceedance of the applicable cost-effectiveness limit, or reduce program transparency, or cause a violation of law or regulation. Air districts are required to request a case-by-case determination even if they believe a project is similar to previously-approved case-by-case projects.

2. **Procedure**. An air district may request ARB review of the project for a case-by-case determination using the procedure below. After receipt of all

information needed, ARB will respond to the air district within 15 business days with a determination or estimated date of determination.

(A) The air district will submit the following to the Moyer Program air district liaison:

(1) A summary of the request, with reference(s) to the pertinent area(s) of the Guidelines for which the air district is asking for additional guidance and approval;

(2) Documents providing information essential to the determination, including but not limited to: baseline and new engine information; the associated ARB engine Executive Orders and/or U.S. EPA Certificates of Conformity for baseline and new engines; other related applicant information from a completed application;

(3) Other information and documents as requested by Moyer Program staff.

(B) ARB will make one of the following determinations:

(1) Approved. Approval of a project does not imply or equate to "blanket approval" of other similar projects.

(2) Not Approved. Non-approval of a project does not imply or equate to "blanket non-approval" of other similar projects.

(3) No Action / Case-by-Case Approval Not Required: ARB evaluation concludes that a case-by-case determination is not required as the request already conforms to the requirements or intent of the Guidelines.

3. **Public Availability and Recordkeeping**. ARB will post on the Moyer Program website all case-by-case determinations submitted for review. Air districts will keep a copy of the determination, either approved or not approved, in the project file.

4. **After Contract Execution.** Air Districts should always attempt to request a case-by-case determination prior to contract execution. ARB will consider requests for case-by-case determination subsequent to contract execution only when an unforeseen event leads to a project or program element that varies from the requirements of these Guidelines.

V. Minimum Contract Requirements

1. **General Requirements**. Except as specified for on-road and off-road voucher incentive programs, air districts participating in the Moyer Program must execute contracts with prospective grantees who will receive funds under the Moyer Program. All Moyer Program project contracts must include the elements described in this section. Projects funded by the Moyer Program may not be used to generate a compliance extension or credit for regulatory compliance. All

executed project contracts and contract amendments must be kept in the air district's project files.

2. **Party Names and Date**. All contracts must state the name of the air district and the grantee as parties to the contract. Contracts must include signature blocks with an area for the dates the contract is signed, or the execution date must otherwise be clearly indicated in the contract. In any case where digital signature is used in lieu of original signature, the digital signature must comply with California Government Code section 16.5 and Title 2, California Code of Regulations, sections 22000 – 22005.

3. **Notices**. All contracts must include contact information for both parties to the contract, including how to send and receive notices.

4. **Funds from Other Sources**.

   (A) Grantees must certify that they have disclosed all funding sources that they have applied for or received for a project, and that the grantee will notify the air district of additional sources of funding received for the total cost of the project, including any sources that become available after contract execution (H&SC § 44283(g)).

   (B) Grantees that co-fund a project must meet all criteria associated with each funding source used to fund the project (H&SC § 44287(a)).

   (C) A grantee that is not a public entity must provide at least 15 percent of a project's Moyer eligible costs from non-public sources (see Section L). The contract must prohibit the grantee from receiving grants and other funds that exceed the total project cost.

   (D) A grantee may receive Moyer Program funding from multiple air districts for the same project if these entities are coordinating to jointly fund portions of the project. The contract must list the entities involved and funding provided.

5. **Contract Term**. All contracts must specify the term of the contract. The contract term shall include two time frames – "project completion" and "project implementation" – to ensure that the air district and ARB can fully enforce the contract during the life of the Moyer Program-funded project.

   (A) Project Completion. Project completion is the time frame starting with the date of execution of the contract to the date the project post-inspection confirms that the project has become operational. This includes the time period when an engine, equipment, or vehicle is ordered, delivered and installed. The contract must include a specified time frame in which project completion will occur so that the contract is liquidated within four years from the original date of contract execution. Under no circumstance may the liquidation date be extended beyond four years from the original date of contract execution.

(B) Project Implementation. The project implementation time frame is the second part of the contract term, and must equal the project life used in the project cost-effectiveness calculation. The contract must specify that the grantee is required to operate and maintain their Moyer Program funded project according to the terms of the contract for the full project implementation period.

6. **Project Specifications**. All contracts must include detailed information on the baseline and new vehicles, equipment, and/or engines that were used in the project cost-effectiveness calculation. This requirement may be met by including the project application as an attachment to the contract as long as the application is accurate and complete.

   (A) A program-eligible replacement vehicle, equipment and/or engine that is verified or certified to achieve equivalent or greater reductions than the original project replacement vehicle, equipment and/or engine may be substituted with prior approval of the air district.

   (B) At least 24 months of documented and verified historic usage is required for the baseline engine, such as miles traveled, hours operated, or fuel consumed, and in this case usage is not required to be in the contract. If this information is not available, the air district may estimate the usage for the old engine and the estimated usage must be included in the contract.

      (1) The types of acceptable documentation for establishing historical annual usage will be clearly defined in each air district's Policies and Procedures Manual and will be subject to ARB approval.

      (2) Additional forms of documentation to verify historical annual usage that are not included in an air district's Policies and Procedures Manual can be evaluated and approved by ARB on a case-by-case basis.

   (C) Contracts must also contain a statement that the project complies with the Moyer Program Guidelines and that the grantee will meet the following requirements:

      (1) Certify that the grantee's fleet, engine(s), or equipment/vehicle is in compliance with all applicable federal, State, and local air quality rules and regulations at time of contract execution.

      (2) Maintain compliance with all applicable federal, State, and local air quality rules and regulations for the full contract term.

      (3) For repower projects, the installation of the engine must be completed in a manner such that it does not void the engine warranty provided by the manufacturer and any remaining warranty provided by the equipment/vehicle manufacturer.

   (D) Contracts must specify the following:

(1) Projects funded by the Moyer Program must be included when defining the size of the fleet for determining regulatory requirements.

(2) Throughout the contract term, projects funded by the Moyer Program must not be used to generate credits or compliance extensions, and must be excluded when determining regulatory compliance.

7. **Maintenance**. All contracts must require the grantee to maintain the vehicle, equipment, engine, and/or funded infrastructure according to the manufacturer's specifications for the life of the project, and include a prohibition on engine tampering. The grantee must maintain a working hour meter for projects that use hours of operation as a means of calculating emission reductions and cost-effectiveness. If the hour meter fails, the grantee must immediately notify the air district, and remain responsible for validating any hours not recorded by the hour meter. The grantee must either repair or replace the non-operating meter or provide other documentation of equipment operating hours acceptable to the air district.

8. **Payment**. Before a Moyer Program payment may be made to a project participant, the project contract must be executed, an eligible invoice must be received by the air district, and the project post-inspection must be successfully completed to document the completion of the work specified in the invoice. The equipment must be operational before the final payment is issued. All contracts must include the following payment terms:

   (A) **Maximum Contract Amount**. The maximum contract amount must not exceed the maximum funding level corresponding to the current program cost-effectiveness limit, nor may the maximum contract amount exceed the project incremental cost. The maximum contract amount must also comply with any funding caps and other criteria for the specific project category as identified in these Guidelines.

   (B) **Itemized Invoices**. Payment terms must require itemized invoices from the engine or equipment supplier for repowers and infrastructure projects, paid invoices from the vehicle owner for new vehicles, and satisfactory post-inspection by the air district prior to payment of the owner's invoice. An invoice payment for a specific vehicle, engine, or equipment may not exceed the amount indicated on the project contract for that vehicle, engine, or equipment. The contract should be clear that the air district will pay the lower of the contract amount or the final invoice amount. Invoices must meet the minimum requirements of Section Y to be eligible for Moyer Program funding.

9. **Reporting**. All contracts must include a provision for grantees to submit annual reports commencing no later than 18 months after project post-inspection and continuing annually thereafter throughout the project implementation phase of the

contract. The air district must include the dates the grantee Annual Report is due.

(A) During the project implementation phase, the air district is responsible for monitoring the project to assure the project is operational and the project emissions reductions are realized.

(B) The contract must inform the grantee that noncompliance with the reporting requirements will require on-site monitoring or inspection(s).

10. **On-Site Inspections, Audits and Records**. All contracts must include language that allows the air district, ARB, or their designee to conduct an inspection or audit of the project, including the engine, vehicle or equipment and associated records, during the contract term. Contracts must also require the owner to maintain and retain usage and other records associated with the project for at least three years after the end of the contract term.

11. **Repercussions for Nonperformance**. Air districts must include repercussions for non-compliance with the obligations of the contract.

(A) The contract must specify that by executing the contract, the grantee understands and agrees to operate the vehicle, equipment, and/or engine according to the terms of the contract and to cooperate with the air district and ARB in implementation, monitoring, enforcement, and other efforts to assure the emission benefits are real, quantifiable, surplus, and enforceable.

(B) The contract must describe the repercussions to the grantee for noncompliance with contract requirements, including but not limited to cancelling the contract and recapturing project funds in proportion to any loss of emission reductions or underutilization as agreed to in the contract (H&SC § 44291(c)).

(C) The contract must inform the grantee that ARB and the air district have the authority to seek any remedies available under the law for noncompliance with Moyer Program requirements and nonperformance with the contract.

(D) The contract must state that ARB, as an intended third party beneficiary, reserves the right to enforce the terms of the contract at any time during the contract term to ensure emission reductions are obtained.

W. Project Pre-Inspection

1. **Requirements.** Upon confirming a project's eligibility the air district must complete a pre-inspection prior to contract execution, except as specified in this section.

(A) All projects must be pre-inspected personally by air district staff, except that air districts may choose to allow public agencies (e.g., public works departments, transit organizations, and school districts) to provide

documentation of the engine(s), equipment, and usage in lieu of a pre-inspection.

(B) Air districts receiving less than one-half of one percent of the current fiscal year total Moyer Program Funds, or $450,000, whichever is less, may reduce their required project pre-inspections to a minimum of 25 percent of the total number of projects associated with the current fiscal year funds. At least one project must be selected from each source category funded, however.

2. **Documentation**. The pre-inspection form and information to be documented must include, at a minimum, the following:

   (A) Information regarding the baseline engine, vehicle, or equipment as needed to uniquely identify, establish eligibility, provide a basis for emission calculations, populate the CARL database, and ensure contract enforceability. Such information includes (as applicable) make, model, year, horsepower, fuel type, engine family, engine tier, serial number, vehicle identification number (VIN), and any additional information pertinent to the project. Engines without a visible and legible serial number must be uniquely identified by having the engine block stamped with a Moyer Program number or alternative permanent marking such as an engine tag.

   (B) The project usage (hours or miles) meter reading if used in the project cost-effectiveness calculation. The inspector must verify that stated project usage is reasonable given the usage meter reading.

   (C) Verification that the engine is operational (with a start-up) and that the engine is working as described in the application (document function and use).

   (D) Photo documentation of the engine, vehicle, or equipment information. The photos must include the legible serial number of the engine (if available) and/or any other identifying markings.

   (E) Other relevant information including, but not limited to:

      (1) Name of inspector;

      (2) Date of inspection;

      (3) Name and contact information of engine or equipment owner; and

      (4) Location of the engine or equipment.

3. **Compliance Certification**. No later than the time of pre-inspection the air district must obtain certification and submission of supporting documentation from the applicant that their engine(s), vehicle/equipment, or project fleet is currently in compliance with the applicable rules or regulations affecting the engine(s), vehicle/equipment for which they are requesting funding.

4. **Recordkeeping**. The air district must maintain a hard copy of the completed pre-inspection form in the air district's project file.

5. **Inspection after Contract Execution**. The project pre-inspection must be completed prior to a project contract execution and the information in the contract must be consistent with the information gathered during the pre-inspection. An air district may apply to ARB for approval to conduct pre-inspections after contract execution only on a case-by-case basis. Case-by-case approval of such a procedure will depend upon the following conditions being met:

   (A) The air district describes the program benefits it would achieve by conducting pre-inspections after contract signature.

   (B) The project contract includes language to indicate contract terms may be adjusted or the contract may be deemed void based upon information collected during the pre-inspection. The air district must also include a process for informing the prospective grantee of such.

   (C) The air district's Policies and Procedures Manual clearly specifies the process for conducting pre-inspections after contract execution and any additional procedures enacted to ensure the project achieves real, surplus, enforceable, and quantifiable emission reductions. Work on the project engine, vehicle, or equipment may not commence until after the pre-inspection.

X. Project Post-Inspection

1. **Requirement**. An air district must gather and document post-inspection information on all projects funded under the Moyer Program. For post-inspection of infrastructure projects, see Chapter 10 for further guidance.

   (A) The air district will conduct a post-inspection after it receives an invoice for a project from the grantee or otherwise receives notice the project is complete. Information on the invoice must be consistent with the information gathered at the post-inspection. If the post-inspection occurs before the air district receives the project invoice, the invoice must be reviewed for consistency with the new engine, vehicle, or equipment information from the post-inspection form.

   (B) When 20 or more vehicles are included in a vehicle replacement project for a public fleet or transit agency, the air district is not required to post-inspect each replacement vehicle, but must inspect no fewer than five percent of the vehicles included in the project.

   (C) The inspector must record, at a minimum, information regarding the new project engines, vehicles/equipment, and retrofit devices as needed to uniquely identify, establish eligibility, provide a basis for emission calculations, and ensure contract enforceability. Information sufficient to populate all required fields in CARL must be recorded. Submersible pump

inspections may have the applicant take a picture of the motor name plate information including, make, model, and serial number prior to installation inside the irrigation well. The air district will verify the make, model and horsepower rating information with the project invoice.

(D) The engine must be operational in the equipment or vehicle as stated in the contract. The inspector must visually witness all engine startups and operation of all mobile projects.

(E) The engine, vehicle/equipment, and retrofit information must be documented with photos. The photos must include the serial number of the engine or retrofit (if legible) and/or any other identifying markings. Photos of the scrapped or destroyed engine must be included.

(F) The post-inspection form must also contain other relevant information including, but not limited to:

(1) Name of inspector;

(2) Date of inspection;

(3) Name and contact information of engine or equipment owner; and

(4) Location of the engine or equipment.

(G) The air district must maintain a hard copy of the completed post-inspection form in the air district's project file.

2. **Equipment Labels**. Post-inspection of a retrofit device requires the collection of additional information from the labels affixed on both the retrofit device and the engine. If the proper labels are missing, payment may not be made until this is corrected. Potential scenarios are summarized below, which air district staff must address prior to payment:

(A) The retrofit device is properly labeled but the engine lacks a label: An engine label should be readily obtainable from the retrofit manufacturer by reference to the serial number. The air district may make payment once the grantee has been informed that the engine must also be labeled.

(B) The retrofit device is labeled but the label does not have the required items: The air district may make payment once it gets approval from ARB regarding an approved alternate label or a compliant label has been installed on the retrofit device.

(C) The engine is properly labeled but the retrofit device lacks a label: The air district may make payment once a compliant label has been installed on the retrofit device.

(D) No label is found on either the engine or the retrofit device: The air district may make payment once a compliant label has been installed on both the engine and the retrofit device.

3. **Electric Motors**. Post-inspection of a new electric motor on an agricultural pump must also include recording of the serial number of the variable frequency device if the project includes one.

4. **Verification of Destruction**. The air district must verify that the existing (old) engine is destroyed and rendered permanently unusable and irreparable, consistent with requirements in the source category chapters of these guidelines and with the air district Policies and Procedures Manual.

   (A) Air district staff must verify and document through photographic or video evidence that the destroyed engine serial number matches that on the project contract.

   (B) Air district staff must verify that engines without a visible and legible serial number are uniquely identified by the correct air district stamp or other permanent marking prior to engine destruction.

5. **Consistency with Contract**. The air district must verify that the information collected in the post-inspection is consistent with the project contract.

Y. Project Invoice and Payment

1. **Prior to Payment**. Except as specified below, an air district will make payment for a project or equipment only after air district post-inspection finds the project or equipment in place and operational, and the district receives an invoice itemized in sufficient detail to ensure that only completed and eligible project costs are reimbursed, and other sources and amounts of funding for the project are reviewed to ensure the sum of all project funds does not exceed the total project cost (per Section L). Exceptions are limited to progress or partial payments in cases where the grantee provides the air district with sufficient evidence of completing milestones specified in the contract, consistent with conditions specified in air district Policies and Procedures. The air district must maintain a clear record of progress payments in the project file and in records of the district administration or fiscal unit. Progress payments include final payments that are withheld until all reporting requirements are met (also known as "withheld payments").

2. **Eligible Costs**. Equipment and parts on engine repower or retrofit projects are eligible for funding only if they are required to ensure the effective installation and functioning of the new engine or retrofit, and are not part of typical vehicle or equipment maintenance or repair. Taxes and the installation and transport costs for eligible hardware are eligible for funding at the air district's discretion. For labor expenses paid, the invoice must detail the number of hours charged and the hourly wage. See source category chapters for additional specification of eligible costs.

3. **Ineligible Costs**. Ineligible repower costs include tires, axles, paint, brakes, and mufflers. See source category chapters for additional specification of ineligible costs.

4. **Limitations on Applicant Action before Air District Approval**. An applicant may not order or make a down payment on a new engine, piece of equipment, or vehicle prior to contract execution or approval by the air district governing board or board designee. Dealers ordering engines, equipment, or vehicles prior to air district approval of grant applications assume all financial risk and are in no way ensured program funds. A grantee may not receive engines, equipment, or vehicles, nor may work begin on a repower or retrofit project, until the project contract is fully executed, unless the air district has provided the potential grantee with written notification that any work performed is not guaranteed funding until a contract is executed. For infrastructure projects, discretionary costs may be accrued by an applicant prior to contract execution, but such costs are not reimbursable until after contract execution.

5. **Invoice Procedures**. The air district will maintain copies of all invoices and documentation of payment in the project file or otherwise keep copies on-site at the air district office and be readily available. Invoices received after the project post-inspection has been complete must be evaluated for consistency with the information gathered during the project post-inspection. Additional project invoicing requirements may also be included in the source category chapters of these guidelines.

6. **On-Road Compliance Checks**. For all on-road and emergency vehicle projects, should a compliance check indicate that there is an outstanding violation with any vehicle in the applicant's fleet, no payment may be made until the applicant provides proof to the air district that each violation has been corrected and each fine has been paid.

7. **Regulatory Compliance**. Where a contract requires a grantee to demonstrate that specific regulatory compliance requirements have been met in order to receive funding (such as engines subject to the Portable Equipment Airborne Toxic Control Measure), air districts may not pay invoices until the grantee has provided documentation that the requirements have been met. A project participant may demonstrate this via a detailed letter signed by the vehicle or equipment owner or legal representative or, if the regulation requires ARB (or the air district) to certify compliance, through ARB (or air district) certification. For more information, see the associated source category chapter. Air districts are not to be held liable if a grantee falsifies this documentation.

8. **Payment Recipients**. Payments typically will be made directly to the grantee. Payments may be made directly to a dealer or distributor only if such payment arrangements are specified in the contract.

Z. Grantee Annual Reporting

1. **Requirement**. Air districts will require all grantees to submit annual reports within 18 months of the project post-inspection and annually thereafter for the term of the contract.

2. **Report Format**. The air district will prescribe a format for the project annual report, to include the following information:

   (A) Grantee name, address, and telephone number.

   (B) Information needed to uniquely identify the project engine, vehicle, or equipment, such as engine make, model, horsepower, and serial number.

   (C) Estimated percentage of time the vehicle or equipment has been operated in California since the previous annual report.

   (D) Readings of the usage device (e.g., hour meter, odometer, or electronic monitoring unit).

   (E) Except for projects in which usage is not required to be specified in the contract (as allowed per Section V.6.(B)(1) above), if usage is more than 30 percent below that identified in the project application, the grantee must describe any conditions that are likely to have affected project usage, such as weather, permits, or major maintenance. In instances where annual usage is significantly lower than the contracted level due to unforeseen circumstances beyond the control of the grantee, the grantee may request a waiver from the air district per Section BB(4).

3. **Air District Review**. The air district will review the annual report for completeness, accuracy, and reported usage, and will maintain in the project file a copy of the report that is initialed and dated by the reviewing staff. An air district choosing an alternative method to indicate its review and approval of annual reports will specify the method in its Policies and Procedures Manual.

4. **Unsatisfactory Reporting**. If an annual report is incomplete, inaccurate or not received from the grantee on schedule, the air district will make a reasonable attempt to obtain a complete and accurate report from the grantee. If the air district is unable to obtain the report, the air district will identify the project for audit as described in Section AA below.

5. **Subsequent Grants**. Grantees that have not submitted complete required reports will not be granted funds for new Moyer Program projects until all reports are satisfactorily submitted.

AA. Air District Audit of Projects

1. **Requirement**. The air district will conduct audits of projects funded with Moyer Program funds. On an annual basis these audits will include five percent of

active projects or 20 active projects (whichever is less), including any audits conducted following unsatisfactory annual reporting as described in Section Z.4.

2. **Project Inspection**. Audits must be completed by air district staff and will at a minimum include an inspection that verifies that the engines, equipment, and emission control devices paid for are still owned by the grantee named in the contract, are still operational in the same equipment, and meet the mileage, fuel usage, or hours of operation indicated in the executed contract. This must be performed by checking the serial number of the engine; witnessing the operation of the engine; and checking the usage meter or fuel receipts.

3. **Multiple Equipment**. Audits of multiple equipment or engine projects of up to 25 pieces must include inspection of at least two pieces or equipment, and for projects of over 25 pieces must include inspection of at least five pieces.

BB. Nonperforming Projects

1. **Requirement**. The air district will work with nonperforming project grantees to ensure Moyer Program project requirements are met and emission reductions are achieved, consistent with procedures outlined in the district Policies and Procedures Manual. Air districts may consider unforeseen circumstances beyond the grantee's control in determining repercussions for nonperformance.

2. **Off-Road Contract Extension**. Off-road contracts for which usage requirements are not being met may be extended to capture the required usage, even if the contract extension overlaps the required compliance date. This revision only applies to off-road contracts that have been executed prior to August 15, 2008, and does not modify similar Moyer policy for other eligible categories.

3. **Recapturing Funds**. When an air district is not successful in gaining grantee compliance with the usage and program requirements specified in a contract, the district will make all reasonable efforts to recapture Moyer Program funds from the grantee. Recaptured funds will be reassigned to projects that achieve the shortfall in emission reductions or usage. The air district's efforts to recapture funds may be guided by circumstances such as suspected or actual fraud or misuse of funds, the amount of Moyer Program funding involved, or the ability of the grantee to repay the funds.

4. **Usage Threshold and Waiver Procedure**. The air district must take appropriate action to ensure emission reductions are realized for engines, equipment, vehicles or fleets, as well as usage for infrastructure projects. Except for projects in which usage is not required to be specified in the contract (as allowed per Section V.6.(B)), when average usage over a three year period for a contracted engine, equipment, vehicle or fleet is less than 70 percent of the activity required in the contract, the air district may choose, but is not limited to, the options below to address the underutilization. (In cases of projects which

may have a contracted project life of less than three years, the same activity threshold of less than 70 percent applies, averaged over the project life.)

(A) Extend the project contract for additional years (precluding overlap with an applicable rule implementation requirement).

(B) Return funds in proportion to the loss in emission reductions.

(C) Transfer ownership of the engine, vehicle, or equipment to another entity committed to complying with the contract terms.

(D) Recalculate a project's cost-effectiveness based on the reported decrease in usage. Based on this recalculation, if the project is still below the cost-effectiveness limit, consistent with the limit and methodology in effect on the date of contract execution and prior to the end of the contract, the air district must continue to monitor the project over the next year to determine if additional actions are necessary. (This option does not apply to infrastructure projects not subject to a cost-effectiveness limit.)

(E) Grant a usage waiver, without penalty, to the grantee for a defined time period. The grantee must demonstrate to the air district's satisfaction that the engine, vehicle, or equipment is not being underutilized in favor of operating other, higher-polluting equipment, and that the underutilization was due to unforeseen conditions beyond the grantee's control.

(1) The conditions under which a waiver may be issued include, but are not limited to, the following:

a. A decrease in usage due to economic recession;
b. Unforeseen fluctuations in water allocations or pumping needs for agricultural irrigation pump engines; or
c. Significant land fallowing for off-road agricultural equipment and agricultural irrigation pump engines.

(2) To be considered for a waiver, the grantee must provide a written request to the air district along with documentation that substantiates the need for the waiver and verifies that higher-polluting equipment is not consequently receiving more use.

a. The air district will specify the length of time for which the waiver is valid. The waiver will not exempt the grantee from any contract requirement to provide annual usage reports.
b. The waiver will be documented in writing, approved by the Air Pollution Control Officer or designee, and included in the project file.

(3) For projects that include multiple pieces of equipment or engines the air district may review and recalculate the funded equipment collectively to see if the project as a whole has performed as expected. A waiver is not required in this event.

5. **Funds Recaptured Following ARB Enforcement**. Program funds recaptured from a project grantee as a result of a settlement agreement executed by ARB shall be returned to the air district that granted the funds. Any penalties resulting from a settlement agreement executed by ARB or the Attorney General shall be deposited in the Air Pollution Control Fund (H&SC § 44291(e)).

CHAPTER 4: ON-ROAD HEAVY-DUTY VEHICLES

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) on-road heavy-duty vehicles. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration. Participating air quality management districts or air pollution control districts (air districts) retain the authority to impose additional requirements in order to address local concerns.

A. Projects Eligible for Funding

The Air Resources Board (ARB) has adopted many fleet rules that affect on-road heavy-duty vehicles. Various types of projects can be incentivized to provide surplus emission reductions from on-road heavy-duty vehicles. Table 4-1 summarizes project types and categories eligible for funding as well as whether those projects may be executed through contracts or the Voucher Incentive Program (VIP or Voucher). For more information on VIP, please see the VIP Guidelines at: https://www.arb.ca.gov/msprog/moyer/voucher/voucher.htm.

Table 4-1
Summary of On-Road Heavy-Duty Projects

Project Category	Project Type[(a)]		Execution Path
	Replacement	Repower/Conversion	
Heavy-Duty Trucks and Buses	✓	✓	Voucher or Contract
School Bus	✓	✓	Contract
Transit Fleet Vehicles	✓	✓	Contract
Drayage Trucks	✓	✓	Voucher or Contract
Solid Waste Vehicles	✓	✓	Contract
Public Agency/Utility Vehicles	✓	✓	Contract
Emergency Vehicles	✓		Contract

[(a)] Retrofit projects may also be eligible for funding on a case-by-case basis.

1. **Vehicle Project Types**. Projects must include commercially available technologies certified by ARB to be cleaner than the baseline engine (unless otherwise noted). Project types and applications include:

(A) Vehicle Replacements: The replacement of an older, dirtier vehicle with a newer, cleaner one. These projects may be funded through contracts or the VIP.

(B) Repowers: Repowers involve the replacement of an older, dirtier engine with a newer, cleaner one. Repowers may be funded in various applications. However, due to technological constraints presented with the limited feasibility of newer engines with advanced emissions control equipment fitting into older chassis and maintaining durability, repowers with diesel engines are rare project types for trucks. Repowers with alternative fuel engines may not have the same technological constraints and may become more prevalent. To ensure durability, certain projects may require prototype testing. However, if the project has been previously completed by the manufacturer, prototype testing is not required. Air districts that wish to fund repowers must receive prototype testing results. The testing must comply with the engine manufacturer quality assurance process that is equivalent to an Original Equipment Manufacturer (OEM) package. In these cases, a prototype vehicle (or vehicles) is thoroughly reviewed and tested to ensure that the installation meets OEM requirements, and the successful prototype installation is then replicated in other vehicles with the same chassis and engine combination. Air districts may approve repower projects that meet the OEM quality assurance process described above, subject to the following:

(1) Moyer Program funding may not be used for any costs associated with the prototype vehicle or vehicles.

(2) Repower contracts may not be executed until the prototype testing specified by the engine manufacturer is successfully completed.

(3) Written documentation from the engine manufacturer confirming that the prototype was successful must be maintained in the project file.

(4) If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not required. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements.

(C) Conversions: Conversions involve the replacement or modification of the original engine or vehicle to include either a cleaner engine or other system that provides motive power and change of the fuel type used. Hybrid conversion systems using internal combustion engines must be certified according to “California Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems.” The baseline engine model year for hybrid conversions must be 2010 or

newer. Tier 1 and Tier 2 certified conversion systems are certified to sell a limited number of units in California. The conversion system manufacturer must provide written confirmation that the funded vehicle would not exceed the certified allowable limit. All-electric conversion systems must receive an exemption Executive Order per Vehicle Code section 27156. The conversion system manufacturer must certify that the converted vehicle adheres to all applicable local, State, and federal requirements including safety standards issued by National Highway Traffic Safety Administration and California Highway Patrol (CHP).

2. **Project Categories**. Taking the above project types into consideration, the following categories may be eligible for funding:

   (A) Heavy-Duty Trucks and Buses: Heavy-duty diesel trucks and buses with gross vehicle weight ratings (GVWR) greater than 14,000 pounds (lbs.) are subject to the Statewide Truck and Bus Regulation. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see section C.2.(A).

   (B) School Buses: School buses as defined in Vehicle Code section 545 are subject to the Statewide Truck and Bus Regulation. They are required to be filtered unless operating under an ARB-issued extension up to January 1, 2018. Project types include replacements, repowers, and conversions. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see Section C.2.(B).

   (C) Transit Vehicles: Transit vehicles are subject to the Fleet Rule for Transit Agencies and must be compliant with final regulatory requirements. Project types for surplus reductions include replacements and repowers. All transit projects must use engines certified to optional low oxides of nitrogen (NOx) standards or cleaner. For more information, see Section C.2.(C).

   (D) Drayage Trucks: Drayage trucks are subject to the Statewide Drayage Truck Regulation. As of January 1, 2014, drayage trucks are required to be equipped with 2007 model year or newer engines. Therefore, engines older than model year 2007 are not eligible. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. Cleaner technologies are currently being demonstrated, and may become available in the near future to enable opportunities for more funding. For more information on drayage truck funding opportunities, see Section C.2.(D)

   (E) Solid Waste Collection Vehicles (SWCV): Vehicles equipped with 2006 and older engines are subject to the SWCV Regulation and must meet final regulatory requirements. Vehicles equipped with 2007 and newer

engines are subject to the Statewide Truck and Bus Regulation. All solid waste collection vehicle projects must use engines certified to optional low NOx standards or cleaner. For more information, see Section C.2.(E).

(F) Public Agency and Utility Vehicles: Vehicles with GVWR over 14,000 lbs. owned by a municipality or utility that are equipped with engines certified to Particulate Matter (PM) emission standards greater than 0.01 grams per brake horsepower-hour (g/bhp-hr) are subject to the Fleet Regulation for Public Agencies and Utilities, except fleets that do not include any diesel engines. Engines are required to use the Best Available Control Technology as defined in the California Code of Regulations, title 13, section 2022.1(b). Private utilities become subject to the Statewide Truck and Bus Regulation starting January 1, 2021. Replacement engines certified to the 2010 emissions standards or cleaner are eligible.

(G) Emergency Vehicles: Emergency vehicles are not subject to in-use emissions regulations. Eligible vehicles also include prisoner transport buses. Project types mainly include replacements. Replacement engines certified to the 2010 emissions standards or cleaner are eligible. For more information, see Section C.2.(F).

(H) Case-by-Case Projects: These projects do not fall under any previously described category or do not meet all of the requirements of the Guidelines but otherwise provide real, surplus, quantifiable, enforceable, cost-effective emission reduction benefits in California for the entire project life. These may include transport refrigeration units (TRU), auxiliary power units (APU), and vehicles with 8,501-14,000 lbs. GVWR. For more information, see Section C.2.(G).

3. **Infrastructure Projects**. See Chapter 10 for details regarding applicant eligibility and project types for infrastructure projects in support of on-road applications. This includes infrastructure such as electrical charging (and solar-generated electricity) and alternative fuel stations for light, medium and heavy heavy-duty trucks. It also includes infrastructure for truck stop electrification, TRUs, transit vehicles, emergency vehicles, and school buses.

B. Determining Funding Amounts

The information contained in this section shall be used to determine the funding amount for which any given heavy-duty on-road project is eligible.

1. **State Funding Limits**. Funding for an on-road heavy-duty project includes funds from all State sources including the Moyer Program. The maximum dollar amount or maximum percentage of eligible cost (Tables 4-2 through 4-7), as applicable, represents a funding cap, or the maximum funding available for the project. If the project is co-funded with other State funds, the funding cap represents the maximum amount of funds from all State sources that can be

applied to the project. Federal, local, or other non-State grant funds can be used in addition to the funding caps stated in this chapter if the criteria for co-funded projects in Chapter 3, Section L are satisfied.

2. **Cost-Effectiveness**. The maximum amount of funding available to a project is limited by a cost-effectiveness limit (see Appendix C), in addition to the funding caps specified below.

3. **Maximum Funding Percentage**. For fleets with ten or fewer vehicles over 14,000 lbs. GVWR, the State funding amount cannot exceed 80 percent of the vehicle cost (excluding taxes and fees). For fleets with more than ten vehicles, the funding amount cannot exceed 50 percent of the vehicle cost (excluding taxes and fees). School buses, repowers, and emergency vehicles are not limited by maximum funding percentages based on fleet size. The funding caps that apply from these maximum percentages of eligible cost and maximum dollar amounts, as applicable, are summarized in Tables 4-2 through 4-7.

Table 4-2
State Funding Caps for Moyer School Bus Projects

Project Type	Funding Cap
School Bus Diesel or Alternative Fuel Replacements	$165,000
School Bus Optional Low-NOx or Hybrid Replacements	$220,000
School Bus Zero-Emission Replacements	$400,000
School Bus Repowers	$70,000
School Bus Electric Conversions	$400,000

Table 4-3
State Funding Caps for Conventional Diesel or Alternative Fuel or Hybrid Replacements (2013+ engine model year; 0.20 g/bhp-hr NOx or cleaner standard)

Weight Class	Funding Cap [(a)]
Heavy Heavy-Duty (HHD) GVWR > 33,000 lbs.	$60,000
Medium Heavy-Duty (MHD) GVWR 19,501-33,000 lbs.	$40,000
Light Heavy-Duty (LHD) GVWR 14,001-19,500 lbs.	$30,000
Emergency Vehicles GVWR > 14,000 lbs.	80% of Cost

[(a)] No more than 80 percent of vehicle cost for fleets with ten or fewer vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-4
State Funding Caps for Optional Low NOx Replacements[a]

Optional Low NOx standard (g/bhp-hr)	HHD	MHD	LHD
0.02	$100,000	$80,000	$70,000
0.05	$80,000	$60,000	$50,000
0.10	$70,000	$50,000	$40,000
Transit Buses			$25,000

[a] No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-5
State Funding Caps for Optional Low NOx Repowers

Vocation Type	Funding Caps
Transit Bus	$20,000
Other Trucks and Buses	$40,000

Table 4-6
State Funding Caps for Zero Emission Replacements or Conversions

Weight Class/Vocation Type	Funding Caps[a]
Transit Bus	$80,000
HHD Truck or Bus	$200,000
MHD Truck or Bus	$150,000
LHD Truck or Bus	$80,000

[a] No more than 80 percent of vehicle cost for fleets with 10 or less vehicles, no more than 50 percent of vehicle cost for larger fleets except for emergency vehicles.

Table 4-7
State Funding Caps for Hybrid Conversions

Weight Class	Funding Caps[(a)]
LHD	$7,500
MHD	$10,000
HHD	$15,000

[(a)] No more than 80 percent of system cost for fleets with 10 or less vehicles, no more than 50 percent of system cost for larger fleets except for emergency vehicles.

4. **Project Life**. The minimum eligible project life for all projects is one year. The maximum eligible project life for each project type is summarized in Table 4-8.

Table 4-8
Maximum Project Lives for On-Road Vehicle Projects

Project Type	Maximum Project Life
Replacements	7 Years
Transit Bus Replacements	12 Years
Repowers	7 Years
School Bus Replacements	10 Years
Electric Conversions	5 Years
Emergency Vehicles	14 Years
Other On-Road Projects	3 Years

A longer project life may be approved on a case-by-case basis if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements that may reduce the actual project life.

5. **Annual Usage**. Grant amounts will be based on the minimum of two 12-month periods of California usage during the previous twenty-four months. Fleet averages cannot be used. If a fleet has reported the existing vehicle in the Truck Regulations Upload and Compliance Reporting System (TRUCRS) under a limited-usage compliance option (such as the Low-Mileage Work Truck Option, the NOx Exempt Area Extension, etc.) and the historical usage exceeds the limit, the usage limit for that compliance option must be used to determine the State grant amount instead. On-road calculations shall be based on historical annual mileage instead of fuel usage or engine hours due to the fact that the mileage-based exhaust emission factors are more robust. Applicants must submit conclusive documentation of the existing engine or vehicle's mileage such

as logbooks, and maintenance records maintained for individual vehicles, or CHP inspection reports. In cases where only fuel use records are available, a case-by-case request must be submitted. The applicant must provide two years of historical fuel usage documentation to the air district. Documentation must show specific usage of the existing vehicle and may include fuel logs, International Fuel Tax Association reports for single fleets, purchase receipts or ledger entries. If the case-by-case is approved, fuel use will be converted to mileage according to the vocation.

6. **Calculating emissions**. Emission factors and deterioration rates in Appendix D, Tables D-1 through D-6 must be used to determine the emissions of the baseline and reduced engines; consequently, the engine model year and applicable emission standard will determine the relevant emission factors. Emission reductions for hybrid conversion systems must be based on the projected reduced usage of the baseline engine in the converted vehicle compared to the original vehicle. This can be based on estimated usage reductions for the specific application or vocation type provided by the dealer, installer, or manufacturer. Calculations for new hybrid vehicles will incorporate the certified emission standard and may also include projected reduced engine usage relative to a non-hybrid equivalent provided by the dealer, installer, or manufacturer. The emission factors and deterioration rates contained in Appendix D are based on ARB mobile source emissions inventory model (EMFAC2014) values. Information on EMFAC2014 is available at: http://www.arb.ca.gov/msei/modeling.htm.

7. **Two-for-One Replacement Calculations**. Projects in which two old vehicles of similar design and function are replaced with one vehicle are eligible for Moyer Program grant funding. The two baseline vehicles must be in the same weight class (LHD, MHD, or HHD) but may be in different weight classes if there is a ten percent or less variation in GVWR. If the two baseline engines are not the same model year, the newest engine model year must be used when calculating emission reductions. The maximum State funding amount must also be funded according to the lighter weight class of the two vehicles. The replacement vehicle's annual usage must be determined by adding the annual usage of both baseline vehicles together. The maximum annual usage that can count toward grant determinations for the two baseline vehicles is 30,000 miles each for a maximum total annual usage of 60,000 miles for the replacement vehicle. The replacement vehicle is eligible for only one grant based on the combined usage of the baseline vehicles.

8. **Expenses Eligible for Funding**. Moyer grant funding can only be used to pay for items essential to the operation of the vehicle. Electronic monitoring units – while they are not required by ARB – are an eligible expense if they are required by an air district. For replacements, eligible project costs include the cost of the cab and chassis including parts that are integrated into the vehicle. The cab and chassis cost may include but is not limited to the following:

(A) The capital cost of the cab.

(B) The capital cost of the chassis which may include but is not limited to:

(1) Engine
(2) Transmission
(3) Suspension system
(4) Steering system
(5) Frame
(6) Electrical system
(7) Cooling System
(8) Fuel system
(9) Emission system

C. Project Criteria

1. General Criteria

(A) Fleet Size: All fleet sizes are eligible for funding. The following criteria must be followed for each group:

(1) Fleet Size 1-10: To ensure smaller fleets have significant funding opportunities, air districts must reserve or prioritize funding for smaller fleets and should do so in a manner that works best with their programs. For example, air districts that issue on-road solicitations may review applications from smaller fleets first and award those fleets that are eligible prior to awarding fleets with more than ten vehicles. Air districts that fund projects on a first-come, first-served basis may modify or remove the reserve to meet liquidation deadlines and demand after smaller fleets have had a certain amount of time to apply for funding as specified in the air district's Policies and Procedures. Reserve funds may be used for school bus projects at any time.

(2) Fleet Size > 10: Fleets with more than ten vehicles must select optional low NOx or zero emission technologies except for certain operating vocations and locations defined in the Statewide Truck and Bus Regulation (i.e., school buses, log trucks, low mileage work trucks, agricultural vehicles, and NOx Exempt Areas).

(B) Weight Class Range:

(1) The replacement vehicle must be in the same weight class as the existing vehicle (either LHD, MHD, or HHD as defined in Appendix

B). An MHD vehicle can replace an HHD vehicle if they both have the same axle configuration (e.g. an existing HHD vehicle with two axles can be replaced with an MHD vehicle with two axles) but the funding amount must be at the MHD funding level.

(2) On-road heavy-duty vehicles (with GVWR over 14,000 lbs.) must be powered by an engine certified to the applicable heavy-duty intended service class as shown on the engine certification Executive Order. However, the following cases may be allowed:

a. MHD engines may be installed in HHD vehicles with GVWR up to 36,300 lbs. (ten percent higher than 33,000 lbs. GVWR) with written warranty verification by the engine and chassis manufacturer. A copy of the written warranty verification must be maintained in the air district project file.

b. HHD engines may be installed in MHD vehicles if necessary for vocational purposes but only if the GVWR are within ten percent of the HHD intended service class (i.e., GVWR of 29,701 lbs. or greater).

(C) At least 51 percent total annual usage must occur in California. Only usage in California can be used for on-road calculations.

(D) Compliance Check:

(1) Before contract execution, participants must be pre-screened for regulatory compliance, outstanding violations, open cases, and previous project funding by supplying to the air district the registered owner's name, company name or Doing Business As (DBA), address, Vehicle Identification Number (VIN) of the vehicle being replaced/repowered/converted, and TRUCRS ID or Drayage Truck Registry (DTR) number, if applicable. VINs of vehicles not subject to in-use diesel rules, such as CNG vehicles, need not be submitted, but every vehicle in the fleet needs to be in compliance and have no outstanding violations in order to receive funding. The air district need not validate this information and will not be held liable if participants falsify this information. The air district shall email this information to its ARB Moyer Program liaison.

a. The fleet owner will report in TRUCRS vehicles Subject to the Statewide Truck and Bus Regulation. The fleet owner must also provide the air district with the following:

i. A copy of the TRUCRS Fleet List located on the Vehicle Info tab showing the compliance option each vehicle in the fleet is using, and

ii. A copy of the TRUCRS General Fleet and Compliance Information Summary showing compliance located on Compliance Status tab ("Meets Small Fleet Option" will specify "yes" if the fleet is using the Small Fleet option), and

iii. A copy of the Compliance Certificate printed from TRUCRS, if applicable.

b. For Vehicles subject to the Drayage Truck Regulation, a copy of the DTR Compliance Search Page printout showing VIN and compliance status.

c. Vehicles Subject to Other On-Road Regulations:

i. Fleet information must be submitted by the air district to the ARB Moyer Program district liaison to check compliance with other regulations such as the Public Agency and Utility Regulation, when applicable. The fleet information needed for the compliance check may change with time.

ii. To receive funding, a fleet owner/operator must be compliant with all federal, State, and local air quality rules and regulations including the Periodic Smoke Inspection Program (PSIP). The application must include a statement of compliance in which the applicant must certify that they are in compliance at the time of application submittal. Air districts must also include the following language with a checkbox for the fleet owner/operator to indicate compliance:

I have read and understand that I am responsible for meeting the requirements of the PSIP. I am either currently in compliance with PSIP requirements or I have paid all penalties for non-compliance and continue to meet requirements since payment.

d. A regulation index for statewide on-road regulations is available at http://www.arb.ca.gov/msprog/truckstop/azregs/azregs.htm

(2) The liaison will email the air district the result of the compliance check within ten business days. All compliance check documentation must be kept in the project file.

(3) If the vehicle has already received funding and is still under contract, the air district will be notified and the project must be rejected.

(4) If there is an open case or outstanding violation, or if the fleet is not in compliance, the air district shall inform the participant in writing

that no disbursement may be made until the owner provides proof that the fleet has been brought into compliance and all fines have been paid. If the outstanding violation is based on problems with the baseline engine (e.g., gross polluter), then the violation must be cleared. The engine owner must pay the fine for each violation and submit documentation of violation correction with, or before submitting, the invoice.

(5) *Compliance Check Tool*: A compliance check tool for the Truck and Bus Regulation is available on ARB's website located at: https://www.arb.ca.gov/msprog/onrdiesel/tblookup.php. To help with the initial review, air districts may check current compliance status by entering any part of the company name, TRUCRS ID, or Motor Carrier Number in the search field. Only fleets that have confirmed compliance requirements and printed their certificate will be listed. Applicants must still meet the requirements in Section C.1.(D)(1)a.

(6) Other compliance tools issued by ARB may be used to meet the requirements of Section C.1.(D)(1) as they become available and are approved for use for the Moyer Program.

(E) Emission Reduction Technologies: Emission reduction technologies must be certified or verified by ARB and must comply with durability and warranty requirements. A technology granted a conditional certification or verification by ARB is considered certified or verified.

(F) Obtaining Financing: The participant may obtain financing to assist in the purchase of the emission reduction technology.

(G) Equipment Leasing is Not Allowed: If financing is necessary, the equipment purchase must be financed with a conventional purchase loan.

(H) Surplus requirements are determined by the regulation to which a project is subject. Any vehicle with an off-road engine that is subject to an on-road regulation must also comply with the on-road surplus requirements described in this chapter. For example, a yard truck with an off-road engine that is subject to the Statewide Truck and Bus Regulation must comply with all off-road eligibility and funding criteria described in Chapters 5, as well as all on-road surplus criteria described in this chapter.

(I) Engines operating under an extension not included in the applicable regulation, such as the Statewide Truck and Bus Regulation, or under program advisory are not eligible. This includes extensions received under enforcement settlement agreements. Fleets with PM filter availability extensions and economic hardship extensions are eligible but

PM reductions will not be funded. Fleet owners must submit documentation confirming extensions.

(J) The existing vehicle must be based in California as shown through vehicle registration. Air districts have the option to limit eligibility to applicants that reside within the district's air basin or operate their vehicles within specified air basins.

2. Project Categories and Applicable Project Types

(A) Heavy-Duty Trucks and Buses (Non-drayage)

(1) Eligibility: Heavy-duty vehicles following the Engine Model Year Schedule or taking one of the Statewide Truck and Bus Regulation compliance options below as defined in the Statewide Truck and Bus Regulation, California Code of Regulations, title 13, section 2025(f), (g), (h), (i), (m), and (p) may apply for funding:

a. Small Fleet option
b. Low Mileage Work Truck option
c. PM Filter Phase-In option
d. Log Truck Phase-In option
e. NOx Exempt Area extension
f. Agricultural Vehicle extension

Other vehicles subject to the Statewide Truck and Bus Regulation such as heavy cranes and sweepers or other vehicles approved to use credits or extensions specified in the regulation may also be eligible.

(2) Replacement Projects: Most replacement projects using engines certified to the 0.20 g/bhp-hr NOx and 0.01 g/bhp-hr PM standard are executed through the Voucher Incentive Program, including two-for-one replacements. This includes on-road vehicles subject to the Truck and Bus Regulation that are replaced with newer vehicles equipped with diesel or alternative fueled engines meeting the current standards with a surplus funding period of one to three years. Voucher replacement projects are not eligible for case-by-case requests. All requirements must be met. If the air district wishes to fund a replacement using criteria that does not meet voucher requirements such as having a longer project life or a minimum California usage of 51 percent, the project must be executed under this chapter through a contract.

(3) Repower and Conversion Projects: If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the

previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Other Project Types: Other project types may be eligible if approved through case-by-case and must be funded through contract.

(5) Surplus: Vehicles can have a filter compliance deadline that is less than one year from the post-inspection date as long as PM emission reductions are not funded. The 2010 standard compliance deadline must be at least one full year from when the replacement vehicle is delivered and post-inspected.

(6) Maximum State Funding Amounts: The maximum amount of State funding that can go toward the purchase of a replacement vehicle equipped with either a diesel or alternative fuel engine meeting 0.20 g/bhp-hr NOx and 0.01 g/bhp-hr PM standards is shown in Table 4-3. Maximum funding for Optional Low NOx and Zero-Emission replacements are shown in Tables 4-4 and 4-6.

(7) Log Truck Requirements: Log trucks using the Log Truck Phase-In option must have log bunks permanently attached at pre- and post-inspection. Vehicles taking the Log Truck Phase-In option are not eligible for two-for-one replacements as described in Section B.7.

(B) School Buses

(1) General Eligibility: School buses are eligible for Moyer Program funding if they meet the general program criteria in Section C.1., as well as additional criteria in this subsection.

(2) Eligible Applicants: Public school districts in California that own their own school buses are eligible for funding. Where a Joint Power Authority (JPA) has been formed by several public school districts and the JPA holds ownership of the school buses, then the JPA is also eligible for funding. School transportation contractors, non-profit agencies, private schools, and other private companies are not eligible to receive funding for school bus projects.

(3) Truck and Bus Regulation Compliance: School buses subject to the Truck and Bus Regulation are only eligible if they meet one of the following requirements:

a. The existing school bus must have an OEM diesel particulate filter (DPF) installed.

b. The existing school bus must be retrofitted with a DPF that reduces diesel PM emissions by at least 85 percent.

c. The existing school bus must be reported in TRUCRS under the Low-Use exemption.

d. The existing school bus must be reported in TRUCRS under the Extension for the Unavailability of Verified Diesel Emission Control Strategy (VDECS). This extension expires on January 1, 2018, at which point such school buses will no longer be eligible for Moyer Program funding.

(4) Used Vehicle Eligibility: Used school buses are not eligible as replacements. The replacement vehicle for any project must be new.

(5) Maximum State Funding Amounts: School bus projects have unique maximum grant amounts as summarized in Table 4-2, and also a unique cost-effectiveness limit of $276,230/ton. This cost-effectiveness limit allows for funding amounts consistent with the Lower-Emission School Bus Program funding caps based on average school bus operating usage as determined by a limited number of previously-funded Moyer Program school bus projects. Individual vehicle usage that falls below the average may result in lower funding amounts.

(6) Calculating Emissions: Zero-emission school bus projects (including replacements, repowers, and electric conversions) are eligible for NOx, reactive organic gases (ROG), and PM emission reductions. All other school bus projects are eligible only for NOx and ROG emission reductions.

(7) Engine Intended Service Class: The weight class range for school buses is determined as in Section C.1.(B), but in cases where the Executive Order of the baseline school bus engine does not list an intended service class, the intended service class of the engine shall be assumed to be MHD.

(8) CHP Safety Certification. All existing school buses must have a current CHP safety certification (CHP Form 292) at the time funding is awarded for the project (i.e., the school bus may not have a lapsed CHP safety certification), and it must be currently registered with the Department of Motor Vehicles (DMV).

(9) School Bus Electric Conversion Projects. The baseline vehicle chassis must be ten years old or newer. CHP requires engineering plans, certified by a California licensed engineer, to be able to safety certify the school bus.

(C) Transit Vehicles (Urban Buses and Transit Fleet Vehicles)

(1) Eligibility: Transit vehicles that have achieved compliance with all applicable regulatory requirements are eligible for surplus emission reduction funding. New regulation requirements may affect surplus and funding amounts in the future.

(2) Replacement Projects: A replacement engine for a replacement vehicle project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner.

(3) Repower and Conversion Projects: A replacement engine for a repower project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner. If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not required. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing must be completed as described in Section A.1.(B). Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Maximum State Funding Amounts: The Federal Transit Administration (FTA) provides up to an 80 percent grant (Federal funding) for new urban bus purchases and repowers. Maximum State funding for transit projects has been specified to account for greater access to other funding resources. Funding caps for various project types are shown in Tables 4-4 through 4-6. If the Moyer Program grant is used to co-fund an eligible project, the sum of all grant funds received cannot exceed the total project cost. Additional criteria on co-funding projects with a Moyer Program grant can be found in Chapter 3, Section L.

(5) Applicable Emission Factors: Emission factor tables for urban transit buses are included in Appendix D as Tables D-3 and D-4. Other transit fleet vehicles such as shuttle buses must use the MHD or HHD emission factor tables, Tables D-1 and D-2. Cost-effectiveness calculations for transit urban buses do not include deterioration since those fleets are generally well-maintained per EMFAC 2014. Deterioration must also not be

included in the cost-effectiveness calculations for other transit vehicles.

(6) Calculating Emission Reductions: Cost-effectiveness calculations can only include emission reductions from the 2007 engine model year for a 12-year maximum project life. No other additional emission reductions may be included. Only NOx and ROG surplus emission reductions can be funded. PM emission reductions may also be funded for zero emission projects.

(D) Drayage Trucks

(1) Eligibility: Drayage trucks as defined in California Code of Regulations, title 13, section 2027(c)(15), are eligible for Moyer Program funding for up to one year before the applicable compliance deadline.

(2) Existing Engine: The baseline engine must be 2007 or newer. Beginning on January 1, 2023, drayage trucks will be subject to the Statewide Truck and Bus Regulation and must be compliant to the regulation to be eligible for funding (i.e., baseline engine must be model year 2010 or newer). If the baseline truck is not currently used for drayage activities and the engine is older than 2007, the replacement truck will be added to the DTR as non-compliant for the contract term.

(3) Replacement Projects: Replacements may be funded through voucher or contract.

(4) Repower and Conversion Projects: If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(5) Calculating Emission Reductions: Only NOx and ROG emission reductions can be funded. PM emission reductions may be funded for zero-emission projects.

(E) Solid Waste Collection Vehicles (SWCV such as Transfer Trucks and Refuse Trucks)

(1) Eligibility: SWCV fleets that have achieved compliance with the final SWCV Regulation (CCR, title 13, sections 2020-2021.2)

deadline are eligible for funding. Solid waste transfer trucks and vehicles equipped with 2007 and newer engines are subject to the Statewide Truck and Bus Regulation and surplus will be determined according to that regulation.

(2) Replacement Projects: A replacement engine for a replacement project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner.

(3) Repower and Conversion Projects: A replacement engine for a repower project must be an ARB certified engine meeting emissions levels of 0.10 g/bhp-hr NOx or cleaner. If the proposed repower has been done previously by the manufacturer on the same chassis/engine configuration, prototype testing is not necessary. The manufacturer must provide written confirmation that the previous work was performed successfully and met OEM requirements. If it has not been done previously, prototype testing as described in Section A.1.(B) must be completed. Conversion systems must meet certification or aftermarket exemption requirements described in Section A.1.(C).

(4) Applicable Emission Factors: Emission factor tables for refuse trucks are included in Appendix D as Tables D-5 and D-6. Transfer trucks use Tables D-1 and D-2.

(5) Calculating Emission Reductions: Only NOx and ROG emission reductions can be funded. PM emission reductions may be funded for zero emission projects.

(F) Emergency Vehicles

(1) Eligible Vehicles: Authorized emergency vehicles as described in the California Vehicle Code 165 including, but not limited to fire apparatus, pumpers, ladder trucks, and water tenders. Other MHD HHD diesel authorized emergency vehicles, such as prisoner buses, are also eligible for funding under this chapter.

(2) Replacement Projects: Eligible projects are those in which a new or used replacement vehicle with an engine meeting the current model year California emission standard replaces an older, more polluting equipment or vehicle. The older, replaced vehicle must be destroyed. A fire truck reuse option is also available on a case-by-case basis. The fire truck reuse option allows fire departments to give away the existing old vehicle and destroy another older vehicle in its place.

(3) Eligible Costs: Eligible project costs include those parts specified in Section B.8. but excludes parts that are not bolted on and

movable, such as the tank on the water tender. In addition, the following costs are eligible:

a. Tax and transport for eligible parts or costs.

b. Labor for installation of or modification to parts eligible for funding.

(G) Case-By-Case Projects

(1) On-road heavy-duty diesel vehicles with GVWR of 8,501-14,000 lbs. may be considered for Moyer Program funding on a case-by-case basis.

(2) Retrofits

a. Only projects that reduce NOx emissions, including alternative fuel retrofit systems, are eligible for funding. The retrofit must be certified or verified by ARB to reduce NOx by at least 15 percent and reduce emissions to the 0.02 g/bhp-hr optional low NOx standard or cleaner. If the baseline engine does not meet 0.01 g/bhp-hr PM standards, the retrofit must also reduce emissions by at least 85 percent (verified Level 3).

b. The maximum State funding amount for retrofit projects is $20,000.

(3) Transport Refrigeration Units (TRUs): TRU projects are eligible for limited funding opportunities, but emission benefits are generally low because many older TRUs have already been replaced to meet regulatory requirements.

a. Funding opportunities may exist for zero emission replacement projects only.

b. Alternative technologies such as pure cryogenic systems are not required to be verified, but ARB must review and approve such systems in writing on a case-by-case basis.

c. The participant shall install an hour-meter or other means to measure usage on the TRU to track operating hours, and shall provide this information to ARB or the air district upon request.

d. The maximum State funding percentage is 50 percent.

(4) Auxiliary Power Units (APUs): Limited funding will be available for APUs, and only for projects approved through case-by-case. APUs are subject to the Airborne Toxic Control Measure to Limit

Diesel-Fueled Commercial Motor Vehicle Idling, California Code of Regulations, title 13, section 2485.

(5) Cost-effectiveness calculations for projects with power take-off (PTO) will be considered by ARB on a case-by-case basis. Hours of PTO operation must be documented through hour meter records or data from the emission control module.

(6) Case-by-case projects must receive approval from ARB prior to contract execution. These projects must follow the requirements as described in Chapter 3, Section U.

3. Participant Requirements

(A) Ownership: The participant must currently be the sole owner of the existing vehicle, documented through a copy of the existing vehicle title. The title must show no active lienholders. The title need not be a California title. In addition, the participant must have owned and operated the vehicle the previous 24 months. If the title does not show sole ownership for the previous 24 months, the applicant must be listed as one of the owners or shown as a registered owner on registration documentation for the previous 24 months. If the existing vehicle title is not available, then all three of the following must be used as alternative documentation until a duplicate title is received from the California DMV: 1) a copy of the current and valid vehicle registration, 2) a copy of the DMV Vehicle Registration Record (printout), and 3) a copy of the DMV receipt for duplicate title request. A copy of the duplicate title must be received by the air district before contract execution. If it is unclear whether a vehicle is owned or leased by a participant, the air district will determine whether the vehicle is eligible.

(B) Usage Documentation and Self-Certification for California Minimum Usage: Covering each 12-month period for the previous 24 months, the participant must:

(1) Submit conclusive documentation (logbooks, maintenance records, tax records, etc.) of annual miles traveled in California, and

(2) Certify that at least 51 percent of total usage has been in California.

(C) Military Service Provision: If an applicant has been on active military duty at any time during the previous 24 months, documentation prior to deployment and covering the same length of time as the deployment period may be used to meet the title, registration, usage, and operation in California requirements as described in Sections C.3.(A)-(B) and C.4.(C). The applicant must submit a copy of DD Form 214, Certificate of Release or Discharge from Active Duty to verify military service during the deployment period.

(D) Participants may only apply to one air district at a time for each project.

(E) Participants must submit an application for funding consideration.

(F) Participants must provide the air district with the full contact information of the seller/dealer of the replacement vehicle, or the business that performs the conversion or repower.

(G) The participant must be the sole registered owner of the replacement engine or vehicle for the duration of the contract term. Throughout the contract term (project life), the participant must annually:

(1) Provide registration and proof of insurance to the air district.

(2) Provide reports that include items specified by the air district which may include miles driven in the air district and in California, and details regarding maintenance and servicing.

(3) Operate the engine/vehicle within California for at least the percentage of time specified in the contract.

(H) Report accident or loss of vehicle: If the replacement engine/vehicle is in an accident or is stolen, the accident or theft must be reported to the air district within 10 business days. The participant must provide the police report, a letter from the insurance company regarding the accident or theft, and other information requested by the air district. The participant must repair the vehicle and return it to operation, if possible. If the vehicle is totaled, the participant and the air district staff must come to an agreement regarding any requirements that still need to be met. If the participant will continue the business, efforts should be made to obtain a substitute vehicle that can take over the terms of the contract. The substitute vehicle must be at least as clean as the original Moyer Program funded vehicle, be in the same weight class, and cannot have more miles than would have been accumulated based on the mileage used to determine the funding amount, or no more than 600,000 miles for HHD vehicles, 350,000 miles for MHD vehicles, and 250,000 miles for LHD vehicles.

(I) Any change of ownership, change in registration status, or change of mailing address during the contract term must be reported to the air district within 10 business days.

4. Existing Engine and Vehicle Requirements

(A) The existing vehicle must currently operate on diesel fuel or alternative fuel such as compressed natural gas.

(B) The existing vehicle must have an engine of model year 2010 or older, except if it is a school bus or log truck which may be powered by an

engine of any model year. The maximum chassis age for all-electric conversions must be no more than ten years old.

(C) The existing vehicle must either be: 1) currently registered and have been registered in California for the past 24 months supported by documentation showing no lapses (except for seasonal vehicles and those eligible under the military service provision); or 2) must have been registered in California for the previous eight consecutive months with supporting documentation supplemented by alternate documentation showing California operation for the past 24 months. California International Registration Plan (IRP) documents are acceptable. Out of State IRP or registration is not eligible. The existing vehicle must be based in California.

(D) If the existing vehicle operates seasonally, then the existing vehicle may be eligible to participate if it has been registered in California for three to six continuous months per 12 month period for the previous 24 months. DMV partial year registration documentation for each period the vehicle was registered must be included with the application.

(E) The participant must provide proof of insurance for the old vehicle for the previous 24 months.

(F) The existing vehicle must meet the criteria for either an LHD vehicle, MHD vehicle, or an HHD vehicle, as defined below:

(1) LHD vehicles must have a manufacturer GVWR of 14,001-19,500 lbs.

(2) MHD vehicles must have a manufacturer GVWR of 19,501-33,000 lbs.

(3) HHD vehicles must have a manufacturer GVWR of 33,001 lbs. or greater.

(4) GVWR may be documented with a photo of the vehicle manufacturer tag or a copy of the manufacturer build sheet. Air districts may request ARB approval of alternate GVWR documentation on a case-by-case basis.

(G) Engine Verification:

(1) The air district file must include a copy of the existing engine Executive Order. If an Executive Order is not available, the air district may request approval of alternative documentation on a case-by-case basis.

(2) If the old vehicle engine tag is missing, then verification of the engine information can be satisfied with the engine serial number. The participant must provide verification of the engine make, model, model year, engine serial number, and horsepower from the manufacturer. The participant may also verify the horsepower with the results of a dynamometer test. The dynamometer test will take into account a 15 percent loss in actual horsepower, accounting for transmission loss. Verification can include a letter or a printout from an engine manufacturer or dealership. On a case-by-case basis, ARB may approve other means of obtaining the information.

(H) The existing vehicle must be in operational or roadworthy condition, as determined through a CHP Biennial Inspection of Terminals (BIT) or equivalent air district-approved inspection. If the air district does not conduct a pre-inspection, the following methods may be used:

(1) The vehicle owner may submit a completed CHP 90-Day Safety Inspection Form documenting an inspection that occurred within 90 days of the application date; or

(2) An air district approved contractor may conduct the inspection of the old vehicle and provide pictures verifying that the vehicle is in operational condition.

(I) Glider Kits: Glider kits are replacement chassis and cabs for on-road heavy-duty vehicles. Glider kits are generally identified with a VIN starting with the letters “GL”. In situations where the model years of the glider kit vehicle’s chassis and engine differ, approval determination shall be made using the model year of the engine. Existing glider kit vehicles are eligible to participate but the replacement vehicle has to be a complete Original Equipment Manufacturer vehicle; i.e., the replacement vehicle cannot be a glider kit.

(J) Existing Vehicle Body Components: The body of the existing vehicle does not play a part in the participation in the program. Program funds can only be used to purchase the new vehicle, not external body components or parts used for a particular vocation (e.g., dump body). The common practice for vehicle owners to remove non-emission related body components from the existing vehicle and place them on the replacement vehicle is still permissible as long as the components do not exist on the replacement vehicle and are not a part of the paid components for the replacement vehicle.

(K) Operation of Existing Vehicle After Approval: If the existing vehicle is in an accident or has an engine failure after receiving approval from the air district but prior to replacement, then the existing vehicle will still be

eligible for receiving funds from the program as long as all other on-road requirements have been met.

5. Replacement Engine and Vehicle Requirements

(A) Emission Standards: Replacement vehicles with a 2013 model year or newer engine certified to a PM emission standard of 0.01 g/bhp-hr and a NOx family emission limit or NOx standard level of 0.20 g/bhp-hr or lower are eligible for funding (unless noted otherwise). New electric vehicles and non-combustion hybrid vehicles (e.g., electric vehicles powered by a hydrogen fuel cell) must have an ARB approval letter confirming the vehicle does not emit any vehicle exhaust emissions or fuel-based evaporative emissions. If the baseline engine model year is 2010, the replacement engine must be certified to a NOx standard level of 0.10 g/bhp-hr NOx or lower.

(B) Engine class: The engine's primary intended service class must match the replacement vehicle's weight class (i.e., an MHD diesel engine is used in a vehicle with a GVWR of 19,501- 33,000 lbs. and an HHD diesel engine is used in a vehicle with a GVWR greater than 33,000 lbs.). As an exception, an HHD engine may be installed in an MHD vehicle if necessary for vocational purposes, but only if the GVWR is within 10 percent of the engine's intended service class (i.e., GVWR of 29,701 lbs. or greater). Also, an MHD engine may be installed in an HHD vehicle, but only if the GVWR is within 10 percent of the engine's intended service class (i.e., GVWR of 36,300 lbs. or less).

(C) Mileage: A used HHD replacement vehicle must have less than 500,000 miles, a used MHD replacement vehicle must have less than 250,000 miles, and a used LHD replacement vehicle must have less than 150,000 miles with odometer verification to occur at the post-inspection.

(D) All-Electric Range: Electric vehicles and hybrid vehicles (new or converted) must demonstrate an all-electric range of at least 35 miles. Those with fast charge capability must demonstrate an all-electric range of at least 20 miles. If a vehicle is not certified to meet this range, it may only be approved for funding following ARB evaluation of demonstration test data verifying that minimum all-electric range requirements are met. If demonstration data has already been submitted to another ARB funding program and approved, demonstration requirements may be waived.

(E) Horsepower: The replacement engine horsepower must be no more than 25 percent greater than the existing engine horsepower. In limited situations, such as the non-availability of the original horsepower range for the specific application, the air district may approve a greater than 25 percent increase in horsepower.

(F) Weight Class: The replacement vehicle must be in the same weight class as the existing vehicle (either LHD, MHD, or HHD). An MHD vehicle can replace an HHD vehicle if they both have the same axle configuration (e.g. an existing HHD vehicle with two axles can be replaced with an MHD vehicle with two axles) but the funding amount must be at the MHD funding level.

(G) Body and Axle Configuration: The replacement vehicle must have the same axle and body configuration as the old vehicle. The air district may allow slight changes based on the latest technology. Changes must be requested and approved prior to the purchase of the replacement vehicle.

(H) Title: The replacement vehicle must have a clean title prior to purchase. The replacement vehicle must not have a salvage title and must not have been in an accident, repaired, and became available for resale.

(I) California Registration: The replacement vehicle must be registered in California or in the California IRP.

(J) The participant must maintain insurance coverage for the replaced/repowered/converted vehicle as required by law for the duration of the project life. The participant is encouraged to have replacement value insurance coverage to ensure complete repair or replacement in the event of major damage to the vehicle. If the vehicle is not repaired and replaced during the project life, the applicant must return prorated funds. See Section C.6.(I)(3).

(K) Warranty requirements: The following warranty requirements apply:

(1) Except for school buses, hybrids, and zero-emission vehicles, all participants must purchase a minimum of a one-year or 100,000 mile major component engine warranty for the replacement new or used vehicle or repowered engine. The warranty must cover parts and labor. If the purchase of a new or used replacement vehicle already includes a minimum one year or 100,000 mile warranty as specified above, a separate supplemental warranty is not required. However, it is recommended that the highest grade warranty be purchased in order to avoid expensive repairs in the future.

(2) Electric vehicles, hybrid vehicles, and conversion systems must have a minimum warranty period of 3 years or 50,000 miles. The warranty must cover the engine (if applicable) or motor, drivetrain, battery or energy storage, and parts and labor (including any part on the converted vehicle or engine that is damaged by the hybrid conversion system).

(3) For school buses, the vendor warranty must provide protection for a minimum of 60 months or 75,000 miles, whichever comes first, and provide full warranty coverage of, at a minimum, zero-emission or all-electric motor, drive train, batteries/energy storage system(s), parts and labor. Warranties must be fully transferrable to subsequent school bus purchasers for the full warranty coverage period. Warranties must cover the following for the full warranty period (unless otherwise denoted):

a. Extended Motor, Drivetrain (including Battery), and Zero-Emission Components: Provide warranty coverage against defects in material and workmanship for the motor, transmission, rear axle, and electric or zero-emission system components including the battery. Gaskets and seals are not required to be included under the warranty coverage.

b. Frame Rails, Cross Members, and Cab: For new school buses, coverage extends to structural cracks in the frame caused by defects in material workmanship and against corrosion perforation of the cab. For school bus conversions, the all-electric school bus vendor is only responsible for damage or corrosion tied to, or resulting from, their workmanship on, or handling of, these parts.

c. Battery Degradation Warranty: Provide warranty coverage against battery degradation below 80 percent of capacity.

(4) No Moyer Program funds will be issued for maintenance or repairs related to the operation of the vehicle. The participant takes sole responsibility for ensuring that the vehicle is in operational condition throughout the agreement period.

(L) Engine and Emission Control Modifications: Emission controls on the replacement vehicle engine cannot be modified except as permitted by law. Unauthorized modification to engine performance including, but not limited to, changes in horsepower, emission characteristics, engine emission components (not including repairs with like-original equipment manufacturers replacement parts), and modifications to the engine's emission control function or the electronic monitoring unit are not allowed.

(M) Service: At least one California service provider approved by the manufacturer must be available to repair and service the engine/vehicle.

6. Air District Requirements

(A) Requirements described in Chapter 3: Program Administration must be met unless otherwise stated in this chapter.

(B) Air districts must include the on-road category as a funding option in the air district's Moyer Program Policies and Procedures Manual before funding on-road projects. The Policies and Procedures must include the administrative tools that are needed to manage on-road projects, including memoranda of understanding (MOU) or agreements with vehicle dealerships/providers (if applicable) and dismantlers, reimbursement procedures, inspections, monitoring and enforcement, contract development, etc. Air districts are not required to submit the initial Policies and Procedures to ARB for approval, but it must be available upon request.

(C) Air districts may fund on-road projects through a regional program administered by one designated air district. The designated air district may be located within the region, or may be a large air district located outside the region.

(D) Air districts are responsible for ensuring all Moyer Program requirements are met. Air districts are encouraged but not required to have agreements or MOUs with vehicle dealerships. However, agreements or MOUs with participating dismantlers are required. Agreements or MOUs, should contain, at a minimum, the program requirements (including, but not limited to, the requirement that the dealer delivers the existing vehicle to a qualified dismantler within 60 calendar days of the date that the old vehicle was turned in to the dealer by the applicant) that are expected of each entity and the repercussions for noncompliance with the terms of the agreement or MOU for each entity. Air districts that fund projects through both VIP and this chapter can have one agreement with each dealer and dismantler for both programs as long as the dealer and dismantler agree to follow requirements of each program. State funds must not be provided by the air district for any dismantler or material costs, including hazardous waste abatement fees, labor costs, fines, permits, or other charges resulting from destruction or disposal.

(E) Reimbursement: To ensure that an application package is complete, the following items must be included and complete prior to reimbursement:

(1) Signed and complete application and fully executed contract.

(2) Documentation showing that the existing vehicle is roadworthy. This includes documentation showing that the old vehicle has passed a CHP BIT inspection in the past 90 days or conduct an equivalent vehicle inspection and sign as appropriate. If documentation is provided by a dealership, the air district reserves the right to audit the dealership's record of inspection.

(3) Invoices of the purchase and all work performed. If work was performed on the replacement vehicle, the invoices must include all

engine, transmission, engine horsepower derating, body and other work performed on the replacement vehicle.

(4) Digital photographs of the existing vehicle and the replacement vehicle or engine. If a contractor conducts any inspections, the air district will specify the required digital format. Reimbursement will not be processed until all photographs are received and verified by the air district. All photographs must be clear, and all VIN and engine serial numbers must be legible.

a. Photographs of the old vehicle must include the following views:

i. Right Side - hood down.
ii. Front - hood down.
iii. Left Side - hood down.
iv. Rear.
v. VIN Tag - inside vehicle or on frame rail.
vi. Engine serial number and engine information, if available (make, model year, engine family) - either tag or stamp on block.
vii. License plate.
viii. Left and right side of engine.

b. Photographs of the replacement engine or vehicle must include the following views:

i. At least one side of the vehicle.
ii. VIN Tag - inside vehicle or on frame rail.
iii. Engine serial number and engine information – tag (or primary motive power components).
iv. License plate.
v. Odometer reading.
vi. Left and right side of engine.
vii. Modifications (if any).

(5) Dealer/Provider/Installer certification that the old engine and/or vehicle will be delivered to a qualified dismantler within 60 calendar days of receipt of the old engine or vehicle. The certification must include the make, model, year, VIN, engine make, engine serial number, and the date the engine or vehicle is expected to be delivered to the dismantler. The location of the dismantler yard where the engine/vehicle will be destroyed must also be provided.

(6) Documentation of replacement vehicle warranty and registration (if applicable).

(7) Proof of Project Financing: The financing package will enable the air district to determine the reimbursement costs that may be

accrued in case the participant defaults on the contracted performance requirements. Proof of project financing can be a document showing the lender and the amount loaned, which at a minimum is a copy of the check given to the dealer equal to the portion of the project that was not Moyer Program funded. Proof of project financing is always required unless the grantee paid cash for the portion of the project that was not Moyer Program funded.

(8) For replacements, dealerships must possess pre-inspection documentation of the existing and replacement vehicles prior to releasing the replacement vehicle to the participant. If the air district conducts the inspections, the dealership must receive approval from the district before releasing the replacement vehicle. Upon request of the air district, ARB may waive inspection requirements.

(9) Proof of sale after the application and all required documentation have been approved by the air district.

(10) Copy of Title of Existing Vehicle. For replacement projects, the title must be signed and dated by the applicant.

(F) A third party (e.g., engine dealer or distributor) may complete an application or part of an application on an owner's behalf only if the vehicle owner signs and agrees to the application. Applications must include a signature section for third parties. The third party signature section must include signature and date lines, and sections for the third party to disclose how much they are being paid, if anything, to complete the application and the source of funds used to pay them. To make the Moyer Program accessible to all potential applicants, including those that cannot afford to hire third party assistance, air districts are encouraged to provide assistance to applicants.

(G) Air districts must ensure the vehicle and engine are scrapped within 60 calendar days of the dismantler's receipt of the vehicle. This must be confirmed through post-inspection by the air district or an air district approved contractor. The destruction of the old vehicle and engine must be properly documented in accordance with the Moyer Program requirements.

(H) Inspections: The following inspections must be performed for each funded engine/vehicle (exceptions are allowed for public fleets and transit agencies as specified in Chapter 3) as shown in Table 4-9:

Table 4-9
Required Inspections for On-Road Projects

Inspection Type	Purpose(s)	Timing
Pre-inspection	• Verify existing vehicle is in operational condition. • Verify existing vehicle application information.	After application is submitted to air district but prior to approving the application.
Post-inspection	• Verify replacement vehicle meets emission standard. • Verify application information.	Before replacement engine/vehicle is delivered, and prior to payment being issued.
Pre-dismantle inspection (Replacements Only)	• Verify existing vehicle is in operational condition and has not been stripped of parts (except those allowed in Section C.4.(J)) per Section C.7.(F). • Verify existing vehicle application information.	• After existing truck is delivered to dealership before payment is issued. • Existing truck is at dealership location and must be delivered to dismantler within 60 days.
Dismantle inspection	• Verify engine destruction (see Section C. 8.(C)(4)). • Verify that frame rails are completely severed. • Obtain copy of REG 42 form filed with DMV.	• After engine and frame rail destruction. • Within 60 days after dismantler receipt. • If dismantler takes photos, they must be provided to the air district within 10 business days of dismantling.

Documentation requirements are specified in Chapter 3, Section W. and X. Air districts may enter into a contract, written agreement, or memorandum of understanding with a contractor to perform project inspections (pre-inspections, post-inspections, pre-dismantle, or dismantle inspections). If an air district chooses to use contractors to perform inspections, air district staff must conduct and document at least one inspection on each project without the use of a contractor. Air districts must ensure all inspection requirements are met and shall retain legal responsibility for full compliance with the inspection provisions of these

Guidelines, regardless of the use of contractors. Air districts that do not conduct 100 percent of required inspections themselves must audit 5 percent of each type of inspection (pre, post, pre-dismantle, and dismantle). Audits should be done randomly and occur throughout the implementation timeline of the air district.

(I) Recovery of Moyer Program Grant Funds: The air district must establish a mechanism to assure the participants fulfill all contractual obligations, including owning and operating the funded vehicle for the project life. The air district will determine noticing requirements and the method to achieve fund recovery. Air districts may consider the following options:

(1) List the air district as co-lien holder on the title of the funded vehicle for the term of the agreement. The participant must submit a completed Uniform Commercial Code-1 Financing Statement Form to the California Secretary of State, with a copy sent to the air district, within 30 days of the project sale. The financing statement must have the air district as the secured party and the vehicle should be listed as collateral.

(2) If the funded vehicle is sold during the project life, the new owner must assume the obligations under the participant's contract with the air district and comply with the terms and conditions of the contract. The air district must approve the change in ownership prior to the sale.

(3) The grant recipient may return funds according to the following prorated formula:

$$Recapture\ Amount\ (\$) =$$

$$Funding\ Amount(\$) - \frac{Elapsed\ Portion\ of\ Project\ Life(Yrs) * Funding\ Amount(\$)}{Project\ Life(Yrs)}$$

(J) Air districts and ARB reserve the right to deny funding to applicants that have previously received funds and did not meet the terms and conditions of the funding agreement.

(K) Projects may be reviewed through a solicitation process or first-come, first-served as described in the air district's Policies and Procedures.

(L) Air districts must perform compliance checks (see section C.1.(D)).

(M) Air districts must provide training, as described in Section C.7.(A)(3) and C.8.(B)(2), and additional training in a timely manner whenever there have been substantive Moyer Program revisions.

7. Dealership/Installer Requirements

(A) Dealerships and installers must warrant that they meet the following minimum qualifications and will continue to meet these qualifications throughout participation in the Program:

(1) Dealership/Installer has had a valid business license issued in California for a minimum of the last two years.

(2) Dealership has had a valid vehicle dealership license with DMV for a minimum of the last two years. The installer is authorized by the manufacturer.

(3) Dealership/Installer maintains a minimum of one employee that has successfully completed the training by the air district regarding terms, conditions and requirements of the Program. If a participating dealership maintains more than one location for truck sales, then each location must have at least one employee trained.

(4) Dealership/Installer agrees to allow the air district or ARB to inspect vehicles or audit program records covered under the Moyer Program Guidelines during normal business hours.

(B) Vehicle dealers must:

(1) Provide basic information to vehicle owners about the Moyer Program.

(2) Help participants complete the application, if necessary. It is important to make sure that all information is filled out correctly and that the participant understands the meaning of the program and the contract. Once complete, the dealer may submit the application package to the air district according to the agreement or MOU, if applicable.

(C) Dealerships and installers must adhere to agreements or MOUs established with the air district, if applicable.

(D) Dealerships and installers must submit all supporting documentation required under the Guidelines and if applicable, air district agreement for each project. Once all dealership/installer requirements have been met, reimbursement will be issued to the dealer/installer according to the agreement or MOU, when applicable.

(E) Dealerships and installers must possess pre-inspection documentation of the existing and replacement engines/vehicles prior to releasing the replacement engine/vehicle to the participant. If the agreement or MOU specifies that the air district or other third party will perform any inspections, the dealership/installer must receive air district approval

before releasing the replacement engine/vehicle. Upon request of the air district, ARB may waive inspection requirements.

(F) For replacements, the dealership must ensure the existing vehicle is in similar condition as found in the pre-inspection. The dealer should reject the condition of the existing vehicle if it is deemed unroadworthy or if parts were stripped from the existing vehicle (except for parts essential to vocation that will be installed on the replacement vehicle). Reimbursement to the dealer or release of funds to the grantee will be withheld until the dealer (or air district) approves of the condition of the existing vehicle and it is delivered to the dealership.

(G) The dealer or installer must deliver the existing engine/vehicle to a qualified dismantler within 60 calendar days of delivering the replacement engine/vehicle to the grantee. The dealer or installer must immediately notify the air district of the location and date of delivery of the existing engine/vehicle to the dismantler. The participating dismantler may also pick up the existing engine/vehicle.

(H) Use of Engine or Vehicle Pending Destruction: The dealer/installer may not use or permit the use of, the engines or vehicles, except use necessary to move it for destruction or storage.

(I) For electric or hybrid vehicles (new or converted), the dealership/installer/manufacturer must provide the air district with a copy of the owner's manual and other materials that will be provided to the purchaser/participant. The owner's manual and other materials must at least include the following information:

(1) A brief description of the vehicle/conversion system, including major components and their theory of operation and proper operating procedures;

(2) Battery maintenance best practices and charging procedures and protocols, if applicable;

(3) A listing of necessary service intervals and service requirements that differ from the base vehicle's or engine's original manufacturer's, if applicable;

(4) A statement that the hybrid converted vehicle is subject to all in-use vehicle inspection and maintenance programs applicable to its size, type, and class;

(5) The name, physical address, e-mail address, phone number, and website, if available, of the manufacturer and authorized installer, as well as a list of the names, addresses, and phone numbers of the major dealers who supply parts for, or service the vehicle;

(6) All information necessary for the proper and safe operation of the vehicle, including information on safe handling of the battery or energy storage system, and emergency procedures to follow in the event of battery leakage or other malfunctions that may affect the safety of the vehicle operator, emergency personnel, or laboratory personnel;

(7) The product warranty statement.

8. Dismantler Requirements

(A) If the existing engine or vehicle is replaced or removed, it must be dismantled. This requirement has been established to ensure that emission reductions are real, preventing the engine from continuing to emit high levels of pollutants. Destruction of the existing vehicle chassis and engine permanently removes the old, high emitting vehicle from service. The existing vehicle and engine specified in the application (or engine only for repower and conversion projects) must be dismantled, and may not be substituted with a different vehicle.

(B) To participate in the Program, dismantlers must:

(1) Enter into an agreement with the air district.

(2) Have at least one active employee who received training by the air district on the requirements of the Moyer Program. If a dismantler has more than one location, then the dismantler must have at least one active employee trained by the air district at each location that will be accepting engines/vehicles for the Moyer Program.

(3) Be licensed by DMV as an dismantler for at least the previous two years.

(4) Have had a valid business license issued in California for a minimum of the last two years.

(5) Possess a current, valid California Environmental Protection Agency Hazardous Materials Generators Permit.

(6) Be in compliance with all local, State, and federal laws and regulations.

(C) The dismantler must do the following for each engine/vehicle:

(1) Dismantle the old vehicle in accordance with Moyer Program Guidelines within 60 calendar days of receipt. Upon dismantler request, the air district may approve an extension.

(2) Destroy and render useless the existing vehicle and/or engine. At a minimum, the destruction must include the following:

a. Both frame rails must be completely severed between the front and rear axles.

b. A hole must be put in the engine block with a diameter of at least three inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles). A section of the oil pan flange must be removed as part of the hole or have a line cut through it that connects to the hole.

(3) If the vehicle is to be scrapped, the dismantler must completely sever the frame rails of the old vehicle to ensure that the vehicle will not be used again.

(4) Air district staff or the dismantler must take photographs of the destroyed engine and severed frame rails. Dismantler photographs of the destroyed engine block and severed frame rails must be provided to the air district within ten (10) business days of dismantling the vehicle. The following picture views must be taken:

a. Front, right, and left side of vehicle with hood down including license plate if available (vehicle scrap).

b. VIN tag (vehicle scrap).

c. Engine serial number either stamped on the block or on the tag (engine or vehicle scrap).

d. Left and right side of destroyed engine block either in-frame or out of frame (engine or vehicle scrap).

e. Hole in engine block (engine or vehicle scrap).

f. Completely severed frame rails (vehicle scrap).

g. Odometer Reading (vehicle scrap).

(5) Prepare and submit to DMV either a “Non-Repairable Vehicle Certificate” using an “Application for Salvage Certificate or Non-Repairable Vehicle Certificate” (REG 488C), or a Notice of Acquisition/Report of Vehicle To Be Dismantled (REG 42) ensuring the VIN can never be registered again in California. Within 90 calendar days of the dismantle inspection date, the dismantler must provide verification to the air district that the existing vehicle has been registered with DMV as non-revivable with a type transaction code (TTC) L10 or C26 on the DMV Reconciliation

transaction receipt or other DMV documentation that satisfies this requirement.

(6) Upon request of the air district, ARB may approve an alternative disposition for the old engine/vehicle.

(D) As specified in California Code of Regulations, title 13, section 2706(i)(3)(G), no party shall advertise, sell , lease, or offer for sale or lease, a used verified diesel emission control strategy.

(E) Dismantler Inspection: Once the air district is notified, a dismantler inspection will be scheduled and photos documenting the destruction of the engine will be taken in accordance with the Guidelines. The dismantler shall not move the vehicle off of their property or part out a vehicle until a dismantler inspection by the air district or a designated contractor has been performed and given approval by the air district.

(F) Use of Engine or Vehicle Pending Destruction: The dismantler may not use or permit the use of, the engines or vehicles, except use necessary to move it for destruction or storage.

CHAPTER 5: OFF-ROAD EQUIPMENT

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) mobile, portable and stationary, off-road compression-ignition (CI or diesel), and large spark-ignition (LSI) projects such as construction, agricultural, and industrial equipment. Air quality management districts or air pollution control districts (air districts) may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The following off-road equipment projects may be eligible for funding.

1. **Repower of Existing Equipment**. The replacement of the existing engine with a newer emission-certified engine instead of rebuilding the existing engine to its original specifications.

2. **Retrofit Purchase**. The installation of an Air Resources Board (ARB) verified emission control system on an existing engine. Examples include, but are not limited to particulate filters and diesel oxidation catalysts.

3. **Equipment Replacement**. The purchase of new or used equipment with an engine certified to the current emission standard or Tier to replace an older, fully functional piece of equipment that is to be scrapped.

4. **Infrastructure**. See the infrastructure chapter (Chapter 10) for details regarding applicant eligibility and project types for infrastructure in support of off-road equipment. This includes infrastructure such as alternative fuel and charging stations for construction, cargo handling, and ground support equipment, as well as agricultural pump electrification.

Please see Sections C and D for determining maximum grant amounts and minimum eligibility requirements for all off-road project categories.

B. Engine Emission Standards

ARB and the United States Environmental Protection Agency (U.S. EPA) have adopted regulations for exhaust emission standards for new off-road CI and LSI engines and equipment. For reference, Tables 5-1 and 5-2 below summarize the hydrocarbon (HC), oxides of nitrogen (NOx), and particulate matter (PM) standards in grams per brake-horsepower-hour (g/bhp-hr) for off-road CI Tier 1, 2, 3, and 4 engines. The actual standards, in grams per kilowatt-hour (g/kW-hr), may be found in the California Code of Regulations (CCR), title 13, sections 2449, et seq. Table 5-3 summarizes the exhaust emission standards for LSI engines. The complete emission standards for LSI engines may be found in the CCR, title 13, sections 2430, et seq.

Table 5-1
ARB and U.S. EPA Tier 1, 2, and 3 Exhaust Emission Standards for New Off-Road Diesel Engines ≥ 25 Horsepower (hp)
grams per brake horsepower-hour (g/bhp-hr)

Maximum Rated Power hp (kW)	Tier	Model Year	NOx	HC	NOx + NMHC	PM
25≤hp<50 (19≤kW<37)	Tier 1	1999-2003[a]	—	—	7.1	0.60
	Tier 2	2004-2007	—	—	5.6	0.45
50≤hp<75 (37≤kW<56)	Tier 1	1998-2003[a]	6.9	—	—	—
	Tier 2	2004-2007	—	—	5.6	0.30
	Tier 3[b]	2008-2011	—	—	3.5	0.30
75≤hp<100 (56≤kW<75)	Tier 1	1998-2003[a]	6.9	—	—	—
	Tier 2	2004-2007	—	—	5.6	0.30
	Tier 3	2008-2011	—	—	3.5	0.30
100≤hp<175 (75≤kW<130)	Tier 1	1997-2002[a]	6.9	—	—	—
	Tier 2	2003-2006	—	—	4.9	0.22
	Tier 3	2007-2011	—	—	3.0	0.22
175≤hp<300 (130≤kW<225)	Tier 1	1996-2002	6.9	1.0	—	0.40
	Tier 2	2003-2005	—	—	4.9	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
300≤hp<600 (225≤kW<450)	Tier 1	1996-2000	6.9	1.0	—	0.40
	Tier 2	2001-2005	—	—	4.8	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
600≤hp≤750 (450≤kW≤560)	Tier 1	1996-2001	6.9	1.0	—	0.40
	Tier 2	2002-2005	—	—	4.8	0.15
	Tier 3[c]	2006-2010	—	—	3.0	0.15
hp>750 (kW>560)	Tier 1	2000-2005	6.9	1.0	—	0.40
	Tier 2	2006-2010	—	—	4.8	0.15

[a] EPA model year. ARB model year for Tier 1 starts at 2000 for 25 hp ≤ to <175 hp.
[b] Engine families in this power category may meet the Tier 3 PM standard instead of the Tier 4 interim PM standard in exchange for introducing the final Tier 4 PM standard in 2012.
[c] Caterpillar, Cummins, Detroit Diesel Corporation, and Volvo Truck Corporation agreed to comply with these standards by 2005.

Table 5-2
ARB and U.S. EPA Tier 4 Exhaust Emission Standards for New Off-Road Diesel Engines ≥ 25 hp (g/bhp-hr)

Maximum Rated Power hp (kW)	Tier	Model Year	NOx	HC	NOx + NMHC	PM
25≤hp<50 (19≤kW<37)	Tier 4 Interim	2008-2012	—	—	5.6	0.22
	Tier 4 Final	2013 and later	—	—	3.5	0.02
50≤hp<75 (37≤kW<56)	Tier 4 Interim[a]	2008-2012	—	—	3.5	0.22
	Tier 4 Final	2013 and later	—	—	3.5	0.02
75≤hp<100 (56≤kW<75)	Tier 4 Phase-In	2012-2014	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.5	0.01
	Tier 4 Alternate NOx[b]		2.50	0.14	—	0.01
	Tier 4 Final	2015 and later	0.30	0.14	—	0.01
100≤hp<175 (75≤kW<130)	Tier 4 Phase-In	2012-2014	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.0	0.01
	Tier 4 Alternate NOx[b]		2.50	0.14	—	0.01
	Tier 4 Final	2015 and later	0.30	0.14	—	0.01
175≤hp<750 (130≤kW<560)	Tier 4 Phase-In	2011-2013	0.30	0.14	—	0.01
	Tier 4 Phase-Out		—	—	3.0	0.01
	Tier 4 Alternate NOx[b]		1.50	0.14	—	0.01
	Tier 4 Final	2014 and later	0.30	0.14	—	0.01
hp>750 (kW>560)	Tier 4 Interim	2011-2014	2.60	0.30	—	0.07
	Tier 4 Final	2015 and later	2.60	0.14	—	0.03

[a] Engine families in this power category may meet the Tier 3 PM standard instead of the Tier 4 interim PM standard in exchange for introducing the final Tier 4 PM standard in 2012.
[b] The implementation schedule shown is the three-year alternate NOx approach. Other schedules are available.

Table 5-3
Exhaust Emission Standards for
New Off-Road LSI Engines >1.0 liter
(g/bhp-hr)

Model Year	NOx+ Non-Methane Hydrocarbons (NMHC)
2001-2006[(a)]	3.0
2007-2009	2.0
2010 and later	0.6

[(a)] Standards phased in from 2001 – 2004

C. Maximum Eligible Funding Amounts (Determining Grant Amounts)

1. Table 5-4 summarizes the maximum eligible funding for each project type as a percentage. All projects are also subject to the cost-effectiveness limits specified in Appendix C.

Table 5-4
Maximum Percentage Eligible for
Moyer Program Off-Road Projects

Project	Maximum Percentage Eligible
Diesel repower	85%
LSI repower	85%
Repower to zero-emission	85%
Mobile equipment replacement	80%
Portable equipment replacement (excludes stationary)	80%
Retrofit	100%

The ARB has adopted in-use fleet rules affecting equipment with off-road CI and off-road LSI engines. For equipment subject to these rules, additional limitations may apply according to Sections E through I.

2. Project Life:

(A) Maximum project life

Table 5-5
Maximum Project Life

Type		Project Life
Repower only (no retrofit)		7 years
Farm equipment[1] (all projects)		10 years[a]
Replacement and repower to zero-emission		10 years[b]
Retrofit only		5 years
Replacement	Excavators Skid steer loaders Rough terrain forklifts	3 years
	All other non-farm (existing diesel only)	5 years
	All other non-farm (existing LSI only)	3 years

[a] Air districts are required to offer a ten year project life for farm equipment; however, applicants may request a project life fewer than ten years. Farm equipment is defined in Appendix B and does not include stationary agricultural equipment.

[b] Section C.2.(E) allows a maximum project life of ten years for zero-emission replacements.

(B) The maximum project life does not consider regulatory requirements that may shorten the eligible project life. Regulatory requirements may reduce actual project lives below these maximum values.

(C) Unless otherwise stated in this chapter (see Sections D.2.(I) and E.2.(H)(1)), the minimum project life allowed is three years.

(D) In accordance with SBx2 3 (Health and Safety Code (H&SC) § 44282.5(a)), mobile and portable farm equipment may be eligible for funding up to the compliance date of an applicable in-use regulation and a 10-year project life. In order to be eligible, farm equipment projects must be under a fully executed contract, and must be installed in the equipment and in operation prior to the applicable compliance date.

(E) For zero-emission replacement equipment, Senate Bill 467 (H&SC § 44287.1) allows the replacement of off-road internal combustion equipment with zero-emission off-road equipment to incorporate the maximum life allowed of the equipment being scrapped (three to five years, as applicable per Section C.2.(A)) and the remaining useful life up to ten years of the equipment the applicant would have bought at the time

of normal attrition (five to seven years, as applicable). For zero-emission replacement of off-road equipment, the emission benefits from two separate transactions may be included in the cost-effectiveness calculations:

(1) Emission reductions from existing older equipment, as applicable, to zero-emission equipment.

(2) Emission reductions from a new piece of equipment meeting the emission standards at the time of purchase to zero emission.

2. **Usage**. Cost-effectiveness calculations must be hour-based. Calculation of funding amounts must be based on the average of at least the two most recent years of documented equipment usage. For projects in which the two most recent years of documented usage are not available, the minimum annual usage is required to be specified in the contract (Chapter 3, Section V.6.(B)). Fleet averages cannot be used. All project engines or equipment must have a fully operational hour meter for the project life. If during the project life the hour meter fails for any reason, the hour meter must be repaired or replaced as soon as possible at the owner's expense.

D. Project Criteria

The minimum qualifications for off-road projects are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

1. **General Criteria:**

(A) New and existing CI and LSI engines greater than or equal to 25 horsepower on mobile or portable off-road equipment and stationary agricultural equipment are eligible for funding. LSI engines above 25 horsepower but with a displacement of less than or equal to one liter may be eligible for funding on a case by case basis.

(B) Air districts have discretion to use good engineering judgment to determine project horsepower for an existing or new engine or equipment based on the engine label, manual, engine records, or other verifiable records.

(C) For existing equipment in which the actual engine horsepower cannot be determined based upon the engine label, manual, and engine records, air districts may determine existing engine horsepower by the following formula: Engine horsepower = Power Take Off (PTO) x 120 percent.

(D) Future annual hours of equipment operation for determining emission reductions must be based upon readings from an installed and fully operational hour meter.

(E) The certification emission standard and/or Tier designation for the existing engine (if applicable) and the new engine must be determined from the ARB Executive Order or U.S. EPA Certificate of Conformity (for federally preempted engines) issued for that engine. ARB Executive Orders for off-road engines may be found at http://www.arb.ca.gov/msprog/offroad/cert/cert.php.

(F) For existing equipment with engines manufactured under the flexibility provision, detailed in CCR, title 13, section 2423(d), the baseline emission rates shall be determined by using the previous applicable Tier emission standard for the existing engine model year and horsepower rating. Alternatively, the baseline emission rates may be determined based upon the standard or Tier associated with the actual reference family listed on the emission control information label of the existing equipment. The ARB Executive Order for these engines indicates that the engines are certified under the flexibility provision. Air districts must retain this documentation in the project file.

(G) New engines that are participating in the "Tier 4 Early Introduction Incentive for Engine Manufacturers" program, as detailed in CCR, title 13, section 2423(b)(6), are eligible for funding provided that they are certified to the Tier 4 Final emission standards. The ARB Executive Order for these engines indicates that the engines are certified under this provision. The emission rates for these engines used to determine cost-effectiveness shall be equivalent to the emission factors associated with Tier 3 engines. Air districts must retain this documentation in the project file.

(H) Notwithstanding Section D.1.(J) below, new engines certified to the interim Tier 4 (interim Tier 4, Tier 4 Phase-Out, Tier 4 Phase-in/Alternate NOx) and Tier 4 Final emission standards participating in the averaging, banking, and trading program that are certified to FEL higher than the applicable emission standards are eligible for funding. The appropriate emission factor for calculating emission reductions and cost-effectiveness shall be equivalent to the emission factors associated with the Tier 3 for engines 50 to 750 horsepower and Tier 2 for engines less than 50 horsepower or greater than 750 horsepower.

(I) Notwithstanding section D.1.(J) below, new engines certified to the interim Tier 4 and Tier 4 Final emission standards participating in the averaging, banking, and trading program that are certified to a FEL below the applicable emission standards are eligible for funding. The appropriate emission factor for calculating emission reductions and cost-effectiveness

shall be the emission factor associated with the applicable interim Tier 4 (interim Tier 4, Tier 4 Phase-Out, Tier 4 Phase-in/Alternate NOx) or Tier 4 Final emission standard.

(J) New engines eligible for off-road projects must meet the current applicable standard or Tier. If repowering or replacing with an engine meeting the current applicable standard is technically infeasible, unsafe, or not available when the air district commits to the proposed project, the new engine must meet the most practicable previously applicable emission standard. For purposes of this section, the air district's commitment (as defined in Appendix B) to a proposed project shall be consistent with that stated in their Policies and Procedures Manual. The air district shall determine eligibility of repower and replacement projects using an engine certified to a previous emission standard using the criteria listed below:

(1) At the applicant's request, confirmation of availability of an engine meeting the most recent emission standards or Tier may be limited to the same manufacturer as the existing engine.

(2) If the air district and the applicant do not execute a contract for the project within six months of project commitment, then the air district must recheck for the availability of engines meeting the current standard.

(3) Documentation that engines meeting the current applicable standards are unavailable must be included in the air district's project file. Acceptable documentation that engines meeting the most recent emission standards are unavailable include:

a. Verifiable information from the engine manufacturer, engine distributor, and/or engine dealer regarding the unavailability of engines meeting the current emission standards or Tier.

b. Confirmation (a written declaration by the air district is acceptable) that engines from a specific manufacturer meeting the current emission standards or Tier are not certified (Executive Order is not available on ARB website). Executive Orders for off-road engines may be found at http://www.arb.ca.gov/msprog/offroad/cert/cert.php.

c. For repower projects, a written statement of reason(s) provided by the engine manufacturer verifying that a particular piece of equipment cannot accommodate an engine meeting current standards without major modifications or safety risks. The letter must include information on the equipment being repowered, the engine being replaced, the reason why an engine meeting the currently applicable standard cannot be used (including

applicable supporting documentation), and the proposed replacement engine. Air districts must retain the written statement of reasons in the project files.

d. For repower projects, the engine manufacturer has provided ARB with sufficient information on engine and/or equipment models for which repowers are available, and engine and/or equipment models for which repowers are not available or feasible. Engine manufacturers who are interested in pursuing this option should contact ARB. ARB staff will maintain a list of such engines and/or equipment models and make that list available to air district staff.

(K) Existing zero- or low-emission equipment are required for worker safety in the following industries, and therefore these projects are not eligible for funding: food retail stores, cold storage, and confined space operations (such as freezers).

(L) The horsepower rating for the replacement engine must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the existing engine. In limited situations, such as where equipment in the original horsepower range is not available or the higher horsepower equipment will result in equal or lower annual emissions, the air district may approve a greater than 25 percent increase in horsepower.

(M) Notwithstanding D.1.(L), at an air district's discretion, new engines or equipment may be funded with horsepower greater than 125 percent of existing equipment. However, the eligible funding amount must be based upon the cost of an engine or equipment whose horsepower is no higher than 125 percent of the existing engine horsepower. The applicant must pay the additional costs associated with the higher horsepower engine, and the emission reduction calculation must be based upon the funded (higher horsepower) engine. The air district's project file must include documentation of the cost of the funded (higher horsepower) equipment as well as the method used to determine the basis for the project grant amount (e.g. dealership cost estimate of lower horsepower equipment).

(N) New electric motors and equipment that are rated less than 19 kW are eligible for funding provided it can serve the same function and perform the same work as equipment with a 25 horsepower or greater engine that it is replacing.

(O) No funds will be issued for maintenance or repairs related to the operation of the existing or new equipment. The participant takes sole responsibility for ensuring that the engine and/or equipment is/are in operational condition throughout the agreement period.

(P) Existing engines replaced as part of an off-road project must be destroyed and rendered useless. At a minimum, the destruction of an engine must include:

(1) A hole in the engine block with a diameter of at least three inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles) and

(2) A section of the oil pan flange must be removed as part of the hole or have a line cut through it that connects the hole.

(Q) For portable/stationary agricultural projects, State and air district rules impacting agricultural sources must be considered when determining whether projects provide emission reductions surplus to regulatory requirements. Moyer eligibility may be based on the requirements of the local rule if the local rule meets the requirements of Health and Safety Code section 39666(d). An air district requesting to have eligibility based on local rules must have its Air Pollution Control Officer self-certify via email or letter to their ARB Moyer liaison that the local rule is equally as effective as or more stringent than the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (CCR, title 17, section 93115 et. seq.). Note: The self-certification described in this section applies solely to the Moyer Program and does not relieve the air district of their responsibilities under Health and Safety Code section 39666 or any other ARB program or requirement.

2. Repower

(A) New engines manufactured under the "Flexibility Provisions for Equipment Manufacturers" as detailed in CCR, title 13, section 2423(d), are ineligible for funding to repower equipment.

(B) New engines manufactured under the "replacement engine" provisions of CCR, title 13, section 2423(j) and/or the provisions of 40 Code of Federal Regulations (CFR) 1068.240 which are used to repower equipment are eligible for funding.

(C) For repower plus retrofit projects, the cost of data logging the replacement engine is not eligible. Please refer to Section D.3. for additional criteria.

(D) For repower projects with new off-road compression-ignition engines equipped with original engine manufacturer after treatment devices, addition of a retrofit is ineligible due to issues with engine warranty and anti-tampering provisions.

(E) Repower to convert to zero-emission technology is eligible for funding. Except for stationary agricultural equipment, zero-emission repower

projects must include a three-year or 5,000-hour warranty. The warranty must cover zero-emission system parts and labor.

(F) Variable frequency devices (VFD) may be eligible for funding provided the air district reports VFD cost and serial number information in the Clean Air Reporting Log (CARL).

(G) In stationary electric motor projects, the grantee must provide documentation of application or payment to the local utility company for power installation.

(H) An electric motor on an agricultural irrigation pump project that is under contract may be considered for invoice payment once the motor has been delivered to the project site, and the motor has been connected to the electricity grid.

(I) For portable/stationary agricultural projects, except for remotely located or less than 50 hp agricultural engines (as defined in Appendix B), only Tier 3 engines are eligible to be repowered. These must repower to Tier 4 Final engines. Air districts with a local rule may repower uncontrolled, Tier 1, and Tier 2 engines to Tier 4 Final engines as long as there is at least one year of surplus emissions reductions prior to the compliance date of the local rule for the specific tier. The minimum project life in these instances is one year. When repowering a Tier 3 engine, air districts are encouraged to consider the feasibility of repowering with zero-emission technology, such as an electric motor, over a Tier 4 Final engine.

3. Retrofit

(A) Existing off-road CI engines equipped with original engine manufacturer aftertreatment devices are ineligible for funding.

(B) The retrofit must be verified by ARB to the highest level available for the engine being retrofitted.

(C) Eligible project costs include:

(1) Retrofit system (including all essential components)

(2) Installation

(3) Maintenance (for duration of project life)

(4) Hour meter (if none existed on existing equipment)

(D) The data logging cost of a retrofit-only project is not eligible.

(E) Additional information on verified diesel retrofit systems may be found on ARB's website at http://www.arb.ca.gov/diesel/verdev/verdev.htm. Information on verified LSI retrofit systems may be found at: http://www.arb.ca.gov/msprog/offroad/orspark/verdev.htm.

4. Equipment Replacement

(A) Equipment replacement projects are limited to mobile and portable equipment.

(B) Equipment manufactured under the "Flexibility Provisions for Equipment Manufacturers" (Flex equipment), as detailed in CCR, title 13, section 2423(d) is eligible for funding as replacement equipment, provided the equipment meets the requirements of section D.1.(J) above.

(1) Eligible Flex equipment whose reference engine family is certified to an FEL is also subject to the provisions of Section D.1.(H) and (I).

(2) Flex equipment with an engine whose reference engine family meets a standard, Tier, or FEL less stringent than Tier 3 standard (or Tier 2 standard for engines less than 50 horsepower or greater than 750 horsepower), is ineligible for funding.

(C) The replacement of two (or more) pieces of existing equipment with one piece of replacement equipment is eligible for funding. Each piece of existing and replacement equipment must comply with all of the appropriate criteria in this section. The replacement equipment must execute the same job as the existing pieces of equipment. For baseline emissions calculation, the annual emissions of the two pieces of existing equipment are summed. For the replacement equipment emissions calculation, the annual usage of the two pieces of existing equipment is summed for the replacement equipment usage. The horsepower rating for the replacement equipment must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the lowest horsepower of the two existing equipment engines (unless the grantee pays for the horsepower upgrade as specified in Section D.1.(M)).

(D) If air districts use equipment dealers in implementing the equipment replacement program, reimbursement cannot be issued until all necessary documentation is received and approved by the air district. Participants may purchase the replacement equipment from a private party, provided all required documentation is submitted and approved by the air district. This includes warranty requirements and all other equipment replacement requirements.

(E) Existing Equipment Requirements:

(1) Equipment Ownership: the applicant must have owned the existing equipment in California for the previous two years. The applicant must provide documentation of the following specific to the existing equipment (select one):

a. Bill of sale for the old existing equipment (preferred)

b. Tax depreciation logs

c. Property tax records

d. Equipment insurance records

e. Bank appraisals for equipment

f. Maintenance/service records

g. General ledgers

h. Fuel records specific to the existing equipment that identify the equipment owner

i. Other documentation approved by ARB

(2) Operational Requirements: the existing equipment must be in operational condition to qualify for funding. A pre-inspection of the existing equipment must be performed prior to funding to verify the operational status of the equipment. In addition, the applicant must provide documentation to demonstrate that the equipment was operational for the previous year. The following types of documents are acceptable:

a. Revenue and usage records that identify operational, standby, and down hours for the equipment

b. Routine inspections which document the operating condition of the existing equipment (Occupational Safety and Health Administration or workplace required)

c. Employee timesheets linked to specific equipment use

d. Preventative maintenance/service records tied to specific hours of equipment use

e. Repair work orders specific to the equipment

f. Other documents approved by ARB

(3) Pre-Inspection Requirements: Pre-inspection must verify the operational condition of the existing equipment. The pre-inspection must verify, at a minimum, the following items:

a. Tires in usable condition (able to hold air, sufficient tread or tracks, etc.)

b. Steering wheel operational

c. Equipment able to start up and move backwards and forwards

d. Buckets, blades, rollers, etc. are working

e. Undercarriage structurally sound

f. Fuel tank in usable condition

g. No parts stripped

h. Equipment not vandalized

i. Clear photographs of the existing equipment must include the following views listed below. The air district will specify the required digital format.

i. Right side - hood down

ii. Front - hood down

iii. Left side - hood down

iv. Equipment serial number

v. Engine serial number - either tag or stamp on block

vi. Diesel Off-Road Online Reporting System (DOORS) Equipment Identification Number (EIN), if applicable

vii. Rear

(4) Destruction and Salvage Requirements: Equipment replacement requires that the existing equipment be scrapped to permanently remove it from service. This ensures that emission reductions are real and prevents the existing equipment from being moved into another locale to continue emitting high levels of pollutants.

a. Destruction of the equipment may occur either at an air district approved salvage yard or another facility in conjunction with an air district salvage inspection.

b. Both the existing engine and equipment must be destroyed. Refer to Section D.1.(P) for the engine destruction method. The destruction method of the equipment will vary depending on the structure of the equipment:

   i. Equipment with permanent frame rails running the length of the equipment: complete cuts of both frame rails between the front and rear axles.

   ii. Equipment with removable/bolt-on frame rails: structural damage, with cuts or otherwise, that renders the main body of the equipment inoperable and unrepairable.

   iii. Equipment without frame rails: structural damage, with cuts or otherwise, that renders the main body of the equipment inoperable and unrepairable.

   iv. Articulated equipment: damage, cuts or otherwise, to the articulation joints of front and rear halves of the equipment so that neither half can be joined.

   v. Other equivalent methods of destruction are acceptable if approved by the air district.

c. The existing engine and equipment must be destroyed within 60 days of being replaced. Documentation of the destruction must be provided to the air district within 10 days of destruction.

d. Funding is not available for the salvage of any existing equipment.

e. The existing equipment salvage value will be negotiated between either the applicant, the dealership, and/or the salvage yard.

f. A salvage inspection of the existing equipment must be performed by either the air district or a contracted salvage yard.

g. Air districts which perform their own salvage inspections must be notified within 10 days of destruction so that a salvage inspection can occur.

h. Salvage inspection must include clear photographs of the following views:

   i. DOORS EIN (if applicable)

   ii. Equipment serial number

iii. Engine serial number either stamped on the block or on the tag

iv. Destroyed engine block as described in Section D.1.(P).

v. Cut structural components as described in Section D.4.(E)(4)b.

vi. Other views dependent on the method of equipment destruction

i. Salvage inspection of the existing equipment must be completed prior to disbursement of funds.

(F) Replacement Equipment Requirements

(1) The replacement equipment must serve the same function and perform the same work equivalent as the existing equipment (e.g., replacement of an agricultural tractor with another agricultural tractor).

(2) Only items essential to the operation of the equipment and the minimum attachments normally sold with the original equipment, as determined by the air district, are eligible for reimbursement on the replacement equipment. Equipment owners may remove non-emission related body components and place them on the replacement equipment as long as the components do not exist on the replacement equipment and are not part of the paid components for the replacement equipment.

(3) Applicants may purchase the replacement equipment from a private party, provided all required documentation is submitted and approved. This includes warranty requirements and all other equipment replacement requirements.

(4) If an applicant elects to install a retrofit with the replacement equipment, then the retrofit must be installed prior to equipment delivery to the grantee and must stay in operation on the replacement equipment for the project life. The retrofit must meet all the requirements per Section D.3.

(5) Warranty Requirements

a. All new or used replacement equipment must have a minimum one-year or 1600-hour powertrain warranty. The warranty must cover parts and labor. A separate supplemental minimum one-year or 1600-hour power and drivetrain warranty must be

purchased if the equipment does not have one. The supplemental warranty costs are not eligible for funding.

b. It is recommended that the highest grade warranty be purchased in order to avoid expensive repairs in the future.

c. Warranty documentation must be provided to the air district.

(6) Post-Inspection Requirements

a. Post-inspection of the replacement equipment must be completed prior to disbursement of funds.

b. The post-inspection must include clear photographs of the following views:

i. Pictures(s) of full equipment

ii. Equipment serial number

iii. Engine serial number and engine information

iv. Retrofit (if available)

v. Hour meter reading

(G) Air District Requirements

(1) Air districts must establish an off-road equipment replacement plan before funding projects. The plan must include criteria for the following:

a. Development of grantee contracts which must include a generic statement of work

b. Inspections (pre-, post-, salvage). The required digital format for the inspections photographs must be specified.

c. Reimbursement procedures

d. Monitoring and enforcement considerations

e. If applicable, for air districts that contract with dealers and salvage yards, the off-road equipment replacement plan must identify the air district's requirements for dealer and/or salvage yard contracts, and the process for oversight and review of program requirements that are expected of each entity, and the repercussions for non-compliance with the terms of the contract

for each entity. For air districts that contract with dealer(s), liaison training must be provided to the dealership staff.

(2) Air districts may fund equipment replacement projects through a regional program administered by a designated air district. The designated air district could be either an air district located within the regional program or a large air district located outside of the regional program. A regional equipment replacement implementation plan must be established, containing all the required components as required in an individual air district's equipment replacement implementation plan. A regional equipment replacement plan must also contain a detailed description of the funding mechanism among the participating air districts. All air districts participating in the regional program must sign the regional equipment replacement implementation plan and must adhere to all the requirements specified in such regional implementation plan.

(3) Air districts are encouraged, but are not required to establish contracts with dealers and salvage yards for participation in the program.

(4) Air districts must ensure the following are performed:

a. Pre-inspection of the existing equipment. This may be performed by an air district approved dealer.

b. Verification that the replacement equipment proof of sale and if applicable, proof of financing have been received from the dealer or participant.

c. Post-inspection of the replacement equipment. This may be performed by an air district approved dealer.

d. Salvage inspection of the existing equipment. This may be performed by an approved salvage yard.

e. Verification that all post-inspection of replacement equipment and salvage inspection of existing equipment were completed and all documentation is submitted and approved prior to disbursement of funds.

(5) The air district is allowed to make full payment to the dealer at the time the dealer delivers the replacement equipment to the applicant under the following framework:

a. The air district must complete the pre-inspection of the existing equipment and post-inspection of the replacement equipment to

make sure that all equipment complies with program requirements.

b. The air district must sign a contract with the dealer and the salvage yard that contains, at a minimum, the program requirements that are expected of each entity and the repercussions for non-compliance with the terms of the contract for each entity. This shall include, but is not limited to, the requirement that the dealer delivers the existing equipment to a qualified salvage yard within 30 days of the date that the existing equipment was turned in to the dealer by the applicant.

c. The air district must ensure the equipment is scrapped within 60 days of the salvage yard's receipt of the equipment through salvage inspection with the salvage yard to properly document the destruction of the existing equipment in accordance with the Moyer Program equipment replacement program requirements.

(H) Dealer Requirements

(1) Equipment dealers that enter into a contract with an air district must:

a. Provide basic information to potential applicants about the equipment replacement category. Air districts must also provide liaison training to dealership staff.

b. Inform potential applicants of rights and responsibilities as outlined in the air district and ARB guidelines.

c. Help the potential applicants correctly complete the application. It is important that the participant understands the meaning of the program and the subsequent air district contract if approved for funding. The air district will provide all forms and certificates as appendices to the application.

d. Ensure that an application package is complete. The dealer must verify that all the following items are included in the application package:

i. A signed and complete application.

ii. All documentation as required in Sections D.4.(E)(1) and (2).

iii. The following information must also be included in the documentation:

(a) Make

(b) Model

(c) Model year

(d) Equipment serial number

(e) Engine make

(f) Engine serial number

(g) Expected delivery date of existing equipment

iv. Documentation of replacement equipment warranty.

e. Submit the completed application package to the air district.

(2) After the application and all required documentation have been approved by the air district, the dealer must provide the air district with proof of sale and if applicable, proof of financing of the replacement equipment. The financing package will enable the air district to determine the reimbursement costs that may be accrued in case the participant defaults on the contracted performance requirements. Proof of project financing can be a document showing the lender and the amount loaned, which at a minimum is a copy of the check given to the dealer equal to the portion of the project that was not Moyer Program funded. Proof of project financing is always required unless the grantee paid cash for the portion of the project that was not Moyer Program funded.

(3) Prior to releasing the replacement equipment to the participant, the dealer must have documentation of an air district pre-inspection of the existing equipment and the post-inspection of the replacement equipment. Alternatively, if approved by the air district to do pre- and post-inspections, the dealer must verify that photographs of the existing equipment and the replacement equipment, as defined in Sections D.4.(E)(3)i. and (F)(6)b., are clear prior to submitting them to the air district.

(4) Provide documentation certifying that the existing equipment will be received by a contracted salvage yard within 30 days.

(I) Salvage Yard Requirements

(1) Equipment salvage yards must enter into an agreement with the air district to qualify for participation.

(2) Contracted salvage yard(s) must:

a. Destroy the existing equipment and engine within 60 days of receipt of the existing equipment in accordance with the program guidelines.

b. Provide the air district with all photographs required under the air district's salvage inspections requirements per Section D.4.(E)(4)h. below within ten business days of salvaging the existing equipment.

c. For each project, provide the following information:

i. Make

ii. Model

iii. Model year

iv. Serial number

v. Engine make

vi. Engine serial number

vii. Delivery date of the existing equipment

d. Submit a completed certificate of equipment destruction or other similarly approved documentation to the air district.

E. Projects subject to the In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation) (CCR, title 13, section 2449 et. seq.)

1. The existing equipment must be registered in DOORS.

2. Fleets must be in compliance with the regulation in order to be eligible for and receive funding. Fleets subject to the Off-Road Regulation that meet the final compliance requirements of the Off-Road Regulation are eligible for funding, and are exempt from the requirements of Section E.2.(E) through (I).

(A) Applicants must submit information regarding fleet size and compliance status. All documentation submitted must be signed and dated by the applicant and include language certifying that the fleet list provided is accurate and complete. Air districts are not required to validate submitted information and will not be held liable if fleet owners falsify fleet information. The following information shall be submitted at the time of application:

(1) DOORS ID of the fleet.

(2) DOORS EIN of the existing equipment.

(3) Fleet size information (total horsepower) as reported to DOORS

(4) Information to determine compliance with the Off-Road Regulation

a. Large fleets and medium fleets are required to show compliance with the Off-Road Regulation.

b. Prior to 1/1/2019, small fleets are not required to show compliance with the Off-Road Regulation.

(5) For those fleets that have previously received Moyer Program funding, a list of funded equipment with the DOORS EIN of the funded equipment.

(6) Large fleets must certify that they have not applied for Moyer Program funding for their off-road diesel fleet in another fiscal year (July 1-June 30) after January 1, 2017, excluding applications for which no funding was ultimately received.

(B) Applicants must submit to the air district the DOORS EIN of the replacement equipment no later than at post-inspection of replacement equipment.

(C) Applicants are not required to submit information on exempted equipment. Information on exempted off-road equipment can be found in the Off-Road Regulation.

(D) No emission reductions achieved from a funded project can count towards a fleet's regulatory requirements for the duration of the contract term.

(E) Eligibility for a project is based upon the Best Available Control Technology (BACT) requirements of the Off-Road Regulation.

(1) Any equipment funded through the Moyer program, and that is still under contract, must be deducted from the amount of equipment eligible for funding. For instance, a fleet that is eligible for funding to reduce emissions for 50 percent of its horsepower, but which has already received funding in previous years to reduce emissions from 20 percent of its horsepower, is only eligible for funding to reduce emissions from 30 percent of its horsepower.

(2) Equipment funded through the Moyer program must be included in the fleet's total horsepower from which the BACT requirements of the regulation are calculated.

(F) Large Fleets

(1) Eligible projects for large fleets, as defined in the Off-Road Regulation must provide at least three years emission reductions surplus to the regulation with a corresponding minimum project life of at least three years.

(2) Projects must be installed and in operation at least three years before the BACT requirements become effective for the funded equipment.

a. The first compliance date for large fleets, as defined in the Off-Road Regulation, is January 1, 2014. The final compliance date is January 1, 2023. Funding for these fleets is available through December 31, 2019.

b. Large fleets are eligible for funding once after January 1, 2017. After January 1, 2017, for those large fleets eligible for funding a second or subsequent time, only zero-emission projects are eligible.

c. Large fleets may have alternative requirements per Section E.2.(I) below.

(G) Medium Fleets

(1) Eligible projects for medium fleets, as defined in the Off-Road Regulation must provide at least three years emission reductions surplus to the regulation with a corresponding minimum project life of at least three years.

(2) Projects must be installed and in operation at least three years before the BACT requirements become effective for the funded equipment.

(3) The first compliance date for medium fleets, as defined in the Off-Road Regulation is January 1, 2017. The final compliance date is January 1, 2023. Funding for these fleets is available through December 31, 2019.

(H) Small Fleets (includes Captive Attainment Area Fleets)

(1) Eligible projects for small fleets, as defined in the Off-Road Regulation must provide at least two years emission reductions surplus to the regulation, with a corresponding minimum project life of at least two years.

(2) Projects must be installed and in operation at least two years before the BACT requirements become effective for the funded equipment.

(3) The first compliance date for small fleets, as defined in the Off-Road Regulation is January 1, 2019. The final compliance date is January 1, 2028. Funding for these fleets is available through December 31, 2025.

(I) Surplus Off-Road Opt-In for NOx (SOON) Program

(1) Fleets located in air districts that have opted into the SOON program and that are subject to the SOON provisions are eligible for funding in accordance with the Off-Road Regulation (CCR, title 13, section 2449.2) and must meet the applicable criteria in Sections A. through D. in this chapter.

(2) Projects funded under SOON, are not subject to Section E above, except for the requirements of Sections E.1., E.2.(A) through (C), and E.2.(I).

3. For more information on eligibility of off-road diesel equipment, please see the Regulation for In Use Off-Road Diesel-Fueled Fleets Carl Moyer Program Implementation Chart available at http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

F. Projects subject to the Regulation for Cargo Handling Equipment at Ports and Intermodal Rail Yards (CHE Regulation) (CCR, title 13, section 2479)

1. Eligible Engines

(A) For repower or replacement projects in which the equipment is subject to the CHE Regulation, only Tier 4 Final engines or cleaner are eligible for funding.

(B) Replacement engines participating in the averaging, banking and trading program that are certified to FEL higher than the applicable emission standards, as designated on the Executive Order, are not eligible for funding.

2. Eligible projects must provide at least three years of emission reductions surplus to the regulation, with a corresponding minimum project life of at least three years. Cargo handling fleets that have met the final compliance requirements of the CHE Regulation are eligible for funding.

G. Projects subject to the Large Spark Ignition Engine Fleet Requirements (LSI Fleet Regulation) (CCR, title 13, section 2775 et. seq.)

1. Eligible funding must provide at least three years of emission reductions surplus to the LSI Fleet Regulation, with a corresponding minimum project life of at least three years.

2. Large and Medium Forklift Fleets and Fleets of Four or More Sweeper/Scrubbers, Ground Support Equipment, and/or Industrial Tow Tractors: In order to be eligible for funding, large and medium forklift fleets and fleets of four or more non-forklift LSI equipment must meet the final fleet average emission level applicable on January 1, 2013.

3. Agricultural Crop Preparation Forklift Fleets Model Year 1990 and Newer: These fleets are required to either retrofit, repower, or replace 100 percent of their fleet by January 1, 2012, or currently meet a 3.0 g/bhp hr fleet average HC + NOx level. Fleets that have met the 3.0 g/bhp-hr fleet average can apply for funding. Additionally, in accordance with SBx2 3 (H&SC § 44282.5(a)), fleets that have retrofitted/repowered 20 percent of their fleet in compliance with the regulation are eligible for funding up to the final compliance date. In order to be eligible, these projects must be under executed contract and must be installed and in operation prior to the applicable compliance date.

4. LSI fleets that have met the final compliance requirements of the LSI Fleet Regulation are eligible for funding. Due to the regulatory requirements for rental and lease equipment subject to the LSI Fleet Regulation, projects that include rented or leased equipment are not eligible.

5. Fleets with equipment not subject to the LSI Fleet Regulation are eligible for funding, including:

   (A) Agricultural crop preparation non-forklift equipment and pre-1990 forklifts.

   (B) Forklifts used exclusively in fields to harvest and maintain crops.

   (C) Non-forklift LSI equipment such as aerial lifts, lawn and garden tractors, commercial turf equipment, mining and construction equipment, and industrial equipment.

   (D) Small fleets (one to three forklifts and/or one to three sweepers/scrubbers, industrial tow tractors, or pieces of airport ground support equipment (airport GSE)).

6. Required Off-Road LSI Fleet Information: For forklifts, sweeper/scrubbers, airport GSE, and/or industrial tow tractors, an applicant's fleet size impacts project eligibility. Applicants must submit information regarding fleet size and compliance status. All documentation submitted must be signed and dated by the applicant and include language certifying that the fleet list provided is accurate and complete. Air districts are not required to validate submitted information and will not be held liable if fleet owners falsify fleet information.

   (A) Large/Medium/Non-Forklift Fleets: For large, medium, and non-forklift fleets subject to the LSI Fleet Regulation, applicants are required to report compliance records for the entire statewide fleet as described in the regulatory language (CCR, title 13, section 2775.2).

(1) DOORS ID of the fleet.

(2) DOORS EIN of the existing equipment.

(3) Fleet size information (total number of forklifts; total number of non-forklift LSI equipment).

(4) Information to determine compliance with the LSI fleet Regulation. Large and medium fleets are required to show compliance with the applicable final fleet average emission level.

(B) Small Fleets: Small fleets are not required to maintain compliance records, but for the purposes of determining project eligibility, air districts must obtain the following information for the entire statewide fleet:

(1) Equipment identification number (equipment identification number, fleet assigned identification, etc.)

(2) Equipment type (e.g., forklift, GSE, etc.)

7. If applicable, applicants must submit to the air district the DOORS EIN of the replacement equipment not later than at post-inspection of the replacement equipment.

8. Applicants are not required to submit information on exempted equipment (except as noted above for small fleets). Information on exempted LSI equipment can be found in CCR, title 13, sections 2775(b), 2775.1(c) (4), and 2775.1(d-f) of the Final Regulation Order (http://www.arb.ca.gov/regact/lore2006/oalapprovedfro.pdf).

H. Projects subject to the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater (Portable Engine ATCM) (CCR, title 17, section 93116 et. seq.)

1. In order to be eligible for repower projects, diesel engines regulated under the Portable Engine ATCM must be permitted or registered in an air district or registered in the Portable Equipment Registration Program. If the portable engine is not required to be permitted or registered, documentation must be included in the project file from the air district stating that a permit or registration is not required to operate in the air district.

2. In order to be eligible for funding, fleets must be fully compliant with the regulatory requirements in effect in 2020.

3. For more information on eligibility of engines used in portable equipment, please see the Portable Engine Airborne Toxic Control Measure Implementation Chart available at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

I. Projects subject to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles (Statewide Truck and Bus Regulation) (CCR, title 13, section 2025)

This regulation impacts the eligibility of all on-road heavy-duty diesel-fueled and alternative diesel-fueled vehicles operated in California with a manufacturer's GVWR greater than 14,000 pounds. Although this regulation primarily affects vehicles with on-road engines, some vehicles with off-road engines are also covered. Any application for Moyer Program funding to replace a vehicle with an off-road engine that is subject to an on-road regulation must comply with the applicable surplus requirements described in Chapter 4. For example, a yard truck with an off-road engine that is subject to the Statewide Truck and Bus Regulation (including yard trucks used primarily in agricultural operations) must meet the applicable on-road surplus requirements described in Chapter 4, Section C.2., and must also comply with all off-road project criteria described in this chapter.

CHAPTER 6: LOCOMOTIVES

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) locomotive projects. Air quality management districts or air pollution control districts (air districts) may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The Moyer Program provides incentive to upgrade old high-polluting locomotives to new Tier 4 units. Rail equipment, designed for use on tracks, such as on-rail vehicles, railcar movers, sweepers, and wheel cranes which have tires or mounted tracks, that replace switcher locomotives, are also considered locomotives for the purposes of the Moyer Program. Funding opportunities may be limited due to the availability of Goods Movement Emission Reduction Bond Program (Proposition 1B Goods Movement Program) funding, and the South Coast and Statewide Memoranda of Understanding (MOU) with these railroads (See Table 6-1).

Table 6-1
Summary of Locomotive Funding Opportunities

Railroad Class	Subject to ARB Rule or MOU	Moyer Funding Opportunities
Class 1 Freight Railroads (Burlington Northern Santa Fe Railroad and Union Pacific Railroad)	*2005 Statewide Railyard Agreement* and *1998 South Coast MOU*[(a)]	Projects in California's goods movement trade corridors are generally ineligible for Moyer Program funding if Proposition1B funds are available.[(b)] These projects are only eligible for Moyer Program funding on a case-by-case basis.
Class 2 and 3 Freight Railroads and Passenger Railroads	No	Class 2 and 3 and passenger railroad projects are not limited.

[(a)] The South Coast MOU limits funding eligibility for Class 1 freight railroad new purchase or engine remanufacture/repower projects in the South Coast. See: http://www.arb.ca.gov/msprog/offroad/loco_flt.pdf
[(b)] For a map of the trade corridors, see: http://www.arb.ca.gov/bonds/gmbond/docs/gmtradecorridors.jpg

Project Types: Three types of locomotive projects are eligible for Moyer Program funding:

1. Locomotive Replacement
2. Locomotive Engine Repower
3. Head End Power Unit (HEP)

B. Maximum Eligible Funding Amounts

Table 6-2 summarizes the maximum eligible funding for each project type. All projects are also subject to the cost-effectiveness threshold defined in Appendix C.

Table 6-2
Maximum Grant Amount for Moyer Program Locomotive Projects

Railroad Class/Type	All Project Types
Class 1/Class 2	75%
Class 3 and Passenger	85%

C. Emission Standards

The U.S. EPA has adopted regulations for exhaust emission standards for new and remanufactured locomotives. For reference, Tables 6-3 and 6-4 below summarize the hydrocarbon (HC), oxides of nitrogen (NOx) and particulate matter (PM) standards in grams per brake horsepower-hour (g/bhp-hr) for the 1998 Federal Standards and the 2008 Federal Standards.

Table 6-3
U.S. EPA Locomotive Emission Standards (g/bhp-hr)
Based on 1998 Federal Standards

Tier and Engine Model Year	Type	NOx	HC	PM10
Uncontrolled Pre-1973	Line-haul and Passenger	13.5	1.00	0.60
	Switcher	17.4	2.10	0.72
Tier 0 1973 - 2001	Line-haul and Passenger	9.5	1.00	0.60
	Switcher	14.0	2.10	0.72
Tier 1 2002-2004	Line-haul and Passenger	7.4	0.55	0.45
	Switcher	11.0	1.20	0.54
Tier 2 2005 - 2011	Line-haul and Passenger	5.5	0.30	0.20
	Switcher	8.1	0.60	0.24

Table 6-4
U.S. EPA Locomotive Emission Standards (g/bhp-hr)
Based on 2008 Federal Standards

Tier and Engine Model Year	Type	NOx	HC	PM10
Tier 0+ 1973-2001	Line-haul and Passenger	7.4	0.55	0.22
	Switcher	11.8	2.10	0.26
Tier 1+ 2002-2004	Line-haul and Passenger	7.4	0.55	0.22
	Switcher	11.0	1.20	0.26
Tier 2+ 2005-2011	Line-haul and Passenger	5.5	0.30	0.10
	Switcher	8.1	0.60	0.13
Tier 3 2011-2014	Line-haul and Passenger	5.5	0.30	0.10
	Switcher	5.0	0.60	0.10
Tier 4 2015	Line-haul and Passenger	1.3	0.14	0.03
	Switcher	1.3	0.14	0.03

D. Project Criteria

The minimum qualifications for locomotives are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns. Note that railroad classes are defined in Appendix B.

1. General Locomotive Project Criteria

(A) Baseline emission factors must reflect the tier level required by federal locomotive remanufacture standards (i.e., the baseline emission factors are the required remanufacture standards, which may not be the certification standard of the baseline locomotive).

(B) Class 1 freight locomotive projects meeting the eligibility requirements for the Proposition 1B Goods Movement Program are only eligible for Moyer Program funding on a case-by-case basis. Moyer Program funds cannot be co-funded with Proposition 1B Goods Movement Program funds.

(C) Class 1 freight locomotives subject to the South Coast Memorandum of Understanding (MOU) are only eligible for Moyer Program funding on a case-by-case basis. These locomotive projects must be excluded from the fleet average emission rate calculations which demonstrate compliance with the MOU provisions. The baseline emission rates used to determine emission reductions and cost-effectiveness for these locomotive projects reflect the U.S. EPA Locomotive Tier 2 emission rates for line-haul and switch locomotives.

(D) Military and industrial railroads are considered Class 3 railroads for the purposes of the Moyer Program.

(E) Locomotive project activity must be based upon fuel consumption. If fuel consumption is not available, megawatt hours from the electronically logged data may be used.

(F) Moyer Program funds cannot be used to pay for labor or parts used during routine maintenance.

(G) Air districts may enter into contract and work may begin on a locomotive project prior to U.S. EPA certification and/or Air Resources Board (ARB) verification. In this instance, the air district contract with the grantee must specify that any work performed is done grantee's own risk. Air districts cannot make payment until certification and verification have been received.

(H) Participant must have owned the baseline locomotive for at least one year prior to application submittal, and the locomotive must be operational.

(I) At a minimum the destruction of a locomotive engine must include a hole in the engine block with a diameter of at least eighteen inches at the narrowest point. The hole must be irregularly shaped (i.e. no symmetrical squares or circles).

(J) Unless otherwise stated in this chapter, the minimum project life allowed is three years.

2. Locomotive Replacement

(A) New locomotives with an aggregate engine power rating greater than or equal to 1,006 horsepower (750 kW) must be certified by U.S. EPA and verified by ARB to achieve Tier 4 locomotive emission standards (or cleaner).

(B) New locomotives with an aggregate engine power rating less than 1,006 horsepower are not required to be certified by U.S. EPA to locomotive standards, but are required to be certified U.S EPA off-road (non-road) emission standards. This lower horsepower equipment must

also be verified by ARB to meet or exceed the Tier 4 locomotive standards.

(C) Zero-emission locomotives must have ARB verification.

(D) Due to the design of alternative technology switchers, fuel consumption for the new locomotive may differ from baseline fuel consumption. For contractual purposes only, when specifying the annual usage requirement in the contract the air district may assume a fuel savings of 20 percent from that used in the cost-effectiveness calculation. This fuel savings is already embedded into the cost-effectiveness calculation, and therefore it should not be applied when determining cost-effectiveness for the project.

(E) The baseline locomotive engine(s) must be destroyed. The grantee may choose to retain the baseline locomotive chassis since locomotive components have a long lifespan, ARB recognizes the benefits of reusing and/or recycling baseline locomotives. To prevent the baseline locomotive body from being fitted with a similar high-polluting engine, the grantee must sign an agreement with the air district which will ensure, with due diligence, that the baseline locomotive, if brought back into service, will be repowered to a Tier 4 or cleaner locomotive engine standard.

(F) Project life:

(1) Class 1 locomotive replacement projects in air districts other than the South Coast must have a minimum project life of ten years.

(2) All other locomotive replacement projects have a minimum project life of three years.

(3) The maximum project life for a locomotive replacement project is 15 years.

3. Locomotive Engine Repower

(A) Purchase and installation of an engine meeting Tier 4 locomotive emission standards or cleaner. The engine must be certified by U.S. EPA and verified by ARB to be eligible for Moyer Program funding.

(B) The maximum project life for a locomotive engine repower project is 15 years.

4. Head End Power Unit (HEP)

(A) HEP repower is eligible on a case-by-case basis.

(B) The baseline engine must be certified to the applicable off-road standard at the time of manufacture.

(C) The new engine must be certified to the U.S. EPA Tier 4 final or cleaner off-road (non-road) emission standards.

CHAPTER 7: MARINE VESSELS

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) marine vessel projects. Air quality management districts or air pollution control districts (air districts) may set more stringent requirements based upon local priorities.

A. Projects Eligible for Funding

The Air Resources Board (ARB) has adopted two regulations that impact funding opportunities for marine vessel projects: 1) Amendments to the Regulations to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated Within California Waters and 24 Nautical Miles of the California Baseline (Commercial Harbor Craft regulation or CHC) and 2) Regulations to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels While At-Berth at a California Port (Shore Power Regulation). There are limited funding opportunities for marine vessels subject to this regulations.

Table 7-1
Summary of Funding Opportunities

Project Type	Subject to ARB Rule	Moyer Funding Opportunities[a]
Vessels subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: barge, crew & supply, dredge, excursion, ferry, towboat, tugboat) - engine repower, remanufacture, retrofit or new purchase	Commercial Harbor Craft Regulation[b]	Opportunities depend on compliance status
Vessels *not* subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: fishing vessel or pilot/work boat) - engine repower, remanufacture, retrofit or new purchase	No	Not limited by regulation
Shore power - vessel retrofit	Shore Power Regulation[c]	Limited opportunity

[a] A fleet's compliance status with the ARB regulations must be determined. Contact air district Moyer Program staff or consult CHC regulation Moyer Program Implementation Charts at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm in addition to these guidelines.
[b] Harbor Craft Regulation: http://www.arb.ca.gov/ports/marinevess/harborcraft.htm
[c] Shore Power Regulation: http://www.arb.ca.gov/ports/shorepower/shorepower.htm

Project Types:

1. **Engine Repower.** Replacing an old vessel engine with a newer, lower emission engine. Limited opportunities remain for those vessel engines subject to the in-use compliance requirements of the CHC regulation. Repower must be completed at least three years prior to the vessel's in-use compliance date. Based on the vessel's operation, the newer engine's emissions must be surplus to the currently required United States Environmental Protection Agency (U.S. EPA) marine engine emission standard (i.e., Tier 3 or cleaner).

2. **Remanufacture Kit.** Kits are comprised of engine component parts that, when installed, reduce the engine's emissions. Limited Moyer funding opportunities remain for those vessel engines subject to the in-use compliance requirements of the CHC. Remanufacture must be completed at least three years prior to the vessel's in-use compliance date.

3. **Retrofit Device.** The installation of an ARB verified diesel emission control strategy (VDECS). This project type will be considered for funding on a case-by-case basis.

4. **Hybrid System.** The installation of an EPA verified hybrid system. A hybrid system implements various strategies (e.g. engine switching, electric power) to reduce emissions of NOx, ROG, and PM.

5. **Ship-Side Shore Power Projects.** The retrofit of a marine vessel to enable shore power connection. Ship-side shore power projects are not eligible unless the applicant can demonstrate that it will be surplus to the implementation requirements of ARB's Shore Power Regulation. For marine infrastructure projects, including Shore-Side Shore power, see Chapter 10: Infrastructure.

6. **Marine Vessel Exhaust Capture and Control System.** The purchase of an EPA verified marine vessel exhaust capture and control system. EPA verifications of exhaust capture systems include specific percentage reductions of NOx and PM. In lieu of EPA verification an ARB Executive Order will suffice.

Please see Section C (Project Criteria) for detailed minimum eligibility requirements.

B. Maximum Eligible Funding Amounts

Table 7-2 summarizes the maximum funding for each project type as a percentage of eligible costs. All projects are also subject to the cost-effectiveness threshold defined in Appendix C.

Table 7-2
Maximum Percentage of Eligible Costs for
Moyer Program Marine Projects

	Baseline Technology	Project Type	Maximum Percentage
Vessels subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: barge, crew & supply, dredge, excursion, ferry, towboat, tugboat)	Tier 0,1[(a)]	Engine repower or remanufacture kit compliant to EPA marine Tier 3	50%
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(b,c)]	85%
	Tier 2	Engine repower or remanufacture kit compliant to EPA marine Tier 3	80%
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(b,c)]	85%
Vessels ***not*** subject to Commercial Harbor Craft Regulation Schedules for Meeting Tier 2 or Tier 3 Standards (ex: fishing, pilot, work boat)	Tier 0,1,2	Engine repower or remanufacture kit compliant to EPA marine Tier 3	80%
		Engine repower or remanufacture kit compliant to EPA marine Tier 4[(b,c)]	85%
Any vessel propulsion engine repower with an off-road Tier 3 or cleaner certified engine			Case-by-case basis
EPA Verified Marine Retrofit Device			Case-by-case basis
Installation of an EPA verified Hybrid System			85%
Shore Power- ship side			100% of retrofit cost 50% of transformer cost
Purchase of an EPA verified marine vessel exhaust capture and control system			Case-by-case basis

[(a)] Chapter 1, Section A, Part 2 requires projects to provide three years of surplus reductions prior to any applicable regulatory compliance deadline

[(b)] Due to the absence of emission factors, 2016 and newer model year Tier 4 emission standards (Table D-16) will be used for funding calculations.

[(c)] Engines using a Family Emission Limit (FEL) or Averaging, Banking, and Trading (ABT) to meet the Tier 4 emission standards will be funded at Tier 3 engine levels. Tier 3 emission factors will be used for funding calculations.

C. Project Criteria

The minimum qualifications for marine vessels are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

1. General Marine Project Criteria

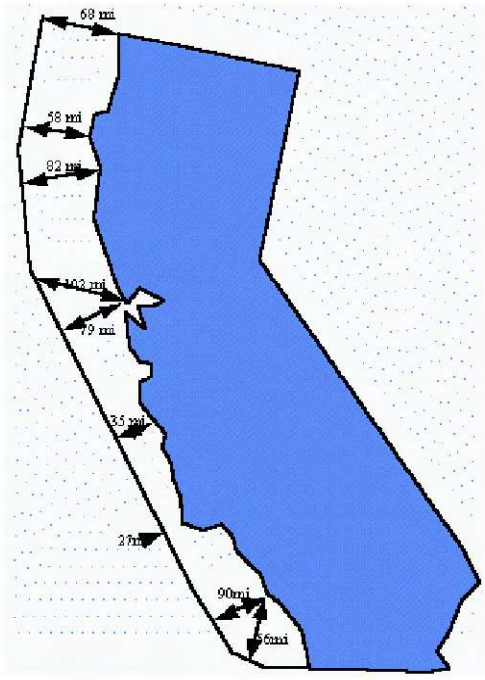
(A) To be eligible for Moyer Program funding, an applicant for harbor craft funding must have a United States Coast Guard Documentation Number, except in cases where such documentation is not required (such as fishing boats constructed outside the United States, vessels of less than five net ton displacement, or vessels owned by non-United States citizens). In such cases, the applicant must include with the application documentation at least one of the following:

(1) A valid California vessel registration (CF) number and a copy of the California Department of Fish and Game license can be provided instead of a Coast Guard Documentation Number.

(2) The vessel's Lloyd's/International Maritime Organization (IMO) number for an oceangoing vessel that does not have any of the above documentation.

(B) Both propulsion and auxiliary engines may be eligible for Moyer Program funding.

Figure 7-1
California Coastal Water Boundaries



(C) Only marine vessel activity in California coastal waters and internal waters may be used to determine project emission reductions. Figure 7-1 depicts the boundary of California coastal waters (defined as that area between the California Coastline and a line starting at the California-Oregon border at the Pacific Ocean, thence to 42.0°N 125.5°W, thence to 41.0°N 125.5°W, thence to 40.0°N 125.5°W, thence to 39.0°N 125.0°W, thence to 38.0°N 124.5°W, thence to 37.0°N 123.5°W, thence to 36.0°N 122.5°W, thence to 35.0°N 121.5°W, thence to 34.0°N 120.5°W, thence to 33.0°N 119.5°W, thence to 32.5°N 118.5°W, and ending at the California-Mexico border at the Pacific Ocean).

(D) Marine projects are not required to meet the minimum California usage requirement in Chapter 2, Section S. Air districts may impose more stringent operational requirements.

(E) Non-captive California fleets and vessels may be considered for funding on a case-by-case basis if their operation in California coastal waters can be properly documented.

(F) Funding is not available for projects where spark-ignition engines are replaced with diesel engines. Repowering a diesel engine to a spark-ignited engine may be considered on a case-by-case basis.

(G) Only marine engines equal to or greater than 25 horsepower are eligible for Moyer Program funding.

(H) Harbor craft engines less than 50 horsepower are exempt from the in-use compliance requirements of the Harbor Craft Regulation. Emission reductions from projects involving these engines are surplus.

(I) Engines on marine vessels with wet exhaust systems are eligible for Moyer Program funding if the project vessel meets all other applicable program requirements. The wet exhaust systems themselves are not eligible for Moyer Program funding. A wet exhaust factor of 0.80 must be applied to the baseline and reduced emission propulsion and auxiliary engine emission calculations for all projects on vessels with wet exhaust systems.

(J) New engines must be installed and operational at least three years prior to the compliance deadline specified by the CHC regulation. Project life for an engine cannot extend beyond that engine's compliance deadline. For compliance deadlines, see implementation charts at: http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm.

(K) Air districts have the option of calculating the project cost-effectiveness on a per vessel basis.

(L) All harbor craft vessels are required to install and maintain a functioning hour meter as required by the CHC Regulation.

(M) Moyer Program funding can be based on engine hours or fuel use. Hours of operation are the preferred basis for project cost-effectiveness calculations and eligibility. Applicants must submit historical usage data as part of the application process. This data must be based on the previous two years of historical usage documentation specific to the vessel being funded. Acceptable forms of documentation may include hour meter readings, maintenance records, fuel logs, purchase receipts or ledger entries. Grant funding that is based on historical fuel usage may not exceed the grant funding amount that would be based on hours of operation; the more conservative calculation must be used.

(N) Owners and operators of engines subject to the CHC Regulation must include a copy of the most recent Initial Report in their project application. The reporting requirements are outlined under California Code of Regulations, title 17, section 93118.5(h)(1).

2. **Repower**. Repower projects involving the replacement of an older harbor craft engine with a newer, cleaner engine must meet the following criteria:

(A) All new engines and replacement engines purchased for Moyer Program marine vessel repower projects must meet the requirements of the CHC Regulation set forth under California Code of Regulations, title 17, sections 93118.5(e). The regulation includes requirements for newly acquired engines and requirements for replacement engines in vessels subject to the schedules to meet Tier 2 and Tier 3 standards. Use of an off-road certified engine must adhere to the requirements set forth under California Code of Regulations, title 17, sections 93118.5(e)(3) and (e)(4),

especially the marinization requirements set forth in Code of Federal Regulations, title 40, part 1042.605. Project proposals for repower of propulsion engines with off-road engines will be considered on a case-by-case basis.

(B) For all marine engine repower projects, the replacement engine must provide at least a 15 percent NOx reduction relative to the baseline engine. The replacement engine cannot be significantly modified or reconfigured in any way during the project life.

(C) Funding of Tier 4 marine repower projects:

(1) Due to the absence of emission factors, 2016 and newer model year Tier 4 emission standards (Table D-16) will be used for emission reduction calculations.

(2) Tier 4 Engines using a Family Emission Limit (FEL) or Averaging, Banking, and Trading (ABT) to meet the Tier 4 emission standards will be funded at Tier 3 engine levels. Tier 3 emission factors will be used for emission reduction calculations.

(D) The maximum project life for a marine vessel repower project is 16 years. A longer project may receive case-by-case approval if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements and may be shorter.

(E) The total project repower cost may include charges for the following:

(1) The capital cost of the new engine.

(2) Purchase of or modifications to the cooling system; fuel and exhaust system; wiring, panel, and harness system; power take-offs; propulsion control system; gauges and alarms; and radiator and ventilation, if attached to or integral to the functioning of funded engine.

(3) Costs related to the purchase and/or installation of a new transmission may be eligible when it is a necessary part of the engine repower; and an ineligible expense when it is required for maintenance or repair purposes. Ordinarily, a statement from the vendor or applicant that the new reduced emissions engine is not compatible with the existing baseline transmission is sufficient justification for eligibility; please retain a copy of the vendor or applicant's statement(s) or other documentation in the project file.

(4) Frames needed to be extended or other parts needed to be cut or modified in order to accommodate the new engine, as well as paint

or coating needed to protect those specific areas that were cut or modified.

(5) Tax and transport for eligible parts or costs.

(6) Labor for installation of or modification to parts eligible for funding.

(F) The total project repower cost may not include charges for the following:

(1) Rudders or propellers.

(2) Steering system.

(3) Sea trials and dry docking.

(4) Paint, coatings, or hull work not directly related to the engine repower.

(5) Tax and transport for ineligible parts or costs.

(6) Labor for installation of or modification to parts ineligible for funding.

(7) Any parts or labor typically included as part of the vessel or engine overhaul, maintenance, repair, or upkeep.

(8) These and other items may be eligible for funding on a case-by-case basis if it can be proven that they are not part of the typical vessel overhaul, repair, upkeep or maintenance and are a necessary part of the engine repower.

(G) All engines replaced as part of a marine vessel repower project must be scrapped, consistent with the requirements of Chapter 3: Section BB.

3. **Engine Remanufacture Kit**. Engine remanufacture kit projects must meet the following criteria:

(A) A remanufacture kit for a specific vessel type may be certified by the U.S. EPA, IMO, or approved by ARB to meet the requirements of the CHC Regulation, but must be surplus to the current in-use requirements of CHC Regulation.

(1) Engine remanufacture kits specific to vessels not subject to the in-use requirements of the CHC Regulation must meet U.S. EPA Tier 3 marine or Tier 3 non-road engine emission standards or cleaner (e.g., Tier 3 or higher).

(2) Engine remanufacture kits specific to vessels subject to the in-use requirements of the CHC Regulation must be surplus to the current requirements of the regulation.

(B) The applicant must provide a copy of the regulatory compliance letter from ARB (similar to an Executive Order) to the air district demonstrating that the remanufacture kit is compliant with the CHC Regulation. Remanufacture kits which reduce NOx only are not eligible for Moyer Program funding.

(C) Remanufacture kit projects have a maximum project life of six years.

(D) If the U.S. EPA Emissions Warranty for the project kit requires fuel injectors to be replaced before the end of the project life, the applicant must replace the injectors with equivalent low-emission injectors. The Moyer Program project cost may include the replacement injectors. The project annual report must include documentation that all required maintenance identified in the U.S. EPA Emissions Warranty (if applicable) is completed on schedule. Maintenance other than replacement of low-emission fuel injectors is not eligible for Moyer Program funding.

4. **Retrofits**. Retrofits include selective catalytic reduction, diesel oxidation catalysts or diesel particulate filters. A retrofit device must be verified by ARB to reduce emissions from the project engine in order to be eligible for funding. This project type will be considered for funding on a case-by-case basis.

5. **Hybrid System**. A Hybrid System project must meet the following criteria:

(A) The hybrid system must be verified by the United States EPA to reduce the total vessel emissions of NOx, ROG, and PM by specific percentages compared to the baseline vessel.

(B) The hybrid system must be verified to reduce NOx by at least 15 percent compared to the baseline vessel.

(C) The vessel must meet the EPA verification parameters (i.e. vocation, duty cycle, horsepower range) for the proposed hybrid system.

(D) The vessel must be compliance with the CHC Regulation engine replacement schedule for meeting Tier 2 or Tier 3 standards.

(E) The vessel must have Tier 3 or cleaner propulsion engines and Tier 2 or cleaner auxiliary engines.

(F) The applicant must be able to provided individual usage history for each engine on the baseline vessel.

(G) Hybrid system installation projects have a maximum project life of five years.

(H) The hybrid system must include a manufacturer's warranty for the duration of the project life.

(I) Eligible costs for a Hybrid System project include the components and labor costs directly related to the purchase and installation of a hybrid system.

(J) Ineligible costs for a hybrid system include the following:

(1) Paint, coatings, or hull work not directly related to the hybrid system installation.

(2) Tax and transport for ineligible parts or costs.

(3) Sea trials and dry docking.

(4) Labor for installation of or modification to parts ineligible for funding.

(5) Any parts or labor typically included as part of the vessel or engine overhaul, maintenance, repair, or upkeep.

(6) Other items may be eligible for funding on a case-by-case basis if it can be proven that they are not part of the typical vessel overhaul, repair, upkeep or maintenance and are a necessary part of the hybrid system.

(K) All engines replaced as part of Hybrid System project must be scrapped, consistent with the requirements of Chapter 3: Section BB.

6. **Ship-Side Shore Power Projects**. The retrofit of a marine vessel to enable shore power connection. For shore-side projects see Chapter 10: Infrastructure.

(A) Only a marine vessel owner may apply to receive Moyer Program funding for a ship-side power project.

(B) Vessels subject to the Shore Power Regulation:

(1) Applications for Moyer Program funding of shore power projects must include a copy of the most recent Vessel Plan, Annual Statement of Compliance as identified in Section (g) of the Shore Power Regulation. All subsequent project reports to air districts must include any new or updated Vessel Plans in order to evaluate compliance with the project contract.

(2) The commitment of visits and hours made by the applicant, above those required by the Shore Power Regulation, must be used in the project cost-effectiveness calculation and is required in the contract between the applicant and the air district.

(3) The entire fleet roster and all the California ports of harbor the fleet will be visiting. From the locales submitted, the fleet must indicate

per location, the number of vessel visits and hours per year the fleet will be utilizing shore-side power.

(C) Up to 100 percent of necessary vessel (non-transformer) retrofit costs, specifically required to allow the vessel to plug into shore-side power, are eligible for Moyer Program funding. Up to 50 percent of any necessary transformer costs on board the vessel are eligible for Moyer Program funding.

(D) Docking at ports or terminals funded by the Proposition 1B Goods Movement Program is not prohibited; however, vessel retrofits funded with Moyer Program funds cannot claim emission reductions resulting from ship visits to ports or terminals during the active Proposition 1B Goods Movement Program contract period.

(E) The Moyer Program shall not pay for energy costs (fuel or electricity), shore power routine maintenance, or labor costs for connection and disconnection of the vessel to shore-side power.

(F) All contracts for Moyer Program funding of shore power projects must include a stipulation that receipt of program funding is contingent on the project being post-inspected and operational. The project contract must include a provision that if the shore power is not used for the total hours committed to in the contract, the project participant shall return the pro-rated contract amount (commensurate with the shortfall in usage) to the air district. If the contract activity is not met, air districts may refer to Chapter 3 Section FF.4. to address this underutilization. However, the contract must include language prohibiting the grantee from obtaining a waiver from the contracted usage, specifically Section FF.4.(D).

(G) Shore power projects have a maximum project life of 20 years. A longer project may receive case-by-case approval if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements and may be shorter.

(H) The emissions from vessels using grid power in lieu of auxiliary engines when the vessel is at berth are assumed to be reduced by 90 percent. The emission reductions from a shore-side transformer project are calculated as the total emission reductions from each participating ship. Each ship's emission reductions calculated as: (Ship emission rate * berthing time * power requirements * number of visits * 0.9).

(I) Estimated berthing time shall include the time needed to connect and disconnect the vessel to shore power. Ship emission rates and power requirements are included in Appendix D.

7. **Marine Vessel Exhaust Capture and Control System**. Funding for the purchase of exhaust capture and control systems may be approved on a case-by-case basis.

CHAPTER 8: LIGHT-DUTY VEHICLES

This chapter describes the minimum criteria and requirements for Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) light-duty vehicle projects.

A. Projects Eligible for Funding

Voluntary Accelerated Vehicle Retirement (VAVR) projects are eligible for Moyer Program funding. VAVR projects scrap older, more-polluting vehicles earlier than their expected lifetime that are still operational and have useful remaining life. Two types of VAVR projects are allowed: conventional and high emitting. Retirement of a high emitting vehicle results in emission reductions greater than those generated by conventional projects. To be eligible for a high emitting VAVR project, a vehicle's Smog Check results must exceed the pass/fail emission standards for the vehicle's model year and class.

The Bureau of Automotive Repair (BAR) concurrently administers two different vehicle retirement programs similar to the Moyer Program, the Enhanced Fleet Modernization Program's (EFMP) Retirement-Only component and their own Consumer Assistance Program (CAP). Although the Moyer Program, EFMP Retirement-Only Program, and CAP are administered and operated in a consistent manner, each program has different eligibility requirements, funding sources, and accepts vehicles at different times within the Smog Check cycle. The Moyer Program accepts vehicles that have passed their most recent Smog Check, while CAP accepts vehicles that have failed their most recent Smog Check. EFMP Retirement-Only however, accepts vehicles that have either passed or failed their most recent Smog Check, but is limited to income eligible applicants only.

B. Maximum Eligible Funding Amounts

VAVR projects are subject to the Moyer Program cost-effectiveness limit and must meet all other relevant criteria in Section D of this chapter. Incentives paid for eligible VAVR projects are limited to a maximum of $1,500 per vehicle. Air quality management districts or air pollution control districts (air districts) have the authority to set more stringent project requirements.

C. Regulatory Background

Moyer Program VAVR projects are subject to the requirements of the VAVR Regulation, California Code of Regulations (CCR), title 13, section 2601 et seq. Air districts may choose to act as the enterprise operator in lieu of contracting out this work to a third party. However, costs incurred by the air district to perform the duties of an enterprise operator shall be considered administrative costs.

VAVR projects funded through AB 923 are authorized by Health and Safety Code section 44229(b)(4) which states that these projects must be in compliance with

guidelines adopted by the Air Resources Board (ARB). This chapter constitutes ARB's adopted guidelines for VAVR projects.

D. Project Criteria

The following criteria provide the minimum requirements for Moyer Program VAVR projects. All projects must also conform to Chapter 2: General Criteria, as well as the project application, contract, reporting, and other requirements as described in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional or more restrictive requirements to address local concerns.

Vehicle Eligibility Requirements:

1. Participation shall be entirely voluntary for vehicle owners.

2. A vehicle volunteered for retirement must be a diesel or gasoline powered passenger car or light-duty truck up to 10,000 pounds gross vehicle weight.

3. A vehicle volunteered for retirement must be currently registered with the Department of Motor Vehicles (DMV) as an operating vehicle and must have been registered for at least 24 consecutive months, to an address within the air district in which the VAVR enterprise is operated, prior to the date of the sale to a VAVR enterprise. Smog Checks must be performed as required by DMV in order for the vehicle to be considered registered.

   (A) A vehicle may also be eligible if the owner of the vehicle placed the vehicle in planned non-operational status, per Vehicle Code section 4604 et seq., for up to 60 days during the previous 24 month registration period and occurring at least 90 days immediately prior to its sale to the VAVR enterprise.

   (B) A vehicle may also be eligible if the registration has lapsed for a period not to exceed 181 days during the previous 24 months and all appropriate registration fees and late penalties have been paid to DMV, provided that the vehicle is registered for at least 90 days immediately prior to its sale to a VAVR enterprise.

4. A vehicle volunteered for retirement shall be driven to the VAVR enterprise purchase site to be retired under its own power.

5. A vehicle volunteered for retirement whose emission control systems have been tampered with as defined in CCR, title 16, section 3340.41.5 is not eligible until such tampering has been completely corrected.

6. A vehicle volunteered for retirement shall not be operating under a Smog Check repair cost waiver or economic hardship extension.

7. If a vehicle volunteered for retirement is within 60 days of its next required Smog Check, the vehicle shall pass a Smog Check without receiving a repair cost waiver or economic hardship extension prior to acceptance by a VAVR enterprise.

8. If a vehicle volunteered for retirement is within 61-90 days of its next required Smog Check, the air district shall verify that the vehicle has not failed a Smog Check during this time frame.

9. A vehicle volunteered for retirement shall pass functional and equipment eligibility inspections as specified in the VAVR Regulation, CCR, title 13, section 2603(b).

10. For high emitting VAVR projects, a vehicle volunteered for retirement must receive a confirmatory Smog Check to establish its baseline emissions, and the emissions must exceed the pass/fail emission standards for the model year and vehicle class as defined in CCR, title 16, section 3340.

    (A) Only vehicles identified as potential high emitters through a technology operated in accordance with the VAVR Regulation, CCR, title 13, section 2610 and approved by ARB are eligible to receive extra emission reductions credit for VAVR projects.

    (B) If a vehicle's emissions are within the pass/fail standards, the vehicle is not a high emitter and does not quality for high emitter projects but may be retired for default emission reductions through a conventional VAVR project.

    (C) For pre-1974 model years, the pass/fail emission standards for the 1974 model year may be used to qualify vehicles for the project.

    (D) Smog Checks must be full tests and not "fast pass" tests. The test must be conducted only by BAR-licensed technicians according to BAR protocols and completed as close to the retirement date as reasonably possible.

    (E) Diesel powered vehicles are not eligible for high emitting VAVR projects.

E. Emissions Measurement Methods

1. Smog Checks for model year 1999 and older gasoline powered vehicles are performed via a conventional Acceleration Simulation Mode (ASM) test. For certain vehicles, such as four-wheel and all-wheel drive vehicles, the Smog Check cannot be performed via an ASM test for safety or other mechanical reasons. In those limited cases, the Two Speed Idle (TSI) test may be used. TSI tests must be performed in strict compliance with BAR protocols.

    (A) Consistent with the model's limitations, TSI test results and the BAR protocol may only be used to predict ROG emissions, as TSI tests do not

directly measure either NOx or PM. For high emitting vehicles that are retired, default evaporative ROG, NOx, and PM emission reductions may be claimed.

2. Smog Checks for model year 2000 and newer gasoline powered vehicles and 1998 and newer diesel powered vehicles are performed via an On-Board Diagnostic Inspection (OIS) test. The OIS test must be performed in strict compliance with BAR protocols.

(A) Consistent with the model's limitations, OIS test results and the BAR protocol may only be used to predict ROG, NOx, and PM emissions, as the OIS test does not directly measure tailpipe emissions.

F. Air District Project Plan Requirements

1. An air district shall submit a detailed VAVR program project plan to ARB for approval and must receive written approval from ARB's Executive Officer (EO) prior to implementing a VAVR program. The program must follow the approved plan, and any substantive changes must be pre-approved by ARB in writing.

2. The air district project plan shall include, at a minimum, the following:

(A) The name, title, and telephone number of the air district program contact.

(B) An evaluation of environmental justice considerations including, but not limited to, outreach addressing community needs.

(C) An estimate of the number of vehicles to be retired, and an estimate of the cost-effectiveness with all assumptions and calculations used.

(D) Copies of contracts with enterprise operators, consultants, and any other third party contractor(s) participating in the project.

(E) A description of and timetable for monitoring and auditing enterprise operators, consultants, and other third party contractor(s).

(F) A copy of the statement of certification that an enterprise operator(s) has demonstrated compliance with all applicable provisions of the VAVR Regulation.

(G) The protocol for verifying vehicle eligibility including confirmation of compliance with any Smog Check requirements and for informing the public of the availability of vehicles eligible for retirement.

(H) A sample of the records that will be required of the enterprise operator(s).

(I) A description of any project criteria elements stricter than the ARB minimum requirements.

3. For high emitter projects, the air district project plan shall also include, at a minimum, the following:

   (A) A detailed operating description of the technology and software used to identify high emitting vehicles including, but not limited to, set up, typical operation, location and location criteria, calibration, and maintenance.

   (B) A copy of the standard operating procedures for that technology including software maintenance and the criteria to be used to identify a high emitting vehicle with documentation that operating personnel are trained and qualified.

   (C) A detailed description of the methodology used to calculate extra emission reductions, including changes to any ARB-recommended method.

   (D) If an air district intends to include an evaporative emissions testing element, the plan must specify the test equipment and include a copy of the test protocol.

   (E) If an air district intends to include a PM measuring element, the plan must specify the test equipment and include verification that the methodology for measuring PM is scientifically valid, documentation that the results are reproducible, and a complete copy of the methodology.

   (F) An itemized breakdown of estimated project costs including, but not limited to, funds allocated to identifying high emitters, the number of vehicles to be retired, data analysis, outreach to and solicitation of vehicle owners.

G. Recordkeeping and Reporting

1. For each VAVR project, the air district shall retain the following records for inclusion in the annual report to ARB.

   (A) Vehicle Identification Number and license plate digits

   (B) Vehicle odometer reading

   (C) Vehicle make and model

   (D) Name, address, and phone number of legal vehicle owner(s)

   (E) Name and business address of the enterprise operator

   (F) Emission reductions claimed

   (G) Total air district cost to retire each vehicle

   (H) Date of vehicle purchase and retirement by the enterprise operator

(I) Data identifying vehicles as potential high emitters along with confirmatory Smog Check date and results (High Emitter VAVR)

2. For each VAVR project, the enterprise operator shall maintain the following records. These records are not required for the annual report but must be made available to ARB for review.

(A) Reproduction of California Certificate of Title and registration, as signed-off by the seller at time of final sale to the enterprise operator.

(B) Reproduction of the applicable certificate of functional and equipment eligibility.

(C) Reproduction of the applicable Notice to Dismantler (DMV Registration 42 form).

(D) Reproduction of written documentation from DMV verifying that a vehicle meets the vehicle registration requirements of ARB's VAVR Regulation.

(E) Copies of documentation demonstrating that the retired vehicle did not fail a Smog Check within 90 days prior to its sale to the enterprise operator.

3. Air districts and enterprise operators shall retain these records for the three year life of the project plus an additional two years.

H. Minimum Project Application Requirements

Air districts must ensure project applications include the specific information needed to determine program eligibility and populate the Clean Air Reporting Log (CARL), including the information needed to track the project and calculate project cost-effectiveness.

I. Offering Vehicles/Parts to the Public

1. Enterprise operators must inform the air district of the vehicles ready for dismantling, and the air district must provide an easily accessible and detailed description of the vehicles to interested parties including collectors and enthusiasts as defined in CCR, title 13, section 2605(a)(1).

2. The enterprise operator must wait a minimum of ten days after informing the air district of vehicles ready for dismantling before submitting a Notice to Dismantle to DMV, and if interested parties contact the enterprise operator, the enterprise operator must hold the vehicle for a minimum of seven additional days as defined in CCR, title 13, section 2605(a).

3. Upon completion of the ten day waiting period (and additional seven day extension as applicable), the emission-related and drive train parts must be removed from the retired vehicle and destroyed prior to offering the remaining

non-emission-related and non-drive train parts for resale, as defined in CCR, title 13, section 2606(b).

4. If a vehicle, or a vehicles emission-related or drive train parts, are resold instead of retired, no emission reductions will be generated; and no Moyer Program funds may be used for retiring the vehicle. However, non-emission-related and non-drive train parts from the vehicle may be sold at the discretion of the enterprise operator.

J. Emission Benefits

Emission reductions from conventional VAVR projects are calculated using the VAVR Regulation methodology as described in CCR, title 13, section 2608(g). They are equal to the retired vehicle's emission rates minus those of the replacement vehicle with the difference multiplied by the average vehicle miles traveled by light-duty vehicles in the year of vehicle retirement and then multiplied by the three year project life. The retired vehicle's emission rates are equal to those for gasoline powered, light-duty vehicles for the model year of the retired vehicle in the year of vehicle retirement. Replacement vehicle emissions are the fleet average emissions for all gasoline powered light-duty vehicles for model years 1990 through the year of vehicle retirement. Emission rates and average vehicle miles traveled are generated by ARB's motor vehicle emissions model. ROG, NOx, and PM emission reductions over the three year project life by vehicle model year are located in Tables 8-1 through 8-5 below. These tables will be updated on an as needed basis through a mail-out to reflect revisions to the motor vehicle emissions model or to include additional years.

Table 8-1
Retired Vehicle Emission Reductions, CY 2016 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1973	376.3	141.8	2.21
1973	382.2	146.1	2.28
1974	340.8	147.3	2.35
1975	288.9	146.3	2.37
1976	271.2	182.9	2.43
1977	254.4	194.7	2.40
1978	166.9	107.5	2.41
1979	161.5	102.8	2.44
1980	150.9	106.1	2.38
1981	136.3	83.7	0.94
1982	149.1	84.3	0.95
1983	165.1	85.0	0.92
1984	164.9	90.5	0.94
1985	155.3	88.5	0.96
1986	166.4	89.4	0.98
1987	153.9	86.9	1.01
1988	146.8	85.0	1.04
1989	133.6	76.3	1.05
1990	123.1	66.0	1.04
1991	100.4	68.2	0.55
1992	99.2	71.7	0.57
1993	92.2	69.6	0.59
1994	84.0	63.9	0.60
1995	71.6	51.4	0.60
1996	56.6	38.4	0.13
1997	46.3	36.5	0.14
1998	23.5	30.5	0.14
1999	19.6	27.8	0.14
2000	14.5	21.5	0.14
2001	12.4	19.9	0.14
2002	10.9	19.8	0.14
2003	8.3	19.1	0.15

Source: EMFAC2014 V1.0.7

Table 8-2
Retired Vehicle Emission Reductions, CY 2017 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1974	377.5	143.3	2.24
1974	338.2	144.9	2.30
1975	286.6	144.6	2.32
1976	269.5	182.1	2.38
1977	252.3	192.2	2.36
1978	165.3	105.4	2.36
1979	160.3	101.2	2.39
1980	149.6	103.9	2.34
1981	135.1	82.0	0.92
1982	148.3	82.6	0.93
1983	165.8	83.5	0.90
1984	165.3	88.9	0.92
1985	155.8	87.1	0.93
1986	167.6	88.1	0.96
1987	154.8	85.0	0.99
1988	149.0	84.3	1.02
1989	137.0	75.7	1.02
1990	127.4	66.4	1.02
1991	103.1	68.7	0.54
1992	102.3	72.3	0.56
1993	95.9	70.4	0.57
1994	88.2	64.8	0.59
1995	75.7	52.7	0.59
1996	60.4	39.7	0.13
1997	49.7	37.8	0.13
1998	25.6	31.7	0.13
1999	21.7	29.0	0.13
2000	16.7	22.8	0.13
2001	14.7	21.4	0.14
2002	13.1	21.1	0.14
2003	10.6	20.5	0.14

Source: EMFAC2014 V1.0.7

Table 8-3
Retired Vehicle Emission Reductions, CY 2018 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1975	333.7	140.9	2.24
1975	283.0	141.3	2.25
1976	265.2	177.2	2.31
1977	250.7	189.7	2.30
1978	163.6	102.4	2.30
1979	158.7	98.3	2.33
1980	148.3	101.1	2.28
1981	133.9	79.5	0.89
1982	147.4	80.3	0.90
1983	166.0	81.1	0.87
1984	166.2	86.7	0.90
1985	156.6	84.8	0.91
1986	169.2	86.1	0.93
1987	156.0	83.2	0.95
1988	150.4	82.0	0.98
1989	139.8	74.6	0.99
1990	130.6	65.5	0.98
1991	105.3	68.6	0.52
1992	105.2	72.3	0.54
1993	99.3	70.5	0.55
1994	92.4	65.5	0.57
1995	80.0	53.3	0.57
1996	64.3	40.5	0.12
1997	53.2	39.0	0.13
1998	28.0	32.8	0.13
1999	24.1	30.2	0.13
2000	19.0	24.0	0.13
2001	17.1	22.6	0.13
2002	15.6	22.5	0.13
2003	13.0	21.8	0.14

Source: EMFAC2014 V1.0.7

Table 8-4
Retired Vehicle Emission Reductions, CY 2019 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1976	279.3	137.8	2.19
1976	262.3	174.9	2.24
1977	246.6	184.8	2.23
1978	161.5	99.6	2.23
1979	157.1	95.7	2.26
1980	146.5	98.1	2.21
1981	132.8	77.4	0.86
1982	146.5	78.0	0.88
1983	166.0	78.7	0.84
1984	166.5	84.2	0.87
1985	157.8	82.6	0.88
1986	171.1	83.9	0.90
1987	157.3	81.3	0.92
1988	152.0	80.2	0.95
1989	141.4	72.4	0.96
1990	133.1	64.6	0.95
1991	106.6	67.6	0.50
1992	107.4	72.1	0.52
1993	102.3	70.5	0.53
1994	96.1	65.8	0.55
1995	84.1	54.0	0.55
1996	68.1	40.7	0.12
1997	56.6	39.7	0.12
1998	30.2	34.0	0.12
1999	26.5	31.4	0.12
2000	21.3	25.1	0.12
2001	19.3	23.6	0.12
2002	17.9	23.5	0.13
2003	15.4	23.0	0.13

Source: EMFAC2014 V1.0.7

Table 8-5
Retired Vehicle Emission Reductions, CY 2020 (lbs/3yr)

MY	ROG	NOx	PM10
	Total	Exhaust	Exhaust
pre 1977	257.3	169.2	2.18
1977	244.9	182.3	2.17
1978	159.5	96.4	2.17
1979	155.3	93.1	2.20
1980	145.0	95.2	2.15
1981	131.3	74.8	0.84
1982	145.6	75.9	0.85
1983	165.7	76.2	0.82
1984	166.6	81.8	0.84
1985	158.6	80.2	0.85
1986	173.7	81.7	0.87
1987	158.9	79.2	0.89
1988	153.7	78.5	0.92
1989	143.3	70.9	0.93
1990	134.3	62.5	0.92
1991	107.5	66.5	0.49
1992	108.7	71.0	0.50
1993	104.7	70.3	0.52
1994	99.4	66.1	0.53
1995	87.6	54.4	0.53
1996	71.6	41.0	0.12
1997	59.8	40.0	0.12
1998	32.1	34.6	0.12
1999	28.7	32.6	0.12
2000	23.6	26.3	0.12
2001	21.5	24.6	0.12
2002	20.0	24.3	0.12
2003	17.5	24.0	0.13

Source: EMFAC2014 V1.0.7

1. Emission reductions from retired diesel powered vehicles are also calculated using the VAVR Regulation methodology. Because of limited data and minor differences in emission rates from one year to another, average emission reductions are shown for only two model year ranges in the four calendar year intervals shown. Replacement vehicle emission rates are the same as those used for gasoline powered vehicles. Average ROG, NOx, and PM emission reductions over the three year project life by model year range are located in Tables 8-6 and 8-7. There are no evaporative emission reductions for the retirement of a diesel powered vehicle.

Table 8-6
Retired Diesel Powered Vehicle Emission Reductions

Model Year Range	Pollutant	CY 2014-2017 (lbs/3 yrs)
Pre-1984	ROG	11.6
	NOx	53.4
	PM	11.5
1984-1992	ROG	10.8
	NOx	42.8
	PM	8.4

Source: EMFAC2014 V1.0.7

Table 8-7
Retired Diesel Powered Vehicle Emission Reductions

Model Year Range	Pollutant	CY 2018-2021 (lbs/3 yrs)
Pre-1984	ROG	10.8
	NOx	48.9
	PM	10.1
1984-1992	ROG	10.3
	NOx	39.6
	PM	7.4

Source: EMFAC2014 V1.0.7

2. Please refer to Appendix C for a discussion of the methodology for estimating emission reductions and how to calculate VAVR project cost-effectiveness.

3. Currently, none of the air district VAVR programs have components for high emitter projects. ARB will provide the methodology for any new plans which include special cases, such as high emitter projects, through a mail-out as needed.

CHAPTER 9: LAWN AND GARDEN EQUIPMENT REPLACEMENT

This chapter describes the minimum criteria and requirements for the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) Lawn and Garden Equipment (L&GE) replacement projects. L&GE replacement provides a streamlined approach to reduce emissions by replacing existing gasoline lawn mowers with cordless, zero-emission electric lawn mowers. Zero-emission lawn mowers are not required by regulation, so the emission benefits are surplus. The Moyer Program provides funding for vouchers to offset part of the cost of the replacement electric lawn mower.

A. Projects Eligible for Funding

New Replacement Cordless, Zero-Emission Electric Lawn Mower Purchase: The purchase of a new cordless, zero-emission electric lawn mower to replace the existing gasoline lawn mower that is to be scrapped is eligible for funding under this program.

No emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, an electric lawn mower model that generates credits by participating in the Air Resources Board's (ARB) zero-emission equipment credit averaging, banking, and trading program is not eligible for funding.

B. Maximum Eligible Funding Amounts

The maximum total project funding amount associated with reducing the eligible costs of a L&GE replacement project has been predetermined as $145 per lawn mower.

C. Project Criteria

The criteria listed below are the minimum requirements for L&GE replacement project participants: air quality management districts or air pollution control districts (air districts); cordless zero-emission electric lawn mower manufacturers and merchants; hazardous waste material disposal companies and recycling companies. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration, except for the following Sections: S. Project Application Requirements, W. Project Pre-Inspection, X. Project Post-Inspection, Y. Project Invoice and Payment, Z. Grantee Annual Reporting, AA. Air District Audit of Projects, BB. Nonperforming Projects; and as noted elsewhere below.

1. **General Lawn and Garden Equipment Replacement Criteria**. As allowed under Chapter 2, Sections I, N, O, P, and Q, an air district may contribute additional non-Moyer Program incentive funds towards the purchase of the individual lawn mower. However, Moyer Program and AB 923 funds combined cannot exceed $145. Bulk-purchasing discounts from the electric lawn mower manufacturer or merchant are also allowed.

2. **Participant Requirements.** All participants must meet the following requirements to be eligible for funding**:**

   (A) *Application Form*: To be approved for L&GE replacement funds, the applicant must meet L&GE replacement program requirements and submit an application. Once an application is approved by the air district, the air district will return the application form to the applicant. The applicant must turn in the approved application form with applicant's signature at the location designated by the air district.

   (B) *Applicant must certify in the application*:

      (1) California Residence: Participants must reside in California. Air districts may add the requirement that participants reside within the air district.

      (2) Own and Operate: The participant must currently own and operate the existing gasoline lawn mower in California.

      (3) Replacement Cordless, Zero-Emission Electric Lawn Mower Operation in California: The participant must intend to own and operate the new replacement cordless, zero-emission electric lawn mower in California for a minimum of 36 months from the date of purchase.

3. **Existing Lawn Mower Requirements.** Each existing lawn mower must meet the following conditions before the L&GE replacement application can be approved and awarded a voucher.

   (A) *Operational Gasoline Lawn Mowers*: The existing lawn mower must be in operational condition. The lawn mower must operate on gasoline, be able to start, move, and have all operational parts. Applicant certifies operability on the application form.

   (B) *Delivery of the Existing Lawn Mower to the Air District or Air District-specified Facility*: The participant must deliver the existing lawn mower to the air district or air district-specified facility. The air district or air district-specified facility must reject the existing lawn mower if it is deemed inoperative.

4. **Replacement Lawn Mower Requirements.** All replacement lawn mowers must meet the following requirements before a voucher is awarded to the participant:

   (A) *New, Cordless, Zero-Emission Electric Lawn Mower*: The replacement lawn mower must be a new, cordless, zero-emission electric lawn mower.

(B) *Not Used for Credit Generation*: Only an electric lawn mower model that does not generate credit or participate in ARB's zero-emission equipment credit averaging, banking and trading program is eligible for funding.

(C) *Purchase*: The replacement lawn mowers must be purchased from a participating air district, or a third party, participating manufacturer or participating merchant, as chosen by the implementing air district.

5. Air District Requirements. An air district implementing the program must meet the following requirements:

(A) *Add an addendum to the air district's Moyer Program Policies and Procedures*: An air district must create an addendum to its current Moyer Program Policies and Procedures (P&P's) describing their program within two (2) months after they begin implementation of the L&GE replacement program. Air districts are not required to submit this addendum to ARB but it must be available to ARB upon request.

(B) *Agreements*:

(1) An air district must have written agreements with both of the following parties:

a. A hazardous waste materials disposal company.

b. A recycling company.

The agreements can be included as part of the air district's agreements with the same entities for other Moyer Programs. The recycling company and the hazardous waste material company can be the same company.

(2) If an air district is working with either or both of the following parties,

a. A cordless, zero-emission electric lawn mower manufacturer, or

b. A cordless, zero-emission electric lawn mower merchant,

the air district must have a written agreement with that party. The agreement must include the requirements of subsection 6 (Participating Manufacturer Requirements) or 7 (Participating Merchant Requirements) of this chapter, as applicable, and Chapter 3: Program Administration, Section V. Minimum Contract Requirements, except for the following subsections: 6. Project Specifications, 7. Maintenance, 9. Reporting, and 11. Repercussions of Nonperformance - equipment operation requirement.

(C) *Third Party*: An air district may enter into an agreement with a third party to manage some of the air district's program requirements. The third party

must agree to comply with all L&GE replacement program requirements. The air district must train the third party on L&GE replacement program requirements and include an example of the agreement in its P&P's.

(D) *Application*: Applications, at a minimum, must have the following information:

(1) Information about the Applicant:

a. Name.

b. Mailing Address (including city, state, zip code).

c. Physical Address (if different from mailing address).

d. Phone Number.

e. Date of Application.

(2) Information about the Applicant's Existing Gasoline Lawn Mower:

a. Manufacturer (if known).

b. Model Year (if known).

c. Engine family (if known).

(3) Section for the applicant to certify the following information is accurate and true:

a. Existing gasoline lawn mower is operational.

b. Applicant resides in California.

c. Applicant currently owns and operates the gasoline lawn mower in California.

d. From the date of purchase, applicant intends to own and operate the new, cordless zero-emission electric lawn mower in California for a minimum of 36 months.

e. The information provided in the application is true and correct and meets the minimum requirements of the L&GE replacement program.

f. "I understand that an incomplete or illegible application may be immediately rejected, and I will be notified."

g. "I understand as an applicant that incentive programs have limited funds and shall terminate upon depletion of program funding."

(4) A box for the applicant to check to certify the information included in (3) is correct and signify the applicant's agreement with the above statements.

(E) *Application Approval*: The application approval process consists of the following steps:

(1) Applicant submits application to the air district.

(2) Air district or designated third party reviews and approves application (if appropriate), and returns it to applicant. Application review and approval may be conducted on-site at a lawnmower exchange event.

(3) Applicant turns in approved application with applicant's signature per subsection C. 2.(A).

(F) *Rejected Application*: If a submitted application is incomplete, ineligible, or illegible, the air district must reject the application immediately and notify the applicant within five days of receipt. Air districts may follow up with an applicant in order to complete an incomplete or illegible application.

(G) *Disbursement Request Requirements*: An air district may request Moyer Program funds as these funds become available. In order for an air district to be approved for a disbursement request, the air district must follow Chapter 3: Program Administration, Section E requirements, and also provide the following to ARB:

(1) Verification of board approval to implement the L&GE replacement program for the requested disbursement amount or more; and

(2) If applicable per Section 5(B)(2) a copy of at least one cordless zero-emission electric lawn mower manufacturer or merchant agreement; and

(3) A copy of at least one active hazardous waste materials disposal company agreement; and

(4) A copy of at least one active recycling company agreement; and

(5) A history (up to five years, if applicable) of previous years of the air district's lawn and garden equipment exchange programs, including the following information:

a. Yearly amount funded.

b. Yearly number of mowers funded.

c. Yearly program administration costs.

d. Cordless, zero-emission electric lawn mower cost breakdown:

i. Amount air district paid to manufacturer.

ii. Amount air district pays from air district's local funds.

iii. Amount of any additional funds.

iv. Amount participant pays.

(H) *Operational Condition of Existing Lawn Mower*: Air district or air district-specified facility must ensure that each existing lawn mower is in apparently operational condition. The air district or air district-specified facility must reject the existing lawn mower if it is deemed inoperative.

(I) *Project Payment*: Air districts must include in their P&P's a detailed description of the process through which the air district provides payment to the cordless, zero-emission electric lawn mower manufacturer, merchant and/or applicant.

(J) *Merchant Reimbursement Package*: Prior to receiving reimbursement, an air district-specified third party, participating manufacturer or participating merchant must submit a reimbursement package to the air district. The following documents should be included in the reimbursement package:

(1) Invoice signed by the applicant that shows the final purchase price less the voucher award. In the case of an online merchant, the invoice does not have to be signed by the applicant.

(2) If a recycling code is used in addition to a voucher in order to purchase the lawn mower, the recycling code.

(3) The name and address of the participant.

(K) *Lawn Mower Destruction Documentation*: All existing gasoline lawn mowers must be destroyed. Air districts must collect from their participating Recycling Companies signed receipts that show the number of lawn mowers destroyed.

(L) *Audit and Monitoring*: Air districts must allow ARB to monitor their L&GE replacement program which may include audits of the air district's implementation of the program.

(M) *Meeting Environmental Justice (EJ) Requirements*: Air districts with environmental justice requirements shall not apply these requirements to the L&GE replacement application review until after each year of implementation. The air district must then review each project to determine if it helps to meet the air district's EJ requirements. If EJ requirements have not been met, then other Moyer Program funded projects will need to be used to fulfill this EJ requirement.

(N) Reporting in CARL: For liquidation reporting requirements the following information must be entered into the CARL database:

(1) Total number of lawn mowers exchanged.

(2) Date of the exchange of the final lawn mower.

(3) Total amount of Moyer Program funds liquidated.

(4) Date of liquidation of the final project.

(5) The Moyer Program funding year.

(O) *Records Retention*: Air districts must retain all records of approved projects for a minimum of three years from the date of issuing the voucher. For rejected projects, air districts must maintain a copy of the application, the rejection letter, and method of notification for three years from the date the application was received.

6. Participating Manufacturer Requirements. Participating manufacturers' agreements must include the following information:

(A) *Covered Lawn Mowers*: Information about the cordless zero-emission electric lawn mowers covered by the agreement:

(1) Lawn mower model name.

(2) Lawn mower year of production.

(3) Lawn mower cutting radius.

(4) Lawn mower battery description (voltage).

(5) Total number of cordless, electric lawn mowers covered by the agreement.

(6) The cost of each cordless, electric lawn mower.

(7) The total contract amount, or total contract amount not to exceed.

(8) The date by which the work shall be completed.

(9) Lawn mower warranty description.

(B) *Manufacturer Qualifications*: A statement that the manufacturer meets the following minimum qualifications for participation in the L&GE replacement program, and shall continue to meet these qualifications throughout its participation in the L&GE replacement program.

(1) Manufacturer has had a valid business license for a minimum of the last two years.

(2) Manufacturer agrees to allow the air district or ARB to inspect cordless, zero-emission electric lawn mowers or audit program records covered under this agreement during normal business hours.

(C) *Aftermarket Service*: A statement that the manufacturer shall provide aftermarket service to customers for defects in materials or workmanship as defined by the Terms and Conditions listed in the product warranty.

(D) *Recalls*: A statement that as soon as reasonably possible, manufacturer shall notify the air district and individually notify any and all purchasers of equipment through this program of any recall of the lawn mower or any of its constituent parts ordered by manufacturer or by a government agency.

(E) *Air District Does Not Warrant or Endorse Lawn Mowers*: A statement that the air district does not warrant or endorse the manufacturer's lawn mowers for any purpose, including materials, workmanship, merchantability or fitness for use. Nothing in the air district/manufacturer contract shall be construed as a warranty or endorsement.

(F) *Averaging, Banking, and Trading Program Exclusion*: A statement that no emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, electric lawn mower models included in the agreement are not generating credits by participating in ARB's zero-emission equipment credit averaging, banking, and trading program or any similar program.

(G) *Return of Funds*: A statement that, should the manufacturer fail to show that they are implementing the program consistent with the L&GE replacement program requirements, the manufacturer or merchant shall return to the air district funds in proportion to any loss of emission reductions compared with the projected reductions of the agreement.

7. **Participating Merchant Requirements.** Participating merchants' agreements must include the following:

(A) *Covered Lawn Mowers*: Information about the cordless, zero-emission electric lawn mowers covered by the agreement:

(1) Lawn mower model name.

(2) Lawn mower year of production.

(3) Lawn mower cutting radius.

(4) Lawn mower battery description (voltage).

(5) Estimate of total number of cordless electric lawn mower units covered by the agreement.

(6) The cost of each cordless, electric lawn mower.

(7) The total contract amount, or total contract amount not to exceed.

(8) The date by which the agreement ends.

(9) Lawn mower warranty description.

(B) *Merchant Qualifications*: A statement that the merchant meets the following minimum qualifications for participation in the L&GE replacement program, and shall continue to meet these qualifications throughout its participation in the L&GE replacement program.

(1) Merchant has had a valid business license issued in California for a minimum of the last two years.

(2) Merchant agrees to allow the air district or ARB to inspect cordless, zero-emission electric lawn mowers or audit program records covered under this Agreement during normal business hours.

(C) *Invoice*: A statement that the merchant shall show on the replacement lawn mower invoice the voucher amount. The receipt of voucher funds does not lower the base price of the lawn mower nor does it reduce the tax basis of the lawn mower, but is an incentive to the lawn mower owner that will result in a lower price paid by the participant.

(D) *Average, Banking and Trading Program Exclusion*: A statement that no emission reductions generated by the Moyer Program shall be used as marketable emission reduction credits, or to offset any emission reduction obligation of any person or entity. Therefore, electric lawn mower models included in the agreement are not generating credits by participating in ARB's zero-emission equipment credit averaging, banking and trading program or any similar program.

(E) *Return of Funds*: A statement that, should the merchant fail to show that they are implementing the program consistent with L&GE replacement program requirements, the manufacturer or merchant shall return to the air district funds in proportion to any loss of emission reductions compared with the projected reductions of the agreement.

8. **Participating Recycling Company Requirements**. Participating recycling companies' agreements must include the following:

(A) *Destruction of Lawn Mowers*: A statement that the recycling company shall destroy the lawn mower and engine within 60 days of receipt such that the lawn mower is no longer operable or repairable.

(B) *Receipt of Lawn Mower Destruction*: A statement that the recycling company shall notify the air district that a lawn mower is destroyed by sending the air district a signed receipt indicating the number of lawn mowers destroyed.

D. Emission Benefits

L&GE replacement provides emission benefits by providing lawn mower owners the incentivized option of purchasing a zero-emission lawn mower instead of a higher polluting gasoline lawn mower. Zero-emission lawn mowers are not required by regulation, so the emission benefits are surplus. Emission reductions are the difference in emissions from a new gasoline lawn mower engine and the emissions of a zero-emission lawn mower for the operational lifetime of the zero-emission lawn mower. The average operational lifetime of a replacement zero-emission lawn mower is estimated to be approximately 10 years. L&GE replacement project emission reductions are shown in Table 9-1.

Table 9-1
Gasoline Lawn Mower Emission Reductions (lbs/yr)

Model Year	ROG			NOx	PM10
	Exhaust	Evap	Total	Exhaust	Exhaust
2010	0.290	0.847	1.137	0.071	0.048

CHAPTER 10: INFRASTRUCTURE

Senate Bill 513 (Beall, Chapter 610, Statutes of 2015) provides the Air Resources Board's (ARB) Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) the ability to incorporate infrastructure projects into its program. It authorizes the funding of projects that enable the deployment of alternative, advanced, and cleaner technologies to support the State's air quality goals. Specifically, Health and Safety Code section 44281(c) gives ARB the ability to provide funding toward the installation of fueling or energy infrastructure to fuel or power covered sources. Statute does not require infrastructure projects to meet a cost-effectiveness threshold.

This chapter provides project criteria for selecting and funding infrastructure projects that enable emission reductions in meeting State and local air quality goals. All infrastructure projects must be used to fuel or power a covered source as defined by Health and Safety Code section 44275(a)(7). These covered sources include but are not limited to on-road, off-road, agricultural and marine vessel emission sources.

A. Funding

Air quality management districts or air pollution control districts (air districts) determine project priority and select projects funded within their region.

Table 10-1
Maximum Percentage of Eligible Cost for Moyer Program Infrastructure Projects

Maximum Percentage of Eligible Cost	Infrastructure Projects
50%	All Projects
60%	Publicly Accessible Projects
65%	Projects with Solar/Wind Power Systems[(a)]
75%	Publicly Accessible Projects with Solar/Wind Power Systems[(a)]
100%	Public School Buses - Battery Charging and Alternative Fueling

[(a)] At least 50 percent of the energy provided to covered sources by the project must be generated from solar or wind.

B. Eligible Projects

Eligible projects are those that provide fuel or power to a covered source, and include, but are not limited to, the following:

1. **Battery Charging Station**. New, conversion of existing, and expansion to existing non-residential battery charging stations. (e.g. workplace charging, direct current fast chargers along freeway roadway corridors, long-term charging

at destination areas such as airports and shopping centers, and charging at distribution centers and warehouses).

2. **Alternative Fueling Station**. New, conversion of existing, and expansion to existing hydrogen and natural gas fueling stations.

3. **Stationary Agricultural Pump**. Pump electrification.

4. **Shore Power**. Shore-side electrification.

5. Additional projects may be considered on a case-by-case basis, such as residential battery charging stations for low-income and multi-unit dwellings, as well as infrastructure for transport refrigeration units and truckstop electrification. Please contact ARB Moyer staff for further guidance on these case-by-case projects.

C. Eligible Applicants

Public and private entities are eligible to apply unless otherwise stated. Public entities include but are not limited to State, metropolitan, county, city, multi-county special district (e.g. water district), school district, university, and federal agencies and organizations. Private entities include but are not limited to private organizations and corporations. Out of State applicants are eligible to apply provided that the infrastructure is situated in California.

D. Eligible Costs

Eligible costs are limited to the purchase and installation of the equipment for power delivery or fueling directly related to the infrastructure project. The eligible costs listed below must utilize commercially available technologies.

1. **Eligible project costs include:**

   (A) Cost of design and engineering, (i.e., labor, site preparation, Americans with Disabilities Act accessibility, signage).

   (B) Cost of equipment (e.g., charging/fueling units, electrical parts, energy storage equipment, materials).

   (C) Cost of installation directly related to the construction of the station.

   (D) Meter/data loggers.

   (E) On-site power generation system that fuels or powers covered sources (i.e., solar and wind power generation equipment).

2. **Air districts have the option to fund the following discretionary costs:**

   (A) Federal, sales, and other taxes.

(B) Shipping and delivery costs.

(C) Fees incurred pre-contract execution (i.e., permits, design, engineering, site preparation), license fees, environmental fees, commissioning fees (safety testing), and onsite required safety equipment.

(D) Consulting fees associated with the preparation of Environmental Assessment, Environmental Impact Statement, Environmental Impact Report, or other California Environmental Quality Act (CEQA) documents, etc.

E. Ineligible Costs

Ineligible costs include but are not limited to:

1. Existing station upgrade.

2. Fuel and energy costs.

3. Non-essential equipment hardware.

4. Operation cost (e.g., operational fees, maintenance, repairs, improvements, spare parts).

5. Extended warranty.

6. Insurance.

7. Data collection and reporting.

8. Grantee administrative costs.

9. Travel/lodging.

10. Employee training and salaries.

11. Legal fees.

12. Real estate property purchases/leases.

13. Performance bond costs.

14. Construction management.

15. Storm water plan costs.

16. Security costs.

17. Testing and soil sampling.

18. Hazardous materials, including permitting, handling and disposal.

F. Project Eligibility Criteria

The minimum qualifications for infrastructure projects are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria, and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements to address local concerns.

1. General Criteria

(A) The project must be installed and located in California.

(B) The project must comply with all applicable federal, State, local laws and requirements including environmental laws, and State building, environmental and fire codes. For instance, air districts may need to perform CEQA review and obtain approval prior to funding a project.

(C) A publicly accessible infrastructure project must be solicited and selected through a competitive bidding process that has been approved by the air district board.

(D) Work must be performed by a licensed contractor.

(E) For projects that contain Moyer Program funding for both infrastructure and engine replacement or repower within the same contract, only the cost of the engine replacement or repower will be considered when performing a cost-effectiveness calculation.

(F) Publicly accessible station must at a minimum be accessible to the public daily during regular business hours.

(G) Equipment and parts must be new. Remanufactured or refurbished equipment and parts are not eligible.

(H) Except for stationary agricultural pump projects, a completed Uniform Commercial Code-1 Financing Statement Form must be submitted by the air district to the California Secretary of State for infrastructure projects with a grant funding amount of $50K or greater. The financing statement must list the air district as the secured party.

2. Battery Charging Station

(A) Chargers must be a level 2 and higher to support non-residential stations.

(B) Publicly accessible light-duty charging stations must use a valid and universally accepted charge connector protocol (e.g. Society of Automotive Engineers (SAE), CHAdeMO).

(C) Charger must be certified by a Nationally Recognized Testing Laboratory (e.g., Underwriter's Laboratories, Intertek) located at https://www.osha.gov/dts/otpca/nrtl/nrtllist.html.

(D) Equipment must have at least a one year warranty.

3. **Stationary Agricultural Pump**. To be eligible for funding, infrastructure must directly power a zero-emission stationary agricultural pump funded by the air district with Moyer Program funds, including match (see Chapter 5 for specific criteria related to funding agricultural pumps).

4. **Shore Power**

(A) Funding is available to install shore-side electrical grid-based power at a berth that receives visits solely by vessels not subject to the control requirements of ARB's Shore Power Regulation (Title 17, California Code Regs., section 93118.3.).

(B) Shore-side projects meeting the eligibility criteria of the Goods Movement Program are eligible for Moyer Program funding only on a case-by-case basis. Moyer Program project funds cannot be co-funded with Proposition 1B Goods Movement Program funds.

5. **Alternative Fueling Station**. Equipment must have at least a three year warranty.

G. Applicant Requirements

1. General Criteria

(A) The applicant must be able to demonstrate to the air district that the applicant can obtain all required land use permits from agencies needed to install and operate the station.

(B) For a publicly accessible station, the applicant must provide a description of the geographic location, including an aerial map (i.e. satellite view from an internet based map or city/county map) and specific street address of the proposed station.

(C) Applicants must demonstrate that they either own the land on which the project will be located, or control it through a long-term lease, easement or other legal arrangement, for the duration of the project life. For a proposed project where the land is not owned by the applicant, an executed lease agreement or letters of commitment lasting for the duration of the project life must be signed by property owners/authorized representatives and must be submitted with the application.

(D) Applicants must be able to provide documentation that power or fuel is being provided to the site (e.g. application, payment to the local utility company for power installation, or contract).

2. Shore Power

(A) Applicants who own/operate at a terminal must submit a copy of the Initial Terminal Plan per Section (g) of ARB's Shore Power Regulation (Title 17, California Code Regs, section 93118.3). All subsequent project reports to air districts must include a copy of the terminal plan in order to evaluate compliance with the project contract.

(B) Only a port authority, terminal operator, or marine vessel owner may apply to receive Moyer Program funding for a shore power project.

H. Project Life

1. All projects must have a minimum project life of three years.

2. Maximum project life is 15 years, except stationary agricultural pump electrification projects which have a maximum project life of ten years.

I. Contract Requirements

1. General Criteria

(A) Contracts must include anticipated usage in terms of projected throughput and/or number of vehicles that will be using the station for the term of the contract.

(B) Contracts must require that the equipment be in operating condition throughout the contract term.

(C) Contracts must specify that publicly accessible infrastructure projects must maintain a 95 percent successful charging rate with 24/7 customer service available on site, via toll free telephone number. Contracts must also specify that if equipment is not functional, the grantee is responsible for ensuring that repairs are made and station is up and running within 48 hours. The grantee must notify air districts of any downtime beyond the 48 hours and work with air districts to ensure publicly accessible stations are operational.

(D) For non-publicly accessible infrastructure projects, contracts must specify that if equipment is not functional, the grantee has 15 business days to report the problem to the air district and begin working with the air district promptly to ensure infrastructure equipment is operational.

(E) Contracts must specify that, if during the project life the fuel/energy meter fails for any reason, the fuel/energy meter must be repaired or replaced as soon as possible and is considered a maintenance expense, therefore not an eligible cost.

(F) Contracts must specify the maximum grant amount.

(G) Contracts must identify milestone dates including project completion, invoice, and annual reporting dates.

2. **Battery Charging Station**

(A) Contracts must include the number of ports and charging units.

(B) Grantee must report all battery charging station installations to the Department of Energy Alternative Fuel Data Center located at http://www.afdc.energy.gov/locator/stations/.

3. **Alternative Fueling Station**. For hydrogen fueling stations, grantee must register and report to the Station Online Status System (SOSS) maintained by the California Fuel Cell Partnership (www.cafcp.org). In addition, grantee must abide by the requirements of the reporting system.

J. Post-Inspection

1. General Criteria

(A) Air districts must verify and document that each infrastructure project is operational. Inspections must include verification of operation by connecting a vehicle or equipment to the charging or fueling station, or in the case of an agricultural pump or shore power project, by connecting to the electrical grid. For projects that incorporate solar or wind power, the inspection must verify that infrastructure has been installed and connected to the power generation equipment (i.e. solar panels or wind turbines). Air districts may be exempted from this requirement if the grantee does not own a vehicle/equipment, and no vehicle/equipment can reasonably be obtained for the inspection. Air districts must document such instances and obtain other types of verification that the infrastructure is capable of dispensing fuel/electricity, or in the case of an agricultural pump or shore power project, capable of being powered by the electrical grid.

(B) Air district must take photos of the equipment and keep photos in the project file. At the minimum, the photos must include equipment manufacturers, model number, and serial number.

2. **Battery Charging Station**. Air district must document the following: Name of manufacturer, serial number and date of manufacture, amperage/voltage, and equipment recharge rate.

K. Invoice and Payment

A project may be considered for final payment once the necessary infrastructure has been installed and connected to the power generation equipment (i.e., solar panels, wind turbine) and/or electricity grid and has been demonstrated to the air district that it is fully operational during a post-inspection.

L. Data Collection and Annual Reporting

1. **Solar or Wind Power Generating Equipment**. For infrastructure projects that incorporate solar or wind power generating equipment, the grantee must annually provide to the air district the amount of electricity generated (e.g. kilowatt-hour) from the solar or wind power generating equipment for the duration of the project life.

2. **Battery Charging Station**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Qualitative description of public and private uses.

   (B) Annual usage per charger (e.g., kilowatt-hour) and the number of plug-in events.

   (C) Any unscheduled downtime, including duration of downtime and causes of downtime.

3. **Stationary Agricultural Pump**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Annual usage (e.g., kilowatt-hour) using an energy meter.

   (B) Episodes of electrical service interruption by the local utility company.

4. **Shore Power**. Grantee must annually provide to the air district the following data per berth for the entire project life:

   (A) Total ship visits utilizing berth and ship visits utilizing program funded equipment.

   (B) Annual usage (e.g., kilowatt-hour).

   (C) Episodes of electrical service interruption by the local utility company.

5. **Alternative Fueling Station**. Grantee must annually provide to the air district the following data for the entire project life:

   (A) Annual usage (e.g., kilograms, standard cubic feet).

(B) Any unscheduled downtime, including duration of downtime and causes of downtime.

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APPENDICES

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APPENDIX A

ACRONYMS

APPENDIX A: ACRONYMS

AAP	Agricultural Assistance Program
AB	Assembly Bill
ABT	Average Banking and Trading
AC	Alternating Current
ACS	Applicant Cost Share
ADA	Americans With Disabilities
Ah	Amp-hour
APCD	Air Pollution Control District
APCO	Air Pollution Control Officer
APU	Auxiliary Power Unit
AQMD	Air Quality Management District
ARB	Air Resources Board
ASM	Acceleration Simulation Mode
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
BAR	Bureau of Automotive Repair
bhp	Brake Horsepower
bhp-hr/gal	Brake horsepower-hour per gallon
bhp-hr/yr	Brake horsepower-hour per year
BIT	Biennial Inspection of Terminals
C/E	Cost-Effectiveness
Cal/EPA	California Environmental Protection Agency
CAP	Consumer Assistance Program
CAPCOA	California Air Pollution Control Officers Association
CARL	Clean Air Reporting Log
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CF	Vessel Registration Number
CFO	Chief Financial Officer
CHC	Commercial Harbor Craft
CHE	Cargo Handling Equipment
CHP	California Highway Patrol
CI	Compression Ignition
CMP	Carl Moyer Memorial Air Quality Standards Attainment Program
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CRF	Capital Recovery Factor
DBA	Doing Business As
DMV	Department of Motor Vehicles
DOE	Department of Energy
DOF	Department of Finance

DOORS	Diesel Off-Road Online Reporting System
DOT	Department of Transportation
DPF	Diesel Particulate Filter
E/S	Electric Standby
EF	Emission Factor
EFMP	Enhanced Fleet Modernization Program
EGR	Exhaust Gas Recirculation
EJ	Environmental Justice
EMFAC	ARB's On-Road Motor Vehicle Emission Inventory Model
EMY	Engine Model Year
EO	Executive Order
EQIP	Environmental Quality Incentives Program
ERCs	Emission Reduction Credits
ES	Emission Standards
ESN	Engine Serial Number
EIN	Equipment Identification Number
EVSE	Electric Vehicle Supply Equipment
FEL	Family Emission Limit
FTA	Federal Transit Administration
FTF	Flow-Through Filter
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principles
g	Gram
g/bhp-hr	Gram per brake horsepower-hour
gal	Gallon
gal/yr	Gallons per year
GHG	Greenhouse Gas
GMERP	Goods Movement Emission Reduction Program
GPS	Geographic Positioning System
GSE	Ground Support Equipment
GVW	Declared Gross Vehicle Weight
GVWR	Gross Vehicle Weight Rating
HC	Hydrocarbons
HD	Heavy-Duty
HDDE	Heavy-Duty Diesel Engine
HDT	Heavy-Duty Truck
HDV	Heavy-Duty Vehicle
HEP	Head End Power Unit
HHD	Heavy Heavy-Duty
HHDV	Heavy Heavy-Duty Vehicle
hp	Horsepower

hr	Hour
H&SC	Health and Safety Code
HVAC	Heating, Ventilation and Air Conditioning
ICE	Internal Combustion Engine
ILD	Idle Limiting Device
IMO	International Maritime Organization
IOU	Investor Owned Utility
IPI	Incentive Program Implementation Team
IRP	International Registration Plan
IRS	Internal Revenue Service
ITR	Innovative Technology Regulation
JPA	Joint Power Authority
kW	Kilowatt
lbs.	Pounds
lbs/bhp-hr	Pounds per brake horsepower-hour
lb/gal	Pound per gallon
lb/hp-hr	Pound per horsepower-hour
L&GE	Lawn and Garden Equipment
LDV	Light-Duty Vehicle
LESBP	Lower-Emission School Bus Program
LETRU	Low Emission Transport Refrigeration Unit
LEV	Low Emission Vehicle
LHD	Light Heavy-Duty
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas – commonly called Propane
LSI	Large Spark Ignition
MEC	Moyer Eligible Cost
MGO	Marine Gas Oil
MHD	Medium Heavy-Duty
MHDV	Medium Heavy-Duty Vehicle
mi	Mile
MIC	Moyer Ineligible Cost
MOU	Memorandum of Understanding
MPC	Moyer Paid Cost
MV Fee	Motor Vehicle Registration Fee
MY	Model Year
NMHC	Non-Methane Hydrocarbons
NFPA	National Fire Protection Association
NOx	Oxides of Nitrogen

OBD II	On-Road Diagnostics, Phase II
OEM	Original Equipment Manufacturer
OIS	On-Board Diagnostic Inspection System
ORVIP	Off-Road Voucher Incentive Program
PG&E	Pacific Gas and Electric
P&P	Policies and Procedures
PM	Particulate Matter
PM10	Particulate Matter less than 10 microns in diameter
PSIP	Periodic Smoke Inspection Program
PTO	Power Take-Off
RAP	Rural District Assistance Program
REC	Remaining Eligible Cost
RFP	Request for Proposals
ROG	Reactive Organic Gas
SAE	Society of Automotive Engineers
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCR	Selective Catalytic Reduction
SI	Spark Ignition
SRF	Special Revenue Fund
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SOON	Surplus Off-Road Opt-in for NOx Program
STD	Standard
SWCV	Solid Waste Collection Vehicle
TPC	Total Project Cost
TRU	Transport Refrigeration Unit
TRUCRS	Truck Regulations Upload and Compliance Reporting System
TSI	Two Speed Idle
ULETRU	Ultra Low Emission Transport Refrigeration Unit
ULEV	Ultra Low Emission Vehicle
U.S. EPA	United States Environmental Protection Agency
V	Volt
VAVR	Voluntary Accelerated Vehicle Retirement
VDECS	Verified Diesel Emission Control Strategy
VFD	Variable Frequency Device
VIN	Vehicle Identification Number
VIP	Voucher Incentive Program

VOC	Volatile Organic Compound
YR	Year

APPENDIX B

DEFINITIONS

APPENDIX B: DEFINITIONS

Acceleration Simulation Mode: A type of vehicle emissions test conducted with the test vehicle on a chassis dynamometer to simulate on-road acceleration operating conditions.

Administrative Funds: State funds allocated to program support and outreach costs directly associated with implementing the Moyer Program.

Agricultural Assistance Program: A program established by section 39011.5 of the Health and Safety Code (H&SC) providing funds for new purchase, retrofit, repower, or add-on for previously unregulated agricultural equipment.

Air district or District: An air pollution control district or an air quality management district.

Air Pollution Control Officer: The air pollution control officer, executive director, executive officer or designee as determined by each air district.

Airport Ground Support Equipment: Any engine- or motor-powered equipment used for service and support of aircraft operations. Airport ground support equipment (GSE) performs a variety of functions, including but not limited to: aircraft maintenance, pushing or towing aircraft, transporting cargo to and from aircraft, loading cargo, and baggage handling. GSE vehicles include equipment types such as baggage tugs, belt loaders, and cargo loaders.

Applicant Cost Share (ACS): The 15 percent or more of Moyer Eligible Cost (MEC) that is paid by the applicant, except when waived for public entity applicants.

Auxiliary Engine: An engine that is not the propulsion engine but for which the fuel, cooling, and/or exhaust systems are an integral part of the equipment or vehicle.

Auxiliary Power Unit: Any device that provides electrical, mechanical, or thermal energy to the primary diesel engine, truck cab, or sleeper berth as an alternative to idling the primary diesel engine.

Barge: A vessel having a flat-bottomed rectangular hull with sloping ends and built with or without a propulsion engine.

Baseline Technology: Engine technology applied under normal business practices, such as the existing engine in a vehicle or equipment for replacements, repowers, and retrofits.

California's Goods Movement Trade Corridor: The entirety of the South Coast Air Basin, San Joaquin Valley Air Basin, Sacramento Federal Ozone Nonattainment Area, San Francisco Bay Area Air Basin, San Diego County Air District, Imperial County Air District, and Port Hueneme.

Captive Attainment Area Fleet: A fleet or an identified subpart of the fleet (fleet portion, consistent with, California Code of Regulations, title 13, section 2449(d)) in which all of the vehicles in the fleet or fleet portion operate exclusively within the following counties: Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba. A fleet or identified fleet portion that operates one or more vehicles outside the counties listed above is not a captive attainment area fleet.

Case-by-Case Determination: A process in which local air districts may request Moyer Program staff to review and approve a project that varies from the specific requirements of these Guidelines only if such approval will not adversely affect the achievement of real, surplus, quantifiable, enforceable and cost-effective emission reductions. See Chapter 3: Program Administration, Section U for additional information.

Certification: A finding by the Air Resources Board (ARB) or the U.S. EPA that a mobile source or emissions control device has satisfied applicable criteria for specified air contaminants.

Charter Fishing Vessel: A vessel for hire by the general public, dedicated to the search for and collection of fish for the purpose of general consumption.

Class 1 Freight Railroad**:** As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). As of January 2017, Union Pacific Railroad (UP), Burlington Northern and Santa Fe Railroad (BNSF), and their subsidiaries are the only Class 1 freight railroads operating in California.

Class 2 Freight Railroad**:** As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). As of January 2017, Arizona and California Railroad, Central Oregon and Pacific Railroad are the only Class 2 freight railroads operating in California.

Class 3 Freight Railroad: As defined by the Surface Transportation Board (see www.stb.dot.gov<http://www.stb.dot.gov/>). Short-line railroads and military and industrial railroads are generally considered Class 3 freight railroads for the purposes of eligibility.

Clean Air Reporting Log (CARL): An on-line database tool maintained by ARB and used by air districts to track and report projects and funds under the Moyer Program.

Commercial Fishing Vessel: A vessel dedicated to the search for and collection of fish to be sold at market or directly to a purchaser.

Commitment: Under Chapter 5, a program milestone in which Moyer Program funds have been designated or applied towards an eligible project approved by the air district board, district air pollution control officer, or other delegated authority.

Competitive Bidding Process: For Moyer Program purposes, the process by which an air district competitively selects publicly accessible infrastructure projects. The process, including selection criteria, must be outlined in the air district solicitation and approved by the air district board.

Conversion of Existing Station: Infrastructure projects in which an existing non-alternative fueling station (i.e. diesel) is converted to an alternative fueling station for hydrogen or natural gas.

Cost-effectiveness: A measure of the dollars provided to a project for each ton of covered emission reduction (H&SC § 44275(a)(4)).

Cost-effectiveness Limit: The maximum amount of funds the Moyer Program will pay per weighted ton of emission reductions, using the methodology in Appendix C.

Covered Emissions: Emissions of oxides of nitrogen, particular matter, and reactive organic gases from any covered source.

Covered Source: On-road vehicles, off-road non-recreational equipment and vehicles, locomotives, marine vessels, agricultural sources of air pollution as defined in Section 39011.5, and, as determined by the State Board, other categories necessary for the State and air districts to meet air quality goals (H&SC § 44275(a)(7)).

Crawler Tractor: A tracked off-road tractor equipped with a substantial metal plate, or blade, as opposed to a bucket on a loader. This equipment is commonly referred to as a track mounted bulldozer and is used to push large quantities of soil, sand, rubble, etc., during construction and mining work. The dozing power of the crawler tractor exceeds that of the rubber tired dozer. A ripper, which is a claw-like device, may be attached to the back of a larger dozer.

Crew and Supply Vessel: A self-propelled vessel used for carrying personnel and/or supplies to and from off-shore and in-harbor locations (including, but not limited to, off- shore work platforms, construction sites, and other vessels).

Deterioration: The increased exhaust emissions over time taking into account wear and tear on engines and emissions control devices.

Deterioration Life: A factor calculated from the period of time the engine has deteriorated, plus half the project life, used to estimate deterioration over the entire project life. DL= project starting year - engine model year + (project life / 2).

Deterioration Product: The result of multiplying the deterioration rate, equipment activity, and the deterioration life for a technology.

Deterioration Rate (DR): Rates that estimate increased emissions of NOx, ROG and PM from engine wear and tear and other variables that increase engine emissions over time. On-road deterioration rates are established by weight class and engine model year, based on values in ARB's on-road emission inventory model (EMFAC2014). Off

road deterioration rates are established by horsepower and either Tier or model year, based on values in ARB category specific inventory models.

DC fast charger: A unit for 200 - 480V Direct-Current (DC) charging up to 200 amps, using an off-board charger that connects directly to the vehicle's battery. Also called DC Level 1 and DC Level 2.

Dredge: A vessel designed to remove debris or earth from the bottom of waterways. Dredges may be built with or without a propulsion engine.

Electric Vehicle Supply Equipment (EVSE): An electrical energy transfer device that conducts and regulates power from the electrical portal connection to the electrical vehicle inlet.

Emission Control System: Any device, system, or element of design that controls or reduces the emissions of regulated pollutants from a vehicle.

Emission Factor (EF): A category specific estimate of emissions per unit of activity. On-road emission factors are based on ARB mobile source emission inventory model (EMFAC2014) values. Off-road emission factors are based on values applied in ARB category specific inventory models.

Enterprise Operator: A person who conducts a voluntary accelerated vehicle retirement enterprise according to the Voluntary Accelerated Vehicle Retirement Regulation (California Code of Regulations, title 13, § 2601 et seq.), purchases vehicles, arranges for a vehicle's permanent removal from operation, and receives any emission reduction credit generated.

Excavator: An engineering vehicle consisting of an upper carriage with hydraulically rotating upper deck (revolving 360º) and attachment, directly mounted to either a wheeled or crawler undercarriage. The front end of the excavator attachment consists either of a bucket, grapple, scrap shear, or another implement.

Excursion Vessel: A self-propelled vessel that transports passengers for purposes including, but not limited to: dinner cruises; harbor, lake, or river tours; scuba diving expeditions; and whale watching tours. Excursion vessels do not include crew and supply vessels, ferries, and recreational vessels.

Executed Contract: A legally binding contract signed by the local air district Air Pollution Control Officer, or other air district designated representative, and the grantee to fund an eligible engine, equipment, or vehicle project that will reduce covered emissions. An executed contract is a program milestone in which parties agree to meet the obligations within the contract by a specified date.

Existing Lawn Mower: A gasoline-fueled, operational lawn mower owned and operated in California by the applicant.

Existing Station Upgrade: Improvements to a battery charging or alternative fueling station without increasing the output capacity.

Expansion to Existing Station: Infrastructure projects that increase the amount of fuel/energy throughput or capacity to fuel/charge equipment/vehicles at current alternative fueling and battery charging stations.

Expend: To make a full or partial payment of Moyer Program funds toward a project invoice for an eligible Moyer Program project.

Farm Equipment: As applied to off-road engines, includes equipment used in agricultural operations as defined in the Regulation for In-Use Off-Road Diesel-Fueled Fleets (California Code of Regulations, title 13, § 2449(c)(1)). As applied to portable and stationary engines, includes the agricultural sources defined in Health and Safety Code section 39011.5.

Federal Funds: Awards of financial assistance to an individual or organization from the U.S. government to carry out a government-authorized purpose, and not provided as personal benefits or assistance from the government.

Family Emission Limit (FEL): An emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under a federal or State averaging, banking, and trading program.

Ferry: Any self-propelled vessel or boat or owned, controlled, operated, or managed for public use in transportation of carrying passengers, property or vehicles on scheduled services.

Fleet Average Emission Level: The arithmetic mean of the combined hydrocarbon plus oxides of nitrogen emissions for each piece of applicable large spark-ignition engine powered equipment comprising an operator's fleet. For full definition, see California Code of Regulations, title 13, section 2775.

Forklift: Electric Class 1 or 2 rider trucks or large spark-ignition engine powered Class 4, 5 or 6 rider trucks as defined by the Industrial Truck Association. Electric Class 3 trucks are not forklifts for the purposes of these Guidelines. More information can be found at http://www.osha.gov/dcsp/products/etools/pit/forklift/types/classes.html and http://www.indtrk.org.

Freight Locomotive: A locomotive that hauls freight as its primary function.

Funding Amount: The amount of funds dedicated to a contracted project for reporting purposes in CARL; this value may never exceed the grant amount.

Funding Cap: The maximum dollar amount or maximum percentage of Moyer or State funds that may be expended on a project, as specified by source category and limited by variables that include the contribution of other incentive programs, rules, regulations, and incremental cost.

Funding Target: The total funds required to meet a program milestone such as funds executed or liquidated during a funding cycle, for purposes of cumulative tracking and reporting. Funding targets consider regular Moyer Program funds, State Reserve funds, Rural District Assistance Program funds, Moyer voucher program funds, required match funds, interest funds, reallocated funds, recaptured funds, interest and salvage revenues, and other funds associated with the Moyer Program.

Funding Year: The designation given to each year that air districts are awarded Moyer Program funds. Moyer Program grant awards were first made in fiscal year 1998 to 1999; therefore, that year is designated as Year 1; fiscal year 1999 to 2000 is Year 2, etc. Each funding year is associated with set times for achieving program milestones such as contract execution, fund expenditure, and fund liquidation.

Funding Year Adjustment: An addition or subtraction to an air district's project and/or administrative fund amounts in one funding year to account for changes (e.g., recaptured funds, errors) in liquidated funds in an earlier funding year.

Grant Amount: Contracted amount of Moyer funds for a project, which may not exceed the maximum dollar amount or maximum percentage of eligible cost specified by source category and project type.

Glider Kit: A replacement chassis and cab for on-road heavy-duty vehicles. Glider kits are identified with a vehicle identification number starting with the letters "GL".

Gross Vehicle Weight Rating (GVWR): A value specified by the vehicle manufacturer as the maximum design loaded weight of a single vehicle. Examples are shown in Table B-1.

Harbor Craft: (also called "Commercial Harbor Craft") Any private, commercial, government, or military marine vessel including, but not limited to, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push-boats, crew and supply vessels, work boats, pilot vessels, supply boats, fishing vessels, research vessels, United States Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.

Head End Power Unit: Most passenger locomotives are equipped with head end power (HEP) or hotel power, an onboard generator typically about a 500 horsepower that provides power to the passenger cars of the train for such functions as heating, lighting and air conditioning.

Heavy-Duty Vehicles (HDV): Trucks and buses in the weight classes shown in Table B-1.

Table B-1
Heavy-Duty Vehicle Classification for Moyer Program On-Road Projects

Vehicle Classification	GVWR
Light Heavy-Duty (LHD)	14,001 to 19,500 pounds
Medium Heavy-Duty (MHD)	19,501 to 33,000 pounds
Heavy Heavy-Duty (HHD)	Over 33,000 pounds

Home Port: The port in which a vessel is registered or permanently based.

Incremental Cost: The cost of the project less a baseline cost that would otherwise be incurred by the applicant in the normal course of business. Incremental costs may include added lease, energy, or fuel costs pursuant to Health and Safety Code section 44283 as well as incremental capital costs.

Interest Revenue: Interest generated from Moyer Program funds held by an air district in interest-bearing accounts. Interest earned on Moyer Program funds becomes Moyer Program funds.

Industrial Tow Tractor: An electric or large spark-ignition engine-powered Class 6 truck as defined by the Industrial Truck Association. They are designed primarily to push or pull non-powered trucks, trailers, or other mobile loads.

Investor Owned Utility: A business providing utility services such as electricity, natural gas, telephone and water services, that is managed privately rather than as a function of a government or public cooperative. Examples are Pacific Gas and Electric, Southern California Edison, and Sempra Energy.

Large Fleet: Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with a total maximum power greater than 5,000 horsepower. A fleet must meet large fleet requirements of this regulation if the total vehicles under common ownership or control would be defined as a large fleet. All fleets owned by the United States, the State of California, or agencies thereof (i.e., an agency in the judicial, legislative, or executive branch of the federal or state government) are considered as a unit whole and must meet the large fleet requirements of the In-Use Off-Road Diesel-Fueled Fleets Regulation (California Code of Regulations, title 13, § 2449). Under the Large Spark Ignition Engine Fleet Requirements Regulation, a large fleet is an operator's aggregated operations in California of 26 or more pieces of large spark-ignition equipment.

Lawn and Garden Equipment: Equipment used to maintain lawns and gardens. This equipment is generally, but not exclusively, powered by spark-ignition engines. This equipment is traditionally used in applications such as lawn mowers, edger's, trimmers, leaf blowers, and chainsaws. Equipment that does not fall into this category includes golf carts, specialty vehicles, generators, pumps, and other small utility equipment.

Lawn Mower Exchange Event: An occasion where participants' existing gasoline lawn mowers are exchanged for new cordless, zero-emission electric lawn mowers or vouchers for new, cordless, zero-emission electric lawn mowers.

Level 2: Electric vehicle supply equipment for connection to an on-board vehicle charging system, with 208V–240V alternating-current (AC) charging up to 80 amps.

Line-Haul Locomotive**:** A locomotive powered by an engine or engines typically totaling 4,000 or more horsepower that transports goods between major urban centers.

Liquidate: To spend all moneys for a specified fiscal year to reimburse grantees for valid and eligible project invoices and air district administrative costs. Payments withheld from the grantee by an air district until all contractual reporting requirements are met may be excluded from these amounts for the purposes of liquidation.(H&SC § 44275(a)(12)). For a specific project, liquidation refers to all funded equipment as paid in full and operational.

Local Funds: Monies provided by any unit of local government including a publicly owned utility and Joint Powers Authority (JPA).

Match Funds: Funds under an air district's budget authority that will be applied towards eligible Moyer Program projects in accordance with the matching requirements of the program. See Health and Safety Code section 44287(e) and 44287.2(c).

Maximum Dollar Amount: The maximum amount of funds that may be expended on a project as specified by source category and project type, often to reflect incremental cost.

Maximum Grant Amount: The maximum amount of money a grantee is eligible to receive for a cost-effective Moyer Program project. The maximum grant amount for a project is the lowest of the three following values: (a) the grant amount at the cost-effectiveness limit; (b) the maximum percentage of eligible cost; or (c) any maximum dollar amount specified in the relevant source category chapter.

Maximum Percentage: The maximum percentage of eligible cost that may be expended on a project as specified by source category and project type, often to reflect incremental cost.

Medium Fleet. Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with total minimum power of greater than 2,500 horsepower and with a total maximum power less than or equal to 5,000 horsepower. Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of 4 to 25 pieces of large spark-ignition equipment.

Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU): A document recording the basic terms of a proposed transaction or setting forth the principles and guidelines under which parties will work together.

Mitigation Funds: Monies received for the compensation for the impacts to the environment from a proposed activity.

Mobile Cargo Handling Equipment: Any motorized vehicle used to handle cargo delivered by ship, train, or truck such as yard trucks, rubber tired gantry cranes, top picks, dozers, and excavators.

Moyer Eligible Cost: Costs associated with projects that are eligible for reimbursement under the Moyer Program, prior to considering the cost-effectiveness limit or any project funding cap restrictions. This includes the sum of Moyer Paid Cost and Remaining Eligible Cost.

Moyer Ineligible Cost: Costs associated with a project that are not eligible under the Moyer Program guidelines, but are eligible project costs under other funding sources.

Moyer Paid Cost: Project costs eligible under the Moyer Program, and are to be paid by the Moyer Program. These costs are used to determine project cost-effectiveness, except in the case of infrastructure projects.

Moyer Program Funds: State funds awarded by ARB to local air districts to implement the Moyer Program, including project and administrative, and interest revenue from the awarded funds, and revenues from salvage of equipment scrapped under the program. Local funds that are under the air district's budget authority may also qualify as Moyer Program funds or match funds (see H&SC § 44287(e)); however, certain limitations apply (see H&SC § 44287(j)).

Nationally Recognized Testing Laboratory: Is a private-sector organization that OSHA has recognized as meeting the legal requirements in 29 CFR 1910.7 to perform testing and certification of products using consensus based test standards.

New Station: Construction of a new battery charging or alternative fueling station where there is currently no station.

Non-forklift fleet: Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of four or more sweeper/scrubbers, industrial tow tractors, or pieces of airport ground support equipment, alone or in combination.

Non-Moyer Funds: Project funds from sources other than the Moyer Program, Moyer match funds, and AB 923 $2 DMV fees.

Off-Highway Tractors: Equipment that feature yoke hitches that oscillate four ways to reduce frame stresses. Rugged turn stops prevent excessive wagon rotation in either direction. The rear platform functions as a power train guard providing a safe, stable work area. (These are not off-highway trucks (e.g. articulated trucks or rigid haul trucks) which are bulk-handling machines, such as earthmovers or dump trucks, designed to operate on steep or rough terrain and not designed to drive on-highway.)

Off-Road Compression-Ignition Equipment: A piece of equipment that is powered by an off-road compression-ignition engine which is any internal combustion engine: in or on a piece of equipment that is self-propelled or serves as a dual purpose by both propelling itself and performing another function and is primarily used off the highways (such as garden tractors, off-highway mobile cranes and bulldozers); or in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to wheels, skids, carrying handles, dolly, trailer, or platform that is consistent with California Code of Regulations, title 13 section 2421.

Off-Road Large Spark-Ignition Engine: any engine that produces a gross horsepower of 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years) or is designed (e.g., through fueling, engine calibrations, valve timing, engine speed modifications, etc.) to produce 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years) used to propel an off-road piece of equipment. The engine may be designed to use gasoline fuel, liquid petroleum gas, compressed natural gas, methanol fuel, or a combination of these.

Off-Road Large Spark-Ignition Equipment: Equipment that cannot be registered and driven safely on-road or was not designed to be driven on-road. Newer equipment uses engines certified to the off-road spark ignition engine standards. These engines may be designed to use gasoline fuel, liquid petroleum gas (LPG), compressed natural gas, methanol fuel or a combination of these and are most commonly found in forklifts.

Other Applied Funds: Funds that are not local, State, or federal that are used to co-fund a Moyer eligible project.

Operator: A person, corporation, public agency, or other entity that owns, operates or maintains a vehicle, equipment, or installation.

Passenger Locomotive: A locomotive that hauls passengers as its primary function.

Penalty Funds: Funds paid to an enforcing entity as a result of enforcement action brought against a violator of a local, State or federal law, ordinance, regulation or rule.

Pilot Vessel: A vessel designed for, but not limited to, the transfer and transport of maritime pilots to and from oceangoing vessels while such vessels are underway.

Policies and Procedures: An air district manual for local implementation of the Moyer Program. For more information see Chapter 3, Section C.

Power Take-Off (PTO): A secondary engine shaft (or equivalent) that provides substantial auxiliary power for purposes unrelated to vehicle propulsion or normal vehicle accessories such as air conditioning, power steering, and basic electrical accessories. A typical PTO uses a secondary shaft on the engine to transmit power to a hydraulic pump that powers auxiliary equipment.

Program Milestone: A measure of progress toward meeting Moyer Program grant terms or statutory requirements. Examples are contract execution, liquidation and (in Chapter 5) commitment.

Project Life: The period for which the Moyer Program funds surplus emission reductions for a given project.

Project Funds: Moyer Program funds designated for eligible project costs to reduce covered emissions from covered sources.

Propulsion Engine: A marine engine that generates the power to propel a vessel through the water.

Publicly Accessible: An infrastructure project that is available to provide fuel or energy to all members of the general public with no physical access restrictions and no necessity to enter into a contract or sign release of liability.

Public Entity: The State of California, a public university or college, a county, city, district, public authority, public agency, public corporation, another state government, the federal government, or any other subdivision or agency of a state government or the federal government.

Public Fleets: Heavy-duty on-road diesel-fueled vehicles operated by a municipality. A municipality is a city, county, city and county, special district, or a public agency of the State of California, and any department, division, public corporation, or public agency of this State, or two or more entities acting jointly, or the duly constituted body of an Indian reservation or Rancheria.

Public Funds: Funds provided toward project costs by local, State or federal public entities, including grants, rebates and vouchers.

Rail equipment: Non-locomotive equipment designed for use on tracks, such as on-rail vehicles, railcar movers, sweepers, and wheel cranes that have tires or mounted tracks. Equipment that replaces switcher locomotives are considered locomotives for the purposes of the Moyer Program.

Reallocation: A process for allocating mitigation funds and/or returned funds to eligible air districts. See Chapter 3, Section P for additional information.

Rebuilt or Remanufactured: Engines offered by the original engine manufacturer (OEM) or by a non-OEM rebuilder who demonstrates to ARB that the rebuilt engine and parts are functionally equivalent from an emissions and durability standpoint to the OEM engine and components being replaced.

Recaptured Funds: Project funds that are returned by a grantee to an air district or ARB because that grantee did not meet all of its contractual obligations. Air districts must spend these funds on another project in a later funding year.

Reduced Technology: Newer technology that is used by the applicant to obtain surplus emission reductions.

Remaining Eligible Cost: Project costs that are eligible under the Moyer Program but are to be paid by other sources of funding. Remaining eligible costs exist when the Moyer Paid Cost and Applicant Cost Share provide less than 100 percent of the Moyer Eligible Cost.

Remotely Located: Agricultural engines located in a federal ambient air quality area that is designated as unclassifiable or attainment for all PM and ozone national ambient air quality standards and that are located more than one-half mile from any residential area, school, or hospital.

Replacement Lawn Mower: A cordless, zero-emission electric lawn mower.

Repower: A repower is the replacement of the existing engine with an electric motor or a newer emission-certified engine instead of rebuilding the existing engine to its original specifications.

Retrofit: Modifications to the engine and fuel system so that the retrofitted engine does not have the same emissions specifications as the original engine, or the process of installing an ARB-verified emissions control system on an existing engine.

Returned Funds: Funds returned by an air district to ARB for reallocation because they are either not liquidated by the required funding year liquidation deadline, or are associated with an ARB Incentive Program Review mitigation measure.

Rough Terrain Forklift: Class 7 forklifts powered by compression ignition engines and having pneumatic tires that handle uneven surfaces. This includes both straight-mast forklifts and extended-reach forklifts, also called telescopic forklifts or tele-handlers.

Rubber Tired Dozer: A wheeled off-road tractor equipped with a substantial metal plate, or blade as opposed to a bucket on a loader. This equipment is commonly referred to as a rubber tired bulldozer and is used to push large quantities of soil, sand, rubble or other materials during construction and mining work where the traction of a crawler tractor is not required. A ripper, which is a claw-like device, may be attached to the back of a larger dozer.

Rural District Assistance Program: An element of the Moyer Program in which air districts pool their project funds to streamline project outreach, solicitation, and review.

School Bus: Vehicles used for the express purpose of transporting students, kindergarten through grade 12, from home to school, school to home, and to any school sponsored activities.

Shore Power: Electrical power being provided to the ship at berth by either the local utility or by distributed generation.

Skid Steer Loader: A very compact and maneuverable off-road tractor that uses a bucket on the end of movable arms to lift materials and move material such as dirt, debris, building materials, bulk goods, heavy objects, or snow removal. Unlike conventional loaders, the lift arms are alongside the driver with the pivot points behind the driver's shoulders. Skid steer loaders are used in tight spaces and can be equipped with a variety of attachments, such as a hammer, augur, trencher, forklift and other attachments (never greater than 120 horsepower (hp), predominantly 40-75 hp. Skid Steer loaders are often utilized to excavate swimming pools and in landscaping residential backyards.

Small Fleet: In the on-road sector, a fleet size of three or fewer vehicles as defined in the California Code of Regulations, title 13, section 2025(d)(31)(G). Under the In-Use Off-Road Diesel-Fueled Fleets Regulation, a fleet with a total maximum power of less than or equal to 2,500 horsepower that is owned by a business, non-profit organization, or local municipality; or a local municipality fleet in a low population county irrespective of total maximum power; or a non-profit training center irrespective of total maximum power. Under the Large Spark Ignition Engine Fleet Requirements Regulation, an operator's aggregated operations in California of 1 to 3 forklifts and/or 1 to 3 pieces of non-forklift equipment.

Smog Check: the motor vehicle inspection and maintenance program established by California Health and Safety Code Section 44000, et seq.

Solid Waste Collection Vehicle (SWCV): Diesel-fueled vehicles greater than 14,000 pounds GVWR with model year 1960 through 2006 engines used to collect residential and commercial solid waste.

Spark Ignition: A gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to a combustion cycle.

State Funds: Funds provided by a State agency for the purpose of co-funding projects under the Moyer Program. State agencies include every State office, department, division, bureau, board, commission, the University of California, and the California State University.

State Implementation Plan: Under the Clean Air Act, the plan submitted by a state that demonstrates attainment or maintenance of an air quality standard through implementation of specified control measures.

Supplemental Environmental Project: An environmentally beneficial project that a violator subject to an enforcement action voluntarily agrees to undertake in a settlement action to offset a portion of an administrative or civil penalty.

Sweeper/scrubber: A large spark-ignition engine-powered piece of industrial floor cleaning equipment designed to brush and vacuum up small debris and litter and then scrub and squeegee the floor.

Switch Locomotive: A locomotive powered by an engine or engines typically totaling less than 2,300 total horsepower, and used to separate and move railcars from track to track or transfer cars to and from regional carriers. All Class 3 railroad locomotives – including all short-line and military and industrial locomotives – are considered switch locomotives for the purposes of the Moyer Program eligibility.

Total Project Cost: The Moyer Eligible Cost and the Moyer Ineligible Cost for vehicles, equipment, engines, accessories, installation and infrastructure within a single Moyer Program project. An applicant may not accept grant funds from all sources that exceed 100 percent of total project cost excluding the Applicant Cost-Share.

Tow Boat: Any self-propelled vessel engaged in or intending to engage in the service of pulling, pushing, or hauling alongside barges or other vessels, or any combination of pulling, pushing, or hauling alongside barges or other vessels.

Transit Fleet Vehicle: On-road vehicles operated by a public transit agency, less than 35 feet in length and 33,000 GVWR, but greater than 8,500 GVWR, powered by heavy- duty engines fueled by diesel or alternative fuel; including service vehicles, tow trucks, dial-a-ride buses, paratransit buses, charter buses, and commuter service buses operated during peak commute hours with ten or fewer stops per day.

Transport Refrigeration Unit (TRU): A refrigeration system powered by an internal combustion engine designed to control the environment of temperature sensitive products transported in trucks and refrigerated trailers. TRUs may be capable of both cooling and heating.

Truck Stop Electrification: The installation at a truck stop of electric power infrastructure and/or external systems that provide heating, cooling, and other energy needs for trucks.

Tug Boat: Any self-propelled vessel engaged in, or intending to engage in, the service of pulling, pushing, maneuvering, berthing, or hauling alongside other vessels, or any combination of pulling, pushing, maneuvering, berthing or hauling alongside such vessels in harbors, over the open seas, or through rivers and canals. Tug boats generally can be divided into three groups: harbor or short-haul tugboats, ocean-going or long-haul tugboats, and barge tugboats. “Tug boat” is interchangeable with “tow boat” and “push boat” when the vessel is used in conjunction with barges.

Tier 1, 2, and 3 Engines: Engines that are subject to California Code of Regulations, title 13, section 2423(b)(1)(A) and/or Code of Federal Regulations, title 40,part 89.112(a). This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 1, 2, and 3 Family Emission Limits (FEL) listed in California Code of Regulations, title 13, section 2423(b)(2)(A) and/or Code of Federal Regulations, title 40, part 89.112(d).

Tier 4 Engine: Engines that are subject to interim or final after-treatment based Tier 4 emission standards in California Code of Regulations, title 13, section 2423(b)(1)(B) and/or Code of Federal Regulations, title 40, part 1039.101. This also includes engines

certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in California Code of Regulations, title 13, section 2423(b)(2)(B) and/or Code of Federal Regulations, title 40, part 1039.101. For locomotives, the term refers to the Tier 4 (2015 engine model year) emission standards in the Code of Federal Regulations, title 40, Part 1033.

Uncontrolled Large Spark-Ignition Engines: Means pre-2001 uncertified engines and 2001-2003 certified "non-compliant' large spark-ignition engines.

Urban Bus: A passenger carrying vehicle owned or operated by a public transit agency, powered by a heavy heavy-duty engine, or of a type normally powered by a heavy heavy-duty engine, intended primarily for intra-city operation. The buses are generally greater than 35 feet, and or greater than 33,000 pounds gross vehicle weight rating.

Utility: A privately-owned company that provides the same or similar service for water, natural gas, and electricity as a public utility operated by a municipality.

Voluntary Accelerated Vehicle Retirement Enterprise (VAVR): a privately owned and/or operated business by an enterprise operator.

Verification: A determination by ARB or the U.S. EPA that a diesel emission control strategy meets specified requirements, based on both data submitted and engineering judgement.

Violator: An individual, company, or entity responsible for a violation of an environmental law, regulation or rule.

Voucher Incentive Program (VIP): An air district incentive program using Moyer Program funds to provide a streamlined approach to replace or retrofit older, high-polluting heavy-duty vehicles or equipment with cleaner-than -required vehicles or equipment providing early or extra emission reductions. Funds for VIP projects are used to reduce some of the costs associated with replacing or retrofitting a vehicle.

Workover Rig: Mobile self-propelled rigs used to perform one or more remedial operations on an existing well. The primary function of a workover rig is to act as a hoist so that pipe, sucker rods and down-hole equipment can be run into and out of a well. Operations include deepening, plugging back, or pulling and resetting liners, usually on a producing oil or gas well to try to restore or increase the well's production.

APPENDIX C

COST-EFFECTIVENESS CALCULATION METHODOLOGY

APPENDIX C: COST-EFFECTIVENESS CALCULATION METHODOLOGY

A. Introduction

Cost-effectiveness is the measure of dollars provided to a project for each ton of covered emissions reduced. Statute requires that the Air Resources Board (ARB) update the cost-effectiveness limit and capital recovery factors (CRF) annually. In addition, changes in statute per SB 513 now allow ARB, in consultation with air quality management districts and air pollution control districts (air districts), to establish new cost-effectiveness limits that reflect the cost of regulations and technology.

To determine a project's cost-effectiveness, all Moyer Program funds, air district match funds, and local AB 923 funds must be included. Non-Moyer funds used to co-fund a Moyer eligible project do not need to be included in the cost-effectiveness calculation. Projects that include such funds must meet all Moyer requirements and the other funding source requirements.

Projects are subject to the cost-effectiveness limits in Table C-1, which shows the changes in the cost-effectiveness limit over time based on changes in the Consumer Price Index. Historically, one limit has been applied to all Moyer Program projects. Per SB 513, a second cost-effectiveness limit for school buses was added in 2016 as shown in the table.

Table C-1
Cost-Effectiveness Limit Criteria 1998-2016

Year	Annual CA CPI	Percentage change (inflation rate)	Annual Change	Revised C/E Limit
1998	163.7	NA	NA	$12,000
1999	168.5	2.93%	$352	$12,352
2000	174.8	3.74%	$462	$12,814
2001	181.7	3.95%	$506	$13,319
2002	186.1	2.42%	$323	$13,642
2003	190.4	2.31%	$315	$13,957
2004	195.4	2.63%	$367	$14,324
2005	202.6	3.68%	$528	$14,852
2006	210.5	3.90%	$579	$15,431
2007	217.4	3.28%	$506	$15,938
2008	224.8	3.40%	$541	$16,479
2009	224.1	-0.31%	-$51	$16,428
2010	227.0	1.29%	$212	$16,640
2011	233.0	2.66%	$443	$17,084
2012	238.3	2.25%	$385	$17,469
2013	241.8	1.46%	$255	$17,724
2014	246.1	1.77%	$313	$18,037
2015	249.1	1.25%	$225	$18,262
2016 Base	No C/E update pending 2017 guideline update			$18,262
2016 School Bus	New C/E Limit under SB 513			$276,230

Table C-2 shows the cost-effectiveness limits proposed under the 2017 Guidelines. As shown, two cost-effectiveness limits are now available: one to support conventional projects and a second higher cost-effectiveness limit that air districts may choose to apply to the additional reductions provided by the cleanest engines, including those needed for long-term SIP commitments.

Base Limit: The base cost-effectiveness limit is $30,000 per weighted ton of emissions reductions. This level allows full funding for a wide range of currently typical projects, such as diesel replacement projects for early compliance with the Truck and Bus Regulation. The level is consistent with the cost of compliance with regulations and will enable grants of sufficient size to encourage off-road engines to be replaced or repowered sooner to a Tier 4 standard.

Optional Advanced Technology Limit: For advanced technology projects that are zero-emission, or alternatively meet the cleanest optional standard level certified, air districts have the option to apply a cost-effectiveness limit of up to $100,000 per weighted ton for the emissions reductions beyond those achieved by the required standard. The higher cost-effectiveness limit is not technology or vocation specific, but

available for technologies like the 0.02 g/bhp-hr optional low-NOx engine. To be eligible, the engine must be:

- Zero-emission or meet the cleanest optional emission standard where applicable (0.02 g/bhp-hr in the case of on-road);
- Commercially available and offered for sale; and
- Certified or verified by ARB or the United States Environmental Protection Agency

The higher cost-effectiveness limit is applied only to the incremental emission reductions beyond what the conventional project would achieve. An air district would apply the base cost-effectiveness limit for costs associated with getting engines to the cleanest required standard, and then could apply the advanced technology limit to the additional costs of getting emissions down to or below the cleanest optional standard.

Table C-2
Cost-Effectiveness Limit Criteria 2017

Year	Project	Proposed Change or Status	Revised C/E Limit
2017	Base Limit	New C/E Limit	$30,000
	Optional Advanced Technology Limit	New C/E Limit for incremental reductions from specified advanced technologies	$100,000
	School Bus	2016 C/E Limit retained in 2017 Guidelines	$276,230

For projects in source categories without optional standards, only vehicles certified as zero-emission would be eligible for the higher cost-effectiveness limit. In these cases, the higher limit would apply to the incremental reductions below the most stringent standard for that category. General calculations for determining cost-effectiveness and other calculations needed to administer the Moyer Program are described in the following pages.

B. General Cost-Effectiveness Calculations

1. Determining the Maximum Grant Amount

The calculation methodology below must be applied in order to ensure final grant amounts meet the cost-effectiveness limit requirement, and do not exceed incremental cost based on the maximum percentage or any other funding caps. For advanced technology projects that include a baseline vehicle dirtier than the cleanest required standard, the calculations in (A), (B), and (C) below must be applied twice. The project life may differ between the first and second series of calculations, depending on availability of surplus emission reductions. The first series of calculations is made using the base cost-effectiveness limit and the emission reductions going up to the cleanest required standard (including

deterioration), and the second series of calculations is made using the advanced technology cost-effectiveness limit and the emission reductions beyond the cleanest required standard. The final maximum grant amount is equal to the combined total of the lowest values from each series. Note that school bus projects are subject to funding caps and a separate cost-effectiveness limit as listed above in Table C-2. The maximum grant amount for any given project is the lowest of the three following calculations:

- The potential grant amount at the cost-effectiveness limit;
- The potential grant amount based on maximum percentage of eligible cost; or
- The potential grant amount based on any maximum dollar amount or other funding cap specified in the relevant source category chapter.

Each of the above values is calculated as follows:

(A) The potential grant amount at the cost-effectiveness limit is determined by multiplying the cost-effectiveness limit by the estimated annual emission reductions and dividing by the CRF in formula C-1 below.

Formula C-1: Potential grant amount at the cost-effectiveness limit ($)

Potential grant amount ($) =
*cost-effectiveness limit ($/ton) * estimated annual emission reductions (weighted tons/yr) / CRF*

The CRF is based on a discount rate. The CRF uses an interest rate and project life to determine the rate at which earnings could reasonably be expected to accrue if the same funds were invested over that length of time. The CRF may be calculated using Formula C-2 below, or you may refer to Tables D-24 and D-25 in Appendix D for CRFs at various project lives. Each source category chapter will specify which project lives are acceptable to determine which CRF value to use.

Formula C-2: Capital recovery factor

Capital recovery factor =
*(1 + discount rate[(a)]) ^ project life * discount rate /((1 + discount rate) ^ project life - 1)*

[(a)] Discount rate varies from year to year. See Tables D-24 and D-25 in Appendix D for CRF values at a one percent and two percent discount rate, respectively.

(1) Calculating the Annual Weighted Surplus Emission Reductions

Annual weighted surplus emission reductions are calculated using Formula C-3 below. Note that particulate matter (PM) is weighted by a factor of 20.

Formula C-3: Annual weighted surplus emission reductions (weighted tons/yr)

Weighted emission reductions (weighted tons/yr) =
*NOx reductions (tons/yr) + ROG reductions (tons/yr) + (20 * PM reductions (tons/yr))*

The result of Formula C-3 is used to complete Formula C-1 to determine the potential grant amount at the cost-effectiveness limit, as well for Formula C-14 to determine the cost-effectiveness if not at the limit.

In order to determine the annual surplus emission reductions by pollutant, Formula C-4, C-5, C-6, C-7,or C-8 below must be completed for each pollutant (NOx, ROG, and PM), for the baseline technology and the reduced technology. Formula C-4 is the general calculation and can be applied to any project, whereas Formulas C-5, C-6, C-7 and C-8 are specific variations of Formula C-4 for use with mileage, hours of operation, fuel use, and shore power systems, respectively.

All five fomulas involve multiplying the engine emission factor (found in Appendix D) by the annual activity level and by other adjustment factors (such as load factor in the case of off-road equipment calculations) as specified for the calculation methodologies presented. Emission factors are also adjusted to account for in-use deterioration where applicable.

Formula C-4: Estimated annual emissions (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor + deterioration product (if applicable)) * annual activity * adjustment factor(s) (if applicable) * percentage operation in California / 907,200 (g/ton)*

Deterioration product =
*deterioration rate * total equipment activity*

Total equipment activity =
*annual activity * deterioration life (yrs)*

Deterioration life (baseline equipment) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced equipment) (yrs) =
project life / 2

The Moyer Program allows the emission reductions from a project to be calculated using a variety of methods, but mileage and hours of operation are the primary methods. Specific activity factors allowed for each project category may differ and are identified in the source category chapters.

a. Calculating Annual Emissions Based on Annual Miles Traveled

Calculations based on annual miles traveled are used for on-road projects only. Mileage records must be maintained by the engine owner as described in Chapter 4: On-Road Heavy-Duty Vehicles. Formula C-5 below describes the method for calculating pollutant emissions based on miles traveled, including the method for calculating mile-based deterioration products.

Formula C-5: Estimated annual emissions based on mileage (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/mi) + deterioration product (g/mi) (if applicable)) * annual activity (mi/yr) * percentage operation in California / 907,200 (g/ton)*

Mile-based deterioration product (g/mi) =
*deterioration rate (g/mi-10,000 mi) * total equipment activity (mi)*

Total equipment activity[(b)] (mi) =
*annual activity (mi/yr) * deterioration life (yrs)*

Deterioration life (baseline equipment) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced equipment) (yrs) =
project life / 2

[(b)] Total equipment activity for mile-based calculations is limited to 400,000 miles for school buses or 800,000 miles for other on-road vehicles. Used heavy heavy-duty replacement vehicles add 500,000 miles, medium heavy-duty vehicles add 250,000 miles, or light heavy-duty vehicles add 150,000 miles.

b. Calculating Annual Emissions Based on Hours of Operation

When hours of equipment operation are the basis for determining emissions, the horsepower rating of the engine and an engine load factor found in Appendix D must be used. The method for calculating emissions based on hours of operation is described in Formula C-6 below, and includes the method for calculating hour-based deterioration product.

Formula C-6: Estimated annual emissions based on hours of operation (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/bhp-hr) + deterioration product (g/bhp-hr) (if applicable)) * horsepower (hp) * load factor * annual activity (hrs/yr) * percentage operation in California / 907,200 (g/ton)*

Hour-based deterioration product (g/bhp-hr) =
*deterioration rate (g/bhp-hr-hr) * total equipment activity (hrs)*

Total equipment activity[(c)] (hrs) =
*annual activity (hrs/yr) * deterioration life (yrs)*

Deterioration life (baseline equipment) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced equipment) (yrs) =
project life / 2

The engine load factor is an indicator of the nominal amount of work done by the engine for a particular application. It is given as a fraction of the rated horsepower of the engine and varies with engine application. Load factors for a variety of equipment types may be found in Appendix D.

c. Calculating Annual Emissions Based on Fuel Consumption

In some cases as outlined in each source category chapter, fuel consumption may be used to calculate annual emissions. In such cases a fuel consumption rate factor must be used to convert

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[(c)] Total equipment activity for hour-based calculations is limited to a maximum of 12,000 hours for diesel engines, 3,500 hours for large-spark ignition (LSI) engines with a model year of 2006 or older, or 5,000 hours for LSI engines with a model year of 2007 or newer.

emissions given in g/bhp-hr to units of grams of emissions per gallon of fuel used (g/gal). The fuel consumption rate factor is a number that combines the effects of engine efficiency and the energy content of the fuel used in that engine into an approximation of the amount of work output by an engine for each unit of fuel consumed. Formula C-7 below is used to calculate the annual emissions based on annual fuel consumed.

Formula C-7: Estimated annual emissions based on fuel consumption (tons/yr)

Annual emissions by pollutant (tons/yr) =
*emission factor (g/bhp-hr) * fuel consumption rate factor (bhp-hr/gal) * annual activity (gal/yr) * percentage operation in California / 907,200 (g/ton)*

d. Calculating Annual Emissions for Shore Power Systems

For marine shore power systems, calculate the estimated annual emissions by pollutant as shown in Formula C-8 below.

Formula C-8: Estimated annual emissions for shore power systems (tons/yr)

Annual emissions by pollutant (tons/yr) =
ship emission factor (g/kW-hr) * power requirements (kW) * berthing time (hrs/visit) * annual number of visits (visits/yr) * 0.9 / 907,200 (g/ton)

(2) Calculating Annual Surplus Emission Reductions by Pollutant

Subtract the annual emissions for the reduced technology from the annual emissions for the baseline technology as shown in Formula C-9 below, for NO_x, ROG and PM emissions.

Formula C-9: Annual surplus emission reductions (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
annual emissions for the baseline technology (tons/yr) –
annual emissions for the reduced technology (tons/yr)

For marine vessels with a wet exhaust system, a wet exhaust factor of 0.80 must be applied; calculate the annual surplus emission reductions as shown in Formula C-10 below.

Formula C-10: Annual surplus emission reductions for marine vessels with wet exhaust systems (tons/yr)

*Annual surplus emission reductions by pollutant (tons/yr) = 0.80 * (annual emissions for the baseline technology (tons/yr) – annual emissions for the reduced technology (tons/yr))*

For retrofits, multiply the baseline technology pollutant emissions by the percentage of emission reductions that the ARB-verified reduced technology is verified to following Formula C-11 below.

Formula C-11: Annual surplus emission reductions for retrofits (tons/yr)

*Annual surplus emission reductions by pollutant (tons/yr) = annual emissions for the baseline technology (tons/yr) * reduced technology verification percentage*

For on-road heavy-duty projects, the baseline will be the newer vehicle emissions.

For marine vessel hybrid systems, calculate the annual surplus emission reductions as shown in Formula C-12 below.

Formula C-12: Annual surplus emission reductions for marine vessel hybrid systems (tons/yr)

*Annual surplus emission reductions by pollutant (tons/yr) = total annual emissions (all engines on vessel) for the baseline technology (tons/yr) – (total annual emissions (all engines on vessel) for the baseline technology (tons/yr) * reduced technology verification percentage)*

For marine vessels, calculate the annual surplus emission reductions for each pollutant as shown in Formula C-13 below.

Formula C-13: Total annual surplus emission reductions for marine vessels (tons/yr)

*Total annual surplus emission reductions for marine vessels by pollutant (tons/yr) = (propulsion engine annual surplus emission reductions (tons/yr) * number of propulsion engines) + (auxiliary engine annual surplus emission reductions (tons/yr) * number of auxiliary engines)*

(B) The potential grant amount based on maximum percentage of eligible cost is a measure of the incremental cost as determined by multiplying the cost of the reduced technology by the maximum percentage of eligible cost (from the applicable chapter) as described in Formula C-14 below.

Formula C-14: Potential grant amount based on maximum percentage of eligible cost ($)

Potential grant amount ($) =
*cost of reduced technology ($) * maximum percentage of eligible cost*

(C) The potential grant amount based on any maximum dollar amount or other funding cap is specified in the relevant source category chapter

2. Calculating Two for One Projects

In Two for One equipment replacement projects, two baseline technology equipment are replaced with one reduced technology equipment. First, calculate the emission reduction benefits based on activity for each baseline engine separately using Formulas C-4, C-5, C-6, C-7, or C-8. These emission reductions will then be summed together before deducting the emission reduction benefits of the reduced technology using Formula C-9. See the sample calculations supplemental document for an example on this calculation methodology.

3. Calculating Split Project Life Projects

Split Project Life: Split Project Life Projects must use a separate project life for the two baseline technology scenarios. First, Formulas C-4, C-5, C-6, C-7, or C-8 must be used to calculate emission reduction by pollutant for the two baseline scenarios:

(A) Baseline technology to phase 1 reduced technology
(B) Phase 1 reduced technology to phase 2 reduced technology

Formula C-3 is used to calculate the annual emission reductions for each baseline technology. Next, a fraction of the project life must be applied to the annual emission reductions for each of the baseline scenarios, as outlined below in Formula C-15.

Formula C-15: Split project life

Total annual weighted surplus emission reductions (tons/yr) =
*(fraction project life (yrs) * annual weighted surplus emissions from transaction 1 (tons/yr) /*
*total project life (yrs)) + (fraction project life (yrs) **
annual weighted surplus emissions from transaction 2 (tons/yr) / total project life (yrs))

Total annual weighted surplus emission reductions (tons/yr) =
$(n_1 * a_1 / t) + (n_2 * a_2 / t)$
where:
n_1 = *fraction project life from transaction 1 (yrs)*
n_2 = *fraction project life from transaction 2 (yrs)*
a_1 = *annual weighted surplus emissions from transaction 1 (tons/yr)*
a_2 = *annual weighted surplus emissions from transaction 2 (tons/yr)*
t = total project life (yrs)

4. Calculating the Applicant Cost Share

Moyer eligible costs are costs associated with a project that are eligible for reimbursement under the program prior to considering the cost-effectiveness limit or any project cap restrictions. Guidance on these costs is contained in Chapters 2, 3, and the applicable chapter for the Moyer project. The applicant cost share is determined by multiplying the Moyer eligible cost by 15 percent, as described in Formula C-16 below. Applicant cost share is determined from the Moyer eligible costs, but the value itself is not an ineligible Moyer cost. A public entity applicant may other use public funds toward meeting this requirement.

Formula C-16: Applicant cost share ($)

Applicant cost share ($) ≥
*15 percent * Moyer eligible costs ($)*

5. Calculation for Co-funding Moyer Funds with Other Sources

Air districts must request information from grantee to determine what other funds will be used toward the project. This information will be utilized to ensure that the applicant is not overpaid for the project by adding the Applicant Cost Share contribution and the grants paid toward the project, as shown in Formula C-17 below and comparing against the total project cost value. The total project cost includes both Moyer eligible and Moyer ineligible costs. Refer to Chapters 2 and 3 for additional criteria and guidance related to co-funding projects.

Formula C-17: Project overpayment check ($)

Total project cost ≥
applicant cost share ($) + ∑grants paid ($)

If the total project cost is exceeded then adjustments must be made to ensure the project applicant is not overpaid for the project.

6. Calculating the Cost-Effectiveness of a Grant Amount

The cost-effectiveness of a grant amount is determined by multiplying the CRF as calculated in Formula C-18 by the grant amount, and dividing that by the annual weighted surplus emission reductions that will be achieved by the project as calculated in Formula C-3.

Formula C-18: Cost-effectiveness of weighted surplus emission reductions ($/tons)

Cost-effectiveness ($/tons) =
*grant amount ($) * CRF / annual weighted surplus emission reductions (weighted tons/yr)*

C. List of Formulas

The necessary formulas to calculate the cost-effectiveness of surplus emission reductions for a project funded through the Moyer Program are provided below.

Formula C-1: Potential grant amount at the cost-effectiveness limit ($)

Potential grant amount ($) =
*cost-effectiveness limit ($/ton) * estimated annual emission reductions (weighted tons/yr) /CRF*

Formula C-2: Capital recovery factor (CRF)

Capital recovery factor =
*(1 + discount rate[(d)]) ^ project life * discount rate* /((1 + discount rate*) ^ project life - 1)*

Formula C-3: Annual weighted surplus emission reductions (weighted tons/yr)

Weighted emission reductions (weighted tons/yr) =
*NO_x reductions (tons/yr) + ROG reductions (tons/yr) + (20 * PM reductions (tons/yr))*

Formula C-4: Estimated annual emissions (tons/yr)

Annual emission by pollutant (tons/yr) =
*(emission factor + deterioration product (if applicable)) * annual activity * adjustment factor(s) * percentage operation in California / 907,200 (g/ton)*

Deterioration product =
*deterioration rate * total equipment activity*

Total equipment activity =
*annual activity * deterioration life (yrs)*

Deterioration life (baseline) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced) (yrs) =
project life / 2

(d) *Discount rate varies from year to year. See Tables D-24 and D-25 in Appendix D for CRF values at a 1 percent and 2 percent discount rate, respectively.*

Formula C-5: Estimated annual emissions based on mileage (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/mi) + deterioration product (g/mi) (if applicable)) * annual activity (mi/yr) * percentage operation in California / 907,200 (g/ton)*

Mile-based deterioration product (g/mi) =
*deterioration rate (g/mi-10,000 mi) * total equipment activity (mi)*

Total equipment activity[e] (miles) =
*annual activity (mi/yr) * deterioration life (yrs)*

Deterioration life (baseline) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced) (yrs) =
project life / 2

Formula C-6: Estimated annual emissions based on hours of operation (tons/yr)

Annual emissions by pollutant (tons/yr) =
*(emission factor (g/bhp-hr) + deterioration product (g/bhp-hr) (if applicable)) * horsepower (hp) * load factor * annual activity (hrs/yr) * percentage operation in California / 907,200 (g/ton)*

Hour-based deterioration product (g/bhp-hr) =
*deterioration rate (g/bhp-hr-hr) * total equipment activity (hrs)*

Total equipment activity[f] (hrs) =
*annual activity (hrs/yr) * deterioration life (yrs)*

Deterioration life (baseline) (yrs) =
expected first year of operation – baseline engine model year + (project life / 2)

Deterioration life (reduced) (yrs) =
project life / 2

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[e] Total equipment activity for mile-based calculations is limited to 400,000 miles for school buses or 800,000 miles for other on-road vehicles. Used heavy heavy-duty replacement vehicles add 500,000 miles, medium heavy-duty vehicles add 250,000 miles, or light heavy-duty vehicles add 150,000 miles.

[f] Total equipment activity for hour-based calculations is limited to a maximum of 12,000 hours for diesel engines, 3,500 hours for large-spark ignition (LSI) engines with a model year of 2006 or older, or 5,000 hours for LSI engines with a model year of 2007 or newer.

Formula C-7: Estimated annual emissions based on fuel consumption (tons/yr)

Annual emissions by pollutant (tons/yr) =
*Emission factor (g/bhp-hr) * fuel consumption rate factor (bhp-hr/gal) * annual activity (gal/yr) * percentage operation in California / 907,200 (g/ton)*

Formula C-8: Estimated annual emissions for shore power systems (tons/yr)

Annual emissions by pollutant (tons/yr) =
*Ship emission factor (g/kW-hr) * power requirements (kW) * berthing time (hrs/visit) * annual number of visits (visits/yr) * 0.9 / 907,200 (g/ton)*

Formula C-9: Annual surplus emission reductions (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
annual emissions for the baseline technology (tons/yr) –
annual emissions for the reduced technology (tons/yr)

Formula C-10: Annual surplus emission reductions for marine vessels with wet exhaust systems (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
*0.80 * (annual emissions for the baseline technology (tons/yr) –*
annual emissions for the reduced technology (tons/yr))

Formula C-11: Annual surplus emission reductions for retrofits (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
*annual emissions for the baseline technology (tons/yr) **
reduced technology verification percentage

Formula C-12: Annual surplus emission reductions for marine vessel hybrid systems (tons/yr)

Annual surplus emission reductions by pollutant (tons/yr) =
total annual emissions (all engines on vessel) for the baseline technology (tons/yr) –
*(total annual emissions (all engines on vessel) for the baseline technology (tons/yr) **
reduced technology verification percentage)

Formula C-13: Total annual surplus emission reductions for marine vessels (tons/yr)

*Total annual surplus emission reductions for marine vessels by pollutant (tons/yr) = (propulsion engine annual surplus emission reductions (tons/yr) * number of propulsion engines) + (auxiliary engine annual surplus emission reductions (tons/yr) * number of auxiliary engines)*

Formula C-14: Potential grant amount based on maximum percentage of eligible cost ($)

*Incremental cost ($) = cost of reduced technology ($) * maximum percentage of eligible cost*

Formula C-15: Split project life

*Total annual weighted surplus emission reductions (tons/yr) = (fraction project life (yrs) * annual weighted surplus emissions from transaction 1 (tons/yr) / total project life (yrs)) + (fraction project life (yrs) * annual weighted surplus emissions from transaction 2 (tons/yr) / total project life (yrs))*

Total annual weighted surplus emission reductions (tons/yr) =
$(n_1 * a_1 / t) + (n_2 * a_2 / t)$
where:
n_1 = *fraction project life from transaction 1 (yrs)*
n_2 = *fraction project life from transaction 2 (yrs)*
a_1 = *annual weighted surplus emissions from transaction 1 (tons/yr)*
a_2 = *annual weighted surplus emissions from transaction 2 (tons/yr)*
t = *total project life (yrs)*

Formula C-16: Applicant cost share ($)

Applicant cost share ($) ≥ 15 percent * moyer eligible costs ($)

Formula C-17: Project overpayment check ($)

Total project cost ≥ applicant cost share ($) + ∑grants paid ($)

Formula C-18: Cost-effectiveness of weighted surplus emission reductions ($/ton)

*Cost-effectiveness ($/ton) = grant amount ($) * CRF / annual weighted surplus emission reductions (weighted tons/yr)*

APPENDIX D

TABLES FOR EMISSION REDUCTION AND COST-EFFECTIVENESS CALCULATIONS

APPENDIX D:

TABLES FOR EMISSION REDUCTION AND COST-EFFECTIVENESS CALCULATIONS

This appendix presents tables summarizing the data needed to calculate the emission reductions and cost-effectiveness of potential projects. Included are data such as engine emission factors, load factors, and other conversion factors used in the calculations discussed in Appendix C: Cost-Effectiveness Calculation Methodology.

	Table Number
Heavy-Duty On-Road Projects	D-1 to D-6
Off-Road Diesel and Non-Mobile Agricultural (Ag) Projects	D-7 to D-9
Large Spark-Ignition (LSI) Projects	D-10 to D-13
Locomotive Projects	D-14a to D-14b
Marine Projects	D-15a to D-20
All Engines – Fuel Consumption	D-21
Reference Tables	D-22 to D-25

Table D-1
Heavy-Duty Vehicles
14,001-33,000 pounds (lbs) Gross Vehicle Weight Rating (GVWR)
Emission Factors (g/mile)[a] (EF) and Deterioration Rates (g/mile-10k miles) (DR)

Engine Model Year	NOx[b]		ROG[b],[c]		PM[b],[i]	
	EF[d]	DR[e]	EF[d]	DR[e]	EF[d]	DR[e]
Pre-1987	14.52	0.031	0.89	0.051	0.713	0.0283
1987-90	14.31	0.041	0.70	0.060	0.774	0.0252
1991-93	10.70	0.054	0.37	0.031	0.425	0.0193
1994-97	10.51	0.063	0.27	0.036	0.241	0.0129
1998-02	10.33	0.072	0.28	0.036	0.266	0.0116
2003-06	6.84	0.071	0.23	0.021	0.175	0.0067
2007-09	3.99	0.090	0.18	0.007	0.014	0.0008
2007+[f] (0.21-0.50 g/bhp-hr NOx FEL)	1.27	0.079	0.06	0.002	0.002	0.0001
2010-12 (0.20 g/bhp-hr NOx std)	1.03	0.079	0.06	0.002	0.002	0.0001
2013+[g] (0.20 g/bhp-hr NOx std)	1.03	0.045	0.06	0.001	0.002	0.0001
2016+[h] (0.10 g/bhp-hr NOx std)	0.52	0.023	0.06	0.001	0.002	0.0001
2016+[h] (0.05 g/bhp-hr NOx std)	0.26	0.011	0.06	0.001	0.002	0.0001
2016+[h] (0.02 g/bhp-hr NOx std)	0.10	0.005	0.06	0.001	0.002	0.0001

[a] EMFAC 2014 Zero-Mile Based Emission Factors. Factors are based on diesel engines. Same factors used for alternative fuel engines due to limited alternative fuel data in EMFAC.
[b] Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22. NOx – Oxides of nitrogen, ROG – Reactive Organic Gases, PM – Particulate Matter.
[c] EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
[d] Emission Factors are based on zero-mile rates contained in EMFAC 2014.
[e] Deterioration Rate per 10,000 miles.
[f] All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.50 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.20 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.20 g/bhp-hr NOx standards based on sales.
[g] Deterioration rates for 2013+ engines incorporate use of on-board diagnostic system.
[h] Factors for 2016+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards.
[i] Factors for 2006 or older engines are for unfiltered trucks.

Table D-2
Heavy-Duty Vehicles
Over 33,000 pounds (lbs) GVWR
Emission Factors (g/mile)[a] (EF) and Deterioration Rates (g/mile-10k miles) (DR)

Engine Model Year	NOx[b]		ROG[b],[c]		PM[b],[i]	
	EF[d]	DR[e]	EF[d]	DR[e]	EF[d]	DR[e]
Pre-1987	21.37	0.018	1.38	0.031	1.260	0.0200
1987-90	21.07	0.024	1.08	0.037	1.369	0.0178
1991-93	18.24	0.037	0.78	0.027	0.574	0.0104
1994-97	17.92	0.043	0.58	0.031	0.377	0.0080
1998-02	17.61	0.049	0.60	0.031	0.415	0.0073
2003-06	11.66	0.049	0.49	0.018	0.267	0.0041
2007-09	6.80	0.077	0.39	0.007	0.022	0.0006
2007+[f] (0.21-0.50 g/bhp-hr NOx FEL)	2.17	0.068	0.13	0.002	0.004	0.0001
2010-12 (0. 2 g/bhp-hr NOx std)	1.76	0.068	0.13	0.002	0.004	0.0001
2013+[g] (0. 2 g/bhp-hr NOx std)	1.76	0.039	0.13	0.001	0.004	0.0001
2016+[h] (0.10 g/bhp-hr NOx std)	0.88	0.019	0.13	0.001	0.004	0.0001
2016+[h] (0.05 g/bhp-hr NOx std)	0.44	0.010	0.13	0.001	0.004	0.0001
2016+[h] (0.02 g/bhp-hr NOx std)	0.18	0.004	0.13	0.001	0.004	0.0001

[a] EMFAC 2014 Zero-Mile Based Emission Factors. Factors are based on diesel engines. Same factors used for alternative fuel engines due to limited alternative fuel data in EMFAC.
[b] Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
[c] EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
[d] Emission Factors are based on zero-mile rates contained in EMFAC 2014.
[e] Deterioration Rate are per 10,000 miles.
[f] All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.50 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.20 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.20 g/bhp-hr NOx standards based on sales.
[g] Deterioration rates for 2013+ engines incorporate use of on-board diagnostic system.
[h] Factors for 2016+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[i] Factors for 2006 or older engines are for unfiltered trucks.

Table D-3
Diesel Urban Buses
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]	ROG[b],[c]	PM[b],[e]
Pre-1987	42.97	1.88	0.929
1987-1990	37.39	1.87	0.878
1991-1993	23.72	1.84	0.835
1994-1995	27.71	1.81	1.015
1996-1998	36.46	1.81	1.217
1999-2002	18.97	1.81	0.417
2003	13.02	0.77	0.084
2004-2006	3.56	0.08	0.084
2007+ (0.20 g/bhp-hr NOx std)	1.90	0.03	0.011
2016+[d] (0.10 g/bhp-hr NOx std)	0.95	0.03	0.011
2016+[d] (0.05 g/bhp-hr NOx std)	0.47	0.03	0.011
2016+[d] (0.02 g/bhp-hr NOx std)	0.19	0.03	0.011

[a] EMFAC 2014 Zero-Mile Based Emission Factors.
[b] Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
[c] EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
[d] Factors for 2016+ engines are reduced values of 2007 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[e] Factors for 2006 or older engines are for unfiltered trucks.

Table D-4
Alternative Fuel Urban Buses
Emission Factors (g/mile)[a]

Engine Model Year	NOx	ROG[b]	PM[d]
Pre-2003	21.60	2.68	0.043
2003-06	15.40	3.87	0.023
2007+ (0.20 g/bhp-hr NOx std)	0.65	0.04	0.001
2016+[c] (0.10 g/bhp-hr NOx std)	0.33	0.04	0.001
2016+[c] (0.05 g/bhp-hr NOx std)	0.16	0.04	0.001
2016+[c] (0.02 g/bhp-hr NOx std)	0.07	0.04	0.001

[a] EMFAC 2014 Zero-Mile Based Emission Factors.
[b] EMFAC provides HC emission factors which are converted into ROG.
ROG (Pre-2007 engines) = HC * 0.16137.
ROG (2007+ engines) = HC * 0.013972.
[c] Factors for 2016+ engines are reduced values of 2007 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[d] Factors for 2006 or older engines are for unfiltered trucks.

Table D-5
Diesel Refuse Trucks
Emission Factors (g/mile)[a]

Engine Model Year	NOx[b]	ROG[b],[c]	PM[b],[g]
pre-1994	34.69	0.01	0.346
1994-97	31.53	0.01	0.137
1998-02	31.25	0.01	0.144
2003-06	21.39	0.01	0.086
2007-09	11.25	0.14	0.008
2007+[d] (0.21-0.50 g/bhp-hr NOx FEL)	1.23	0.26	0.008
2010+[e] (0.20 g/bhp-hr NOx std)	1.09	0.04	0.008
2016+[f] (0.10 g/bhp-hr NOx)	0.54	0.04	0.008
2016+[f] (0.05 g/bhp-hr NOx)	0.27	0.04	0.008
2016+[f] (0.02 g/bhp-hr NOx)	0.11	0.04	0.008

Note: These emission factors are not applicable to transfer trucks. Transfer trucks must use the emission factors from Table D-1 or D-2. Per EMFAC 2014, solid waste collection vehicles are considered to be well-maintained and have negligible deterioration which is why only zero-mile emission factors are to be used in calculations for solid waste collection vehicle projects.

(a) EMFAC 2014 Zero-Mile Based Emission Factors.
(b) Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-22.
(c) EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
(d) All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.50 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.20 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.20 g/bhp-hr NOx standards based on sales.
(e) These 2010+ emission factors are based only on engines certified to the 0.20 g/bhp-hr NOx standard.
(f) Factors for 2016+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
(g) Factors for 2006 or older engines are for unfiltered trucks.

Table D-6
Alternative Fuel Refuse Trucks
Emission Factors (g/mile)[a]

Engine Model Year	NOx	ROG[b]	PM[d]
Pre-2007	53.20	9.86	0.091
2007-09	18.80	3.68	0.004
2010+ (0.20 g/bhp-hr NOx std)	0.88	0.14	0.004
2016+[c] (0.10 g/bhp-hr NOx)	0.44	0.14	0.004
2016+[c] (0.05 g/bhp-hr NOx)	0.22	0.14	0.004
2016+[c] (0.02 g/bhp-hr NOx)	0.09	0.14	0.004

Note: These emission factors are not applicable to transfer trucks. Transfer trucks must use the emission factors from Table D-1 or D-2. Per EMFAC 2014, solid waste collection vehicles are considered to be well-maintained and have negligible deterioration which is why only zero-mile emission factors are to be used in calculations for solid waste collection vehicle projects.

[a] EMFAC 2014 Zero-Mile Based Emission Factors.
[b] EMFAC provides HC emission factors which are converted into ROG.
ROG (Pre-2007 engines) = HC * 0.16137.
ROG (2007+ engines) = HC * 0.013972.
[c] Factors for 2016+ engines are reduced values of 2010 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards, respectively.
[d] Factors for 2006 or older engines are for unfiltered trucks.

Table D-7
Off-Road Diesel Engines Default Load Factors

Category	Equipment Type	Load Factor
Airport Ground Support	Aircraft Tug	0.54
	Air Conditioner	0.75
	Air Start Unit	0.90
	Baggage Tug	0.37
	Belt Loader	0.34
	Bobtail	0.37
	Cargo Loader	0.34
	Cargo Tractor	0.36
	Forklift	0.20
	Ground Power Unit	0.75
	Lift	0.34
	Passenger Stand	0.40
	Service Truck	0.20
	Other Ground Support Equipment	0.34
Agricultural (Mobile, Portable or Stationary)	Agricultural Mowers	0.43
	Agricultural Tractors	0.70
	Balers	0.58
	Combines/Choppers	0.70
	Chippers/Stump Grinders	0.73
	Generator Sets	0.74
	Hydro Power Units	0.48
	Irrigation Pump	0.65
	Shredders	0.40
	Sprayers	0.50
	Swathers	0.55
	Tillers	0.78
	Other Agricultural	0.51
Construction	Air Compressors	0.48
	Bore/Drill Rigs	0.50
	Cement & Mortar Mixers	0.56
	Concrete/Industrial Saws	0.73
	Concrete/Trash Pump	0.74
	Cranes	0.29
	Crawler Tractors	0.43
	Crushing/Process Equipment	0.78
	Excavators	0.38
	Graders	0.41

Table D-7
Off-Road Diesel Engines Default Load Factors
(Continued)

Category	Equipment Type	Load Factor
Construction	Off-Highway Tractors	0.44
	Off-Highway Trucks	0.38
	Pavers	0.42
	Other Paving	0.36
	Pressure Washer	0.30
	Rollers	0.38
	Rough Terrain Forklifts	0.40
	Rubber Tired Dozers	0.40
	Rubber Tired Loaders	0.36
	Scrapers	0.48
	Signal Boards	0.78
	Skid Steer Loaders	0.37
	Surfacing Equipment	0.30
	Tractors/Loaders/Backhoes	0.37
	Trenchers	0.50
	Welders	0.45
	Other Construction Equipment	0.42
Industrial	Aerial Lifts	0.31
	Forklifts	0.20
	Sweepers/Scrubbers	0.46
	Other General Industrial	0.34
	Other Material Handling	0.40
Logging	Fellers/Bunchers	0.71
	Skidders	0.74
Oil Drilling	Drill Rig	0.50
	Lift (Drilling)	0.60
	Swivel	0.60
	Workover Rig (Mobile)	0.50
	Other Workover Equipment	0.60
Cargo Handling	Container Handling Equipment	0.59
	Cranes	0.20
	Excavators	0.55
	Forklifts	0.30
	Other Cargo Handling Equipment	0.51
	Sweeper/Scrubber	0.68
	Tractors/Loaders/Backhoes	0.55
	Yard Trucks	0.39
Other	All	0.43

Table D-8
Uncontrolled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-49	Pre-1988	6.51	0.000098	1.68	0.000210	0.547	0.0000424
	1988+	6.42	0.000097	1.64	0.000210	0.547	0.0000424
20-119	Pre-1988	12.09	0.00028	1.31	0.000061	0.605	0.0000440
	1988+	8.14	0.00019	0.90	0.000042	0.497	0.0000361
120+	Pre-1970	13.02	0.00030	1.20	0.000056	0.554	0.0000403
	1970-1979	11.16	0.00026	0.91	0.000042	0.396	0.0000288
	1980-1987	10.23	0.00024	0.80	0.000037	0.396	0.0000288
	1988+	7.60	0.00018	0.62	0.000029	0.274	0.0000199

Table D-9
Controlled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR) [a]

Horsepower	Tier	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-49	1	5.26	0.0000980	1.32	0.000170	0.480	0.0000372
	2	4.63	0.0000930	0.22	0.000050	0.280	0.0000218
	4 (Interim)	4.55	0.0000950	0.09	0.000036	0.128	0.0000096
	4 (Final)	2.75	0.0000570	0.09	0.000036	0.009	0.0000010
50-74	1	6.54	0.0001500	0.90	0.000042	0.552	0.0000402
	2	4.75	0.0000710	0.17	0.000025	0.192	0.0000141
	3[b]	2.74	0.0000360	0.09	0.000023	0.192	0.0000141
	4 (Interim)	2.74	0.0000360	0.09	0.000023	0.112	0.0000080
	4 (Final)	2.74	0.0000360	0.09	0.000023	0.009	0.0000009
75-99	1	6.54	0.0001500	0.90	0.000042	0.552	0.0000402
	2	4.75	0.0000710	0.17	0.000025	0.192	0.0000141
	3	2.74	0.0000360	0.09	0.000023	0.112	0.0000080
	4 (Phase-Out)	2.74	0.0000360	0.09	0.000030	0.009	0.0000009
	4 (Phase-In or Alt. NOx)	2.15	0.0000270	0.08	0.000021	0.009	0.0000009
	4 (Final)	0.26	0.0000035	0.05	0.000015	0.009	0.0000009
100-174	1	6.54	0.0001500	0.62	0.000029	0.304	0.0000221
	2	4.15	0.0000600	0.15	0.000023	0.128	0.0000094
	3	2.32	0.0000300	0.09	0.000030	0.112	0.0000080
	4 (Phase-Out)	2.32	0.0000300	0.09	0.000030	0.009	0.0000004
	4 (Phase-In or Alt. NOx)	2.15	0.0000270	0.08	0.000020	0.009	0.0000004
	4 (Final)	0.26	0.0000040	0.05	0.000011	0.009	0.0000004

Table D-9
Controlled Off-Road Diesel Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR) [a]
(Continued)

Horsepower	Tier	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
175-299	1	5.93	0.0001400	0.29	0.000013	0.120	0.0000064
	2	4.15	0.0000600	0.11	0.000022	0.088	0.0000046
	3	2.32	0.0000300	0.09	0.000023	0.088	0.0000046
	4 (Phase-Out)	2.32	0.0000300	0.09	0.000023	0.009	0.0000003
	4 (Phase-In or Alt. NOx)	1.29	0.0000170	0.06	0.000017	0.009	0.0000003
	4 (Final)	0.26	0.0000036	0.05	0.000011	0.009	0.0000003
300-750	1	5.93	0.0000990	0.29	0.000010	0.120	0.0000064
	2	3.79	0.0000500	0.09	0.000023	0.088	0.0000044
	3	2.32	0.0000300	0.09	0.000023	0.088	0.0000044
	4 (Phase-Out)	2.32	0.0000300	0.09	0.000023	0.009	0.0000003
	4 (Phase-In or Alt. NOx)	1.29	0.0000170	0.06	0.000017	0.009	0.0000003
	4 (Final)	0.26	0.0000036	0.05	0.000011	0.009	0.0000003
751+	1	5.93	0.0000990	0.29	0.000010	0.120	0.0000064
	2	3.79	0.0000500	0.09	0.000023	0.088	0.0000044
	4 (Interim)	2.24	0.0000280	0.06	0.000017	0.051	0.0000021
	4 (Final)	2.24	0.0000280	0.05	0.000011	0.017	0.0000009

Note: Engines participating in the “Tier 4 Early Introduction Incentive for Engine Manufacturers” program per California Code of Regulations, Title 13, section 2423(b)(6) are eligible for funding provided the engines are certified to the final Tier 4 emission standards. The Air Resources Board (ARB) Executive Order indicates engines certified under this provision. The emission rates for these engines shall be equivalent to the emission factors associated with Tier 3 engines.

Note: For equipment with baseline engines certified under the flexibility provisions per California Code of Regulations, Titles 13, section 2423(d), baseline emission rates shall be determined by using the previous applicable emission standard or Tier for that engine model year and horsepower rating. The ARB Executive Order indicates engines certified under this provision.

[a] Emission factors were converted using the ultra low-sulfur diesel fuel correction factors listed in Table D-23.
[b] Alternate compliance option.

Table D-10
Off-Road LSI Equipment Default Load Factors

Category	Equipment Type	Load Factor
Agriculture (Mobile, Portable or Stationary)	Agricultural Tractors	0.62
	Balers	0.55
	Combines/Choppers	0.74
	Chipper/Stump Grinder	0.78
	Generator Sets	0.68
	Sprayers	0.50
	Swathers	0.52
	Pumps	0.65
	Other Agricultural Equipment	0.55
Airport Ground Support	A/C Tug	0.80
	Baggage Tug	0.55
	Belt Loader	0.50
	Bobtail	0.55
	Cargo Loader	0.50
	Forklift	0.30
	Ground Power Unit	0.75
	Lift	0.50
	Passenger Stand	0.59
	Other Ground Support Equipment	0.50
Construction	Air Compressors	0.56
	Asphalt Pavers	0.66
	Bore/Drill Rigs	0.79
	Concrete/Industrial Saws	0.78
	Concrete/Trash Pump	0.69
	Cranes	0.47
	Gas Compressor	0.85
	Paving Equipment	0.59
	Pressure Washer	0.85
	Rollers	0.62
	Rough Terrain Forklifts	0.63
	Rubber Tired Loaders	0.54
	Skid Steer Loaders	0.58
	Tractors/Loaders/Backhoes	0.48

Table D-10
Off-Road LSI Equipment Default Load Factors
(Continued)

Category	Equipment Type	Load Factor
Construction	Trenchers	0.66
	Welders	0.51
	Other Construction	0.48
Industrial	Aerial Lifts	0.46
	Forklifts	0.30
	Sweepers/Scrubbers	0.71
	Other Industrial	0.54

Table D-11a
Off-Road LSI Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Gasoline

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	Uncontrolled pre-2004	8.01	0.0000406	3.760	0.000412	0.060	0.000
	Controlled 2001 - 2006	1.33	0.0004710	0.710	0.000169	0.060	0.000
	Controlled 2007 - 2009	0.89	0.0001192	0.473	0.000064	0.060	0.000
	Controlled 2010+	0.27	0.0000250	0.142	0.000013	0.060	0.000
51-120	Uncontrolled Pre-2004	11.84	0.0000601	2.630	0.000287	0.060	0.000
	Controlled 2001 – 2006	1.78	0.0002070	0.260	0.000081	0.060	0.000
	Controlled 2007 - 2009	1.17	0.0000660	0.130	0.000074	0.060	0.000
	Controlled 2010+	0.35	0.0000300	0.030	0.000014	0.060	0.000
121+	Uncontrolled pre-2004	12.94	0.0001270	1.610	0.000042	0.060	0.000
	Controlled 2001 – 2006	1.94	0.0002780	0.160	0.000102	0.060	0.000
	Controlled 2007 - 2009	1.17	0.0000660	0.130	0.000074	0.060	0.000
	Controlled 2010+	0.35	0.0000300	0.030	0.000014	0.060	0.000

Table D-11b
Off-Road LSI Engines
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Alternative Fuels

Horsepower	Model Year	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	Uncontrolled pre-2004	13.00	0.0000662	1.380	0.000151	0.060	0.000
	Controlled 2001 - 2006	1.95	0.0002760	0.140	0.000106	0.060	0.000
	Controlled 2007 - 2009	1.30	0.0000011	0.093	0.000172	0.060	0.000
	Controlled 2010+	0.39	0.0000002	0.028	0.000036	0.060	0.000
51-120	Uncontrolled pre-2004	10.53	0.0000533	1.550	0.000169	0.060	0.000
	Controlled 2001 – 2006	1.58	0.0003500	0.160	0.000103	0.060	0.000
	Controlled 2007 - 2009	1.04	0.0000125	0.100	0.000047	0.060	0.000
	Controlled 2010+	0.31	0.0000380	0.030	0.000014	0.060	0.000
121+	Uncontrolled pre-2004	10.51	0.0001040	1.380	0.000035	0.060	0.000
	Controlled 2001 – 2006	1.58	0.0002640	0.140	0.000106	0.060	0.000
	Controlled 2007 - 2009	1.04	0.0000125	0.100	0.000047	0.060	0.000
	Controlled 2010+	0.31	0.0000380	0.030	0.000014	0.060	0.000

Table D-12
Emission Factors for Off-Road LSI Engine Retrofits
Verified to Absolute Emission Number (g/bhp-hr)

Manufacturers of LSI retrofit systems may verify to a percentage emission reduction or absolute emissions. If a retrofit system is verified to a percentage reduction, the emission factors will be that verified percentage of the appropriate emissions factors in Table D-11a or D-11b. If a retrofit system is verified to an absolute emission number, when calculating emission reductions use the following table for the emission factors and the deterioration rate for the baseline engine.

Fuel	Verified Value	NOx	ROG	PM10
Gasoline	3.0	1.78	0.26	0.060
	2.5	1.48	0.22	0.060
	2.0	1.19	0.17	0.060
	1.5	0.89	0.13	0.060
	1.0	0.59	0.09	0.060
	0.6	0.35	0.03	0.060
	0.5	0.29	0.03	0.060
Alt Fuel	3.0	1.58	0.16	0.060
	2.5	1.32	0.13	0.060
	2.0	1.05	0.11	0.060
	1.5	0.79	0.08	0.060
	1.0	0.53	0.05	0.060
	0.6	0.31	0.03	0.060
	0.5	0.26	0.03	0.060

Table D-13a
Off-Road LSI Engines Certified to Optional Standards
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Gasoline

Horsepower	Optional Standard	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	0.4	0.18	0.000017	0.09	0.0000087	0.060	0.000
	0.2	0.09	0.000008	0.05	0.0000043	0.060	0.000
	0.1	0.04	0.000005	0.02	0.0000027	0.060	0.000
51-120	0.4	0.24	0.000021	0.04	0.0000034	0.060	0.000
	0.2	0.12	0.000010	0.02	0.0000017	0.060	0.000
	0.1	0.06	0.000005	0.01	0.0000009	0.060	0.000
121+	0.4	0.26	0.000022	0.02	0.0000017	0.060	0.000
	0.2	0.13	0.000011	0.01	0.0000009	0.060	0.000
	0.1	0.06	0.000005	0.01	0.0000009	0.060	0.000

Table D-13b
Off-Road LSI Engines Certified to Optional Standards
Emission Factors (g/bhp-hr) (EF) and Deterioration Rates (g/bhp-hr-hr) (DR)
Alternative Fuels

Horsepower	Optional Standard	NOx		ROG		PM10	
		EF	DR	EF	DR	EF	DR
25-50	0.4	0.26	0.000022	0.02	0.0000017	0.060	0.000
	0.2	0.13	0.000011	0.01	0.0000009	0.060	0.000
	0.1	0.07	0.000006	0.00	0.0000000	0.060	0.000
51-120	0.4	0.21	0.000031	0.02	0.0000030	0.060	0.000
	0.2	0.11	0.000015	0.01	0.0000013	0.060	0.000
	0.1	0.05	0.000007	0.01	0.0000013	0.060	0.000
121+	0.4	0.21	0.000034	0.01	0.0000016	0.060	0.000
	0.2	0.11	0.000015	0.01	0.0000013	0.060	0.000
	0.1	0.05	0.000010	0.00	0.0000000	0.060	0.000

LOCOMOTIVES

Table D-14a
Locomotive Emission Factors (g/bhp-hr)
Based on 1998 Federal Standards

Engine Model Year	Type	NOx[(a)]	ROG[(b)]	PM10[(a)]
Pre-1973	Line-haul and Passenger	12.22	0.51	0.275
	Switcher	16.36	1.06	0.378
1973-2001 Tier 0	Line-haul and Passenger	8.93	1.05	0.516
	Switcher	13.16	2.21	0.619
2002-2004 Tier 1	Line-haul and Passenger	6.96	0.58	0.387
	Switcher	10.34	1.26	0.464
2005-2011 Tier 2	Line-haul and Passenger	5.17	0.32	0.172
	Switcher	7.61	0.63	0.206

Note: These factors are to be used for the project baseline emissions if the baseline locomotive is certified or required to be certified to the 1998 federal locomotive remanufacture standards, and for the reduced emission locomotive if the project locomotive is remanufactured to these 1998 standards. Factors are based upon Regulatory Impact Analysis: Final United States Environmental Protection Agency (U.S. EPA) Locomotive Regulation (2008).

[(a)] NOx and PM10 emission factors have been adjusted by a factor of 0.94 and 0.86, respectively, to account for use of California ultra-low sulfur diesel fuel.
[(b)] ROG = HC * 1.053

Table D-14b
Locomotive Emission Factors (g/bhp-hr)
Based on 2008 Federal Standards

Engine Model Year	Type	NOx[(a)]	ROG[(b)]	PM10[(a)]
1973-2001 Tier 0+	Line-haul and Passenger	6.96	0.58	0.189
	Switcher	11.09	2.21	0.224
2002-2004 Tier 1+	Line-haul and Passenger	6.96	0.58	0.189
	Switcher	10.34	1.26	0.224
2005-2011 Tier 2+	Line-haul and Passenger	5.17	0.32	0.086
	Switcher	7.61	0.63	0.112
2011-2014 Tier 3	Line-haul and Passenger	5.17	0.32	0.086
	Switcher	4.70	0.63	0.086
2015 Tier 4	Line-haul and Passenger	1.22	0.15	0.026
	Switcher	1.22	0.15	0.026

Note: These factors are to be used for the project baseline emissions if the baseline locomotive is certified or required to be certified to the new (2008) federal locomotive remanufacture standards, and for the reduced emission locomotive if the project locomotive is remanufactured to the new standards or meets Tier 3 standards. Factors are based upon Regulatory Impact Analysis: Final U.S. EPA Locomotive Regulation (2008).

[(a)] NOx and PM10 emission factors have been adjusted by a factor of 0.94 and 0.86, respectively, to account for use of California ultra-low sulfur diesel fuel.
[(b)] ROG = HC * 1.053

Table D-15a
Uncontrolled Harbor Craft Propulsion Engine
Emission Factors (g/bhp-hr)

Horsepower	Model Year	NOx	ROG	PM10
25-50	All	7.57	1.32	0.520
51-120	pre-1997	14.27	1.04	0.575
	1997+	9.70	0.71	0.524
121-250	pre-1971	15.36	0.95	0.527
	1971-1978	14.27	0.79	0.451
	1979-1983	13.17	0.72	0.376
	1984+	12.07	0.68	0.376
251+	pre-1971	15.36	0.91	0.506
	1971-1978	14.27	0.76	0.431
	1979-1983	13.17	0.68	0.363
	1984-1994	12.07	0.65	0.363
251-750	1995+	8.97	0.49	0.260
751+	1995+	12.07	0.60	0.363

Table D-15b
Controlled Harbor Craft Propulsion Engine
Emission Factors (g/bhp-hr)

Horsepower	Tier	NOx	ROG	PM10
25-50	1	6.93	1.30	0.580
	2	5.04	1.30	0.240
	3	5.04	1.30	0.176
51-120	1	6.93	0.71	0.524
	2	5.04	0.71	0.240
	3	5.04	0.71	0.176
121-175	1	8.97	0.49	0.290
	2	4.84	0.49	0.176
	3	3.60	0.49	0.077
176-750	1	8.97	0.49	0.290
	2	4.84	0.49	0.120
	3	3.87	0.49	0.068
751-1900	1	8.97	0.49	0.290
	2	5.24	0.49	0.160
	3	3.87	0.49	0.068
1901+	1	8.97	0.49	0.290
	2	5.24	0.49	0.160
	3	4.14	0.49	0.085

Table D-16
Tier 4 Harbor Craft Propulsion Engine
Emission Standards (g/bhp-hr)
(Not applicable for engines using FEL or ABT for compliance)

Model Year	Horsepower	Tier	NOx	ROG	PM10
2016+	805-4960	4	1.34	0.142	0.030

Table D-17a
Uncontrolled Harbor Craft Auxiliary Engine
Emission Factors (g/bhp-hr)

Horsepower	Model Year	NOx	ROG	PM10
25-50	all	6.42	1.58	0.460
51-120	pre-1997	12.09	1.23	0.508
	1997+	8.14	0.85	0.417
121-250	pre-1971	13.02	1.13	0.466
	1971-1978	12.09	0.94	0.399
	1979-1983	11.16	0.86	0.333
	1984-1995	10.23	0.82	0.333
	1996+	7.75	0.59	0.255
251-750	pre-1971	13.02	1.08	0.448
	1971-1978	12.09	0.90	0.381
	1979-1983	11.16	0.81	0.321
	1984-1994	10.23	0.77	0.321
	1995+	7.60	0.58	0.230
751+	pre-1971	13.02	1.08	0.448
	1971-1978	12.09	0.90	0.381
	1979-1986	11.16	0.81	0.321
	1987-1998	10.23	0.72	0.321
	1999+	7.75	0.58	0.255

Table D-17b
Controlled Harbor Craft Auxiliary Engine
Emission Factors (g/bhp-hr)

Horsepower	Tier	NOx	ROG	PM10
25-50	1	6.54	1.54	0.511
	2	5.04	1.54	0.240
	3	5.04	1.54	0.176
51-120	1	6.93	0.85	0.464
	2	5.04	0.85	0.240
	3	5.04	0.85	0.176
121-175	1	6.93	0.58	0.255
	2	4.84	0.58	0.176
	3	3.60	0.58	0.077
176-750	1	6.93	0.58	0.255
	2	4.84	0.58	0.120
	3	3.78	0.58	0.068
751-1900	1	6.93	0.58	0.255
	2	5.24	0.58	0.160
	3	3.87	0.58	0.068
1901+	1	6.93	0.58	0.255
	2	5.24	0.58	0.160
	3	4.14	0.58	0.085

Table D-18
Harbor Craft Load Factors

Vessel Type	Propulsion Engine	Auxiliary Engine
Charter Fishing	0.52	0.43
Commercial Fishing	0.27	
Ferry/Excursion	0.42	
Pilot	0.51	
Tow	0.68	
Work	0.45	
Other	0.52	
Barge/Dredge	0.45	0.65
Crew & Supply	0.38	0.32
Tug	0.50	0.31

Table D-19
Shore Power
Default Emission Rates (Grams per kilowatt-hour (g/kW-hr))

Pollutant	Emission Rate
NOx	13.09
ROG	0.49
PM10 (marine gas oil fuel with 0.11- 0.5 % sulfur content)	0.38
PM10 (marine gas oil fuel with <= 0.10 % sulfur content)	0.25

Table D-20
Shore Power
Default Power Requirements

Ship Category	Ship Size / Type Default (Twenty-foot Equivalent Unit (TEU))	Power Requirement (kW)
Container Vessel	<1,000	1,000
	1,000 – 1,999	1,300
	2,000 – 2,999	1,600
	3,000 – 3,999	1,900
	4,000 – 4,999	2,200
	5,000 – 5,999	2,300
	6,000 – 6,999	2,500
	7,000 – 7,999	2,900
	8,000 – 9,999	3,300
	10,000 – 12,000	3,700
Passenger Vessel	No Default Value – Use Actual Power Requirement[(a)]	
Reefer	Break Bulk	1,300
	Fully containerized	3,300

[(a)] The average power requirement for passenger vessels is 7,400 kW (ARB Oceangoing Vessel Survey, 2005).

ALL ENGINES

Table D-21
Fuel Consumption Rate Factors (bhp-hr/gal)

Category	Horsepower/Application	Fuel Consumption Rate
Non-Mobile Agricultural Engines	ALL	17.5
Locomotive	Line Haul and Passenger (Class I/II)	20.8
	Line Haul and Passenger (Class III)	18.2
	Switcher	15.2
Other	< 750 hp	18.5
	≥ 750 hp	20.8

REFERENCES

The information in these tables has already been incorporated into the preceding emission factor tables. These tables are included for informational purposes.

Table D-22
Fuel Correction Factors
On-Road Diesel Engines

Model Year	NOx	PM10	HC
Pre- 2007	0.93	0.72	0.72
2007+	0.93	0.80	0.72

Table D-23
Fuel Correction Factors
Off-Road Diesel Engines

Model Year	NOx	PM10	HC
Pre-Tier 1	0.930	0.720	0.720
Tier 1 – Tier 3	0.948	0.800	0.720
Tier 4	0.948	0.852	0.720

Table D-24
Capital Recovery Factor (CRF) for Various Project Lives
At a 1% Discount Rate

Project Life	CRF
1	1.010
2	0.508
3	0.340
4	0.256
5	0.206
6	0.173
7	0.149
8	0.131
9	0.117
10	0.106
11	0.096
12	0.089
13	0.082
14	0.077
15	0.072
16	0.068
17	0.064
18	0.061
19	0.058
20	0.055

Table D-25
Capital Recovery Factor (CRF) for Various Project Lives
At a 2% Discount Rate[a][b]

Project Life	CRF
1	1.020
2	0.515
3	0.347
4	0.263
5	0.212
6	0.179
7	0.155
8	0.137
9	0.123
10	0.111
11	0.102
12	0.095
13	0.088
14	0.083
15	0.078
16	0.074
17	0.070
18	0.067
19	0.064
20	0.061

[a] Upon ARB approval of the 2017 Moyer Program Guidelines, the discount rate is one percent. Per statute ARB reviews and may update discount rates annually, using the average rates of return for U.S. Treasury securities and the California Consumer Price Index data available at the time of publication.

[b] The Discount Rate varies from year to year, and may increase beyond 2 percent. The formula used to calculate the CRF based on the Discount Rate can be found in Appendix C, Formula C-2.

APPENDIX E

CHAPTER REFERENCES

APPENDIX E: CHAPTER REFERENCES

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Appendix C.3.2

Indirect Source Review Program Annual Report (2024)

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INDIRECT SOURCE REVIEW PROGRAM

2024 ANNUAL REPORT

July 1, 2023 - June 30, 2024



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
GOVERNING BOARD 2024

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EXECUTIVE DIRECTOR/AIR POLLUTION CONTROL OFFICER:

SAMIR SHEIKH

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I. EXECUTIVE SUMMARY

This "*2024 Annual Report on the District's Indirect Source Review Program*" covers the reporting period from July 1, 2023, through June 30, 2024.

The District's Indirect Source Review (ISR) rule, was originally adopted in 2005 to reduce the growth in both nitrogen oxides (NOx) and particulate matter smaller than ten microns in aerodynamic diameter (PM_{10}) emissions from mobile and area sources associated with construction and operation of new industrial, commercial, residential, transit and other non-residential development projects in the Valley. New development projects create air pollution during construction and operation by prompting more vehicle trips and other pollution-causing activities. To address the rule requirements and achieve emissions reductions at the project site and within local communities, developers incorporate clean air measures into their project designs to reduce emissions impacts at project locations. Some examples include: use of clean, newer model-year off-road construction equipment, zero emission and or near-zero emission heavy duty on-road trucks and van fleets, zero and or near-zero emission on-site equipment, installation of electric vehicle charging infrastructure, solar power, installation of bike paths and sidewalks, and high-efficiency buildings.

If on-site clean air measures implemented by a developer do not achieve the emission reductions mandated by the ISR rule, the developer must pay an off-site mitigation fee for balance of the emission reductions required for the project. One hundred percent of off-site mitigation fees are used by the District to fund emission reduction projects through its incentive grant programs. Additionally, developers pay an administrative fee equal to four percent (4%) of the required off-site fees. This administrative fee is to cover the District's cost of administering the off-site emission reduction projects through the District's grants and incentives programs.



In addition to reducing the development project's impact on air quality through compliance with the District's ISR rule, a developer can further reduce the project's impact on air quality by entering into a "Voluntary Emission Reduction Agreement" (VERA) with the District to address the mitigation requirements under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which are then used by the District to administer emission reduction projects. The District has entered into 52 VERAs since 2005.

This annual report includes revenues, expenditures, and emission reductions achieved for both ISR and VERA (ISR-VERA program). To date, in addition to avoiding approximately over 22,000 tons of NOx and PM_{10} emissions from new development through the incorporation of on-site mitigation and clean-air design measures into projects subject to the Indirect Source Review rule, the District has achieved more than 20,736 tons of reductions in NOx and PM_{10} emissions through the investment of over $180 million dollars in ISR and VERA funds through its emission reduction grants and incentives programs.



During this reporting period, the District received 263 ISR Air Impact Assessment applications and no new VERAs were entered into.

The total amount of funds received for this reporting period under the ISR rule and VERA program were $3,556,331 and $1,439,550, respectively, for a total of $4,995,881. The District achieved emission reductions via grants and incentives clean-air projects totaling 1,615 tons NOx and 227 tons PM_{10}, for a combined total of 1,842 tons, at a cost effectiveness of $9,857 per ton of emissions reduced.

II. INTRODUCTION

The San Joaquin Valley's challenges in meeting national ambient air quality standards are unmatched anywhere in the nation due to the region's unique geography, meteorology and topography. Since 1992, the District has adopted more than 670 rules to implement an aggressive on-going control strategy to reduce emissions in the Valley in order to reach attainment of the federal mandates, resulting in air quality benefits throughout the Valley. Through these ongoing efforts by the District, and significant efforts by CARB to reduce emissions from mobile sources, NOx emissions across the Valley have been reduced by over 75%, while stationary source emissions, which are under the District's jurisdiction, have been reduced by over 93% since 1980.

Although significant progress has been made, the San Joaquin Valley's population is expected to grow. The Population Research Unit of the Department of Finance recent population growth projections, demonstrated a 13.9% increase in the Valley's population from 2020 to 2035 period. In contrast, the total population for the State of California is projected to increase by only 7.4% over the same time period.

Population growth results in increased area source emissions from activities such as consumer product use, fuel combustion for heating and cooking, and landscape maintenance. The total number of vehicle miles traveled (VMT) also increases with population growth, resulting in more emissions due to the combustion of vehicle fuels. The projected growth in these so called "indirect source" emissions erodes some of the progress generated by emission reductions achieved through the District's stationary source air quality management program and state and federal mobile source controls.

Although the District cannot directly regulate mobile source tailpipe emissions, it does have longstanding statutory authority to regulate indirect sources of air pollution. Pursuant to this authority, the District made a federally enforceable commitment to regulate indirect sources when it adopted its PM_{10} Attainment Plan in June 2003. Subsequently, the California State Legislature passed Senate Bill 709, Florez, in the fall of 2003, which Governor Gray Davis subsequently signed and codified into the Health and Safety Code in §40604. This additional legislation required the District to adopt, by regulation, a schedule of fees to be assessed on area wide or indirect sources of emissions that are regulated by the District.





The purpose of the District's Indirect Source Review rule is to require developers to incorporate clean air measures and reduce emissions of NOx and PM10 from new development projects. It is important to note, particulate matter emissions from mobile sources are overwhelmingly PM2.5, a subset of PM10. Therefore, the PM10 emission reductions achieved under ISR result directly in PM2.5 emission reductions. In other words, PM10 emissions increases are being offset by emissions reductions that are overwhelmingly PM2.5, a positive impact on PM2.5 concentrations.

The Indirect Source Review rule applies to any applicant that seeks to gain final discretionary approval for a development project, or any portions thereof, which upon full build-out will include any one of the following:

- 50 residential units
- 2,000 square feet of commercial space
- 9,000 square feet of educational space
- 10,000 square feet of government space
- 20,000 square feet of medical or recreational space
- 25,000 square feet of light industrial space
- 39,000 square feet of general office space

- 100,000 square feet of heavy industrial space
- 9,000 square feet of space not identified above

Additionally, the Indirect Source Review rule applies to any applicant that seeks to gain approval from a public agency for a large development project, which upon full build out will include any of the following:

- 250 residential units
- 10,000 square feet of commercial space
- 45,000 square feet of educational space
- 50,000 square feet of governmental space
- 100,000 square feet of medical office or recreational space
- 125,000 square feet of light industrial space
- 195,000 square feet of general office space
- 500,000 square feet of heavy industrial space
- 45,000 of square feet of space not identified above

In addition to the above, a transit or transportation development project is subject to the Indirect Source Review rule if construction exhaust emissions equal or exceed two (2.0) tons of NOx or two (2.0) tons of PM10.

Since the original adoption of Rule 9510 in 2005, the District continues to coordinate and conduct outreach with public agencies and developers in the Valley, to assist and educate on the requirements of Rule 9510. To ensure individual projects are in compliance with Rule 9510, the District utilizes a variety of mechanisms and tools such as:

- Presentations and educational workshops for developers and public agencies
- Ongoing Rule 9510 Small Business Assistance for developers and public agencies
- Rule 9510 project information on District Dust Control Plan and Construction Notification Forms
- Inclusion of ISR applicability requirements within the District's CEQA commenting letters to public agencies for new development projects in the Valley to ensure awareness on a project-by-project basis
- Utilizing CEQAnet, which is a searchable online database maintained by the State Clearinghouse (SCH) within the Office of Land Use and Climate Innovation that contains key project information for CEQA documents submitted to the SCH for review
- Utilizing CoSTAR which is a comprehensive online real estate service that contains detailed property information which allows the District to conduct outreach and ensure compliance with Rule 9510 requirements

In addition to the above, Rule 9510 also requires reporting for clean air measures committed by the developer, such as clean construction and operational fleets to ensure Rule 9510 requirements are satisfied. Towards this end, the District is continuously looking for ways to enhance outreach efforts with the goal of further educating developers and public agencies regarding compliance with Rule 9510 requirements.

This report was prepared pursuant to provisions of Rule 9510 that require the District to prepare an annual report regarding expenditure of received funds and achieved emission reductions. The annual report includes the following:

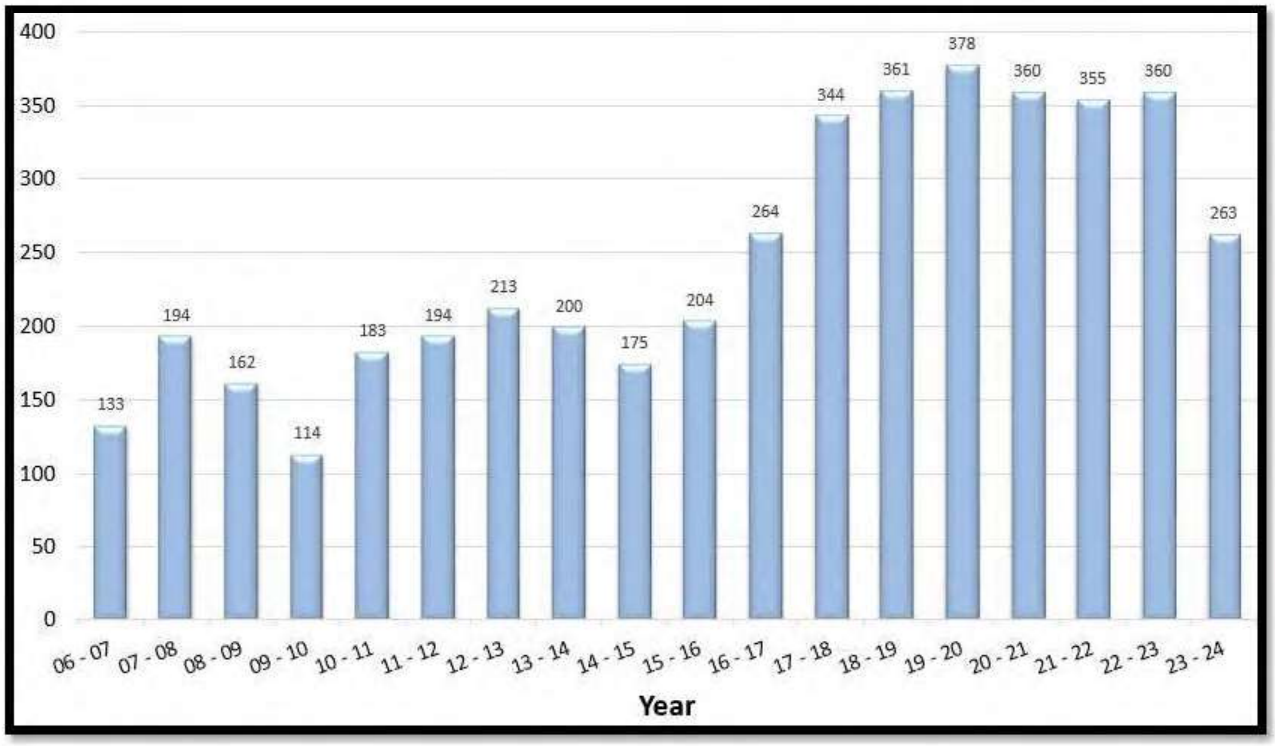
- Total amount of off-site fees received;
- Total monies spent;
- Total monies remaining;
- Any refunds distributed;
- A list of all projects funded;
- Total emissions reductions realized; and
- The overall cost effectiveness factor for the projects funded.

III. IMPLEMENTATION

District Indirect Source Review Rule

During this reporting period, the District received 263 ISR applications. For historic context, the number of ISR applications received each year is presented in Figure 1 below.

Figure 1: Number of ISR Applications Received



Voluntary Emission Reduction Agreements

A Voluntary Emission Reduction Agreement is an air quality mitigation measure by which a developer can voluntarily enter into a contractual agreement with the District to mitigate a development project's impact on air quality, going beyond reductions achieved by compliance with the District's ISR rule. Under the agreement, the developer provides funds to the District to administer the implementation of the VERA. The District then identifies emissions reductions projects, funds those projects, and verifies that the specified emission reductions have been successfully achieved.

The types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of older farm tractors with cleaner tractors. Since 2005, the District has entered into 52 VERAs. It is the District's experience that implementation of a VERA is an effective mitigation measure under CEQA, to achieve emission reductions necessary to reduce air quality impacts to a less than significant level.

For development projects subject to the ISR rule, the developer must also comply with applicable ISR rule provisions. This report therefore includes revenues and emission reductions achieved through both the ISR and the VERA process.

Oil and Gas Emission Reduction Agreement

In 2015, Kern County adopted an EIR for amendments to the Kern County Zoning Ordinance to address oil and gas exploration and operation activities in the identified area within Kern County. Consistent with the final EIR, Kern County and the District adopted an oil and gas emission reduction agreement (OGERA) to mitigate emissions associated with future oil and gas exploration and production in the San Joaquin Valley. Under this process, Kern County collects a mitigation fee from oil and gas companies when issuing permits for the drilling of new oil or gas production wells, and transfers the funds to the District to mitigate air quality impacts through its grants and incentives programs.

A Petition for Writ of Mandate filed in the Kern County Superior Court challenged Kern County's 2015 Ordinance. The County subsequently amended the Ordinance and accompanying EIR in 2021, which was also challenged by Petitioners. On June 7, 2022, the court issued a ruling that the 2021 amended Ordinance was defective in several respects and ordered suspension of the Ordinance. Following the County's correction of the defects, in November 2022, the court lifted suspension of the Ordinance to allow oil and gas permitting to resume.

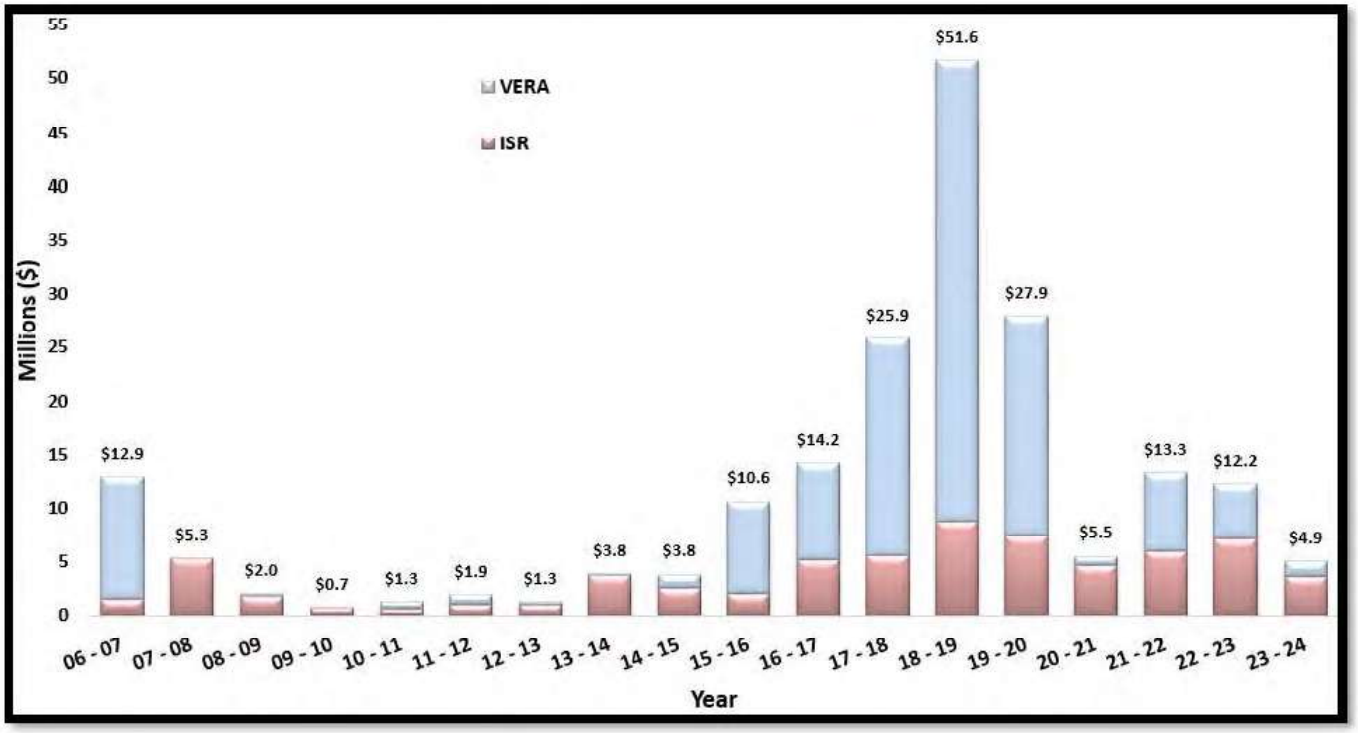
However, following an appeal of the Superior Court's ruling, on January 26, 2023, the Court of Appeal re-imposed the suspension of oil and gas permitting in Kern County pending review of the Superior Court's ruling. Subsequently, on March 7, 2024, the Appellate Court issued a second opinion directing the County to continue to suspend permitting under the ordinance and to correct violations under CEQA. As such, in March 2024, Kern County initiated the process to correct the CEQA violations in preparing and

public noticing a Notice of Preparation for a Draft Second Supplemental Recirculated Environmental Impact Report. The District is currently monitoring the Kern County process as it relates to implementation of the OGERA.

IV. FISCAL SUMMARY

The total amount of funds received for this reporting period under ISR and VERA were $3,556,331 and $1,439,550 respectively, for a total of $4,995,881.

Figure 2: ISR and VERA Program Funds Received



As presented in Table 1 below, the District's ISR and VERA accounts held a beginning balance of $27,619,699. During this reporting period, the District received $4,995,881, spent (paid out) off-site emission reduction projects totaling $16,141,958, encumbered $8,861,117 in contracts for emission reduction projects, leaving an unencumbered balance of $7,612,505.

Table 1: ISR-VERA Fiscal Summary (July 1, 2023 - June 30, 2024)

	ISR	VERA	Total
Beginning Fund Balance	$5,630,551	$21,989,148	$27,619,699
Amount Received	$3,556,331	$1,439,550	$4,995,881
Amount Refunded	$0	$0	$0
Amount Spent (Paid Out)	-$4,404,546	-$11,737,412	-$16,141,958
Ending Fund Balance	$4,782,336	$11,691,286	$16,473,622
Encumbered Amount	-$2,952,951	-$5,908,166	-$8,861,117
Ending Unencumbered Amount	**$1,829,385**	**$5,783,120**	**$7,612,505**

V. EMISSION REDUCTION SUMMARY

Through the District's grants and incentives programs, clean-air emissions reduction projects undergo a thorough application review before the contract for these projects between the District and the project applicant is executed. Once executed, funds are then encumbered for that project. The contract is valid for a limited time to allow for the purchase of the new equipment and to submit a reimbursement request. Once the reimbursement request is approved, the funds encumbered for the emission reduction project are spent (reimbursed to the project applicant). This process typically takes several months for completion. Therefore, depending on the types of emission reduction projects available for funding, the funds received during this reporting period may result in the funds being spent the in same reporting period or in future reporting periods.

ISR and VERA Off-Site Emission Reductions Achieved

During this reporting period, the District achieved emission reductions via grants and incentives clean-air projects totaling 1,615 tons NOx and 227 tons PM_{10}, for a combined total of 1,842 tons, at a cost effectiveness of $9,857 per ton of emissions reduced, summarized in Table 2 below. The District spent ISR and VERA monies to fund 1,070 clean-air emission reduction projects. These clean-air projects included the replacement of older, higher-emitting agricultural tractors with new latest-tier tractors, retrofit of residential open-hearth fireplaces with certified natural gas burning inserts, and rebates to Valley residents and businesses for the purchase or lease of new clean-air vehicles. A complete list of all clean-air projects funded under this annual report period is presented in Appendix A.



Table 2: Off-Site Emission Reductions Achieved (July 1, 2023 - June 30, 2024)

Program	NOx (tons)	PM_{10} (tons)	Total (tons)	Amount Paid Out	Cost Effectiveness
ISR	288	101	389	$6,129,546	$15,758/ton
VERA	1,327	126	1,453	$12,025,262	$8,277/ton
Total	**1,615**	**227**	**1,842**	**$18,154,808**	**$9,857/ton**

ISR and VERA Off-Site Emission Reductions Achieved - Historic Since 2006

As discussed above, mitigation funds under ISR and VERA are administered through the District's grants and incentive programs to fund clean-air projects in the Valley. The District has built a reputation for excellence in the implementation of these programs, as highlighted in multiple audits by state agencies that commended the District's incentive programs for their efficiency and effectiveness. Since inception of the District's ISR rule and VERA program, the District's programs have achieved the emissions reductions shown in Table 3 below.

Table 3: Off-Site Emission Reductions Achieved Since 2006

Program	NOx (tons)	PM_{10} (tons)	Total (tons)
ISR	5,900	1,753	**7,653**
VERA	11,930	1,153	**13,083**
Total	**17,830**	**2,906**	**20,736**

ISR Program Estimated Emission Reductions - Previous Reporting Period

Estimated emission reductions are a combination of emission reductions to be achieved through implementation of project design elements at full project build out and through funding off-site emission reductions projects through District grants and incentive programs using off-site emission reduction mitigation fees.

For this reporting period, projects assessed under ISR resulted in estimated combined on-site and off-site emission reductions as shown in Table 4 below.

Table 4: Estimated Emission Reductions from Approved ISR Projects During the Previous Reporting Period (July 1, 2023 - June 30, 2024)

Source	NOx (tons)	PM_{10} (tons)	Total (tons)
On-site Emission Reductions	714	1,406	**2,120**
Off-site Emission Reductions	846	1,156	**2,002**
Total	**1,560**	**2,562**	**4,122**

VI. COST EFFECTIVENESS

Over the years, the District has had significant success achieving emission reductions under ISR, including reductions achieved through the aforementioned offsite mitigation fees. Since 2008, the offsite mitigation fees collected under the ISR is $9,350 per ton of NOx and $9,011 per ton of PM10.

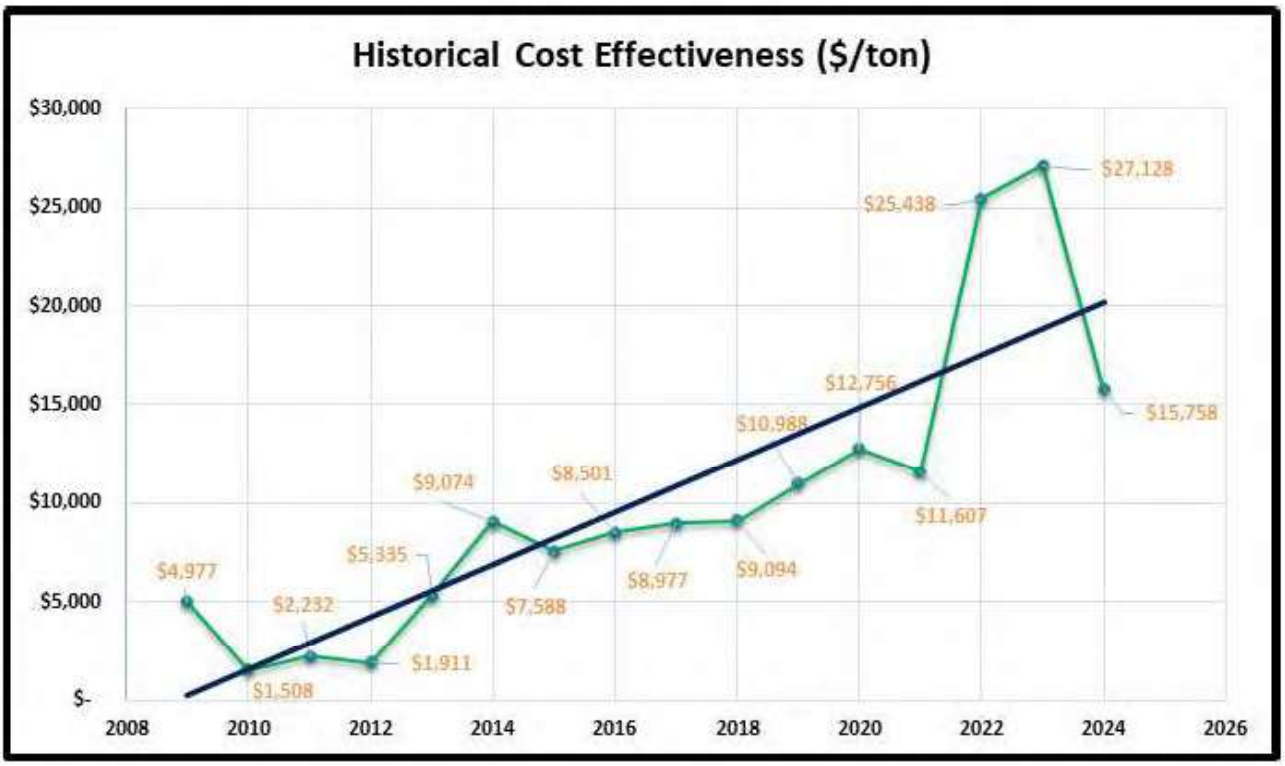
Historically, voluntary incentive programs in the District and throughout the state follow the guidelines and cost-effectiveness methodologies established by the state's perennial Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), which has served as the gold standard for SIP-creditable incentive programs in the nation. Over the past 25 years, CARB has worked alongside California's 35 local air districts to allocate more than $1.5 billion in Moyer program grants to clean up over 69,000 engines, reducing NOx and VOC emissions by over 202,000 tons and toxic diesel PM by over 7,400 tons.

Cost effectiveness is defined as a measure of dollars provided to an emission reduction project for each ton of emissions reduced. Statute requires that CARB update the cost effectiveness annually based on changes to the California Consumer Price Index. In addition, SB 513 has required CARB and Air District's to establish new cost effectiveness limits that specifically reflect categories such as school bus replacement projects, as well as advanced zero-emission technology projects. These increased cost effectiveness limits reflect the significantly higher cost of new and emerging zero-emission technology, compared with the more traditional technology. With the promulgation and implementation of several statewide regulations that require a shift to zero-emission technology, the Carl Moyer Program, and other state incentive funding programs focus almost exclusively on funding zero-emission technology. The current program cost effectiveness limits must also take into account regulatory compliance dates that can limit the surplus nature of the emission reductions. These factors and the availability of voluntary incentive projects at any given time that meet these new mandates have led to an increase in the cost effectiveness year over year.

In October 2024, CARB approved changes to the Carl Moyer Program off-road engine and equipment load factors to more accurately represent "real-world" duty cycles and align with the state's emission inventory for off-road equipment. These changes will significantly raise cost effectiveness of equipment replacement projects. To address this, CARB increased the cost effectiveness limit in the Carl Moyer Program to $60,000/ton for conventional diesel-to-diesel replacement projects and $120,000/ton for diesel-to-zero emission replacement projects. The cost effectiveness will remain at $522,000 for advanced, zero-emission projects, such as school buses and heavy-duty trucks.

Over the years, the District has had significant success in achieving emission reductions under ISR, funding a variety of off-site emission reduction projects utilizing our existing suite of voluntary incentive programs. This includes primary mobile source projects including light and heavy-duty equipment and vehicle replacement projects through the Drive Clean Rebate Program and the Tractor Replacement Program. Additionally, the District has funded off-site emission reduction projects through the Fireplace and Woodstove Change-out Program (formerly the Burn Cleaner Program), in which Valley residence are incentivized to replace older, high-polluting open hearth fireplaces and wood burning devices, with cleaner burning units and heat pumps. All of these programs are traditionally highly utilized and in many cases over-subscribed, with more demand than available funding. For example, in the Tractor Replacement Program, the District currently maintains a queue of available projects representing more than $450 million in estimated incentives. In the Drive Clean Rebate Program, the District exhausted our annual allocation of funding in less than 4 months. The District anticipates this trend to continue and forecasts robust participation in all of the voluntary incentive programs in the future. While the demand for these programs is forecasted to remain high, the cost effectiveness of these projects has been increasing for the past several years (see Figure 3 below).

Figure 3: ISR Historical Cost Effectiveness ($/ton)



Over the history of the ISR program, the District has successfully mitigated emissions associated with projects where the project proponents have provided off-site mitigation fees; however over the past five years specifically (2019 - 2023), the Rule's current collection rate in $/ton is now below the actual $/ton achieved through the District's Grants and Incentives programs. In addition, to cover the District's cost of administering these funds, the project proponent is required to pay an administrative fee equal to four percent (4%) of the required offsite mitigation fee. This administrative fee has been in place and remained at 4% since the rule's initial adoption in 2005, and is lower than all other grant programs that the District and other air districts administer, as other administrative fees range from 6.25% - 15%.

Several factors contribute to the rise in cost effectiveness that we have experienced and will likely continue to experience into the future. The cost effectiveness for projects funded under the Carl Moyer Program has recently been $34,000/ton of emission reduced (combined NOx, ROG, and PM) for conventional projects and up to $522,000 for advanced, zero-emission projects, such as school buses and heavy-duty trucks. However, in October 2024, CARB approved changes to the Carl Moyer Program off-road engine and equipment load factors to more accurately represent "real-world" duty cycles and align with the state's emission inventory for off-road equipment. These CARB-approved changes to cost effectiveness in the Carl Moyer Program have resulted in an approximately 35% increase and have prompted CARB to increase the cost effectiveness threshold in the Carl Moyer Program from $34,000/ton of emissions reduced to $60,000/ton for conventional diesel-to-diesel replacement projects and $120,000/ton for diesel-to-zero emission replacement projects. The cost effectiveness remains at $522,000 for advanced, zero-emission projects, such as school buses and

heavy-duty trucks. To illustrate this point, the District anticipates cost effectiveness for projects in the Tractor Replacement Program to increase from $24,575/ton to more than $33,000/ton.

To ensure that the dollars collected by the District in the future are sufficient to achieve and administer the required emission reductions under ISR, the District plans to re-evaluate these fees in 2025 through the process specified in Rule 9510.

APPENDIX A
EMISSION REDUCTION PROJECTS







San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

APPENDIX A - EMISSION REDUCTION PROJECTS

List of all emission reduction projects funded by the ISR-VERA Program from July 2023 through June 2024:

Grant Project Number	Program	Component	Option	NOx Reduced (tons/project life)	PM10 Reduced (tons/project life)
G-146439	Burn Cleaner	Wood Stove Change Out	Decommission		0.2309
G-152301	Burn Cleaner	Wood Stove Change Out	Decommission		0.2309
G-156991	Burn Cleaner	Wood Stove Change Out	Decommission		0.2309
G-114735	Burn Cleaner	Wood Stove Change Out	New Device		0.3182
G-117314	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-117913	Burn Cleaner	Wood Stove Change Out	New Device		0.6926
G-118319	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-118658	Burn Cleaner	Wood Stove Change Out	New Device		0.3199
G-119172	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
G-121055	Burn Cleaner	Wood Stove Change Out	New Device		0.1154
G-121785	Burn Cleaner	Wood Stove Change Out	New Device		0.3199
G-123699	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-127802	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-131531	Burn Cleaner	Wood Stove Change Out	New Device		0.6926
G-133095	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-133442	Burn Cleaner	Wood Stove Change Out	New Device		0.0177
G-133887	Burn Cleaner	Wood Stove Change Out	New Device		0.0577
G-142851	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-146335	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-146417	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-146806	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147129	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147321	Burn Cleaner	Wood Stove Change Out	New Device		0.1599
G-147352	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147388	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147391	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147399	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147402	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147442	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147547	Burn Cleaner	Wood Stove Change Out	New Device		0.3182
G-147563	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147608	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147651	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147831	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-147844	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
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G-147910	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
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G-168527	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-168530	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-168611	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-168612	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-168614	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-168682	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-168817	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-168819	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-169054	Burn Cleaner	Wood Stove Change Out	New Device		0.2309

G-169229	Burn Cleaner	Wood Stove Change Out	New Device		0.3182
G-169348	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-169436	Burn Cleaner	Wood Stove Change Out	New Device		0.2309
G-93571	Burn Cleaner	Wood Stove Change Out	New Device		0.4618
C-51760-1	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.03	1.29
C-52481-1	Heavy-Duty	Off-Road	Ag Vehicle Replacement	24.7	1.29
C-52799-1	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.84	0.58
C-53942-1	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.24	0.56
C-54743-1	Heavy-Duty	Off-Road	Ag Vehicle Replacement	14.33	0.39
C-59305-1	Heavy-Duty	Off-Road	Ag Vehicle Replacement	36.74	1.91
C-63331-1	Heavy-Duty	Off-Road	Ag Vehicle Replacement	30.11	1.72
G-102560	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.58	0.18
G-102794	Heavy-Duty	Off-Road	Ag Vehicle Replacement	13.64	1.28
G-103277	Heavy-Duty	Off-Road	Ag Vehicle Replacement	28.93	0.91
G-103901	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.54	0.18
G-103902	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.56	0.1
G-104509	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.26	0.03
G-105706	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.03	0.26
G-106029	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.64	0.17
G-106032	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.91	0.26
G-106034	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.98	0.2
G-106043	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.62	0.17
G-106045	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.26	0.28
G-107560	Heavy-Duty	Off-Road	Ag Vehicle Replacement	47.31	2.5
G-107900	Heavy-Duty	Off-Road	Ag Vehicle Replacement	20.54	1.17
G-108020	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.92	0.27
G-108709	Heavy-Duty	Off-Road	Ag Vehicle Replacement	8.21	0.75
G-109139	Heavy-Duty	Off-Road	Ag Vehicle Replacement	17.74	0.56
G-109418	Heavy-Duty	Off-Road	Ag Vehicle Replacement	15.47	0.39
G-109497	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.46	0.44
G-109561	Heavy-Duty	Off-Road	Ag Vehicle Replacement	8.1	0.42
G-110342	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.86	0.06
G-110529	Heavy-Duty	Off-Road	Ag Vehicle Replacement	16.7	0.84
G-110687	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.2	0.15
G-112907	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.34	0.57
G-113329	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.36	0.33
G-114132	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.14	0.47
G-114796	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.37	0.65
G-115048	Heavy-Duty	Off-Road	Ag Vehicle Replacement	16.2	2.11
G-115759	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.82	0.57
G-116501	Heavy-Duty	Off-Road	Ag Vehicle Replacement	49.9	2.84
G-116890	Heavy-Duty	Off-Road	Ag Vehicle Replacement	28.56	1.63
G-118974	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.7	0.34
G-118990	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.81	0.44
G-118991	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.81	0.44
G-119917	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.85	0.13

G-120619	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.98	0.36
G-120874	Heavy-Duty	Off-Road	Ag Vehicle Replacement	13.52	0.71
G-121178	Heavy-Duty	Off-Road	Ag Vehicle Replacement	29.36	1.53
G-121183	Heavy-Duty	Off-Road	Ag Vehicle Replacement	28.02	0.71
G-121845	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.15	0.46
G-123111	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.8	0.24
G-123112	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.66	0.23
G-123113	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.11	0.26
G-123115	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.84	0.29
G-123116	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.42	0.15
G-123119	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.96	0.13
G-123120	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.96	0.13
G-124444	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.18	0.49
G-124479	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.66	0.42
G-124976	Heavy-Duty	Off-Road	Ag Vehicle Replacement	9.94	0.25
G-125583	Heavy-Duty	Off-Road	Ag Vehicle Replacement	15.33	1.41
G-126091	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.97	0.18
G-126093	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.34	0.21
G-126866	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.58	0.55
G-127363	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.69	0.87
G-128510	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.89	0.36
G-128667	Heavy-Duty	Off-Road	Ag Vehicle Replacement	21.27	1.11
G-128947	Heavy-Duty	Off-Road	Ag Vehicle Replacement	8.14	0.42
G-129043	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.74	0.4
G-129060	Heavy-Duty	Off-Road	Ag Vehicle Replacement	15.21	0.87
G-129491	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129576	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.53	0.41
G-129591	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129595	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129598	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129600	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129601	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129602	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129603	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129604	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129606	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129609	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.46	0.12
G-129612	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129614	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129615	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129616	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129637	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.08	0.52
G-129850	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.73	0.25
G-129853	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.69	0.73
G-129870	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129874	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12

G-129875	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129876	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129885	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129887	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129891	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129892	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129895	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129898	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129900	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129902	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-129903	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.52	0.12
G-130290	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.01	0.17
G-130393	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.05	0.09
G-130413	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.57	0.52
G-130415	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.47	0.49
G-130636	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.46	0.11
G-130640	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.47	0.12
G-130798	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.08	0.06
G-130799	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.83	0.27
G-130970	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.46	0.41
G-131380	Heavy-Duty	Off-Road	Ag Vehicle Replacement	13.53	0.72
G-131381	Heavy-Duty	Off-Road	Ag Vehicle Replacement	21.21	1.11
G-131393	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.52	0.28
G-131572	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.32	0.38
G-131585	Heavy-Duty	Off-Road	Ag Vehicle Replacement	13.09	0.98
G-131593	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.58	0.27
G-131648	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.86	0.54
G-131649	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.39	0.67
G-131972	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.31	0.07
G-131978	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.91	0.09
G-132068	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.38	0.07
G-132089	Heavy-Duty	Off-Road	Ag Vehicle Replacement	16.26	0.41
G-132094	Heavy-Duty	Off-Road	Ag Vehicle Replacement	24.14	1.26
G-132152	Heavy-Duty	Off-Road	Ag Vehicle Replacement	12.21	0.65
G-132157	Heavy-Duty	Off-Road	Ag Vehicle Replacement	12.21	0.65
G-132162	Heavy-Duty	Off-Road	Ag Vehicle Replacement	12.78	0.68
G-132182	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.11	0.47
G-132201	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.33	0.09
G-132233	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.01	0.9
G-132234	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.88	0.72
G-132601	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.89	0.07
G-132987	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.1	0.36
G-132991	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.46	0.5
G-133026	Heavy-Duty	Off-Road	Ag Vehicle Replacement	15.97	0.84
G-133066	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.42	0.55
G-133277	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.03	0.37

G-133363	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.12	0.2
G-133581	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.4	0.23
G-133584	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.61	0.24
G-133837	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.13	0.2
G-133869	Heavy-Duty	Off-Road	Ag Vehicle Replacement	12.66	0.88
G-134388	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.34	0.37
G-134881	Heavy-Duty	Off-Road	Ag Vehicle Replacement	26.44	1.41
G-135043	Heavy-Duty	Off-Road	Ag Vehicle Replacement	24.95	1.42
G-135044	Heavy-Duty	Off-Road	Ag Vehicle Replacement	12.11	0.38
G-135057	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.08	0.59
G-135214	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.01	0.91
G-135458	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.53	0.56
G-135459	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.53	0.56
G-135614	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.09	0.28
G-135631	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.78	0.32
G-135632	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.84	0.32
G-135633	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.84	0.32
G-135634	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.84	0.32
G-135635	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.84	0.32
G-135636	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.84	0.32
G-135678	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.11	0.15
G-135727	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.25	0.39
G-135759	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.42	0.58
G-135817	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.37	0.51
G-135864	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.37	0.23
G-136037	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.94	0.4
G-136043	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.24	0.38
G-136044	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.29	0.47
G-136067	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.63	0.38
G-136068	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.47	0.34
G-136069	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.63	0.38
G-136070	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.96	0.36
G-137357	Heavy-Duty	Off-Road	Ag Vehicle Replacement	13.87	0.97
G-137825	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.53	0.42
G-138213	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.25	0.23
G-138221	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.15	0.17
G-138454	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.63	0.79
G-139169	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.75	0.61
G-140144	Heavy-Duty	Off-Road	Ag Vehicle Replacement	1.64	0.14
G-141940	Heavy-Duty	Off-Road	Ag Vehicle Replacement	11.48	1.05
G-142155	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.6	0.59
G-142527	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.68	0.33
G-142706	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.88	0.44
G-142708	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.53	0.41
G-142709	Heavy-Duty	Off-Road	Ag Vehicle Replacement	9.79	0.51
G-142711	Heavy-Duty	Off-Road	Ag Vehicle Replacement	4.54	0.41

G-142712	Heavy-Duty	Off-Road	Ag Vehicle Replacement	12.87	0.73
G-145014	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.02	0.15
G-147602	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.38	0.55
G-148477	Heavy-Duty	Off-Road	Ag Vehicle Replacement	16.74	1.16
G-151990	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.17	0.37
G-152453	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.25	0.2
G-153107	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.49	0.71
G-157277	Heavy-Duty	Off-Road	Ag Vehicle Replacement	18.42	0.98
G-189195	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.25	0.09
G-66549	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.45	0.45
G-69606	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.68	0.28
G-76594	Heavy-Duty	Off-Road	Ag Vehicle Replacement	8.51	0.78
G-79653	Heavy-Duty	Off-Road	Ag Vehicle Replacement	15.33	0.87
G-79705	Heavy-Duty	Off-Road	Ag Vehicle Replacement	7.39	0.51
G-80860	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.92	0.05
G-82701	Heavy-Duty	Off-Road	Ag Vehicle Replacement	10.26	0.26
G-83330	Heavy-Duty	Off-Road	Ag Vehicle Replacement	6.35	0.34
G-87616	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.05	0.3
G-88837	Heavy-Duty	Off-Road	Ag Vehicle Replacement	35.43	1.87
G-91591	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5.39	0.14
G-91853	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.28	0.26
G-91854	Heavy-Duty	Off-Road	Ag Vehicle Replacement	2.28	0.26
G-91899	Heavy-Duty	Off-Road	Ag Vehicle Replacement	0.3	0.08
G-93772	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.71	0.34
G-94432	Heavy-Duty	Off-Road	Ag Vehicle Replacement	8.15	0.41
G-94441	Heavy-Duty	Off-Road	Ag Vehicle Replacement	3.07	0.36
G-95475	Heavy-Duty	Off-Road	Ag Vehicle Replacement	9.77	0.51
G-96304	Heavy-Duty	Off-Road	Ag Vehicle Replacement	19.06	0.48
G-96305	Heavy-Duty	Off-Road	Ag Vehicle Replacement	19.93	0.57
G-97133	Heavy-Duty	Off-Road	Ag Vehicle Replacement	5	0.46
G-99013	Heavy-Duty	Off-Road	Ag Vehicle Replacement	12.98	0.69
G-132236	Heavy-Duty	Ag Engine	Diesel to Diesel	9.39	0.51
G-137788	Heavy-Duty	On-Road	Truck Replacement	2.01	
G-137813	Heavy-Duty	On-Road	Truck Replacement	1.93	
G-133491	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0001	0.0002
G-151443	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153064	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153692	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-153900	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-153953	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-153962	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-155518	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-155782	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156298	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156332	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0022	0.0014
G-156386	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004

G-156402	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156477	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156485	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156496	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-156502	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-156506	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-156510	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-156511	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-156580	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-156599	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156626	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-156635	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-156643	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007
G-156644	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156681	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156682	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007
G-156684	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156692	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156697	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156699	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-156706	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-156710	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156726	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156731	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-156744	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156755	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156756	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156817	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-156823	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156861	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156867	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156872	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156873	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-156874	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-156878	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156882	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-156901	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156902	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156934	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-156941	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156952	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0012	0.0007
G-156954	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-156963	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0005
G-156974	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-156978	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-156980	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003

G-156994	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-156999	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157001	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157063	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-157085	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-157088	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157096	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-157099	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007
G-157110	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157116	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
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G-157187	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
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G-157196	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-157203	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157205	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157207	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-157210	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
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G-157222	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-157224	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0018	0.0012
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G-157233	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
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G-157462	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003

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G-157537	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
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G-157639	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
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G-157663	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
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G-157669	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157678	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157692	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157703	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-157706	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157712	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157726	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-157737	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157744	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157757	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-157784	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157788	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-157803	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157805	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157817	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-157818	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004

G-157869	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-157876	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
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G-157902	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
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G-157923	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157924	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
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G-157966	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-157978	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0001	0.0001
G-157981	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-157987	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
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G-158013	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-158022	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-158032	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-158034	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
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G-158101	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
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G-158234	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002

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G-158383	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
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G-158415	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
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G-158606	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-158613	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-158615	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-158623	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-158625	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-158637	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-158641	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-158678	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-158801	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-158843	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-158848	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
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G-158937	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
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G-162773	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-162863	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007
G-162958	Light-Duty	Drive Clean	EV Vehicle Rebate	0.001	0.0007
G-162978	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-163094	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-163124	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-163887	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
G-163955	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-163980	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-163993	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-164016	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-164024	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-164145	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
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G-164798	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-164847	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0009	0.0006
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G-164920	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-164921	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-164951	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-164955	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-165177	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0008	0.0005
G-165180	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-165189	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007
G-165223	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-165245	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-165265	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-165381	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-165560	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
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G-165626	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-165637	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0011	0.0007
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G-166027	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-166031	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-166038	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001

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G-166201	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
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G-166299	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-166384	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-166404	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-166459	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-166831	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-166835	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0003	0.0002
G-166838	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-166840	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0002	0.0001
G-166859	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-166864	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0005	0.0003
G-166872	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-166898	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0007	0.0004
G-166924	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0002
G-166934	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0006	0.0004
G-166936	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0004	0.0003
G-166948	Light-Duty	Drive Clean	EV Vehicle Rebate	0.0013	0.0009

Appendix C.3.3

SJVAPCD and SCAQMD Amicus Curiae Brief (2019)

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Appendix

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District *Sierra Club v. County of Fresno* Amicus Curiae Briefs

SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED
APR 13 2015
Frank A. McGuire Clerk
Deputy

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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1990 E. Gettysburg Avenue
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Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
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APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

[1] San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

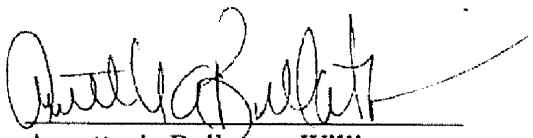
Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



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SAN JOAQUIN VALLEY UNIFIED
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DISTRICT

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).

[6] *Id.*

[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).

[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041 1.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club, supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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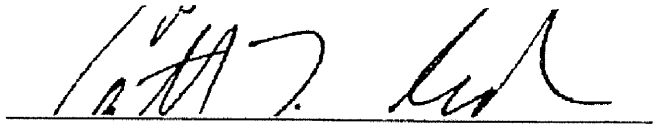
[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing'."* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015



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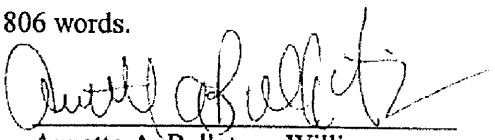
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

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S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
FILED
APR 13 2015
Frank A. McGuire Clerk
Deputy

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
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BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights 1*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

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[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1, supra,* 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties.[9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document.*" (*Laurel Heights I, supra,* 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra,* at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

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SOUTH COAST AIR QUALITY MANAGEMENT DISTICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

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Appendix C.3.4

DMC VERA Examples

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AIR QUALITY EMISSION REDUCTION AGREEMENT

This Air Quality Emission Reduction Agreement ("Agreement") is entered into as of _____, 2007 by and between Developer Name ("Developer") and the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq. ("District").

RECITALS

WHEREAS, Developer is presently seeking governmental approval of land use entitlements ("Entitlements") which will permit the development of a Project located in the City/County, California, as more particularly described on Exhibit A attached hereto (the "Project"); and

WHEREAS, the Project incorporates the design features specified on Exhibit B attached hereto ("Emission Reduction Design Features"), in order to significantly reduce the air quality impacts associated with the Project; and

WHEREAS, despite incorporation of the Emission Reduction Design Features, without additional emission reductions, the Project would cause impacts on air quality within the geographical boundaries of the San Joaquin Valley Unified Air Pollution Control District, as depicted on Exhibit C attached hereto (the "District Boundaries"); and

WHEREAS, Developer anticipates that mitigation of impacts on air quality resulting from the Project will be either required as a condition to the approval of Developer's Entitlements, or voluntarily imposed by Developer as a means of reducing such impacts; and

WHEREAS, Developer desires to fully comply with all requirements of the California Environmental Quality Act codified at California Public Resources Code section 21000, et seq. ("CEQA"), including all requirements relating to the mitigation of air quality impacts arising from or in connection with the Project; and

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WHEREAS, District is an air pollution control district formed by the counties of Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare, pursuant to California Health and Safety Code section 40150, et seq.; and

WHEREAS, District is responsible for developing and implementing air quality control measures within the District Boundaries, including air quality control measures for stationary sources, transportation sources, and indirect sources; and

WHEREAS, District has determined that with appropriate funding, District can bring about a reduction of emissions from certain projects in types and in sufficient quantities to fully mitigate the net air quality criteria pollutant impacts of the Project as quantified in the Verified Air Quality Assessment (as defined in Section 2.2 below) ("Project's Air Impact"); and

WHEREAS, Developer and District desire to enter into this Agreement in order to develop and implement air quality control measures which will fully mitigate the Project's Air Impact to the extent that the development of such Project will result in no net increase in criteria pollutant emissions over the criteria pollutant emissions which would otherwise exist without the development thereof.

AGREEMENT

NOW THEREFORE, in exchange of the mutual covenants herein contained, Developer and District hereby agree as follows:

1. **Emission Reduction by Developer and District.**

1.1. **Emission Reduction Proposals.** Developer shall identify and propose to District opportunities to reduce emissions to fully mitigate Project's Air Impact, including but not limited to opportunities for removal or retrofitting of stationary, transportation, indirect, and/or mobile pollution source equipment, and/or other opportunities therefore (each, an "**Emission Reduction Proposal**"). Each Emission Reduction Proposal shall be submitted in writing to District, using District approved forms, and shall contain a representation by Developer that the owner/operator of the identified Pollution Source Equipment has expressed interest in entering into a written funding agreement with

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District in District's then standard form ("**Funding Agreement**") requiring removal or replacement of the identified equipment with new equipment under District's "Heavy Duty Engine Emission Reduction Incentive Program", or another emission reduction program adopted by District ("**District Emission Reduction Program**"). Developer shall submit Emission Reduction Proposals to District in sufficient amounts to fully mitigate emissions from each distinct phase of the project. For each phase of the project, Developer shall submit Emission Reduction Proposals to District no later than application for grading permits for, and before generating emissions from, that phase. Any Emission Reduction Shortfall for a given phase shall be addressed according to Section 1.7.2 of this Agreement.

1.2. **District's Verification of Emission Reduction.** As quickly as practicable upon Developer's submission to District of an Emission Reduction Proposal, District shall determine the types and quantities of permanent reduction in emissions which would be realized by the proposed removal or retrofit and shall advise Developer of such determination in writing ("**Emission Reduction Verification**") thereby verifying that in District's considered opinion the removal or retrofit proposed in the Emission Reduction Proposal would result in permanent emission reduction in the locality of the Project in the types and quantities so determined by District.

1.3. **Emission Reduction Proposal Advance.** Developer shall advance to District, on the date of submittal of each Developer's Emission Reduction Proposal, a monetary sum equal to the total estimated cost (as specified in each Developer's Emission Reduction Proposal), until sufficient advance is received by District to fully mitigate the Project's Air Impact ("**Emission Reduction Proposal Advance**").

1.4. **Funding Agreements.** As soon as practicable after District's receipt of Developer's Emission Reduction Proposal Advance, District shall use diligent efforts to enter into Funding Agreements with the owners and/or operators of the pollution source equipment identified in Developer's Emission Reduction Proposal, thereby providing for the removal and/or retrofit of all of such Pollution Source Equipment, and

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providing for District's payment (from the Emission Reduction Proposal Advance) t such owner or operator, of an amount equal to the estimated cost of such opportunity, as specified in Developer's Emission Reduction Proposals. District shall use diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals within one hundred eighty (180) days following District's receipt of a complete Emission Reduction Proposal and the Emission Reduction Proposal Advance from Developer.

1.5. **Use of Emission Reduction Proposal Advance.** District shall use the Emission Reduction Proposal Advance to meet its monetary obligations under the Funding Agreements that District shall enter into with the owners of the Pollution Source Equipment identified in Developer's Emission Reduction Proposals.

1.6. **Use of Unused Portions of Emission Reduction Proposal Advance.** In the event Developer is unable to submit to District Emission Reduction Proposals providing for emission reduction in the types and quantities necessary to fully mitigate the Project's Air Impact, or in the event District is unable to enter into Funding Agreements with any of the owners or operators identified in Developer's Emission Reduction Proposals, District shall notify Developer in writing of the additional emission reductions needed to fully mitigate the Project's Air Impact, and Developer shall have a reasonable time, not to exceed one hundred eighty (180) days within which to submit to District additional or supplemental Emission Reduction Proposals in order to provide the necessary additional emission reduction.

1.7. **Unused Advance / Emission Reduction Shortfall / Additional Payment.**

1.7.1. **Unused Advance.** If, despite District's diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable, supplemental Emission Reduction Proposals submitted by Developer), District is unable to enter into Funding Agreements sufficient to fully mitigate the Project's Air Impact, then District shall use any unused portion of Developer's Emission Reduction Proposal Advance to fund emission

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reduction opportunities to mitigate the balance of the Project's Air Impact at District's actual cost of doing so, provided that such actual costs shall not exceed the costs set forth in the following Emission Reduction Cost Schedule:

Emission Reduction Cost Schedule		
Year Paid	NOx or ROG ($/ton)	PM10 ($/ton)
2007	$49,700	$55,940
2008	$65,450	$90,110
Beyond	Prevailing Costs	Prevailing Costs

District is of the considered opinion that the emission reductions listed in the above schedule can be achieved at the corresponding times and costs shown in said schedule. If, at the time of invoicing, the District has not identified Prevailing Costs for post-2008 payments, 2008 costs shall apply.

1.7.2. **Emission Reduction Shortfall/Additional Payment.** In the event the emission reduction brought about by the Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable supplemental Emission Reduction Proposals), and that brought about pursuant to Section 1.7.1 above, are not sufficient to fully mitigate the Project's Air Impact ("**Emission Reduction Shortfall**"), then Developer shall be credited for the emission reduction brought about as a result of Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals and for the emission reduction brought about pursuant to Section 1.7.1 above, and Developer thereafter shall deposit with District, within 30 days of receiving notice of the Emission Reduction Shortfall from District, an additional amount equal to the product of (i) District's cost per ton of emission reduction as shown in the Emission Reduction Cost Schedule set forth in Section 1.7.1 above, multiplied by (ii) the total number of tons of emission reduction necessary to fully mitigate the Project's Air Impact less the total number of tons of emission reduction so credited to Developer. However, in no case shall the amount paid to District and the

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amount of emission reductions achieved per this agreement be less than the amount that would be paid to District or the amount of emission reductions that would be required for this Project according to District Rule 9510 (Indirect Source Review). To allow verification of equivalency of emission reductions and off-site mitigation fee amounts, according to District Rule 9510, Developer shall submit to District an ISR Air Impact Assessment Application, using District forms, no later than concurrent with the Developer's submission of the air quality assessment, as set forth in Section 2.2.

1.8. **Surplus Mitigation.** In addition to the amounts payable under paragraph 1.3, Developer shall deliver to District an additional sum equal to five percent (5%) of the Emission Reduction Proposal Advance. Said additional sum shall be paid under the same schedule as set forth in paragraph 1.3. District shall utilize such additional sum to fund further localized emission reduction opportunities in quantities consistent with the schedule set forth in paragraph 1.7.1.

1.9 **Time of Use.** Any emission reductions brought about by this Agreement prior to the date Developer receives final approval of the Project from all applicable Governmental Authorities shall be credited to the total amount of emission reductions achieved per this agreement.

1.10. **District's Obligation.** The monies paid by Developer under this Agreement shall be used by District to obtain localized emission reductions in the types and quantities necessary to fully mitigate the Project's Air Impact as quantified in the Verified Air Quality Assessment. If necessary, District shall assist Developer in securing emission reductions, consistent with the provisions established in Section 1.7.2.

1.11. **Developer's Obligation.** District acknowledges that, if the Project is not finally approved so that such development is allowed to proceed, Developer has no obligations under this Agreement relative to the respective Project. Developer acknowledges that it must satisfy the terms of this Agreement in order to develop the Project.

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2. **CEQA Compliance/Full Mitigation.** For and in exchange of Developer's payment of funds pursuant to Section 1 above, District shall ensure, by way of entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, that the Project's Air Impact is fully mitigated, such that the Project, combined with the emission reductions brought about in accordance with Section 1 above, shall result in no net increase in air quality impacts over those air quality impacts which would otherwise exist without the development of such Project. For the purpose of this agreement, full mitigation means the sum of all NOx, ROG, and PM10 emission reductions achieved by the Emission Reductions Proposals equals, or is greater than, the sum of all NOx, ROG, and PM10 emissions increases calculated as the average annual construction and the peak annual area source and mobile source emissions of NOx, ROG, and PM10 less the average annual emissions that have occurred at the project site during the three years prior to release of the Notice of Preparation. In addition to entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, District shall do all of the following:

2.1. **District's Verification of Air Assessment Protocol.** Within ten (10) business days following the date of this Agreement, Developer shall submit to District an air assessment protocol prepared by Developer's air quality consultant reflecting the methodology, including air quality impact modeling, to be utilized in the preparation of the air quality assessment for the Project. Within twenty-one (21) business days following District's receipt of Developer's air assessment protocol, District shall review and comment upon such air assessment protocol, and, after Developer's incorporation of any revisions suggested by District, District shall verify in writing to Developer the correctness of the air assessment protocol which will be utilized in the preparation of the air quality assessment for the Project.

2.2 **District's Verification of Air Quality Assessment.** Following District's Verification of Air Assessment Protocol, Developer shall submit to District an air quality

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assessment prepared by Developer's air quality consultant assessing the air quality impacts of the Project. District shall use its best efforts to review and comment upon Developer's air quality assessment within thirty (30) days following District's receipt of Developer's complete air quality assessment, and, after Developer's incorporation of any and all revisions suggested by District, District shall verify in writing to Developer the correctness of the air quality assessment to be utilized in connection with the CEQA documents for the Project, including (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein (the "**Verified Air Quality Assessment**").

2.3. **District's Verification of Administrative Draft Environmental Impact Report**. Upon request by Developer, and submission by Developer to District of any administrative Draft Environmental Impact Report, or other applicable CEQA documents for the Project, District shall review, comment upon and, after incorporation of any and all revisions made by District, verify in writing to Developer the correctness of all portions thereof which pertain to air quality impacts, including, (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein.

2.4 **District's Acknowledgment Regarding Full Mitigation.** At such time as District is provided an opportunity as a commenting agency to comment upon the Draft Environmental Impact Report and Final Environmental Impact Report for the Project, District shall comment in writing as to the correctness of all portions thereof which pertain to air quality impacts, including (i) the methodology utilized in the

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preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein. District shall at all times fully perform its duties and obligations as a commenting agency, and the provisions of this Section 2.4 shall not be interpreted to the contrary. At such time as District has entered into Funding Agreements pursuant to Section 1.4 above and the owners/operators of equipment to be removed and/or replaced under such agreements have removed and replaced such equipment in accordance with the provisions thereof, District shall verify in writing to Developer and to the lead agency that full mitigation of the Project's Air Impact has been achieved, upon successful fulfillment of all Funding Agreements. District shall ensure that the owners/operators of equipment to be removed and/or replaced pursuant to such Funding Agreements perform all obligations to be performed on the part of such parties under said Funding Agreements. District acknowledges that the Verified Air Quality Assessment and its quantification of the Project's Air Impact will be based on the pending applications for development of the Project and that actual approvals may be for a lesser amount of development. District agrees that Developer's obligations under this Agreement shall be based on the amount of development actually approved, and the final quantification of the Project's Air Impact will be revised accordingly.

2.5. **District's Oversight of Air Quality Mitigation Monitoring Plan.** Upon request of the lead agency having jurisdiction over the Project, District shall oversee that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1 of this Agreement. Alternatively, upon request of that lead agency, District shall cooperate with the lead agency in the oversight of that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1

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of this Agreement.

2.6. **District's Documentation, Record Keeping and Monitoring.** District shall document, keep adequate records on and monitor the emission reduction brought about as a result of this Agreement, and shall from time to time, upon written request by Developer or by the lead agency for the Project, provide to Developer or to the lead agency written reports verifying that emission reduction has been and/or is being brought about so as to fully mitigate the Project's Air Impact.

3. **Subsequent Litigation, Legislation and/or Administrative Action / Credit to Developer.**

3.1. **Subsequent Litigation.** In the event that despite this Agreement, Developer is required as a result of a final judgment or District Approved Settlement (as defined below) in any subsequent third party litigation, to pay monies in addition to the monies to be paid by Developer pursuant to Section 1 above, then, provided that the project total emissions are the same as quantified in the Verified Air Quality Assessment, District shall acknowledge and credit Developer with mitigation of the air quality impacts of the Project in such types and quantities that Developer can establish, to the reasonable satisfaction of District, will result from Developer's payment of such additional monies, and shall reduce any amounts thereafter payable by Developer under this Agreement by an amount equal to the additional monies so paid by Developer. This requirement shall not apply if the additional monies are required to mitigate emissions that exceed those set forth in the Verified Air Quality Assessment. For purposes of this Section 3.1.1, a "**District Approved Settlement**" shall mean a settlement of a lawsuit filed pursuant to CEQA, the National Environmental Protection Act or other applicable environmental law which (i) provides for Developer's payment of monies in exchange for a dismissal of such lawsuit, (ii) provides for the use of such monies by the petitioner in such lawsuit in such a manner as to mitigate adverse air quality impacts of the Project, and (iii) is approved in writing by District.

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3.2. **District Rule 9510.** The performance of Developer's and District's obligations under this Agreement will fully mitigate the Project's Air Impact. Inasmuch as the mitigation provided under this Agreement exceeds the mitigation which would otherwise have been provided under Sections 6.0 and 7.0 of District's Rule 9510, and the Project's mitigated baseline (being zero emissions) is less than the threshold stated in Section 4.3 of said Rule 9510, the Project is exempt from Sections 6.0 and 7.0 of District's Rule 9510. Accordingly, no off-site Emission Reduction Fee will be required in connection with the approval or development of the Project. For each individual project developed at the project site requiring a discretionary approval by the lead agency, Developer shall provide District with a map or diagram indicating its location within the area covered by this Agreement.

4. **Term of Agreement.** This Agreement shall be effective upon the date first written above, and shall terminate upon District's meeting its obligation to implement projects that provide necessary emissions reductions to fully mitigate the Project's Air Impact (the "**Term**"). Developer may, at any time by written notice to District, terminate this Agreement, whereupon, (i) District shall acknowledge in writing to the lead agency that Developer has mitigated air quality impacts of the Project to the extent and in the types and quantities brought about by Funding Agreements theretofore funded by Developer's Emission Reduction Proposal Advance (and if applicable pursuant to Section 1.7.1 above), (ii) District shall refund to Developer any unused portion of Developer's Emission Reduction Proposal Advance less any unpaid administrative fees incurred; and (iii) neither Developer nor District shall have any further rights or obligations under this Agreement. Developer acknowledges that in the absence of this Agreement, the project is subject to all applicable provisions of District Rule 9510 (Indirect Source Review).

5. **Payment of Administrative Fees to District.** Developer agrees to pay to District, in order to reimburse District for its general overhead required for the administration of this Agreement, an administrative fee ("***ERIP Fee***") in an amount

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equal to four percent (4%) of the Emission Reduction Proposal Advance. Such ERIP Fee shall be due and payable upon Developer's delivery of the Emission Reduction Proposal Advance pursuant to Section 1.3 above. In addition to the ERIP Fee, Developer agrees to pay to District, within thirty (30) days following Developer's receipt of District's invoice, administrative fees to reimburse District for staff time spent and materials used by District in the administration of this Agreement, other than that time associated with the ERIP program covered by the ERIP Fee above, including review, verification and preparation of documents, and staff time relating to the performance of District's obligations hereunder, based on a time and materials basis at District's average weighted labor rates.

6. **Representations, Covenants and Warranties.**

6.1. **Developer's Representations, Covenants and Warranties.** Developer represents, covenants and warrants to District, as of the date of this Agreement, and as of the date of Developer's submission to District of any documents contemplated hereunder, as follows:

6.1.1. The undersigned representatives of Developer are duly authorized to execute, deliver and perform this Agreement, and upon Developer's execution and delivery of this Agreement, this Agreement will have been duly authorized by Developer.

6.1.2. Upon execution and delivery of this Agreement by Developer, Developer's obligations under this Agreement shall be legal, valid and binding obligations of Developer, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.1.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

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6.1.4. Other than the execution and delivery of this Agreement by the undersigned representatives of Developer, there are no approvals, consents, confirmations, proceedings, or other actions required by Developer or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2. **District's Representations, Covenants and Warranties.** District represents, covenants and warrants to Developer, as of the date of this Agreement, and as of the date of District's delivery to Developer of any documents contemplated hereunder, as follows:

6.2.1. The undersigned representatives of District are duly authorized to execute, deliver and perform this Agreement, and upon District's execution and delivery of this Agreement, this Agreement will have been duly authorized by District.

6.2.2. Upon execution and delivery of this Agreement by District, District's obligations under this Agreement shall be legal, valid and binding obligations of District, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.2.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative, quasi-legislative or administrative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

6.2.4. Other than the execution and delivery of this Agreement by the undersigned representatives of District, there are no approvals, consents, confirmations, proceedings, or other actions required by District or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2.5. No lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or

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anticipated will render invalid, void or unenforceable any right or benefit Developer is to receive under the terms and conditions of this Agreement.

6.2.6. The monies paid by Developer under this Agreement shall be sufficient to ensure that the emission reduction contemplated by this Agreement shall occur, and District shall utilize such monies in such a manner as to ensure that such emission reduction shall occur.

6.2.7. Upon the approval of this Agreement by the governing board of District, the Air Pollution Control Officer of District, or equivalent representative, or a delegee of such officer, shall have the authority to approve, deliver, verify, enter into, acknowledge and/or accept any communication, notice, notification, verification, agreement and/or other document to be issued or entered into by District under the terms and conditions of this Agreement, without further approval of the governing board of District.

7. **Indemnification.** Developer agrees to indemnify, defend and hold harmless District for, from and in connection with any third party claims, losses and/or liabilities arising from or in connection with District's performance of this Agreement, excluding only such claims, losses and/or liabilities which result from or in connection with District's sole negligence, act or omission.

8. **Inurnment.** Developer's rights and obligations under this Agreement, or applicable portions thereof, shall run with the land encompassed by the Project, and shall inure to the benefit of and be binding upon the heirs, successors and assigns of Developer who take title to such lands or applicable portions thereof. Upon Developer's conveyance of all or any portion of the lands encompassed by the Project, the rights and obligations of Developer under this Agreement shall, to the extent applicable to the lands so conveyed, be transferred to the transferee thereof, and Developer shall thereupon be released by District from, all obligations and liabilities so assigned, except for such obligations and liabilities arising prior to such transfer.

9. **Assignment.** Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement. Upon any such assignment, Developer shall

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deliver to District a written assignment and assumption agreement specifying the fact and extent of the assignment, the name and address of the assignee, and the assignee's assumption of all obligations of Developer thereby assigned. Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement to a third party for use in connection with the mitigation of air quality impacts resulting from one or more projects other than the Project, so long as (i) the project is located within the District Boundaries, (ii) the air quality impacts of such project(s) will in fact be mitigated, as verified by District, by the emission reductions brought about by this Agreement, and (iii) the project(s) consist of residential, commercial, industrial and/or mixed use real estate projects which incorporate the Emission Reduction Design Features. Upon any such assignment by Developer, District shall enter into an amendment of this Agreement which acknowledges the assignment and conforms the various provisions of this Agreement as may be required to be conformed in order to provide to the assignee the rights and benefits of this Agreement as if such assignee and its project were the original party and project contemplated in this Agreement.

10. **Recitals Incorporated.** The recitals set forth hereinabove are hereby incorporated into this Agreement and acknowledged, agreed to and adopted by the parties to this Agreement.

11. **Further Assurances.** Developer and District agree to execute and deliver any documents and/or perform any acts, which are reasonably necessary in order to carry out the intent of the parties with respect to this Agreement.

12. **No Joint Venture or Partnership.** District and Developer agree that nothing contained in this Agreement or in any document executed in connection with this Agreement shall be construed as making District and Developer joint ventures or partners.

13. **Notices.** Any notices or communications relating to this Agreement shall be given in writing and shall be deemed sufficiently given and served for all purposes

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when delivered, if (a) in person, (b) by facsimile (with the original delivered by other means set forth in this Section 13), (c) by generally recognized overnight courier or (d) by United States Mail, certified or registered mail, return receipt requested, postage prepaid, to the respective addresses set forth below, or to such other addresses as the parties may designate from time to time by providing written notice of the change to the other party.

To Developer: Address & Contact Name	To District: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Seyed Sadredin Executive Director/APCO
With a copy to: Address & Contact Name	with a copy to:San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Dave Warner Director of Permit Services with a copy to: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Philip M. Jay District Counsel

14. **Entire Agreement.** The terms of this Agreement, together with all attached exhibits, are intended by the parties as the complete and final expression of their agreement with respect to such terms and exhibits and may not be contradicted by evidence of any prior or contemporaneous agreement. This Agreement specifically supersedes any prior written or oral agreements between the parties with respect to

the subject matter of this Agreement.

15. **Amendments and Waivers.** No addition to or modification of this Agreement shall be effective unless set forth in writing and signed by the party against whom the addition or modification is sought to be enforced. The party benefited by any condition or obligation may waive the same, but such waiver shall not be enforceable by another party unless made in writing and signed by the waiving party.

16. **Invalidity of Provisions.** If any provision of this Agreement as applied to either party or to any circumstance shall be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the same shall in no way affect (to the maximum extent permissible by law) any other provision of this Agreement, the application of any such provision under circumstances different from those adjudicated by the court, or the validity or enforceability of this Agreement as a whole. The parties further agree to replace any such invalid, illegal or unenforceable portion with a valid and enforceable provision which will achieve, to the maximum extent legally possible, the economic, business or other purposes of the invalid, illegal or unenforceable portion.

17. **Construction.** Unless otherwise indicated, all Section references are to the sections of this Agreement and all references to days are to calendar days. Whenever, under the terms of this Agreement the time for performance of a covenant or condition falls upon a Saturday, Sunday or California state holiday, the time for performance shall be extended to the next business day. The headings used in this Agreement are provided for convenience only and this Agreement shall be interpreted without reference to any headings. Wherever required by the context, the singular shall include the plural and vice versa, and the masculine gender shall include the feminine or neuter genders, or vice versa. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The language in all parts of this Agreement shall be construed as a whole in accordance with its fair meaning, and shall not be

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construed against any party solely by virtue of the fact that such party or its counsel was primarily responsible for its preparation.

18. **Governing Law.** This Agreement shall be governed by the laws of the State of California applicable to contracts made and to be performed in California.

19. **No Third-party Beneficiaries.** Nothing in this Agreement, express or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any person other than the parties to it and their respective permitted successors and assigns, nor is anything in this Agreement intended to relieve or discharge any obligation of any third person to any party hereto or give any third person any right of subrogation or action over or against any party to this Agreement.

20. **Exhibits.** The exhibits attached to this Agreement shall be deemed to be a part of this Agreement and are fully incorporated herein by reference.

21. **Force Majeure.** The time within which any party shall be required to perform under this Agreement shall be extended on a day-per-day basis for each day during which such performance is prevented or delayed by reason of events reasonably outside of the control of the performing party, including, without limitation, acts of God, events of destruction, acts of war, civil insurrection, strikes, shortages, governmental delays, moratoria, civil litigation and the like, and/or delays caused by the non-performing party's act or omission.

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IN WITNESS WHEREOF, Developer and District have executed this Agreement and agree that it shall be effective as of the date first written above.

DEVELOPER: Developer Name,

a California limited liability company

By:_____

Name:_____

Title:_____

DISTRICT: **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT**, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq.

///

DISTRICT

San Joaquin Valley Unified Air Pollution Control District

///

By:_____

Councilmember J. Steven Worthley, Chair

Governing Board

///

Recommended for approval:

San Joaquin Valley Unified Air Pollution Control District

///

_____

Seyed Sadredin

Executive Director/APCO

///

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Approved as to legal form:

San Joaquin Valley Unified Air Pollution Control District

_____

Philip M. Jay

District Counsel

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Approved as to accounting form:
San Joaquin Valley Unified Air
Pollution Control District
///

_____
Roger W. McCoy
Director of Administrative Service

For accounting use only:

Program:_____

Account No.:_____

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EXHIBIT A

DESCRIPTION OF THE PROJECT

[INSERT MAP.]

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EXHIBIT B

EMISSION REDUCTION DESIGN FEATURES

The project shall incorporate the following Emission Reduction Design Features:

The project will incorporate the following on-site features:

1. Utilization of land use designs which create walkable communities and encourage pedestrian travel.
2. Utilization of interconnecting sidewalks, walking paths and/or bike paths in order to encourage travel by means other than motor vehicle.
3. Utilization of appropriate landscaping to create reasonable shade canopies for streets, parkways and parking areas.
4. Utilization of roadway designs, which enhance pedestrian safety by appropriate signaling, signage and separation from traffic.
5. Design requirements, which incorporate natural gas hookups and electrical outlets on patios.
6. Design requirements, which prohibit the installation and use of wood burning stoves and wood burning fireplaces.

Prior to issuance of grading permits for the Project, Developer shall prepare and submit to District dust control plans for the areas to be graded, in accordance with District Regulation VIII. The plan shall be prepared consistent with District Regulation VIII and must be reviewed and approved by the District prior to commencement of grading activities. Each contractor working on the Project site shall implement the dust control measures outlined in the approved dust control plan. The dust control measures selected shall be incorporated as a note on each grading plan.

District maintains New Source Review requirements that direct owners/operators of certain types of stationary equipment to obtain an Authority to Construct ("ATC") and Permits to Operate ("PTO") from the District. As part of this process, the need for emission control equipment is assessed and the District determines whether a Health Risk Assessment ("HRA") must be prepared.

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Owners/operators of all stationary sources for which such approvals are required should show proof of compliance with District Rules and Regulations prior to issuance of certificates of occupancy.

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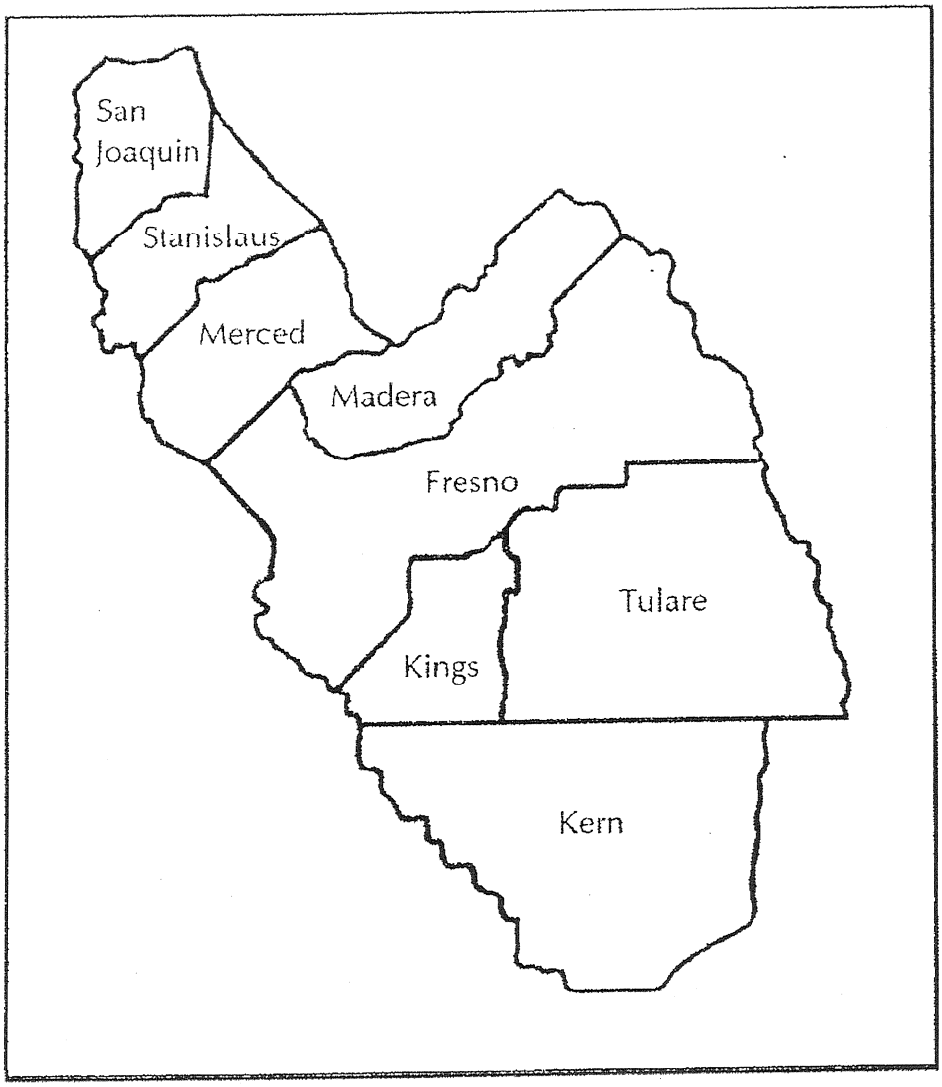
EXHIBIT C

DISTRICT BOUNDARIES



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Appendix C.3.5

SJVAPCD Annual Report on Toxic Emissions (2024)

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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT®



AIR TOXICS

2024 Annual Report

February 20, 2025

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
GOVERNING BOARD

CHAIR: AMY SHUKLIAN
Supervisor, Tulare County

VICE CHAIR: BOBBY MACAULAY
Supervisor, Madera County

MEMBERS:

DAVID COUCH
Supervisor, Kern County

ROSA ESCUTIA-BRAATON
Councilmember, City of Modesto

VITO CHIESA
Supervisor, Stanislaus County

BUDDY MENDES
Supervisor, Fresno County

TANIA PACHECO-WERNER, PHD
Appointed by Governor

LLOYD PAREIRA
Supervisor, Merced County

ALVARO PRECIADO
Mayor, City of Avenal

GILBERTO REYNA
Councilmember, City of Wasco

ROBERT RICKMAN
Supervisor, San Joaquin County

RUSTY ROBINSON
Supervisor, Kings County

ALEXANDER C. SHERRIFFS, M.D.
Appointed by Governor

DEBORAH LEWIS
Mayor Pro Tem, City of Los Banos

LIZ WYNN
Vice Mayor, City of Visalia

EXECUTIVE DIRECTOR/AIR POLLUTION CONTROL OFFICER:

SAMIR SHEIKH

Executive Summary

The San Joaquin Valley Air Pollution Control District (District) is a public health agency whose mission is to improve the health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality-management strategies. The District has spent nearly three decades implementing and integrating a wide variety of methods reducing air toxic emissions in the San Joaquin Valley. Based on the latest California Toxics Inventory (CTI) available from CARB, 14% of all air toxics in the Valley are now emitted from stationary sources of pollution under the direct control and regulation of the District, while 52% comes from mobile sources such as cars and trucks, and the remaining 34% is emitted from area-wide sources like road dust, paints, solvents, and other consumer products. Mobile and area-wide sources of emissions are generally under the regulatory authority of the State of California and the federal government.

The District's integrated approach to addressing and reducing risks from toxic air contaminants has taken three main paths: reducing air toxic emissions from existing stationary sources of emissions; preventing the creation of new or modified stationary sources of significant risk; and finding creative and cooperative methods of reducing risk from emissions sources that the District does not typically regulate. This approach has resulted in dramatic reductions in emissions of air toxics from sources in the San Joaquin Valley.

Under Assembly Bill (AB) 2588 (Air Toxics Hot Spots Information and Assessment Act), the District works with facilities to quantify emissions of air toxics, determines the health risk caused by those emissions, reports emissions and any significant risks through written public reports and neighborhood public meetings, and as required, takes steps to reduce such risks. As a result of these ongoing efforts, and the resulting emissions reductions, no Valley facility currently poses a significant risk under this program.

The State's Hot Spots Act, however, is only one part of the District's comprehensive program to regulate air toxics. To achieve maximum efficiency and effectiveness, the District operates an integrated air toxics program that harmonizes local, state, and federal mandates wherever possible.

A number of regulations have also been adopted by the District, the state, and the federal government, and implemented through the District's integrated air toxics program, to directly reduce existing emissions from specific types of facilities and sources of air toxic contaminants. For example, toxic air emissions from sources like dry cleaners, chrome platers, gas stations, and diesel internal combustion engines have drastically decreased in the San Joaquin Valley since the implementation of the District's air toxic program.

In addition to the above efforts to minimize emissions, the District also performs comprehensive and conservative toxic emission evaluations and air dispersion modeling before issuing permits to new and modified stationary sources of emissions. This assures the District minimizes the increase those sources add to the existing toxic load and any potentially significant public health impacts associated with the release of those air toxics.

Under its integrated air toxics program, the District has also implemented numerous methods of reducing emissions from mobile sources and other sources of emissions that the District does not have the authority to regulate. For instance, the District developed the first Indirect Source Review rule in the nation, designed to reduce emissions from construction equipment and mobile sources associated with new land use development projects. The District also provides assistance and guidance to the cities and counties in the San Joaquin Valley so that they can be assured that land-use decisions are based on a full understanding of the potential for increasing emissions of air toxics, and new air toxics risks can be avoided. One of the most effective methods of reducing emissions of air toxics from emissions sources not directly regulated by the District has been the incentive grant programs that have leveraged billions of dollars in reducing emissions from diesel internal combustion engines on trucks, tractors and agricultural irrigation operations.

This 2024 Annual Air Toxics Report describes the District's ongoing efforts to regulate and minimize air toxic emissions. An electronic version of this report may be found at: http://www.valleyair.org/busind/pto/air_toxics_annual_reports.htm.

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Summary of Toxic Air Contaminants in the San Joaquin Valley

The United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have identified over 1,700 substances that are emitted into the air that may affect human health. Some of these substances are considered to be carcinogens, while others are known to have short-term acute or long-term chronic health impacts. As part of ongoing efforts to identify and assess potential health risks to the public, the District has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Valley. The State has developed similar inventories for mobile sources of air pollution. These District and State inventories have been combined into the CARB's California Toxic Inventory (CTI), which provides emission estimates available for hazardous air pollutants of concern from all sources. A summary of the latest available CTI data for key pollutants is presented in Table 1 below.

Table 1. Primary San Joaquin Valley Hazardous Air Pollutant Emissions

Pollutant	Inventory (tons/yr)
Acetaldehyde	3,512
Diesel Particulate Matter	2,520
Formaldehyde	2,318
Benzene	1,020
Perchloroethylene	448
1,3-Butadiene	269
Methylene Chloride	247
p-Dichlorobenzene	130
Carbon Tetrachloride	0
Chromium, Hexavalent	0

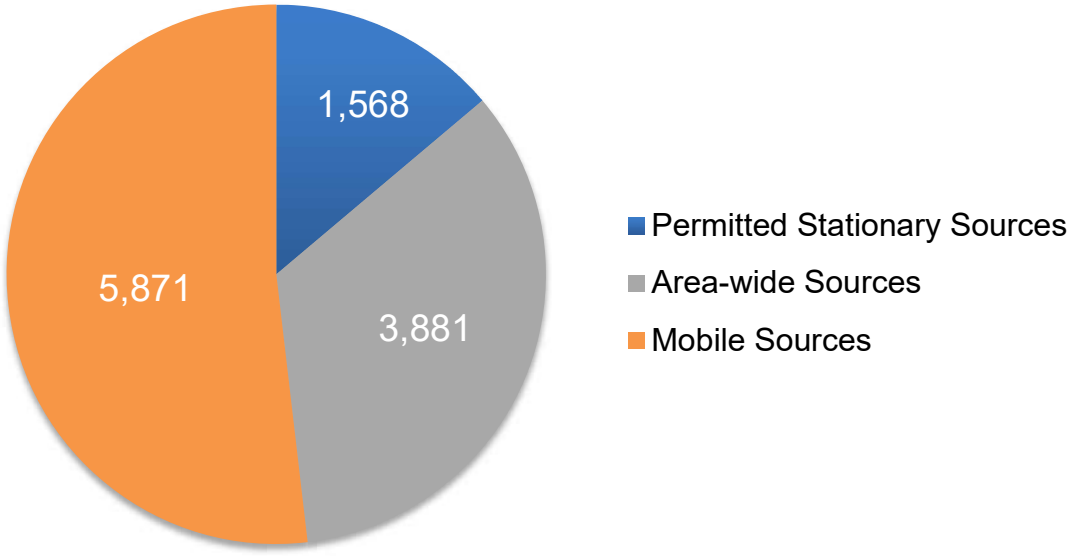
A more detailed summary of CTI emission estimates for the San Joaquin Valley is provided in Table C1 in Appendix C.

Air toxics are emitted from mobile sources (e.g., cars, trucks, buses, tractors, etc.), which are primarily regulated by the State and EPA; area sources (e.g., consumer products), which are regulated by the State, EPA, and the District; and from stationary sources regulated primarily by the District. Figure 1 shows a comparison of mobile, area, and stationary source emissions of hazardous air pollutants in the San Joaquin Valley. Of these sources, approximately 86% of air toxic emissions occurring in the Valley are from mobile sources and area sources.

Stationary sources include point source emissions provided by facility operators and/or air districts and estimated by CARB and/or air districts. This stationary source information is

included in the CTI pursuant to the Air Toxics "Hot Spots" Act of 1987 (AB 2588). Area-wide sources are those that emit over an unspecified area. This could include paved roads, unpaved roads, or consumer product emitting sources.

Figure 1. Air Toxics Emissions (tons/year) in the San Joaquin Valley (per CARB's CTI)



California Air Toxics Assessment

The California Air Toxics Assessment (CATA)[1] is a tool that uses detailed emission inventory data from CARB, meteorological data, and an integrated modeling approach to assess health risk for air basins located throughout California. Based on risk data collected between 2012 and 2017, CATA shows an average percent reduction in cancer risk of 55% over that time period in the San Joaquin Valley Air Basin, with the majority of the cancer risk reduction from diesel particulate matter (DPM) emissions. The vast majority of the remaining cancer risk in the Valley came from mobile DPM emission sources under federal and state jurisdiction.

Most of the reductions seen across the air basins were attributed to reductions in on-road mobile emissions due to implementation of the state's on-road truck and bus rule and other programs. Note, the 2017 data includes wildfire emissions, which are a large contributor of certain TACs like formaldehyde and acetaldehyde but were not available for the 2012 data.

Prior to the 2017 CATA study, an initial statewide air toxics study was conducted with a 2012 base year. For both years, DPM sources were the major contributor to the overall risk, and the main driver of the risk reductions from 2012 to 2017. Table 2 presents the population-weighted averages of census tract total cancer risks in 2017 and 2012 in the

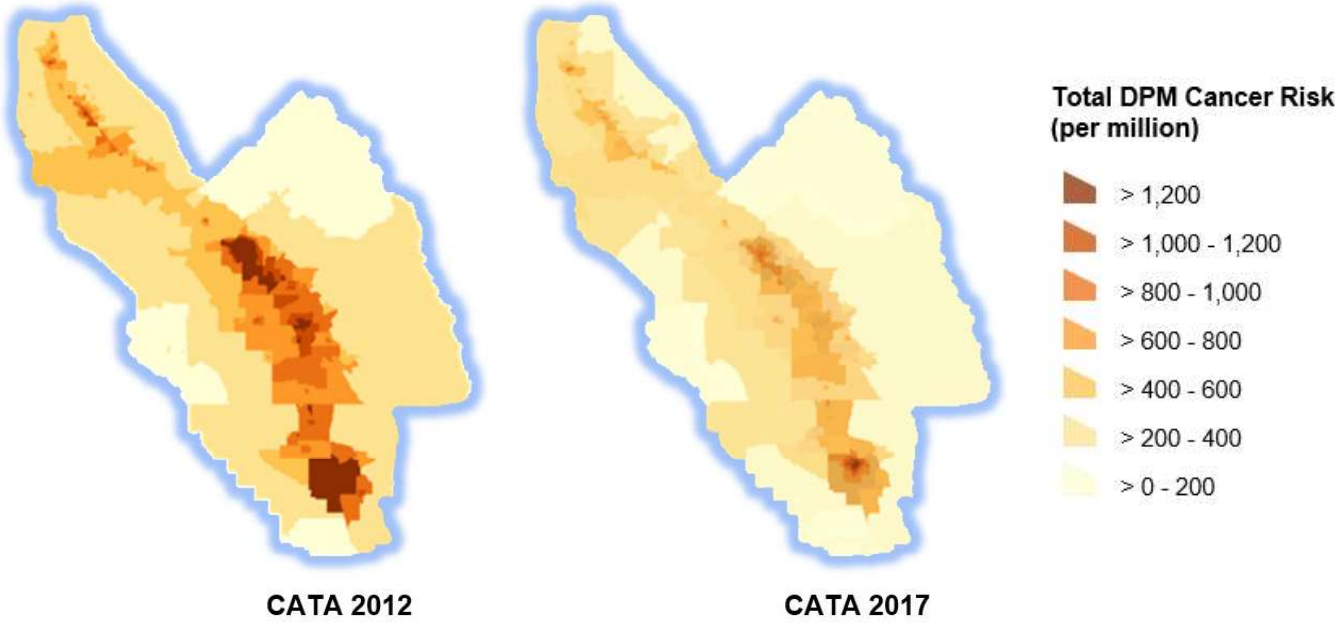
[1] https://california-air-toxics-assessment-californiaarb.hub.arcgis.com/

six major air basins in California (from CARB's CATA Technical Report, 2023).[2] Note that the total population in the six modeling domains where exposure and cancer risk are estimated is 36,727,572, which accounted for around 99% of the total population in California.

Table 2. Population-Weighted Total Air Toxics Cancer Risk in the Six Major Air Basins (per CARB's CATA Technical Report, 2023)

Air Basin	2012 Average Risk (chances per million)	2017 Average Risk (chances per million)	Risk Change from 2012 (%)
Sacramento Valley	597	356	-40.3
San Joaquin Valley	**1,063**	**474**	**-55.4**
San Diego	803	486	-39.5
Bay Area	871	510	-41.4
Imperial	806	671	-16.7
South Coast	1,244	830	-33.3

Figure 2. Cancer Risk Trends in the San Joaquin Valley (per CARB's CATA)



The 2017 CATA data shows that DPM remained the primary driver for cancer risk in the Valley, with on-road mobile being the highest contributing source (Figures 3 and 4).

[2] https://california-air-toxics-assessment-californiaarb.hub.arcgis.com/documents/9cce94a930314324a4101b5b1a549b7c/explore

Figure 3. Cancer Risk Contributions by Air Toxics in SJV (per CARB's CATA Technical Report, 2023)

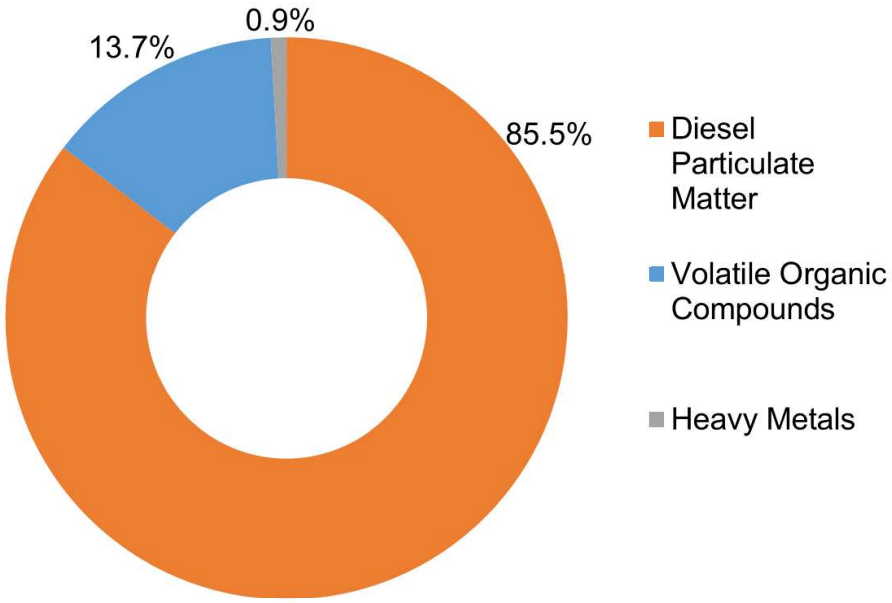
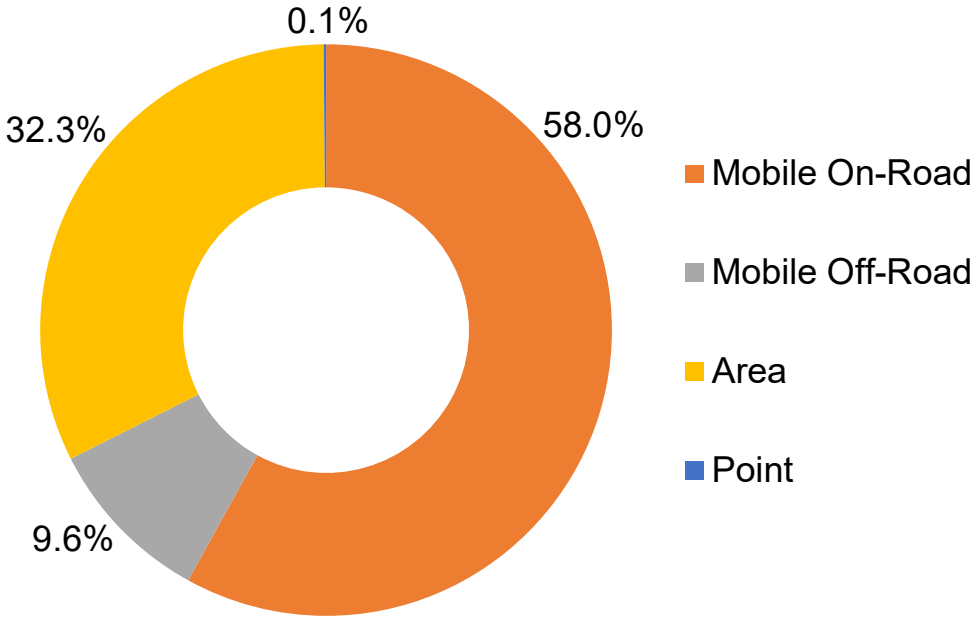


Figure 4. Diesel Particulate Matter (DPM) Population-Weighted Cancer Risk by Emission Source in SJV (per CARB's CATA Technical Report, 2023)



Note that in Figure 4, the source categories include the following specific emission activities:

- Mobile on-road sources include diesel trucks and buses,
- Mobile off-road sources include diesel locomotives, transport refrigeration units, and commercial harbor crafts,
- Area sources include mobile off-road equipment for agricultural-related activities, construction-related activities, forklifts, gen-sets, air compressors, etc.,
- Point sources include facilities subject to AB 2588.

Federal EPA Toxic Release Inventory

EPA's Toxics Release Inventory (TRI) is a resource that tracks the waste management of certain toxic chemicals that may pose a threat to human health and the environment.[3] There are currently 799 individually listed chemicals and 33 chemical categories covered by the TRI program that have the potential to cause cancer, significant adverse chronic, or acute health impacts, or cause significant adverse environmental effects. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual reporting forms for each chemical that are released into the environment. The information submitted by facilities is compiled in the TRI. The data from the TRI helps support informed decision-making by companies, government agencies, non-governmental organizations and the public. The TRI data shows that there was a 29% decrease of air toxic emissions in the Valley due to reductions in emissions of arsenic, mercury, lead, and nickel containing compounds from 2013 to 2022.

Federal EPA Air Toxics Screening Assessment

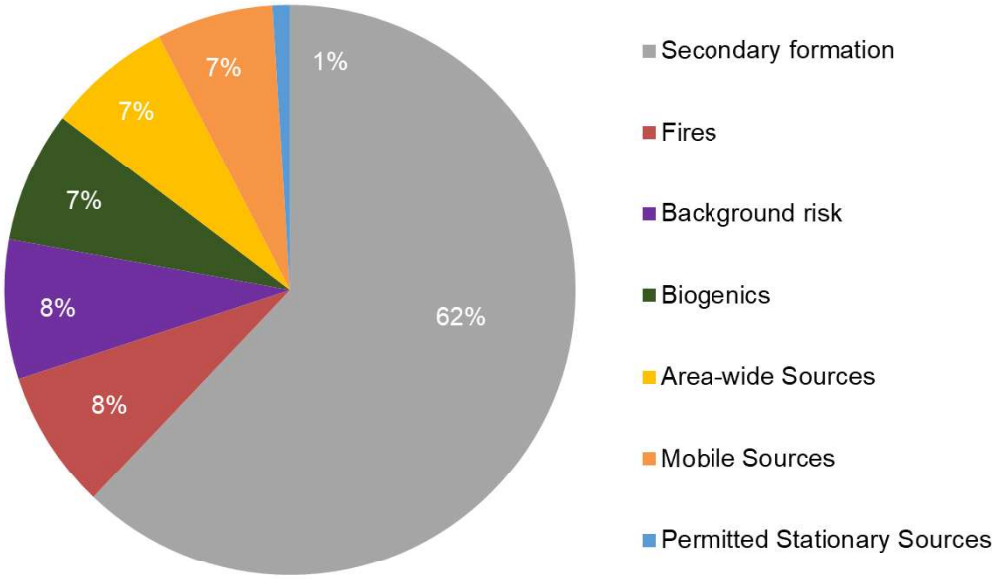
The federal Environmental Protection Agency's (EPA) Air Toxics Screening Assessment (AirToxScreen), is a screening tool that provides communities with information about health risks from air toxics. AirToxScreen is part of EPA's approach to air toxics that provides updated data and risk analyses on an annual basis, helping state, local and tribal air agencies, and the public more easily identify existing and emerging air toxics issues. State and air district toxic emissions inventory data are compiled to create a national emissions inventory of air toxic sources, which is used by EPA to generate the AirToxScreen Mapping Tool. The AirToxScreen Mapping Tool can be found at: https://www.epa.gov/AirToxScreen/airtoxscreen-mapping-tool.

EPA's AirToxScreen calculates public health risk using a four-step process. First, national emission inventories are compiled to identify all types and quantities of air toxic sources. Next, those emissions are input into photochemical model and then a steady-state air dispersion models to estimate long-term ambient air concentrations and population exposures across the United States. Finally, exposed concentrations are multiplied by corresponding air toxic's unit risk factors to estimate cancer risk and the public health impacts from breathing air toxics.

[3] https://www.epa.gov/toxics-release-inventory-tri-program

AirToxScreen estimates cancer risk from a variety of sources including secondary formation, background risk, area-wide sources, mobile sources, biogenics, fires, and permitted stationary sources. Secondary formation of air toxics are the processes where emissions react in the atmosphere to form other substances. Background concentrations are emissions that exist in the air and accumulate from non-specific naturally occurring or distant sources. Biogenic emissions come from specific natural sources, like plants and trees. Fire emissions come from prescribed wildfires and agricultural burning. Based on those emissions, the 2020 AirToxScreen identifies 150 elevated cancer risk areas in the country as having a cancer risk score of greater than 100 in a million. None of the 150 elevated cancer risk areas were located within the San Joaquin Valley. In the Valley, the average cancer risk from air toxic emissions was 28 in a million, compared to the national average of 30 in a million. As shown in Figure 6, about 77% of the total cancer risk in the San Joaquin Valley came from secondary formation, area-wide, and mobile source emissions in 2020, while only 0.5% of the total cancer risk came from stationary source emissions.

Figure 6. Cancer Risk by Source in the San Joaquin Valley (per EPA's AirToxScreen)



Exposure to formaldehyde was responsible for 69% of the total cancer risk in the San Joaquin Valley. Formaldehyde is emitted from secondary formation, primarily from cars, trucks, and planes, as well as other sources. Other chemicals contributing to the calculated cancer risk include acetaldehyde (7.6%), carbon tetrachloride (7.5%), polycyclic aromatic hydrocarbons/polycyclic organic matter (PAH/POM) (4.2%), benzene (3.8%), naphthalene (3.5%), and 1,3-butadiene (1.3%). It is important to note,

diesel particulate matter (DPM) is not considered an air toxic by EPA. Instead, they evaluate the individual chemical constituents of the DPM.

Assembly Bill (AB) 617 - Community Air Protection Program

The implementation of AB 617 (C. Garcia, 2017) has brought additional clean air resources and strategies to Valley communities. Despite the significant reductions in emissions of criteria and toxic air pollutants that have already been achieved across the Valley, there remain many Valley communities that are disproportionately burdened by the cumulative effects of various environmental and socioeconomic factors. AB 617 requires the expedited implementation of advanced control technologies for existing stationary source facilities; development and implementation of community-specific air quality monitoring networks; development and implementation of community emission reduction programs; enhanced reporting of facility emissions inventory data; and the creation of publicly accessible online clearinghouses of emission control technology determinations. Resources available through this legislation have allowed the District and Community Steering Committees, through a comprehensive public outreach and community engagement process, to develop programs for community protection and develop a robust plan for reducing local exposure to fine particulate matter and toxic air contaminants in Valley communities.

Criteria Air Pollutant and Toxics Air Contaminants Reporting Regulation

AB 617 requires CARB to develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants for certain categories of stationary sources. The bill requires stationary sources to report their annual emissions of criteria air pollutants and toxic air contaminants. In order to implement these reporting requirements, CARB developed the "Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants" (CTR) to implement statewide annual reporting of criteria air pollutant and toxic air contaminant emissions data from facilities. This regulation was adopted in support of mandates under AB 617, AB 197, and AB 2588. For Valley permitted facilities, the District implements this regulation on behalf of the state through the District's existing annual emission inventory and air toxics processes. Emissions inventory data is critical to understanding the sources of emissions that may contribute to adverse health risks or other impacts at the local, regional, and statewide level. In 2024, more than 6,850 facilities reported their emissions inventory-related data, including process rates, types of fuels used, materials received and processed. Using this information, the District quantified the criteria and toxic emissions for these facilities and transmitted the inventory to CARB. Facility emissions reported under the state's CTR regulation are visualized in CARB's Pollution Mapping tool. The tool provides an interactive platform where users can select facilities by name, location, or industrial sector; view their reported emissions using maps, charts and tabular formats; and download data. It can be found at: https://ww3.arb.ca.gov/ei/tools/pollution_map/.

Summary of California's Air Toxics "Hot Spots" Information and Assessment Act

Background

The *Air Toxics "Hot Spots" Information and Assessment Act* (AB 2588, 1987, Connelly) was enacted in September 1987 and later strengthened in 1992. Under this act, stationary sources are required to report the types and quantities of certain toxic substances their facilities routinely release into the air. The goals of AB 2588 are:

- to identify facilities that release toxic air contaminants as a result of their day-to-day operations
- to collect and quantify emission data
- to identify facilities causing localized impacts
- to determine facility-wide health risks
- to notify nearby residents and businesses of significant risk facilities in their vicinity
- to require that significant-risk facilities reduce their risks below the level of significance in accordance with the provisions of the "Emissions Inventory Criteria and Guidelines Report" adopted by the Air Resources Board

The District's implementation of AB 2588 has minimized health risks to the public associated with the release of air toxic emission from sources located within the San Joaquin Valley. Under this right-to-know law, the District has worked with facilities to quantify air toxic emissions, determine the potential health risk associated with those emissions, and report any risk determined to be significant by the District through written public reports and neighborhood public meetings. A flowchart summarizing the AB 2588 implementation process is provided in Appendix D.

Assessing the Risk to the Public

The State Air Toxics "Hot Spots" Act requires the District to compile an inventory of toxic emissions from Valley facilities, prioritize facilities for health risk, evaluate public health risks for facilities ranked as high priority, and notify individuals who may be impacted by any significant health risks. Although Hot Spots is primarily a public right-to-know and notification program, the public awareness achieved through the Hot Spots program has led many Valley businesses to voluntarily reduce their toxic emissions to ease community concerns.

Implementation

The District uses the applicability criteria outlined in CARB's Emission Inventory Criteria and Guidelines Regulation (EICGR) to determine which facilities are evaluated under the program. Facilities are subject to quantifying and reporting their toxic emissions if one or more of the criteria below is met:

- Emit toxic substances that have been added to Appendix A of the EICGR, and
- Emit 10 or more tons per year of criteria pollutants (particulate matter, oxides of nitrogen, oxides of sulfur, or organic gasses), or
- Emit less than 10 tons per year of criteria pollutants, but meet one or more of the classes listed in Appendix E of the EICGR, or
- Have an increase in potential health risk from previously calculated levels due to an increase in actual emissions, change to a state-established risk value, or other calculation or methodology changes.

The District's implementation of the AB 2588 Hot Spots Program incorporates the state's guidelines for evaluating health risks from stationary sources in the Valley. Facilities determined to be subject to the Air Toxics "Hot Spots" program are required to prepare a Toxic Emission Inventory Plan (Plan) and a Toxic Emission Inventory Report (Report) in order to provide site-specific inventories of air emissions of toxic substances.

In 2016, the District began the outreach and reassessment of facilities by following the phased processing schedule outlined in AB 2588, which was originally implemented in the late 80's and early 90's. AB 2588 subjected three major categories (or phases) of facilities to the regulation based upon their level of annual emissions. The AB 2588 regulation also allows for "Industry-wide" toxics emissions inventory, which consist of facilities that are small businesses where emissions can be generically characterized such as gasoline dispensing facilities, auto body coating facilities, etc. These industry-wide facilities are being addressed under the fourth assessment phase. Similar to industry-wide facilities, small single source facilities, such those with only diesel internal combustion engines (DICE), are also being assessed in the fourth phase of the implementation schedule. The fourth phase also includes auto body shops and agricultural facilities. The following summary outlines each phase within the District's implementation plan:

First phase:	Phase I Facilities (≥ 25 tons emissions per year)
Second phase:	Phase II Facilities (10 ≤ tons emissions per year < 25)
Third phase:	Phase III Facilities (< 10 tons emissions per year)
Fourth phase:	Phase IV Facilities (Industry-wide such as Gas Stations, Auto Body Shops; DICE only, Agricultural facilities)

AB 2588 Evaluation Process

Toxic Emission Inventory Plans and Reports

Under this act, facilities are required to prepare Toxic Emission Inventory Plans and Reports to develop site-specific inventories of air emissions from toxic substances. Plans provide an outline and methodology for calculating toxic emissions for all permitted and non-permitted stationary sources operated at the facility. This is reviewed and approved by the District prior to emission quantification. Reports Include calculations of facility's toxic emissions using site-specific process rates and emission factors in order to perform a "Prioritization" of the facility's air toxic emissions.

Prioritization

AB 2588 requires air districts to prioritize facilities to determine a facility's status within the program. In establishing priorities, the air districts are to consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the district determines may indicate that the facility may pose a significant health risk. The District uses the prioritization methodology outlined in the California Air Pollution Control Officers Association (CAPCOA) *Facility Prioritization Guidelines* to prioritize facilities under AB 2588. Utilizing the facility's approved Plan and Report, a facility's priority status is determined using the prioritization thresholds listed in District Policy APR 1906, as identified in Table 3 below.

Table 3: AB 2588 Prioritization Thresholds and Categories

Prioritization Thresholds	Priority Category	Category Requirements
≤ 1	Low Priority	Facility is conditionally exempt from further AB 2588 requirements
>1 and ≤ 10	Intermediate Priority	Facility is required to provide an update summary on a quadrennial basis
> 10	High Priority	Facility is required to perform a Health Risk Assessment

Health Risk Assessment

Facilities that classify as "High" priority are required to perform a Health Risk Assessment (HRA) to determine whether their toxic emissions are expected to pose a significant risk to nearby residents and workers. Under AB 2588, the District and the Office of Environmental Health Hazard Assessment's (OEHHA) review each HRA. HRAs performed under the program are required to use the methodologies and procedures outlined in District guidelines and OEHHA's 2015 Air Toxic Hot Spots Program "*Guidance Manual for Preparation of Health Risk Assessments*". A facility's status under the program is determined using established health risk thresholds as identified in Table 4 below:

Table 4: AB 2588 Health Risk Assessment Thresholds

Health Risk Thresholds	Risk Category	Category Requirements
Cancer risk < 1 in a million, and Total hazard index of < 0.1	Low Risk	Facility is conditionally exempt from further AB 2588 requirements
1 ≤ Cancer risk <10 in a million, or 0.1 ≤ Total hazard index ≤ 1.0	Intermediate Risk	Facility is required to provide an update summary on a quadrennial basis
Cancer risk ≥ 10 in a million, or Total hazard index of > 1.0	Public Notification Required	Facility is required to go through the public notification process
Cancer risk > 100 in a million, or Total hazard index of > 5.0	Risk Reduction	Facility is required to go through the public notification process and prepare a Risk Reduction Plan

Public Notification

Facilities that are determined to pose a potential health risk to nearby residents or workers by exceeding the District's public notification risk thresholds are required to notify those exposed persons, through the District's Public Notification process. This process informs the public of their potential exposure to toxic substances routinely released into the air from facilities, and the potential health risks associated with those exposures. Additionally, this process allows any public questions or concerns regarding exposure and health risk associated with the facility's toxic emissions to be heard and discussed.

Risk Reduction Audit and Plan

Facilities that pose health risks above District action levels are required to submit risk reduction audits and plans (RRAP) to reduce their risk. The District's review of completeness of any facility RRAP includes a substantive analysis of the emission reduction measures included in the plan, and the ability of those measures to achieve emission reduction goals as quickly as feasible. If the District determines that the RRAP does not meet those requirements, the District shall return the audit and plan to the facility to remedy the deficiencies identified by the District. No District permitted facilities have been determined to pose risks in excess of the risk reduction action levels.

Update Summary Facilities

Intermediate Priority and Intermediate Risk facilities are subject to the regulation's Update Summary reporting process. At least once every four years, these facilities must provide their annual activity and resulting emissions inventory to the District in order to determine whether any operational changes at the facility have the potential to affect the facility's health risk status under the program. Operational changes could consist of increased process rates, or operating new or modified equipment at the facility.

In addition, each Update Summary provided by facilities undergoes an assessment based on their toxic weighted emissions (TWE). These TWE values are aggregated into three risk categories: cancer, chronic, and acute, with the values from the current year compared to the values from the last assessment year. This comparative analysis addresses any updates from OEHHA regarding risk factors or reference exposure levels on a pollutant-by-pollutant basis during the quadrennial period. Using the TWE allows a more refined evaluation to determine whether a facility needs to submit an updated Plan, because it factors the toxicity of air toxic emissions and assesses their impacts accordingly.

It is important to note that changes to the facility that require a District permit or permit modification must be approved by the District prior to being implemented. Based on the information submittal, the District determines if an updated AB 2588 assessment is required (reinstatement).

Industry-wide and Small Single Source Facilities

Under the state's regulation, common types of smaller commercial facilities where the air toxics emissions from individual facilities can be easily and generically characterized and calculated, qualify for a more streamlined assessment process referred to as "industry-wide." These facility industry-wide classes include gasoline dispensing facilities, dry cleaning operations, and automotive coating facilities.

Similar in concept to the industry-wide facilities, smaller operations operating only a single type of emission unit, cannot qualify as industry-wide, and where the emissions can easily and generically be characterized and calculated, qualify for a more streamlined assessment process referred to as "small single source" facilities. Small single sources include facilities only operating a diesel-fired emergency IC engine.

CARB's Recent Updates to AB 2588 Guidance

Recent Amendments to the Emission Inventory Criteria and Guidelines Regulation

Amendments were made to the Emission Inventory Criteria and Guidelines Regulation (EICGR) and approved by the Office of Administrative Law on March 21, 2022. CARB amended the EICGR to collect more comprehensive emission data across the state. The primary amendments to the EICGR include:

- Updated reporting requirements for diesel engines
- Added criteria for determining facility exemptions, reinstatements, and update reporting provisions
- Increased the number of reportable substances in Appendix A from approximately 700 to over 1,700 substances
- Established a phase-in schedule for evaluating newly added substances, consistent with the CTR Regulation's emissions inventory schedule
- Added new source test requirements for certain source types

Gasoline Service Station Industrywide Risk Assessment Guidance

To assist air districts in assessing Gasoline Dispensing Facilities (GDF) as required under AB 2588, CARB and California Air Pollution Control Officers Association (CAPCOA) prepared an updated standardized Gasoline Service Station Industrywide Risk Assessment Guidance in 2022. This guidance provides a framework for air districts to use when evaluating the public health risks from GDFs. This guidance replaces the 1997 Gasoline Service Station Industrywide Risk Assessment Guidelines that was previously used by air districts for their health risk evaluations. Changes in the 2022 technical guidance include new health risk methodologies, updated emission factors for gas stations, and new information on the toxic chemicals in gasoline. Due to the significant changes in the methodology and the state-wide effort to evaluate GDFs under AB 2588, the District recently evaluated the Valley's permitted GDF facilities (approximately 1,500 facilities).

Diesel Engine Only Facility Risk Assessment Guidance

In 2024, CAPCOA and CARB prepared a technical guidance document and screening tool to assist air districts when performing screening health risk assessments for non-vehicular, diesel engine sources under AB 2588. The guidelines provide suggested procedures and methodologies that districts can use when preparing emission inventories and health risk assessments for facilities with non-vehicular, diesel-fueled engines. In addition, the document provides guidance on the use of CARB's Hotspots Analysis and Reporting Program (HARP2) diesel engine risk screening tool. The tool incorporates default parameters and conservative assumptions to minimize user input and help streamline the health risk assessment process. The District has begun using the guidance and screening tool when assessing diesel engine-only facilities under AB 2588.

Air Toxics Hot Spot Assessments Summary

The District has finalized 7,552 AB 2588 facility assessments from 2016 - 2024. Table 5 identifies the number of facilities assessed in 2024 through a prioritization analysis (after completion of a Plan and Report) or a health risk assessment (after completion of a prioritization). In addition to the facilities assessed in 2024, the District also evaluated the applicability status of 190 facilities and determined they are exempt from AB 2588 assessment and reporting requirements.

Table 5: Summary of Facilities Assessed Under AB 2588 in 2024

AB 2588 Category	Number of Facilities Assessed in 2024
Low/Exempt Priority	54
Low/Exempt Risk	3
Intermediate Priority	47
Intermediate Risk	10
High Priority	13
Public Notification Required	0
Risk Reduction	0
Total	**127**

A detailed list of the facilities evaluated in 2024 and their current status under AB 2588 can be found in Appendix A, along with maps that visually display the location and status of those facilities by county.

The District also re-evaluated 637 facilities subject to the update summary reporting process in 2024 to determine whether reinstatement into the program was required, as shown in Table 6. A detailed list of those facilities and associated reinstatement status can be found in Appendix B.

Table 6: Summary of Quadrennial Reporting (Update Summaries)

AB 2588 Category	Number of Facilities Assessed in 2024
Needs Reassessment	26
Continued Quadrennial Reporting Cycle	611
Total	**637**

Preventing Creation of Significant Health Risk

The overall goal of the District's integrated approach to air toxics emissions in the San Joaquin Valley is to minimize public exposure to air toxic emissions. The integrated air toxics program assists in preventing, minimizing, and reducing health risks through a variety of programs.



New or Modified Stationary Source Evaluations

One goal of District risk management review efforts is to minimize the increase that new and modified stationary sources add to the existing toxic load and any potentially significant public health impacts associated with the release of those airborne toxic emissions. In order to achieve this goal, the District evaluates the health risk of stationary sources as part of the District's permitting process and engineering evaluation.

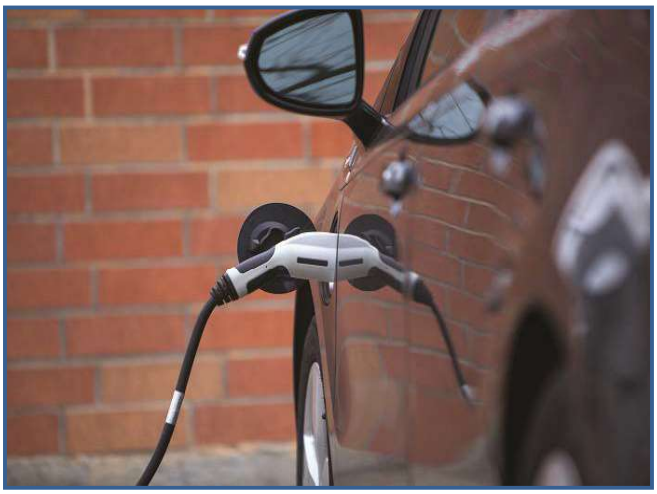
Under the District's risk management policy, Toxic Best Available Control Technology must be applied to all units that may pose greater than *de minimis* levels of risk (i.e., a cancer risk greater than one in one million). Projects that would pose significant impacts to nearby residences or businesses (i.e., by causing an increased cumulative facility cancer risk of 20-in-a-million or greater) are not approvable. When a project is determined not to be approvable as proposed, District staff will work with the applicant to find approvable low-risk alternatives, such as installing air toxic emissions control devices or limiting the operation of the proposed equipment. Under this program, the District has performed over 17,500 Risk Management Reviews for facilities throughout the District. As a consequence, no permit for a new or modified operation has been approved since the program was initiated in 1995 that would have created a significant health impact through increases in air toxic emissions.

Air Toxics "Hot Spots" Information and Assessment Act

As noted earlier in this report, this law is designed to provide information on the extent of emissions from existing stationary sources and the potential public health impacts of those emissions. Facilities are required to calculate and report to the District their actual emissions of air toxic emissions. Facilities with health risk assessment score above public notice thresholds must disclose their impacts to nearby residents that may be impacted. Facilities that exceed a higher risk reduction action threshold must go even further and reduce emissions of air toxics. No Valley facility currently poses a significant risk under the "Hot Spots" program utilizing state/OEHHA guidance, while at the beginning of the implementation of the program, in 1989, 16 facilities were classified "Significant Risk Facilities."

Incentive-Based Programs

To assist in reducing air toxic emissions throughout the Valley, more than $7.2 billion in public and private funding has been invested in clean-air projects through the District's voluntary incentive programs. In total, these programs have reduced more than 286,000 tons of harmful emissions. Carcinogenic diesel particulate matter (DPM) emissions have been significantly reduced in the Valley, where District voluntary incentives programs have provided critical funding toward replacing more than 37,000 older, high-polluting heavy-duty diesel engines with zero emission electric motors or cleaner burning engines equipped with the latest emissions control technologies. In addition, these incentive programs provide critical funding to replace older, higher-polluting school buses, light-duty passenger vehicles, residential wood burning devices, and numerous others. Through the District's first-of-its-kind Ag Burn Alternatives Grant program, the District provides funding to support the Valley's ongoing phase-out of agricultural open burning and the development of innovative alternatives to open burning.



In 2017, AB 617 initiated a statewide effort to monitor and reduce localized air pollution, and improve public health, in communities that experience disproportionate burdens from exposure to air pollutants through new community-focused and community-driven actions. The communities of Shafter, South Central Fresno, Stockton and Arvin/Lamont were selected to receive clean air resources available under AB 617 through the Community Air Protection Program. This program includes a substantial investment of community-level funding through a wide variety of voluntary incentive funding measures, including the Tune-In & Tune-Up program and the Fireplace & Woodstove Change-Out Program. The Tune-In & Tune-Up program provides incentives for primarily low-income

District residents to perform much-needed smog related repairs to their personal vehicles. In some cases, the District is even able to offer greater incentives for residents to replace their old, high polluting vehicle with a much cleaner and much newer vehicle. Through the Fireplace & Woodstove Change-Out Program, the District is able to provide funding for District residents to replace, older, high polluting residential wood burning devices with new, clean burning devices or natural gas inserts. Through this program, the District offers a higher incentive for the District's low-income population.

Attainment Plans and Control Strategies

Within the District's *2018 PM2.5 Plan* and *2022 Ozone Plan*, the District prioritized public health focused strategies and rapidly implemented meaningful emission reduction programs to ensure the community experienced the health benefits promptly. Examples include new measures to further reduce *PM2.5* emissions from residential wood burning (Rule 4901) and industrial sources, and new measures to reduce harmful *volatile organic compound* (VOC) emissions from oil and gas sources and petroleum refining (Rules 4401, 4409, 4455, 4623, and 4624). Additionally, as part of the District's recently adopted *2024 PM2.5 Plan,* the District has committed to further strengthen rules for residential wood burning and agricultural sources, which reduce some of the most harmful types of particulate matter, particularly where these reductions are most needed in urban, highly populated areas. Through ongoing attainment planning, the District continues to prioritize programs and strategies that reduce harmful emissions and result in public health benefits.

Indirect Source Review Rule

The District's Indirect Source Review (ISR) rule, in place since 2005, achieves combustion-related NOx and PM10 emission reductions from the construction and operation of new development projects through the incorporation of clean-air design features and on-site mitigation measures. The focus of these emissions reductions is from development-related mobile source heavy duty off-road diesel equipment and heavy duty on-road diesel trucks, which emit diesel particulate matter, one of the most potent carcinogens.

California Environmental Quality Act and Health Risk Assessments

The California Environmental Quality Act (CEQA) requires public agencies to evaluate environmental impacts from a development project and all feasible alternatives or mitigation measures that can substantially reduce or avoid those impacts. Generally, the main responsibility for satisfying CEQA requirements, or "lead agency" role, falls under the responsibility of city or county planning agencies.

From a health risk perspective, land use decisions are critical to improving and preventing degradation of air quality within the San Joaquin Valley, as land use patterns greatly influence potential exposure of sensitive receptors to sources of air pollution. Under CEQA, land use agencies must evaluate the potential significance of health risks

associated with development projects. The District provides support to land use agencies when making air quality impact determinations by assisting in the review of health risk assessments performed for the project.

Outreach and Education

As we move forward in achieving our mission, the District will continue its ongoing efforts to educate the public about air quality, and the significant clean air investments and air quality progress that have been made in the Valley.



The District's information and educational programs include the Real-Time Air Quality Advisory Network (RAAN), Web-based Archived Air Quality (WAAQ) System, and Healthy Air Living Schools program.

RAAN uses real-time data from air monitoring stations throughout the Valley to provide hour-by-hour air quality updates to schools and other subscribers. WAAQS was implemented in 2015 and takes RAAN a step further by providing neighborhood-by-neighborhood historical air quality data for any address in the Valley air basin. Valley residents can use this information to make informed decisions and plan outdoor activities for times with the best air quality, reducing potential air quality health risks. As a high priority area of focus, the District has continued working to expand the Healthy Air Living Schools initiative to deliver an extensive set of tools and information, including the recent launch of school-based Real-Time Electronic Air-quality Displays (READ), to enable Valley schools to understand and respond to air quality conditions and protect the health of students.

Air Toxics Regulations

In addition, the District implements a variety of state, federal, and District rules reducing and regulating the emissions of toxic air pollutants. Such regulations have generated significant reductions in air toxics from a wide variety of sources, from requiring the gradual phase-out of perchloroethylene used at dry cleaners and mandating emissions controls at chrome platers, to a large number of rules aimed at reducing particulate emissions from diesel internal combustion engines.

Due to this diverse set of risk reduction efforts, approximately 14% of all air toxics in the San Joaquin Valley are now emitted from stationary sources of pollution under the direct control and regulation of the District, while 52% comes from mobile sources such as cars

and trucks, and the remaining 34% is emitted from area-wide sources like road dust, paints, solvents, and other consumer products (per CTI). Mobile and area-wide sources of emissions are generally under the regulatory authority of the State of California and the federal government.

Diesel Particulate Matter (DPM) Risk Reduction

CARB identified particulate matter emissions from diesel-fueled engines as a toxic air contaminant with the potential to pose a significant cancer risk to the public. Historically the cancer risk from the exhaust of diesel internal combustion engines has been determined to be far higher than the estimated cancer risk from all other sources of air pollution combined. Because of the high level of risk associated with diesel exhaust, and because of the prevalence of the engines, the State chose not to address diesel exhaust using the existing risk management guidance. Instead, the State decided to establish an advisory committee of interested parties, and developed a comprehensive risk management plan that would result in significant reductions in emissions of diesel particulate matter. CARB adopted the Risk Reduction Plan to Reduce Particulate Matter Emissions from mobile and stationary Diesel-fueled Engines.

Several of the following Air Toxic Control Measures (ATCMs) were developed as a part of ARB's diesel exhaust risk reduction efforts, which continue to be developed. Related information is available on CARB's ATCM website at:
https://ww2.arb.ca.gov/resources/documents/airborne-toxic-control-measures.

ATCM Portable Diesel-Fueled Engines

The purpose of the CARB adopted Portable Diesel ATCM is to protect public health by controlling particulate matter (PM) emissions from diesel fueled portable engines rated at 50 horsepower and greater operating in California. All existing portable diesel engines were required to be certified by January 1, 2010, and all new portable engines were required to meet the latest certification standards. In addition, the ATCM contains stringent diesel PM fleet standards that apply after 2010.

The latest version of the ATCM became effective on November 30, 2018 and contains stringent emissions standards and operational requirements that impact new and existing portable diesel engines. The District has been implementing the requirements of the Portable ATCM in the review of applications for District Portable Registrations and permits for portable diesel engines. This ATCM is expected to continue to result in a substantial reduction in Valley diesel PM emissions over the next several years.

ATCM Stationary Diesel-Fueled Engines

The purpose of the CARB adopted Stationary Diesel ATCM is to protect public health by controlling particulate matter (PM) and criteria pollutant emissions from stationary diesel fueled portable engines rated at 50 horsepower and greater operating in California.

This ATCM is satisfied via Rule 4702 (Internal Combustion Engines) in combination with the District's permitting or Permit-Exempt Equipment Registration (PEER) program. These District programs have collectively been found by the CARB to be equivalent to the Stationary ATCM for stationary agricultural engines. This ATCM and District Rule 4702

are expected to continue to result in a substantial reduction in Valley diesel PM emissions over the next several years.

CARB Control Measure for In Use Off-road Diesel Vehicle Rule

The purpose of the CARB adopted an off-road diesel vehicle rule is to reduce diesel PM and oxides of nitrogen (NO_X) emissions from in-use (existing) off-road heavy-duty diesel vehicles. The regulation applies to self-propelled diesel-fueled vehicles that cannot be registered and licensed to drive on-road. Examples include loaders, crawler tractors, skid steers, backhoes, forklifts, and airport ground support equipment. Vehicles with engines less than 25 horsepower are exempt. The regulation is expected to reduce diesel exhaust emissions by over 1,600 tons per year statewide between 2010 and 2030.

Diesel Particulate Matter Control Measure for On-road Heavy-duty Diesel-fueled Vehicles Owned or Operated by Public Agencies and Utilities

The purpose of the CARB adopted control measure will reduce emissions from on-road heavy duty vehicles over several deadlines, with the first groups of vehicles required to be in compliance by December 31, 2007. This control measure is particularly effective because it reduces diesel PM emissions in the heart of residential communities where municipal and utility vehicles frequently conduct business, and where the public is significantly impacted by diesel PM emissions.

ATCM to Limit Diesel-fueled Commercial Motor Vehicle Idling

CARB initially adopted an ATCM to reduce emissions of toxics and criteria pollutants by limiting idling of new and in-use sleeper berth-equipped diesel trucks. The emission performance requirements necessitate technologies that serve as alternatives to idling the truck's main engine. The new engine requirements required 2008 and newer model year heavy- duty diesel engines to be equipped with non-programmable engine shutdown systems that automatically shut down the engine after five minutes of idling or, alternatively, meet a more stringent NO_X idling emission standard. Beginning January 1, 2008, in-use truck regulations mandate that operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California. Each year heavy-duty diesel truck idling contributes to hundreds of pounds of PM emissions as well as other pollutants to the Valley. The District incentive program has subsidized truck stop support equipment to reduce diesel truck idling along the main goods movement corridors. Tests conducted by the District and CARB have determined that an idling truck can consume up to a gallon of diesel fuel an hour. The idling of heavy-duty trucks, at the time of delivery, represents a high percentage of emissions around developed areas in the Valley.

ATCM for Transport Refrigeration Units

The purpose of the CARB adopted ATCM is to reduce emissions of diesel PM from Transport Refrigeration Units (TRUs). TRUs are refrigeration systems powered by diesel internal combustion engines designed to refrigerate or heat perishable products that are transported in various containers, including semi-trailers, truck vans, shipping containers, and rail cars. Although TRU engines are relatively small, ranging from 9 to 36 horsepower, significant numbers of these engines may operate at distribution centers, truck stops, and

other facilities, resulting in the potential for health risks to those that live and work nearby. CARB estimated that diesel PM emissions from TRUs will be reduced by 83% by 2040. CARB has recently developed amendments to this ATCM. Related information is available on their TRU ATCM website at https://ww2.arb.ca.gov/our-work/programs/transport-refrigeration-unit.

ATCM for Hexavalent Chromium for Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities

The purpose of the CARB adopted ATCM is to established new, more stringent emission limitations that depend upon size and nearness to sensitive receptors, limited the use of chemical fume suppressants, and adopted new housekeeping, education, monitoring, recordkeeping, and reporting requirements.

CARB amended the ATCM in 2023 to establish enhanced best management practices (e.g. building enclosures, limits, source testing, etc.) for all chrome plating facilities using hexavalent chrome. The stated goal of the amended ATCM is eliminating toxic hexavalent chromium emissions from the chrome plating industry in California over time. The amendments phase out the use of hexavalent chromium from chrome plating operations for all new chrome plating facilities in California. The amendments went into effect January 1, 2024.

There are numerous expected benefits from the revised ATCM, including eliminating hexavalent chromium emissions from California's chrome plating industry, reducing the potential cancer risk to individual residents and off-site workers near chrome plating facilities, and reducing occupational exposures for on-site workers.

ATCM for Perchloroethylene Emissions from Dry Cleaning Operations

The purpose of the CARB adopted ATCM is to phase out the use of perchloroethylene dry cleaning machines and related equipment by January 1, 2023. In addition, the amendments will put in place revisions to the Curriculum for the Environmental Training Program for Perchloroethylene Dry Cleaning Operations (Training Curriculum). There were changes to the operational requirements for dry cleaners as well. For example, the revised ATCM requires that owners/operators maintain a spare set of gaskets on-site and that trained operators be on-site whenever the machine is operated. These amendments became effective upon final approval by the Office of Administrative Law on December 27, 2007. The District adopted the revised ATCM in 2008 by reference. In accordance with the ATCM and District Rule 7070, there are no longer any District permitted facilities that operate perchloroethylene dry cleaning equipment.

ATCM for Composite Wood Products

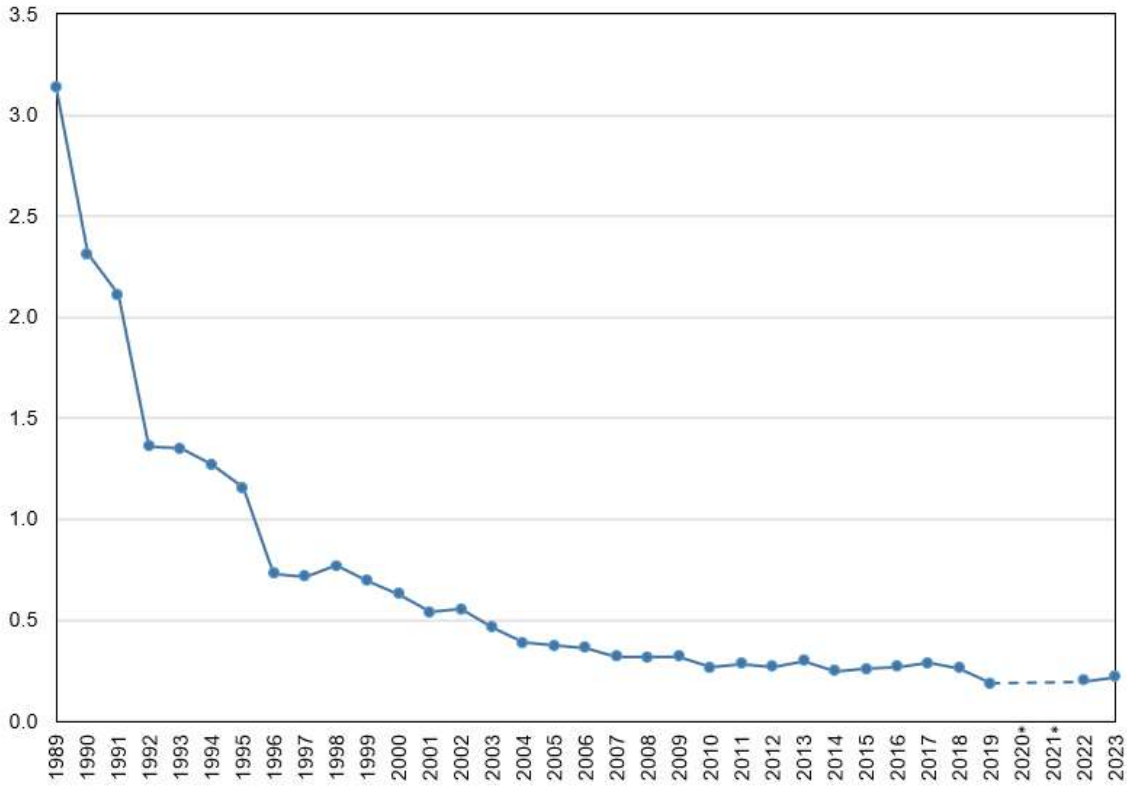
The purpose of the CARB approved ATCM is to reduce formaldehyde emissions from composite wood products including hardwood plywood, particleboard, medium density fiberboard, thin medium density fiberboard, and also furniture and other finished products made with composite wood products Formaldehyde is produced on a large scale worldwide. One major use includes the production of wood binding adhesives and resins. CARB developed a modified version of the Composite Wood Product ATCM that was

released for a 15-day public comment period on January 31, 2008, and was approved April 18, 2008, by the Office of Administrative Law. Further amendments to this ATCM were approved in May of 2012.

ATCM for Benzene from Retail Service Stations

CARB adopted the ATCM for Emissions of Benzene from Retail Service Stations. The ATCM reflects the use of best available control technology, which requires the installation of CARB-certified Phase I and II vapor recovery control equipment at all retail service stations. The ATCM is designed to reduce benzene and total hydrocarbon emissions from uncontrolled stations by 95 percent. Figure 6 shows the trend of benzene emissions in the Valley.

Figure 7. Benzene Concentrations Trend in San Joaquin Valley (ppb, CARB Annual Toxics Monitoring)



* There is currently no monitoring data available from CARB for the years 2020 and 2021.

ATCMs Adopted by the District as Regulations

- District Rule 7011: Chromium Plating And Chromic Acid Anodizing Facilities
- District Rule 7012: Hexavalent Chromium - Cooling Towers
- District Rule 7021: Ethylene Oxide - Sterilizers and Aerators
- District Rule 7031: Dioxin - Medical Waste Incinerators
- District Rule 7041: Fluorides - Phosphoric Acid Plants

- District Rule 7050: Asbestos - Containing Material for Surfacing Applications
- District Rule 7060: Toxic Metals from Non-Ferrous Metal Melting
- District Rule 7070: Perchloroethylene from Dry Cleaning Operations

Other ATCMs are implemented primarily through the permitting process. These include the ATCM for Stationary Compression Ignition Engines and the ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater.

Reducing Health Risk through Enforcement Delegation

On July 1, 2008, the District began enforcing California Air Resources Board's ATCM to Limit School Bus Idling and Idling at Schools and ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, during timeframes in which state funding is available to support these efforts. The purpose of these ATCMs is to reduce toxic and criteria air pollutants by limiting idling time. By enforcing these requirements in the Valley, the District is able to directly reduce public exposure from toxic emissions, especially in sensitive areas.

The District was delegated the responsibility of enforcing the U.S. EPA's NESHAP for asbestos, a known carcinogen, and as a result performs hundreds of inspections of construction projects that have the possibility of disturbing asbestos containing materials. By ensuring that these materials are removed and handled correctly, the probability of harmful releases of asbestos is significantly reduced.

Implementation of Federal Air Toxics Mandates

EPA has issued NESHAPs through Part 61 and Part 63 of Title 40 of the Code of Federal Regulations (CFR). The Part 61 NESHAPs were issued prior to the adoption of the Federal Clean Air Act Amendments of 1990. Those NESHAPs are specific to a particular hazardous air pollutant (HAP). Due to little activity in adopting NESHAPs, the 1990 amendments to the Federal Clean Air Act established a new procedure for developing NESHAPs. A list of 189 HAPs was established. EPA identified industries that emitted those HAPs and established a prioritized list of over 70 source categories for which Maximum Achievable Control Technology (MACT) standards would be promulgated. These MACT standards apply to major sources of HAPs, defined as sources with emissions greater than 10 tons per year of a single HAP, or 25 tons per year of combined HAPs. Many of these sourcecategories are already subject to state and local regulation, which have traditionally been more stringent than the federal regulations. EPA has already adopted MACT standards to address the majority of the source categories identified.

In addition to the MACT standards for major sources, EPA is also required to adopt NESHAPs standards to reduce the health risk associated with area (non-major) sources of HAPs. As the result of a lawsuit, EPA was under court order to promulgate area source NESHAPs for 4 categories of sources by December 15, 2006; for 6 categories by June 15, 2007; and for 10 categories each 6 months thereafter until June 15, 2009. Similar to the MACT standards for major sources, many of the area sources subject to these standards are already subject to state and local regulation. Area source NESHAPs have

already been promulgated for Oil and Natural Gas Production Facilities; Polyvinyl Chloride and Copolymers Production, Primary Copper Smelting, Secondary Copper Smelting, and Primary Nonferrous Metals - Zinc, Cadmium, and Beryllium; Acrylic and Modacrylic Fibers Production, Carbon Black Production, Chemical Manufacturing: Chromium Compounds, Flexible Polyurethane Foam Production and Fabrication, Lead Acid Battery Manufacturing, and Wood Preserving; Clay Ceramics Manufacturing, Glass Manufacturing, and Secondary Nonferrous Metals Processing; Electric Arc Furnace Steelmaking Facilities; and Hospital Ethylene Oxide Sterilizers. See Appendix D for the current status of the District's implementation of NESHAPs.

An amendment to 40 CFR part 63, subpart ZZZZ (control of HAPs from reciprocating internal combustion engines) was proposed on June 6, 2012, and was finalized by EPA on January 14, 2013. This regulation requires reductions in hazardous air pollutants from stationary internal combustion engines over the next several years, and requires significant recordkeeping and monitoring of the engines affected. The District is currently developing processes and policies to assist those facilities affected to comply with the new requirements.

Many other amendments to existing NESHAPs were finalized in 2012: Chemical Manufacturing, Hard & Decorative Chrome electroplating and HCL supplements, Polyvinyl Chloride, Nitric Acid Plants, Petroleum Refineries process heaters and flares, etc. While these NESHAPs have lesser applicability in California and the San Joaquin Valley then the engine NESHAP discussed above, the District will identify, notify, and assist those facilities affected.

In December 2021, EPA issued a decision extending Toxic Release Inventory (TRI) reporting for ethylene oxide to 29 facilities across the country. These facilities were required to begin tracking their chemical activities, releases and other waste management quantities starting in January 2022 and submit TRI data to EPA in 2023. None of these facilities are located within the San Joaquin Valley.

On July 25, 2023, EPA announced proposed updates to the Air Emissions Reporting Requirements (AERR) to improve EPA's collection of certain emissions data critical for performing air quality and risk analyses, among other regulatory and non-regulatory activities. This proposed action would allow for EPA to annually collect (starting in 2027), HAP emissions data for point sources including non-major sources. The proposed amendments would ensure that EPA has sufficient information to identify and solve air quality and exposure problems and ensure that communities have the data needed to understand significant environmental risks that may be impacting them. Due to numerous requests to extend the comment period given the complexity and length of the proposed rulemaking, EPA extended the comment period for the proposed revisions to November 17, 2023. The District is following this development and will incorporate any updates into the Integrated Toxics Program as necessary.

The District currently is delegated authority by EPA to implement and enforce NESHAPs through two mechanisms. First, all major sources of HAPs are required to obtain Title V

operating permits. The NESHAP requirements for these major sources are included in the Title V permits for which the District is delegated authority by EPA. Second, the District is delegated authority to implement and enforce all area source NESHAPs that are included in District Rule 4002, most recently amended on May 20, 2004. Under the District's Air Toxics Program and federal regulations, there are several options for implementing new NESHAP requirements. These options are discussed in more detail below. The District will choose the most appropriate option for implementing each Federal standard, and will hold public workshops to obtain public input on the implementation of these additional standards.

- Straight Delegation: Accepting delegation of the federal standard as written by amending Rule 4002 or by agreeing to automatic delegation with an option of opting-out for specific NESHAPs using an approach developed by the (CAPCOA);
- Rule Adjustment: Proposing minor changes to the federal MACT rule that make the adjusted rule no less stringent than the federal standard;
- Rule Substitution: Substituting one or more existing, new, or amended District rules for the federal standard (It should be noted that California Districts have been delegated authority for the chrome plating and dry-cleaning NESHAPs because EPA has agreed that the ATCMs for those source categories are equivalent to the NESHAPs.);
- Streamlining Multiple Applicable Requirements: Minimizing duplicative requirements by placing the more stringent emission limit or workplace practice standard on the permit along with the corresponding monitoring, recordkeeping, and reporting requirements;
- Program Substitution: Using existing programs to assure compliance with the requirements of federal standards;
- No Delegation: Using existing programs to reduce the emissions of hazardous air pollutants without delegation of federal standards.

The NESHAPs for which the District has received delegation through Rule 4002 are listed in Table E1 and Table E2 in Appendix E.

Regardless of the status and type of delegation, the District believes strongly in working with the affected sources to make them aware of the requirements in a timely manner, and then help them understand and comply with these public health protective regulations.

Air Dispersion Modeling



Air quality models use mathematical techniques to simulate the physical and chemical processes that affect air pollutants as they disperse and react in the atmosphere. These models form the backbone of the air toxics management process, as they are used to assess the potential exposure of the public to various toxic emissions. Using inputs of meteorological data and source parameter information such as emission rates and stack height, models predict ambient concentrations of primary pollutants that are emitted. Models are also important to the air quality management process because they determine compliance with National and State Ambient Air Quality Standards (NAAQS/SAAQS), and other regulatory requirements such as New Source Review (NSR).

EPA Regulatory Model (AERMOD)

The American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) was formed to introduce state-of-the-art modeling concepts into the EPA's air quality models. Through AERMIC, a modeling system, AERMOD, was developed to incorporate air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

With the promulgation of AERMOD as the preferred air dispersion model in EPA's *Guideline on Air Quality Models* (signed by the EPA Administrator on October 21, 2005 and published November 9, 2005 in the *Federal Register*), AERMOD is used for appropriate application as a replacement for ISCST3 since November 9, 2006.

Meteorological Data

The District makes available meteorological data from both the National Climatological Data Center (NCDC) and the Fifth-Generation Penn State/National Center for

Atmospheric Research Mesoscale Model (MM5). The NCDC data were collected at major airports in the San Joaquin Valley. The MM5 data were derived from a numerical model for locations in the valley where there are no airports. These locations are primarily in the western part of the Valley. All processed data is freely available for download on the District's web page at:
https://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

Appendices

Appendix A: Facilities Assessed Under AB 2588 in 2024
Appendix B: Update Summary Facilities
Appendix C: Toxic Emissions Summary
Appendix D: AB 2588 District Implementation Flow Chart
Appendix E: Current Status of NESHAP Delegation

Appendix A. Facilities Assessed under AB 2588 in 2024

Appendix A includes a detailed list of the facilities assessed under AB 2588 in 2024. Table A1 Includes facilities prioritized and Table A2 Includes the facilities with completed health risk assessments.

In addition to the tables listed below, Appendix A also includes maps that visually show the locations and AB 2588 reporting status of all facilities that were assessed in 2024 by county.

Table A1. Facilities Prioritized in 2024

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
N	645	DTE Stockton, LLC	Stockton	1720	High Priority
S	3860	GMC Roofing & Paper Products	Shafter	164	High Priority
S	1810	Containment Solutions Inc.	Bakersfield	111	High Priority
S	9706	Scelzi Enterprises Inc.	Shafter	79.8	High Priority
C	2068	Eezer Products Inc.	Fresno	35.8	High Priority
N	4963	Mid Valley Nut Company	Hughson	35.6	High Priority
C	8166	Severn Peanut Co., Inc. - dba Ready Roast	Madera	30.8	High Priority
S	1458	Kern County Sheriff Dept. Lerdo	Bakersfield	27.2	High Priority
S	9319	UTCRAS LLC	Bakersfield	20.9	High Priority
N	285	Diamond Foods, LLC	Stockton	16.2	High Priority
C	1049	Rutter Armey	Fresno	15.7	High Priority
N	4447	Tesla Motors, Inc.	Lathrop	12.2	High Priority
S	8132	Golden Valley Crematory	Bakersfield	11.6	High Priority
N	9671	Power Pump Plaza	Lodi	8.75	Intermediate
N	9216	Turlock Powder Coating	Turlock	8.7	Intermediate
S	2425	Visalia City Public Safety Dept.	Visalia	8.58	Intermediate
S	301	R B & J Industries Inc.	Dinuba	8.5	Intermediate
N	9275	Ideal Environmental Products	Los Banos	8.45	Intermediate
N	1100	Building Materials Manufacturing LLC	Stockton	8.14	Intermediate
S	1170	Western Oilfields Supply/Rain For Rent	Bakersfield	8	Intermediate
N	5058	Pearl Crop, Inc.	Linden	7.7	Intermediate
N	3812	Econtactlive, Inc.	Riverbank	6.63	Intermediate
S	2987	Providence Health Care of Lindsay Garden	Lindsay	6.27	Intermediate
N	9132	Fortis Solutions Group West LLC	Merced	5.21	Intermediate

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
S	643	Mcwane Plant And Industrial, LLC	Exeter	4.93	Intermediate
S	9971	Tulare Circle K	Tulare	4.69	Intermediate
N	1324	Hughson Nut Co. (Baker Enterprise/Ty Angle)	Livingston	4.59	Intermediate
N	8163	Save Mart Supermarkets Corporate Office	Modesto	3.657	Intermediate
N	8560	2222 Sinclair Owner, LP	Stockton	3.65	Intermediate
S	8615	Griffith Co.	Bakersfield	3.63	Intermediate
C	9491	El Centro Corner Inc.	Clovis	3.4	Intermediate
S	9795	Able Development	Bakersfield	3.29	Intermediate
S	2157	Bakersfield City Corp. Yard	Bakersfield	3.21	Intermediate
S	9670	Samco Food Stores	Bakersfield	2.67	Intermediate
N	9887	Corral Hollow Petro, Inc. / Arco Am/Pm	Modesto	2.59	Intermediate
N	4179	City of Modesto	Empire	2.556	Intermediate
C	9220	Madera Dp2, LLC	Chowchilla	2.5	Intermediate
N	10037	Buzz Oates Enterprises II, LLC	Stockton	2.44	Intermediate
C	3219	Urology Associates of Central CA	Fresno	2.43	Intermediate
N	9840	Idil Stockton B, LLC	Stockton	2.37	Intermediate
N	10038	Buzz Oates Enterprises II, LLC	Stockton	2.32	Intermediate
S	2158	Bakersfield City Fire Sta #9	Bakersfield	2.17	Intermediate
N	8908	Central Valley LLC	Tracy	2.07	Intermediate
C	2345	Golden State Peterbilt	Fresno	2	Intermediate
S	8980	Greg's Petroleum Service Inc.	Bakersfield	1.75	Intermediate
N	1312	Merced Irrigation District	Merced	1.73	Intermediate
N	9865	7-Eleven Store #41342	Stockton	1.68	Intermediate
N	1616	Foster Farms Truck Shop	Livingston	1.65	Intermediate
N	4441	Minturn Nut Company, Inc.	Le Grand	1.57	Intermediate
N	9981	American Tower Asset Sub, LLC	Dos Palos	1.55	Intermediate
C	9887	Loma Vista Market	Sanger	1.4	Intermediate
S	130	Monarch Nut Co.	Delano	1.4	Intermediate
C	9916	GTP Infrastructure I, LLC	Madera	1.399	Intermediate
S	9040	Mil Potrero Mutual Water Company	Pine Mountain Club	1.38	Intermediate
C	353	Coalinga Regional Medical Center	Coalinga	1.36	Intermediate
S	3350	Cummins Pacific LLC	Bakersfield	1.29	Intermediate

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
C	9874	Sunset Center Chevron	Fresno	1.26	Intermediate
N	9774	Dhanda Petroleum, Inc.	Ceres	1.16	Intermediate
N	8677	Yosemite Wholesale	Merced	1.13	Intermediate
N	9991	Duke Realty Limited Partnership	Lathrop	1.007	Intermediate
N	9736	Reclamation District 2030	Stockton	0.995	Exempt/Low
S	637	Sorma	Visalia	0.976	Exempt/Low
C	840	Millerton Lake State Rec. Area	Friant	0.891	Exempt/Low
N	9916	Sethi 76 - Dale Rd	Modesto	0.879	Exempt/Low
N	6935	South San Joaquin Irrigation District	Oakdale	0.838	Exempt/Low
N	9296	Yosemite Pathology	Modesto	0.817	Exempt/Low
C	9824	Beal Developments	Fresno	0.81	Exempt/Low
S	9774	T-Mobile West LLC Site ID SC13178A	Strathmore	0.773	Exempt/Low
C	10029	Amazon.com Services LLC	Fresno	0.714	Exempt/Low
N	3439	Cal. Dept. of Water Resources	Gustine	0.586	Exempt/Low
C	9764	7-Eleven Store # 38937	Fresno	0.583	Exempt/Low
S	1265	Bakersfield City Police Dept.	Bakersfield	0.525	Exempt/Low
S	3300	The Geo Group Inc.	McFarland	0.52	Exempt/Low
S	9871	City of Bakersfield	Bakersfield	0.52	Exempt/Low
S	2617	California Water Service Co.	Bakersfield	0.499	Exempt/Low
N	9438	Housing Authority of Stanislaus County	Westley	0.485	Exempt/Low
S	9312	Samco Fairfax #6	Bakersfield	0.48	Exempt/Low
N	3084	City of Lathrop	Lathrop	0.457	Exempt/Low
N	1918	Frank Raines Park	Patterson	0.44	Exempt/Low
S	4216	Jasmine Vineyards	Delano	0.425	Exempt/Low
C	10000	T-Mobile West LLC Site ID SC08552A	Orange Cove	0.388	Exempt/Low
N	9990	American Tower Asset Sub LLC	Merced	0.384	Exempt/Low
S	9816	New Cingular Wireless Pcs, LLC dba AT&T	Visalia	0.337	Exempt/Low
N	4454	Caltrans Modesto Maintenance Station	Modesto	0.283	Exempt/Low
C	9886	T-Mobile West LLC Site ID SC55451C	Shaver Lake	0.27	Exempt/Low
N	10014	T-Mobile West LLC Site ID SC07840A	Manteca	0.233	Exempt/Low
S	683	Delano Joint Union High School	Delano	0.219	Exempt/Low

Region	Facility ID	Facility Name	City	Prioritization Score	Prioritization Category
C	9857	Poonia Family Enterprises	Sanger	0.213	Exempt/Low
C	9420	RNDs Properties LLC	Madera	0.198	Exempt/Low
N	9447	Pacific Paper Tube Inc.	Stockton	0.186	Exempt/Low
N	3419	City of Livingston	Livingston	0.164	Exempt/Low
N	9834	5.11 Inc.	Manteca	0.15	Exempt/Low
C	9145	Still Water Power LLC	Hanford	0.133	Exempt/Low
S	9820	T-Mobile West LLC Site ID SC08768A	Terra Bella	0.13	Exempt/Low
C	862	Nichols Pistachio	Hanford	0.129	Exempt/Low
C	9884	T-Mobile West LLC Site ID SC08627A	Coarsegold	0.109	Exempt/Low
S	9448	Sunview Cold Storage	Delano	0.0864	Exempt/Low
N	3501	Oakwood Lake Water District	Manteca	0.053	Exempt/Low
S	9241	RPC Packing Inc.	Porterville	0.0393	Exempt/Low
C	2828	City of Avenal	Avenal	0.0248	Exempt/Low
N	10050	T-Mobile West LLC Site ID SC07641A	Winton	0.00884	Exempt/Low
S	9921	CXA La Paloma LLC	Buttonwillow	0.00421	Exempt/Low
S	9881	ET Bakersfield LLC	Bakersfield	0.00183	Exempt/Low
S	9825	T-Mobile West LLC	Shafter	0.00113	Exempt/Low
C	9398	William Scotsman, Inc.	Fresno	0.00103	Exempt/Low
N	10052	T-Mobile West LLC Site ID SC07559	Merced	0.00089	Exempt/Low
C	2933	Property58 LLC	Fresno	0	Exempt/Low
C	9466	Farmers International Inc.	Chowchilla	0	Exempt/Low
S	309	Amanda Hergesheimer Food Mart	Strathmore	0	Exempt/Low
S	2767	Tulare County Public Works	2 mi N/O Lindsay	0	Exempt/Low
S	3112	Tulare County Public Works	Terra Bella	0	Exempt/Low
S	9252	Delaney & Ahlf Diesel Service	Bakersfield	0	Exempt/Low
S	9729	Pixley Public Utility District	Pixley	0	Exempt/Low
S	9821	T-Mobile West LLC Site ID SC08567A	Exeter	0	Exempt/Low

Table A2. Facilities with Health Risk Assessments Performed in 2024

Region	Facility ID	Facility Name	City	Cancer Score	Acute Score	Chronic Score	Risk Category
N	1252	Foster Food Products	Livingston	9.77	0.14	0.05	Intermediate
S	1135	Aera Energy LLC	Kern County	8.99	0.26	0.09	Intermediate
S	2581	Frontier California Inc.	Taft	8.20	0.00	0.00	Intermediate
C	8266	Farewell Funeral Service	Fresno	6.05	0.51	0.61	Intermediate
C	598	Guardian Industries, LLC	Kingsburg	5.15	0.03	0.16	Intermediate
N	3332	Gilton Resource Recovery	Modesto	4.12	0.18	0.02	Intermediate
C	265	Chapel of The Light	Fresno	3.88	0.86	0.24	Intermediate
S	3451	Bakersfield Marriot	Bakersfield	2.37	0.00	0.00	Intermediate
S	1128	Chevron USA Inc.	Kern County	2.28	0.10	0.08	Intermediate
N	2369	Arrow Infrastructure Holding LA LLC	Stockton	1.69	0.09	0.04	Intermediate
S	7407	Davita Bakersfield Dialysis	Bakersfield	0.60	0.00	0.00	Exempt/Low
N	1660	Joseph Gallo Cheese Company LP	Atwater	0.51	0.04	0.00	Exempt/Low
C	7547	City of Hanford - Water Utilities	Hanford	0.50	0.00	0.00	Exempt/Low

Figure A1. Map of Facilities Assessed in 2024 for Fresno County

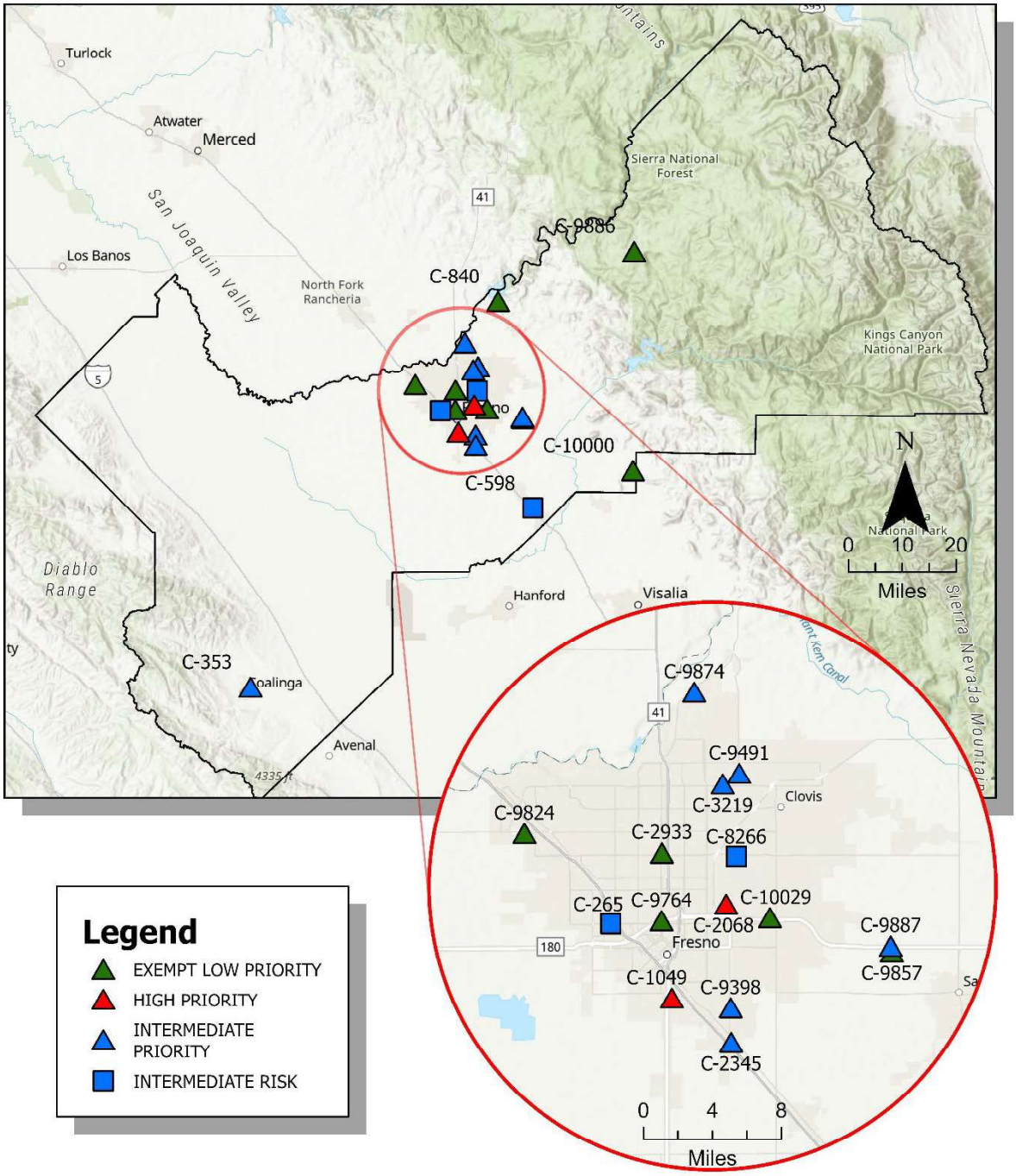


Figure A2. Map of Facilities Assessed in 2024 for Kern County

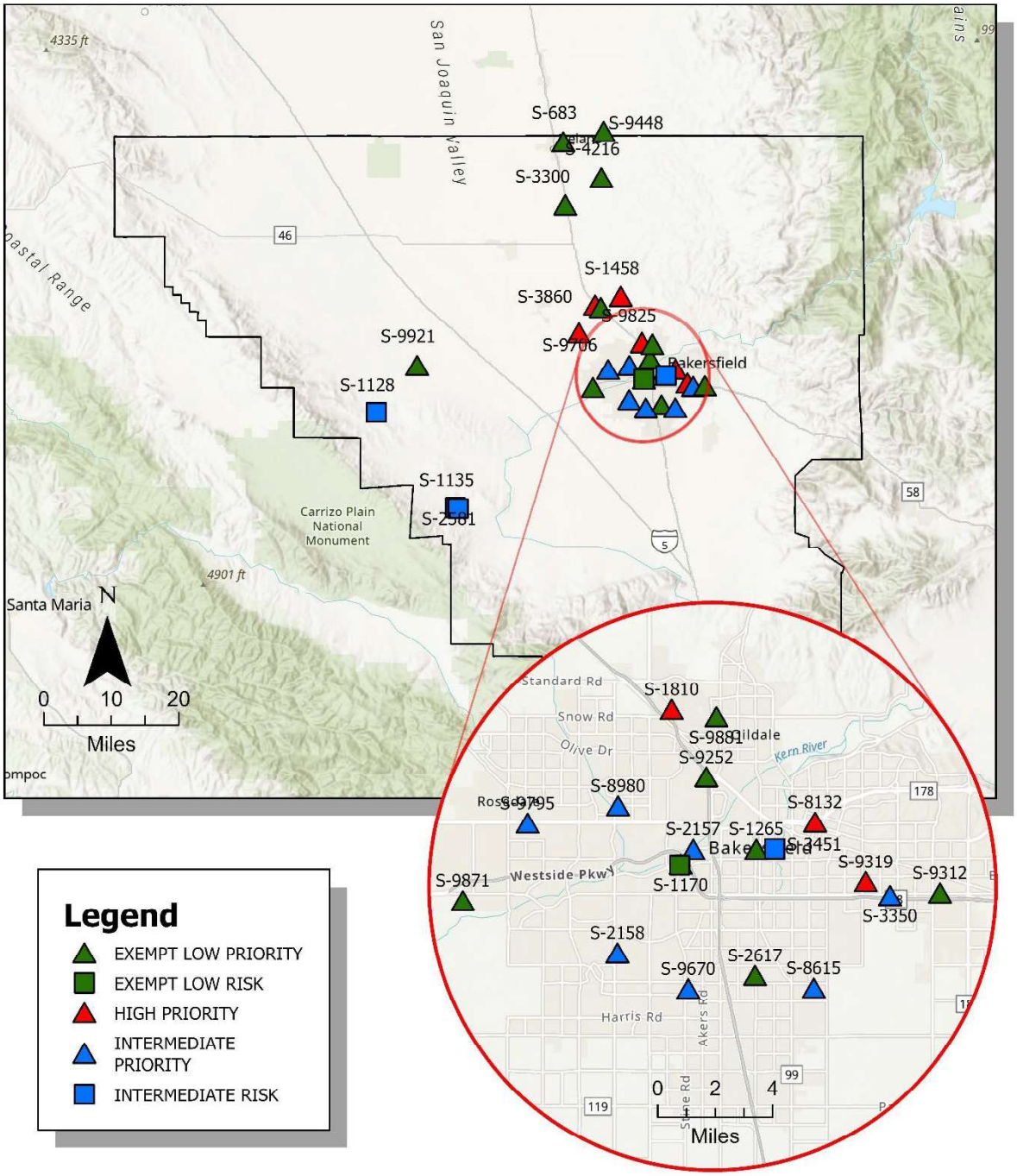


Figure A3. Map of Facilities Assessed in 2024 for Kings County

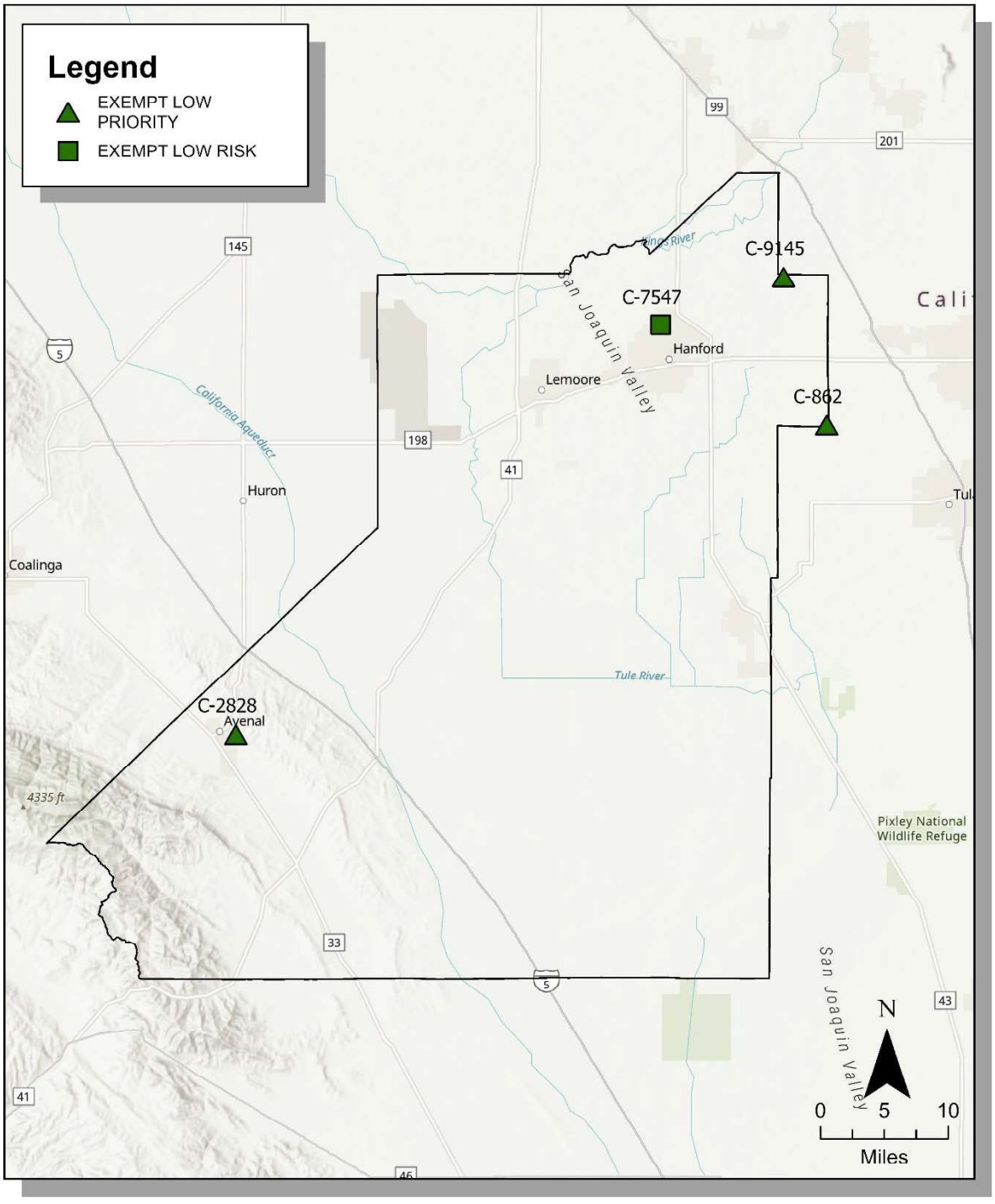


Figure A4. Map of Facilities Assessed in 2024 for Madera County

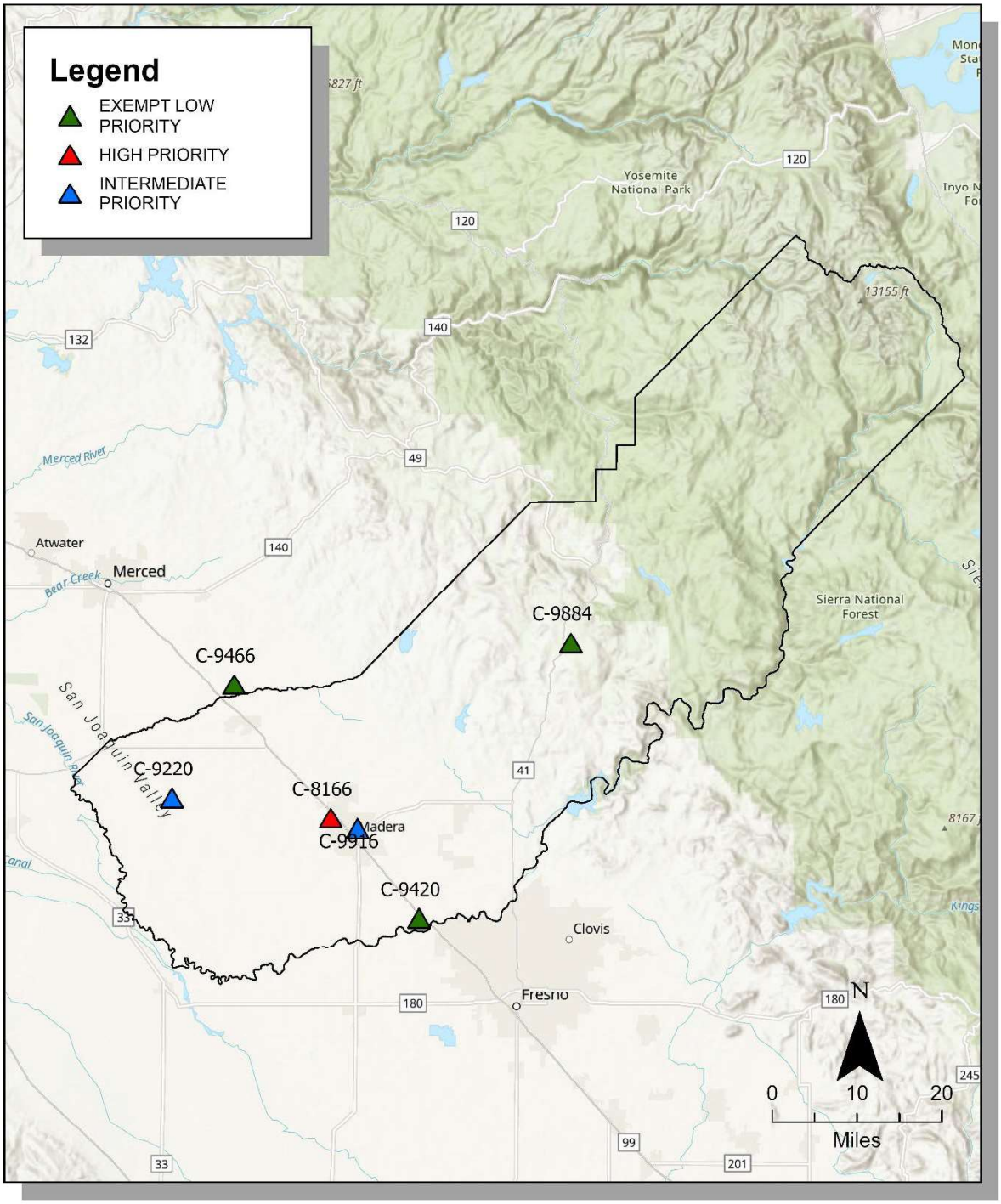


Figure A5. Map of Facilities Assessed in 2024 for Merced County

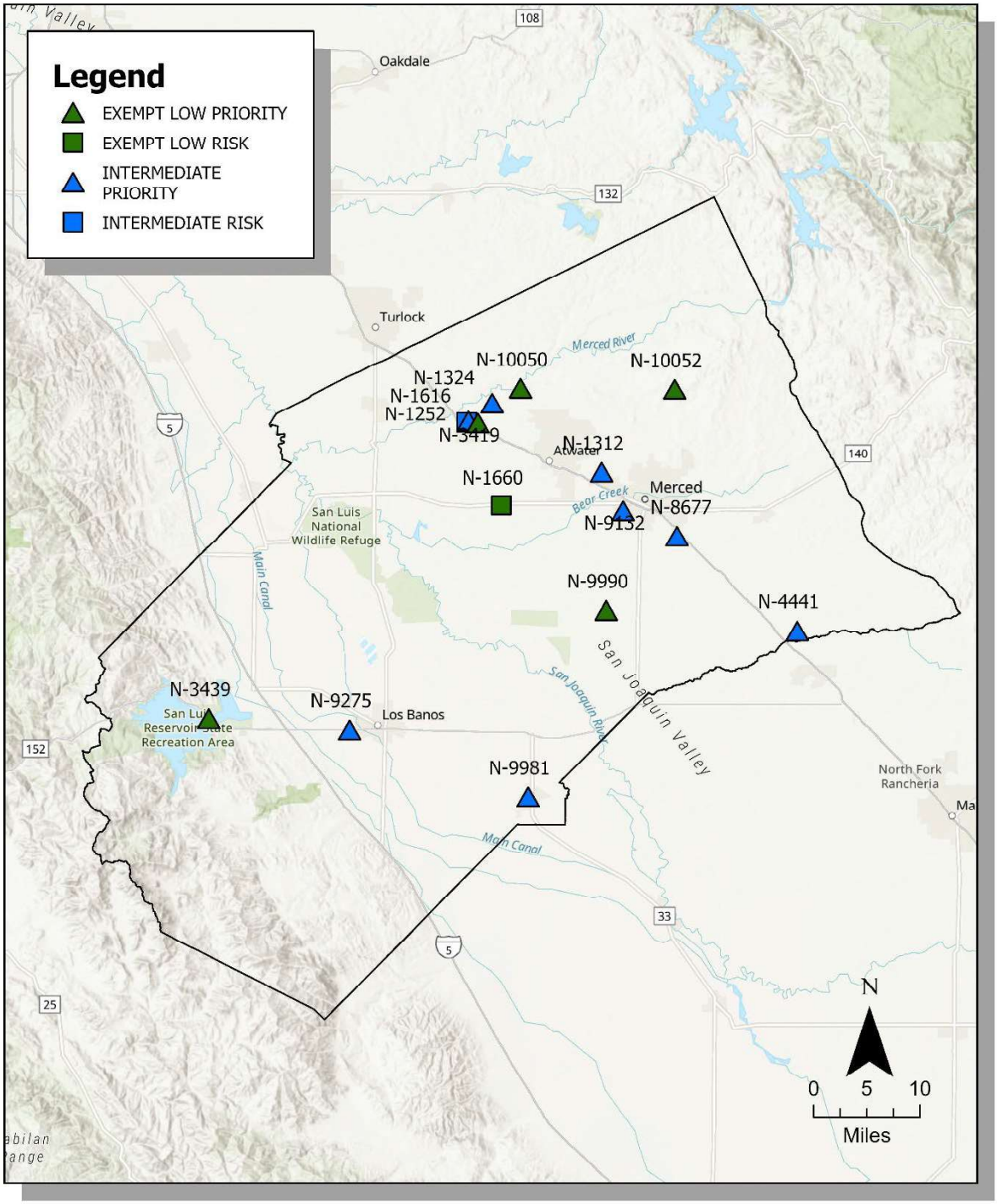


Figure A6. Map of Facilities Assessed in 2024 for San Joaquin County

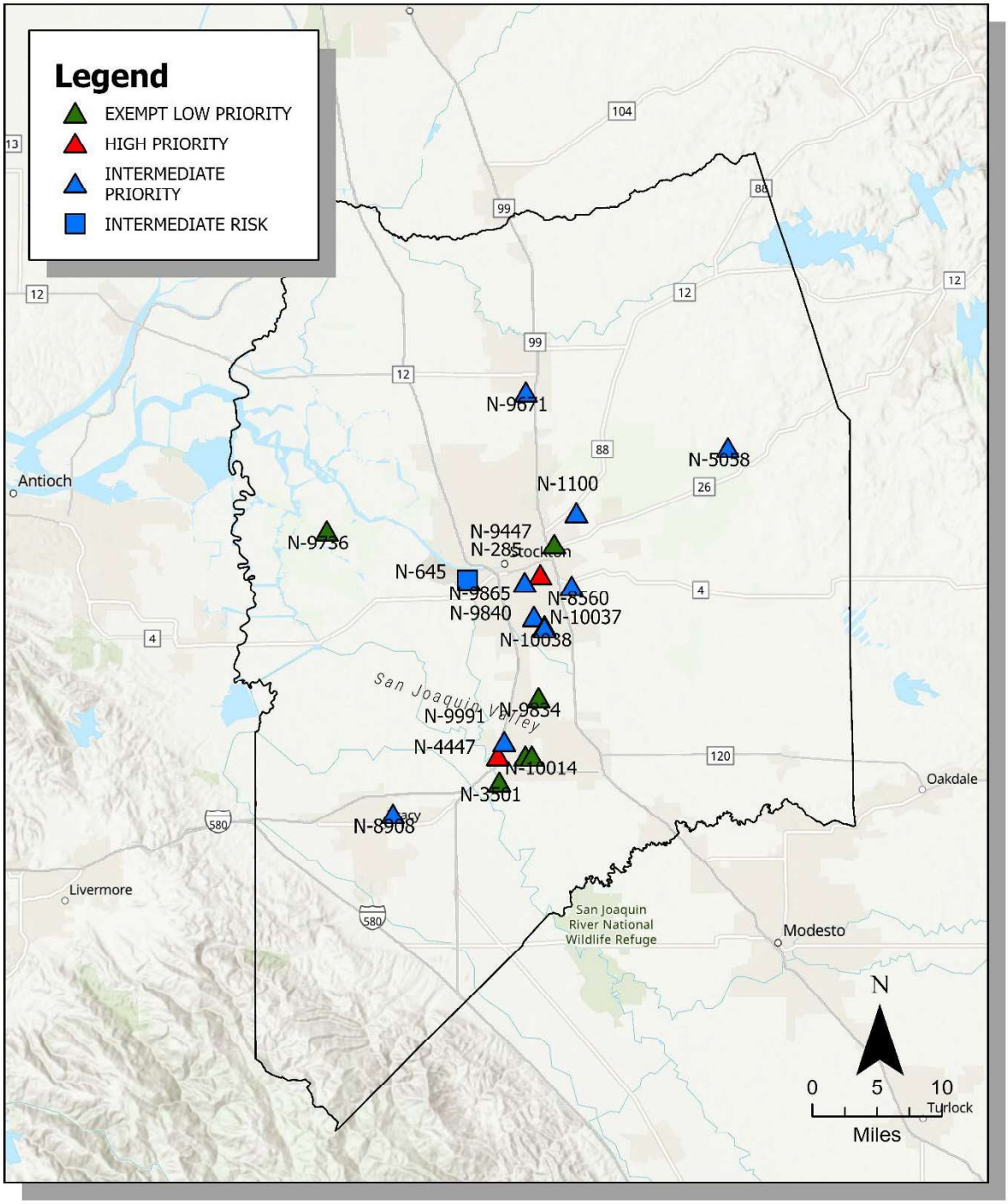


Figure A7. Map of Facilities Assessed in 2024 for Stanislaus County

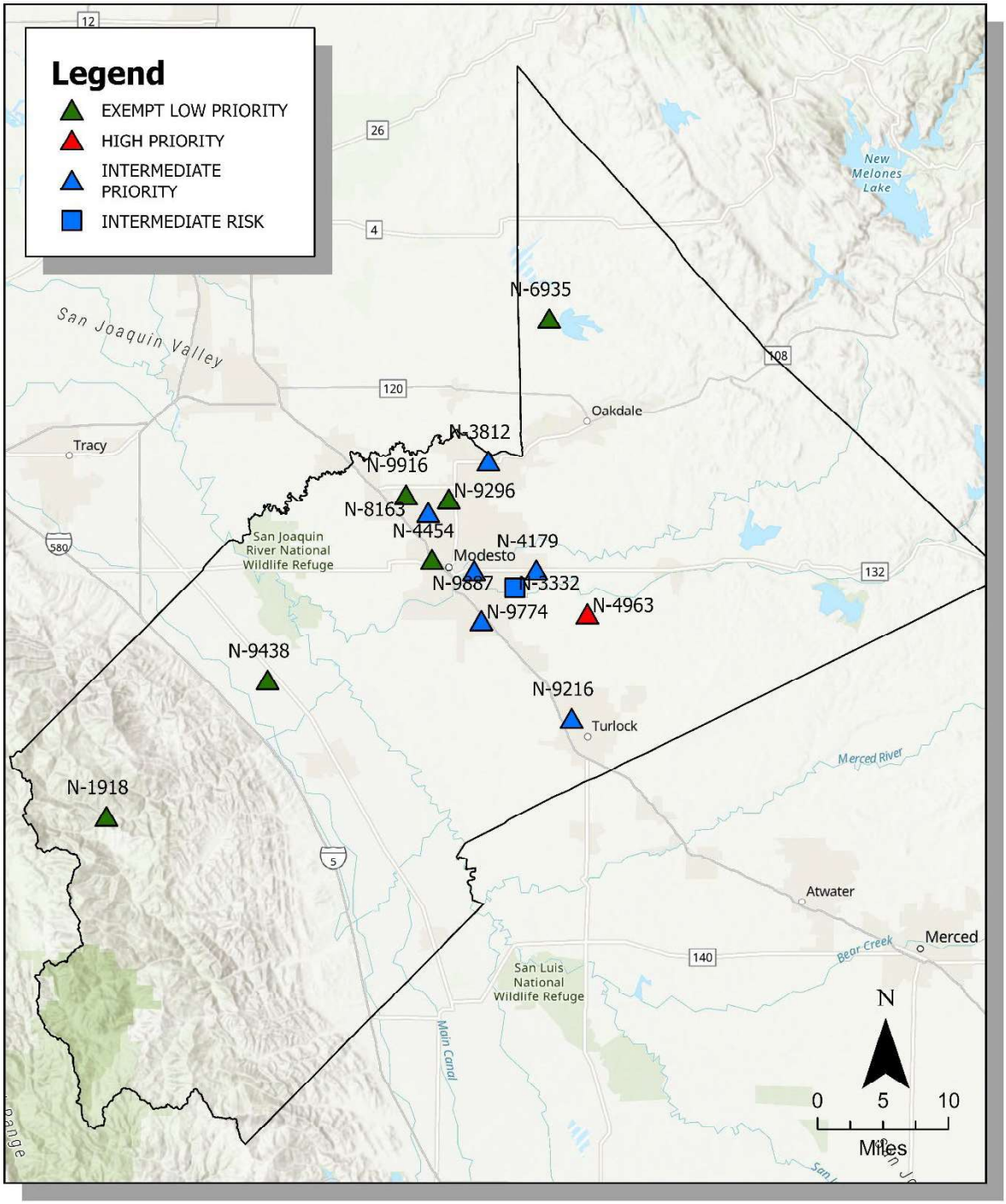
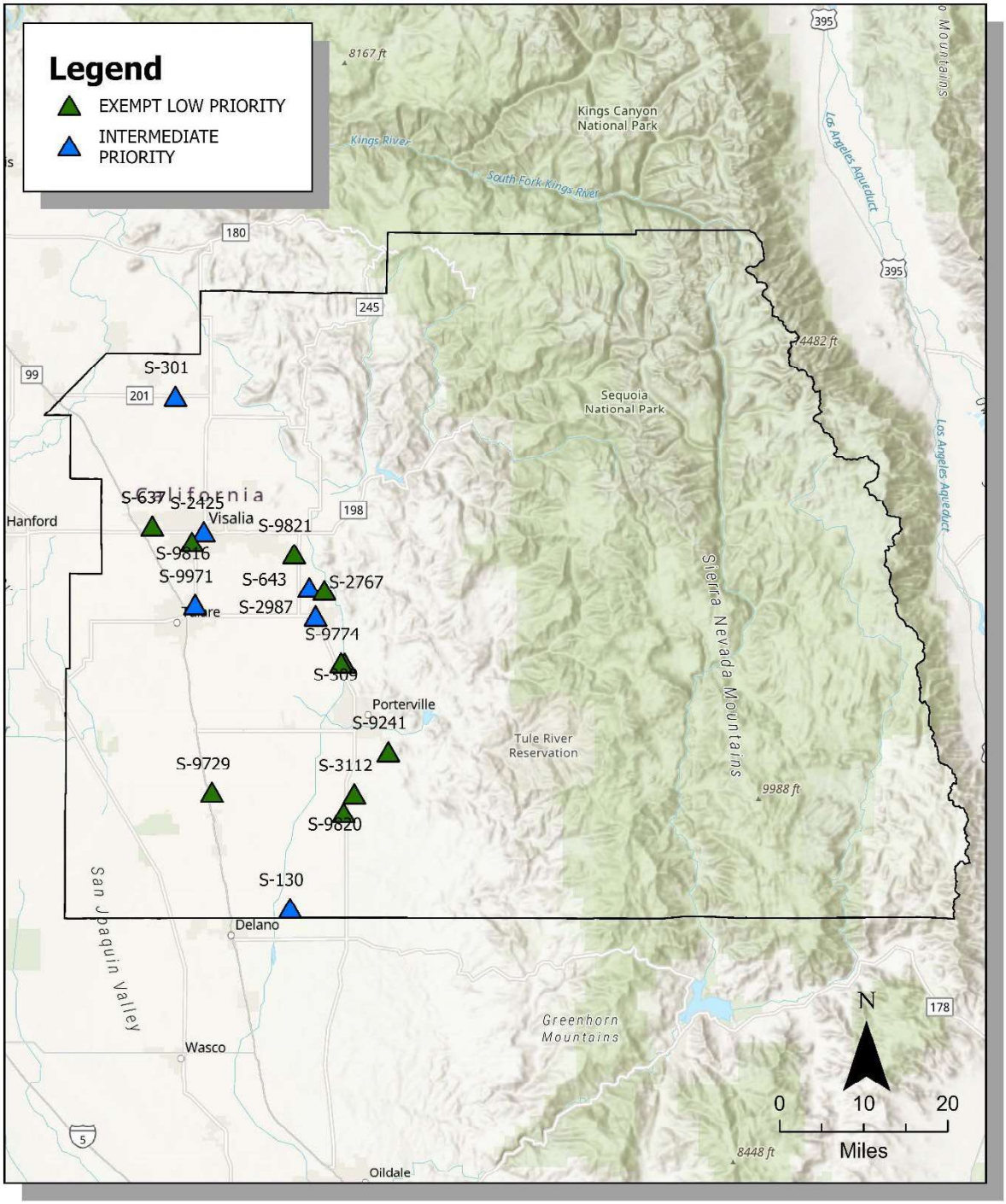


Figure A8. Map of Facilities Assessed in 2024 for Tulare County



Appendix B. Update Summary Facilities Evaluated

Appendix B includes facilities that were re-evaluated as an update summary project.

Table B1. Update Summary Facilities Assessed in 2024

Region	Facility ID	Facility Name	City	Reinstatement Required
N	9021	American Honda Motor Co. Inc.	Stockton	Yes
C	3839	Avenal Regional Landfill	Avenal	Yes
S	7534	Bakersfield City School District	Bakersfield	Yes
C	7745	Central California Blood Center	Fresno	Yes
C	7547	City of Hanford - Water Utilities	Hanford	Yes
C	5982	City of Mendota	Mendota	Yes
S	7266	City of Tulare	Tulare	Yes
C	1333	County of Fresno Facility Services	Fresno	Yes
S	2033	Elk Company of Texas, LLC	Shafter	Yes
C	6659	FedEx Freight	Kettleman City	Yes
S	7276	Gem Discovery Plaza	Bakersfield	Yes
C	4245	Glaxo Smith Kline Consumer Brands	Fresno	Yes
S	1610	Granite Construction Co.	Bakersfield	Yes
N	3415	Kaiser Foundation Health Plan	Stockton	Yes
C	709	Kaiser Permanente Med Center	Fresno	Yes
C	3210	Kings County Animal Control	Hanford	Yes
N	4248	Level 3 Communications LLC	Modesto	Yes
N	4407	Macerich Vintage Faire Mall LP	Modesto	Yes
N	1647	Martin Marietta Ca A&P, LLC - Merced HMA	Merced	Yes
N	829	Nustar Terminals Ops Partnership LP	Stockton	Yes
C	3909	Saladino's	Fresno	Yes
S	1372	Sentinel Peak Resources Ca LLC	Bakersfield	Yes
C	1077	SFPP, L.P.	Fresno	Yes
N	845	Tesoro Logistics Operations LLC	Stockton	Yes
C	4181	T-Mobile USA Inc.	Fresno	Yes
N	1088	Valley Crematory	Tracy	Yes
C	7421	5th Appellate Court of California	Fresno	No
N	4860	640 Hegenberger - Heinz	Tracy	No
N	3979	AA & Bob Allen, Inc.	Stockton	No
C	8211	Advanced Diagnostic Testing Center	Fresno	No
S	2220	Adventist Health Bakersfield	Bakersfield	No
C	2187	Adventist Health Reedley	Reedley	No
C	1121	Aera Energy LLC	Fresno County	No
S	33	Alon Bakersfield Refining	Bakersfield	No

Region	Facility ID	Facility Name	City	Reinstatement Required
S	34	Alon Bakersfield Refining	Bakersfield	No
S	3303	Alon Bakersfield Refining	Bakersfield	No
S	6809	Alpaugh Community Services District	Alpaugh	No
N	8881	Amazon.com Services, LCC - Oak4	Tracy	No
N	8857	Amazon.com Services, LLC - Oak3	Patterson	No
N	4460	Ambulatory Surgery Center of Stockton	Stockton	No
C	8713	American Tower Asset Sub, LLC	Lemoore	No
C	8715	American Tower Asset Sub, LLC	Parlier	No
C	8716	American Tower Asset Sub, LLC	Fresno	No
C	8717	American Tower Asset Sub, LLC	Caruthers	No
N	8982	American Tower Asset Sub, LLC	Oakdale	No
S	8478	American Tower Asset Sub, LLC	Farmersville	No
N	8916	American Tower Delaware Corporation	Tracy	No
N	8998	American Tower Management, LLC	Stockton	No
S	8371	American Towers Asset Sub, LLC	Bakersfield	No
C	8605	American Towers LLC	Madera	No
N	8983	American Towers LLC	Delhi	No
N	8987	American Towers LLC	Dos Palos	No
N	8988	American Towers LLC	Patterson	No
S	8369	American Towers LLC	Bakersfield	No
C	8718	American Towers LLC	Mendota	No
N	8984	American Towers LLC	Modesto	No
N	8650	Americold	Modesto	No
N	8129	Amir Development	Manteca	No
N	9145	Anberry Transitional Care Center LLC	Merced	No
N	8870	Anderson Industrial Engines Ca., Inc.	Modesto	No
N	9225	Army & Air Force Exchange Service	Lathrop	No
S	4182	Arvin Community Services District	Arvin	No
N	1110	AT&T Corp.	Manteca	No
C	3904	Azenta Us, Inc.	Fresno	No
S	7488	Bahamas Properties LLC	Bakersfield	No
C	3431	Baker Manock & Jensen PC	Fresno	No
S	859	Bakersfield Behavioral Healthcare Hospital	Bakersfield	No
S	2825	Bakersfield City C/O CWS	Bakersfield	No
S	3306	Bakersfield City Fire Sta. #13	Bakersfield	No
S	3081	Bakersfield City Fire Sta. #2	Bakersfield	No
S	3421	Bakersfield City of	Bakersfield	No
S	3103	Bakersfield City Wastewater #3	Bakersfield	No

Region	Facility ID	Facility Name	City	Reinstatement Required
S	2843	Bakersfield City Wood Site	Bakersfield	No
S	3963	Bakersfield Endoscopy Center	Bakersfield	No
C	7104	Bakman Water Company	Fresno	No
C	7603	Bakman Water Company	Madera	No
N	7967	Bass Pro Shops	Manteca	No
N	6172	Bcore Canal Ca LLC	Stockton	No
C	111	Belmont Memorial Park	Fresno	No
S	7549	Beneficial State Bank	Porterville	No
S	1246	Berry Petroleum Company LLC	Kern County	No
S	1328	Berry Petroleum Company LLC	Mckittrick	No
S	2265	Berry Petroleum Company LLC	Kern County	No
S	3585	Berry Petroleum Company LLC	Kern County	No
N	4237	Bloss Memorial Healthcare Dist.	Atwater	No
N	8081	BNSF Railway Company - Morman Yard	Stockton	No
C	3284	Brickyard Business Park Assoc. Inc.	Madera	No
S	7527	Building X, LLC	Bakersfield	No
N	3581	Bullfrog Marina	Stockton	No
S	8108	C & J Well Services, LLC	Bakersfield	No
S	4214	Calgren Renewable Fuels	Pixley	No
C	1081	Caliber Collision Center	Fresno	No
C	1247	Caliber Collision Center	Fresno	No
C	218	California Army National Guard	Fresno	No
N	8121	California Army National Guard	Stockton	No
C	3275	California Natural Color	Fresno	No
C	3775	California Power Holdings LLC	Chowchilla	No
C	4046	California State Dept. of Justice	Fresno	No
C	8157	California Water Service Co.	Selma	No
S	8112	California Water Service Co.	Bakersfield	No
C	5736	California Water Service Company	Selma	No
C	7347	California Water Service Company	Selma	No
C	7902	California Water Service Company	Selma	No
C	8542	California Water Service Company	Selma	No
C	8276	California Water Service Company-Station	Selma	No
S	4135	CARQUEST Auto Parts	Bakersfield	No
C	8677	Caruthers Community Services District	Caruthers	No
C	236	Caruthers Raisin Packing Co.	Caruthers	No
S	6621	CBCC Pain Medicine And Surgery Center	Bakersfield	No
S	3971	Centennial Center	Bakersfield	No

Region	Facility ID	Facility Name	City	Reinstatement Required
C	2804	Central California Endoscopy Center LP	Fresno	No
N	8177	Central Valley Limited Liability Company	Stockton	No
N	4347	CenturyLink Communications Inc.	Stockton	No
S	3690	CenturyLink Communications Inc.	Tipton	No
C	261	Certainteed LLC	Chowchilla	No
S	8167	Charter Communications	Lamont	No
S	8467	Charter Communications	Bakersfield	No
N	8819	Charter Communications Inc.	Escalon	No
S	3296	Charter Communications Inc.	Bakersfield	No
S	6677	Charter Communications Inc.	Porterville	No
N	199	Chevron USA Products Company	Tracy	No
C	317	Chooljian Bros Packing Co.	Sanger	No
N	8152	City And County of San Francisco	Tracy	No
S	4169	City of Arvin	Arvin	No
N	4726	City of Atwater	Atwater	No
S	7014	City of Bakersfield	Bakersfield	No
S	7273	City of Bakersfield	Bakersfield	No
S	7511	City of Bakersfield	Bakersfield	No
N	4970	City of Ceres	Ceres	No
N	4972	City of Ceres	Ceres	No
N	8731	City of Ceres	Ceres	No
N	8876	City of Ceres	Ceres	No
N	8878	City of Ceres	Ceres	No
N	8532	City of Ceres Fire Station #4	Ceres	No
C	8610	City of Chowchilla	Chowchilla	No
C	3011	City of Clovis	Clovis	No
C	3332	City of Clovis	Clovis	No
C	3595	City of Clovis	Clovis	No
C	3626	City of Clovis	Clovis	No
C	3667	City of Clovis	Clovis	No
C	7636	City of Clovis	Clovis	No
C	7647	City of Clovis	Clovis	No
C	7519	City of Clovis	Clovis	No
S	3663	City of Delano	Delano	No
S	3665	City of Delano	Delano	No
S	6479	City of Delano	Delano	No
S	8362	City of Delano	Delano	No
S	3657	City of Dinuba	Dinuba	No

Region	Facility ID	Facility Name	City	Reinstatement Required
S	7545	City of Exeter	Exeter	No
S	7544	City of Farmersville	Farmersville	No
C	6910	City of Fowler (Well No. 7)	Fowler	No
C	6909	City of Fowler (Well No. 8)	Fowler	No
C	3616	City of Fresno	Fresno	No
C	3617	City of Fresno	Fresno	No
C	5883	City of Fresno	Fresno	No
C	6969	City of Fresno	Fresno	No
C	7368	City of Fresno	Fresno	No
C	7857	City of Fresno - Water Division	Fresno	No
C	3852	City of Fresno (Solid Waste Mgt. Div.)	Fresno	No
C	3203	City of Fresno Water Division	Fresno	No
C	3256	City of Fresno Water Division	Fresno	No
C	3257	City of Fresno Water Division	Fresno	No
C	3260	City of Fresno Water Division	Fresno	No
C	3261	City of Fresno Water Division	Fresno	No
C	3263	City of Fresno Water Division	Fresno	No
C	3267	City of Fresno Water Division	Fresno	No
C	3270	City of Fresno Water Division	Fresno	No
C	8430	City of Fresno Water Division	Fresno	No
C	8431	City of Fresno Water Division	Fresno	No
C	8503	City of Fresno Water Division	Fresno	No
C	8429	City of Fresno Water Division	Fresno	No
C	521	City of Fresno, DPU	Fresno	No
N	4550	City of Gustine	Gustine	No
N	4616	City of Gustine	Gustine	No
C	2849	City of Hanford	Hanford	No
C	5999	City of Hanford - Water Utilities	Hanford	No
C	7817	City of Hanford- Water Utilities	Hanford	No
N	4006	City of Hughson	Hughson	No
N	5079	City of Hughson	Hughson	No
C	8058	City of Kerman	Kerman	No
C	4355	City of Kingsburg	Kingsburg	No
N	3083	City of Lathrop	Lathrop	No
N	3460	City of Lathrop	Lathrop	No
N	7183	City of Lathrop	Lathrop	No
N	7231	City of Lathrop	Lathrop	No
N	7720	City of Lathrop	Lathrop	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	6234	City of Livingston	Livingston	No
N	7521	City of Livingston	Livingston	No
N	8149	City of Livingston	Livingston	No
N	9282	City of Livingston	Livingston	No
N	4645	City of Lodi	Lodi	No
N	7524	City of Lodi Public Works Department	Lodi	No
N	4466	City of Lodi Station #5	Lodi	No
C	3369	City of Madera	Madera	No
C	7487	City of Madera Police Department	Madera	No
N	3877	City of Manteca	Manteca	No
N	4555	City of Manteca	Manteca	No
N	8952	City of Manteca	Manteca	No
N	7401	City of Manteca Public Works Dept.	Manteca	No
N	8848	City of Manteca Fire Department	Manteca	No
N	5982	City of Manteca, Public Works Department	Manteca	No
N	7298	City of Manteca, Public Works Dept.	Manteca	No
S	8191	City of McFarland	McFarland	No
C	3914	City of Mendota	Mendota	No
N	4302	City of Merced	Merced	No
N	4524	City of Merced	Merced	No
N	4528	City of Merced	Merced	No
N	4529	City of Merced	Merced	No
N	3166	City of Modesto	Modesto	No
N	6637	City of Modesto Fire Department	Modesto	No
N	7487	City of Modesto Fire Department	Modesto	No
N	7790	City of Modesto Water Department	Modesto	No
N	3993	City of Modesto, Compost Facility	SVJAPCD	No
N	4890	City of Newman	Newman	No
N	4955	City of Newman	Newman	No
N	4152	City of Oakdale	Oakdale	No
N	4160	City of Oakdale	Oakdale	No
N	4739	City of Oakdale	Oakdale	No
N	4871	City of Oakdale	Oakdale	No
N	7598	City of Oakdale	Oakdale	No
N	7896	City of Oakdale	Oakdale	No
C	3489	City of Parlier	Parlier	No
N	1829	City of Patterson	Patterson	No
N	7124	City of Patterson	Patterson	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	7337	City of Patterson	Patterson	No
N	7342	City of Patterson	Patterson	No
N	7343	City of Patterson	Patterson	No
N	7344	City of Patterson	Patterson	No
N	7345	City of Patterson	Patterson	No
N	7740	City of Patterson	Patterson	No
C	3024	City of Reedley	Reedley	No
N	4437	City of Riverbank	Riverbank	No
N	4865	City of Riverbank	Riverbank	No
N	7736	City of Riverbank	Riverbank	No
N	8098	City of Riverbank	Riverbank	No
C	3392	City of San Joaquin	San Joaquin	No
C	7669	City of Sanger	Sanger	No
C	8302	City of Sanger	Sanger	No
C	8407	City of Sanger	Sanger	No
C	7543	City of Selma	Selma	No
S	3701	City of Shafter	Shafter	No
S	3915	City of Shafter	Shafter	No
S	8775	City of Shafter	Shafter	No
S	3364	City of Shafter	Shafter	No
N	4899	City of Stockton	Stockton	No
N	7673	City of Stockton	Stockton	No
N	8935	City of Stockton	Stockton	No
N	8936	City of Stockton	Stockton	No
N	8937	City of Stockton	Stockton	No
N	8938	City of Stockton	Stockton	No
N	4476	City of Stockton Municipal Utilities	Stockton	No
N	4900	City of Stockton, Fire Station #12	Stockton	No
N	4648	City of Stockton, Municipal Utilities	Stockton	No
N	7515	City of Stockton, Municipal Utilities	Stockton	No
N	4250	City of Tracy	Tracy	No
N	8055	City of Tracy	Tracy	No
N	4835	City of Tracy (Linne Reservoir District)	Tracy	No
S	3554	City of Tulare	Tulare	No
S	6714	City of Tulare	Tulare	No
S	8348	City of Tulare Fire Station #61	Tulare	No
N	8704	City of Turlock	Turlock	No
N	3669	City of Turlock Water Control	Turlock	No

Region	Facility ID	Facility Name	City	Reinstatement Required
S	3316	City of Visalia	Visalia	No
S	4277	City of Wasco	Wasco	No
S	6769	City of Wasco	Wasco	No
S	6735	City of Woodlake	Woodlake	No
N	3583	City Tower Group LLC	Modesto	No
C	3926	Clear Channel Communications	Fresno	No
C	345	Clovis Community Hospital	Clovis	No
C	5821	Clovis Unified School District (Cart)	Clovis	No
C	3897	Clovis Veterans Memorial District	Clovis	No
N	5846	Coastal Pacific Food Distributors	Stockton	No
C	8604	Comcast Cable	Mendota	No
C	2937	Comcast Cable Communications Inc.	Fresno	No
C	3516	Comcast Cable Communications Inc.	Fresno	No
N	7394	Comcast Cable Communications Inc.	Merced	No
S	3650	Comcast Cable Communications Inc.	Tulare	No
N	7154	Comcast Cable Communications, Inc.	Lodi	No
S	7807	Community Action Partnership of Kern	Bakersfield	No
C	3797	Community Subacute & Transitional Center	Fresno	No
N	1976	Conagra Foods	Oakdale	No
S	7322	Con-Fab California LLC	Shafter	No
N	4251	Consolidated Emergency Dispatch	Modesto	No
C	3903	County of Fresno	Fresno	No
C	4091	County of Fresno C/O CSA No. 10-A	Clovis	No
C	1547	County of Fresno Internal Services	Fresno	No
S	3502	County of Kern	Bakersfield	No
C	8700	County of Kings	Hanford	No
N	5371	County of San Joaquin	Tracy	No
S	3717	County of Tulare	Visalia	No
S	1609	County of Tulare Facilities	Visalia	No
N	7432	Covenant Village of Turlock	Turlock	No
S	4257	Crestwood Behavioral Health Center	Bakersfield	No
N	3531	Crossroads Commerce Center Owners' Assoc.	Lathrop	No
C	3072	Cumulus Radio Corp.	Fresno	No
S	3842	Cypress Mental Health Center	Visalia	No
S	2741	Cypress Rehab Hospital	Visalia	No
N	2392	Dameron Hospital	Stockton	No
N	8267	Dave Wilson Nursery, Inc.	Ripon	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	1626	Del Monte Foods Modesto Plant 1	Modesto	No
C	6912	Del Rey Community Services District	Del Rey	No
N	4719	Delhi County Water District	Delhi	No
N	5034	Delhi County Water District	Delhi	No
N	2395	Delta Packing Co. of Lodi, Inc.	Lodi	No
S	3020	Dept. Water Resources-Devils Den	Bakersfield	No
S	8683	DIRECTV	Bakersfield	No
N	8057	Dollar Tree Distribution, Inc.	Stockton	No
N	7178	Doubletree Hotel Modesto	Modesto	No
S	3917	DP Cal Corporate Plaza LP, A Delaware LI	Bakersfield	No
S	3199	DP Tower I LP	Bakersfield	No
S	5242	Dr. G S Pandya	Porterville	No
N	5121	Dr. Patel - Karan Investments	Salida	No
N	3765	Drill Tech Drilling And Shoring Inc.	Stockton	No
N	704	Dynatect Ro-Lab Inc.	Tracy	No
C	447	E & J Gallo Winery	Fresno	No
N	1237	E & J Gallo Winery	Livingston	No
N	2232	E & J Gallo Winery	Modesto	No
C	3944	Eli Lilly And Company	Fresno	No
S	1380	Encompass Health Rehabilitation Hospital	Bakersfield	No
S	4630	Equilon Enterprises LLC	Bakersfield	No
S	7615	Family Health Care Network	Porterville	No
N	4712	Federal Aviation Administration	Merced	No
N	1246	Fineline Industries, LLC	Merced	No
N	6830	Fineline Industries, LLC	Merced	No
N	1904	Foam Fabricators, Inc.	Modesto	No
C	1406	Foster Farms, Belgravia Plant	Fresno	No
N	8119	Franklin Templeton Companies LLC	Stockton	No
C	7600	Fresenius Medical Care North America	Fresno	No
N	6437	Freshpoint Central California	Turlock	No
C	7799	Fresno Community Hospital & Medical Ctr.	Oakhurst	No
C	1622	Fresno County Build Maintenance Div.	Fresno	No
C	8924	Fresno Kingston Bay Investors, LLC	Fresno	No
C	539	Fresno Valves & Castings, Inc.	Selma	No
C	2191	Frontier California Inc.	San Joaquin	No
S	3150	Frontier California Inc.	Strathmore	No
C	2269	Frontier California Inc.	Corcoran	No
C	2276	Frontier California Inc.	Sanger	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	3210	Frontier California Inc.	Linden	No
C	3289	Gap, Inc.	Fresno	No
N	964	George Reed Inc.	Clements	No
N	1695	GHC of Anberry, LLC	Atwater	No
C	3761	GHC of Fresno LLC	Fresno	No
S	3726	Global Elastomeric Products Inc.	Bakersfield	No
S	7235	Gogo LLC	Arvin	No
S	8071	Golden Living Center - Shafter	Shafter	No
N	8703	GPT Properties Trust / The RMR Group LLC	Stockton	No
S	7858	Grade 6 Oil, LLC - KRH	Bakersfield	No
S	7875	Greenfield County Water District	Greenfield	No
N	9207	Greenwood Motor Lines dba R + L Carriers	Ceres	No
N	314	H. J. Heinz Company, L.P.	Escalon	No
S	6509	Hathaway LLC	Bakersfield	No
N	7266	Health & Wellness Surgery Center LP	Turlock	No
C	8827	Healthcare Center of Fresno	Fresno	No
C	817	Henry Company LLC-Fresno	Fresno	No
N	1207	Hilltop Ranch	Ballico	No
C	3169	Home Depot #0663	Fresno	No
C	3138	Home Depot #0664	Clovis	No
N	4959	Home Depot #1022	Stockton	No
C	4014	Home Depot #1073	Hanford	No
C	4139	Home Depot #1086	Fresno	No
C	4220	Home Depot #1088	Madera	No
N	3930	Home Depot #6601	Modesto	No
S	2981	Home Depot #6615	Visalia	No
N	4015	Home Depot #6618	Merced	No
S	6635	Home Depot #6946	Tulare	No
N	7485	Home Depot #8427	Los Banos	No
C	4363	Home Depot #8529	Selma	No
N	7997	Home Depot Corporation #5641	Tracy	No
N	9307	Hospice House	Stockton	No
S	7685	Houchin Blood Bank	Bakersfield	No
S	8125	Houchin Community Blood Bank	Bakersfield	No
N	2282	Hunt & Sons Inc.	Ceres	No
S	1509	Hunter Edison Oil Development, L.P	Kern County	No
S	1329	Hunter Edison Oil Development, L.P.	Bakersfield	No

Region	Facility ID	Facility Name	City	Reinstatement Required
C	3623	Inland Star Warehouse	Fresno	No
N	7336	In-N-Out Burger	Lathrop	No
C	8705	Ireit Fresno El Paseo, LLC	Fresno	No
N	8855	Joaquin Bear LLC	Stockton	No
N	5093	John Jones Water Treatment Plant	Tracy	No
C	692	John's Body Shop	Fresno	No
C	1626	Judicial Council of California - AOC	Fresno	No
C	8723	Judicial Council of California/Admin.	Hanford	No
N	9179	Judicial Council of California-JCC 24-G1	Los Banos	No
S	6470	KBAK-TV	Bakersfield	No
C	3543	Kerman Telephone Company	Kerman	No
S	15	Kern County General Services	Bakersfield	No
S	7265	Kern County Hospital Authority	Bakersfield	No
S	3839	Kern County Public Health Dept.	Bakersfield	No
N	4710	Keyes Community Services District	Keyes	No
S	638	Kings Petroleum LLC dba Don Rose Oil	Visalia	No
C	7680	Kings River Commodities	Laton	No
S	5217	Knight Transportation Inc.	Tulare	No
C	8454	Kochergen Farms Composting Inc.	Avenal	No
S	3874	Kovacevich 5 Farms	Delano	No
C	8630	Kw Fro, LLC	Fresno	No
S	8620	Lamont Public Utilities District	Lamont	No
S	7452	Lamont Public Utility District	Lamont	No
S	8573	Lamont Public Utility District	Lamont	No
S	525	Land O' Lakes Inc.	Tulare	No
N	3261	Lathrop, City Of	Lathrop	No
C	3117	Level 3 Communications LLC	Fresno	No
C	3690	Level 3 Communications LLC	Hanford	No
C	3706	Level 3 Communications LLC	Fresno	No
C	3746	Level 3 Communications LLC	Chowchilla	No
N	4384	Level 3 Communications LLC	Merced	No
N	4393	Level 3 Communications LLC	Stockton	No
S	3541	Level 3 Communications LLC	Bakersfield	No
S	3738	Level 3 Communications LLC	Dinuba	No
S	3740	Level 3 Communications LLC	Tulare	No
N	8256	Linden County Water District	Linden	No
C	779	Lion Raisins, Inc.	Selma	No
N	4238	Lodi Gas Storage LLC	Acampo	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	1050	Lodi Memorial Hospital West	Lodi	No
N	8546	Lodi Unified School District	Lodi	No
C	7576	Lowe's HIW Inc.	Madera	No
C	7585	Lowe's HIW Inc.	Hanford	No
N	4440	Lowe's HIW Inc.	Modesto	No
N	7678	Lowe's HIW Inc.	Stockton	No
S	3659	Lowe's HIW Inc.	Bakersfield	No
S	4158	Lowe's HIW Inc.	Visalia	No
S	6933	Lowe's HIW Inc.	Bakersfield	No
S	7058	Lowe's HIW Inc.	Visalia	No
S	7175	Lowe's HIW Inc.	Porterville	No
C	4279	Lowe's HIW, Inc.	Clovis	No
N	4694	Lowe's HIW, Inc.	Stockton	No
N	5129	Lowe's HIW, Inc.	Lodi	No
N	7527	Lowe's HIW, Inc.	Turlock	No
C	4198	M.L. Street Properties, A Joint Venture	Fresno	No
C	7118	Madera Ambulatory Surgery Center	Madera	No
C	3785	Madera County	Madera	No
C	3323	Madera County Engineering Dept.	Madera	No
C	3324	Madera County Engineering Dept.	Madera	No
C	2378	Madera County Service Area #1	Coarsegold	No
C	7135	Madera Valley Water Co.	Madera	No
N	3168	Major Sysco Food Services, Inc.	Modesto	No
C	4305	Malaga Power, LLC	Fresno	No
N	7900	MCI	Stockton	No
N	2679	MCI International	Lodi	No
N	8013	McLane Foodservice Distribution	Tracy	No
C	3007	Mennonite Brethren Homes, Inc.	Reedley	No
N	7880	Merced Co. Dept. of Pw/Building Services	Atwater	No
N	1654	Merced County Animal Control	Atwater	No
S	6744	Mesa Verde CCF	Bakersfield	No
S	39	Midstream Energy Partners (USA) LLC	Tupman	No
S	8843	Mil Potrero Mutual Water Co.	Pine Mtn Club	No
S	8430	Millennium Surgery Center, Inc.	Bakersfield	No
C	847	Modern Welding	Fresno	No
N	2052	Modesto Irrigation District	Modesto	No
N	3233	Modesto Irrigation District	Modesto	No
N	4940	Modesto Irrigation District	Ripon	No

Region	Facility ID	Facility Name	City	Reinstatement Required
C	3594	Monte Verdi Estates	Clovis	No
N	2055	Monte Vista Farming Company	Denair	No
C	3929	MRP San Joaquin Energy, LLC	Lemoore	No
C	4140	MRP San Joaquin Energy, LLC	Hanford	No
N	4597	MRP San Joaquin Energy, LLC	Tracy	No
S	91	Mt Poso Co. Generation Co. LLC	Bakersfield	No
S	3337	NDS Inc. Owned By Norma Group Americas	Lindsay	No
S	8506	New Cingular Wireless Pcs LLC dba AT&T	Porterville	No
C	8570	New Madera Courthouse, JCC/AOC	Madera	No
C	8761	Noble Credit Union	Fresno	No
N	7396	Noble Healthcare At Home Inc.	Modesto	No
N	2697	Northern California Power	Lodi	No
N	583	Northern California Power Agency	Lodi	No
S	3486	Nusil Technology LLC	Bakersfield	No
N	5041	Oakdale Irrigation District	Oakdale	No
N	4759	O'Connor Woods	Stockton	No
N	3869	O'Connor Woods Housing Corp./Meadowood	Stockton	No
N	9017	Omnicare Pharmacy	Lodi	No
C	3663	Oremor of Fresno, LLC	Fresno	No
N	9041	Owens & Minor	Tracy	No
N	8120	Ozark Automotive Distributors Inc.	Stockton	No
C	3642	Pacific Bell Telephone Co. (dba AT&T Ca)	Fresno	No
C	1643	Pacific Bell Telephone Co. (dba AT&T Ca)	Fresno	No
C	1652	Pacific Bell Telephone Co. (dba AT&T Ca)	Clovis	No
C	1657	Pacific Bell Telephone Co. (dba AT&T Ca)	Hanford	No
C	1666	Pacific Bell Telephone Co. (dba AT&T Ca)	Madera	No
C	1668	Pacific Bell Telephone Co. (dba AT&T Ca)	Fresno	No
C	1669	Pacific Bell Telephone Co. (dba AT&T Ca)	Fresno	No
C	1670	Pacific Bell Telephone Co. (dba AT&T Ca)	Fresno	No
C	1672	Pacific Bell Telephone Co. (dba AT&T Ca)	Mendota	No
N	2412	Pacific Bell Telephone Co. (dba AT&T Ca)	Stockton	No
N	2862	Pacific Bell Telephone Co. (dba AT&T Ca)	Hughson	No
N	2864	Pacific Bell Telephone Co. (dba AT&T Ca)	Salida	No
N	2865	Pacific Bell Telephone Co. (dba AT&T Ca)	Ceres	No
N	2869	Pacific Bell Telephone Co. (dba AT&T Ca)	Oakdale	No
N	2871	Pacific Bell Telephone Co. (dba AT&T Ca)	Merced	No
N	2872	Pacific Bell Telephone Co. (dba AT&T Ca)	Atwater	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	3695	Pacific Bell Telephone Co. (dba AT&T Ca)	Stockton	No
S	1157	Pacific Bell Telephone Co. (dba AT&T Ca)	Lamont	No
S	1159	Pacific Bell Telephone Co. (dba AT&T Ca)	Bakersfield	No
S	1161	Pacific Bell Telephone Co. (dba AT&T Ca)	Arvin	No
S	1168	Pacific Bell Telephone Co. (dba AT&T Ca)	Wasco	No
S	1169	Pacific Bell Telephone Co. (dba AT&T Ca)	Bakersfield	No
S	1171	Pacific Bell Telephone Co. (dba AT&T Ca)	Delano	No
S	2477	Pacific Bell Telephone Co. (dba AT&T Ca)	Porterville	No
S	671	Pacific Bell Telephone Co. dba AT&T Ca	Visalia	No
S	1162	Pacific Bell Telephone Co. dba AT&T Ca	Bakersfield	No
S	1163	Pacific Bell Telephone Co. dba AT&T Ca	Bakersfield	No
S	1165	Pacific Bell Telephone Co. dba AT&T Ca	Bakersfield	No
N	9013	Pacific Coast Producers	Lodi	No
N	9014	Pacific Coast Producers	Lodi	No
C	8529	Pacific Gas & Electric	Shaver Lake	No
C	7089	Pacific Gas & Electric (Bldg. B)	Fresno	No
N	9171	Pacific Gas & Electric Company	Stockton	No
S	1335	Pacific Pipeline System LLC	Taft	No
C	4022	Pacifica Senior Living - Fresno	Fresno	No
S	892	Pactiv LLC	Bakersfield	No
C	7220	Panoche Energy Center LLC	Firebaugh	No
S	6898	Parkview Julian Convalescent Hospital	Bakersfield	No
S	7884	Parmar	Bakersfield	No
C	8523	Patrick W Geiger	Fresno	No
N	7785	PDC Properties	Stockton	No
N	7365	Pelican Renewables LLC	Stockton	No
S	4056	Pena's Disposal	Cutler	No
S	8448	Pixley Biogas LLC	Pixley	No
S	6534	Pixley Cogen Partners	Pixley	No
N	1128	Port City Operating Company LLC	Stockton	No
N	4211	Prologis	Tracy	No
N	4346	Qwest Communications Corporation	Atwater	No
N	4912	Recology Blossom Valley Organics	Vernalis	No
S	2905	Recology Blossom Valley Organics - South	Lamont	No
C	1820	Rio Bravo Fresno	Fresno	No
N	9088	Ripon Fire District	Ripon	No
N	7463	River Surgical Center	Modesto	No
N	8052	Riverbank Unified School District	Riverbank	No

Region	Facility ID	Facility Name	City	Reinstatement Required
S	1325	Ruiz Food Products Inc.	Dinuba	No
N	8004	Sacramento Area Sewer District	Thornton	No
N	7976	Safeway Inc.	Tracy	No
C	2505	Saint Agnes Medical Center	Fresno	No
N	7933	San Joaquin County	Stockton	No
N	9209	San Joaquin County	Stockton	No
N	7929	San Joaquin County Office of Education	Stockton	No
N	4677	San Joaquin County Public Health Service	Stockton	No
N	9057	San Joaquin Regional Rail Commission	Stockton	No
N	4715	San Luis Water District	Santa Nella	No
N	4716	San Luis Water District	Santa Nella	No
N	7164	San Tomo Inc.	Stockton	No
C	7969	Sanger Unified School District	Sanger	No
S	1203	Saputo Cheese USA Inc.	Tulare	No
S	3885	Scripps Media Inc.	Bakersfield	No
C	1089	Sealed Air Corporation	Madera	No
S	2692	Sequoia Surgery Center LLC	Visalia	No
C	8511	Shaw/Blythe L.P.	Fresno	No
C	3108	Sierra Vista Realty LLC	Clovis	No
S	4212	South Kern Industrial Center LLC	Taft	No
N	7185	South San Joaquin Irrigation District	Lathrop	No
N	8801	South San Joaquin Irrigation District	Manteca	No
N	8900	South San Joaquin Irrigation District	Manteca	No
S	1792	Southern Calif Gas Co.	Mettler	No
S	6629	Spanish Radio Group	Bakersfield	No
C	4018	Sprint Communications Company LP	Fresno	No
N	8842	St Francis Yacht Club	Stockton	No
N	9158	Stanislaus County	Modesto	No
N	8702	Stanislaus County Office of Education	Modesto	No
N	1680	Stanislaus Food Products	Modesto	No
N	4239	Stanislaus Surgical Hospital	Modesto	No
C	2371	State Compensation Ins Fund	Fresno	No
S	8252	State of Ca Admin Office of The Courts	Porterville	No
N	4541	State of California - Dept. of Justice	Ripon	No
N	8781	State of California Dept. Of	Lodi	No
C	8186	State of California Dept. of Transportation	Fresno	No
S	7583	Stinson Stationers	Bakersfield	No
S	8457	Stockdale Annex Mutual Water Co.	Bakersfield	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	8049	Stockton Unified School District	Stockton	No
C	4015	Summit Surgical	Fresno	No
S	5730	Sun Pacific Shippers LP Maricopa	Bakersfield	No
N	4996	Sutter Valley Hospitals	Tracy	No
N	2022	Sutter Valley Hospitals dba Memorial Med	Modesto	No
N	7410	Synagro West, Inc. dba Central Valley Compost	Dos Palos	No
N	7377	Tara Park Waste Water (City of Manteca)	Manteca	No
S	953	TDG Operations LLC	Porterville	No
S	4	Tehachapi-Cummings Water Dist.	Tejon Ranch	No
C	8011	Telecare Corporation	Sanger	No
S	4078	The Home Depot	Porterville	No
N	3962	The Home Depot #0662	Stockton	No
N	4750	The Home Depot #1001	Turlock	No
N	7272	The Home Depot #1842	Riverbank	No
N	7263	The Home Depot #6947	Ceres	No
N	8718	The Office of Migrant Svc (Dept. of Housing)	Lodi	No
S	7512	The Padre Hotel	Bakersfield	No
C	7781	The Payroll People	Fresno	No
C	2053	The Ponderosa Telephone Co.	O'Neals	No
S	8117	The Spine And Orthopedic Center	Bakersfield	No
S	3852	TRC-MRC 2, LLC C/O Majestic Management	Lebec	No
S	44	TRICOR Refining LLC	Bakersfield	No
S	3914	TS Leasing Operations Inc.	Bakersfield	No
S	3026	Tulare City Water Division	Tulare	No
S	3820	Tulare Co. Resource Mgmt. Agency Bldg. Services Div.	Visalia	No
S	8835	Tulare Nursing & Rehabilitation Center	Tulare	No
N	2246	Turlock Irrigation District	Turlock	No
N	3299	Turlock Irrigation District	Modesto	No
N	2250	Turlock Memorial Park	Turlock	No
S	8885	UC Davis Animal Health & Food Safety Lab	Tulare	No
S	1431	Union Cemetery Association	Bakersfield	No
S	7872	Union Surgery Center	Bakersfield	No
N	5055	University of California Merced	Merced	No
N	4946	University of California, Merced	Atwater	No
N	4749	University Surgical & Diagnostic Center	Merced	No
C	7624	Univision Communications Inc.	Fresno	No

Region	Facility ID	Facility Name	City	Reinstatement Required
C	8487	Unwired Broadband Inc.	Fresno	No
S	3781	Us Army Corps of Engineers	Lemon Cove	No
C	4223	USGP Fresno IRS LLC C/O Manco Abbott Inc.	Fresno	No
C	2902	Valley Children's Hospital	Madera	No
S	6544	Valley Strong Credit Union	Bakersfield	No
S	8412	Valley Strong Credit Union	Bakersfield	No
S	729	Veolia WTS USA Inc.	Bakersfield	No
S	4278	Verizon Wireless	Keene	No
N	4560	Verizon Wireless - Stockton MSC	Stockton	No
C	3352	Verizon Wireless - Weber Ave/Fresno MSC	Fresno	No
S	6693	Verizon Wireless (Mesa Marin Raceway)	Bakersfield	No
C	7610	Verizon Wireless (Villa Avenue)	Clovis	No
C	8176	Veterans Home of California, Fresno	Fresno	No
C	8564	Vie-Del Company	Fresno	No
S	1892	Visalia Community Hospital	Visalia	No
S	3894	Visalia Unified School District	Visalia	No
S	3895	Visalia Unified School District	Visalia	No
C	4078	Vision Care Center	Fresno	No
S	363	Vulcan Materials Co., Western Div.	Bakersfield	No
C	8067	Walmart Pharmacy Distribution Center	Hanford	No
S	7647	Wal-Mart Store #1574	Bakersfield	No
N	5881	Walmart Store No 1554	Stockton	No
N	8252	Walmart Store No. 1840	Manteca	No
N	8007	Walmart Store No. 5710	Modesto	No
S	5290	Wal-Mart Stores East LP	Porterville	No
C	7479	Walmart Supercenter #4238	Sanger	No
N	7172	Walnut Energy Center Authority	Turlock	No
C	3844	Wellhead Power Panoche, LLC.	Firebaugh	No
C	657	West Island Cotton Growers Inc.	Lemoore	No
S	350	West Kern Water District	Fellows	No
S	352	West Kern Water District	Taft	No
S	5294	West Kern Water District	Kern County	No
C	7798	Westlake Hardware, Inc.	Fresno	No
C	2897	Willow Creek Healthcare Center	Clovis	No
N	5367	WinCo Foods	Ceres	No
N	4908	WinCo Foods #21	Modesto	No
S	7749	Wood Industries Co.	Visalia	No

Region	Facility ID	Facility Name	City	Reinstatement Required
N	8911	YRC Freight Inc.	Tracy	No

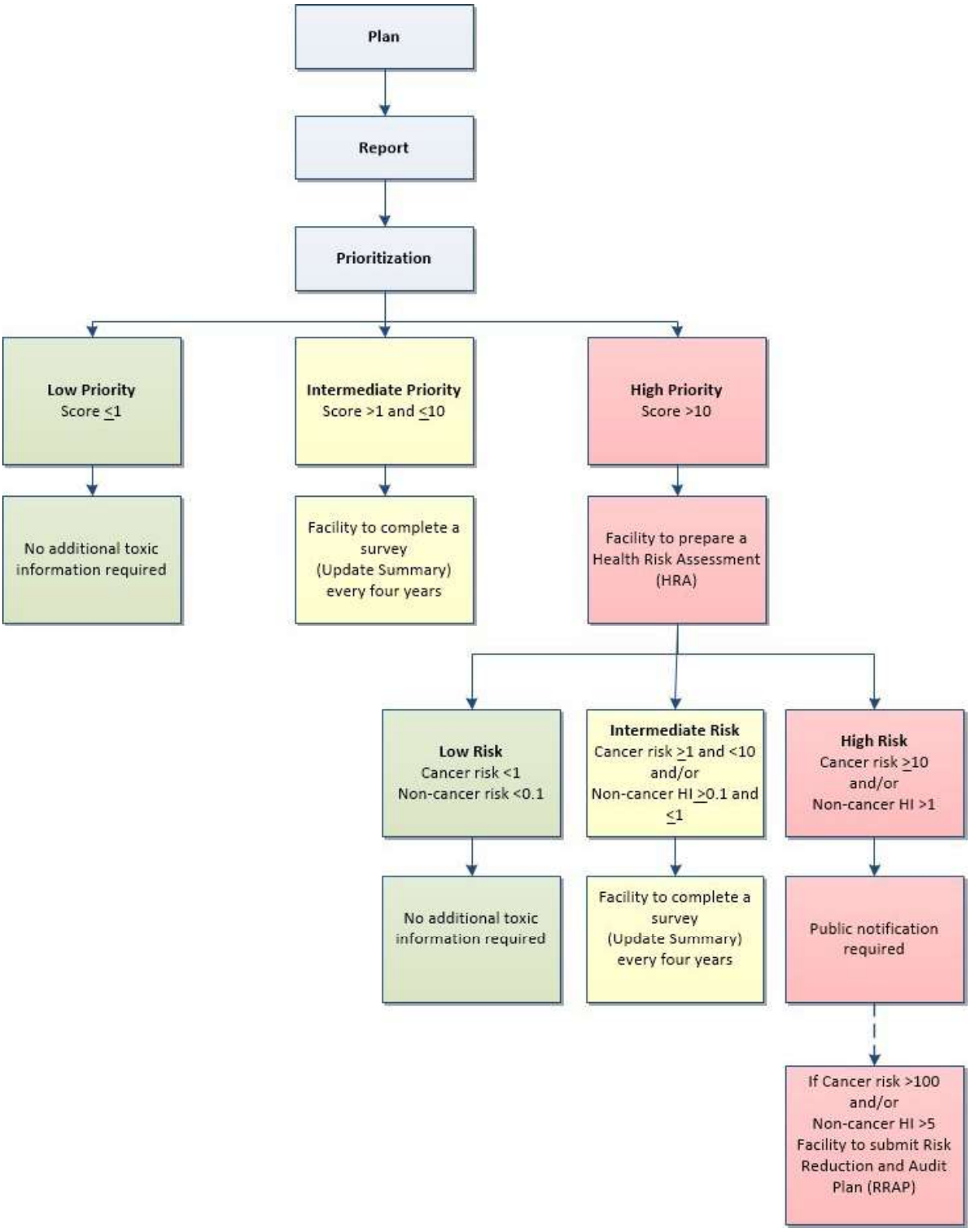
Appendix C. Toxics Emissions Summary

Emissions for eight counties of San Joaquin Valley from the latest California Air Resources Board California Toxics Inventory (CTI).

Table C1. Toxic Emissions Summary

Pollutant	CTI (tons/yr)
Acetaldehyde	3,512
Diesel Particulate Matter	2,520
Formaldehyde	2,318
Benzene	1,020
Perchloroethylene	448
1,3-Butadiene	269
Methylene Chloride	247
PAHs	238
Manganese	217
Acrolein	153
p-Dichlorobenzene	130
Styrene	96
Trichloroethylene	46
Chromium	34
Lead	28
Nickel	18
Acrylonitrile	7
Vinyl Chloride	7
Arsenic	5
Cadmium	3
Mercury	2
Chloroform	2
Ethylene Oxide	0
Ethylene Dichloride	0
Beryllium	0
Carbon Tetrachloride	0
Dioxins/Benzofurans	0
Chromium, Hexavalent	0

Appendix D. AB 2588 District Implementation Flow Chart



Appendix E. Current Status of NESHAP Delegation

National Emission Standards for Hazardous Air Pollutants (NESHAP) for which authority has been delegated to the District are included in District Rule 4002. This rule incorporates the NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, Code of Federal Regulations (Table E.1), and the NESHAPs for Source Categories from Part 63, Chapter I, Subchapter C, Title 40, Code of Federal Regulations (Table E.2).

Table E1. District Delegated NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, Code of Federal Regulations.

Subpart	Description
A	General Provisions
C	National Emission Standard for Beryllium
D	National Emission Standard for Beryllium Rocket Motor Firing
E	National Emission Standard for Mercury
F	National Emission Standard for Vinyl Chloride
J	National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene
L	National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants
M	National Emission Standard for Asbestos
N	National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants
O	National Emission Standard for Inorganic Arsenic Emissions from Primary Copper Smelters
P	National Emission Standard for Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities
V	National Emission Standard for Equipment Leaks (Fugitive Emission Sources)
Y	National Emission Standard for Benzene Emissions from Benzene Storage Vessels
BB	National Emission Standard for Benzene Emissions from Benzene Transfer Operations
FF	National Emission Standard for Benzene Waste Operations

Table E2. District Delegated NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, Code of Federal Regulations.

Subpart	Description
A	General Provisions
F-I	National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry
J	National Emission Standards for Hazardous Air Pollutants from Polyvinyl Chloride and Copolymers Production
L	National Emission Standards for Coke Oven Batteries
R	National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)
S	National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry
T	National Emission Standards for Halogenated Solvent Cleaning (except §63.462 - Batch cold cleaning machine standards)
U	National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins
W	National Emission Standards for Hazardous Air Pollutants for Epoxy Resins Production and Non-Nylon Polyamides Production
X	National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting
Y	National Emission Standards for Marine Tank Vessel Loading Operations AA National Emission Standards for Hazardous Air Pollutants From Phosphoric Acid Manufacturing Plants
AA	National Emission Standards for Hazardous Air Pollutants from Phosphoric Acid Manufacturing Plants
BB	National Emission Standards for Hazardous Air Pollutants from Phosphate Fertilizers Production Plants
CC	National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries
DD	National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations
EE	National Emission Standards for Magnetic Tape Manufacturing Operations
GG	National Emission Standards for Aerospace Manufacturing and Rework Facilities
HH	National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities
II	National Emission Standards for Shipbuilding and Ship Repair (Surface Coating)
JJ	National Emission Standards for Wood Furniture Manufacturing Operations
KK	National Emission Standards for the Printing and Publishing Industry
LL	National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants
MM	National Emission Standards for Hazardous Air Pollutants from Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semi-chemical Pulp Mills
YY	National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology (Generic MACT)
CCC	National Emission Standards for Hazardous Air Pollutants for Steel Pickling--HCl Process Facilities and Hydrochloric Acid Regeneration Plants
DDD	National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production
GGG	National Emission Standards for Hazardous Air Pollutants from Pharmaceutical Production
HHH	National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities

Subpart	Description
III	National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production
JJJ	National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
LLL	National Emission Standards for Hazardous Air Pollutants for Source Categories; Portland Cement Manufacturing Industry
MMM	National Emission Standards for Hazardous Air Pollutants: Pesticide Active Ingredient Production
NNN	National Emission Standards for Hazardous Air Pollutants for Source Categories; Wool Fiberglass Manufacturing
OOO	National Emission Standards for Hazardous Air Pollutant Emissions: Manufacture of Amino/Phenolic Resins
PPP	National Emission Standards for Hazardous Air Pollutants for Polyether Polyols Production
QQQ	National Emission Standards for Hazardous Air Pollutants from Primary Copper Smelting
RRR	National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production
TTT	National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting
UUU	National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units
VVV	National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works
XXX	National Emission Standards for Hazardous Air Pollutants for Ferroalloys Production: Ferromanganese and Silicomanganese
AAAA	National Emission Standards for Hazardous Air Pollutants from Municipal Solid Waste Landfills
CCCC	National Emission Standards for Hazardous Air Pollutants from Manufacturing of Nutritional Yeast
EEEE	National Emission Standards for Hazardous Air Pollutants from Organic Liquids Distribution (Non-Gasoline)
FFFF	National Emission Standards for Hazardous Air Pollutants from Miscellaneous Organic Chemical Manufacturing
GGGG	National Emission Standards for Hazardous Air Pollutants from Solvent Extraction for Vegetable Oil Production
HHHH	National Emission Standards for Hazardous Air Pollutants from Wet- Formed Fiberglass Mat Production
JJJJ	National Emission Standards for Hazardous Air Pollutants from Paper and Other Web Coating
KKKK	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Metal Cans
MMMM	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Miscellaneous Metal Parts and Products
NNNN	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Large Appliances
OOOO	National Emission Standards for Hazardous Air Pollutants from Printing, Coating, and Dyeing of Fabrics and Other Textiles
PPPP	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Plastic Parts and Products
QQQQ	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Wood Building Products

Subpart	Description
RRRR	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Metal Furniture
SSSS	National Emission Standards for Hazardous Air Pollutants from Surface Coating of Metal Coil
TTTT	National Emission Standards for Hazardous Air Pollutants from Leather Finishing Operations
UUUU	National Emission Standards for Hazardous Air Pollutants from Cellulose Product Manufacturing
VVVV	National Emission Standards for Hazardous Air Pollutants from Boat Manufacturing
WWWW	National Emission Standards for Hazardous Air Pollutants from Reinforced Plastic Composites Production
XXXX	National Emission Standards for Hazardous Air Pollutants from f Rubber Tire Manufacturing
YYYY	National Emission Standards for Hazardous Air Pollutants from Stationary Combustion Turbines
AAAAA	National Emission Standards for Hazardous Air Pollutants from Lime Manufacturing Plants
BBBBB	National Emission Standards for Hazardous Air Pollutants from Semiconductor Manufacturing
CCCCC	National Emission Standards for Hazardous Air Pollutants from Coke Ovens: Pushing, Quenching, and Battery Stacks
EEEEE	National Emission Standards for Hazardous Air Pollutants from Iron and Steel Foundries
FFFFF	National Emission Standards for Hazardous Air Pollutants from Integrated Iron and Steel Manufacturing
GGGGG	National Emission Standards for Hazardous Air Pollutants from Site Remediation
HHHHH	National Emission Standards for Hazardous Air Pollutants from Miscellaneous Coating Manufacturing
IIIII	National Emission Standards for Hazardous Air Pollutants from Mercury Emissions from Mercury Cell Chlor-Alkali Plants
JJJJJ	National Emission Standards for Hazardous Air Pollutants from Brick and Structural Clay Products Manufacturing
KKKKK	National Emission Standards for Hazardous Air Pollutants from Clay Ceramics Manufacturing
LLLLL	National Emission Standards for Hazardous Air Pollutants from Asphalt Processing and Asphalt Roofing Manufacturing
MMMMM	National Emission Standards for Hazardous Air Pollutants from Flexible Polyurethane Foam Fabrication Operations
PPPPP	National Emission Standards for Hazardous Air Pollutants from Engine Test Cells/Stands
QQQQQ	National Emission Standards for Hazardous Air Pollutants from Friction Materials Manufacturing Facilities
RRRRR	National Emission Standards for Hazardous Air Pollutants from Taconite Iron Ore Processing
SSSSS	National Emission Standards for Hazardous Air Pollutants from Refractory Products Manufacturing
TTTTT	National Emission Standards for Hazardous Air Pollutants from Primary Magnesium Refining

Appendix C.3.6

SJVAPCD Indirect Source Rule Staff Report

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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

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Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985

www.valleyair.org

DATE: June 19, 2008

TO: SJVUAPCD Governing Board

FROM: Seyed Sadredin, Executive Director/APCO
Project Coordinator: Arnaud Marjollet

RE: RECEIVE AND FILE THE "2008 ANNUAL REPORT ON THE DISTRICT'S INDIRECT SOURCE REVIEW PROGRAM"

RECOMMENDATION:

Receive and file the "2008 Annual Report on the District's Indirect Source Review Program" (see attachment A).

BACKGROUND:

District Rule 9510, Indirect Source Review (ISR), was adopted by the District's Board to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley. The rule's intent, requirements, and administrative procedures are generally described in this report, which was prepared pursuant to Rule 9510 to describe emission reductions achieved and mitigation fees received through implementation of the ISR program.

DISCUSSION:

District Rule 9510 applies to new development projects that emit emissions of at least two tons of nitrogen oxides (NOx) or two tons of particulate matter smaller than ten microns in aerodynamic diameter (PM10) per year.

Developers of projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases, or pay specified mitigation fees. To minimize emissions and to minimize the applicable mitigation fee, developers have begun voluntarily incorporating many air-friendly design changes into their proposals.

For instance, significant reductions in emissions have been generated via the use of cleaner construction equipment. For large distribution centers, proponents have voluntarily proposed to use cleaner truck fleets. In addition, many lesser but still cumulatively significant reductions in emissions have been garnered by a whole range of effective design principles, like installation of solar power, integrated mixed-use development design, bike lanes, high-efficiency housing design, and many others.

If a developer does not achieve the sufficient emission reductions through onsite measures, the rule provides a mechanism by which the developer can pay an offsite mitigation fee to the District. One hundred percent of all offsite mitigation fees received by the District are to be used by the District's existing Emission Reduction Incentive Program (ERIP) to fund emission reduction projects, achieving emission reductions in behalf of the project. Additionally, if a project is subject to off-site emission reduction fees, the developer is required to pay an administrative fee equal to four percent (4%) of the required off-site fees. This fee is to cover the District's cost of administering the off-site emission reduction program.

Section III of this year's report summarizes District Implementation of Rule 9510 and Section IV summarizes funds received and expended, emission reductions realized, and overall cost-effectiveness of funded projects. Appendix A of the report provides a list of all emission reduction projects funded by the ISR program.

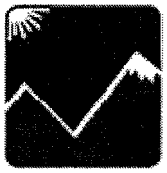
Attachment
2008 Annual Report on the District's Indirect Source Review Program (13 pages)

San Joaquin Valley Air Pollution Control District
Meeting of the Governing Board
June 19, 2008

RECEIVE AND FILE THE "2008 ANNUAL REPORT ON THE DISTRICT'S INDIRECT SOURCE REVIEW PROGRAM"

Attachment:
2008 Annual Report on the District's Indirect Source Review Program
(12 pages)

The above attachment has been included with the agenda packets distributed to members of the Governing Board. It has not been included with other agenda packets. A copy of this document is available for review and/or purchase from the San Joaquin Valley Unified Air Pollution Control District.



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

2008 Annual Report on the District's Indirect Source Review Program

Reporting Period: March 1, 2007 to February 29, 2008

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT GOVERNING BOARD
2008 Annual Report on the District's Indirect Source Review Program

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EXECUTIVE DIRECTOR / AIR POLLUTION CONTROL OFFICER

SEYED SADREDIN

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I. EXECUTIVE SUMMARY

This *"2008 Annual Report on the District's Indirect Source Review Program"* was prepared by the San Joaquin Valley Unified Air Pollution Control District. District Rule 9510, Indirect Source Review (ISR), was adopted by the District's Governing Board to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley. The rule's intent, requirements, and administrative procedures are described in this report, as are the emission reductions achieved and mitigation fees received during 2007-2008 through implementation of the ISR program.

District Rule 9510 applies to new development projects that emit emissions of at least two tons of nitrogen oxides (NOx) or two tons of particulate matter smaller than ten microns in aerodynamic diameter (PM10) per year. The rule contains provisions exempting traditional stationary source projects that are subject to the District's stationary source permitting requirements.

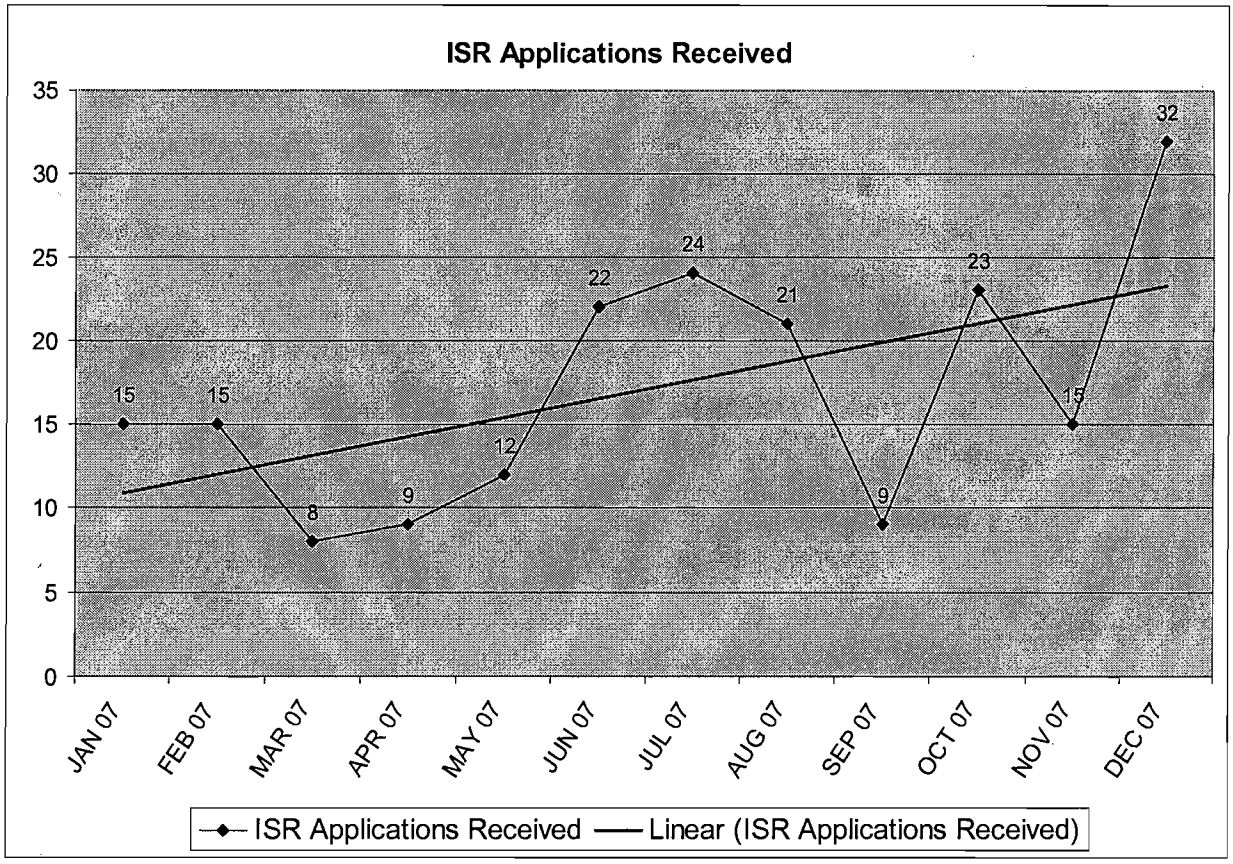
Developers of projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases, or pay specified mitigation fees. To minimize emissions and to minimize the applicable mitigation fee, developers have begun voluntarily incorporating many air-friendly design changes into their proposals. For instance, significant reductions in emissions have been generated via the use of cleaner construction equipment. For large distribution centers, proponents have voluntarily proposed to use cleaner truck fleets. In addition, many lesser but still cumulatively significant reductions in emissions have been garnered by a whole range of effective design principles, like installation of solar power, integrated mixed-use development design, bike lanes, high-efficiency housing design, and many others.

If a developer cannot achieve the required emission reductions through onsite measures, the rule provides a mechanism by which the developer can pay an offsite mitigation fee to the District. One hundred percent of all offsite mitigation fees received by the District are to be used by the District's existing Emission Reduction Incentive Program (ERIP) to fund emission reduction projects, achieving emission reductions in behalf of the project. Additionally, if a project is subject to off-site emission reduction fees, the developer is required to pay an administrative fee equal to four percent (4%) of the required off-site fees. This fee is to cover the District's cost of administering the off-site emission reduction program.

Despite legal challenges[1] and slowed growth in the building industry, especially in the residential development sector, the ISR program had considerable success during this reporting period. As compared with the 2006-2007 reporting period, the ISR program experienced a 46% increase in Air Impact Assessment (AIA) applications received (194 applications received this year versus 133 last year) and a 244% increase in payment of

[1] On June 27, 2006 a lawsuit was filed by various building industries challenging the validity of District Rule 9510. On March 25, 2008 the Fresno County Superior Court ruled in favor of the District on all accounts. An appeal of that decision was filed May 22, 2008. There is a companion case pending in Federal Court which claims District Rule 9510 is preempted by federal tailpipe control standards. Initial indications of the outcome of this case may become apparent in the fall of 2008.

off-site mitigation fees ($5,716,032 received this year compared to $1,660,072 last year).



This increase continued throughout the year, as seen by the graph above, and is attributable to major efforts in District outreach and implementation of measures to improve linkages between the ISR program and District Compliance functions. Outreach included coordinating and holding multiple meetings with key planning agency staff throughout the San Joaquin Valley, conducting public workshops on how to comply with ISR and providing land use agencies training on the use of URBEMIS.

For the 2007-2008 ISR annual reporting period, the District's ISR accounts held a beginning balance of $5,090,869. During this reporting period, the District received off-site mitigation fees totaling $5,392,453 resulting in a grand total of $10,483,322 in off-site mitigation fees. The District funded off-site emission reduction projects totaling $3,125,191, leaving an unexpended balance of $7,358,131.

Implementation of District Rule 9510 resulted in projected combined on-site and off-site emission reductions totaling 2,078 tons of nitrogen oxides (NOx) and 1,087 tons of fine particulate matter (PM10). Off-site emission reduction projects funded by the ISR program achieved emission reductions representing 252 of NOx and 9 tons of PM10, with an average cost effectiveness of $11,928 per ton of reduced emissions.

II. INTRODUCTION

The District's population increased by 22% between 1990 and 2000, and California's Department of Finance has projected that the San Joaquin Valley Air Basin (SJVAB) will experience an overall increase in population of 24% between 2000 and 2010, and an additional 26% increase between 2010 and 2020. Population growth results in increased area source emissions from activities such as increased consumer product use, fuel combustion, and landscape maintenance. Additionally, the total number of vehicle miles traveled (VMT) increases at an even faster rate than the population growth rate. The District experienced a 9% increase in VMT in just three years, between 1999 and 2002, and we expect to see an additional 27% increase in VMT from 2002 to 2010.

The projected growth in these so called "indirect source" emissions erodes the benefits of emission reductions achieved through the District's stationary source program and the state and federal mobile source controls. The District has longstanding statutory authority to regulate indirect sources of air pollution. Pursuant to this authority, the District made a federally enforceable commitment to regulate indirect sources when it adopted its PM10 Attainment Plan in June 2003. Subsequently, the California State Legislature passed Senate Bill 709, Florez, in the fall of 2003, which Governor Gray Davis subsequently signed and codified into the Health and Safety Code in §40604. This additional legislation required the District to adopt, by regulation, a schedule of fees to be assessed on area wide or indirect sources of emissions that are regulated by the District.

District Rule 9510 (Indirect Source Review) was adopted by the District's Board on December 15, 2005, and became effective March 1, 2006. Rule 9510 was adopted by the District's Board to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley. Although the rule does not directly regulate VMT, it is designed to regulate the air impacts associated with new development. Rule 9510 applies to residential and non-residential development projects, including transportation and transit projects, which equal or exceed established applicability thresholds. Rule 9510 establishes emission reduction requirements for NOx and PM10 pollutants. Emission reductions required by the rule that are not achieved through on-site emission reduction measures are subject to off-site emission reduction fees. These fees are used by the District to fund emission reduction projects, mitigating the project's potential impact on air quality in the SJVAB.

This report was prepared pursuant to provisions of Rule 9510 that require the District to prepare an annual report regarding expenditure of received funds and achieved emission reductions. Pursuant to Rule 9520, Section 10.4, the annual report should include the following:

- Total amount of Off-Site Fees received;
- Total monies spent;
- Total monies remaining;
- Any refunds distributed;
- A list of all projects funded;

- Total emissions reductions realized; and
- The overall cost-effectiveness factor for the projects funded.

III. IMPLEMENTATION

District Rule 9510 (Indirect Source Review)

District Rule 9510 applies to new development projects that emit emissions of at least two tons of NOx or two tons of PM10 per year. Developers of projects subject to Rule 9510 are required to reduce emissions occurring during construction and operational phases. During construction, exhaust emissions of NOx and PM10 are to be reduced by 20% and 45% respectively, compared to the statewide average for construction equipment. Construction exhaust emissions can be reduced through installation and use of aftermarket devices, and through use of construction equipment that is newer than the statewide average. Operational emissions of NOx and PM10 are to be reduced by 33.3% and 50%, respectively, of the project's baseline for 10 years.

Operational emissions can be reduced by incorporating design elements that reduce onsite emissions, and the District has seen some very positive clean-air technologies and techniques employed by developers to reduce indirect emissions. For instance, significant reductions in emissions have been generated via the use of cleaner construction equipment. For large distribution centers, proponents have voluntarily proposed to use cleaner truck fleets. In addition, many lesser but still cumulatively significant reductions in emissions have been garnered by a whole range of effective design principles, like installation of solar power, integrated mixed-use development design, bike lanes, high-efficiency housing design, and many others.

If, after implementing such onsite measures, a developer cannot achieve the required emission reductions, the rule provides a mechanism by which the developer can pay an offsite mitigation fee to the District. One hundred percent of all offsite mitigation fees received by the District are to be used by the District's existing Emission Reduction Incentive Program (ERIP) to fund emission reduction projects, achieving emission reductions on behalf of the project. To recover the District's costs for administering the requirements of Rule 9510, the District's Board adopted Rule 3180 (Administrative Fees for Indirect Source Review). Provisions of Rule 3180 establish an application filing fee structure of $432 for residential and $648 for non-residential projects. Additionally, if a project is subject to off-site emission reduction fees, the developer is required to pay an administrative fee equal to four percent (4%) of the required off-site fees. This fee is to cover the District's cost of administering the off-site emission reduction program.

Development Mitigation Contracts

A Development Mitigation Contract (DMC) is an air quality mitigation measure by which a developer voluntarily enters into a contractual agreement with the District to reduce a development project's impact on air quality beyond that achieved by compliance with District Rule 9510. By fully mitigating the project's impact on air quality, a developer

can address one of the issues that have led to California Environmental Quality Act (CEQA) legal challenges to development projects within the SJVAB.

Implementation of a DMC is complementary to ISR; project emissions are characterized, mitigation funds are paid to the District, the District administers the funds to secure the required emission reduction projects. A prerequisite for the District to enter into a DMC is that the DMC will exceed the air quality benefits achieved by compliance with Rule 9510. Therefore, developers who enter into a DMC are considered in compliance with District Rule 9510. This report therefore includes revenues and emission reductions resulting from DMCs. During this reporting period, the District received no new off-site mitigation fees from development mitigation contracts. However, DMC funds carried forward from the previous reporting period were used to fund off-site emission reduction projects.

IV. 2007–2008 ANALYSIS

Table -1: Summary of ISR Program for 2007 to 2008

		Total ISR Program
Beginning Balance	**$**	**5,090,869**
Total Application Fees Received	$	115,869
Total Administrative Fees Received	$	207,710
Total Amount Off-Site Fees Received	$	5,392,453
Total Fees Received	$	5,716,032
Grand Total of Available Off-Site Fees	**$**	**10,483,322**
Total Amount Spent (Contracted)	**$**	**3,125,191**
Total Balance of Available Off-Site Fees	$	7,358,131
Total Amount Refunded	$	0
Grant Total Balance of Available Off-Site Fees	**$**	**7,358,131**

		NOx	*PM10*	*Total*
Total Off-Site Achieved Emission Reductions	***Tons***	251.56	9.09	**260.65**
Emission Reductions Cost Effectiveness *(average based on projects funded)*	*$/Ton*			**11,928**
Total ON-SITE Projected Emission Reductions	*Tons*	1,009.61	305.20	**1,314.81**
Total OFF-SITE Projected Emission Reductions	*Tons*	1,067.91	781.78	**1,849.69**
Total Projected Emission Reductions	***Tons***	2,077.52	1,086.78	**3,164.50**

Total Application Fees Received

District Rule 3180 (Administrative Fees for Indirect Source Review) establishes application fees of $432 and $648 respectively for non-residential ISR applications. The District may also charge for additional staff time required to process an application. As presented in Table-1, the District received application fees totaling $115,869.

Total Administrative Fees Received

District Rule 3180 (Administrative Fees for Indirect Source Review) establishes a four percent (4%) administrative fee to cover the District's costs of operating an off-site emissions reduction program. As presented in Table-1, the District received administrative fees totaling $207,710.

Total Amount of Off-site Fees Received

Provisions within Rule 9510 allow applicants to defer payment of off-site mitigation fees. The payment schedule must provide assurance that reductions from off-site emission reduction projects can be obtained reasonably contemporaneous with emission increases associated with the project. As presented in Table-1, the District received off-site fees totaling $5,392,453. This total does not include fees that have been deferred, nor does it include payments that have been invoiced, but not yet received. As compared to $1,543,697 presented in last year's annual report, this represents a 249% increase in off-site fees received by the District.

A balance of $5,090,869 in off-site mitigation fees was carried forward from the previous reporting period, resulting in $10,483,322 available to fund off-site mitigation projects. Please note that last year's annual report showed a remaining off-site mitigation fee balance of $3,368,308. This amount included $1,722,561 representing funds which had been committed to projects, but not contracted at the time of the annual report.

Total Expenditure of Off-site Fees Received

The District uses off-site fees to fund quantifiable and enforceable off-site emission reduction projects, reducing surplus emissions of NOx and PM10. With the exception of $131,000 voluntarily released by a developer, expenditure of off-site mitigation fees has been limited to fees collected through Development Mitigation Contracts. Of the $131,000 that was available to the District, an emissions reduction project representing $31,000 was funded, and the balance of $100,000 is currently contracted and will be reported in the next year ISR Annual Report.

As presented in Table-1, funds totaling of $3,125,191 were dispersed during this reporting period, leaving a balance of $7,358,131.

Total Emission Reductions Realized

The District funded 25 emission reduction projects for a total of 81 emission sources. These projects consisted primarily of re-powering various type of diesel powered industrial portable equipment such as top grinder, oil drill rig, plastic granulator and agricultural irrigation pumps, with either cleaner diesel engines or by conversion to electric motors. The projects funded achieved total emission reductions of 252 tons of NOx and 9 tons of PM10, with a total of 261 tons combined. The same projects also reduced emissions of Reactive Organic Gases (ROG) by 31 tons. A complete list of all projects funded is presented in Appendix B.

Projected Emission Reductions

Projected emission reductions are a combination of emission reductions to be achieved in the future through implementation of design elements at full project build out and through funding off-site emission reductions projects, using off-site mitigation fees.

For this reporting period, implementation of District Rule 9510 resulted in combined projected on-site and off-site emission reductions totaling 2,078 tons of NOx and 1,087 tons of PM10.

Overall Cost-effectiveness of Funded Projects

Average overall cost-effectiveness is calculated based on total tons of emissions reduced, NOx plus PM10, divided by total funds spent. During this reporting period, the District achieved emission reductions totaling 261 tons and expended funds totaling $3,125,191. As presented in Table-1, average cost-effectiveness is calculated to be $11,928 dollars per ton. This represents a 7% increase, as compared to last year's cost-effectiveness of $11,133 dollars per ton. The District anticipates that cost effectiveness will continue to increase as the most cost-effective projects are funded first.

Appendix A - List of all emission reduction projects funded by the ISR program

APPENDIX A

List of all emission reduction projects funded by the ISR program

EMISSION REDUCTIONS PROJECTS
ISR Annual Report / March 2007 – Feb 2008

Project Name	Date Rec'd	Date Executed	Executed Contract Amount	Amount Paid	Amount UnPaid	Balance	Status	Count Installed	Count Projected	Project Type	Nox Tons	PM10 Tons	ROG Tons
VERA													
Old River Ranch		18-May-07	$25,000	$21,992	$0	$3,008	Closed	1		AG Engine	1.70	0.06	0.21
Old River Ranch		10-Apr-07	$115,567	$0	$115,567	$0	Outstanding		6	AG Engine	1.98	-0.06	0
Old River Ranch		21-Mar-07	$90,000	$90,000	$0	$0	Closed	3		AG Engine	3.15	0.07	0.31
Old River Ranch		30-Apr-07	$22,278	$19,789	$0	$2,489	Closed	1		AG Engine	1.91	0.07	0.26
Old River Ranch		23-Apr-07	$82,719	$82,719	$0	$0	Closed	3		AG Engine	8.52	0.33	1.08
Old River Ranch		23-Apr-07	$20,000	$20,000	$0	$0	Closed	1		AG Engine	1.19	0.01	0.09
Old River Ranch		16-Apr-07	$30,000	$30,000	$0	$0	Closed	2		AG Engine	1.48	0.08	0.26
	Dec-08		**$385,564**	**$264,500**	**$115,567**	**$5,497**		**11**	**6**		**19.93**	**0.56**	**2.21**
Lennar Communities	Feb-08	26-Sep-07	**$16,496**	**$14,920**	**$0**	**$1,576**	**Closed**	**1**		Ag Engine	**1.07**	**0**	**0.18**
Castle & Cooke/ West Ming	May-08	14-Nov-07	**$131,128**	**$131,128**	**$0**	**$0**	**Closed**	**3**		Off Road - Portable Grain Grinders, Pellet Mill Equipment	**36.34**	**1.3**	**4.37**
Castle & Cooke/ Gateway Village		31-May-07	$1,232,390	$484,073			Closed	12		Ag Engine	41.84	1.46	5.42
Castle & Cooke/ Gateway Village					$748,317		Outstanding		8		18.84	0.65	2.39
	Oct-08		**$1,232,390**	**$484,073**	**$748,317**	**$0**		**12**	**8**		**60.68**	**2.11**	**7.81**
Panama 99 Prop. LLC/HWY 99		04-Apr-07	$151,421	$79,985			Closed	2		Off Road - Air Compressors, Drill Units Hydraulic Drill Equipment	4.35	0.16	0.54
Panama 99 Prop. LLC/HWY 99					$71,436		Outstanding		2		6.25	0.26	0.83
Panama 99 Prop. LLC/HWY 99		25-Jun-07	$103,274		$103,274		Outstanding		3	Off Road - Drill Service Pumps	8.26	0.35	1.07
Panama 99 Prop. LLC/HWY 99		19-Jun-07	$41,192	$39,368	$0		Closed	1		Ag Engine	4.48	0.15	0.51
Panama 99 Prop. LLC/HWY 99		14-Nov-07	$47,705	$47,705	$0		Closed	1		Off-Road - Portable Grain Equipment	12.29	0.41	1.42
	Oct-08		**$343,592**	**$167,058**	**$174,710**	**$1,824**		**4**	**5**		**35.63**	**1.33**	**4.37**
Castle & Cooke /Stockdale Ranch		11-Jun-07	$49,428	$49,428	$0	$0	Closed	1		Off Road - Plastic Granulator	4.70	0.17	0.52
Castle & Cooke /Stockdale Ranch		31-May-07	$100,987	$100,987	$0	$0	Closed	3		Off Road - Sprayer	5.22	0.18	0.6
Castle & Cooke /Stockdale Ranch		19-Jun-07	$67,025	$67,025	$0	$0	Closed	3		Off Road - Hydraulic Power Pack	6.38	0.27	0.94
Castle & Cooke /Stockdale Ranch		31-May-07	$48,394	$48,394	$0	$0	Closed	1		Off Road - Pump Engine	3.00	0.10	0.34
Castle & Cooke /Stockdale Ranch		20-Aug-07	$27,910	$0	$27,910	$0	Outstanding		1	Off Road - Drill Rig	1.10	0.05	0.15
Castle & Cooke /Stockdale Ranch		31-May-07	$275,651	$217,842	$0	$57,809	Closed	7		Off Road - Generator, Mud Pump, Drill Rig, Draw Work	24.28	0.91	2.96
Castle & Cooke /Stockdale Ranch				$0	$57,809	($57,809)	Outstanding		1		15.88	0.53	1.82
Castle & Cooke /Stockdale Ranch		31-May-07	$140,916	$0	$140,916	$0	Outstanding		4	Ag Engine	12.51	0.43	1.48
Castle & Cooke /Stockdale Ranch		02-May-07	$25,857	$25,857	$0	$0	Closed	1		Ag Engine	1.60	0.06	0.21
Castle & Cooke /Stockdale Ranch		06-Jun-07	$171,600	$0	$171,600	$0	Outstanding		5	AG Engine	17.17	0.59	2.12
Castle & Cooke /Stockdale Ranch		31-May-07	$77,253	$77,253	$0	$0	Closed	3		AG Engine	5.01	0.21	0.69
	Oct-08		**$985,021**	**$586,786**	**$398,235**	**$0**		**19**	**11**		**96.85**	**3.50**	**11.8**
ISR													
ISR Mitigation		02-Oct-07	$31,000	$0	$31,000	$0	Outstanding		1	Park and Ride Subsidy	1.06	0.29	0.34
	Sep-08		**$31,000**	**$0**	**$31,000**	**$0**			**1**		**1.06**	**0.29**	**0.34**
		Totals	**$3,125,191**	**$1,648,465**	**$1,467,829**	**$8,897**		50	Projects	Achieved	**168.51**	**6.00**	**20.91**
								31	Projects	Projected	**83.05**	**3.09**	**10.20**
											251.56	**9.09**	**31.1**

AIR QUALITY EMISSION REDUCTION AGREEMENT

This Air Quality Emission Reduction Agreement ("Agreement") is entered into as of _____, 2007 by and between Developer Name ("Developer") and the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq. ("District").

RECITALS

WHEREAS, Developer is presently seeking governmental approval of land use entitlements ("Entitlements") which will permit the development of a Project located in the City/County, California, as more particularly described on Exhibit A attached hereto (the "Project"); and

WHEREAS, the Project incorporates the design features specified on Exhibit B attached hereto ("Emission Reduction Design Features"), in order to significantly reduce the air quality impacts associated with the Project; and

WHEREAS, despite incorporation of the Emission Reduction Design Features, without additional emission reductions, the Project would cause impacts on air quality within the geographical boundaries of the San Joaquin Valley Unified Air Pollution Control District, as depicted on Exhibit C attached hereto (the "District Boundaries"); and

WHEREAS, Developer anticipates that mitigation of impacts on air quality resulting from the Project will be either required as a condition to the approval of Developer's Entitlements, or voluntarily imposed by Developer as a means of reducing such impacts; and

WHEREAS, Developer desires to fully comply with all requirements of the California Environmental Quality Act codified at California Public Resources Code section 21000, et seq. ("CEQA"), including all requirements relating to the mitigation of air quality impacts arising from or in connection with the Project; and

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WHEREAS, District is an air pollution control district formed by the counties of Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare, pursuant to California Health and Safety Code section 40150, et seq.; and

WHEREAS, District is responsible for developing and implementing air quality control measures within the District Boundaries, including air quality control measures for stationary sources, transportation sources, and indirect sources; and

WHEREAS, District has determined that with appropriate funding, District can bring about a reduction of emissions from certain projects in types and in sufficient quantities to fully mitigate the net air quality criteria pollutant impacts of the Project as quantified in the Verified Air Quality Assessment (as defined in Section 2.2 below) ("Project's Air Impact"); and

WHEREAS, Developer and District desire to enter into this Agreement in order to develop and implement air quality control measures which will fully mitigate the Project's Air Impact to the extent that the development of such Project will result in no net increase in criteria pollutant emissions over the criteria pollutant emissions which would otherwise exist without the development thereof.

AGREEMENT

NOW THEREFORE, in exchange of the mutual covenants herein contained, Developer and District hereby agree as follows:

1. **Emission Reduction by Developer and District**.

1.1. **Emission Reduction Proposals**. Developer shall identify and propose to District opportunities to reduce emissions to fully mitigate Project's Air Impact, including but not limited to opportunities for removal or retrofitting of stationary, transportation, indirect, and/or mobile pollution source equipment, and/or other opportunities therefore (each, an "**Emission Reduction Proposal**"). Each Emission Reduction Proposal shall be submitted in writing to District, using District approved forms, and shall contain a representation by Developer that the owner/operator of the identified Pollution Source Equipment has expressed interest in entering into a written funding agreement with

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District in District's then standard form ("**Funding Agreement**") requiring removal or replacement of the identified equipment with new equipment under District's "Heavy Duty Engine Emission Reduction Incentive Program", or another emission reduction program adopted by District ("**District Emission Reduction Program**"). Developer shall submit Emission Reduction Proposals to District in sufficient amounts to fully mitigate emissions from each distinct phase of the project. For each phase of the project, Developer shall submit Emission Reduction Proposals to District no later than application for grading permits for, and before generating emissions from, that phase. Any Emission Reduction Shortfall for a given phase shall be addressed according to Section 1.7.2 of this Agreement.

1.2. **District's Verification of Emission Reduction**. As quickly as practicable upon Developer's submission to District of an Emission Reduction Proposal, District shall determine the types and quantities of permanent reduction in emissions which would be realized by the proposed removal or retrofit and shall advise Developer of such determination in writing ("**Emission Reduction Verification**") thereby verifying that in District's considered opinion the removal or retrofit proposed in the Emission Reduction Proposal would result in permanent emission reduction in the locality of the Project in the types and quantities so determined by District.

1.3. **Emission Reduction Proposal Advance**. Developer shall advance to District, on the date of submittal of each Developer's Emission Reduction Proposal, a monetary sum equal to the total estimated cost (as specified in each Developer's Emission Reduction Proposal), until sufficient advance is received by District to fully mitigate the Project's Air Impact ("**Emission Reduction Proposal Advance**").

1.4. **Funding Agreements**. As soon as practicable after District's receipt of Developer's Emission Reduction Proposal Advance, District shall use diligent efforts to enter into Funding Agreements with the owners and/or operators of the pollution source equipment identified in Developer's Emission Reduction Proposal, thereby providing for the removal and/or retrofit of all of such Pollution Source Equipment, and

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providing for District's payment (from the Emission Reduction Proposal Advance) to such owner or operator, of an amount equal to the estimated cost of such opportunity, as specified in Developer's Emission Reduction Proposals. District shall use diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals within one hundred eighty (180) days following District's receipt of a complete Emission Reduction Proposal and the Emission Reduction Proposal Advance from Developer.

1.5. **Use of Emission Reduction Proposal Advance.** District shall use the Emission Reduction Proposal Advance to meet its monetary obligations under the Funding Agreements that District shall enter into with the owners of the Pollution Source Equipment identified in Developer's Emission Reduction Proposals.

1.6. **Use of Unused Portions of Emission Reduction Proposal Advance.** In the event Developer is unable to submit to District Emission Reduction Proposals providing for emission reduction in the types and quantities necessary to fully mitigate the Project's Air Impact, or in the event District is unable to enter into Funding Agreements with any of the owners or operators identified in Developer's Emission Reduction Proposals, District shall notify Developer in writing of the additional emission reductions needed to fully mitigate the Project's Air Impact, and Developer shall have a reasonable time, not to exceed one hundred eighty (180) days within which to submit to District additional or supplemental Emission Reduction Proposals in order to provide the necessary additional emission reduction.

1.7. **Unused Advance / Emission Reduction Shortfall / Additional Payment.**

1.7.1. **Unused Advance.** If, despite District's diligent efforts to enter into Funding Agreements with all of the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable, supplemental Emission Reduction Proposals submitted by Developer), District is unable to enter into Funding Agreements sufficient to fully mitigate the Project's Air Impact, then District shall use any unused portion of Developer's Emission Reduction Proposal Advance to fund emission

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reduction opportunities to mitigate the balance of the Project's Air Impact at District's actual cost of doing so, provided that such actual costs shall not exceed the costs set forth in the following Emission Reduction Cost Schedule:

Emission Reduction Cost Schedule		
Year Paid	NOx or ROG ($/ton)	PM10 ($/ton)
2007	$49,700	$55,940
2008	$65,450	$90,110
Beyond	Prevailing Costs	Prevailing Costs

District is of the considered opinion that the emission reductions listed in the above schedule can be achieved at the corresponding times and costs shown in said schedule. If, at the time of invoicing, the District has not identified Prevailing Costs for post-2008 payments, 2008 costs shall apply.

1.7.2. **Emission Reduction Shortfall/Additional Payment**. In the event the emission reduction brought about by the Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals (and, if applicable supplemental Emission Reduction Proposals), and that brought about pursuant to Section 1.7.1 above, are not sufficient to fully mitigate the Project's Air Impact ("**Emission Reduction Shortfall**"), then Developer shall be credited for the emission reduction brought about as a result of Funding Agreements entered into between District and the owners or operators identified in Developer's Emission Reduction Proposals and for the emission reduction brought about pursuant to Section 1.7.1 above, and Developer thereafter shall deposit with District, within 30 days of receiving notice of the Emission Reduction Shortfall from District, an additional amount equal to the product of (i) District's cost per ton of emission reduction as shown in the Emission Reduction Cost Schedule set forth in Section 1.7.1 above, multiplied by (ii) the total number of tons of emission reduction necessary to fully mitigate the Project's Air Impact less the total number of tons of emission reduction so credited to Developer. However, in no case shall the amount paid to District and the

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amount of emission reductions achieved per this agreement be less than the amount that would be paid to District or the amount of emission reductions that would be required for this Project according to District Rule 9510 (Indirect Source Review). To allow verification of equivalency of emission reductions and off-site mitigation fee amounts, according to District Rule 9510, Developer shall submit to District an ISR Air Impact Assessment Application, using District forms, no later than concurrent with the Developer's submission of the air quality assessment, as set forth in Section 2.2.

1.8. **Surplus Mitigation.** In addition to the amounts payable under paragraph 1.3, Developer shall deliver to District an additional sum equal to five percent (5%) of the Emission Reduction Proposal Advance. Said additional sum shall be paid under the same schedule as set forth in paragraph 1.3. District shall utilize such additional sum to fund further localized emission reduction opportunities in quantities consistent with the schedule set forth in paragraph 1.7.1.

1.9 **Time of Use**. Any emission reductions brought about by this Agreement prior to the date Developer receives final approval of the Project from all applicable Governmental Authorities shall be credited to the total amount of emission reductions achieved per this agreement.

1.10. **District's Obligation.** The monies paid by Developer under this Agreement shall be used by District to obtain localized emission reductions in the types and quantities necessary to fully mitigate the Project's Air Impact as quantified in the Verified Air Quality Assessment. If necessary, District shall assist Developer in securing emission reductions, consistent with the provisions established in Section 1.7.2.

1.11. **Developer's Obligation**. District acknowledges that, if the Project is not finally approved so that such development is allowed to proceed, Developer has no obligations under this Agreement relative to the respective Project. Developer acknowledges that it must satisfy the terms of this Agreement in order to develop the Project.

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2. **CEQA Compliance/Full Mitigation.** For and in exchange of Developer's payment of funds pursuant to Section 1 above, District shall ensure, by way of entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, that the Project's Air Impact is fully mitigated, such that the Project, combined with the emission reductions brought about in accordance with Section 1 above, shall result in no net increase in air quality impacts over those air quality impacts which would otherwise exist without the development of such Project. For the purpose of this agreement, full mitigation means the sum of all NOx, ROG, and PM10 emission reductions achieved by the Emission Reductions Proposals equals, or is greater than, the sum of all NOx, ROG, and PM10 emissions increases calculated as the average annual construction and the peak annual area source and mobile source emissions of NOx, ROG, and PM10 less the average annual emissions that have occurred at the project site during the three years prior to release of the Notice of Preparation. In addition to entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Section 1.4 above, District shall do all of the following:

2.1. **District's Verification of Air Assessment Protocol.** Within ten (10) business days following the date of this Agreement, Developer shall submit to District an air assessment protocol prepared by Developer's air quality consultant reflecting the methodology, including air quality impact modeling, to be utilized in the preparation of the air quality assessment for the Project. Within twenty-one (21) business days following District's receipt of Developer's air assessment protocol, District shall review and comment upon such air assessment protocol, and, after Developer's incorporation of any revisions suggested by District, District shall verify in writing to Developer the correctness of the air assessment protocol which will be utilized in the preparation of the air quality assessment for the Project.

2.2 **District's Verification of Air Quality Assessment.** Following District's Verification of Air Assessment Protocol, Developer shall submit to District an air quality

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assessment prepared by Developer's air quality consultant assessing the air quality impacts of the Project. District shall use its best efforts to review and comment upon Developer's air quality assessment within thirty (30) days following District's receipt of Developer's complete air quality assessment, and, after Developer's incorporation of any and all revisions suggested by District, District shall verify in writing to Developer the correctness of the air quality assessment to be utilized in connection with the CEQA documents for the Project, including (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein (the "**Verified Air Quality Assessment**").

2.3. **District's Verification of Administrative Draft Environmental Impact Report.** Upon request by Developer, and submission by Developer to District of any administrative Draft Environmental Impact Report, or other applicable CEQA documents for the Project, District shall review, comment upon and, after incorporation of any and all revisions made by District, verify in writing to Developer the correctness of all portions thereof which pertain to air quality impacts, including, (i) the methodology utilized in the preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein.

2.4 **District's Acknowledgment Regarding Full Mitigation.** At such time as District is provided an opportunity as a commenting agency to comment upon the Draft Environmental Impact Report and Final Environmental Impact Report for the Project, District shall comment in writing as to the correctness of all portions thereof which pertain to air quality impacts, including (i) the methodology utilized in the

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preparation of the CEQA document, (ii) the types and quantities of any net air quality impacts associated with the Project, (iii) the appropriateness of the mitigation measures proposed in the CEQA document, and (iv) any other matters which may pertain to such CEQA document and/or any air quality impacts or air quality mitigation measures referenced therein. District shall at all times fully perform its duties and obligations as a commenting agency, and the provisions of this Section 2.4 shall not be interpreted to the contrary. At such time as District has entered into Funding Agreements pursuant to Section 1.4 above and the owners/operators of equipment to be removed and/or replaced under such agreements have removed and replaced such equipment in accordance with the provisions thereof, District shall verify in writing to Developer and to the lead agency that full mitigation of the Project's Air Impact has been achieved, upon successful fulfillment of all Funding Agreements. District shall ensure that the owners/operators of equipment to be removed and/or replaced pursuant to such Funding Agreements perform all obligations to be performed on the part of such parties under said Funding Agreements. District acknowledges that the Verified Air Quality Assessment and its quantification of the Project's Air Impact will be based on the pending applications for development of the Project and that actual approvals may be for a lesser amount of development. District agrees that Developer's obligations under this Agreement shall be based on the amount of development actually approved, and the final quantification of the Project's Air Impact will be revised accordingly.

2.5. **District's Oversight of Air Quality Mitigation Monitoring Plan.** Upon request of the lead agency having jurisdiction over the Project, District shall oversee that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1 of this Agreement. Alternatively, upon request of that lead agency, District shall cooperate with the lead agency in the oversight of that portion of the mitigation monitoring plan adopted by the lead agency for the Project which relates to the mitigation brought about by Section 1

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of this Agreement.

2.6. **District's Documentation, Record Keeping and Monitoring**. District shall document, keep adequate records on and monitor the emission reduction brought about as a result of this Agreement, and shall from time to time, upon written request by Developer or by the lead agency for the Project, provide to Developer or to the lead agency written reports verifying that emission reduction has been and/or is being brought about so as to fully mitigate the Project's Air Impact.

3. **Subsequent Litigation, Legislation and/or Administrative Action / Credit to Developer.**

3.1. **Subsequent Litigation**. In the event that despite this Agreement, Developer is required as a result of a final judgment or District Approved Settlement (as defined below) in any subsequent third party litigation, to pay monies in addition to the monies to be paid by Developer pursuant to Section 1 above, then, provided that the project total emissions are the same as quantified in the Verified Air Quality Assessment, District shall acknowledge and credit Developer with mitigation of the air quality impacts of the Project in such types and quantities that Developer can establish, to the reasonable satisfaction of District, will result from Developer's payment of such additional monies, and shall reduce any amounts thereafter payable by Developer under this Agreement by an amount equal to the additional monies so paid by Developer. This requirement shall not apply if the additional monies are required to mitigate emissions that exceed those set forth in the Verified Air Quality Assessment. For purposes of this Section 3.1.1, a "**District Approved Settlement**" shall mean a settlement of a lawsuit filed pursuant to CEQA, the National Environmental Protection Act or other applicable environmental law which (i) provides for Developer's payment of monies in exchange for a dismissal of such lawsuit, (ii) provides for the use of such monies by the petitioner in such lawsuit in such a manner as to mitigate adverse air quality impacts of the Project, and (iii) is approved in writing by District.

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3.2. **District Rule 9510.** The performance of Developer's and District's obligations under this Agreement will fully mitigate the Project's Air Impact. Inasmuch as the mitigation provided under this Agreement exceeds the mitigation which would otherwise have been provided under Sections 6.0 and 7.0 of District's Rule 9510, and the Project's mitigated baseline (being zero emissions) is less than the threshold stated in Section 4.3 of said Rule 9510, the Project is exempt from Sections 6.0 and 7.0 of District's Rule 9510. Accordingly, no off-site Emission Reduction Fee will be required in connection with the approval or development of the Project. For each individual project developed at the project site requiring a discretionary approval by the lead agency, Developer shall provide District with a map or diagram indicating its location within the area covered by this Agreement.

4. **Term of Agreement.** This Agreement shall be effective upon the date first written above, and shall terminate upon District's meeting its obligation to implement projects that provide necessary emissions reductions to fully mitigate the Project's Air Impact (the "**Term**"). Developer may, at any time by written notice to District, terminate this Agreement, whereupon, (i) District shall acknowledge in writing to the lead agency that Developer has mitigated air quality impacts of the Project to the extent and in the types and quantities brought about by Funding Agreements theretofore funded by Developer's Emission Reduction Proposal Advance (and if applicable pursuant to Section 1.7.1 above), (ii) District shall refund to Developer any unused portion of Developer's Emission Reduction Proposal Advance less any unpaid administrative fees incurred; and (iii) neither Developer nor District shall have any further rights or obligations under this Agreement. Developer acknowledges that in the absence of this Agreement, the project is subject to all applicable provisions of District Rule 9510 (Indirect Source Review).

5. **Payment of Administrative Fees to District.** Developer agrees to pay to District, in order to reimburse District for its general overhead required for the administration of this Agreement, an administrative fee ("***ERIP Fee***") in an amount

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equal to four percent (4%) of the Emission Reduction Proposal Advance. Such ERIP Fee shall be due and payable upon Developer's delivery of the Emission Reduction Proposal Advance pursuant to Section 1.3 above. In addition to the ERIP Fee, Developer agrees to pay to District, within thirty (30) days following Developer's receipt of District's invoice, administrative fees to reimburse District for staff time spent and materials used by District in the administration of this Agreement, other than that time associated with the ERIP program covered by the ERIP Fee above, including review, verification and preparation of documents, and staff time relating to the performance of District's obligations hereunder, based on a time and materials basis at District's average weighted labor rates.

6. **Representations, Covenants and Warranties.**

6.1. **Developer's Representations, Covenants and Warranties.** Developer represents, covenants and warrants to District, as of the date of this Agreement, and as of the date of Developer's submission to District of any documents contemplated hereunder, as follows:

6.1.1. The undersigned representatives of Developer are duly authorized to execute, deliver and perform this Agreement, and upon Developer's execution and delivery of this Agreement, this Agreement will have been duly authorized by Developer.

6.1.2. Upon execution and delivery of this Agreement by Developer, Developer's obligations under this Agreement shall be legal, valid and binding obligations of Developer, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.1.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

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6.1.4. Other than the execution and delivery of this Agreement by the undersigned representatives of Developer, there are no approvals, consents, confirmations, proceedings, or other actions required by Developer or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2. **District's Representations, Covenants and Warranties.** District represents, covenants and warrants to Developer, as of the date of this Agreement, and as of the date of District's delivery to Developer of any documents contemplated hereunder, as follows:

6.2.1. The undersigned representatives of District are duly authorized to execute, deliver and perform this Agreement, and upon District's execution and delivery of this Agreement, this Agreement will have been duly authorized by District.

6.2.2. Upon execution and delivery of this Agreement by District, District's obligations under this Agreement shall be legal, valid and binding obligations of District, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

6.2.3. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative, quasi-legislative or administrative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

6.2.4. Other than the execution and delivery of this Agreement by the undersigned representatives of District, there are no approvals, consents, confirmations, proceedings, or other actions required by District or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement.

6.2.5. No lawsuit, legal action, arbitration, legal or administrative proceeding, legislative or quasi-legislative action or claim existing, pending, threatened or

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anticipated will render invalid, void or unenforceable any right or benefit Developer is to receive under the terms and conditions of this Agreement.

6.2.6. The monies paid by Developer under this Agreement shall be sufficient to ensure that the emission reduction contemplated by this Agreement shall occur, and District shall utilize such monies in such a manner as to ensure that such emission reduction shall occur.

6.2.7. Upon the approval of this Agreement by the governing board of District, the Air Pollution Control Officer of District, or equivalent representative, or a delegee of such officer, shall have the authority to approve, deliver, verify, enter into, acknowledge and/or accept any communication, notice, notification, verification, agreement and/or other document to be issued or entered into by District under the terms and conditions of this Agreement, without further approval of the governing board of District.

7. **Indemnification**. Developer agrees to indemnify, defend and hold harmless District for, from and in connection with any third party claims, losses and/or liabilities arising from or in connection with District's performance of this Agreement, excluding only such claims, losses and/or liabilities which result from or in connection with District's sole negligence, act or omission.

8. **Inurnment**. Developer's rights and obligations under this Agreement, or applicable portions thereof, shall run with the land encompassed by the Project, and shall inure to the benefit of and be binding upon the heirs, successors and assigns of Developer who take title to such lands or applicable portions thereof. Upon Developer's conveyance of all or any portion of the lands encompassed by the Project, the rights and obligations of Developer under this Agreement shall, to the extent applicable to the lands so conveyed, be transferred to the transferee thereof, and Developer shall thereupon be released by District from, all obligations and liabilities so assigned, except for such obligations and liabilities arising prior to such transfer.

9. **Assignment**. Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement. Upon any such assignment, Developer shall

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deliver to District a written assignment and assumption agreement specifying the fact and extent of the assignment, the name and address of the assignee, and the assignee's assumption of all obligations of Developer thereby assigned. Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement to a third party for use in connection with the mitigation of air quality impacts resulting from one or more projects other than the Project, so long as (i) the project is located within the District Boundaries, (ii) the air quality impacts of such project(s) will in fact be mitigated, as verified by District, by the emission reductions brought about by this Agreement, and (iii) the project(s) consist of residential, commercial, industrial and/or mixed use real estate projects which incorporate the Emission Reduction Design Features. Upon any such assignment by Developer, District shall enter into an amendment of this Agreement which acknowledges the assignment and conforms the various provisions of this Agreement as may be required to be conformed in order to provide to the assignee the rights and benefits of this Agreement as if such assignee and its project were the original party and project contemplated in this Agreement.

10. **Recitals Incorporated.** The recitals set forth hereinabove are hereby incorporated into this Agreement and acknowledged, agreed to and adopted by the parties to this Agreement.

11. **Further Assurances.** Developer and District agree to execute and deliver any documents and/or perform any acts, which are reasonably necessary in order to carry out the intent of the parties with respect to this Agreement.

12. **No Joint Venture or Partnership.** District and Developer agree that nothing contained in this Agreement or in any document executed in connection with this Agreement shall be construed as making District and Developer joint ventures or partners.

13. **Notices.** Any notices or communications relating to this Agreement shall be given in writing and shall be deemed sufficiently given and served for all purposes

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when delivered, if (a) in person, (b) by facsimile (with the original delivered by other means set forth in this Section 13), (c) by generally recognized overnight courier or (d) by United States Mail, certified or registered mail, return receipt requested, postage prepaid, to the respective addresses set forth below, or to such other addresses as the parties may designate from time to time by providing written notice of the change to the other party.

To Developer: Address & Contact Name	To District: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Seyed Sadredin Executive Director/APCO
With a copy to: Address & Contact Name	with a copy to:San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Dave Warner Director of Permit Services with a copy to: San Joaquin Valley APCD 1990 E. Gettysburg Avenue Fresno, CA 93726 Fax: (559) 230-6061 Attn: Philip M. Jay District Counsel

14. **Entire Agreement.** The terms of this Agreement, together with all attached exhibits, are intended by the parties as the complete and final expression of their agreement with respect to such terms and exhibits and may not be contradicted by evidence of any prior or contemporaneous agreement. This Agreement specifically supersedes any prior written or oral agreements between the parties with respect to

the subject matter of this Agreement.

15. **Amendments and Waivers**. No addition to or modification of this Agreement shall be effective unless set forth in writing and signed by the party against whom the addition or modification is sought to be enforced. The party benefited by any condition or obligation may waive the same, but such waiver shall not be enforceable by another party unless made in writing and signed by the waiving party.

16. **Invalidity of Provisions**. If any provision of this Agreement as applied to either party or to any circumstance shall be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the same shall in no way affect (to the maximum extent permissible by law) any other provision of this Agreement, the application of any such provision under circumstances different from those adjudicated by the court, or the validity or enforceability of this Agreement as a whole. The parties further agree to replace any such invalid, illegal or unenforceable portion with a valid and enforceable provision which will achieve, to the maximum extent legally possible, the economic, business or other purposes of the invalid, illegal or unenforceable portion.

17. **Construction**. Unless otherwise indicated, all Section references are to the sections of this Agreement and all references to days are to calendar days. Whenever, under the terms of this Agreement the time for performance of a covenant or condition falls upon a Saturday, Sunday or California state holiday, the time for performance shall be extended to the next business day. The headings used in this Agreement are provided for convenience only and this Agreement shall be interpreted without reference to any headings. Wherever required by the context, the singular shall include the plural and vice versa, and the masculine gender shall include the feminine or neuter genders, or vice versa. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The language in all parts of this Agreement shall be construed as a whole in accordance with its fair meaning, and shall not be

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Fresno, CA 93726
(559) 230-6000

construed against any party solely by virtue of the fact that such party or its counsel was primarily responsible for its preparation.

18. **Governing Law**. This Agreement shall be governed by the laws of the State of California applicable to contracts made and to be performed in California.

19. **No Third-party Beneficiaries**. Nothing in this Agreement, express or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any person other than the parties to it and their respective permitted successors and assigns, nor is anything in this Agreement intended to relieve or discharge any obligation of any third person to any party hereto or give any third person any right of subrogation or action over or against any party to this Agreement.

20. **Exhibits**. The exhibits attached to this Agreement shall be deemed to be a part of this Agreement and are fully incorporated herein by reference.

21. **Force Majeure**. The time within which any party shall be required to perform under this Agreement shall be extended on a day-per-day basis for each day during which such performance is prevented or delayed by reason of events reasonably outside of the control of the performing party, including, without limitation, acts of God, events of destruction, acts of war, civil insurrection, strikes, shortages, governmental delays, moratoria, civil litigation and the like, and/or delays caused by the non-performing party's act or omission.

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(559) 230-6000

IN WITNESS WHEREOF, Developer and District have executed this Agreement and agree that it shall be effective as of the date first written above.

DEVELOPER: Developer Name,

a California limited liability company

By:_____

Name:_____

Title:_____

DISTRICT: **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT**, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq.

///

DISTRICT

San Joaquin Valley Unified Air Pollution Control District

///

By:_____

Councilmember J. Steven Worthley, Chair

Governing Board

///

Recommended for approval:

San Joaquin Valley Unified Air Pollution Control District

///

_____

Seyed Sadredin

Executive Director/APCO

///

///

///

Approved as to legal form:

San Joaquin Valley Unified Air Pollution Control District

_____

Philip M. Jay

District Counsel

SJVUAPCD
1990 E. Gettysburg
Fresno, CA 93726
(559) 230-6000

Approved as to accounting form:

San Joaquin Valley Unified Air

Pollution Control District

///

_____

Roger W. McCoy

Director of Administrative Service

For accounting use only:

Program:_____

Account No.:_____

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EXHIBIT A

DESCRIPTION OF THE PROJECT

[INSERT MAP.]

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EXHIBIT B

EMISSION REDUCTION DESIGN FEATURES

The project shall incorporate the following Emission Reduction Design Features:

The project will incorporate the following on-site features:

1. Utilization of land use designs which create walkable communities and encourage pedestrian travel.
2. Utilization of interconnecting sidewalks, walking paths and/or bike paths in order to encourage travel by means other than motor vehicle.
3. Utilization of appropriate landscaping to create reasonable shade canopies for streets, parkways and parking areas.
4. Utilization of roadway designs, which enhance pedestrian safety by appropriate signaling, signage and separation from traffic.
5. Design requirements, which incorporate natural gas hookups and electrical outlets on patios.
6. Design requirements, which prohibit the installation and use of wood burning stoves and wood burning fireplaces.

Prior to issuance of grading permits for the Project, Developer shall prepare and submit to District dust control plans for the areas to be graded, in accordance with District Regulation VIII. The plan shall be prepared consistent with District Regulation VIII and must be reviewed and approved by the District prior to commencement of grading activities. Each contractor working on the Project site shall implement the dust control measures outlined in the approved dust control plan. The dust control measures selected shall be incorporated as a note on each grading plan.

District maintains New Source Review requirements that direct owners/operators of certain types of stationary equipment to obtain an Authority to Construct ("ATC") and Permits to Operate ("PTO") from the District. As part of this process, the need for emission control equipment is assessed and the District determines whether a Health Risk Assessment ("HRA") must be prepared.

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Owners/operators of all stationary sources for which such approvals are required should show proof of compliance with District Rules and Regulations prior to issuance of certificates of occupancy.

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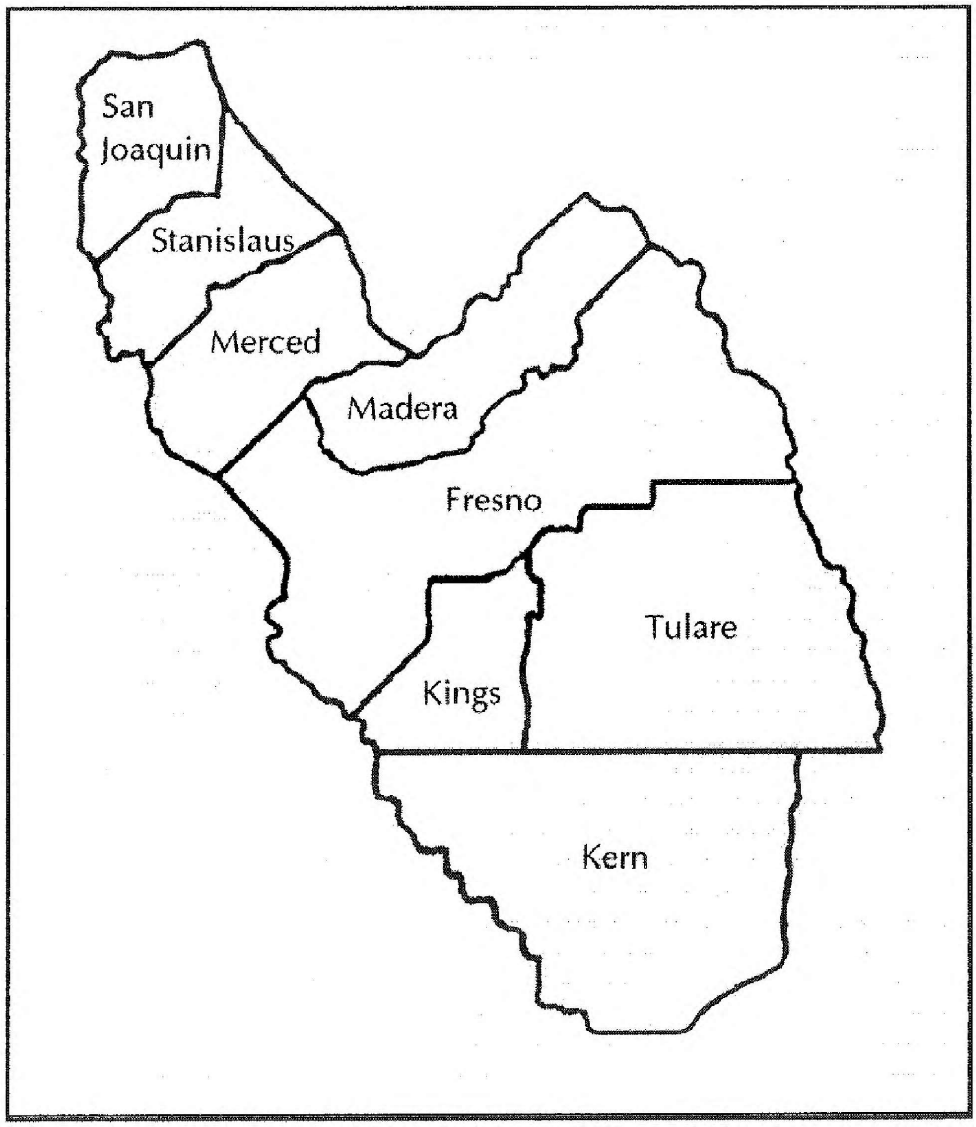
EXHIBIT C

DISTRICT BOUNDARIES



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SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

FINAL DRAFT STAFF REPORT

December 15, 2005

Rule 9510 – Indirect Source Review (ISR)
Rule 3180 – Administrative Fees for Indirect Source Review

Prepared by: Chrystal Meier, Air Quality Specialist
Jennifer Barba, Senior Air Quality Specialist
Dave Mitchell, Planning Manager
Tom Jordan, Special Projects Administrator
Scott Nester, Planning Director

I. SUMMARY

A. Reasons for Rule Development and Implementation

The San Joaquin Valley Air Basin (SJVAB) is classified as a nonattainment area for the state and federal health based ambient ozone and PM10 standards by the California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA). The SJVAB is currently classified as serious nonattainment for the 24-hour and annual National Ambient Air Quality Standards (NAAQS) for particulate matter 10 microns in size and smaller (PM10), serious nonattainment for the new federal 8-hour ozone standard, non-attainment for the new federal PM2.5 standard, and severe nonattainment for the 1-hour state ozone standard.

Legislation

SB 709, Florez, was passed by the state legislature, was signed by Governor Gray Davis, and codified into the Health and Safety Code in §40604 in 2003. This requires the San Joaquin Valley Air Pollution Control District to adopt, by regulation, a schedule of fees to be assessed on areawide or indirect sources of emissions.

PM10 Plan Commitment.

The San Joaquin Valley Unified Air Pollution Control District (District) adopted its 2003 PM10 Plan on June 19, 2003, which projects attainment of the NAAQS for PM10 at the earliest practicable date of December 31, 2010. As part of its PM10 attainment strategy, the District is required to reduce directly emitted PM10 and the PM10 precursor oxides of nitrogen (NOx). The 2003 PM10 Plan commits the District to develop new rules or amend existing rules to achieve these emission reductions. The Indirect Source Rule (ISR) is one of the commitments contained in the 2003 PM10 Plan

to meet these requirements. The ISR commitment will be implemented through Rule 3180 and Rule 9510. Indirect sources are land uses that attract or generate motor vehicle trips.

Ozone Plan Commitment.

Emission reductions from Rule 9510 are also important for attaining state and federal ozone standards. As an extreme nonattainment area, the SJVAB was required by the Federal Clean Air Act (CAA) to attain the NAAQS for ozone by November 15, 2010. In order to achieve attainment by 2010, the Extreme Ozone Attainment Demonstration Plan contained commitments to reduce a precursor of ozone, NOx and volatile organic compounds (VOC). These commitments included NOx reductions from indirect sources. Although the federal one-hour standard has been revoked, the plan commitments must still be implemented to ensure progress is made toward attaining the new more stringent 8-hour ozone standard. By 2007, the District will be required to prepare a plan to comply with the federal 8-hour ozone standard that is expected to require additional reductions. Additionally, the California Clean Air Act (CCAA) requires the District to adopt all feasible control measures to attain the standards.

Health Impacts of Non-Attainment

Since 1996 there have been more than 800 new scientific studies published that associate the effects of airborne particulates on human health. Overall the studies validate earlier research and confirm the relationship between particulate air pollution, illness, hospitalization and premature death. Infants and children, particularly asthmatic children, are especially sensitive to the effects of fine particulate pollutions. For additional information on particulate health impacts see the 2003 PM10 Plan, Chapter 1.

Ozone research has produced strong evidence that correlates exposure to ozone and adverse health effects. In humans, ozone can irritate and inflame the respiratory tract, particularly during heavy physical activity, which results in heavy coughing, throat irritation, and breathing difficulties. For additional information on ozone health impacts see the District's Extreme Ozone Attainment Demonstration Plan, Section 2.3.

B. District Authority and Limitations

Authority

The primary provision of state law giving the District authority to regulate indirect source emissions is part of the California Clean Air Act legislation adopted in 1988. The provision, incorporated into Health and Safety Code, Section 40716, states that "a district may adopt and implement regulations to … reduce or mitigate emissions from indirect and areawide sources of air pollution." To further clarify, a California Attorney General opinion issued in 1993 states that

> *"a district's regulations may require the developer of an indirect source to submit the plans to the district for review and comment prior to the issuance of a permit for construction by a city or county. A district may also require the owner of an indirect source to adopt reasonable post-construction measures to mitigate particular indirect effects of the facility's operation. Such regulations could be enforced through an action for civil penalties…"*

Indirect source mitigation programs are also consistent with ARB's interpretation of the CCAA all feasible measures requirement:

> *"every feasible measure to mean that, at a minimum, a district consider regulations that have been successfully implemented elsewhere. They should also consider going beyond what has already been accomplished by evaluating new technologies and innovative approaches that may offer potential emission reductions. Further, districts should consider not only technological factors, but also social, environmental, economic (e.g., cost-effectiveness), and energy factors which prevail in the district, along with the resources realistically available to the district to adopt, implement, and enforce the measures."*

Health and Safety Code 42311(g) allows districts to adopt a schedule of fees on areawide or indirect sources which are regulated, but for which permits are not issued, to cover the costs of District programs related to this source. SB 709, Florez, was passed by the state legislature, was signed by Governor Gray Davis, and codified into the Health and Safety Code in §40604 in 2003. This requires the San Joaquin Valley Air Pollution Control District to adopt, by regulation, a schedule of fees to be assessed on areawide or indirect sources of emissions.

Finally, the District has the authority to control indirect sources, defined in the Clean Air Act (CAA §110(a)(5)(C)) as, "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution"(emphasis added). This authority comes from the CAA §110(a)(5)(A)(i):

> *"Any State may include in a State implementation plan … any indirect source review program."*

Analysis of Nexus Applicability

The District analyzed the applicability of Nexus requirements for Rule 9510 and 3180. The District's legal council's analysis found that the Rule and supporting documentation likely meets the federal 'reasonable relationship test'. In addition, the analysis found that the California Mitigation Fee Act (CGC §66000 et seq.) does not apply to Rule 9510 and 3180. The analysis similarly found that California Proposition 13 and 218 do not apply to Rules 9510 and 3180.

California's Mitigation Fee Act (CGC §66000 et seq.) establishes authority and limitations on fees or taxes charged, "by a local agency to the applicant in connection *with approval of a development project*." CGC §66001 (a) states, "In any action establishing, increasing, or imposing a fee *as a condition of approval* of a development project by a local agency on or after January 1, 1989, the local agency shall do all of the following," and §66001 (b), "In any action imposing a fee *as condition of approval* of a development project. (Italics added)." The District cannot impose on the local land-use authority and will not be approving or disapproving development projects. As such, the District cannot place 'conditions of approval' on a project. Therefore, the Mitigation Fee Act does not apply to the ISR Rule. The District does not consider the action of approving or disapproving an air quality analysis and assessment of fees as a discretionary action.

Limitations

The District will not be approving development projects, but the air impact assessments associated with development projects. In this approval, the District will assess air impacts, the amount of reduction required by the rule, the amount of applicant-specified on-site emission reductions, and the amount of off-site emissions reductions needed, if any. The District recognizes the land-use authority of SJVAB Cities and Counties and does not have land-use authority itself.

II. RULE DEVELOPMENT PROCESS

As part of the rule development process for this project, District staff held public scoping meetings in Fresno, Modesto, and Bakersfield in October 2003. At the scoping meetings, District staff presented the objectives of the proposed rulemaking project, collected information, and received comments from interested parties, local agencies, the building industry, real estate associations, consultants, and trade associations. The comments received were incorporated into the draft rules and staff report. In March of 2004, the District presented a draft Rule 9510, and several other documents. In June of 2005, the District presented draft Rule 9510 and draft Rule 3180, as well as associated appendices. The comments received were incorporated into the draft rules and staff report. In addition, District staff held a public workshop September 1, 2005 and solicited input on the draft rule and associated documents. The District received comments from interested parties and affected entities. Information obtained throughout this workshop process was used to develop and modify the draft rules and staff report.

Pursuant to state law, District staff is required to perform an assessment of the socioeconomic impacts prior to the adoption, amendment, or repeal of a rule that will have significant air quality benefits or that will strengthen emission limitations. As a part of the District's socioeconomic analysis process, District staff held a Focus Group meeting on August 11, 2005 to assist in the collection of socioeconomic data for the

implementation of the new proposed program. The Focus Group consisted of a limited number of representatives from interested groups.

Final drafts of the proposed rules, staff report, emission reductions analysis, cost effectiveness analysis, on-site emission reduction checklist, socioeconomic analysis, and rule consistency analysis, will be published prior to a public hearing by the Governing Board to consider the adoption of proposed Rules 3180 and 9510. The tentative schedule for the public hearing to consider the adoption of the newly proposed rules by the District Governing Board is for December 15, 2005.

III. BACKGROUND

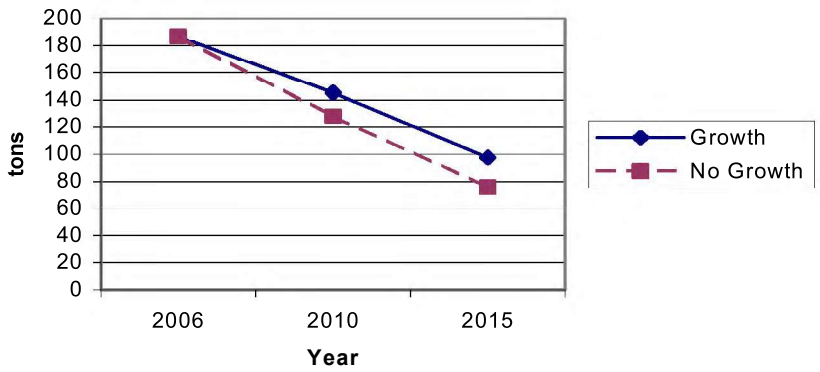
A. Growth and Emissions

The District exceeds state and federal air quality standards for ozone and PM10, despite significant reduction of air pollution from both mobile and stationary sources, primarily because of increases in population and vehicle miles traveled (VMT) in the SJVAB.

Reductions

Federal, state and local efforts have led to approximately 30 percent reduction in smog precursors and a ten percent reduction in PM10 (overall) in the SJVAB since 1990[1]. Significant reductions from stationary sources have been achieved, so that mobile sources now produce 69 percent of all NOx emissions in the District. Today's new cars pollute about 90 percent less than models produced 25 years ago due to California's strict vehicle emissions standards. By 2003, the average new car in California will pollute 75 percent less than 1994 models[2]. Although these standards will continue to greatly improve air quality, large increases in population and driving partially reduce the benefits of cleaner motor vehicles. The following chart shows how much lower the emissions from motor vehicles would be if growth were not to occur.

Figure 1
Difference in NOx Emissions for All Vehicle Types



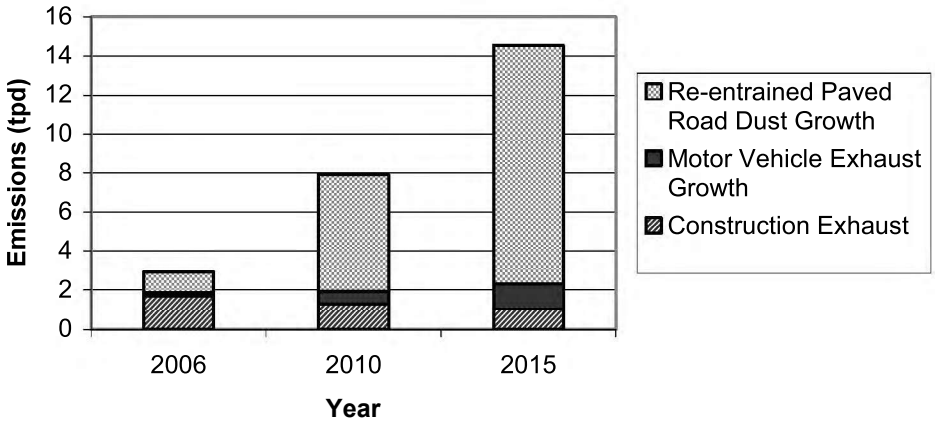
Population Growth

The SJVAB has experienced a large increase in population in the past several decades. The total population in the District increased by 22% between 1990 and 2000, and California's Department of Finance is projecting that the SJVAB will see an overall increase in population of 24% between 2000 and 2010. Each county varies, with the highest expected growth in terms of percentage increase in Madera, and the lowest expected growth in Fresno, but in terms of numbers of people, Fresno is expected to see the largest increase[3]. With increased population there is an increase in emissions from area sources, such as consumer products, fuel combustion, landscape maintenance equipment, etc.

VMT Growth

The total number of vehicle miles traveled (VMT) in the District has increased at a faster rate than population growth. The District witnessed a nine percent increase between 1999 and 2002, and is expecting a 27 percent increase from 2002 to 2010[4]. Entrained and re-entrained paved road dust and corresponding PM10 emissions, increase as VMT increases. The ozone and PM10 precursor NOx, also increases as VMT increases.

Figure 2
PM10 Emissions from Development



Increased Emissions From Growth

The past and projected increases in population, associated development and construction emissions and vehicle miles traveled, and the slower than expected introduction of technological advances in automobile and truck emission controls, have significantly slowed progress toward attainment. The ISR program can reduce and offset some of the growth in emissions and is required for attainment of the federal ozone and PM10 standards by the dates required in ozone and PM10 attainment plans.

B. Existing Indirect Source Programs

The District identified several examples of air pollution agencies in California that are currently reviewing land use projects for indirect source impacts and/or collecting mitigation fees in their districts. Five air pollution agencies have adopted and implemented an indirect source rule or policy. The methods and authority over development projects vary from air district to air district. Brief descriptions of these programs are provided below.

Mendocino County Air Quality Management District (AQMD) outlines their permitting process for indirect sources in Rule 1-200. The rule requires any indirect source to obtain an Authority to Construct (ATC) prior to starting construction. When Mendocino AQMD receives an application, they perform a California Environmental Quality Act (CEQA) determination. The ATC is not issued until a Notice of Determination is completed and filed.

Great Basin Unified Air Pollution Control District (APCD) also has an indirect source permit rule in place, Rule 216. This rule defines indirect sources as a secondary source, which is any structure, building, facility, equipment, installation, operation, or aggregation thereof. The application and associated informational documents are reviewed, and an analysis on expected emissions and air quality impact is performed. Public notice is published, and the general public is allowed to review and comment. The District then considers comments and imposes conditions on the approval of the permit or denies a permit if it is determined that the secondary source will contribute to a violation of any air quality standard. The fees imposed on secondary sources in Great Basin are outlined in Rule 301. Those fees are based on the size of the commercial unit and the number of parking spaces, or the number of residential dwelling units.

Colusa County APCD has an indirect source fee rule, Rule 4.8. The fees are assessed for building permit applicants during the city or county's permit process. The fees are based on the square footage of commercial or industrial projects, or by residential unit. The city or county may retain an administrative fee of ten percent. The fees are used to offset the District's costs, and any excess is used to mitigate air quality impacts.

Placer County APCD has instituted a "Policy Regarding Land Use Air Quality Mitigation Funds." During CEQA review, the APCD assesses total emissions that are estimated to occur during the ozone season from a particular project. The emissions are estimated by utilizing URBEMIS, which will be mentioned later in this staff report. After estimating emissions during the ozone season from URBEMIS, Placer County APCD requires 40% mitigation of a project's impact or to below a significance threshold, either on-site, off-site, by paying a fee, or a combination of those options.

Shasta County AQMD has adopted Rule 3:16, which allows Shasta County to place reasonable conditions on any fugitive, indirect or non-traditional source. At the current time, Shasta County utilizes the rule to mitigate the impact of new residential dirt roads by requiring paving or paying a fee. Their Resolution 84-2 authorizes an in-lieu buy out schedule for road paving, which is currently set at $800 per parcel below 1,000 feet in elevation.

In addition to the above examples, numerous government agencies in the SJVAB have created impact fee programs that have proved useful in drafting this program. The most common are transportation/transit impact fees for cities such as Bakersfield, Lathrop, and Visalia. The City of Stockton and the City of Turlock also have air quality impact fee programs in place.

C. Program Options

The District considered several options for the initial approach to the ISR program. The options were developed to coincide with the normal development process as a condition of application completeness during the environmental review with a city/county, or while compiling conditions of permit approval as part of the cities/counties development processes.

District Permit Program: This option would require permit applicants to obtain a permit from the District prior to paying the city/county's building permit fees. The District could require applicants to provide specific documents needed to determine the emissions from the project using URBEMIS. The District could then require on-site emission reduction measures as conditions of approval of the permit and/or calculate a fee. Under this option, the District could collect the off-site fee prior to issuing the District permit or defer the fee until the city/county issued the building permit.

City/County Review & Administration: This option would allow the city/county to review the emissions generation of an applicant's project, likely using URBEMIS. Under this option, the city/county would collect the off-site fee, if any, and transfer the fee to the District's off-site fund account(s). The city/county could also operate the entire program including expenditure of funds on emission reduction projects if the city/county adopted a program at least as effective at reducing emissions as the District's rule.

District Review & City/County Administration: Under this option, the District would require the applicant to provide documents necessary to perform an emissions generation analysis, likely using URBEMIS. The District would calculate the off-site fee amount based on total emissions and identify credits for specific on-site emission reduction measures included in the project. Prior to authorization of a building permit, the city/county would review the list, check which on-site measures have been incorporated into the project, and collect the fee, if any.

Simple Fee: This option would allow cities/counties to charge an off-site fee based on certain criteria, such as size or number of units. If this option was pursued, most likely the per unit fee would be based on the Institute of Transportation Engineers (ITE) trip generation rates for the different land uses and emissions calculated by URBEMIS. Under this option, the city or county would assess and collect the fee. An appeal program or a rebate program would be a possibility to give credit for any on-site measures that were performed or incorporated into the design of the project.

District Review & Administration: Under this option, the District would require the applicant to provide documents necessary to perform an emissions generation analysis, likely using URBEMIS. The District would calculate a required reduction amount based on total emissions and identify credits for specific on-site emission reduction measures included in the project. Required reductions not achieved by voluntary on-site measures would be achieved off-site through an offset fee. Offsite reductions would be subject to criteria including (but not limited to) being quantifiable and surplus. The District would conduct annual reporting to analyze the effectiveness of the off-site emission reduction program.

The District chose to pursue the 'District Review & Administration' option for several factors. Primarily, the District chose to craft the ISR rules to be compatible with local land-use authorities decision-making processes, and to have the ability to be worked into CEQA documents at the Lead Agencies' discretion. The District includes the options for voluntary on-site emission reduction measures that would allow a reduction in off-site fees.

IV. PROPOSED REGULATIONS

A. Proposed Rule 9510

The purpose of proposed Rule 9510 is to reduce emissions of NOx and PM10 from new development projects. The rule applies to development projects that will seek to gain a discretionary approval for projects that, upon full build-out will include any one of the following: 50 residential units, 2,000 square feet of commercial space, 25,000 square feet of industrial space, 20,000 square feet of medical office space, 39,000 square feet of general office space, 9,000 square feet of educational space, 10,000 square feet of government space, 20,000 square feet of recreational space, or 9,000 square feet of uncategorized space. The rule also applies to transportation projects whose construction exhaust emissions will result in a total of two tons per year of NOx and PM10 combined. However, there are several sources that are exempt. These include transportation projects that meet certain conditions, reconstruction projects that result from a natural disaster, development project's whose primary functions are from District permitted stationary sources. Also, development projects that have a mitigated baseline below two tons per year for NOx and PM10 shall be exempt from the

mitigation requirements of the rule. Anti-circumvention language was added to prevent piecemealing of development projects.

Applicability

Rule 9510 applies to any applicant that applies for a final discretionary approval for a development project which will include any of the following: 50 residential units; 2,000 square feet (sf) of commercial space; 25,000 sf of light industrial space; 100,000 sf of heavy industrial space; 20,000 sf of medical office space; 39,000 sf of general office space; 9,000 sf of educational space; 10,000 sf of government space; 20,000 sf of recreational space; 9,000 sf of space not identified, and; transportation and transit projects where construction exhaust emissions results in a total of 2 tons of NOx and PM10 combined.

Exemptions

Transportation and Transit projects are only subject to the construction emission reduction requirements of the rule. Development projects subject to the rule that reduce their operational emissions to less than 2 tons per year of NOx and PM10 each not subject to the rule's operational or construction emission reductions requirements.

Reconstruction of a development that was damaged or destroyed that is rebuilt to essentially the same use and intensity is similarly not subject the rule's requirements. In addition, development projects whose primary functions are regulated by District permits are exempt. Those stationary source projects are exempted because the projects' primary emissions are from stationary sources that are currently regulated by District rules and permitting requirements.

Application

Rule 9510 requires applicants of new development projects to submit an Air Impact Assessment (AIA) application to the District prior to or at the project's application for a final discretionary approval with a public agency. The application would include the information necessary for the District to perform an assessment, project location and description, an on-site emission reduction checklist, and an assessment by the applicant (if desired). An AIA would consist of inputting project data into an APCO-approved model to estimate emissions, and inputting on-site emission reduction measures that are components of the project design and/or other project specifics to calculate emissions reductions. This will be performed by the District and may be performed by the applicant. The emissions and emissions reduction outputs will be used to calculate the amount of on-site emission reduction is achieved, and what the off-site emission reduction fee would be, if any. Proposed Rule 9510 specifies the use of an APCO-approved model (Draft Rule 9510 Section 3.2), which in most cases will be URBEMIS. In the event that URBEMIS is not suitable for the proposed land use (i.e. does not have ITE trip rate), the District may approve another model, or review and approve off-line with project-specific calculations. If project-specific data is entered into

the APCO-approved model and overrides defaults, the applicant shall document and justify those project-specific inputs.

On-Site Emission Reduction Checklist
The measures listed in the checklist have a known quantification methodology in URBEMIS 8.7. The methodologies can be found in the URBEMIS User's Guide, available at South Coast AQMD's website http://www.aqmd.gov/ceqa/urbemis.html. The on-site emission reduction checklist shall identify which measures have been voluntarily selected by the applicant, the enforcement mechanisms available for those measures, and the reasons for not selecting the remaining measures. All measures selected that are above District or State requirements, regardless of enforcement mechanism, will count towards emission reductions for the project, in accordance with the methodologies in URBEMIS. The measures for the On-Site Emission Reduction Checklist can be found in Appendix C.

On-Site Enhancing Measures
The District has identified several measures that are known to have an air quality benefit. However, at this time they do not have a quantification methodology for project-level emission reductions. These measures still have a beneficial air quality impact. For this reason, the District will maintain a list of 'On-Site Enhancing Measures' and make it available to applicants. There are no requirements on selection of measures from the On-Site Enhancing Measures list. As emission reduction methodologies are determined for these and other new measures, they can be incorporated into URBEMIS. The list is available in Appendix C.

Monitoring and Reporting Schedule
For projects that select on-site measures that do not already have an enforcement mechanism, a proposed SJVAPCD On-Site Monitoring and Reporting Schedule (MRS) will be completed. The District will provide a standard form for the MRS, and the applicant is responsible for completing the MRS. The District will then work with the applicant to finalize the MRS. Draft Rule 9510 §5.4 discusses the components of a MRS.

Fee Deferral Schedule
In addition to the AIA application, the applicant may propose a Fee Deferral Schedule at the time of application or during application review in anticipation of a possible off-site fee, or within 15 days of receiving an off-site fee invoice. The District will provide the Fee Deferral Schedule format. The applicant can choose the schedule of payments, but all fees for a development or phase thereof must be received *prior* to construction of that development or phase thereof. Draft Rule 9510 §5.5 discusses the components of a FDS.

Completeness Finding
The District will have 10 days to determine whether or not the application is complete. After the District deems the application complete, the District has 30 days to approve

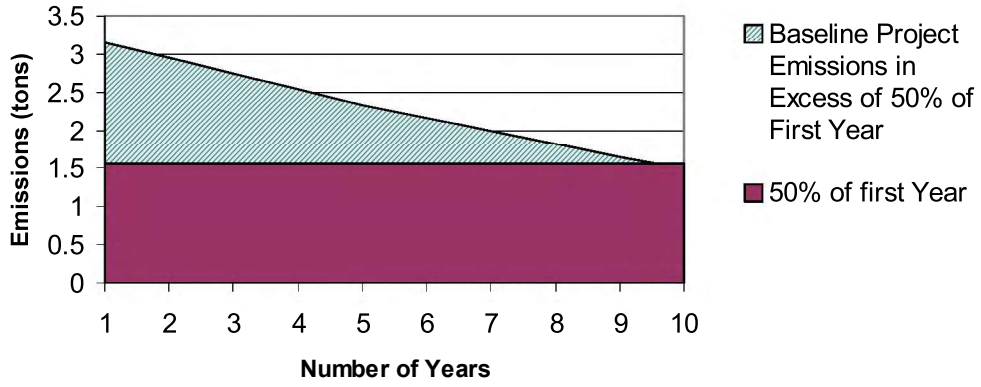
the application and notify the applicant of the estimated fee amounts. In addition, the application and MRS will be submitted to the applicable public agency for voluntary review. The public agency may provide comment at their discretion. The applicant may have the assessment modified to incorporate more on-site measures, if desired. Once the proposed MRS is approved, the District and the applicant shall finalize the MRS. If there are changes to the project that will impact the emissions total or schedule of build-out, the applicant shall notify the District of that change within 60 days of said changes, or prior to the start of project construction, whichever is first. As stated above, if a project mitigates to less than two tons of operational NOx and PM10, it will not be subject to the required emission reductions stated in the draft Rule 9510 §4.3.

Required Emission Reductions

Proposed Rule 9510 would require applicants to reduce NOx and PM10 emissions. The rule is designed to reduce the impact of the development projects to the extent needed for the District to reach attainment of ozone and PM10 standards. The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. Draft Rule 9510 Section 6.0, et seq., describes the required emission reductions.

Although the majority of the NOx emissions associated with a project are due to motor vehicles, there is a decline in NOx emissions over time due to ARB's tailpipe controls. The NOx mitigation fee is structured to account for a 50% decline in annual NOx emissions from motor vehicles over ten years. Thus, the rule requires mitigation of the cumulative NOx emissions in excess of 50% of the project's operational baseline emissions (the emissions at the first year of buildout) until the project's emissions reach half of the project's first-year baseline emissions, which is approximately 10 years. This method ensures that a project does not over-mitigate its emissions. Draft Rule 9510 Sections 3.8 defines baseline emissions. Rule 9510 Sections 3.10 and 3.27 define construction baseline and operational baseline, respectively. Rule 9510 Section 3.20 defines 'mitigated baseline'. Project emissions and the required mitigation can be visually represented as follows:

Figure 3
NOx Project Emissions and Reductions Compared to 50% of the First Year Emissions



In essence, the NOx mitigation required for Rule 9510 is represented above by the triangle, which is equal to one third of total project emissions during the first ten years. The applicant can reduce the emissions represented by that triangle by using on-site mitigation measures, by paying the District a fee to fund emission reduction projects off-site, or through a combination of the two. The fee amount would decrease or be eliminated depending on the amount of on-site mitigation incorporated by the applicant into the design of the project.

The PM10 mitigation requirement is different from NOx. Operational PM10 emissions from a project do not decline over time – they remain constant. Accordingly, Rule 9510 will require mitigation equal to half of the emissions for the first year after build-out for 10 years (the same period of time required for NOx mitigation).

Proposed Rule 9510 would also require applicants to reduce NOx and PM10 construction equipment emissions. The rule requirement is to reduce construction NOx emissions by 20% and PM10 emissions by 45% beyond the statewide average. In determining the level of reduction for construction emissions, the District researched what other air districts had set, and found those targets are achievable. There are several options available for controlling NOx and PM10 emissions from equipment used for construction on-site. Options can include, utilizing newer equipment, altering fuel type, modifying an engine, or using exhaust after-treatment devices, to meet the rule requirements. New equipment can provide a high percentage of emissions reductions, depending on the horsepower and the year of the equipment. The reductions are achievable with existing technology with a mix of newer equipment and retrofit devices, and will allow applicants applying moderate effort to pay no fee on construction.

Achieving Emission Reductions

If on-site mitigation measures are chosen by the applicant, the applicant shall submit a MRS to the District for the those on-site mitigation measures that do not have built in enforcement mechanisms. All on-site emission reductions measures that are above District and State requirements will be credited to emission reductions for the project. The MRS will identify enforcement mechanisms, which may include identifying specific funding mechanisms, as well as monitoring, recordkeeping and reporting. The Proposed MRS shall be forwarded by the District to the public agency for review. It is important to note that the percent reduction achieved onsite results in a greater reduction of the NOx fee. While on-site mitigation is not required, the "bigger bang for the buck" is achieved with as much on-site mitigation as possible. For example, when onsite NOx reductions exceed the excess emissions above 50% of the first year's baseline, the NOx fee becomes zero. Additionally, if the onsite measures reduce the NOx and PM10 to less than 2 tons per year each at buildout (baseline), no additional reductions are required. See Table 1 for examples of on-site emission reductions and the associated off-site fee reduction. See Table 2 for a list of simple measures that small projects can achieve, and a list for larger projects. If the emission reductions required by the rule are not fully achieved on-site, off-site fees would be required.

The use of off-site fees is strictly limited to procurement of off-site emission reductions. Absolutely no off-site funds may be used for District staffing or budget. The District shall provide annual reporting per draft Rule 9510 Section 10.4. Annual reports shall include, at a minimum: the total amount of off-site fees received; the total monies spent; total monies remaining; any refunds distributed; a list of all projects funded; the total emission reductions realized, and; the overall cost-effectiveness factor for the projects funded.

Off-site mitigation would consist of paying a fee to fund emission reduction projects for required emission reductions that are not reduced on-site. Rule 9510 contains pollutant-specific fee formulas in Section 7.0, et seq. Appendix B shows how those formulas were developed. The off-site fees are strictly tonnage based. This means that all projects are treated equally, and assessed on the amount of emissions associated with the project. The fee formula applies equally to all applicable projects, accounts for the amount of on-site emission reductions. The fee would be payable in 60 days upon notification of fee amount, unless the applicant has arranged a FDS with the District.

Both the NOx and the PM10 fee formulas include a Cost of Reductions for one ton of that pollutant. These values were determined based on historical grant programs with the district and project fund use, and represents an average value for a range. Appendix E contains a greater description of how those values were derived.

Rule 9510 directs the District to administer the fee use to achieve emissions reductions that the fees were based on, in a cost-effective manner. There are numerous emissions

reduction projects available. Potential projects are as follows: projects currently qualifying for the District's Heavy-Duty Engine Incentive Program including, alternative fuel low-emission school buses, transit buses, and other vehicles, diesel engine retrofits and repowers for trucks, PM efficient street sweepers powered by natural gas, agricultural water pumping engine replacements, locomotive repower/retrofits, electric forklifts, etc. Other potential projects include gross polluter replacement, biomass subsidies, electric vehicle or lawn equipment rebates, truck refrigeration unit plug-ins at distribution centers, woodstove replacement/retirement, video-teleconferencing systems, and telecommuting start-up costs. Potential PM10 reduction programs include paving or treating unpaved traffic surfaces and shoulders and PM10 efficient street sweeper purchases. Some projects will achieve reductions of NOx and PM10. The funds will be managed by a grant-like program and allocated as applications are received. If a sufficient amount of applications to fund projects are not received, the District will consider a directive program that would be approved by the Governing Board. The District recognizes the sensitivity of the geographic distribution of the funds. Any emissions reduction project will provide a localized benefit to the area of fee origin.

Table 1
On-Site Reductions and Associated Operational Off-Site Fee Reductions.

Example Project 150 Single-Family Units in 2006 <u>On-Site Package</u> - Increased Density (from 50 to 30 acres) - No Wood Stoves - Increased Energy Efficiency by 10% - Located near local-Serving Retail - Bus Service Nearby - Traditional Street Design - Sidewalks on Both Sides of Street - Bikelanes on 20% of streets - 10% of units Deed-Restricted Below Market Rate	On-Site Emission Reduction (%)		Operational Off-Site Fee Reduction (%)	
	NOx 12%	PM10 36%	NOx 36%	PM10 72%
Example Project 200 Multi-Family Units 40,000 sf Strip Mall 60,000 sf General Office <u>On-Site Package</u> - No Wood Stoves - Increased Energy Efficiency by 10% - Located near local-Serving Retail - Bus Service Nearby - Traditional Street Design - Sidewalks on Both Sides of Street - Bikelanes on 20% of streets - 5% of units Deed-Restricted Below Market Rate - Commercial and Retail implement Transportation Demand Measures - Commercial and Retail Reduce Parking Supply	On-Site Emission Reduction (%)		Operational Off-Site Fee Reduction (%)	
	NOx 23%	PM10 29%	NOx 68%	PM10 59%

Table 2
Basic On-Site Measures for Small and Large Projects.

Small Projects	Large Projects
All Land Uses: Traditional Street Design Increased Energy Efficiency Include Sidewalks on all streets Locate near mass transit stops Locate near a mix of uses Residential: No Fireplaces or Woodstoves Locate near local serving retail Locate near jobs Non Residential: Reduce parking supply Locate near residences Implement Transportation Demand Measures Include Bike Racks	Same as Small Projects, Plus: All Land Uses: Include a mix of uses Install Bike Paths or Bike Lanes and/or Pedestrian paths

AIA Approval

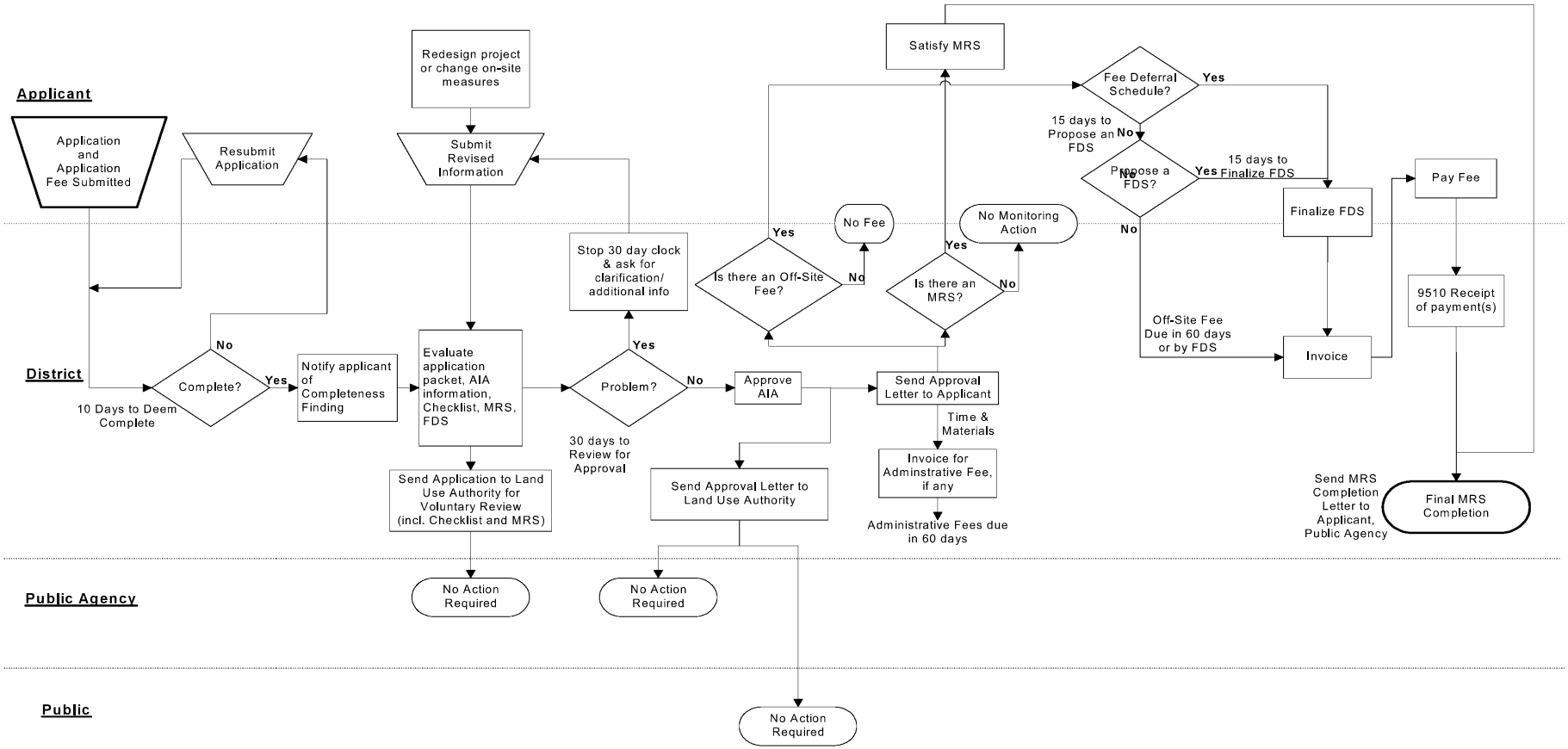
The District will provide a decision on the AIA application within 30 days of finding the application complete. The District will approve the AIA application or disapprove the AIA application. It is important to note that the District will not be approving a permit or other discretionary action as a result of Rule 9510. In addition, the District will not be approving or disapproving the development project itself, but the Air Impact Assessment application for that project. The authority for land-use decisions lies with the local land-use agency. The AIA application approval is ministerial and will not involve conditions of approval.

MRS Maintenance

For those projects that have a MRS with the District, the applicant is responsible for implementing those measures identified. The District is responsible for monitoring and receiving reports for on-site emission reduction measures. The District shall provide a tentative compliance letter to the applicant, public agency and public upon request. Upon completion of the last MRS requirement, the District shall provide a letter of MRS completion to the public agency and applicant. The District shall also make the letter available to the public.

If the applicant committed to on-site construction emission reductions, the applicant is responsible for submitting the construction equipment schedule to the District prior to applying to the public agency for a grading permit. At that time, the District will verify construction emissions for the project. If the on-site emission reductions specified by the applicant are not achieved, the District shall assess and invoice for off-site fees required by the rule.

ISR Application Flow Chart



B. Proposed Rule 3180

The purpose of proposed Rule 3180 is to recover the costs of administering Rule 9510. The proposed rule includes a non-refundable application-filing fee to be paid when an application is submitted to the District. Once an application and the application fee are received, district staff will log the total staff hours spent on the project using the District's automated Labor Information System. The application evaluation fee will comprise those hours at a weighted average labor rate, minus the application-filing fee, so that only the cost of the actual hours spent on the project will be recovered.

Rule 3180 also contains a fee equal to 4% of the offsite emission reduction fees to recover the cost of administering off-site emission reduction projects. The 4% would be payable when the offsite emission reduction fees are collected.

C. Program Implementation - Streamlining

The process identified in Rule 9510 may be completed prior to or concurrent with the City/County permit review process. Specifically, Rule 9510 has been designed for non-interference with the City/County land-use and California Environmental Quality Act (CEQA) processes. However, information from the ISR process may be used by a Lead Agency in environmental documents, at their discretion. Currently, air quality impact assessments are usually required for projects with potentially significant air impacts. Since the NOx and PM10 pollutants will be addressed through ISR, it will not place an added burden to the applicant, and should provide a foundation for or replace the ozone precursor and PM10 emission analysis included in that environmental document. The On-Site Emission Reduction Checklist will help applicants identify quantifiable mitigation alternatives and provide justification for feasibility or infeasibility. The MRS will identify enforcement mechanisms for on-site emission reduction measures that were selected by the applicant.

The District will provide information on the District's website, such as application forms and guidance documents. The District will revise its Guidelines for Assessing and Mitigating the Air Quality Impacts (GAMAQI) document as needed. In addition, the District will work with Cities and Counties on additional measures to facilitate communication and streamlining of the application and review process.

Finally, the ISR program is set up to allow the applicant to provide the AIA. However, the applicant is not required to provide modeling or emissions calculations. The District will prepare the AIA based on the project-specific information provided in the AIA application. The District will not charge a specific fee for modeling, but will invoice for any time and materials beyond that covered by the application filing fee. The application filing fee was estimated based on the average time expected to review and AIA application and conduct emissions calculations/modeling for the project.

D. Use for Environmental Review – CEQA

The ISR program operation is not subject to CEQA requirements. The review conducted on applications for the program is a ministerial action not subject to CEQA, per PRC §21080 *Division Application to Discretionary Projects; Nonapplication; Negative Declarations; Environmental Impact Report Preparation* (b)(1):

> *(b) This division does not apply to any of the following activities:*
> *(1)Ministerial projects proposed to be carried out or approved by public agencies.*

The ISR Program will require an amount of emission reductions from certain development projects subject to the rule. Implementation and compliance with the rule will reduce the cumulative NOx and PM10 impacts of anticipated growth to less than significant because the reductions attributed to this program were identified in two attainment plans as necessary to achieve the applicable standards. CEQA Guidance document § 15064 (h)(3) states-

> A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with requirements in a previously approved plan … which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g. … air quality plan).

The GAMAQI will be updated with any necessary changes to District CEQA policy and provides a suitable location for changes to defaults and guidance on model usage.

E. APCO- Approved Models

Proposed Rule 9510 specifies the use of an APCO-approved model, which in most cases will be URBEMIS. URBEMIS stands for "Urban Emissions Model." URBEMIS was originally developed by the California Air Resources Board (ARB) as a modeling tool to assist local public agencies with estimating air quality impacts from land use projects when preparing a CEQA environmental analysis. The model was developed to estimate construction, area source, and operational air pollution emissions from vehicles from a wide variety of land use development projects in California, such as residential neighborhoods, shopping centers, office buildings, etc. Originally designed as a 'sketch planning' tool for CEQA project review, it has been continuously enhanced with each new version to provide greater capability and accuracy. URBEMIS is used statewide by air agencies and public agencies and contains air basin-specific information. URBEMIS has substantial flexibility to accommodate project specific travel and vehicle information when available. The model also includes a mitigation component that allows the user to select specific measures and quantify emission reductions associated with the selected measures[5].

The District undertook an extensive effort to ensure that URBEMIS is the right tool for this program. The District hired a consultant, TY Lin International/CCS, to review

available land use emissions models, recommend which model is most suitable for this program, and identify areas of improvement. The consultant recommended URBEMIS as the best tool for ISR for several reasons, including:

- URBEMIS contains the latest California-specific emission factors with motor vehicle emission factors based on EMFAC2002,
- URBEMIS is the only model that contains emissions calculations for PM10
- URBEMIS contains emissions calculations for area sources
- URBEMIS contains motor vehicle activity based on trip rates from the Institute of Transportation Engineers (ITE)
  ITE rates are nationally accepted, are widely used and have withstood legal challenges.
- URBEMIS does not require large amounts of input for an emissions estimate (it is easy to use)
- URBEMIS inputs are objective and quantifiable.
  For Example- For sidewalk coverage, the input fields include percent of streets with sidewalks on both sides and the percent of streets with sidewalks on one side.
- URBEMIS contains the flexibility to modify defaults if project-specific information is known.
- URBEMIS is free.

TY Lin International/CCS made recommendations on the improvements to the area-wide mitigation component and hired a sub consultant, Nelson/Nygaard, to make detailed recommendations for improvements to the operational mitigation component. Nelson/Nygaard researched the latest studies on land use, what design features consistently reduced vehicle activity (and consequently emissions) in the real world and by how much. Nelson/Nygaard then created emissions reduction calculation methodologies based on those studies and submitted a report to the District. The District then initiated an extensive statewide effort to update the URBEMIS model with the resulting recommendations. The District, TY Lin International/CCS, and Nelson/Nygaard met with the URBEMIS working group, which is a group of representatives from air districts throughout the state of California, as well as the California Department of Transportation (CalTrans), and presented the recommended changes to URBEMIS. Once the URBEMIS Working Group made recommendations that were incorporated into the report, the report was then peer reviewed by several well respected researchers in the field of land use and travel activity. The peer review comments were incorporated into the report and approved. The final report was incorporated into URBEMIS 8.7, released to the public, and is included in this document as Appendix D.

The URBEMIS model would require, at minimum, the following inputs: type of land use, number of units, and any mitigation measures selected. However, there are numerous defaults that can be modified if more precise information on the project is available.

These can include: trip rate(s), emission factors and usage rates for specified area source emissions, year of project use, fleet characteristics in terms of percentage of and fuel use of vehicle types, trip speeds, trip lengths, trip percentages, ambient seasonal temperatures, variable start percentages, and emission reduction inputs. Emission reduction inputs can include increased density, zero hearth options, percent energy efficiency beyond Title 24, percent of landscape equipment electrically powered, number of housing units and study area employment (job to housing ratio), the presence of local serving retail, the number of transit stops, intersections per square mile, percentage of streets with sidewalks, percentage of bike lane coverage, percentage of housing units below market rate, numerous transportation demand management measures, number of actual parking spaces, and controls on fleets. Based on those inputs, the model calculates total area source emissions, total vehicle emissions, total overall emissions and total reduced emissions in terms of lbs/summer day, lbs/winter day, or tons/year.

In addition to the benefits of URBEMIS, this model was chosen over other potential models for various reasons. A different option was to use transportation models used by the COGs for conformity purposes. Transportation models, while appropriate for their current use, are not appropriate for ISR for the following reasons:

- There is not one model used valley-wide.
    - *There are eight different models. Some cover only one county, others cover multiple counties.*
- The eight models do not use the same modeling basis, making for inconsistencies of software if multiple models are used.
- The analysis requires subjective inputs.
- Certain trips are not accounted for in the transportation model.
  For example- While URBEMIS will account for the very-short trips associated with new gas stations (passby trips), transportation models do not include the short drives into gas stations.
- The transportation models include deviations from known trips.
    - *They do not account for 10-15% of trips on Arterial Streets*
    - *They do not account for 15-35% of trips on Collector Streets*
    - *Trips on local streets are not included*
- The trip types come from old, 1970's data that is only periodically updated.
- Does not include new area emissions, which are wholly attributable to new developments.
- Transportation modeling requires many inputs, and is not easily used by an average applicant.
- Transportation modeling is not free

It is the view of the District that URBEMIS is the best tool available. As stated above, URBEMIS has a solid, proven basis (EMFAC2002, ITE, peer-reviewed quantification), is flexible and allows changes to various calculation inputs when project-specific information is known. Comments received by the District pointed out that URBEMIS

contains some information that may need refinement. Particularly, the fleet mix and the on-road silt-loading factor. The District agrees that new, more accurate information should be incorporated into URBEMIS when that information becomes available Concerning the on-road silt-loading factor, the District concurs with the air basin specific factor received in comments and will be recommending using the factor of .031 for analyses prepared for the rule and will incorporate that factor into the San Joaquin Valley portion of URBEMIS. To remedy the fleet-mix issue, the District has hired a consultant (VRPA) to investigate and recommend new land-use specific fleet mixes. In addition, the District is participating in a statewide effort to improve the construction portion of URBEMIS. In the interim detailed guidance and sample construction inputs will be provided by the District to assist applicants.

F. Other Issues

The 2003 PM10 Plan also included a one-ton per day PM10 emission reduction commitment for Metropolitan Bakersfield by 2010. That commitment is being addressed through a "task force" composed of staff from the City of Bakersfield, Kern County, and the District. The task force is identifying the projects that would provide the greatest impact on ambient PM10 levels in the area.

Input from the public during the scoping meetings and from written comments suggested that the proposed indirect source rules should include existing sources as well. There are several types of land uses that generate significant trips that could be considered: event centers, distribution centers, and regional shopping centers. The District has performed some preliminary research on distribution centers and warehouses. There are well over 2600 distribution facilities in the SJVAB, with an average size of 800,000 sq ft, according to District estimates. The District will continue to consider regulations on these types of sources for some time in the near future.

The District will work to coordinate the ISR program with the public agency land-use approval process. The District will be coordinating review with the public agency through-

1. Making the ISR process concurrent with or prior to the public agency process;
2. Forwarding a copy of the AIA application (upon determination of completeness), a copy of the AIA approval package (upon approval), and a letter of Final Compliance to the public agency for voluntary review and commenting;
3. Communicating with the public agency when necessary during the application review process; and
4. Incorporating ISR AIA data into the District's CEQA commenting process.
5. Providing a letter of project status to the public agency upon request.

In addition, the application and approval will be made available to the public.

V. EMISSIONS AND EMISSIONS REDUCTIONS

The District committed to reduce the PM10 and NOx emissions from indirect sources in the 2003 PM10 Plan and the Extreme Ozone Attainment Demonstration Plan, which could be achieved by on-site emission reduction and/or emission based fees that would be used to fund off-site emissions reduction projects. Both plans contained emissions reduction commitments from growth that were necessary to demonstrate attainment. Appendix B contains an estimate of total emissions and emissions reductions expected from new development projects by 2010, which are 5.4 tons per day of NOx and 5.8 tons per day of PM10.

The ISR program is expected to achieve the emission reductions committed to in the PM10 and ozone plans. However, the District realizes that those emission reductions may not be achieved for a variety of reasons. If the emission reductions are not achieved because growth becomes less than that forecast in the emission inventories, the District will not need to adjust the program to make up the reductions. This is because the need for emission reductions was based on the projected growth. If growth occurs at a level less than that predicted, then the level of emission reductions needed will similarly be reduced. However, if other circumstances are encountered and the emission reductions are not achieved, the District will have to make a SIP revision, possibly substituting another measure for the remainder of emission reductions required or adjusting the off-site mitigation fee program to obtain greater reductions.

The District based its estimate of emission reductions achievable by the ISR program on total growth in the emission inventory that is subject to the rule accounting for rule mitigation requirements, exemptions and applicability thresholds. The District considered using a bottoms-up estimate of emissions based on the number of projects and units expected each year. Statistics on residential development were available for this type of analysis; however, due to the wide variety of uses and limited data on the numbers and sizes of non-residential uses, a comprehensive bottom-up analysis was not feasible.

VI. COST EFFECTIVENESS – OFF-SITE EMISSION REDUCTION PROJECTS

District staff has prepared a draft cost effectiveness analysis of the estimated costs of emission reductions required in the proposed Draft Rule 9510. The cost effectiveness analysis is attached to this staff report and labeled Appendix E. This analysis details the types, quantities and costs of projects available for funding from the off-site fees collected by the District, and provides an example mix of projects to demonstrate how the fees may be used. The District shall use 100% of the off-site funds received for

emission reduction projects. No off-site funds may be used for the District's budget, staffing or other administration.

Off-Site fund use accountability is written into the Draft Rule 9510. The District shall provide annual reporting per draft Rule 9510 Section 10.4. Annual reports shall include, at a minimum: the total amount of off-site fees received; the total monies spent; total monies remaining; any refunds distributed; a list of all projects funded; the total emission reductions realized, and; the overall cost-effectiveness factor for the projects funded. Annual reports shall be made available to the public.

For off-site emission reduction projects, the duration of the contract will vary depending on the project. Some contracts will be completed upon installation, while others may require reporting for 5 years or longer. For example, a road-paving project would have a contract that is completed upon installation, whereas an engine contract typically contains a 5-year reporting requirement.

VII. SOCIOECONOMIC IMPACT ANALYSIS

Pursuant to state law, the District is required to analyze the socioeconomic impacts of any proposed rule or rule amendment that significantly affects air quality or strengthens an emission limitation. The provisions of Draft Rules 9510 and 3180 will reduce PM10 and NOx, emissions by requiring pollutant specific mitigation through measures incorporated in to the design of a new project, and/or paying a fee to fund emissions reduction projects; therefore, District staff solicited volunteers from affected entities to participate as members of the socioeconomic focus group for these rules. District staff held a focus group meeting, to identify the socioeconomic impacts of the draft rules. District staff will use the socioeconomic analysis to further refine the draft rules. The socioeconomic report was released to the public for comment and review and was presented at the final workshop. The report was incorporated into this staff report as Appendix F. The final socioeconomic report will be presented to the District Governing Board at the public hearing for adopting the proposed rules.

The implementation of ISR fees may have socioeconomic impacts on certain development types that are summarized below and described in the socioeconomic impact analysis. Although impacts may occur, the program has been designed to minimize economic impacts and to allow options to developers that minimize their fees. However, the District recognizes that some businesses and individuals will be impacted, but believes that the impact is justified by the benefits of the rule to the Valley. The rule is designed to reduce emissions of pollutants contributing to poor air quality in the entire air basin and will provide a health benefit through its implementation. The District is required to attain federal air quality standards by specific dates with reductions contained in District attainment plans. These plans rely on reductions from ISR that if not achieved will result in sanctions that would cause a far greater impact to the Valley's economy than

implementing the rule. If ISR were not adopted, rules on other industries with as great or greater economic impacts would still be required.

A. RESULTS

SINGLE-FAMILY RESIDENTIAL. The Socio found a less-than-significant impact on Single-Family Residential project applicants for 2006, 2007 and 2008. The Socio found a minor increase in the price Single-Family Residential buyers would find in the average Valley City for 2006, 2007 and 2008. See Appendix F Tables 19-21 and associated text.

MULTI-FAMILY RESIDENTIAL. The Socio found a less-than-significant impact on Multi-Family Residential project applicants for the average Valley city for 2006, 2007 and 2008. The Socio found a minor increase in the price Multi-Family Residential buyers and renters would find in the average Valley City for 2006, 2007 and 2008. Multi-family residential development in small and medium sized bedroom communities is projected to experience a significant impact in 2007 and 2008. Small rural/farming communities could have a significant impact in 2008. The reason for the greater impact in these particular areas is the lower overall cost of housing in those areas making the fee a higher percentage of the housing cost. This impact is mitigated to some extent by the rule threshold of 50 units and 2 tons per year of emissions. Many projects in those areas are small. Some locations qualifying as bedroom communities are seeing very rapid growth in housing stock that is as expensive or more expensive than in the large urban areas. This trend may also limit the areas of impact. Due to the ability of the developer to pass on or absorb at least part of the cost and for consumers to amortize the cost in a mortgage or through rents, the District believes that this impact is not significant. See Appendix F Tables 23-25 and associated text.

INDUSTRIAL. The Socio found a less-than-significant impact on industrial project applicants for 2006 and 2008. The Socio found a less-than-significant impact on industrial renters in 2006 and 2008. See Appendix F Tables 28 and 29 and associated text.

OFFICE. The Socio found a less-than-significant impact on office project applicants for 2006 and 2008. The Socio found a less-than-significant impact on office renters in 2006 and 2008. See Appendix F Tables 28 and 29 and associated text.

COMMERCIAL. The Socio found a less-than-significant impact on industrial project applicants for 2006, but a significant impact in 2008. The Socio found a less-than-significant impact on commercial renters in 2006, but a significant impact in 2008. Commercial uses with a small footprint but high trips due to customer turnover experience the greatest impact. Commercial and other development types may reduce their fees with on-site measures. Many measures are available that may be required for other purposes and add no cost to the development, but can add amenities and value to the project. This would provide a mechanism to reduce the impact of the fee. Overall, the District concludes that with mitigation options and the ability to pass costs

on to project tenants, this impact should not be considered significant. See Appendix F Tables 28 and 29 and associated text.

PROSPECTIVE HOME-BUYERS AND SMALL BUSINESSES. Socio Section 6.4 addresses the impact on small business and includes a discussion of potential disproportionate impact on home-buyers and small business. The socio concludes that the increased costs due to the fees would have a temporary impact while the consumer responds to the costs with changes in purchasing decisions or increases income.

VIII. ENVIRONMENTAL IMPACTS

Pursuant to state law, District staff has conducted an initial study to identify any possible environmental impacts of this program and prepared a proposed negative declaration for draft Rules 9510 and 3180. The 30-day comment period for the proposed negative declaration ends on December 5, 2005. The District Governing Board will consider approving the negative declaration at the December 15, 2005 public hearing for the rules.

IX. RULE CONSISTENCY ANALYSIS

Pursuant to the California Health and Safety Code, Section 40727.2, District staff has prepared a rule consistency analysis of the program and is included in this staff report as Appendix G. The Rule consistency analysis shows the rule is non-duplicative, and consistent with existing District, state and federal rules.

X. REFERENCES

1. California Air Resources Board, Emissions Inventory, www.arb.ca.gov.
2. California Air Resources Board, *Status Report,* 1994
3. California Department of Finance, Population Projections, www.dof.ca.gov/HTML/DEMOGRAP/projco.pdf
4. 2003 PM10 Plan, Appendix B
5. South Coast AQMD website, Frequently Asked CEQA Questions, http://www.aqmd.gov/ceqa/faq.html

APPENDIX A

Responses to Comments on Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Indirect Source Review)

December 15, 2005

SUMMARY OF COMMENTS AND RESPONSES ON THE RECEIVE AND FILE OF DRAFT RULE NOVEMBER 17, 2005

Public Comment
Date November 5, 2005
Multiple Letters- Signed by

Kaaren Page	Betty Sanderson	Theresa Stump
Stephen Page	J Wesley Sanderson	Bill Moffit
Warren A. Minna	Georgette Theotig	Deb See
Nancy Faisselman	Isabel Stierle	Rosmarie Grabski
Nany Bacon	Li?? Wa???	Monte Harper
		Emid Harper

As a resident of the San Joaquin Valley, I am very well aware that the Valley is rated as '*extreme non-attainment*' when it comes to meeting federal air quality standards. We must take bold steps to clean up our air while allowing reasonable housing growth.

The best way to reach this goal is through your proposed Indirect Source Rule Package (Rules 9510 and 3180) that the District is sponsoring. This is accomplished two ways: allowing housing and commercial developments to be designed to reduce air pollution and to charge a fee for that air pollution that cannot be eliminated, with the fees being used to fund other projects that reduce air pollution.

1. **COMMENT:** I support a strong version of the rule that offers a real chance to improve the air in the valley and at the same time allow developers to use innovative design features to reduce our dependency on automobile transportation.

   Our lungs, our health, and our children deserve no less.

   RESPONSE: Comment Noted

California State Department of Housing and Community Development:
Date: November 29, 2005

Thank you for the continued opportunity to comment on the San Joaquin Valley Air Pollution Control District's (District) proposed Draft Rules 9510 and 3180 (Rules). The Department has reviewed the draft Rules as revised November 17, 2005 and the District's "Response to Comments" found in Appendix A of the draft Rules. The Department appreciates the District addressing some of the issues raised in the

comment letters of July 25, 2005 and September 15, 2005. However, as discussed below, the Department continues to have a number of concerns with the revised draft of the Rules.

Proposed Rule 9510 does not comply with the "clarity," "consistency," and "nonduplication" requirements set forth in Health and Safety Code Section 40727, and an adequate nexus has not been established to support these rules. In addition,

2. **COMMENT: The proposed inclusion, followed by the deletion of, an exemption for housing directly assisted by federal, State, or local government is of particular concern.** The District's response to comment #92 indicated the government supported housing exemption (affordable housing) was removed "based on the District's internal analysis of applicability and impacts….". Although affordable housing qualifies as a mitigation measure, it is unclear how the URBEMIS model assesses and credits affordable housing. Affordable housing is often a catalyst for the type of transit-oriented development that is encouraged by the District's policy recommendations as described in District's *Air Quality Guidelines for General Plans*. According to the Air Resources Board's study, *The Land Use – Air Quality Linkage*, densities found in affordable housing developments are generally high enough to provide the ridership needed to support transit service (page 15).

   RESPONSE: As stated in the November 17th Staff Report (p. 11) and in the September 1, 2005 Response to Comments, the methodology for emission reduction is detailed in the URBEMIS User's Guide (http://www.aqmd.gov/ceqa/urbemis.html). Basically, the trip reduction benefit of below-market-rate housing will be credited to a development that includes this feature. In addition, Appendix D- Recommended Changes to URBEMIS details the research supporting the emission reduction and the methodology for the reduction on pages D-38 through 39 and includes the following statement:

   … Thus, the total reduction is as follows:

   *Trip reduction = % units that are BMR * 0.04*

   A development with 20% BMR units would thus gain a 0.8% reduction. A development with 100% BMR units would gain a 4% reduction.

3. **COMMENT:** There is also insufficient information in the draft Rule analyses to discern whether and to what extent affordable housing developments, despite qualifying for some mitigation credits, might be subject to fees for off-site emissions reductions. This has the potential to render projected affordability levels or the projects themselves, infeasible as proposed. Affordable housing development proposals, are already subject to significant development constraints despite their acknowledged benefit potential relative to air quality.

Applying Rule 9510 to these projects would subject them to an additional and ambiguous permit requirement. This effect would be inconsistent with State laws which require affirmative actions to promote affordable housing opportunities. Accordingly, the Department urges the District to reinstate the exemption for housing projects in which at least 49 percent of the units are reserved for lower-income households and which are directly assisted by federal, State, or local government.

RESPONSE: The staff report and socio-economic impact analysis recognize that any fee would increase costs, but that market forces so far outweigh the effect of the fee that they render it insignificant. The District disagrees that the rule is contrary to state law promoting affordable housing. Rule 9510 is being adopted to reduce the air quality impacts of new development, including housing projects serving all market segments. Since the rule contains provisions to reduce potential fees for developments that contain affordable housing, it encourages affordable housing to be included in more projects.

4. **COMMENT:** Having deleted the exemption, the District must now amend those documents that were based on the exemption being part of the project. This includes the CEQA initial study which describes the project as exempting some sources including “certain low-income housing projects” (page 4). By removing the exemption, the District has redefined the project.

RESPONSE: The District does not concur that removing the low-income housing exemption substantially changes the project analyzed in the CEQA initial study. First, the socioeconomic impact analysis that is the basis of the initial study discussion on impacts on housing and population indicated that low-income households were already unable to afford new homes and rental units affected by the rule. The revised socioeconomic impact analysis was based on the latest rule version and arrived at the same conclusions regarding impacts with and without the exemption. Therefore, the impacts examined in the initial study are also the same. Second, by removing the exemption for "certain low-income housing projects", the language of the Rule would result in a slight reduction in air quality impacts, as some additional housing projects would now be subject to the Rule. The change in language does not substantively affect the analysis of environmental impacts. On the contrary, the language change would result in an environmental benefit.

5. **COMMENT: Although the District does have the authority to implement regulations to accomplish the reduction or mitigation of emission from indirect sources, it does not have the authority to operate a permitting system for the operation or construction of these sources and has failed to show the required nexus.** The proposed Rules would impose an (off-site) fee

on development projects which are unable to incorporate on-site measures adequate to reduce indirect emissions to a specified level. The fee is determined via an application (Air Impact Assessment Application (AIA)) which is required to be approved by the District before a final discretionary permit is issued for the construction of the development project. Unless the AIA application is submitted, the project cannot go forward without the developer incurring civil penalties. In such circumstances, contrary to the assertions of the staff analyses, a fee is being imposed as a condition of approval of a development project. A 1993 Attorney General Opinion explained that "the Legislature has recognized indirect sources as essentially different from other sources of pollution and consequently has made them exempt from ordinary permitting requirements" (Ops. Cal. Atty. Gen. 92-519). The opinion goes on to clarify that "permits may not be required of indirect sources under either the general permitting authority (Government Code Section 42300) or the special permitting authority provision relating to the attainment of State ambient air quality standards (Government Code Sections 40910-40926). Further, the imposition of fees as a condition of permit approval is subject to the nexus requirements of Government Code Section 66000 et. seq. and the District has failed to show the "reasonable relationship" nexus as required.

RESPONSE: The author is mistaken about the nature of the ISR program and how the rule is designed to be implemented. The rule is consistent with the Attorney General opinion cited in that it does not require permits. Under the commenters theory, any fee is a de facto permit. Developers are subject to civil penalties if they fail to follow any District regulation. For example, failure to comply with Regulation VIII – Fugitive Dust Rules during construction or Rule 4901 – Residential Wood Combustion fireplace installation limitations may result in civil penalties. Similarly, failure to comply with the mitigation requirements of Rule 9510 may result in civil penalties, but cannot stop a development from being constructed. The District will not be implementing a permitting system for the operation or construction of projects. The ISR program will not be a permitting system, have discretionary actions, or have any land-use authority. The author states:

> The fee is determined via an application (Air Impact Assessment Application (AIA)) which is required to be approved by the District before a final discretionary permit is issued for the construction of the development project.

However, this is not the case. The application is required, but is not tied to the *issuance* of a discretionary permit. The purpose of the application is to provide information necessary to determine if a fee must be paid and the amount of the payment if one is required. The application must be submitted concurrent with the *application* to the local land use authority for a final discretionary permit. This timing is to allow the applicant to take credit for reducing project air impacts during the local agencies approval process. The District does not require completion *prior to* issuance of a permit by the local agency, nor does the District

have the authority to stop the project from being issued a final discretionary permit by the local agency.

The District's action is ministerial, and does not involve conditions of approval. All projects are subject to the same requirements, and must fulfill the requirements. The District does have the authority to enact penalties for non-compliance; however, this does not make the actions of the District discretionary or make the program a permitting program. Further, the fee is only enacted if a project is, "unable to incorporate on-site measures adequate to reduce indirect emissions to a specified level". The required emission reduction applies to all applicable projects equally, and must be satisfied. The project applicant has the *option* to reduce the fee through on-site measures. There is no discretion on the part of the District. The author's statements on applicability of laws regulating permitting actions do not apply to the ISR program, as it is not a permitting program.

The District continues to assert that Rule 9510 is not subject to Government Code Section 66000 et. Seq. Regarding the reasonable relationship requirement, the District has clearly made this demonstration. The air quality impacts of construction, area source and indirect source emissions from development projects and the methods used to quantify these impacts are clearly identified in the staff report and are undeniably contributing to the air basin's serious air quality problems. The emission reduction projects that will be utilized to mitigate a portion of these impacts are also clearly identified. Sufficient checks and balances are in place in the rule through an elected Governing Board and EPA oversight of this state implementation commitment to ensure that the mitigation funds will be used effectively on the impacts created by the development projects.

6. **COMMENT: The consistency analysis (Appendix G) fails to include analysis and findings relative to other State laws and regulations, including directly related provisions of the California Environmental Quality Act (CEQA).** The District already has existing procedures for permit review pursuant to CEQA, which are put forth in its "Guide for Assessing and Mitigating Air Quality Impacts". Proposed Rule 9510 should be subjected to a rule consistency analysis with this guide, as well as requirements for air quality analysis and mitigation pursuant to CEQA which is undertaken in the permitting process of local governments. The Department remains concerned about the duplication of assessment and potential duplication of mitigations pursuant to CEQA and the proposed Rule 9510. The District's decision to modify its CEQA handbook *after* the adoption of the proposed rules (G-2) is inconsistent with the requirement of Health and Safety Code 40727.

RESPONSE: The Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) identified by the author is a voluntary guidance document for use by lead agencies addressing air quality in CEQA documents and is in no way regulatory. Under CEQA, for most development projects the District is a commenting agency. As a commenting agency the District provides comments to the Lead Agency to the following aspects: the potential significance of air quality impacts of a project; applicable District Rules; potential mitigation measures; and if an analysis is provided to the District, the adequacy and accuracy of that analysis. Requesting comments from the District is voluntary by the Lead Agency, and comments and mitigation measures suggested by the District are non-binding. CEQA requires *disclosure* of environmental effects for discretionary actions by a public agency, and requires reasonable and feasible mitigation of effects that are determined to be significant. Nowhere within CEQA can the District require a reduction in emissions from a development project. Voluntary CEQA commenting is not parallel to an ISR program. Mitigation required by CEQA is not the same in intent, requirements, or in practice with the emission reduction requirements of the ISR program. ISR is not duplicative of any mitigation required by the lead agency since the rule provides for credit for all measures and features included in the project that reduce emissions when project emissions are calculated. The District disagrees that modifying the District's GAMAQI after adoption is inconsistent with the California Health and Safety Code (CH&SC) Section 40272 for all the reasons stated above.

CH&SC Section 40272(b)(4) states:

> **"Consistency" means that the regulation is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.**

CH&SC Section 40272(b)(5) states:

> "Nonduplication" means that a regulation **does not impose the same requirements** as an existing state or federal regulation unless a district finds that the requirements are necessary or proper to execute the powers and duties granted to, and imposed upon, a district.

CH&SC Section 40727.2(a) states:

> **…** the district shall identify all existing **federal air pollution control requirements,** including, but not limited to, emission control standards constituting best available control technology for new or modified equipment, **that apply to the same equipment or source type as the rule or regulation proposed for adoption or modification by the district…**
>
> ***And***
>
> **…**The analysis shall also identify **any of that district's existing or proposed rules and regulations that apply to the same equipment or source type, and all air pollution control requirements and guidelines that apply to the same**

equipment or source type and of which the district has been informed pursuant to subdivision (b)

CH&SC Section 40727.2(h) states:

Nothing in this section limits the existing authority of districts to determine the form, content, and stringency of their rules and regulations. In implementing this section, it is the intent of the Legislature that the districts retain their existing authority and flexibility to tailor their air pollution emission control requirements to local circumstances.

The District has performed the analysis required by CH&SC 40727 et. seq, in Appendix G: Rule Consistency Analysis. First, no person has identified any existing federal or state requirement or guideline that applies to the same type of source that the District is proposing to regulate per CH&SC Section 40272(b). Second, the District identified few District rules for consistency analysis, and no US EPA rules or guidelines that apply to development projects in terms of New Source Performance Standards, Control Technique Guidelines, Maximum Achievable Control Technology or National Emission Standards for Hazardous Pollutants.

The District has found that the proposed ISR program is consistent with existing District rules, and has determined that there is no conflict or duplication with existing state law and CEQA.

7. COMMENT: The direct and indirect costs imposed by the Rules on the residential development process will result in increased housing costs. The preparation of the AIA (which not only calls for a detailed Urban Emissions analysis (URBEMIS)), but also for ongoing monitoring of selected mitigation measures), is likely to result in increased costs. In some instances, despite the assessment of the socio-economic analysis, the mitigation fees could have a detrimental impact on the economic feasibility of developers of market-rate mixed-use and workforce housing. These types of developments are already financially burdened since they typically have a more difficult time obtaining financing and quickly bringing a project into the market place.

RESPONSE: The cost of the preparation of a typical AIA is included in the application-filing fee— $400 for residential projects and $600 for non-residential projects, regardless of number of units. Worst case for a 50 unit residential subdivision would be $80 per housing unit. The modeling required for an AIA will be done by the District if not provided by the applicant. Monitoring of mitigation measures selected will only occur for measures that are not already required by another public agency, and the costs will be born out of the administrative fees from the rule (assessed at 4% of the off-site fee amount). Therefore, there are no costs additional to those discussed in the Socioeconomic Analysis.

8. **COMMENT: By proposing to control emissions through fees that will be used to fund other projects, the District would be treating housing developments as direct sources when they are in fact indirect sources**. The CEQA initial study for the proposed rules describes the project's purpose as being to "reduce emissions of NOx and PM 10 from new development projects" (page 4). If the fees collected under the Rules are a mechanism to control emissions from new development projects, then the District is adopting a market-based incentive program and is subject to the Economic Incentive Program (EIP) requirements, as was asserted by the Environmental Protection Agency (EPA) in their comments. Market-based programs may only be used for direct sources. "An EIP is a regulatory program that achieves an air quality objective by providing market-based incentives or information to ***emission sources*** (emphasis in original). By providing information or flexibility in how sources meet an emission reduction target, an EIP empowers sources to find the means that are most suitable and most cost-effective for their particular circumstances. By setting a price on pollution and pollution reductions through a fee-based approach or a trading program, some sources can realize an economic reductions for less than the cost imposed by a fee (*Improving Air Quality with EIP, EPA-452/R-01-001, January 2001 at 23)*. The proposed Rules allow a developer to either use the on-site emissions controls or to pay a fee and thus "realize an economic gain or avoid additional costs by making the reductions for less than the cost imposed by a fee." The District has failed to show the proposed Rules are consistent with EPA's EIP guidance and is treating new developments as direct sources.

RESPONSE: The District disagrees that EIP guidance applies. Although there are similar elements in EIPs, Rule 9510 contains both voluntary elements (onsite mitigation) and mandatory elements (mitigation fees) that preclude the use of the EIP guidance in its entirety. Still, the rule meets the SIP submittal criteria that apply to all rules of being surplus, enforceable, quantifiable, and permanent for the time required in the SIP and meets the fundamental EIP principles of integrity, equity, and environmental benefit.

9. **COMMENT: It is impractical, and an excessive and unnecessary burden for applicants to be required to include justification of mitigation measures not selected, as is proposed by Section. 5.3.2.** The on-site checklist contains a number of emission reduction measures, which will often be inapplicable. As a result, Section 5.3.2 should be deleted. As proposed, the provision implies, for example, that all 18 of the on-site measures listed in Appendix C for residential projects (or 39 if the "on-site enhancing measures" also required justification) could be applicable for all projects. Measures which would not be routinely feasible or applicable, include but are not limited to:

- An on-site bike lane would not likely be warranted or feasible on the site of a 50-unit apartment building (R-7) nor would an apartment building involve the design of street patterns (R-10).

- "Reduce Wood Fireplaces and/or Woodstove above that required by District Rule 4901" would not be applicable to most new apartment buildings (R-14).

- All new subdivisions cannot be sited within half a mile of an existing transit stop, and it is beyond the ability of applicants to have a transit stop added within a half a mile of a new subdivision (R-2), independent of where the project is located.

RESPONSE: The District does not agree with the author's statement that it is impractical, excessive and/or an unnecessary burden to include justification. The purpose of the justification is to encourage developers to examine the potential measures more closely and not immediately reject a measure without considering its feasibility. Onsite measures have permanent air quality benefits and typically create value and provide other benefits to the development. Measures included as mitigation measures in the lead agencies CEQA document, as most are expected to be, will not require District long term monitoring. If a measure is impractical or not applicable to a project, the applicant needs only to state that in the justification. The District does not see how this is an undue burden. Finally, onsite measures are implemented voluntarily by the developer and are not required by Rule 9510.

10. **COMMENT:** As a result of these concerns, the Department respectfully requests that the District not adopt the Draft Rules as proposed and continue to work with all interested parties on needed revisions. Thank you for your consideration of these concerns. For further discussion or to set-up a meeting, please contact Linda Wheaton, Assistant Deputy Director, at (916) 327-2642.

RESPONSE: Comment Noted.

City of Porterville
Date: November 29, 2005

11. **COMMENT:** The City of Porterville appreciates and encourages the District's efforts to improve air quality in our Valley, however, the District staff report does not clearly define how the additional fees acquired through adoption of the DESIGN program would result in a quantifiable improvement to air quality in the San Joaquin Valley air basin beyond the measures already in place. Further, neither rule dictates a funding source to compensate local jurisdictions for the

additional efforts resulting from approval. Please provide clarification of these points in the final rules. Thank you for the opportunity to comment.

RESPONSE: First, Appendix B – Emission Reduction Analysis, Attachments 2 and 3 show the tonnage of offsite reductions that are estimated to occur as a result of the adoption of the ISR rules. By 2010, it is estimated that the ISR will achieve 5.4 tons per day (tpd) reduction of NOx, and 5.8 tpd reduction of PM10 from growth. The amount of off-site reductions (from the fees) are 4.7 tpd and 4 tpd of NOx and PM10, respectively. These estimates are based on the amount of reduction required by the rule, and assume an amount of that reduction is achieved on-site. The off-site fees will be used to achieve this reduction, as specified in Appendix E: Cost Effectiveness Analysis, which states how much in off-site fees is expected and how that money will be spent to achieve quantifiable reductions. Specifically, Appendix E: Cost Effectiveness Analysis, Attachment 1 (p. E-13 through E-33) details potential projects, the amount of reduction achievable, the cost of those reductions and a potential spending plan.

Second, the rule does not dictate a funding source to compensate local jurisdictions because there are no requirements placed on local jurisdictions. The local jurisdiction is not required to review, assess or otherwise act on ISR projects. The District is committed to including local jurisdictions in the process through informing them of projects and project-specific information received by the District, and District actions on those projects just as it does now when it provides comments on local agency CEQA referrals. However, neither the ISR rules nor the administrative process require 'additional efforts' from local agencies.

Visalia Unified School District
Date: October 25, 2005

On behalf of the Visalia Unified School District ("the School District"), I respectfully submit the following comments and questions to Draft Rules 9510 and 3180 of the San Joaquin Valley Air Pollution Control District ("the Valley Air District"). I am unclear about several items in the Valley Air District's proposed fee and plan to decrease emissions' impact from new development in the area. The School District's main concern is that the Draft Rules lack sufficient clarity to allow the School District to analyze what the potential impact of the new fees may be and whether the fees would actually be applicable to our projects. The School District is particularly concerned because any fees that must be paid as a result of the enactment of the Draft Rules will reduce the School District's financial ability to provide classrooms to students in these newly developed areas.

12. COMMENT: Applicability of Draft Rules to the School District

It is unclear whether the Draft Rules apply to the School District's construction of new schools. Section 2.1 of Draft Rule 9510 states that the rule applies "to any developer that seeks to gain a final discretionary approval for a development project… of … 9,0000 square feet of educational space." The Draft Rules define "developer" as any person or entity that undertakes a development project. Also, the definition of a "development project" includes any project that it "subject to a discretionary approval by a public agency" where the discretionary approval "requires the exercise of judgment or deliberation."

The school District takes the position that the Draft Rules do not apply to it because it does not operate as a "developer" and the School District school construction projects are not development projects since they are not "subject to the discretionary approval by a public agency." However, according to the Draft Rules, if a developer is constructing a school facility on behalf of the School District, then due to the definitions in the Draft Rules, the fee may be applicable.

RESPONSE: If the approval to site and construct a new school is not subject to a discretionary permit, then the author is correct that the ISR rules would not apply. Otherwise, schools have many options available in onsite measures that would substantial reduce any potential fee.

13. COMMENT: <u>Fee Calculation</u>

In addition to the question of the fee's applicability, the formula to be used in calculating the air impact mitigation fee is extremely confusing. A more straightforward formula from which the estimates of fees can be made would prove beneficial to those impacted by the Draft Rules. If these Draft Rules are intended to apply to the School District's development of new schools, a more concise formula would help us in the planning and estimating process.

RESPONSE: Although the fee formula is somewhat complex, it is the most accurate and equitable way to assess fees based on emissions to achieve the emission reduction committed to in the District's SIP. The District has found that using an excel file to calculate fees is easy and accurate. The District will make a calculator with the formula built in available to the public prior to implementation. Prior to that, the District is willing help applicants and agencies create an excel file that calculates emission reductions required and fees required.

14. COMMENT: <u>Requirement of Nexus</u>

The School District has reviewed comments to the Draft Rules submitted by other associations that are impacted by these rules. One major problem noted by many of the commentators related to the fact that the Draft Rules fail to comply with the nexus test required by AB 1600, enacted as Government Code

Sections 66000 et seq, and as required by case law such as in *Ehrlich v. City of Culver City* (1996) 12 Cal4th 854.

Similarly, we would like to express our concerns that the fees proposed do not appear to demonstrate a reasonable relationship to the cost of implementing the air pollution mitigation program. It appears to us that there is a huge disparity between the cost of implementing the mitigation program and the fees to be collected. Further, the Draft Rules and supporting analyses are largely silent on the actual mitigation measures to be funded that will reduce emissions' impact resulting from a given project. It would be helpful if the Valley Air District provided details of the actual measures and projects that will be undertaken to reduce emissions' impact as well as the benefits accruing to the public as a result of these measures.

RESPONSE: Please refer to the September 1, 2005 Response to Comment #125 about the analysis of nexus applicability that the District performed. The District disagrees that there is a disparity between the fees to be collected, estimated as up to $103 million between 2006 and 2008, and the cost of achieving off-site reductions. In Appendix E: Cost Effectiveness Analysis, Attachment 1 (p. E-13 through E-33) details potential projects, the amount of reduction achievable, the cost of those reductions and a potential spending plan.

15. COMMENT: Notice to Those Impacted by Draft Rules

Although the School District is within the San Joaquin Valley Air Basin and is subject to the jurisdiction of the Valley Air District, we feel we were not provided with adequate notice of the Draft Rules. If the Draft Rules are held to apply to the School District, the fees imposed will greatly impact our ability to plan for the development of new classrooms and educational facilities. Therefore, in the future, we request written notice of proposed rules and regulations that are intended to apply to the School District.

RESPONSE: The District regrets that the School District did not receive notice of the proposed rules; however, this rule was noticed in accordance with all legal requirements. The District will add the School District to the ISR mailing list. In addition, the District suggests that the School District visit the District website at http://www.valleyair.org/lists/list.htm. The School District can receive District news, workshop notices, and other important information for this or other plans via e-mail by subscribing to one of the District's e-mail notification lists. The e-mail notification lists are setup and maintained by the end user and not by District staff. Individuals may add or delete their names from these lists at anytime.

California League of Food Processors (CLFP)
Date: November 22, 2005

16. **COMMENT:** First, CLFP supports the amendments proposed by the District that would exempt canning and food processing from Rule 9510. Most of the primary activities performed by food processors are already regulated by the District and are subject to Rule 2201 (New and Modified Stationary Source Review Rule) and Rule 2010 (Permit Rule), so the proposed exemption will avoid redundant or confusing new regulations.

RESPONSE: Comment Noted

17. **COMMENT:** Second, CLFP and other organizations have expressed concern to the District regarding the cumulative cost of complying with the various new air pollution control requirements imposed on manufacturers in recent years. The food processing industry is one of the major sources of employment in the San Joaquin Valley and the firms operate in a very competitive economic environment. The financial resources available for complying with new regulations are very limited. CLFP appreciates that the District has responded to industry concerns by recognizing the cumulative impact of air regulations and the major investments made in stationary source emission controls.

RESPONSE: Comment Noted

California Building Industry Association
Date: November 29, 2005

On behalf of the California Building Industry Association (CBIA) and its Affiliate Associations located in the San Joaquin Valley, I am entering into the formal record comments on the proposed Draft Rules 9510 and 3180 (the "ISR"). CBIA member companies provide housing that is the cornerstone of quality of life in the San Joaquin Valley.

18. **COMMENT:** The Federal Clean Air Act, 42 U.S.C. Section 7410 (a)(2)(F), requires that approvable control measures provide quantifiable, surplus, enforceable, permanent, and adequately supported reductions in air emissions. The proposed Draft ISR does not provide sufficient analysis or findings to establish that the proposed Indirect Source Mitigation Program meets these criteria. Indeed, the document barely addresses these fundamental topics. Because these criteria have not been met, the Indirect Source Mitigation Program does not meet the Federal Clean Air Act test for full approval and inclusion in the State Implementation Plan ("SIP").

Indirect Source programs, on the scale proposed by the San Joaquin Valley Air District, have not been adopted or implemented successfully anywhere in the United States. We note that USEPA has never approved a proposed indirect source rule for emission reduction credit.

RESPONSE: The District has complied with the cited Clean Air Act section. EPA has recognized that areas with a long history of air regulation must pursue new and innovative ways to reach emission reduction requirements since the stationary sources in many cases are already in their second or third retrofit requirement with rapidly diminishing air quality returns. This had led EPA to produce guidance on voluntary and emerging measures and for taking SIP credit for mobile source incentive programs. Although Rule 9510 is unique, it still meets all control measure approvability criteria. See also the District's response to EPA's comment letter on the September 1, 2005 draft.

19. COMMENT: The expected emissions benefits are not properly quantified. The URBEMIS model-based approach proposed to calculate project travel and emission impacts is inconsistent with the SIP inventory methodology. The SIP emissions inventory used the California Air Resources Board's EMFAC-2002 model to establish the NOX and PM10 emission reductions targeted by the ISR rules. One of the key components of EMFAC is a regional travel demand model ("TDM"). The TDM is used to calculate regional travel impacts such as vehicle miles traveled ("VMTs") and trips within the SIP inventory. The SIP calculations that identify further emission reductions needed for the San Joaquin Valley to attain federal ambient air quality standards are, in turn, based on vehicle travel activity forecasts from TDMs.

New project impacts determined under the ISR rules should be calculated in a manner consistent with the SIP targets to ensure no over- or under-compliance. There is an inconsistency between the way URBEMIS and TDMs calculate new or net added vehicle miles traveled (VMT) and vehicle trips. The fundamental difference between TDMs and URBEMIS is that TDMs robustly account for the interaction effects between multiple land uses, while URBEMIS does not.

Interaction effects refer to the fact that when considered together, each individual land use (or project) "competes" with others for vehicle trips. Where these land uses are located within a metropolitan area or county and how well the regional roadway network provides access to each land use affects the number of trips taken and their length (and thus VMT). For example, locating a new shopping center near an existing residential area would likely shorten the length of existing shopping trips taken from the residential area (and thus reduce VMT). It may also increase the number of shopping trips from the residential area due to its proximity compared to the location of existing shopping centers.

The Draft ISR relies primarily on URBEMIS to calculate project level impacts, even though the District's own modeling consultant has stated that this model was designed to be a "sketch planning" tool, and was never intended to provide a detailed numerical analysis of project level air quality impacts. If the travel activity (VMT and trips) of all the URBEMIS-based individual ISR project analyses were added together, they would overstate the net travel impacts determined when jointly simulating the same new projects using a TDM. This conclusion is based on a side-by-side comparison of impacts of a hypothetical but typical new residential project performed by Sierra/Dowling using URBEMIS and the Fresno County TDM. Correcting the existing biases in the URBEMIS default assumptions does not change this result because URBEMIS treats each new project and its interaction with existing land uses and other new projects separately.

The District has attempted to account for this fundamental difference between TDMs and URBEMIS by applying a 50% discount factor in the NOx and PM10 fee formulas to require mitigation of only half or one direction of two way trips between a new project and existing land uses. While in concept this approach could eliminate the double counting problem, simply slicing URBEMIS impacts in half does not demonstrate SIP consistency.

On top of this fundamental discrepancy with the SIP methodology, URBEMIS overstates residential project emissions by over 70% as a result of multiple technical shortcomings. On this basis alone, URBEMIS cannot be considered a reliable and accurate gauge of project emissions. URBEMIS' technical problems as an emission estimation tool are documented in detail in Sierra Research's comment letter of July 22, 2005.

RESPONSE: The author states that the "emission reduction benefits are not properly quantified". The District assumes the author is discussing the emission reduction benefits from implementation of the rule, which were properly quantified in Appendix B: Emission Reduction Analysis, using the known growth data (provided to the state by the COGs), and applying a standard rule penetration, estimated on-site emission reduction achievement, and applying the emission reduction requirements to the growth emissions. This analysis is considered 'top-down' and is standard practice. The analysis did not rely on URBEMIS, a project-level model or 'bottom-up' analysis, for valley-wide emissions estimates from valley-wide growth.

The District has repeatedly addressed the "70%" overestimation cited by the author as a distortion of fact. The District has stated that project-specific data is acceptable when available and has committed to addressing the few issues that have been raised concerning URBEMIS default values, and will provide guidance on those items prior to ISR implementation.

The District could not find any reference in the Clean Air Act or in EPA guidance that prescribes implementation to use the same methodology as the SIP. Indeed, the District did not find any reference prescribing a model or methodology to assess mobile and area emissions from development projects. The author's assertion that the methodology itself must be the same for the SIP and implementation is not based on any statute, guidance, or on historical methods of rule implementation. What is important is that the rule achieves the amount of reduction committed to in the SIP, and that the model produce consistent and repeatable results and be based on widely accepted inputs and methods, all of which apply to URBEMIS.

The author mischaracterizes the fee formula's use of a 50 percent baseline as a discount factor used to correct a deficiency in URBEMIS. URBEMIS correctly uses ITE trip generation rates to show the impact of all trips associated with a development project including those generated and those attracted to the site. The purpose of the 50% of the baseline in the fee formula is to meet the nexus requirements and to meet the intent of Health and Safety Code 40717.5(a)(1) for Districts to… "make reasonable and feasible efforts to assign responsibility for existing and new vehicle trips in a manner that equitably distributes responsibility among indirect sources." By basing the fee on half the emissions, the District is ensuring that only trips from the project site are assigned responsibility. Furthermore, URBEMIS has the capability to account for reductions for passby trips where someone stops on their way to their primary destination and diverted linked trips where the trip length is shortened to account for trips that although not directly on the route to the primary destination, still result in a shorter trip length than would occur if someone went there directly. Finally, URBEMIS can accept project specific trip generation information based on market studies and local traffic studies when a proposed project may produce different results than would be expected using default trip information. We believe this a reasonable and feasible effort to meet the Health and Safety Code requirements.

The District believes the best model should be used based on the needs and parameters of the project. For SIP inventory purposes, regional TDMs are the most appropriate model for estimating emissions. However, as admitted by Sierra Research (letter November 29, 2005, Comment #29 below), TDMs are regional models that are inappropriate for project-level analysis and TDMs contain their own flaws. These flaws are ignored in the author's 'URBEMIS vs. TDM' discussion. For instance, TDMs do not account for some trips on arterial and collector streets. TDMs require a large amount of data input, are not easily used, were not developed to estimate land-use impacts, and are not available to the public. Simply, TDMs are too broad of tools to accurately estimate the emissions from individual projects. A side-by-side comparison of a project-level analysis using URBEMIS and a TDM would be misleading, as a regional TDM was never meant to be, nor should be, used to estimate and individual project's emissions.

URBEMIS uses emissions factors derived from EMFAC2002, the same model used in the SIP. Several issues raised with URBEMIS (silt loading, fleet mix) will be remedied prior to implementation. URBEMIS is maintained by a statewide working group of technical experts and air districts. URBEMIS is used in CEQA analysis across the state, and is commonly used for Environmental Impact Reports (EIRs) to assess project-specific air quality impacts. URBEMIS has been used by the District and applicants in assessing air emissions for Mitigation Agreements, as well as other agencies to assess air impacts for mitigation settlements. The District has more than adequately shown URBEMIS to be the best model for the job.

The 'fundamental flaw' raised by the author simply does not exist. It has been well demonstrated that URBEMIS is the best program for ISR's needs, and it is widely recognized across the state by other air districts, local land use agencies, and other agencies as an appropriate tool for assessing specific project-level air impacts. It is the District's assessment that the author compares TDMs to URBEMIS in raising 'SIP methodology consistency' as a 'fundamental flaw' to discredit URBEMIS; and, since TDM's are inappropriate for project-level analysis, leave the District with no available model to use.

20. COMMENT: There is no discussion of whether the emissions are surplus. New development is already controlled by existing and proposed District rules, some of which overlap the ISR proposal. Dozens of cities and counties with the San Joaquin Air Basin have adopted ordnances creating local traffic mitigation and congestion relief programs, funded by fees on new development and, in the case of several counties, increased sales taxes. In addition, large scale developments, such as planned communities, are increasingly entering into air quality mitigation agreements within the context of the environmental review process mandated by the California Environmental Quality Act ("CEQA"). All of these measures address the same concerns as the Draft ISR, improved traffic flow and reduction of tail pipe emissions.

The failure of the Draft ISR and the supporting documentation to discuss or quantify the emissions reductions attributable to these other programs undercut the ability of the measure to provide surplus and quantifiable emission reductions as required by statute.

RESPONSE: The emissions growth estimates used to develop the rule are from the District's emission inventory that includes the benefit of all adopted local, state, and federal regulations and so are surplus to adopted control programs and regulations. Local regulations that have been adopted as transportation control measures currently have no emission reductions claimed in the District's SIP. Congestion relief measures and other transportation impact fees are

required just to keep emissions from exceeding emission budgets and do not provide additional SIP creditable reductions. Local programs and ordinances that do provide a surplus benefit will now be able to provide credit to their communities through the onsite mitigation component of the rule and will reduce the fees paid by developments contributing to those programs. In addition, reductions obtained through CEQA measures and Development Mitigation Agreements will be credited toward the emission reduction requirements of the rule.

There are no existing or proposed District rules that overlap the proposed ISR program. Appendix G: Rule Consistency Analysis describes other District rules and analyzes potential for inconsistency—none were found.

21. COMMENT: The proposed Indirect Source Mitigation Program does not contain an enforceable commitment. The permitting process in the Draft ISR operates independently of any other relevant regulatory process. Numerous parties have commented that the air quality impacts attributable to new development are also subject to CEQA. Early attempts by the Air District to reconcile or streamline the ISR with the normal environmental review process have been abandoned for the time being, replaced with a statement that the Air District will revise its existing Air Quality CEQA Guidelines at some future date to minimize conflicts between the two processes. By separating the Air District permit process from CEQA, the Air District has removed any responsibility for enforcement from local agencies with the land use authority necessary to enforce on-site mitigation measures.

RESPONSE: First, the ISR program is not a permitting program. Second, the ISR program is enforceable, the same as all other District Rules, and does not need to rely on 'other relevant regulatory process' and does not conflict with other regulatory processes. This enforcement authority comes from state law. In fact, most of the District's rules "operate independently of any other relevant regulatory process" as they are stand-alone rules not dependant on other regulations. Please see District Rule 1040 (Enforcement).

The District does not need to revise the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) in order to make the rule enforceable. The District will be revising the GAMAQI in order to clarify for those undergoing the CEQA process how ISR will affect their projects. This is no different than how the GAMAQI currently addresses other applicable rules. For instance, Regulation VIII (Fugitive PM10 Prohibitions) is discussed in the text of the GAMAQI. However, the GAMAQI discussion does *create* the enforcement of Regulation VIII, but acts to inform lead agencies, consultants, project applicants, and the public.

22. **COMMENT:** In addition, no legal nexus between the proposed mitigation program and the fees imposed on individual development projects has been established. The cost and ultimate success of the mitigation measures are speculative. The Air District's proposed mitigation program, based upon after-the-fact grant applications and the funding of primarily off-site mitigation, has not worked well in other situations, such as the South Coast Air Quality Management District's Mobile Source Reduction Commitment program. Until nexus can be demonstrated, no enforceable commitment is possible. The language of SB 709 did not repeal the independent, Constitutionally-based requirement that that "rough proportionality" between the impact created and the cost of its mitigation be established. This comment has been made several times, both in writing and testimony, and the Air District has never fully responded to this issue.

The Air District cites the USEPA approved PM10 and Ozone Attainment Plans along with SB 709 as authority that it must impose ISR. In doing so, the District is arguing backward from a conclusion, sidestepping the fundamental issue of whether an enforceable commitment exists. Such backstops are not a substitute for establishing whether an enforceable commitment exists for purposes of the Federal Clean Air Act.

RESPONSE: Although the District believes it has adequately responded to each comment regarding nexus 'rough proportionality', here is a synopsis of how the District makes this demonstration:

> The District developed an estimate of growth in mobile source emissions from new development by using the SIP emission inventory growth-only projections. This allows us to estimate the amount future emissions will increase only accounting for growth. This information was used as the basis for the ISR control measure in the 2003 PM10 Plan. Construction and area source emissions are entirely the responsibility of the development project. The emissions attributable to growth were then reduced to account for projects that will be exempt from the rule. The mitigation requirements were then applied to the emissions subject to the rule to determine the potential emission reductions. The emission reductions are cumulative since each year additional mitigation is accomplished and the benefits from prior years continue to provide a benefit. This information is provided in Appendix B of the staff report.
>
> Once the overall emission reduction target for the ISR control measure was identified, the next step was to determine the method to calculate the fair share of the emissions attributable to individual projects. As has been thoroughly discussed elsewhere, it is not appropriate to use the SIP inventory method to calculate emissions from individual projects. URBEMIS was identified as the best tool for conducting project level estimates. See Appendix D of the staff report.

With the emission estimation tool selected, the District then used URBEMIS to estimate emissions from a variety of different land use projects using basic default inputs. The basic factors used to estimate project mobile emissions are the number of vehicle trips, the length of the trips, and the average vehicle fleet emission rates. Based on comments received on early drafts, the District replaced default values for PM10 silt loading values, and activated the commercial passby trips component. The purpose of this analysis was to estimate the potential emissions and fees from an individual development. The results were then used in socioeconomic impact analysis to determine the potential impacts of worst-case fee amounts.

The next step in determining rough proportionality is to verify that the individual project impact is roughly proportional to the mitigation achieved with the fees that are collected. This is accomplished by using an emission based fee formula to determine the amount of funds collected and a fixed cost of reductions for the emission reductions to be purchased by the District. The cost of reductions was developed for future years based on recent cost-effectiveness history with District grant programs, a determination that the reductions will be continue to surplus to any adopted regulations, the emission inventory for the sources, and the technical and economic feasibility of the projects. This analysis is adequate to confirm that the District will be able to maintain rough proportionality between the emissions generated and the emissions reduced through the fees.

The District has several options for corrective actions should the average cost of reductions achieved by the ISR Program be significantly higher or lower than predicted. Since staff will be continuously monitoring the projects funded, we will be able to identify early if costs are on target. If costs of reductions are coming in high, the first option would be to focus the project mix on more cost-effective projects until the average approaches the target amount. If insufficient low cost off-site projects are available, the cost of reductions could be increased by amending the rule. If costs of reductions are coming in low and it appears that the lower-than-expected cost-effectiveness can be sustained, the fee amount may be lowered. The District may also modify the incentive amounts offered to attract preferred, highly cost-effective projects where potential applicants may be reluctant to participate when the incentive amount offered may be inadequate to cover costs of implementing the project. Modified incentive amounts could also be used if the District has difficulty attracting sufficient projects.

The comparison to mobile source emission reduction credit programs is not valid. The reason those programs have not been highly successful is because stationary sources needing ERCs have been able to obtain those reductions at lower costs using traditional banked ERCs than could be achieved by mobile source reductions. Grant programs throughout the state have been extremely successful in obtaining emission reductions from a wide variety of sources. Since ISR reductions can be obtained from any source of surplus, quantifiable, and enforceable reductions, it can be expected to do even better than the existing grant programs in attracting projects.

23. COMMENT: There is no finding that the benefits of the proposed measures will be permanent.

The Draft ISR assumes that the measures will be in effect for ten years. Because of the passive nature of many of the on-site mitigation measures, there is no guarantee that purchasers of newly developed property will leave those mitigation measures in place. Likewise, there is no documentation that the emission reductions associated with the proposed control measures will persist throughout the life of the SIP. As discussed previously, the benefits are speculative, have not been quantified and documented, and as a result the longevity of the benefits are equally speculative.

RESPONSE: The ISR program differentiates between onsite and off-site measures when demonstrating the permanence of the reductions for SIP purposes. The onsite measures are most closely related to measures covered by EPA's Voluntary and Emerging Measures Policy. This policy recognizes that land use measures are highly desirable, but more difficult to quantify than traditional measures. Once the project is constructed with the onsite features in place, the benefits continue indefinitely into the future. Measures like density, mix of uses, and pedestrian infrastructure are not likely to be eliminated after development. All on-site measures that are not required by the lead agency will be enforced by the District to ensure that the emission reduction benefits will occur for the full duration of ten years. Offsite projects funded with mitigation fees only take credit for SIP reductions during the life of the project. This is accounted for in the emission reduction spreadsheet in Appendix B. Offsite projects meet EPA SIP criteria for permanence. Applicants are under contract to utilize the cleaner equipment through the term of the contract. When the new equipment, device, or paved road reaches the end of its useful life, the new purchase must comply with regulations in place at that time and will use cleaner technology in many cases.

As the District has repeatedly demonstrated, the benefits are not speculative, have been quantified and documented. Please refer to the *entire* Staff Report, Appendix B: Emission Reduction Analysis, Appendix D: Recommended Changes to URBEMIS, and Appendix E: Cost Effectiveness Analysis.

24. COMMENT: The proposed Indirect Source Mitigation Program is not adequately supported. The Air District's socio-economic analysis focused on the narrowest viewpoint available, the impact on residential builders, and did not even attempt to analyze the larger impacts on other business sectors, employment, public services, etc. The proposed rulemaking provides no information on the commitments from other agencies that are necessary to implement the various measures. Finally, there is no indication that the proposed requirements have been integrated into local development plans.

RESPONSE: First, there are no "commitments from other agencies that are necessary" to implement ISR. Therefore, the District did not include "commitments from other agencies" as there are none.

The author mistakenly states that the socioeconomic analysis, "focused on the narrowest viewpoint available." The author is posing that the District did not thoroughly or adequately address the socioeconomic impacts of the ISR program, which is untrue. The socioeconomic analysis included analysis on the impacts to homebuilders, homebuyers, renters, low-income housing and housing affordability. In addition it analyzed the impacts to commercial, office and industrial builders, buyers and renters, and small businesses. The mitigation fees are spent on projects in the San Joaquin Valley that provide benefits to the Valley's economy as described in the revised socioeconomic impacts report.

ISR has been designed to work synergistically with the local development approval process. Developers may use mitigation measures and local requirements of the local development process to reduce their Rule 9510 fees, but are not required to do so. The proposed requirements of ISR, a prescribed amount of emission reduction for particular development projects, do not need to be integrated into local development plans, but may be used to demonstrate that air quality impacts of the project have been reduced. Developers wanting to use Rule 9510 as support for their air quality impact study for the local development approval process can time their application to the District such that it will fit seamlessly with the normal CEQA timelines. For the 'mitigation program', there are no up-front requirements for all projects. Applicants that voluntarily commit to certain measures that are not already requirements by other agencies must enter into an agreement with the District that details the schedule of monitoring and reporting for the District to enforce implementation of those measures. The 'mitigation program' requirements are to implement those measures the applicant has voluntarily committed to. The only possible conflict with local development plans is if a measure is not allowed by the local agency: in that instance, the District would remove that measure from the ISR project, and reassess emissions. Thereby avoiding conflicts with the local agency.

25. COMMENT: In summary, for the reasons stated above, the Draft ISR continues to be fundamentally flawed, and is unlikely to satisfy the requirements of the Federal Clean Air Act. As a result, the Air District will have a difficult time convincing USEPA that the ISR control measure will contribute to the emission reduction goals set forth in the SIP and the District should look to other measures to obtain PM10 and NOx reductions.

RESPONSE: As stated in Response to Comment #18, the EPA is supportive of the rule, and has not raised the 'flaws' that the author claims are present. The emission reduction goals in the SIP will primarily be achieved through grant and incentive programs that have been in operation for over a decade and that meet all SIP submittal criteria. Credit for new grant and incentive programs will follow the same SIP criteria and will comply with the same standards for quantification and verification as the existing programs. Each new program will go through a public review process and be approved by the District's Governing Board. The voluntary onsite measures will only be credited to the extent that they meet the criteria of EPA's Voluntary and Emerging Measures Policy.

Sierra Research – On Behalf of CBIA

Date: November 29, 2005

On behalf of the California Building Industry Association (CBIA), Sierra Research (Sierra) is pleased to submit the following comments on the revised draft Indirect Source Rules (ISR) 9510 and 3180 released by the San Joaquin Valley Unified Air Pollution Control District (District) earlier in November.

Our comments in this letter rebut District responses to earlier comments submitted by Sierra in September. As directed by CBIA, our comments focus on technical and modeling issues related to the use of the URBEMIS model under the proposed rules based on our independent review of the model and its underlying assumptions. In this review we were assisted by Dowling Associates, Inc. (Dowling), a transportation planning firm with extensive travel demand modeling experience supporting a number of the San Joaquin Valley Transportation Planning Agencies (TPAs).

Our rebuttal covers the following two issues:

1. URBEMIS modeling assumptions substantially overestimate residential project emissions. A combination of unresolved technical problems result in overstating both residential PM10 and NOx project emissions, and therefore ISR fees, by over 70%.

2. Rule 9510 consistency with SIP emissions inventory has not been demonstrated. The SIP travel model projects a different amount of travel (and therefore emissions and fees) from each project than URBEMIS calculates. Our Fresno County test case shows that URBEMIS produces higher project emissions than does the SIP methodology.

A detailed discussion of each of these unresolved issues is provided in Attachment A.

26. COMMENT: Summary

The following table summarizes each of the technical modeling issues identified by Sierra/Dowling during the ISR rulemaking process, their impacts, and the District's response to each issue.

Status of District Responses to Sierra/Dowling ISR Comments		
Issue	Emissions Bias	District Response
Residential Fleet Mix	NOx high by **20%**	Will fix, revised fleet mix to be determined
Silt Loading Factors	PM_{10} high by **50%**	Will fix
Average Vehicle Trip Lengths	NOx and PM_{10} high by **20-30%**	Will fix, unsure of approach
Residential Fleet Age Distribution	Exhaust NOx and PM_{10} high by over **20%**	Not convinced data provided warrant a revision
SIP Consistency	NOx and PM_{10} likely **high by unknown amount**	Handled by 50% fee discount?

Although the District has indicated a willingness to address some of the modeling issues we have identified, we believe the responses to our earlier comments on URBEMIS model issues are incomplete (in that corrections will not be made until after ISR adoption) or mildly dismissive (e.g., not willing to consider how revised residential age distribution impacts will be addressed). Some of the unresolved issues are fundamental and still need to be addressed before these rules can go forward

Furthermore, the District has not proven that the URBEMIS-based ISR approach will result in emission reductions that match SIP targets. From a policy standpoint, we believe this burden-of-proof lies with the District and that SIP consistency cannot simply be asserted.

These technical problems result in major discrepancies in estimating emissions and corresponding fees under Rule 9510. Thus, we respectfully recommend that the District delay its scheduled December 15 hearing on ISR adoption until these issues are fully resolved.

If you have any questions about the information presented above or in Attachment A, please feel free to contact Bob Dulla or me at (916) 444-6666.

RESPONSE: The District has determined that all items that the author raises have been adequately addressed. See the following Comments and Response to Comments #27 through #29.

ATTACHMENT A
UNRESOLVED RULE 9510 TECHNICAL ISSUES
THAT RESULT IN OVERSTATED EMISSIONS

27. COMMENT: URBEMIS Modeling Assumptions Substantially Overestimate Residential Project Emissions - In responses to our comments, the District acknowledged that many of the default modeling assumptions in the URBEMIS model do not accurately represent conditions in the San Joaquin Valley when applied to residential projects. These incorrect model defaults identified by Sierra and Dowling substantially overestimate residential project emissions by a minimum of 70% for both pollutants targeted under the ISR rules, oxides of nitrogen (NOx) and "fine" particulate matter (PM10).

The District's response to these URBEMIS model default issues is incomplete. In acknowledging these problems, the District responds only that these faulty model assumptions will be corrected in a future version of URBEMIS that will be released (presumably without opportunity for public review) after the ISR rules are adopted.

Although the District has indicated that a small part of these model corrections will be made prior to rule implementation, no timetable has been provided for revising URBEMIS, nor has it been made clear that these revisions will be publicly reviewed. The District has been aware of these modeling issues since July, yet no further action has been taken. The District's approach does not guarantee the release of a revised and fully reviewed model before implementation.

RESPONSE: The District does not "acknowledge that ***many*** (emphasis added) of the defaults… do not accurately represent conditions in the San Joaquin Valley". The District does acknowledge that a there are a few items that need refinement, specifically the on-road silt loading factor (easily adjusted by a known amount) and the fleet mix (less easily adjusted). The District had already hired a consultant to analyze and recommend a revised fleet mix, and results are expected prior to rule implementation. The author's assertion that "no further action has been taken" is misinformed and false. In addition to researching the fleet mix, the District is participating in the URBEMIS statewide working group (see paragraph below for more information). The model defaults ***do not*** overestimate residential project emissions "by a minimum of 70% for both pollutants". This claim is false, and the District has repeatedly addressed this claim.

The author is incorrect in his assertion that the District will make changes to URBEMIS "without opportunity for public review" and therefore without any review or safeguards. Changes to URBEMIS are made through a statewide working group that includes other air districts, model experts, technical experts and other public agencies such as CalTrans. As consultants such as Sierra Research use URBEMIS, they often find areas for improvement and correction. Any proposed changes impacting the statewide use of the model must be vetted through this group. The District cannot, nor does it propose to, make 'closed door', questionable changes to the URBEMIS model. If an applicant or a consultant can find better input data or another model that more accurately characterizes the emissions from their project, the District will consider them. If they apply broadly, the District is committed to make those changes available to all users. Sierra should recognize that all modeling is based on incremental improvement. The District will use the best information currently available and commits to continuous improvement in its emission estimating techniques and models.

The author states that a "small part" of issues will be addressed. The District finds only three items raised that are legitimate and only two that are substantial, one of which (silt loading) has been resolved, and the other (fleet mix) is currently being researched. As for a "guaranteed release" of a revised program prior to implementation, these *two* issues can be addressed through guidance. A revised program is not necessary to account for the refined default changes. As stated above, the District is participating in the URBEMIS statewide working group, which is currently expecting to release a revised program in more than one year. The District is committed to making URBEMIS as accurate as possible, and is working towards that goal. Any change that can be made through District guidance will be implemented quickly.

In addition, the silt loading factor issue was raised by Sierra Research, which proposed a new factor, and the District agreed that the proposed factor was more accurate. This revised factor has been publicly discussed, and has been included in ISR documentation.

28. COMMENT: In addition, the District did not act on the evidence presented by Sierra/Dowling based on U.S. Census and Caltrans Travel Survey data—that new residential developments exhibit newer vehicle fleet age distributions (and therefore have lower average emissions). The District's response indicates a need for further survey data to warrant revising the URBEMIS default vehicle age distribution when applied to new residential projects.

Would data from a third-party survey that gathered information on vehicles per household and age from a random sample of "new" residential households in the

San Joaquin Valley be sufficient to warrant a revision if it showed a similar shift toward newer vehicles in the existing Sierra/Dowling analysis? And if so, how will this be accomplished? The District suggests the possibility of an age correction factor to address the fact that the EMFAC model emission factors used by URBEMIS cannot easily be modified to account for a revised age distribution. Who would develop this age correction factor and how would it be developed?

RESPONSE: The District did not act on the survey data because we are not yet convinced that it is more accurate than the information currently used in URBEMIS, which is an age distribution from EMFAC2002 (See September 1, 2005 Response to Comments #121 through #153). As pointed out in your previous comment letter, providing a project-specific fleet-mix age for each land use type would not be easy and would not be possible to automate in the current models used to quantify project emissions. We are not sure if the survey data described is adequate for this purpose. Since Sierra previously stated that it wants any changes vetted through a public process, the District will first pass this information to the URBEMIS Working Group for assessment. If consensus is reached that a major overhaul to URBEMIS is needed to account for fleet age differences, then the District will work to raise the necessary resources to develop the model. The new model would need to be submitted to EPA for approval. The fleet age distribution currently in use is adequate for the ISR program until such a time as a model capable of using this information becomes available.

29. COMMENT: Rule 9510 Consistency with SIP Emissions Inventory Has Not Been Demonstrated We continue to disagree with the District's assertion that the URBEMIS model-based approach proposed to calculate project travel and emission impacts is consistent with the Statewide Implementation Plan (SIP) inventory methodology. This SIP emissions inventory and its underlying methodology were used to establish the NOx and PM10 emission reductions targeted by the ISR rules. Thus, it is critically important to ensure that new project impacts determined under the ISR rules are calculated in a manner consistent with the SIP targets to ensure no over- or under-compliance.

Our disagreement centers on the inconsistency between URBEMIS and regional travel demand models (TDMs) in calculating new or net added vehicle miles traveled (VMT) and vehicle trips. The TDM models are used to calculate regional travel impacts (i.e., VMT and trips) within the SIP inventory. The fundamental difference between TDMs and URBEMIS is that TDMs robustly account for the interaction effects[1] between multiple land uses; URBEMIS does not.

1 Interaction effects refer to the fact that when considered together, each individual land use (or project) "competes" with others for vehicle trips. Where these land uses are located within a metropolitan area or county and how well the regional roadway network provides access to each land use affects the number of trips taken and their length (and thus VMT). For example, locating a new shopping center near an existing

If travel activity (VMT and trips) were totaled across all the URBEMIS-based individual ISR project applications, we believe they would overstate the net travel impacts determined when jointly simulating the same new projects using a TDM. This conclusion is based on a side-by-side comparison of impacts of a hypothetical but typical new residential project performed by Sierra/Dowling using URBEMIS and the Fresno County TDM. Further, we believe this conclusion remains valid even after correcting existing bias in URBEMIS default assumptions. This is because URBEMIS treats each new project and its interaction with existing land uses and other new projects separately.

We understand and agree with the District that it is not practical to make developers run TDM simulations under each ISR application, and readily acknowledge that TDMs are not without flaws of their own. However, calculations performed within the SIP that identify further emission reductions needed for the San Joaquin Valley to attain federal ambient air quality standards (a portion of which are targeted by the ISR rules) are based on vehicle travel activity forecasts from TDMs.

The District suggests that this fundamental difference between TDMs and URBEMIS is accounted for by applying a 50% discount factor in the NOx and PM10 fee formulas to require mitigation of only half or one direction of two-way trips between a new project and existing land uses. We understand the concept in principle, but strongly believe that by simply slicing URBEMIS impacts in half, SIP consistency has not been demonstrated. We believe the acid test of SIP consistency consists of an analysis that compares summed URBEMIS vs. TDM simulated travel impacts for a package of specific projects that have been developed in recent years. We are not aware that this type of URBEMIS analysis has ever been done and is likely one of the key reasons why ISR rules have never been successfully adopted and implemented on this scale.

RESPONSE: Please see Response to Comment #19 above. The District agrees that the model used for the ISR program should be carefully chosen as to not over- or under-comply with the SIP reduction targets. However, the District maintains that the methodology for implementation does not need to be identical to the SIP methodology to achieve this. The author states that for the Valley, if URBEMIS is compared side by side to a TDM, URBEMIS over-estimates net travel impacts. However, a regional TDM was never meant to be, nor should it be, used to estimate emissions from an individual project. To take a project-level model and try to compare it 'side-by-side' to a regional model is inappropriate and misleading.

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residential area would likely shorten the length of existing shopping trips taken from the residential area (and thus reduce VMT). It may also increase the number of shopping trips from the residential area due to its proximity compared to the location of existing shopping centers.

Stop the Air Board Tax *We'll All Pay!*
Date: November 16, 2005
Signed by
City of Clovis – Mayor Nathan Magsig
San Joaquin Busniess Council – President Ron Addington
Visalia Chamber of Commerce – President and CEO Mike Cully
Kern County Taxpayers Association – Executive Director Michael Turnipseed
Greater Merced Chamber of Commerce – CEO Will Lee

30. COMMENT: A broad-based coalition of local chambers of commerce, local government officials, homebuilders, taxpayer organizations, agricultural groups, ethnic and community groups are formally opposing Rules 9510 and 3180 proposed by the San Joaquin Valley Air Pollution Control District (the District). These Rules will collect hundreds of million of dollars by imposing fees on every new home, small and large business, public facilities and other new construction projects within the Central Valley, with questionable air quality benefit.

Indeed, as Rules 9510 and 3180 are currently proposed, the District is proposing to collect more than $670 million in fees over the next five years- taken right out of the regional economy.

RESPONSE: First, the proposed rule does not apply to all new development nor does it impose fees on all new development. For instance, the following projects are exempt from the rule or the fees:

- Projects below the applicable size thresholds in the rule (e.g., 50 residential homes)
- Projects at stationary source businesses already regulated by the District
- New projects and expansions that do not require a new discretionary approval by the local land-use agency
- Projects that employ enough control features to reduce emissions to less than 2 tons per year

The District's most up to date estimate of the offsite mitigation fees is $103 million over the next 3 years. The authors' estimate of $670 million in five years is erroneous. The authors' estimate is based on incorrect use of the fee formulas and emissions estimates and record setting development rates. The District believes that it is not prudent to base revenue estimates on record development rates that would result in SIP commitments that fall short if not realized. Although the authors' estimates are overstated, it should be recognized that solving the Valley's air pollution problems is very costly as can confirmed by industrial sources that have invested billions of dollars on pollution control in the last three decades. The funds will not be taken out of the regional economy. All offsite mitigation fees will be used to purchase emission reductions here and will

result in the funds being reinvested in the Valley. The cost of administering the program is assessed at only four percent of the offsite emission fees.

Finally, the District has thoroughly documented, described and demonstrated that the proposed rules will have a real and substantial beneficial impact on air quality. For more information on the emission reduction analysis or spending plan, please see Staff Report Appendix B: Emissions Reduction Analysis (which used a standard, accepted emission reduction methodology) and Appendix E: Cost Effectiveness Analysis (which thoroughly demonstrates the availability of off-site reductions and a plan for off-site fee use).

31. **COMMENT:** As you are probably aware, the Air District recently released a revised version of these Rules and accompanying documents. In our opinion, the changes have failed to address some of the fundamental concerns of our coalition. Namely, the Rules continue to unfairly target new homeowners and businesses to disproportionately fund air emissions cleanup; the methodology and science remain flawed and they still significantly overestimate emissions and result in inflated fees; the fees still seek to impose enormous and unjustified new costs on businesses, new homeowners, public entities and ultimately all Valley consumers and our economy; and the rules still fail to provide for full accountability.

We all support the goal of cleaner air, but there are better and more effective ways to reduce air pollution in a manner that is balanced and less costly for residents and our economy.

As representatives of the coalition, we feel compelled to share the following key reasons we are respectfully urging you and other Governing Board members to oppose Rules 9510 and 3180 when they come up for a vote on December 15, 2005.

RESPONSE: Please see Response to Comments #32 through #42 below.

32. **COMMENT:** ISSUE #1 – LACK OF FAIRNESS, EFFECTIVENESS OR EFFICIENCY
Indirect source rules place a disproportionate burden on new housing, new businesses and new public facilities to pay for a regional problem that is the responsibility of ALL residents. Indirect source rules are just that – *indirect, unproven* and *inefficient* ways to go about calculating and mitigating air quality emissions. For this reason, no other air district in the nation has adopted this type of indirect source rule. The District should be pursuing more balanced solutions that equally apply to all residents and rules that more directly go after

the true source of emission – namely tail pipe emissions and the dirtiest pollution sources like diesel.

RESPONSE: The authors claim that new homeowners and businesses are being singled out unfairly for controls by this rule. This rule would be only one of many measures that the District has implemented and proposes to implement to control emissions from nearly every possible source category. The District has produced two comprehensive plans, one for ozone and one for PM10, that analyze current and future emissions, and lay out a strategy for emission reductions by a variety of controls and actions. For example, the ISR program is one of more than 20 rules identified in the 2004 Extreme Ozone Attainment Demonstration Plan.

The authors indicate that the ISR program attempts to 'burden' new development to pay for a regional problem. The ISR program only assesses and places requirements on the fair share of the emissions from new development to solve regional ozone and PM10 problems. Each project that would go through the ISR program would be responsible *only* for their own emissions.

In addition, the District has successfully and aggressively regulated existing sources of air pollution. Existing homeowners have contributed in the form of DMV surcharges to the tune $7 per year per vehicle, compliance with fireplace regulations, low-VOC architectural coatings, and smog check programs. New stationary sources must employ Best Available Control Technology and mitigate their new emissions with offsets.

33. COMMENT: ISSUE #2 – THE COST OF THE PROPOSED RULES
Two years into the rule-making process, the District still has failed to provide the public with a comprehensive estimate of the cost of the proposed Rules. Specifically, the socioeconomic analysis fails to address the cumulative impact on housing costs, on business costs, and on economic growth and job creating. The analysis discusses impact on only select segments of the business community, ignoring the full economic impacts of the rule. Our coalition has reviewed what information is available in the District's socioeconomic analysis and we were able to determine that the District will collect as much as $670 million in fees over the next five years.

RESPONSE: Concerning the adequacy of the District's analysis of economic impacts, please refer to Response to Comment #24 above. Concerning the '$670 million' in purported fees, please refer to Response to Comments #30 and #34.

34. COMMENT: Housing:

The District's analysis shows the fees will average more than $1,700 on every home by 2008. Cumulatively, we estimated that the cost on all new housing projects in the eight county region will exceed $225 million over the next 5 years, assuming the current pace of housing permits. That's why the State Department of Housing and Community Development warned that these Rules will negatively impact housing affordability in our region.

RESPONSE: The author has misstated the facts provided in the District's analysis and in the Socioeconomic Analysis. The fee estimates of $1,700 per home and the various numbers sited for industrial and commercial projects represent maximum worst-case fees that may apply if the developers choose to employ no on-site controls. Even so, this amount was found to not have a significant impact on the housing market in the socioeconomic impact analysis. If the high rates of development continue, the air impacts from housing will also be greater than predicted, and so those funds will be needed to offset some of that increase. The District believes that nearly all projects will be able to reduce their fees with on-site-measures since local land use agencies currently require some of the measures and many developers incorporate them as standard practice. The District has published an extensive list of control measures that would reduce the applicable fees. The authors' estimate assumes that all homes and industrial and projects will be built with no control features and is not realistic. In addition, the authors apply the worst-case fee to a higher, possibly unsustainable, rate of housing construction. The author then used this inflated fee amount and based the $670 million on a rough assumption of the ratio between housing and commercial/industrial development. The District finds this methodology of fee estimation to be inappropriate and inflated.

The District hired an independent consultant to perform a comprehensive socioeconomic analysis that assesses the economic impact of the proposed rule including any significant impact on housing affordability. This report concluded that rule would have a negligible impact on housing affordability.

35. COMMENT: New Business Developments:

The District's own assessment estimates the level of likely fees on selected properties to be significant. By 2008 it will cost $397,483 in new fees to build a local community shopping center and $131,000 in new fees to build a neighborhood shopping center. These developments are typically home to mom and pop businesses, restaurants and small retail shops and these fees will be directly passed along to these small business owners (and ultimately their consumers and employees). The District also reports that as much as 2/3 of the total fees they plan to collect will come from non-residential projects. Since the District's figures show that the total fees on housing may exceed $225 million, it

is conceivable that the cost to businesses and non-residential developments will exceed $400 million.

RESPONSE: The fees are based on emissions generated by each project. If a commercial development generated emissions that resulted in a fee of $397,483, it would be a very large development or one composed of many small retail establishments. If it were comprised of many small businesses, each one would be responsible for a fair share of the impact and the fee.

The author falsely states that, "the District's figures show …fees on housing may exceed $225 million." The District's figures ***do not*** show that housing fees will be that high. See Response to Comment #34 above, which illustrates how the authors distorted facts to generate an inflated number. In fact, the District's analysis shows that the District may receive up to $103 million from *all* types of development subject to the rule between 2006 and 2008. The 2/3 ratio cited by the author was provided by the District as a rough estimate arrived at by subtracting residential development emissions from all development related emissions. The District used the emission reduction analysis (Appendix B) for fee income analysis since the emissions growth data from the state is well accepted for this purpose. See also Response to Comment #30 and #34.

36. COMMENT: Public Facilities:

The Rules also apply to public and government facilities such as new schools, transit projects, government office buildings, fire houses, police stations and more – driving up the cost of public works projects and ultimately further burdening taxpayers with higher costs. The District's analysis is silent on these costs and their impact on local finances and fees.

RESPONSE: The District has drafted the rule to fairly allocate emissions among all indirect sources. Public uses are a substantial part of the growth in emissions that if not addressed here, would need to be addressed through other means. We agree that the cost of achieving air quality mandates could increase the cost of these facilities; however, we would expect most transit projects, fire houses, and police stations to be exempt since they would produce emissions below the two ton per year level. In addition, schools and government offices are well suited in many cases to incorporate features that enhance walking, bicycling and transit use and use low emission vehicles and equipment that could reduce the fees, possibly to zero.

37. COMMENT: ISSUE #3 – FLAWED SCIENCE

Members of our coalition and others have repeatedly demonstrated that the methodology and modeling that the District staff is using to calculate indirect sources of emissions – and resulting fees and mitigations – are fundamentally

flawed. These flaws result in grossly inflated fees and mitigation requirements. For instance, the URBEMIS model being used by the District (a computer program used to estimated emissions associated with land development projects), overstates vehicle emissions by over 70% (see public comments filed Sierra Research, July 22, 2005). No other air district in the nation uses URBEMIS to determine fees for vehicle emissions because, as the District's modeling consultant said, it's a "sketch planning" tool, not an accurate gauge of the specific emissions resulting from an individual project.

RESPONSE: In context, the term sketch-planning tool did not imply that it is not an accurate gauge of specific emissions resulting from an individual project. In fact, URBEMIS is a proven statewide model used by other air districts, including South Coast and Sacramento Metro Air Districts, in assessing emissions from project-level developments. URBEMIS is commonly used for CEQA analysis, and is also used by other air districts to determine off-site mitigation fees. In addition, the Development Agreements entered into by the District and applicants relied on URBEMIS for emissions estimates. See Staff Report pages 19 through 22 for a detailed discussion on why URBEMIS is the best model for the purposes of the rule. See also Response to Comment #19 above.

The CBIA and its consultant, Sierra Research, have provided comments (See September 1, 2005 Comments #123 through #162 and above comments #18 through #29) about the adequacy or implied lack thereof of the URBEMIS model. However, the District has shown that the 'flaws' stated by the author are not valid.

For example, the authors assert that the model overstates vehicle emissions by over 70%. The comments received by the District compared the URBEMIS model, which counts both ends of trips, to a regional impact model (admittedly inappropriate for project-level analysis- See Comment #19 above) that only accounts for one end of trips. The URBEMIS program does not overstate emissions, as asserted by the author, but accounts for emissions differently than a regional model. It should also be understood how the fee formulas work. Please see Figure 3 and 4 in Appendix B- Emission Reduction Analysis, which clearly show that half of the estimated baseline emissions are not assessed fees.

URBEMIS reflects the state of art in quantifying emissions from development projects. In fact, developers and local land use agencies routinely use URBEMIS to quantify project impacts during the CEQA process. The proposed rule allows for the use of other models that can better quantify emissions from various types of projects. The accuracy of URBEMIS will be further refined through the use of project-specific information in lieu of the otherwise applicable defaults. The authors' claim may have merit if the District rule only allowed for the use of URBEMIS defaults and disallowed the use of project-specific information such as proper traffic counts and vehicle mix. This is not case.

The District is part of a statewide working group that will continually work on refining and enhancing the accuracy of the URBEMIS model.

38. COMMENT: ISSUE #4 – DISTRICT'S OWN DOCUMENTS DEMONSTRATE THAT FEES CANNOT BE AVOIDED THROUGH ON-SITE MITIGATION.

District staff has continually and erroneously stated that if sponsors of new development satisfy the District's list of on-site mitigation measures, they won't have to pay any fees. According to the Air District's own documents and comments by their own staff, this is simply not true.

Even the District's newly revised staff report demonstrates that new homebuilders and businesses likely cannot completely mitigate indirect source emissions on-site (see Draft staff report page 15, 11/17/05). Perhaps this is why, at a recent meeting before the Bakersfield Chamber of Commerce, District Deputy Executive Officer Seyed Sadredin admitted most projects will not be able to mitigate their estimated air impact on site and will likely have to pay all or most of the fees.

Neither the text of the Rules nor the staff report provide useful guidance on how doing one or all of the proposed on-site mitigations will score against the proposed fees and it has provided no detail about the air quality benefits of each of the proposed mitigation measures. Accordingly, applicants have no way of determining how much on-site mitigation will reduce emissions or how it will reduce the fee they're obligated to pay.

Second, the District's proposed on-site mitigation checklist relies heavily on the existence of mass transit and other forms of transportation that don't exist to achieve emission reductions. Further, since there is no plan or realistic prospect of these necessary transportation projects being built in the near future, it is impossible for sponsors of development to comply with these types of on-site mitigations to avoid fees.

RESPONSE: The authors' comments are incorrect. The District has *not* stated that simply enacting the measures on the on-site list would result in no fees. The District has stated, and has conducted internal analysis that verifies, that it is possible to incorporate enough measures to result in no fees. The page referenced to from Staff Report *does not* assert or state that homebuilders and businesses cannot completely mitigate emissions on-site. The Staff Report does demonstrate how a certain percentage of on-site reduction achieves a larger percentage of fee reduction. District staff is unsure how the author misinterpreted the Staff Report, as the text states, "… the "bigger bang for the buck" is achieved with as much on-site mitigation as possible…..See Table 1 for ***examples*** (emphasis added) of on-site emission reductions and the associated off-site fee reduction".

Concerning guidance on how the measures "score" against the fees, and the air quality benefit associated with the measures, the authors should read page 11 of the Staff Report, which states,

> *The measures listed in the checklist have a known quantification methodology in URBEMIS 8.7. The methodologies can be found in the URBEMIS User's Guide, available at South Coast AQMD's website http://www.aqmd.gov/ceqa/urbemis.html.*

URBEMIS is a free, easy to use program that can be downloaded and used by the public, project applicants, public agency staff, and anyone else. See also September 1, 2005 Response to Comments #7 and #9. Applicants can easily see on their own how incorporation of measures reduces emissions through using the model (most simple projects take less than ½ hour), and can see how that reduces the fees by running the numbers through the fee formulas.

Finally, the checklist does not 'rely' on mass transit and other transportation for emission reductions, but provides a venue to credit emission reductions from those items. Project applicants are not required to 'comply' with the list, but fill in which measures apply to their project, and which measures do not.

The fees can be reduced significantly by employing the reasonable number of measures suggested by the District. We agree that it will be difficult to total eliminate the fees initially with the type of development that has historically occurred in the Valley.

On how to 'score' the emission reduction from the measures suggested by the District, all measures in the on-site lists have a quantification methodology in the URBEMIS model. These methodologies may be read in the URBEMIS User's Guide. The measures do not have a straight "credit" associated with implementation, but a calculated reduction based on various parameters, which may include interaction with other selected measures, amount input, and other parameters. The District will provide a great deal of assistance to the applicants to properly quantify the emissions and the applicable credits for measures employed.

ISSUE 5 – DISTRICT HAS FAILED TO ADDRESS SOME BASIC – BUT IMPORTANT – POLICY QUESTIONS RAISED THROUGHOUT THIS PROCESS

The following represent just a few of the many very important policy concerns that the Air District has failed to address or respond to, despites these questions being raised for many months. Governing Board members should take great pause before voting on Rules without getting answers to these very serious questions and concerns.

39. COMMENT: District has not quantified fees for the full 5-year rule period: The socio-economic and cost/effectiveness analyses provide an incomplete

accounting of fees that the District expects to assess over the 5-year rule period. No information has been provided in either appendix on the cost to public facilities including schools, parks, and roads. No information has been provided in any appendix on the overall economic impact to the Central Valley.

RESPONSE: The fee schedule holds fees past 2008 at the 2008 level. The socioeconomic impact analysis and cost-effectiveness analysis only assess 2006-2008 because those are the amounts being proposed in the rule. If the rule is amended to change the fee amounts by a significant amount, it would result in the preparation of new analyses. If fees are held to the 2008 level, socio impacts would be the same as the 2008 level. For cost effectiveness, the District is confident that targets are feasible through 2008, but past 2008 would be too speculative.

The District disagrees that overall impact on the economy in the Central Valley is not adequately addressed. Since the impact on the development industry was not significant and fees will be recirculated into the regional economy, it is logical to conclude that the rule would not have a significant adverse impact on the regional economy. See also Response to Comment #24 above.

See Response to Comment #36 regarding public facilities.

40. COMMENT: Incomplete Spending Plan: Although Appendix E offers a spending program for the fees collected by Rule 9510, it falls short of what is acceptable. First, it covers only three of the five years of the rule period. Second, the revenue projects cover roughly one-sixth of the Rule's potential revenue: $102 million vs. the potential $670 million in total fees that could be collected.

RESPONSE: As stated above, the first three years have enough information to be adequately assessed.. Second, the $670 million stated by the authors is based on incorrect information and misinterpretations of rule requirements (see above Response to Comments #30 and #34). District analysis, using factual data, shows that the District may receive up to $103 million between 2005 and 2008 based on the availability of the fee deferral option and historic development rates. The cost of reductions is more uncertain farther into the future. The District will reassess the cost of reductions prior to 2009 so that changes in regulations and the availability of new technologies can be taken into account.

The District has proposed a detailed plan in the staff report that will be considered by the Board at the December hearing. Additionally, as a part of the District's annual budget process, the plan will be reviewed and amended as necessary. The District will also provide routine reports on the quantity fees collected, projects funded, and emission reductions achieved per Rule 9510 Section 10.4.

41. COMMENT: Unresolved fee estimation issues: As noted above, the URBEMIS model overstates project emissions by over 70%. The District has not committed to fix URBEMIS prior to Rule adoption and implementation. Unless resolved, Governing Board adoption will result in projects paying fees that are exaggerated by as much or more than 70% due to improper default values that do not reflect actual conditions in the Central Valley.

RESPONSE: As stated previously (Response to Comment #19), the "70%" overestimation is simply not valid. Previous comments have pointed out refinements that should occur to some URBEMIS default values, such as the silt loading factor, and the District has committed to providing guidance prior to implementation and to update URBEMIS as soon as possible with the revised factors (see Response to Comments #19-22, #27-29, #37, and Staff Report pages 21-22). However, the statement that the model grossly overstates vehicle emissions is not valid.

42. COMMENT: Unresolved CEQA conflicts: CEQA already requires mitigation of air quality impacts associated with new development, yet the District states that Rule 9510 is not duplicative and is completely independent of the CEQA process. However, the District's response to EPA concerns is that it is counting on local agency CEQA requirements to make on-site mitigation measures enforceable. The District has not explained how its Rule will interact with local agency CEQA actions to achieve this result.

RESPONSE: Currently, for measures that are required by a local agency, that agency includes them in CEQA documentation and is required to enforce those measures. The District recognizes this enforcement mechanism through CEQA for those measures that are required by the local agency. Therefore, although the project applicant is taking credit for emission reductions from measures required by lead agencies, the District will not have to enforce those measures independently. For measures that are not required by the local agency, the District will be responsible for enforcement. There are no new requirements on local agencies, and no additional 'interaction' is required by the rules.

43. COMMENT: In closing, members of our coalition agree that improving the region's air quality is an important goal and one that demands that everyone in the Central Valley play a role. Accordingly, the District has a duty to convince the public of the value of its new policy and to win their trust in carrying it out. Regrettably, the District has failed to demonstrate the value or benefit of the proposed Rules.

Members of our coalition stand ready to work with the District on an alternative to proposed Rules 9510 and 3180 and towards achieving a more equitable, efficient and cost effective plan to reduce emissions.

In the meantime, we urge you to reject Rules 9510 and 3180 when they're brought before a vote of the Governing Board on December 15, 2005.

RESPONSE: Comment Noted.

SUMMARY OF COMMENTS AND RESPONSES ON THE SEPTEMBER DRAFT RULE SEPTEMBER 1, 2005

EPA:
Date: September 20, 2005

1. **COMMENT:** We are providing comments based on our preliminary review of the draft rule identified above. In general, we are very supportive of the District's effort to reduce emissions from new development projects and we recognize that this effort raises unique challenges. Please direct any questions about our comments to me at (415) 947-4115 or to Lily Wong at (415) 947-4114.

RESPONSE: Comment Noted.

2. **COMMENT:** 1. Program Evaluations and the EIP
This rule relies on market-based strategies to reduce emissions and, as a result, is subject to national guidance entitled, "Improving Air Quality with Economic Incentive Programs" (EIP), EPA-452/R-01-001, January 2001. Specifically, the DESIGN program has elements similar to Clean Air Investment Funds as described in chapter 9 of the guidance. As a result, the District's staff report should demonstrate that the program is consistent with the EIP guidance including, for example, provisions regarding environmental benefit, consistency with attainment/progress plans and automatic suspensions. Generally, we do not believe these demonstrations will be difficult to make. However, we believe the District should expand the scope of the annual program evaluation requirement (rule provision 10.4) to address elements identified in the EIP (sections 5.3(b) and (c)), including evaluation of the overall effects of the program, whether the Air Impact Mitigation Fees are appropriate based on the cost of reductions, and whether the program is achieving the projected emission reductions. The rule should also describe the procedures and criteria for the evaluations. Lastly, since the District will be responsible for obtaining emission reductions for off-site mitigation projects, the SIP submittal should include the District's commitment to rectify in a timely manner any shortfall in emission reductions.

RESPONSE: The District disagrees that the rule is a market based strategy subject to EIP guidance. Indirect sources are not seeking to use incentive funding as a substitute for controlling emissions directly. Although it is not an EIP, the District intends to demonstrate that the program will provide environmental benefit and is consistent with all plans and rules. The appropriate

mechanism to ensure program performance is with annual reporting and corrective action to make up any shortfall. This can be accomplished by focusing funding on more cost-effective projects and would not require any special rule provision to accomplish. In the event that the rule did not achieve a milestone and altering the project mix was not successful, contingency measures are in place in the SIP to make up the shortfall while revisions to the rule are made or new rule(s) are adopted to correct the situation.

3. **COMMENT:** 2. Mitigation
The District should ensure that on-site mitigation of emissions and off-site emission reductions are enforceable.

RESPONSE: The on-site measures are voluntarily chosen by the developer and, when included as a mitigation measure in the local agency environmental document, are enforceable under the California Environmental Quality Act (CEQA). These types of measures have a relatively large amount of uncertainty, but are highly desirable due to their ability to permanently change trip generation and miles traveled. Therefore the District proposes to account for emission reductions accomplished onsite under Voluntary and Emerging Measures guidance. Projects funded with off-site fees will be under contract with the District enforceable under contract law.

4. **COMMENT:** 3. Director's Discretion
The rule (provisions 3.2, 3.5, 5.3) allows the use of an "APCO-approved model" to calculate emissions and emission reductions from development projects. To avoid inappropriate director's discretion, the rule should identify, by name and version, all models that may be used under this rule, or require that the model or model revisions be approved by the District and EPA.

RESPONSE: The rule has been revised to reflect that the District and EPA will approve models and model revisions used under the rule. Since all emission reduction calculations are accomplished using emission factors approved by the ARB and EPA and are consistent with the emission inventory factors, this should allow for quick implementation of model improvements that will be developed over time.

5. **COMMENT:** 4. Surplus
The rule should include provisions and mechanisms to ensure that emission reductions from on-site and off-site mitigation projects will be surplus to the requirements of the plan (e.g., reductions required by Rule 8061), and are not otherwise relied upon in the plan (e.g., part of the planning or growth assumptions in the plan). At a minimum, the rule should define "surplus" to include consideration of rule requirements and planning assumptions, and include provisions to prevent the double counting of emission reductions. We note, for example, that the May 19, 2005 PM-10 Plan (p. 4-45) lists a few specific

activities expected to provide emission reductions for this rule. However, the URBEMIS model allows credit for on-site mitigation measures not included on this list such as fewer wood burning stoves, energy efficiency projects and off-road maintenance equipment. While the Plan may include assumptions regarding these emissions, the District should ensure that the rule achieves the emissions reductions that the Plan predicts for the rule and that mitigation measures do not result in double counting of emission reductions assumed elsewhere in the plan.

RESPONSE: The District will demonstrate that all offsite emission reduction projects submitted for credit are surplus in the documentation for each program developed to utilize the off-site funds. The District's Heavy Duty Engine Incentive Program is the prototype for how it will manage funding received from Rule 9510. This program has stringent criteria for determining if reductions remain surplus for the wide variety of projects. The District works closely with ARB in developing guidelines such as those adopted for the Carl Moyer Program. These guidelines pay particular attention to the issue of surplus reductions. New project types will undergo a similar rigorous process.

ARB: No comment received.

California State Department of Transportation:
Date: September 8, 2005

6. **COMMENT:** The purpose of this letter is to comment on the proposed San Joaquin Valley Unified Air Pollution Control District (District) Rule 9510 (Decreasing Emissions' Significant Impact from Growth and New Development) and the associated fees as stated in proposed rule 3180 (Administrative Fees for Air Impact Assessment Applications). When applied to the California Department of Transportation's (Department) construction sites, these rules attempt to regulate vehicular (mobile) emissions regardless of the District's lack of specific authority to regulate these emissions.

Both statutory and case law clearly establishes that "local and regional authorities have the primary responsibility for control of air pollution other than vehicular sources." (See *California Health and Safety Code* sections 39002, 40000, 43000 and 43013). The responsibility for regulating vehicle emissions belongs to the California Air Resources Board. The proposed District rules attempt to regulate mobile emissions from vehicles without statutory authority and therefore, it is our position that the proposed rules do not apply to vehicular emissions on Caltrans projects.

RESPONSE: Rule 9510 does not attempt to regulate emissions from vehicles. The rule would regulate the emissions resulting from the act of construction and

the emissions resulting from the act of operation. The distinction lies in the following:

- The rule does not set emission reduction requirements for individual engines or pieces of equipment
- The rule does not require retrofits, the use or purchase of certain pieces of equipment or prescribe any specific use of emission reduction technology
- The rule does not limit emissions through hours of operation or prescribe certain activities that reduce emissions
- The rule does not require emission reductions to be achieved through the equipment or engines used.

Simply, an amount of reduction is required by the rule, which can be achieved through any on-site or off-site means that are quantifiable and meet the requirements of the rule. The rule does not set a fleet average, regulate engines or vehicles or otherwise delve into the realm of mobile emissions, which the District does not have authority to regulate. The District does, however, have the authority to regulate indirect sources per Health and Safety Code, Section 40716:

> *"(a) district may adopt and implement regulations to … reduce or mitigate emissions from indirect and areawide sources of air pollution."*

The District has the authority to control indirect sources, defined in the Clean Air Act (CAA §110(a)(5)(C)) as, "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution"(emphasis added). This authority comes from the CAA §110(a)(5)(A)(i):

> *Any State may include in a State implementation plan … any indirect source review program.*

The Indirect Source Review Program that the District is proposing would review the emissions from that indirect source (the facility, building , installation, real property, *road*, etc.) that occur from the installation of that source (i.e. construction) and the operation of that source (i.e. area and mobile). For transportation projects, essentially road construction, the District would review only the construction emissions associated with that indirect source.

It is the District's position that the proposed rule is within the authority granted to the District by the federal Clean Air Act and the California Health and Safety Code.

California State Department of Housing and Community Development
Date: September 15, 2005

The Department of Housing and Community Development (Department) has reviewed the Draft Rules as revised September 1, 2005 and continues to have significant concerns about their impact on housing development and costs in the San Joaquin Valley. Many of the concerns expressed in the Department's July 25, 2005 letter have not been addressed by subsequent revisions or by the District's responses to our comments, and are reiterated below.

7. **COMMENT:** 1. The on-site mitigation measures for residential development proposed by the Draft Rule 9510 duplicate the type of mitigation measures already required by the environmental review and mitigation process pursuant to CEQA or the local land-use permitting process. For example, requirements for transit measures, tree canopies, bike trails, etc., are already imposed by local governments during the existing local permitting process. This duplication is of particular concern if the projects cannot receive credit for such measures already incorporated in the project, or if the duplication were to result in most projects being charged fees for off-site mitigation programs. It is not evident that imposing the same type of mitigation requirements as those already imposed by State law (or sometimes federal as well) is necessary for the District to execute its powers as required by Health and Safety Code Section 70727 (b)(5).

Recommendation: Clarify that projects will receive mitigation credits for on-site mitigation measures approved or required by the local government's permitting process.

RESPONSE: It is the District's intent that all quantifiable on-site measures that reduce a project's emissions be given credit in the ISR program. The District does not require the applicant to implement any of the measure listed, but requires the applicant to identify which measures will and won't be implemented. The applicant is required to identify measures that are a requirement of another agency so that the District can identify which selected measures will need District enforcement, and which measures will be enforced by another public agency. The measures listed in Appendix C have a known quantification within the URBEMIS model. Measures selected will be credited to the project. The District will amend the rule language and staff report to reflect this.

8. **COMMENT:** 2. Draft Rule 9510 will lengthen and complicate permit-processing times for new homes in a manner inconsistent with the Permit Streamlining Act, which is applicable to all public agencies (*Chapter 4.5 of the Government Code, commencing with Section 65920)*. Draft Rule 9510 does not meet the consistency standard of Health and Safety Code Section 40727 (b)(4)).

- Section 8.1 of Draft Rule 9510 has been revised to require the District to determine the completeness of Air Impact Assessment (AIA) applications in ten days instead of thirty. It is unclear whether this changes will result in a practical benefit, however, as the Draft Rule does not include a mechanism for facilitating concurrent review between the District and local planning agencies. Sections 5.0 and 8.2 suggest the District is cognizant of the need to coordinate with local agencies, but does not specify the timing and nature of the coordination. Without concurrent review, developers who are required to, or elect to, alter a project may be required to resubmit plans to the local planning agency for additional discretionary review. Such outcomes would have additional and redundant cost implications for permit processing. Further, projects which would otherwise be subject to ministerial permit processing only, should not be subjected to discretionary review because of the Draft Rules.

- Draft rule 9510, Section 8.8, proposes the District should have 90 days to take final action on an AIA application. Consequently, absent a concurrent review, process time could now take an additional 90 days. In some cases, Draft Rule 9510 thus has the potential to double existing processing times.

Recommendation: Revise draft Rule to include a mechanism or process for concurrent review by the District and local planning agencies to avoid impacts on local government. The Rule should not directly, or indirectly, prompt local governments to assess yet additional fees for responsibilities which may fall on them in implementing the District's Rule.

RESPONSE: Draft Rule language will be revised to make application submittal for ISR concurrent with local agency processes. Specifically, applications must not be submitted after application for a final *discretionary* permit in the San Joaquin Valley Air Basin, and may be submitted prior to that time. The rule will not place requirements upon the public agency for review or implementation of the ISR process. The public agency review (§ 8.2) has been revised to a voluntary review. The District will be coordinating review with the public agency through:

1. Making the ISR process concurrent with or prior to the public agency process;
2. Forwarding a copy of the AIA application (upon determination of completeness), a copy of the AIA approval package (upon approval), and a letter of Final Compliance to the public agency for voluntary review and commenting;
3. Communicating with the public agency when necessary during the application review process; and
4. Providing a letter of project status to the public agency upon request.

It should be noted that this rule will not apply to ministerial projects, nor will it prompt ministerial projects into becoming discretionary projects. That determination is made by the local land use authority.

9. **COMMENT:** 3. There is insufficient information or clarity in the Draft Rules regarding not only permit processing coordination, but also quantification and cost of mitigation measures. According to Health and Safety Code Section 40727 (b)(3), a rule or regulation adopted by a District board should be "…easily understood by the persons directly affected by it." Neither the Draft Rules, the Appendices, nor the Draft Staff Report describes the methodology the District will use to determine the number or value of mitigation credits to be associated with the various mitigation measures. Other aspects of the Draft Rules warranting clarification include, but are not limited to: ….*(District - see Comments 10 through 13 below)*

Recommendation: Revise Draft Rule 9510 to include a detailed description and analysis of the methodology the District will use to determine the number or value of mitigation credits to be associated with various mitigation measures. Clarify the items noted above in Draft Rules 9510 and 3180.

RESPONSE: The District will clarify the staff report to address how emission reductions from measures will be assessed. All measures within Appendix C have a quantification methodology in the URBEMIS model. These methodologies may be read in the URBEMIS User's Guide, available at South Coast Air Quality Management District's website http://www.aqmd.gov/ceqa/urbemis.html, and will be made available at the District's website. The measures do not have a straight "credit" associated with implementation, but a calculated reduction based on various parameters, which may include interaction with other selected measures, amount input, and other parameters.

10. **COMMENT:** Draft Rule 9510, Section 5.5 – Mitigation and Monitoring Report Program: The Draft Rule should specify if the applicant or the District is responsible for preparing this document.

RESPONSE: The rule language will be revised to reflect the following:
The applicant is responsible for preparing a proposed document. The District will provide the format and recommended keys for the document. The District will then work with the applicant to finalize the document prior to approval. It should be noted that this will only apply to measures selected by the applicant that do not have another enforcement mechanism, such as being a requirement by another public agency.

11. **COMMENT:** Draft Rule 9510, Section 8.5 – Air Impact Mitigation Fee Estimate Acceptance: What amount of time does the developer have to respond to the estimate provided by the District?

RESPONSE: The draft Rule will be revised to reflect the following Unless the applicant has proposed a Fee Deferral Schedule (FDS) prior to AIA approval, the applicant must pay the fee within 60 days, or may propose a FDS within 15 days of receiving the fee invoice. If the applicant proposes a FDS within the allowed timeframe, the District then has up to 15 days to finalize the FDS with the applicant.

12. **COMMENT:** Draft Rule 9510, Section 10.2.3 – Administration of the Mitigation Funds: what, if any, limits are there on the duration of the contract between the developer and the District?

RESPONSE: A distinction must be drawn between the ISR applicant, and an applicant for the funds. Section 10.2.3 discusses the process between the District and the applicant for funds. The duration of the contract will vary depending on the project. Some contracts will be completed upon installation, while others may require reporting for 5 years. For example, a road-paving project would have a contract that is completed upon installation, whereas an engine contract typically contains a 5-year reporting requirement. The staff report will be amended to include this information.

13. **COMMENT:** Draft Rule 3180, Section 4.2 – Application Processing Time Log: How long does the District have to respond to a developer's request for a copy of the Log?

RESPONSE: The District uses an automated Labor Information System (LIS) to track project time by all staff working on a project. This allows the District to easily prepare the time log within a short timeframe. The District standard for this type of request is 10 days. The District will amend Draft Rule 3180, Section 4.2 to state the District has up to 10 days to provide the information.

14. **COMMENT:** 4. The direct and indirect costs imposed by the Draft Rule on the residential development process will result increased housing costs. The rationale for these increased costs as required by the Health and Safety Code Section 40728.5 are not adequately identified nor justified by the complete analysis.

The Department commends the District's decision to reinstate the exemption for housing projects directly assisted by federal, State, or local housing funds. Assisted projects, however, only account for a small percentage of the San Joaquin Valley's workforce housing stock. The majority of new lower- and moderate-income residents will occupy market-rate units. Increases in

construction costs resulting from the Draft Rules will ultimately be passed on to these residents in the form of higher rents and home prices.

Yet, as indicated below, the Executive Summary of the socioeconomic assessment the District prepared pursuant to the Health and Safety Code Section 40728.5 concludes that increases in the construction and housing costs are irrelevant because lower-income residents are already overpaying for housing and are thus dependent on public subsidies:

The analysis demonstrates that, even before the imposition of an air quality fee(s), most low-income (and) households in the Central Valley are priced out of newly constructed multifamily unit market, the rents for which need to be at levels that account for the price of land, development cost, developer fees, and an adequate level of profit, among other things. The analysis discusses how public subsidies can assist in enhancing the financial feasibility of a real estate project in which a certain portion of units are set-aside as below-market rental units (San Joaquin Valley Unified Air Pollution Control District. Socioeconomic Analysis Proposed Indirect Source Rule: Draft Rules 9510 and 3180. 24 August 2005.p.1.)

The demand for assisted housing far exceeds available resources of all levels of government. The District should not assume that higher rents and home prices can be solely addressed by government subsidies. Furthermore, higher housing prices are problematic because the affordability gap widens, forcing more San Joaquin Valley residents to overpay for housing and/or live in overcrowded conditions. Additional regulatory barriers that increase the cost of housing supply must be restructured and their benefit should exceed their cost impacts.

The Department also notes that the socioeconomic assessment does not address the impact of the Draft Rules on small business or analyze the availability or cost-effectiveness of alternatives, as required by Health and Safety Code Section 40728.5(b)(1), (b)(3), and (b)(4). For example, Part 6 (p. 26-32) includes generic information about impacts on single-family and multifamily homebuilders, but does not specify impacts on small homebuilders.

Recommendation: Revise the socioeconomic assessment to include: 1) a more thorough analysis of the impact of the Draft Rules on the economy of the San Joaquin Valley, including the number of consumers who will be overpaying for housing; 2) the impact of the Draft Rules on small residential developers; and 3) alternatives to the Draft Rules.

RESPONSE: The Socioeconomic Analysis will be amended to include analysis on the rule's impact on small businesses. In addition, the analysis does not discuss alternatives because there are no identified alternatives to adoption of the ISR rules.

Although the Socioeconomic Analysis does discuss the role of public subsidies, the District's conclusion is not that low-income housing impacts are irrelevant due to public subsidies. The Socioeconomic Analysis discusses public subsidies to show the options and availability of what subsidies exist. The conclusion of the Socioeconomic Analysis is that the impacts on housing costs (both to the developer and the buyer/renter) are less than significant. The District's conclusion is similar to how some pollutant thresholds of significance are set. For example, the District is in non-attainment for ozone and PM10. It could be argued that because the air is bad already, *any* increase is contributing to non-attainment and therefore is significant. However, the District finds it impractical and unwarranted to force every project that emits *any amount* of the applicable pollutants into the 'significant' category. Therefore, the District determines significance for PM10 and ozone precursors against a threshold that aims to truly differentiate between less-than-significant and significant impacts. Similarly, the Socioeconomic Analysis states on page 37:

For the most part, rents that low-income households should pay are substantially below the rents that the typical new multi-family units construction in the region should command, even before the imposition of the air fee.

That is to say, the market is such that low-income households are already priced out of most new dwelling units. Any increase in housing costs, regardless of origin, will exacerbate this disparity. However, the analysis shows that the potential increase in mortgage is, "*a small fraction of the original household income required to finance a new home in the event no air quality fees were in place*," and the potential increase in rents are, "*similarly small*." (p.1)

15. **COMMENT:** 5. Draft Rule 9510 would impose mitigation fees without adequately establishing a nexus. The Draft Staff Report and Summary of Comments and Responses from the June 30, 2005 public workshop do not adequately support the nexus between the expenditure of mitigation fees and the location of indirect sources. For example, while NOx occurs throughout the District, the impact of other pollutants, such as PM10, is more localized.

Recommendation: Clarify the nexus between PM10 and the expenditure of mitigation fees.

RESPONSE: The District has prepared documentation included in the staff report for the rule that provides the information necessary to demonstrate a nexus between project impacts and the off-site fee. See Response to Comment #125 for the findings of the District's legal counsel's analysis of nexus requirements.

16. **COMMENT:** In summary, the Draft Rules do not appear to comply with the "clarity", "consistency," and "nonduplication" requirements set forth in Health and Safety Code Section 40727(b). Than you for the opportunity to submit additional comments. Given the magnitude of the concerns identified in this letter, the Department recommends that the District not adopt Draft Rules 9510 and 3180 as drafted and continue to work with all interested parties on needed revision.

RESPONSE: The District disagrees that Rule 9510 conflicts with H&S 40727(b). The District prepared a consistency analysis that is provided as Appendix G to the Staff Report. The rule is being revised to improve clarity of the requirements and will provide detailed rule implementation guidance prior to implementation and typically uses compliance assistance bulletins when issues arise after implementation. The rule does not duplicate other requirements on indirect and areawide sources. Emissions estimates used in the rule account for existing controls on vehicles and equipment. The rule requires a reduction of a portion of the remaining emissions after control. Because of the Valley's rapid growth, a substantial portion of benefit of the controls is offset; hence the need for additional emission reductions to reach attainment by deadlines mandated for the District's PM10 and ozone plans.

Local Public Agencies:

City of Hanford
Date: September 23, 2005

17. **COMMENT:** I applaud your efforts to continue to evaluate methods to improve the air quality in the valley. However, I would request that the San Joaquin Valley Unified Air Pollution Control District take the time to further study Draft Rule 9510 and Draft Rule 3180.

RESPONSE: This rule has been under development for more than two years. The District has had three rounds of workshops, focus groups, stakeholder meetings and other outreach. We believe that the rule development process has been adequate.

18. **COMMENT:** On behalf of the City of Hanford, I would ask that you slow down the process and identify specific steps and programs that will be implemented to reduce air pollution; include additional input from representative agencies and clearly identify how the funds collected will actually improve air quality in the valley.

RESPONSE: See the Staff Report for more information on how the rule works to reduce emissions through on and off-site measures and how the District will use funds received as a result of Rule 9510 and Rule 3180. In addition,

Appendix E (Cost Effectiveness Analysis for Rule 9510) for details on the exercise that the District has completed to ensure that:

1. The emission reduction projects exist in a quantity to provide the reductions necessary, and
2. Those projects exist at a cost-effectiveness that can achieve the schedule listed in the rule in Section 7.2.1 and 7.2.2.

19. COMMENT: The incompatibility of the proposed regulations regarding the CEQA requirements poses additional concerns.

RESPONSE: The District believes that Rule 9510 is fully compatible with CEQA requirements. The rule provides a new opportunity to provide consistent air quality analysis and emission reductions on a Valley-wide basis. See Response to Comments #8.

20. COMMENT: Restraint must be used in determining actions that would have a significant impact on our residents, the business community and our local governments. Specifically, there must be a nexus for the fee's charged and the specific identification on how the generated funds would be used to remedy the problem which exists.

RESPONSE: The District has designed the rule to address only a fair share of the impacts caused by new development. We are confident that the rule will mitigate emissions in direct proportion to the impact caused by the project in keeping with nexus standards. The key to meeting the nexus is that impact will be estimated with best available tools and emission reductions obtained to offset the impact will be quantified with best available factors and methods. See also Response to Comment #125.

Council of Fresno County Governments (Fresno COG)
Date: September 9, 2005

At the request of our Transportation Technical Committee (TTC), the Council of Fresno County Government (Fresno COG) is submitting this letter regarding the Air District's DESIGN (Decreasing Emissions' Significant Impact from Growth and New development) program. The most recent draft of the DESIGN program was discussed by Fresno COG staff and TTC members at the September 7, 2005 meeting. Many of our member jurisdictions have significant concerns over the proposed rule and requested that we submit the following comments.

21. COMMENT: Inadequate Notice and Review Time
In some cases, Fresno COG and our member agencies received only a one-day notice for the September 1, 2005 workshop. This late notice prevented several agencies from attending on that day. On several calls with the Air District last month, Fresno COG staff indicated the need for improved communication and

coordination. This continues to be a concern, as the current rule development schedule allows only two weeks to review and comment on the draft rule.

RESPONSE: The District has a list serve for the rule that enables all interested parties to receive immediate notice of workshops and document availability. The District accepts comments up to and including the Governing Board hearing, allowing for more than a month of additional review time should it be needed.

22. COMMENT: Transportation Projects Subject to the Rule
The short review time is especially troubling given the recent addition of transportation projects (with construction emissions greater than 2 tons per year) as subject to the DESIGN rule. Fresno COG and our local agencies are unclear how this will impact the project approval process and need additional time and information to assess the impacts.

RESPONSE: The rule does not impact the project approval process since the District has no discretion over those projects. The rule just provides a mechanism to enable the agencies to reduce the impacts of project construction. See also the Staff report.

23 COMMENT: Demonstrate the Air Quality Benefits
Fresno COG requests that the Air District clarify how this rule will improve air quality. Please provide additional analysis of the air quality improvements and examples of how the revenue will be used.

RESPONSE: The Staff Report contains analysis that quantifies the projected air quality benefits of the rule. Additional details regarding the potential projects funded by the rule are included in the revised Appendix E. See also Response to Comment #18 on the use of off-site funds.

24. COMMENT: Improve Response to Comments
As noted by several commenters at the September 1st workshop and by our member agencies at our committee meeting, Fresno COG also requests that the District develop and adequate process to address comments received. The "Response to Comments" distributed at the workshop was organized by category, rather than submitting agency; this made it time-consuming to locate and review specific Reponses. In several cases, our local jurisdictions indicated that comments were not addressed and needed to be given sufficient consideration by Air District staff.

RESPONSE: The District has modified the Response to Comment format to address this concern. The District feels that the current format will allow commenters to find their specific comments and the associated responses.

25. **COMMENT:** Identify Rule Changes
Please provide a document on the Air District website that identifies and tracks changes made from previous drafts of the rule. This has been the practice with other rule modifications and is essential to reviewing and commenting on this document.

RESPONSE: The changes to the draft from this round of comments will be made in strikeout/underline format.

Fresno County, Department of Public Works and Planning
Date: September 15, 2005

26. **COMMENT:** We are concerned with the language of the rules as it relates to transportation projects. Should 2.2 say "two (2.0) tons" **per year** "of NOx and PM10 combined.", based on similar language in 2.3.4 and 4.2

However, looking more closely, these three are *not* identical in that:
- 2.2 says "NOx and PM10 combined"
- 2.3.3 says "NOx and PM10"
- 4.2 says "NOx and PM10 each"

If there is a specific reason for the differences, can you explain?

RESPONSE: Since construction emissions occur during a specific period, the emissions are based on the total during the construction period. For example, if a project emits 3 tons of combined emissions during a six month construction period, that amount is subject to the 20% NOx and 45% PM10 emission reduction requirement. If a project emits the same 3 tons of emissions over two years, the calculation is also based on the entire construction project.

Section 2.2 refers to construction NOx and PM10, which is based off of 2 tons of NOx and PM10 total tons combined. The District will revise the rule language to clarify that construction pollutants are total tons combined, and operational pollutants are tons per year non-combined. Section 2.3.2 will be revised to state "NOx *or* PM10" and be specific to operational emissions.

27. **COMMENT:** Also, please look at 8.8. Under it you have 8.7.3, but should that actually be 8.8.4?

RESPONSE: The section will be renumbered as noted.

Kern County Planning Department
Date: July 22, 2005

The Kern County Planning Department appreciates the opportunity to comment on Draft Rule 9510 and Rule 3180 which are being implemented to assist the District's attainment goals for State and Federal standards for ozone and PM10. The stated purpose of Rule 9510 is to provide a mechanism for development to mitigate construction, direct and indirect emissions from their projects through design features, on-site and off-site measures. Rule 3180 will provide for payment of the District's staff cost to implement the new rule.

As our comments have consistently stated, the DESIGN Rule, while using the language of CEQA (Significant Impact) avoids all relationship to CEQA and simply defers any questions to a later time after Rule Development is complete. The following is a preliminary list of questions, comments and concerns regarding this matter.

28. **COMMENT:** What is the basis for the exemption of projects that have mitigated baseline below two tons per year for each pollutant from the Rule? Is this basis evidence that 10 projects in the same area producing less then two tons per year each are not cumulatively considerable under CEQA?

RESPONSE: The District has made changes to the project submittal timing in the rule to ensure that the air analysis conducted can also be used to support the CEQA process for the local agencies discretionary approval.

The rule is designed to reduce the impact of the project to the extent needed for the District to reach attainment of ozone and PM10 standards. The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. The rule sets levels that are in compliance with state law regarding indirect source regulations and are feasible to achieve. Based on the District's analysis, project's with emissions below two tons per year of operational NOx and PM10 were not required to reduce emissions to achieve the emission reduction required by the District's plans for attainment.

29. **COMMENT:** Why are only NOx and PM10 being addressed when CEQA requires all pollutants to be quantified and mitigated to the extent they exceed thresholds?

RESPONSE: The ISR program's primary purpose is to meet attainment plan requirements *not* as a CEQA compliance method; however, we believe that reducing one precursor, NOx, will reduce the cumulative impact on ozone from new development to less than significant levels.

It is not the District's intent to reduce the impacts of all pollutants in the valley through this rule. The rules are the result of the District's PM10 and Ozone Attainment Plans, as they identified the need to reduce directly emitted PM10 and NOx in order to reach the standards on schedule. Sufficient ROG was obtained from other control measures to enable the District to predict attainment without additional ROG control. Therefore, the rule was able to focus on those two pollutants and can make the case that ROG from predicted growth from new development will not impact the attainment strategy.

30. **COMMENT:** The District has an established threshold in the GAMAQI of 10 tons of ROG yet no provision for mitigation in the DESIGN rule. Why?

RESPONSE: See Response to Comment #29 above. The GAMAQI is the District's Guide for Assessing and Mitigating Air Quality Impacts, specifically written to help lead agencies, as identified in CEQA, address CEQA for air quality impacts and may be revised to reflect changes that are appropriate.

31. **COMMENT:** Section 6.2 requires mitigation of only apportion of the project's emissions (1/3 of the project's first-year area source and operational baseline NOx emissions over a period of ten years) and then states that it "represents cumulative emissions…". The use of the term "cumulative" should be deleted and replaced by another term to explain the Districts intention. An interpretation of the phrase "cumulative emissions" in a CEQA document, under current case law interpretation, does not include such a reduction as proposed by the District. This disconnect will lead to confusion and legal challenges of CEQA documents.

RESPONSE: The District believes that the term "cumulative" best describes the emissions being reduced by the rule. The NOx emissions are declining over time, so a project that reduces emissions to the extent described by the fee formula will be mitigating its cumulative impact. See also Response to Comment #28.

32. **COMMENT:** The District is the authority that provides guidance and direction for local government on air assessments for CEQA and has been recognized as such by the Courts. If the District has sufficient basis for establishment of this Rule with reductions in required emissions to be mitigated on " the concept that annual NOx emission from motor vehicles declines 50% over ten years.", then the District should include in this Rule making, clear direction from the Governing Board to amend the GAMAQI, through a Public Hearing process, to formally adopt this approach in Air Quality Assessment methodology for CEQA documents. This process, which would necessarily include the fact basis for the adoption of this standard, would provide clear direction for the connection of this Rule to CEQA and provide support of the Lead Agency in current challenges to Air Assessment methodology in CEQA documents.

RESPONSE: The primary purpose of the rule is to help the District meet its attainment plan commitments. The rule provides for emission reductions in a framework that provides strong assurance that reductions will be real, surplus, quantifiable, and permanent and therefore should strengthen environmental documents that rely on reductions to reduce significant air impacts. The District's GAMAQI is formally adopted by the Governing Board at a public hearing. Any revisions will also go through a public review process with a workshop and Governing Board hearing. See also Response to Comment #28.

33. COMMENT: The staff report states on Page 11 that "The current concept is that Rule 9510 will mitigate the cumulative impacts of anticipated growth since the reductions attributed to this program was identified in two attainment plans as necessary to achieve the applicable standards." Yet the next sentence weakly states that "The District may (emphasis added) revise the GAMAQI to define the exact role that Rule 9510 will have in the CEQA process, prior to adoption of this program." Please clarify why the District is not committed to amending the GAMAQI to clearly provide relief for local government in CEQA litigation in a matter, air impacts, for which the District is the recognized expert.

RESPONSE: The District is committed to providing guidance through the GAMAQI that accurately reflects the impacts of all adopted District rules and regulations on air quality.See also Response to Comment #28 and #31.

September 1, 2005 Workshop – Verbal Comments

Bakersfield

Dr. Adrian Moore – Reason Foundation

34. COMMENT: There is a lack of a causal link between new uses and an increase in emissions from new trips. If it is automobiles that are causing the pollution that the rule is targeting, then the District should be going after automobiles.

RESPONSE: There are more than twenty years of CEQA documents that have consistently found that new development has a significant impact on air quality. New development is constructed to accommodate growth. Prior to development of green field areas there are no trips and no construction emissions at the project site. The argument that some trips are displaced from another existing use are not valid except in the short term. When people move to a new house, someone can be expected to move into the existing home and replace the trips the old homeowner was making. When commercial uses open in a new growth area, they may temporarily divert trips from existing commercial uses, but in a growing area the most important factor is an expanding market area. When the community adds enough residents to support another like commercial use, the

trips will be drawn from the area farthest from the existing use to the new use, and overall the number of trips is increasing.

35. **COMMENT:** The sources listed in the District's staff report are not published or peer-reviewed. Specifically, Dr. Holtzclaw's study is not published.

RESPONSE: The Holtzclaw study provides analysis of VMT differences in areas with different levels of pedestrian and transit accessibility in California. The study has been available for all who wish to review it. In addition, the study has been referenced by other researches numerous times in peer-reviewed journals.

36. **COMMENT:** Additionally, the benefits from design identified in the staff report are likely the result of self-selection and not an actual shift in modal choices based on design. Therefore the reductions from the increase in the on-site measures implemented will not materialize from implementation of this rule.

RESPONSE: The author's comment is based on a false assumption that there are no people in the San Joaquin Valley that would choose different development designs if they were available. The District maintains that trip making behavior would change if onsite design measures were widely implemented. The causal link between new development and vehicle emissions has been well documented and is generally accepted. The issue of self-selection v. modal shift in development with 'smart growth', 'transit-oriented' or 'pedestrian-oriented' design has not been resolved. It is known that there is a real, verifiable correlation between land use design and vehicle use. Studies show that well-designed development that considers pedestrian, bicycling and transit generates less emissions than totally automobile oriented design.

The District recognizes that there is always uncertainty when predicting individual travel behavior. For this reason, the District proposes to submit reductions claimed for onsite measures as a voluntary and emerging measure that allows for this type of uncertainty in order to promote innovation.

37. **COMMENT:** If it is automobiles that are causing the pollution that the rule is targeting, then the District should be going after automobiles.

RESPONSE: State and federal controls on motor vehicles are not sufficient for the District to attain federal air quality standards within mandated timeframes. The District has authority to seek additional reduction from indirect and areawide sources to close the gap. Stationary sources must provide offsets to further reduce emissions beyond what is feasible onsite. Indirect source rules operate under a similar concept. See also Response to Comment #6.

38. **COMMENT:** Reducing trips doesn't create large reductions relative to increasingly clean vehicles, regardless of increasing VMT

RESPONSE: The heart of the problem is that although vehicles are increasingly clean, increases in travel and VMT are offsetting a substantial portion of the benefit, hence the need for an indirect source review rule.

39. COMMENT: The housing impact is not near accurate because the market could be in a bubble right now. The Socioeconomic Impact Analysis should use quintiles instead of an average; you would find a huge impact on low incomes with that methodology.

RESPONSE: First, the impact on housing stated in the Socioeconomic Analysis was based on the number of housing units used by the District, which were based on the state population forecasts. If the growth rate exceeds the projection, the impacts will be greater and so will the need for emission reductions. Also, a greater number of units subject to the rule would have no added impact on individual development projects. Second, the use of an average is appropriate because the impact of the fee filters out over time, so the effect, such as an increase in rent, isn't immediate. See also Response to Comment #49.

Arthur Unger – Kern-Kaweah Chapter of the Sierra Club

40. COMMENT: The studies in the District's materials regarding differences in trip generation from different types of development are published.

RESPONSE: Comment Noted.

41. COMMENT: Concerning the information provided in the Socioeconomic Impact Report – the prices of housing in the Valley are a result of supply and demand, not necessarily resultant from fees that are assessed.

RESPONSE: The Socioeconomic Analysis supports the author's comment. The report states, "it is apparent that larger market forces are the primary culprit behind the increases in housing prices…"

Carla Waleka – Construction Industry Air Quality Coalition

42. COMMENT: The Construction Industry Air Quality Coalition would like to see the construction calculator and know the assumptions and inputs.

RESPONSE: The calculations used in the rule were done using URBEMIS construction module. The construction calculator used by SMAQMD is proposed as a model for development of a San Joaquin Valley version. We are now proposing to continue using URBEMIS with the option for developers to use a construction calculator if approved by the APCO.

Renee Nelson – Clean Water and Air Matter, Bakersfield

43. **COMMENT:** The process laid out by the District does not comply with CEQA. The process will allow for negotiations with applicants behind closed doors with no option for public input, which is required under CEQA. In addition, CEQA states that mitigation can't be differed until later. The District also put forth a comment that CEQA timelines vary with jurisdiction, which is untrue.

RESPONSE: The ISR program does not involve discretionary approval of development projects, and therefore is not subject to CEQA. We expect local agencies to use the air analysis accomplished for the rule and o-site emission reduction measures agreed to by the applicant *and the local agency* to reduce air impacts in their CEQA process. If a citizen has an issue with the approval of a project due to air quality impacts they will have the same options that are currently available to them to challenge the project and the validity of the analysis used to support the decision made by the local council or board. See also Response to Comments #8 and #28.

44. **COMMENT:** This program must be aligned with CEQA and should not allow changes to a project behind closed doors.

RESPONSE: The rule is being revised to change the application timeframe to be concurrent with the local agency CEQA process. District has no authority to require applicants to include on-site emission reduction measures. We have traditionally worked with applicants to help them identify changes to the project that would reduce air impacts as early in the development process as possible and will continue this effort. The rule requirement is for the applicant to fill out the on-site emission reduction checklist; however, it does not prescribe a minimum or maximum number of measures that should be checked. The responses on the checklist are solely up to the applicant. The land-use decision making authority is with the local land use authority, not the District. The AIA information will be made available to the public. See also Response to Comments #8 and #29.

45. **COMMENT:** Does the ISR program apply to agricultural projects?

RESPONSE: The District believes the applicability section and the definition of a development project effectively exclude agricultural projects.

46. **COMMENT:** Will the ISR apply to waste-hauling projects?

RESPONSE: Hauling projects are not specifically stated as a project in the rule. ISR projects are land-use based, triggered by a discretionary permit in combination with new construction or increased use that generates construction and/or area and mobile emissions that exceed the ISR threshold. If a land use requires a discretionary permit, and meets or exceeds the applicability threshold, then the emissions from hauling would be subject to the rule. However, if the project is hauling operations alone then it would not be subject to the rule.

47. COMMENT: Where will mitigation funds be used in relation to the project assessed the fees?

RESPONSE: The funds will be spent within an area based on the type of pollutant. NOx is a regional pollutant, but every attempt will be made to fund projects in the vicinity of the project site. PM10 is a more localized pollutant, and PM10 funds would be spent closer to the project assessed the fees.

Brian Todd, BIA and Business, Industry and Government (BIG)

48. COMMENT: The District needs to tell the public about how much more fees will be in the Bakersfield area due to the need for additional PM10 reductions.

RESPONSE: The additional PM10 reductions cited by the commenter is the 1-ton per day by 2010 needed in the Bakersfield Metropolitan area. This rule does not address that reduction. ISR program fees are tonnage based and do not adjust by location. The 1-ton needed in Bakersfield is being addressed through a PM10 task force. Voluntary mitigation agreements in the area may be used to the extent that they mitigate beyond the requirements of Rule 9510.

49. COMMENT: The dynamic driving prices for housing in small and medium cities stated in the presentation is due to school fees. The ISR fees will exacerbate this problem. In addition, the housing market may be a bubble. Basing the fee on housing bubble numbers is a flawed methodology because the market is unstable, and the fee revenue depends on the number of houses.

RESPONSE: The District fees were not based on the number of housing units going in. The fees were based on the amount required to offset emissions, and is purely emission based. The expected *fee revenue* and *future impacts* are estimated from the forecasted population data from the state and the emissions from growth in residential and non-residential development.

It is important to note that the District will only be collecting fees to reduce as in there is development creating emissions to reduce. If the number of houses decrease (bubble burst), the District would have fewer emissions to reduce; therefore, the same fee brings the appropriate amount to reduce those emissions (less revenue). If the number of houses increases, the District would

have more emissions to reduce; therefore, the same fee brings the appropriate amount to reduce those emissions (more revenue).

Heather Ellison

50. COMMENT: What is the meaning of 'recreational space' and 'unidentified space' in the rule?

RESPONSE: Rule 9510 §13.7 defines recreational space for recreational uses such as soccer fields. Unidentified is a catchall category to indicate that other land use categories not listed are still subject to the rule if they generate emissions and are not otherwise exempt.

Mike Kelly – Western State Petroleum, Vector Environmental

51. COMMENT: Previous comments to the District were not adequately addressed in the previous response to comments. The law states that the District can regulate the increase in emissions. There is a concern that the Rule will trigger review of those discretionary permits that don't result in an increase in vehicle traffic, such as certain Conditional Use Permits (CUPs).

RESPONSE: The District typically consolidates similar comments and provides a single response. The District will consider providing individualized responses on a case-by-case basis.

The Rule applies to the *increase* in emissions resulting from land-uses changes that require a discretionary permit. Therefore, if project requires a discretionary permit, but does not result in an increase in emissions that meet the applicability threshold, then it would not be subject to the Rule. However, if the CUP allows for an increase in indirect or area source emissions or new construction activity that generates emissions, it would be subject to the rule if not specifically exempt.

Fresno

Bob Keenan – BIA, BIG

52. COMMENT: Fee collection and use is governed by the Health and Safety Code, §6600 subsection G. The rule does not meet those requirements.

RESPONSE: The author cites Government Code Section 66000 (The Mitigation Fee Act) as the impetus for promulgating a nexus document. The legislation clearly states that it is applicable to fees (§66000(b)), "in connection with approval of a development project." Section 66000(a) defines a development project as including, "a project involving the issuance of a permit for construction

or reconstruction, but not a permit to operate." In addition, Section 66001(a) states:

> *In any action establishing, increasing, or imposing a fee **as a condition of approval** of a development project by a local agency on or after January 1, 1989, the local agency shall do all of the following:*
> (Emphasis added)

Section 66005(a) also ties the legislation with 'condition of approval of a development project'.

1. The District will not approve or disapprove a development project, but will approve or disapprove the project's analysis to determine the quantity of emission reductions required to comply with the rule. The authority to approve or disapprove the development itself is the local land-use agency, not the District.
2. The District will not be issuing a permit, nor will the District give a discretionary approval of the project.
3. The District's ISR action is ministerial, and therefore will not include conditions of approval.

The District stands by its previous assessment. The Mitigation Fee Act does not apply to the ISR rules. However, the District has analyzed the applicability of nexus requirements to this rule. See Response to Comment #125 for the findings of the analysis.

53. **COMMENT:** Fees paid at the permit doubles to the buyer and prices people out of the market.

RESPONSE: Fee prices may price some people out of a particular house, but not necessarily out of the entire market. Currently, market forces are increasing the price of housing to a much greater extent than the fee would. In addition, the difference between paying prior to building permit issuance and at certificate of occupancy can't possibly double the cost unless the loan was at an astronomical interest rate. If the fee were financed in a mortgage at 30 years it may double, but it also doubles the amount they are paying for anything.

54. **COMMENT:** The fees from the program will drive up the costs of existing housing.

RESPONSE: Existing housing is not subject to the rule. Although the District realizes that sellers of existing housing may take advantage of a potential increase in new housing prices by artificially inflating the price of existing housing, the District does not have control over existing housing prices.

Increases in existing housing prices 'attributable' to the rule would be resultant of the seller, not of the District.

55. COMMENT: The impact of the fees resulting from implementation of the ISR program would ruin the Valley's economy.

RESPONSE: The commenter's position that ISR fees would ruin the economy is not supported by factual evidence. The Socioeconomic Analysis found the worst-case scenario of fees to be within the margin that can be absorbed by the economy. This is not to say that there is no impact, but that the impact is less than significant. In addition, the residential scenario in 2008 resulted in a fee of about $1,800 per house. This scenario had no emission reduction measures included; it had a density of 3 unit per acre (increased density decreases emissions), no sidewalks, or any other measure that reduces emissions (and thus fees). See also response to comment #56 and #14. Finally, housing prices have steadily increased in over the last ten years. This increase is far more than $1,800 *every year*. The District does not state this to justify the potential fee, but to illustrate what has occurred in housing prices and that the Valley's economy has not crashed as a result. It is illogical to suggest that a potential $800 per residential unit in 2006 to $1,800 in 2008 would ruin the Valley's economy. As stated in Response to Comment #14, the fee amount listed in the Socioeconomic report is likely much more than will actually occur.

56. COMMENT: The cost of on-site mitigation is not included in the socioeconomic impact report. Therefore, the report does not accurately reflect the impact of the rule.

RESPONSE: The Socioeconomic Analysis does not include the price of on-site emission reduction measures for a specific reason. That is, it is reasonable to expect that an applicant would not choose a more expensive option over a cheaper option. The 'worst-case', no on-site-measure fees are therefore the most that an applicant would pay. It is also important to note that on-site measures are entirely voluntary.

Also of note, many of the on-site measures that count towards reduced emissions are *already* requirements by local land use agencies. For example, most agencies require some amount of sidewalks or bicycle improvements with development that is adjacent to a street. URBEMIS calculates an emission reduction from the amount of sidewalks and bicycle infrastructure built in the project. Therefore, crediting certain on-site measures are of no additional cost to an applicant because they had already incorporated the measures into the project as a result of the public agency requirements.

Mark Stout - Fresno Metro Ministries

57. **COMMENT:** The proposed rule only mitigates a portion of the emissions. Why does the rule only reduce a portion of the emissions, and why the particular level- for example the 33% for operational NOx.

RESPONSE: The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. The rule sets levels that are in compliance with state law regarding indirect source regulations and are feasible to achieve. The 33% is based on the area under the triangle that accounts for declining mobile emissions over time – see the fee formula.

58. **COMMENT:** A slide of the presentation showed huge NOx emissions increase from 2006 to 2010 from development. The number listed for reduction attributable to the rule seems rather small in comparison.

RESPONSE: The slide incorrectly showed the reductions attributable to construction as cumulative instead of temporary during the construction phase of development.

59. **COMMENT:** The District would benefit from making the URBEMIS runs available to the community groups. The community groups should be able to review what developers are inputting, and verify the modeling.

RESPONSE: The runs will typically be used in the CEQA process and included with negative declarations and EIRs. The files will be available with a public information request. The District will make this information public. See also Response to Comment #8.

Colby Morrow – Southern California Gas Company

60. **COMMENT:** Appendix C should be amended. PUC Energy Efficiency programs can be administered by energy companies and municipalities.

RESPONSE: Appendix C, page C-5 will be amended.

Cathy Crosby, Fresno County Public Works, Transportation and Planning

61. **COMMENT:** The response to comment format from the previous workshop made it difficult to find one's comments and the associated responses. The preferred format would be the EIR format, where the original comment letter is retained.

RESPONSE: The District has revised the response to comment format to address this issue. The format is a hybrid, retaining the original comment but not in the original letterform.

62. COMMENT: Several of the Fresno County July 22nd comments weren't addressed in the response to comments. Specifically:

- Transportation projects should be re-written to include non-vehicle projects, such as pedestrian projects.

RESPONSE: The definition of Transportation projects does not include non-vehicle projects because of the definition of an indirect source. The Clean Air Act (CAA §110(a)(5)(C)) defines and indirect source as, "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution". Pedestrian projects do not attract mobile sources of pollution, but pedestrians. It would be inappropriate to include non-indirect sources in with transportation projects to be subject to the requirements of the rule.

63. COMMENT: §7.2.2.2 of their letter describers the dissolution of community service districts.

Previous Comment
7.2.2.2- Community Service Districts (as a means to insure perpetual funding for operational mitigation): The Air District may want to evaluate under what conditions a Community Service District that funds any mitigation activity not directly related to health & safety may, after formation, discontinue assessment or dissolve the Community Service District by vote of property owners making up the District.

RESPONSE: All measures within the on-site checklist have an emission reduction benefit associated with their implementation. The District identified those on-site measures that reduce emissions from development projects, and help reduce the air impact of development projects. The goal of the rule is to reduce emissions from development project to achieve the emission reduction committed to by the PM10 and ozone attainment plans. Although each measure is indirectly associated with an air benefit (reduced emissions and attainment of the PM10 and ozone standards), the District considers the measures to be health-related. Therefore, funding of these measures constitutes a health-related activity.

64. COMMENT: Maintenance concern. Where will the funds for County enforcement of the rule come from?

RESPONSE: The County will not be required to enforce the rule. See Response to Comment #8.

Ray Leon – Latino Issues Forum

65. **COMMENT:** The District should clarify the PM2.5 and toxics issue. Suggests that the District break PM10 down further to strengthen the rule.

RESPONSE: This rule is a result of the PM10 and ozone attainment plan commitments. The rule controls NOx and PM10. Some fraction of PM10 is PM2.5 and will be reduced as a result of the rule. NOx reduces ozone during the warm months and reduces ammonium nitrate, most of which is PM2.5, during the cold months of the year.

The District recognizes the issue of toxic emissions from diesel engines, and the particular hazards of PM2.5. However, toxics are addressed through the District's permitting program, state regulation, and through CEQA commenting. District thresholds of significance for these pollutants are contained in the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI). In addition, PM2.5 will be addressed in the federal PM2.5 Attainment Plan due in 2005.

Mike Sanchez – City of Fresno

66. **COMMENT:** The city's July 22nd comments need to be addressed; they weren't addressed in the previous response to comments.

Previous Comments (paraphrased)

Nexus and Proportionality

- **A.** What is the Nexus determination for the project
- **B.** ISR rules address emissions from existing development; so, placing requirements on new development to remedy problems from existing development would be inappropriate.

Relationship of SJVAPCD and Rules 9510 and 3180 to CEQA and Planning Law

- **C.** Rule appears to defer or circumvent CEQA analysis because analysis and mitigation would be prepared after CEQA analysis. Also, it appears that the District would be issuing a construction permit, making the District a responsible or trustee agency.
- **D.** There may be differences in interpretation of mitigation measures and the reductions associated with them.
- **E.** Because the District is the appropriate agency to make a detailed determination of air quality impacts and appropriate mitigations, the District should fulfill its CEQA responsibilities by providing analysis and recommendations to the local land use jurisdictions so that the CEQA analysis work can be completed with this information.
- **F.** The District should not determine locations or patterns for development, this is the local jurisdiction's authority.

G. "Analysis and conclusions regarding land use and its vehicular emissions need to be rooted in data… recommend objective criteria"

Applicability of the Rules 9510 and 3180

H. It is not addressed if the rule applies to general, regional, community or specific plan adoptions. At that level, project specific information may not be known, and analysis may not be accurate. Therefore, they should be exempted from the rule**.**

I. Each public agency defines 'discretionary' and there is variability as to what each public agency considers discretionary. Therefore, the ISR rules will be applied inconsistently.

J. Language should be included in the rules to prevent piecemealing.

Timing and Project Tracking

K. Request ISR review to be shortened from 30 to 10 days to , "remain within the statutory CEQA timelines for responding to initial study requests" because URBEMIS runs are quick. The District should send the ISR project information to the public agency for incorporation into CEQA documents.

L. How will timing of construction be controlled for mixed use projects, since commercial often lags behind residential development?

M. How will the District track projects, such as multi-phase tract maps or shell buildings, for review and analysis.

Interagency Cooperation

N. "The ISR Rules propose that cities and counties withhold building permits pending satisfaction of SJVUAPCD requirements." There should be an agreement between the public agencies and the District that includes indemnification of the city.

O. "Local land use jurisdictions should be made a party to any mitigation agreements entered with the developer…(and) it would be ideal if such agreements were recorded as covenants running with the land…for which the … analysis was done."

Use of Mitigation Fees Collected Through ISR Rules

P. It appears that the ISR funds will be used to fund existing programs. New programs that expand mass transit and similar systems should be considered. "… the majority of the funding generated through the ISR rule should address vehicular pollution through measures to reduce traffic volume and relieve traffic congestion in the vicinity of the land use projects paying the ISR Rule-related fee."

RESPONSE:

A. See Response to Comment #125

B. ISR rules address emissions from *growth*, not from existing emissions. See Response to Comment #170. See also, Response to Comments #34 and #39.

C. Rule has been revised to be concurrent with CEQA analysis and Public Agency approval process. See Response to Comments #8 and #44. Also,

the District would not become a Responsible agency as a result of ISR implementation (See Response to Comment #52 and #187)

D. The measures listed in the On-Site Emission Reduction Checklists have a known quantification method associated with them. Applicants will identify the *specific* implementation of each measure, so there will not be interpretation of the amount of reduction. See also Response to Comments #7 and #9.

E. Although the ISR rules were not written to address CEQA, the reductions committed to in the PM10 and ozone attainment plans from this rule and individual project compliance can be used in CEQA documents at the public agency's discretion. See Response C above for timing of ISR implementation. See Response to Comment #8 for information on communications between the District and the land-use authority.

F. The District will not be making land-use decisions, and recognizes that that is the authority of the local land use agency. The land-use design considerations discussed by the District are discussed because they are known to reduce air quality impacts. The District provides these types of measures to encourage applicants to design projects submitted for city/county approval in ways that improve air quality and reduce potential ISR fees. The District has no authority over implementing land-use changes. Please note, the District will not require a minimum selection for the on-site checklist, measures selected are voluntarily identified by the applicant and are likely already part of the project. See also Response to Comment #43 and #44.

G. The measures listed on the on-site checklist have objective criteria, based on extensive research within URBEMIS. Please refer to Appendix D (Recommended Changes to URBEMIS for Rule 9510 and 3180) and the URBEMIS User's Guide (available at URBEMIS User's Guide, available at South Coast Air Quality Management District's website http://www.aqmd.gov/ceqa/urbemis.html). See also Response to Comments #7 and #9.

H. The ISR rules are applied to the last discretionary approval of a development project per Rule 9510 Section 2.1. The adoption of a general plan or specific plan is not usually the last discretionary approval a project will go through. Residential development may be rezoned, and must get a subdivision or tract map. Conditional Use Permits and Site Plan Reviews often apply to commercial and office development. However, the District recognizes that some projects may not require additional discretionary approval after the zoning is approved. Specifically, industrial development may not require additional approval. Therefore, the last discretionary approval will vary depending on the project. The District will provide outreach to developers and the public to ensure awareness of the rule; however, it is the responsibility of the applicant to be aware of the need, or lack thereof, for additional discretionary approval by the local land-use agency, and to apply at

the appropriate time. Additionally, applicants are encouraged to apply *prior* to the application for last discretionary approval with the land-use agency.

I. The District recognizes the variability of the application of 'discretion' in the Valley. As stated in H above, the last discretionary action is the trigger for the rule. This may cause inconsistency early in ISR implementation; however,

J. Language has been included. See Rule 9510 Section 2.3

K. First, the ISR program is not a CEQA compliance program (See Comments above). Analysis of the AIA application involves more than opening and running URBEMIS. The District will be analyzing the documentation for projects, running modeling program, finalizing MRS's, finalizing FDS's, etc. See the Draft Staff Report for additional information. The District will be sending information to the public agency. See Response to Comment #8.

L. The District does not have the authority to control construction timing. See Comments F, G and H above.

M. The District will be tracking projects through a database, and will be tracking project location primarily through APN. Multi-phase projects will be entered as such, with the applicable expected build-out dates. The applicant is responsible for identifying the use and build out of the projects. Should the project change, the applicant is responsible for notifying the District. If the project changes such that there is an increase in air emission and the applicant does not notify the District, they will be in violation of the rule and subject to District enforcement action. The District will share project information with public agencies to coordinate project tracking.

N. The District will not require or request that public agencies withhold building permits for ISR enforcement. However, the District may enter into an agreement with a public agency for information sharing that would facilitate District enforcement of the rules.

O. The District will be sending the public the on-site emission reduction checklist, as well as other information (see Response to Comment #8) during the review process. The District will consider the use of covenants for MRS compliance enforcement.

P. The District will not be using the ISR funds solely for existing emission reduction programs. The District has conducted an analysis of emission reduction projects available, and the cost effectiveness associated with them. This analysis can be found in Appendix E. See Response to Comments #18 for the use of funds, and #47 and #188 on the location of funding projects.

Modesto

Sally Rodeman – CalTrans, District 10

67. COMMENT: District 10 did not receive the notice for the meeting.

RESPONSE: You will be added to the rule mailing list. Other Caltrans staff received notice.

CalTrans District 10 is on the District's mailing list as a street address, to which the District has been mailing notices. District staff looked into the issue, and found that the CalTrans website lists a PO Box for District 10. The District will work to resolve this issue.

68. COMMENT: Is CalTrans a developer as defined by the rule?

RESPONSE: CalTrans would be a developer in those instances where the project meets the applicability of the rule.

69. COMMENT: Can the District put that in writing in the rule?

RESPONSE: The District does not specify or write out *who* a rule applies to, but write *what* a rule applies to. The rule is written so that all entities and individuals conducting activities subject to the rule must comply, so there is no need to list every possible agency or entity subject to the rule.

70. COMMENT: Does the Socioeconomic Impact Report account for impacts on the State of California, considering that the state is broke?

RESPONSE: The socioeconomic analysis provides the overall impact to the economy but does not specifically separate out impact to individual government agencies.

71. COMMENT: Does the District have a list of mitigation measures for construction?

RESPONSE: The Staff Report contains a discussion of measures that reduce emissions from construction activities.

Tom Carlson – Sierra Research

Thanks for addressing Sierra Research's comments from the last draft of the rule. Particularly, for Sierra Research's comments on silt loading, trip links and fleet mix.

72. COMMENT: How will the District be addressing the needed changes to the URBEMIS model?

RESPONSE: Updated default values will be provided as rule guidance. This information may be contained in the next update to the GAMAQI. The next upgrade to URBEMIS, beginning next year will include many of the new defaults and an improved construction module. The upgrade may take as much as a

year to complete, so in the interim, the guidance documents will be provided as needed.

73. **COMMENT:** What is the basis for the targets on PM and NOx reductions from construction?

RESPONSE: The District researched what other air districts had set for reductions, and found that those targets are achieved in practice. The reductions (20% NOx and 45% PM10) are achievable with existing technology with a mix of newer equipment and retrofit devices, and will allow applicants applying moderate effort to pay no fee on construction.

74. **COMMENT:** What is the District's response to the vehicle age distribution by age of project that Sierra Research had provided? Is the information provided by Sierra Research not adequate or substantial enough to change the modeling?

RESPONSE: The District is not currently convinced that the data cited would be valid in all circumstances, but will consider projects that provide evidence supporting a reduction for fleet age. There may be other factors that offset the possible benefit from newer vehicles such as higher rates of vehicle ownership (more vehicles per household).

75. **COMMENT:** URBEMIS is a sketch planning tool. Sierra Research believes the District should use a travel model. Sierra Research believes that a travel model is more accurate than URBEMIS, and found that URBEMIS estimates are 60% higher than the travel model estimates for the same project. In addition, as a sketch tool, URBEMIS is inconsistent with SIP methodology.

RESPONSE: The District believes that URBEMIS has been improved beyond its characterization as a sketch planning tool. Very few of the modules of the program are overly conservative. Most modules rely on statewide averages extracted from the emission inventory which should not be considered conservative estimates. The most important module is the mobile source module that includes the same emission factors used to build the emission inventory. It does a good job of arriving at a composite emission rate needed for a project level analysis. Models can always be made more accurate by individualizing more and more input factors. The District believes that URBEMIS balances data requirements with reasonable output accuracy and ease of use. The travel demand models described by Sierra Research are extremely data intense and would be very costly to run for the approximately 1,000 projects that will be submitted to the District each year. It is uncertain whether the demand models are more accurate for project level analyses than URBEMIS with local information**.**

Jan Ennenga – Manufacturing Council

76. **COMMENT:** There is a concern that the ISR program would apply to CEQA processes and permits for existing facilities that make modifications.

RESPONSE: ISR projects are land-use based, triggered by a discretionary permit in combination with new construction or increased use that generates construction and/or area and mobile emissions that exceed the ISR threshold. If a land use requires a discretionary permit, and meets or exceeds the applicability threshold, then the emissions from hauling would be subject to the rule.

77. **COMMENT:** What exactly does "primary source of emissions" mean for the exemptions section?

RESPONSE: The District had originally include an exemption for "A development project, whose primary source of emissions are from stationary sources…" However, the District is revising exemption to make specific land uses exempt. The District has completed a review of industries permitted by the District. This analysis details the amount of rules that apply to each industry and the amount of pollutants regulated by these rules. The intent is to remove the ambiguity of "primary" emissions and detail which industries will be exempt from the rule. In addition, industries with stationary sources may petition the APCO for ISR exemption.

Bill Zelocci – BIA CC, PSSP, StanCo (Affordable Housing)

78. **COMMENT:** The bill targets housing only. The fees, at least the biggest fees are from housing. The Rule doesn't affect other land uses that produce vehicle trips.

RESPONSE: The rule targets new development that results in area and/or mobile emissions. The rule contains an applicability section and an exemptions section. The rule *does not* target housing exclusively or charge higher fees for residential development. Housing constitutes about 1/3 of the development related emissions and therefore 1/3 of the potential for fees under the rule. Other land uses such as commercial office and retail generate more emissions and potential fees. Housing is used extensively in discussing socio-economic impacts because that is what concerns most people. Fees are emission based, not land-use specific. Fees apply to the broad categories of land uses specified in the rule. Certain land uses are exempted from the rule because their emissions are primarily from stationary sources, and they have been subject to extensive controls and requirements already. The sector targeted by the rule are those land uses without the majority of emissions from controlled stationary sources, which haven't been subject to rules or emission controls.

All fees are tonnage based, and the required reduction formula applies equally to all applicable projects. This means that a particular project only pays the off-site emission reduction fee for the required reductions that are not achieved on-site.

The Socioeconomic Analysis discusses the potential impacts to housing more extensively than the impacts to commercial or industrial, because the impact on housing affordability is of a greater concern to the affected industries and the general public than the impacts on commercial or industrial.

Certain land uses are exempted from the rule because their emissions are primarily from permitted stationary sources (the rule only covers area and mobile emissions), and they are and have been subject to extensive controls and requirements.

79. COMMENT: The rule should also address existing housing.

RESPONSE: The goal of the rule is to achieve an emission reduction from *growth* that was identified in the PM10 and ozone plans. Although VMT is increasing valley wide, the majority of new emissions are attributable to new development. It would be inequitable to assess fees on existing uses with the purpose of mitigating emissions from growth.

80. COMMENT: Part of the presentation used small, unreadable font. Please use a reasonably large font for presentations, so that people may be able to read what is on the screens.

RESPONSE: Comment Noted. The District apologizes for the illegible font-size, and will attempt to make future presentations clear and readable.

Randy Hatch – Planning Director, City of Ceres

81. COMMENT: There is a concern that the ISR program will cause changes to a project after a local agency has granted approval to the project.

RESPONSE: The rule has been changed to make the process concurrent or prior to the approval process by the public agency. The District defers land-use choices to the public agency and the applicant. See Response to Comment #8 for more information.

The District does not place requirements for land-use measures on the project. The on-site emission reduction checklist must be filled out by the applicant, but the District does not have a minimum or maximum requirement for the number or type of measures to be selected. Inclusion of measures is voluntary by the applicant (see Response to Comments #56). The District will not engage in negotiations to include on-site measures (See Response to Comment#44).

Therefore, the District will not be imposing measures that conflict with the local land use agency. It is the applicant's responsibility to make sure that those measures they have voluntarily selected are consistent and approvable by the local land use agency. In the instance that the identified measure is not acceptable by the local land use agency, the applicant is responsible for notifying the District and the on-site emission reduction checklist and emissions modeling will be revised to reflect the project at that time.

In addition, the rule and staff report will be revised to provide more interaction with the public agency and the District. See Response to Comment #8 for more information.

82. COMMENT: How do public agencies determine compliance with the rule, especially if the District's approval can occur after the approval by the public agency?

RESPONSE: The District will revise the ISR process to be concurrent with or prior to the approval process at the public agency. See Response to Comment #8 for more information. Specifically, the District will provide letters notifying the public agency of the Determination of Completeness, AIA Approval and Final Compliance, as well as providing a letter of compliance status to the public agency upon request.

83. COMMENT: What exactly is meant by 'parks' in the applicability section?

RESPONSE: Active recreation parks – parks that attract motor vehicles. It is not the intent of the rule to assess passive recreation parks. Parks will be assessed based on emissions the same as other land uses,

84. COMMENT: The City of Ceres suggests the District alter the application process to make it prior to the final public agency approval, perhaps by tying it to the application to the public agency. In addition, the City suggests the District include a predevelopment process. The City of Ceres has a predevelopment process that aids in the application process.

RESPONSE: The District will amend the rule language and the staff report to make the application to the ISR program concurrent with or prior to the final discretionary approval application to the public agency See Response to Comment #8 for more information. The District does not currently have a plan for formal pre-application consultations. However, the District will be available for consultations any time prior to actual application and encourages applicants to meet with District staff to clarify issues when needed.

Fresno

Kathryn Phillips – Environmental Defense

85. **COMMENT:** Concerning the view that land use does not have an impact on air quality (see comment #34) – that is a minority view. Most have realized that land use does have an impact on air quality.

RESPONSE: Comment Noted.

86. **COMMENT:** Concerning the issue of self-selection (see comment #36), the choice of good design should be available.

RESPONSE: Comment Noted.

87. **COMMENT:** The URBEMIS model is imperfect, but it is appropriate for this rule.

RESPONSE: The District concurs. The District is aware that there is not a 'perfect' model available, nor is there likely to be one in the future. However, the URBEMIS model is best available method for quantifying project emissions and benefits from on-site measures.

88. **COMMENT:** Rule 9510 section 2.1.8 has one threshold for recreation, but the definition includes movies. 'Movie theaters' are more commercial in nature, and should be moved to commercial. In addition, 'parks' should be defined.

RESPONSE: Comment Noted. 'Movie theaters' will be removed from recreation to commercial.

89. **COMMENT:** A 2-ton exclusion level (Rule 9510 section 4.2) is too generous. This level should be reduced.

RESPONSE: See Response to Comment #180.

90. **COMMENT:** Rule 9510 section 2.2 discusses transportation projects that have two tons or more of NOx and PM10 combined. How large of a project would fit this description? How large would a project be to be subject to the rule – a pothole or an interstate exchange?

RESPONSE: Small maintenance projects would not exceed the threshold. Construction of a one-half mile arterial road segment would exceed the threshold. The road project must also be subject to a discretionary approval to be brought into the ISR process.

91. **COMMENT:** Rule 9510 section 3.5 defines 'Baseline Emissions'. This section should be clarified. Where exactly is the baseline?

RESPONSE: The definition will be changed to the following:
Baseline Emissions: the unmitigated estimated NOx and PM10 emissions, output calculated by the APCO-approved model, in the units of tons per year.

In addition, the following will be added to the definition section of the rule to clarify the issue of baseline:

Construction Baseline: the sum of unmitigated NOx or exhaust PM10 for the duration of construction activities for a project or any phase thereof.

Operational Baseline: the entirety of NOx or PM10 emissions, including area source and mobile emissions, calculated by the APCO-approved model, for the first year of buildout for that project, or any phase thereof.

A development would have two construction baselines (one NOx, one PM10) and two operational baselines (one NOx and one PM10), if it does not have phase. For the purposes of this discussion, the four baselines will be referred to as a 'baseline set'. For projects with phases, each phase will have one baseline set. According to the off-site fee formulas, the equations are used for each baseline set.

As and example, one project has three phases. The rule contains four fee formulas: an operational NOx, an operational PM10, a construction NOx, and a construction PM10. Each of the four calculations are performed three times, once for each phase or 'baseline set'.

The operational baseline is calculated at the date of expected buildout, the construction baseline is calculated at the date(s) of expected construction.

92. **COMMENT:** Rule 9510 section 4.1.5 needs clarification of what federal, state and local funds for low income housing are applicable.

RESPONSE: Based on the District's internal analysis of applicability and impacts, the exemption for low-income housing has been removed. It has been determined that the Rule should apply to all new residential development that meets the applicability section of the Rule.

93. **COMMENT:** Rule 9510 section 5.3.2 discusses the application for the AIA. The District should list out what information will be in the application.

RESPONSE: The District will expand that section to include more specific information of what will, at a minimum, be included in the AIA application.

94. **COMMENT:** Environmental Defense recommends including ROG in the rule for emissions reductions.

RESPONSE: See Response to Comment #57 and #65.

95. **COMMENT:** Rule 9510 section 6.1.1.1 and 6.1.1.2 discusses the reductions required from construction emissions. The 45% reduction requirement for PM10 is too low. Applicants can get much higher results with existing technology. The 20% NOx reduction requirement may similarly be too low. In addition, Environmental Defense recommends requiring emission reductions by vehicle and suggests that the District talk to CARB about their in-use construction equipment regulations.

RESPONSE: See Response to Comment #57 and #65.

96. **COMMENT:** Rule 9510 section 10.2 (APCO administration of funds) does not contain the term 'permanent'. The District should aim for permanent reductions.

RESPONSE: Many of the projects funded by the District will meet the strict interpretation of permanent reductions. In some cases, the projects are expected to be permanent but the user of the clean equipment is only obligated to operate it during the contract period. After the contract period ends, it is highly likely that any replacement equipment will be as clean or cleaner than that funded by the District due to lower emission standards and improving technology over time for nearly all source categories.

97. **COMMENT:** The funding of projects with fees received from this rule is implied to be application-based. The rule should state if it is application based.

RESPONSE: Although current District programs are primarily open application based for as long as funding is available, for some source categories it may be more appropriate to have requests for proposals with deadlines and project ranking. Therefore, the rule language should remain the same.

98. **COMMENT:** The economic analysis and other supporting documents don't include health impacts and those costs. This information should be included to keep the purpose and goals of these actions in perspective.

RESPONSE: It is not feasible to assign a dollar amount to the health effects that will be avoided or lessened by the implementation of this rule. However, the District will include health-impacts information from the PM10 and ozone attainment plans in the staff report.

Kristine Foster – Asthma Coalition, Respiratory Therapist, Asthma Educator and CAC member.

99. COMMENT: Land use planning is important and the District needs to include education for the public.

RESPONSE: The District concurs with both of the commenter's points. The District currently believes that Rule 9510 will provide incentives for development that creates fewer impacts and will bring greater awareness of this issue to the public.

Bakersfield

Mike Kelley – Vector Environmental

100. COMMENT: Does the rule apply to the fraction of PM greater than 10 microns?

RESPONSE: No. The rule applies to PM10, the fraction of PM 10 microns or less in diameter.

Chambers of Commerce – Public/Private Organizations

The Greater Merced Chamber of Commerce
Date: September 14, 2005

101. COMMENT: The Greater Merced Chamber of Commerce urges the district to reevaluate the impacts of rules 9510 and 3180 will cause to the Central Valley. The District has no organized plan for the fees that will be charged and when asked, the district indicates grant money for clean air vehicles and other measures to reduce the pollution. Before these rules should be brought to the board for approval, a complete plan should be developed.

RESPONSE: The District has a history of funding more than $100 million in emission reduction projects. These existing programs are underway and the system is in place for processing projects funded by Rule 9510. The District has provided additional information on the types of projects available for the program in Appendix E. The District has identified more than $400 million in projects available at a cost-effectiveness that will allow the District to achieve plan commitments. As technology advances, even more opportunities for retrofit and replacement programs are expected.

102. COMMENT: These rules will make the housing costs rise to a level that will make housing in Merced more unaffordable and will hamper industrial and commercial development in the greater Merced area. A comprehensive study needs to be completed on the effect the rules will have on economic development and jobs in the valley. The valley leads the nation in unemployment figures and the need for jobs through out the Valley is extremely important. These rules ill affect new job creation.

The costs of these new rules will slow down growth that will be coming to the Valley. Without a clear economic study, these rules should not be approved. Growth will happen and proper planning is needed to make sure the growth is well-planned and well-implemented. These rules will create more problems than they will solve.

The Greater Merced Chamber requests more studies and a better economic plan be developed before the rules go forward to the board for approval. Thank you for your consideration of our concerns.

RESPONSE: According the Merced County Association of Realtors, the median home price in Merced County is $330,000. The proposed fee amounts not considering the potential for reductions due to project design are between $800 and $1800 per unit in the first 3 years of program operation. In percentage terms this ranges from .24% to .54% added cost to the median home. The funds

collected from the developers are used for air pollution projects in the area that will benefit the local economy.

Stanislaus Economic Development and Workforce Alliance (Alliance)
Date: September 13, 2005

I am the CEO of the Stanislaus Economic Development and Workforce Alliance. The Alliance is a public private organization comprised of representatives of Stanislaus County, all cities in the county and dozens of private business investors. It is the designated agency for all economic development and workforce activities in the county.

I attended the video conference of an APCD staff presentation at a public \meeting on September 1 in Modesto. I am very concerned about several aspects of that presentation and therefore the consequences of Rule 9510 and Rule 3180 proposed for implementation by the APCD.

My concerns are as follows:

103. **COMMENT:** Regarding the exemption for projects whose primary source of emissions that come from stationary sources, how is **primary** determined?

RESPONSE: The District has completed a review of industries permitted by the District. This analysis details the amount of rules that apply to each industry and the amount of pollutants regulated by these rules. The intent is to remove the ambiguity of "primary" emissions and detail which industries will be exempt from the rule. In addition, industries with stationary sources may petition the APCO for ISR exemption.

104. **COMMENT:** Regarding the submittal of applications no later than 30 days **after** last discretionary approval, what kinds of delays to projects will be experienced while APCD reviews the mitigation plans and does their calculations and assessments. My experience tells me the current workload precludes timely processing or even a return of phone calls regarding ATC requests and other permitting. Staffing is either insufficient or incompetent or both. What steps are contemplated to alleviate the existing gridlock and avoid additional bottlenecks in the future?

RESPONSE: See Response to Comment #8 for the ISR application changes. It should be noted that the ISR process is not a permit, nor is it a discretionary action (See Response to Comment #187). The District is working on producing a streamlined approval process that has clear information requirements and timelines (as listed in the rule). The Planning Department will be responsible for ISR project review and approval. The Planning Department, as well as all affected departments (Compliance, Emission Reduction Incentive Program – ERIP, and Administration), has produced a staffing analysis for implementation

of the ISR program. The Planning Department identified the steps in review and approval, the time associated with those steps, and in this process identified steps that could be merged or simplified. The staffing requests are listed in the Board Memo, and the District will provide a more detailed staffing request before the Board adoption hearing. However, the staffing analysis is for ISR adoption only, and does not address staffing for existing programs.

105. COMMENT: The APCD has not yet created an emissions calculator.

RESPONSE: URBEMIS will be used for Operations, District is working to determine if a modification to URBEMIS or a separate calculator will be needed for construction. However, methodology for construction is known. Take vehicle type, hours of operation and compare to emissions from the state-wide average. URBEMIS can come up with default fleet numbers, we are working about refining them.

106. COMMENT: Developers and business with the same degree of concern on this issue that the APCD exhibits, albeit with a different perspective, have expressed serious reservations about the integrity of URBEMIS. Are these concerns dismissed out of hand with no attempt to verify the soundness beyond your belief that it must be okay because you are using it.

RESPONSE: The Staff Report contains a detailed discussion of why URBEMIS is appropriate for this rule, and why it was chosen over other models. The District has completed extensive research, including hiring a consultant to review existing models to determine the most appropriate, comparisons of models, and detailed model research and has determined that URBEMIS is the most appropriate model for the rule. See Response to Comments # 157.

107. COMMENT: The socioeconomic impact predictions for Rules 9510 and 3180 were calculated using dated methodology (1995) that does not factor in the impact of the meteoric increases in valuations and costs and burden of stagnant incomes regarding affordability.

RESPONSE: The Socioeconomic impact report uses median price data up to 2005. Most data was no older than 2003. The methodology is standard for the air pollution rule development process and is not dated.

108. COMMENT: The financial windfall that will occur if these rules are implemented could total tens of millions of dollars per year in the valley. What accountability is associated with the “mitigation accounts”? Who determines and what is the definition of quantifiable and enforceable mitigation projects?” Is there an audit of these accounts and by whom? How were the fee levels determined? Are they equitable?

RESPONSE:

1. Accountability – The District has successfully managed over $100 million in grant money over the last decade. The District has an outside auditing company to provide assurance to the Governing Board and the public that funds are appropriately managed. The California Air Resources Board has also audited the District.
   Definition of quantifiable – The project to be funded must have emission factors, process rates, and use data, necessary to calculate baseline emissions and emission reductions after the project is implemented.3.
   Enforceable – The project must have a mechanism that ensures that the project will be implemented and that emission reductions will be achieved during the specified timeframe.
2. Fee level determination – The fee levels are based on the average cost of reductions projected for each year for each pollutant. See also Response to Comment #114.
3. The fees are equitable because they are based on emissions generated by the project and each project's emissions are quantified using the same well-accepted models and factors.

109. COMMENT: APCD's goal over the next ten years to reduce the ozone and PM10 emissions targets new development only. If the housing bubble bursts and the corresponding emissions from new growth cease, will the burden shift to commercial, industrial and/or existing housing in order to meet the goals?

RESPONSE: The emission reduction targets for ISR in the PM10 and ozone plan are based on the *predicted* growth in emissions from new development. ISR reduces, through on-site and/or off-site measures, emissions generated by new growth. If that growth does not occur as predicted, for example in a 'bubble burst' scenario, then the emissions from new development will be less than predicted. If the emissions do not occur, they would not have to be reduced through the ISR program. In this situation, ISR does not have to adjust the emission reduction 'burden', or assess additional emission reductions.

110. COMMENT: There seems to be confusion about the degree of compatibility of these rules with the CEQA process, adding additional burden for businesses in meeting timelines and development schedules.

RESPONSE: See Response to Comment #8 and the Staff Report, Section IV.C.

111. COMMENT: Those of us who are tasked with promoting and marketing the valley for business locations and as a quality place to live and work are very concerned about the air quality issues that we fact. Certainly the air quality is a factor in decisions made by individuals and businesses alike when determining the suitability of the valley for their purposes. The major challenge is to address

those issues in a fair and balanced way with techniques and plans that are based on sound logic and a strong scientific basis.

RESPONSE: The District concurs with the author's statement.

Business, Industry & Government Coalition of the South San Joaquin Valley
Date: August 30, 2005

112. **COMMENT:** Our organization and its members share a deep commitment to improving air quality in the South Valley and applaud all reasonable efforts to attain Federal and State mandates. Draft Rule 9510, as we are coming to understand it, is the program that will be employed by the San Joaquin Valley Unified Air Pollution Control District to involve indirect sources, those land uses that attract or generate motor vehicle trips, in the mitigation of air emissions. The required reviews of the draft rule are delineated, however, the fees associated with the draft rule are not easily understood.

The presentation on Draft Rule 9510 – DESIGN (Decreasing Emissions' Significant Impact from Growth and New Development) gave several members of our organization cause for alarm after the initial public meeting was held. While there were references to fee schedules and proposed costs for building permits, the method describing the establishment of fees was not clearly reviewed. The Building Industry members of our organization are well aware of Public Facility Fees, Govt. Code 66000. Using that base of reference, the description about fee collection and fee usage was not congruent with their experience with Public Facility Fees. Upon further review after the meeting, the fees established through the Health & Safety Codes of California are the references for the Air Board's proposed fees. These fees are "news" to our members and additional information would be very helpful.

RESPONSE: See Response to Comment #6 and the Staff Report Section I(B) for a discussion on District authority for the rule.

113. **COMMENT:** For the next public meeting, scheduled September 1, 2005, our request is to have staff provide information about the process establishing the fee each year and how the fees are used for programs and projects under the authority of the Air Board. We want to know about the programs and the proposed costs for programs that will be instituted pursuant to Health & Safety Code 42311 (g). Our read of the statute indicates these fees are set annually based on estimated costs of air pollution control programs that will be conducted in the following year. In the event all funds are not expended, the fee revenue will carry over to the next year and will, then, reduce the fees for the subsequent year. What is the reporting mechanism and public process for these fees? While there are specific requirements outlined in the statute, none of our membership

was aware of actual dates for the public hearings and none were aware of what projects are in process for this year or their related cost(s).

RESPONSE: The fee amount is based on the anticipated cost of reductions in each year. Staff performed an analysis of historical project funding costs from our existing grant programs that have successfully contracted over $100 million and examined the potential for projects in the future based on the emission inventory and population of project candidates, the technologies available to reduce emissions from the source, whether the reductions will be surplus in the future based on proposed and adopted regulations on the potential project candidates, and the feasibility the project. Based on these factors, the District made percentage funding estimates for each type of project for each year. This information allows the District to calculate a projected average cost-effectiveness for each year. To further verify these numbers, staff prepared project mix spreadsheets based on available projects and funding for each year to demonstrate that the cost-effectiveness averages are achievable. This information has been added to Appendix E of the staff report.

114. COMMENT: In concert with the fees proposed through H&S Code 42311(g) are the fees outlined in Draft Rule 3180. Those fees are cost recovery based – cost recovery for administering Rule 9510. We ask for clarification on how that rate is developed and how applicants will be billed for the actual hours of staff time to evaluate and review proposed projects. We also ask to be informed if the weighted average labor rate will be reviewed in a public meeting or public hearing prior to annual establishment. The Health and Safety Code reference for the cost recovery fees appears to be in section 40604. The draft report of Staff indicates that section 40604 was codified as a result of legislation SB709, Florez, from the past fiscal year. Section 40604 is devoid of explanation about the fee structure other than to indicate there will be a schedule of fees and the fee schedule "shall be designed to yield a sum not exceeding the estimated cost of the administration of this chapter and mitigation of emissions and the filing of applications". How will this fee be published and through what public process? The project fees allow for annual rollover; how will the administrative fees be managed? If estimated costs are higher than annual costs, how will notification occur and what mechanism will be used to refund overpayment? We are hoping that the public meeting on September 1st will provide answers to this fee.

RESPONSE: The District will use the same average weighted labor rate method that it has used for many years in processing stationary source permits. It is based on labor and overhead rates used to develop the District's budget that is adopted in a public hearing each June. The project review fees are based on the hours predicted for a relatively simple project. Projects proposing standard on-site measures and having air quality impact assessments that use standard factors and default changes that have been agreed to in advance are expected to be covered by the fee amount. Complex projects are expected to require

additional staff analysis and review time that would result in costs that exceed the application fee. The District will be using a project management and billing system to track hours for the project. An applicant can request the status of labor charges at any time. The amounts accumulated to date can be obtained from the database and provided to the applicant. When the District staff completes its review and determines the off-site fee amount, they will generate an invoice that itemizes charges for review and the proposed off-site fee amount.

115. COMMENT: We are concerned that implementation of additional fees (Rules 9510 and 3180) associated with new construction will adversely affect the addition of sorely needed housing stock to the South Valley. Our region of the state is expected to take the brunt of the projected population growth, and we are already woefully under stocked. Our coalition believes that inadequate attention has been placed on studying the socio-economic implications of implementing the proposed fees.

Reducing PM10 and NOX emissions from indirect sources is a commitment thrust upon everyone in the Central Valley. Adding additional reviews and controls during the planning phase of construction is workable as long as all steps in the review process are clearly communicated and upheld. Compounding the issue of added reviews are the added fees for air pollution control and emission reduction projects that are not well known to members of our organization. As requested, providing more information about the type of projects, costs for current year and the process for the annual review of these fees would be most beneficial. Added study and discussion about the factors that influence the socio-economic status of the Central Valley are desired before these draft rules are presented to the Board of Directors for their consideration and vote.

Thank you for your attention to our concerns and we ask that this letter be read into the public record during the meeting on September 1, 2005.

RESPONSE: The District recognizes that the rule may add a relatively small cost to development; however, the rule is structured to maximize benefits for designs and features incorporated into the project that will reduce the fees and add value to the development. It is possible to significantly reduce the fee with measures now commonly included in projects. The District is committed to streamlining the review process wherever possible and strives to minimize costs and delays. The analysis will be accomplished with URBEMIS for most projects. URBEMIS is very easy to use and can be operated using information typically required by local agencies during the CEQA review process.

INDUSTRY

The Construction Industry Air Quality Coalition (CIAQC)

Date: September 15, 2005

The Construction Industry Air Quality Coalition (CIAQC) is composed of the Southern California Contractors Association and the Southern California chapters of the Associated General Contractors Association, Building Industries Association, Engineering Contractors Association and Rock Products Association. Its membership includes 3,500 construction/development companies.

116. **COMMENT:** 2.0 Applicability: The potential emissions from constructing 2,000 square feet of commercial space, 9,000 square feet of educational space and 10,000 square feet of government space appear too small when compared to emissions from constructing 50 residential units, 39,000 square feet of general office space and 25,000 square feet of industrial space.

RESPONSE: The difference is due to different trip rates for different land uses. Commercial space generates many trips per 1000 square feet compared to other land uses.

117. **COMMENT:** While the rules do not have an effective date, the District should consider the economic impact on small contractors with a high percentage of Tier 0 engines of setting relatively small development project baselines in 2006. An annually decreasing baseline from, say, 200 residential units, 10,000 square feet of commercial space, etc., in 2006 would allow small contractors more time to upgrade their fleets and compete in the bidding process.

RESPONSE: The current approach in the rule using the baseline for each year construction occurs and emission based thresholds provides more incentive to purchase or rent the cleanest equipment at the earliest date. Once in use, the cleaner equipment is available for all future projects subject to the rule. Although small contractors may have an older fleet, those are the equipment and vehicles that are in need of upgrade.

118. **COMMENT:** 3.0 Definitions: The use of computer modeling to estimate construction emissions from potential land uses would eliminate many small contractors unless they can seek advice from the District on how to employ these models. Also, CARB should offer assistance in identifying a diesel emission control device that has been verified for typical diesel engines as well as instruction on the use of the construction emission calculator. Ideally, the contractor or developer could submit to the District the number and types of machines he proposes to use on a project and the number of hours he proposes to run them, and the District would estimate his emissions.

RESPONSE: The District will provide assistance on the use of models to calculate construction emissions and staff can run the models for the applicants on a time and materials basis.

119. COMMENT: 4.1.5 Housing projects directly assisted by government housing funds: Why is government assisted housing exempt from mitigation?

RESPONSE: Based on comments received, the District has removed this exemption so that sources are treated based solely on their emissions.

120. COMMENT: 5.0 The draft rule implies in 5.3 that the APCO is willing to produce an AIA from information supplied by the developer. Is that correct?

RESPONSE: The District will prepare air quality impact assessments if the applicant provides the information needed as inputs in the model.

121. COMMENT: 6.0 A developer should be given emission reduction credit for mitigating windblown dust (PM10) as a result of constructing buildings and landscaping an area.

RESPONSE: The developer is already required to mitigate windblown emissions to comply with District Regulation VIII – Fugitive Dust Rules, therefore, the reductions would not be considered surplus.

122. COMMENT: 7.0 Off-site Mitigation Calculations and Fee Schedules for Construction Activities: In order to be reasonably contemporaneous with emission increases, off-site mitigation should be designated and purchased by the District no later than six months after the payment of the funds by the developer.

RESPONSE: The District commits to spend any funds received as quickly as possible. The programs envisioned require an applicant to come to the District to request funds for qualifying projects, so there may be times when funds take longer than six months to expend.

California Building Industry Association (CBIA)
Date: September 15, 2005

California homebuilders, represented by the California Building Industry Association (CBIA) and its five affiliated Building Industry Associations (BIAs) located in the San Joaquin Valley, are respectfully submitting comments on the Draft Rules, 9510 and 3180 ("proposed rules") of the San Joaquin Valley Air Pollution Control District ("the District").

123. COMMENT: CBIA continues to be troubled by what it sees as several fundamental flaws in the District's plan to assess new "air quality mitigation" obligations on new development in the Central Valley:

1) The District has failed to show a nexus between the impacts of new development on air quality in the region and the massive amount of new fees it proposes charging for this purported impact;
2) The District is using flawed scientific modeling to justify charging massive new fees on housing and economic development;
3) The district singles out new development to bear the burden of its new mitigation scheme which contains highly questionable calculations and a woefully deficient cost-benefit analysis.
4) The District has failed to adequately explain what it intends to do with these new fees (taxes) – somewhere between $300 million and $450 million over the next five years – and how charging them will improve the region's air quality; and
5) The District has failed to acknowledge and account for the impacts of these new fees on the region's economy or on housing affordability.

RESPONSE: See Response to Comments #124 through #142 below.

124. COMMENT: For these and other reasons, CBIA remains strongly opposed to the adoption of the proposed rules and urges the District to withdraw them and, working with citizens and other stakeholders in the region, begin the work of developing a more responsible, equitable and scientifically grounded plan for improving air quality in the central valley.

In the pages that follow CBIA will enunciate in detail both its fundamental concerns as well as other defects in the proposed rules.

RESPONSE: Opposition noted. See Response to Comment #17 for additional information on the development of these rules.

125. COMMENT: The District has failed to demonstrate the required legal nexus for imposing its proposed fees. This has been an ongoing concern of CBIA's and thus far the responses to it given by the District have only caused to make that concern grow. Indeed, the sheer weight of the mitigation fees being proposed by the District for new housing, alone – somewhere between $300 million and $450 million over the next five years – demands a clear description as to what the impacts are that justify the District's fee plans and how the level of fees to be charged are supported by anticipated costs.

RESPONSE: Although the District is not subject to the Mitigation Fee Act (See Response to Comment #52), the District's legal counsel has prepared an analysis of nexus requirements. The analysis identifies if a nexus is required, and discusses the following:

The applicability of the 5th amendment of the US Constitution.

- The analysis finds that the fees resultant from the rule are subject to the "reasonable relationship" test established by *San Remo Hotel LP v. City and County of San Francisco*[2].
- Therefore, if the fee is collected from a development because of the expected air pollution from that development, and the fee is used to offset the type and amount of pollution caused by that development – the fee will likely pass under the reasonable relationship test.

California Mitigation Fee Act

- The analysis finds that the Mitigation Fee Act may not apply to the ISR rules, for the reasons cited from the District in the text of Comment # 126, and in the Response to Comment #52.

California Proposition 13

- The analysis finds that Proposition 13 does not apply to the ISR rules.

California Proposition 218

- The analysis finds that Proposition 218 does not apply to the ISR rules.

California Subdivision Map Act

- The analysis finds that the SMA does not preempt the District from assessing fees on a subdivision.

126. COMMENT: Remarkably, however, the District denies there is a problem. To summarize the District's position, the Mitigation Fee Act (AB 1600) does not apply to these types of fees because (1) the District has no approval authority over development projects, is not imposing the fee as a condition of approval of a development project, and the fee is purely regulatory in nature, (2) AB 1600 only applies to fees for "public facilities" and mitigation measures such as diesel retrofit programs are not "facilities," and (3) even if AB 1600 doesn't apply, the district has met the nexus standard under the Act as well as any other legal standard.

This analysis contains multiple flaws. Government Code Section 66000(b) defines a fee as a monetary exaction other than a tax or special assessment, whether established for a broad class of projects by legislation of general applicability or imposed on a specific project on an ad hoc basis, that is charged by a local agency to the applicant in connection with approval of a development project for the purpose of defraying all or a portion of the cost of public facilities related to the development project. The proposed rules are applicable to a broad range of projects. Likewise, the proposed project-level analysis of on-site

[2] *San Remo Hotel, L.P. v. City and County of San Francisco*, (2002) 27 Cal.4th 643, 669-670.

mitigation constitutes an ad hoc, project-specific review. Both types of analyses therefore apply to the proposed rules.

RESPONSE: See Response to Comment #52.

127. COMMENT: Indeed, the District is a local agency subject to the Mitigation Fee Act. Government Code Section 66000 (c) defines "Local agency" as “a county, city, whether general law or chartered, city and county, school district, special district, authority, agency, any other municipal public corporation or district, or other political subdivision of the state.” Certainly the District qualifies as a special district, agency, or other political subdivision of the state.

RESPONSE: The District is considered a local agency, but this distinction is not relevant. The Mitigation Fee Act does not apply to the ISR rules. See Response to Comment #52 for more information.

128. COMMENT: The attempt to limit the application of this statute to public facilities is also incorrect. Government Code Section 66000(d) includes within the definition of "Public Facilities" “public improvements, public services and community amenities.” Cleaning up the air is a service provided by government and, as such, provides a benefit to the community.

Comment 64 states that the District does not have the authority to impose conditions of approval and contemplates that any project review will occur after the local agency has completed its approval of the project. The developer will be “allowed” to either include on site mitigation measures or pay a fee. Regardless of the choice of words, it is impossible to characterize this requirement as anything other than a fee or exaction on new development. If this is not enforceable as an exaction, then it is voluntary and the District cannot take credit for it as a control measure for purposes of demonstrating compliance with the SIP goals and the Federal Clean Air Act requirement to demonstrate reasonable further progress.

RESPONSE: The District does agree that the ISR program may require a fee from new development. However, the District disagrees with this interpretation of air emission reductions as a public service under GC 66000(d). In addition, the Mitigation Fee Act does not apply to the ISR rules. See Response to Comment #52 for more information.

129. COMMENT: The District’s attempt to define itself out of the Constitutional requirement that nexus be demonstrated is highly questionable. As noted in Government Code Section 66005(c): “It is the intent of the Legislature in adding this section to codify existing constitutional and decisional law with respect to the imposition of development fees and monetary exactions on developments by local agencies. This section is declaratory of existing law and shall not be

construed or interpreted as creating new law or as modifying or changing existing law."

RESPONSE: See Response to Comment #125 for the findings of the District's analysis of nexus requirements. See also Response to Comment #52.

130. COMMENT: It is important to examine that larger body of existing law. The constitutional standards for legislatively enacted development fees of general applicability, such as the proposed indirect source fee on new development, are less stringent than are the standards for fees imposed on specific developments on an individual and discretionary basis (see *Ehrlich v. City of Culver City* 12 Cal. 4th 854, 50 Cal. Rptr. 2d 242; 1996). Where a development fee is imposed generally on a broad class of property owners, it need only bear a reasonable relationship to the impacts of the development project (Id. at 875-876, 50 Cal. Rptr. 2d at 256,257). In adopting the fee, the city must make the "nexus" findings set forth in Government Code section 66001.

RESPONSE: Although the Mitigation Fee Act does not apply to the ISR rules (see Response to Comment #52), the rule has been designed to meet this test. The District analysis contained in the staff report for the rule provides supporting information to draw this conclusion.

131. COMMENT: The District uses a flawed analysis to produce huge sums to be collected as fees on new housing and new businesses. According to an analysis conducted by Sierra Research (see attached letter) using the numeric emission reduction goals in the District's approved SIP Measures for NOx and PM-10, as well as the assumptions set forth in Section 7.2 of Draft Rule 9510, including the stated ton-per-year mitigations costs, the District will require a total of $38,844,869 to meet the SIP's emission reduction goals for calendar years 2006 through 2010. Assuming the District's "worst case" fee scenario of $856 per unit in 2006, rising to $2841 per unit in 2010, the District could collect as much as $292,719,600. The disparity between the cost of the service and the fee charged is 754%. Even at a lowered standard of review of "reasonableness," a disparity of that magnitude will not survive judicial scrutiny.

RESPONSE: The District has addressed the analysis that Sierra Research provided in Response to Comments #143 to #162. In these responses, the District details which parts of the analysis provided by Sierra Research are flawed and/or inaccurate.

132. COMMENT: Again, the proposed rules are in direct conflict with California law as they are proposing to collect fees well in excess of what might be justified under a nexus test. State law is clear about what burden is on local agencies which propose to impose new fees on development. Government Code Section 66005(a) says "When a local agency imposes any fee or exaction as a condition

of approval of a proposed development … or development project, those fees or exactions shall not exceed the estimated reasonable cost of providing the service or facility for which the fee or exaction is imposed."

RESPONSE: As stated in Response to Comment #52, the Mitigation Fee Act does not apply to the ISR rules. The author points out a significant reason why. Section 66005(a) clearly states "as a condition of approval". The District cannot place conditions of approval on development projects through the ISR program, as it is a ministerial action. In addition, the fees are designed to mitigate only a fraction of project emissions and there is nearly zero potential for over mitigating. The fees are tonnage based (what is required to buy one ton of reduction for a particular pollutant) and are charged on a tonnage base. For example, if a project is required to mitigate 2 tons of NOx, then the price per ton is multiplied by 2 to obtain the off-site emission reduction fee.

133. COMMENT: Discretionary, site specific fees, the kind that the District proposes to impose on individual development projects after a project-specific analysis of all on-site mitigation measures, are subject to the stricter "essential nexus" and "rough proportionality" requirements of *Nollan v. California Coastal Commission,* 483 U.S. 825, 107 S. Ct. 3141 (1987), and *Dolan v. City of Tigard*, 512 U.S. 374,114 S. Ct. (1994); see discussion in *Ehrlich* at 12 Cal. 4th 876, 50 Cal. Rptr. 2d at 256,257; *City of Monterey v. Del Monte Dunes at Monterey Ltd*., 526 U.S. 687, 119 S. Ct. 1624, 1635, 143 L. Ed. 2d 882 (1999).

RESPONSE: Although the District will not be making discretionary actions, the Rule has been designed to meet this test. The District has prepared an analysis of nexus requirements. See Response to Comment #125 for the findings of the analysis.

134. COMMENT: In spite of repeated requests from various local agencies and members of the public, the District has not made available any calculations of the amount of emissions credits that will be awarded for on-site mitigation measures. For reasons explored in greater detail in Sierra Research's comment letter, the URBEMIS model was not designed to, and is incapable of, accurately calculating the amount of emissions reductions from most of the design or location-based indirect source mitigation measures included in the District's proposed mitigation checklist. The unknown cost of the deferred mitigation (achieved after the fact through a grant program) makes an accurate analysis of proportionality even more difficult. For this reason, any project-specific fee calculation will be suspect, and subject to the higher standard of review.

RESPONSE: The onsite emission reduction measures are calculated using the URBEMIS v8.7 mitigation component. The model is available for free at urbemis.com. The author's statement that URBEMIS is, "was not designed to, and is incapable of, accurately calculating the amount of emissions reductions

from most of the design or location-based indirect source mitigation measures included in the District's proposed mitigation checklist," is inaccurate at best, and misleading at worst.

The URBEMIS model is maintained by a state-wide working group that includes representatives from air districts throughout California, state agency representatives (such as CalTrans). Proposed changes to the model are vetted through peer review. The last model update, sponsored by the District, was changes to the Area Source module, specifically overhauling and quantifying the mitigation section.

The model components and methodologies are available to the public in the URBEMIS User's Guide, available at South Coast Air Quality Management District's website http://www.aqmd.gov/ceqa/urbemis.html, and will be made available at the District's website. In addition, the details of the model and the recent update are available in the Staff Report and as Appendix D-Recommended Changes to URBEMIS.For more information on URBEMIS components, see Response to Comment #9.

The author's second main point is that, "the unknown cost of the deferred mitigation (achieved after the fact through a grant program) makes an accurate analysis of proportionality even more difficult." The cost of 'deferred mitigation' is exactly that of the off-site emission reduction fee. The applicant is assessed a fee based on the calculations provided in the rule. The per-ton fee is also provided in the rule. The applicant is assessed an administrative fee, stated in Rule 3180 as 4% of the off-site fee. The applicant is also assessed time and materials for the AIA review in excess of that covered by the application fee, detailed in Rule 3180. This is the full extent of fees. The 'deferred mitigation' fee is expressly stated in the rules.

135. COMMENT: The District has failed to explain its calculations in determining a massive revenue-raising plan or the cost-benefit of the plan. According to the proposed rules, the District plans to raise between $300 million and $450 million in fees between 2006 and 2010 from housing alone. Similar fees will be collected from new schools, hospitals, government facilities, transportation projects, retail, office, and industrial development. The use of these funds, presumably, is to cut NOx emissions by 4.1 tons per day and PM-10 emissions by 5.2 tons per day. Yet, the District's own estimates show that NOx will cost an estimated $4,650 per ton in 2006, rising to $13,250 per ton in 2010 and that PM-10 reductions will cost $2,907 per ton, climbing to $13,850 per ton in 2010. These totals are far less than the fee revenue the District intends to raise during the same period.

RESPONSE: The rule's emission calculations are designed to identify a level of reductions from new development that will meet the SIP targets at the cost per ton predicted each year for each pollutant. The $300-450 million for residential

development severely overstates the fee potential and is based on an erroneous analysis of the rule requirements and incorrect calculations. For a detailed analysis of the cost effectiveness calculations, please review Appendix E – Cost Effectiveness Analysis for Rule 9510 ISR. For a detailed analysis of the emission reductions, please review Appendix B – Emissions Reductions Analysis for Rule 9510 ISR.

136. COMMENT: The District has failed to lay out a coherent plan for using its mitigation plan to actually clean the air and to account for it. How the District intends to spend the massive amounts of money it is proposing to raise remains unclear. This in light of the recent concerns expressed by the District's Governing board that the District has not expended its existing motor-vehicle surcharge fees – representing over $50 million in taxpayer dollars – on mitigation measures in a timely and effective manner. In addition, in advancing these proposed rules – again, raising hundreds of millions of dollars over the next five years – the District has failed to present a clear and specific program to insure timely expenditures for measures that reduce emissions proportionately in the areas contributing fees.

RESPONSE: The District will provide additional information to clarify the proposed plan for expending any fees collected and has amended Appendix E – Cost Effectiveness Analysis for Rule 9510 ISR accordingly. The District has successfully contracted over $100 million in funds for air quality projects.

137. COMMENT: Finally, the District has failed to adequately recognize or account for the impact of the proposed rules on housing affordability and the region's economy. The Socioeconomic Analysis examines narrowly examines housing impacts in terms of homebuilder profits without any similar analysis of housing cost and affordability impacts. This overlooks some important facts. Fees have a direct impact on homebuyers. According to a national study, every $1,000 added to the price of a home, locks more than 23,000 California families out of the housing market. Further, $1,000 to $4,000 added to the purchase price of a home escalates dramatically when it is financed with a typical 30 year mortgage. What this does to housing affordability in the region is completely ignored. In addition, the Analysis overlooks the impact of higher housing costs on the regional economy. First, more money spent on housing means less money spent on other goods and services. Second, higher housing costs discourage new business development as housing costs are viewed by executives as having the biggest impact on labor costs. Finally, fewer buyers mean fewer homes to be built which means fewer construction jobs and the profound ripple effects on the regional economy. Right now, home construction represents more than $7 billion in annual economic output in the Central Valley and is responsible for creating nearly 70,000 new jobs every year.

RESPONSE: First, the August 24, 2005 Socioeconomic Analysis provided at the September 1st workshop contains an analysis of housing costs and affordability impacts in Section 6.3 – Impacts on Affected Industries. Section 6.3 ¶1 states, "In addition to impacts on homebuilders, the section analyzes how changes in price affect prospective homebuyers and renters," and contains *Affordable Housing for Low-and Moderate Income Households* as a subsection. The analysis found:

> *…that while the residential fee that the typical residential development would pay under Draft Rule 9510 and 3180 can increase the amount of household income required to finance the purchase of a new home, the estimated increase represents a small fraction of the original household income required to finance a new home the event no air quality fees were in place. The affect of the fees on rents is similarly small.* Page 1 Executive Summary

Second, 100 percent of all off-site funds collected will be spent on emission reduction projects in the San Joaquin Valley. This will create economic activity and jobs. Many of these projects involve the construction industry; for example, road paving to control PM10. The District recognizes that all off-site fees have an impact on the cost of development; however, the emission reductions obtained from the rule will benefit all residents of the San Joaquin Valley.

Finally, refer to Response to Comment #53 for additional information.

138. COMMENT: In addition to the impacts on housing, those on businesses and public service activities have not been fully analyzed. Half of the vehicle trips addressed by the proposed rules are assumed to come from non-residential uses, but it remains unclear how much non-residential uses are going to pay their mitigation obligations (fees). The Socioeconomic Analysis fails to mention fees for new schools, medical facilities or public facilities such as government offices, roads and libraries. The Socioeconomic Analysis concludes that the impact on commercial and industrial development will be significant, but fails to identify Valley-wide costs based on the full range of non-residential uses, or the ripple effect on public agencies, business start-ups and expansions, job generation and the cost of goods and services.

RESPONSE: The District is unsure where the author is referencing the assumptions on vehicle trips. The cost to any sector is proportional to the emissions caused by indirect, area, and construction emissions generated by the project. The potential cost to any development can be calculated using the URBEMIS model to calculate emissions and the cost of reductions for the year of development and fee formula from the rule. The fee formula and cost of reductions applies to all development subject to the rule equally.

Valley-wide impacts would be speculative. As stated in the Socioeconomic Analysis (p. 42), "It is not clear how the development will adjust to the additional costs." Although the analysis states that, "a typical commercial or industrial development could absorb air quality fees in 2006 or 2010," developers may choose to pass on the cost to the buyer or renter. This aspect is unknown, and any projected valley-wide impacts as a result would be speculative and non-quantifiable.

139. COMMENT: The proposed rules 9510 lack effectiveness estimates for on-site mitigation that lead to uncertainty and inaccurate fees. Appendix C contains a 12-page checklist of mitigation measures that developers must consider for their project. Project applicants are instructed to justify why they did not apply a particular mitigation measure if they decided not to use it. However, the checklist provides no control efficiencies for the measures, making it impossible for project developers to reach an informed decision about the most cost-effective methods. Of greatest concern, a large number of mitigation measures are not included in URBEMIS, and their effectiveness must be negotiated between the project applicant and the District. These off-model mitigation decisions inject great uncertainty and potential inaccuracy into determining the amount of mitigation provided and fees exacted.

RESPONSE: The effectiveness of on-site measures varies depending on the design of the project and the land uses and transportation systems supporting the project. A single percentage number for each on-site measure is not appropriate. Please see Response to Comments #7 and #9 on URBEMIS quantification of measures. It should be noted that URBEMIS is free, available to the public, and user-friendly.

140. COMMENT: The proposed rules will create an expansive new bureaucracy to perform duties that duplicate and conflict with existing local planning processes. Local jurisdictions already have the ability to address and mitigate construction and operational emissions of new development through environmental reviews – pursuant to the California Environmental Quality Act (CEQA). The most recent draft of the proposed rules actually appears to dismiss this likelihood for greater conflict and overlap with CEQA by eliminating previously published schedules for District staff's performance of project reviews, mitigation analyses and fee calculations. Indeed, at a recent District-sponsored workshop regarding the proposed rules, District staff essentially said that their measures were separate from those identical ones mandated by CEQA. Indeed, the failure of the District to clarify its role as a "responsible agency" within the meaning of CEQA will foster conflicts with local governments, result in conflicting mitigation standards and requirements and fuel legal challenges – with direct and negative implications for job-generating business projects, affordable housing, schools, roads, and medical and public facilities urgently needed in the area.

RESPONSE: The rule will be revised to make the District's timeline more closely match CEQA timelines. An applicant may come to the District prior to or concurrent with the local agency discretionary application. This is similar current District consultation in its role as a commenting agency. Once the applicant has settled on a project design and scope and on-site measures that will be used for reducing air impacts, the District or the applicant can prepare an air quality impact assessment to determine project baseline emissions, mitigated emissions, and a off-site fee, if any is required. There will be no conflict with local agency mitigation standards since all on-site measures will be sent to the agency for voluntary review and the District will not accept conflicting measures. In addition, it is the responsibility of the applicant to ensure that measures selected are approvable by the public agency. If a selected measure is not approvable, the District will remove the selection and re-assess the project's air impacts. Although more projects will be subject to analysis under this rule, air quality is a critical concern in the San Joaquin Valley and should be receiving this additional attention.

141. COMMENT: The proposed rules lack essential information on construction emission reduction requirements. The latest draft rule requires new development to reduce construction emissions, but does not provide any details on how emission reduction requirements will be calculated. At the September 1st rule workshop, District staff was unable to confirm that a construction emissions "calculator" would be available during the public comment period, or indeed prior to Board consideration of the rule. The homebuilding industry will be directly affected by this provision of the rule, but we cannot gauge the impact of the requirement without information on the assumptions and methods for calculating project emissions. It's requested that this information be provided with time for public review period or eliminate construction emission requirements from the proposed rules.

RESPONSE: URBEMIS V 8.7 is available to quantify construction emissions. The District is working on enhancements to the default values in the model and will be considering a spreadsheet based calculator if it is more appropriate. This will be completed at least 30 days prior to program implementation.

142. COMMENT: For these reasons, as well as reasons previously placed on the record, we request that the District withdraw these proposals as inequitable and unworkable and unenforceable. Continuing down this path is a waste of public resources, which could be better put to use in developing alternative control measures well-designed and well-calculated to achieve compliance with the emission reduction goals set forth in the SIP.

RESPONSE:

- The District considers the ISR Rules to be equitable
  Fees and assessment are emissions based and same for all land-uses.

- The District considers the ISR rules to be workable.
  The rules set a clear path of what is required and how to achieve that. The URBEMIS model is used statewide by air districts and public agencies for project-specific air impacts.
- The District considers the ISR rules to be enforceable.
  The District is granted the authority to promulgate and enforce the rules through the following:
  The Clean Air Act Sec. 110 (5)(C) and 110 (5)(D)

Sierra Research
Date: September 15, 2005

On behalf of the California Building Industry Association (CBIA), Sierra Research (Sierra) is pleased to submit the following comments on the revised draft Indirect Source Rules (ISR) 9510 and 3180 released by the San Joaquin Valley Unified Air Pollution Control District (the District) in late August.

Our comments in this letter expand upon those presented before the District at the September 1st workshop. As directed by CBIA, our comments focus on, but are not limited to, technical and modeling issues related to the use of the URBEMIS model under the proposed rules based on our independent review of the model and its underlying assumptions. In this review we were assisted by Dowling Associates, Inc. (Dowling), a transportation planning firm with extensive travel demand modeling experience supporting a number of the San Joaquin Valley Transportation Planning Agencies (TPAs).

Our comments are summarized briefly blow. Detailed explanations of each comment follow in attachment A.

143. COMMENT: Summary
Our overarching concerns with the draft ISR rules stem from their use of the URBEMIS model to calculate pollutant emission impacts from development projects and the fact that URBEMIS broadly overstates vehicular emission impacts from residential projects. Our analysis of typical single-family residential projects indicates that URBEMIS overstates vehicle emissions of both NOx and PM_{10} (the two pollutants targeted by these ISR rules) by over 70%. Since the mitigation fees that developers would pay under the proposed rules are directly related to the emission impacts calculated by URBEMIS, this model also substantially inflates the fees developers should be required to pay by roughly the same percentage. Our key concerns are summarized below.

RESPONSE: Sierra Research's conclusions are based on erroneous information. URBEMIS is designed to estimate all emissions related to a development project and counts all trips going to and coming from the development as is appropriate for a project level analysis. This accounts for the

higher emission numbers. By using trip counts using both ends of the trip, URBEMIS can credit developers who design their projects to generate less trips with reductions for both ends of the trips that were reduced. To avoid charging a fee on emissions that may be attributable to another new or existing indirect source, the fee formula is based on 50% of the baseline emissions after mitigation is applied onsite. The regional transportation model used as a comparison with URBEMIS is flawed when used for a project level analysis. The fees are not inflated compared to the impact. Sierra incorrectly calculated the potential fees.

144. COMMENT: URBEMIS Defaults Are Biased High – Most but not all of our concerns with the URBEMIS model result from its heavy reliance on detailed default assumptions that are not likely to be well understood by project applicants required to use the model under the proposed rules. As our analysis shows, a number of these default assumptions substantially overestimate residential project emissions in the following areas:

- by about 20% for NOx due to over-represented heavy-duty vehicles in the fleet mix;
- by over 20% for NOx, ROG and PM_{10} because of older age distribution assumptions; and
- by roughly 50% for PM_{10} due to incorrect silt loading factors; and
- by 20-30% for all pollutants from overstated average vehicle trip lengths in the San Joaquin Valley.

RESPONSE: The District will provide revised defaults accounting for land use specific fleet mix information, a Valley specific silt loading factor, and updated trip length data prior to rule implementation. The District will consider an age correction factor; however, more evidence of the validity of this approach is needed.

145. COMMENT: URBEMIS Is Inconsistent With SIP Methodology – Region-wide pollutant emissions calculated under State Implementation Plans (SIPs) use a more rigorous set of models to determine motor vehicle travel impacts and resulting emission impacts than represented in URBEMIS. During the ISR rule development, the District has provided no clear evidence that URBEMIS is capable of calculating emissions from development projects in a manner that is consistent with SIP-level emissions and has simply asserted its appropriateness for use under these rules.

To test the District's assertion, Sierra and Dowling performed an equivalent, side-by-side analysis of travel and emissions impacts of a typical hypothetical

"suburban fringe" residential project using both URBEMIS and the Fresno County regional travel demand model (one of several county-level travel demand models used to calculate vehicle travel under the SIP). (As in URBEMIS, emission impacts were calculated using the Air Resources Board's EMFAC2002 vehicle emission factor model.) Our analysis found that URBEMIS estimates over 60% higher vehicle miles traveled (VMT) and over 50% higher emissions for all pollutants than the travel model/SIP-based approach. Moreover, this discrepancy cannot apparently be corrected by using "better" URBEMIS inputs than the default assumptions built into the model. Thus, these findings cast doubt on the validity of broadly applying URBEMIS under the ISR rule as URBEMIS clearly does not produce SIP-consistent emission impacts.

RESPONSE: Prior to implementation, the District will provide updated default values to provide the most accurate emission estimates possible. Regional travel demand models are not practical for project level analysis. The rule requires 50 percent of baseline emissions to be mitigated. The 50 percent more than accounts for emissions due to counting both ends of the trips related to the project. URBEMIS counts two way trips to account for the total impact of the project. When used in analyze a single project, this is appropriate measure of impact. When looking at regional impacts, only half of the trips should be counted since if every project, new and existing were examined at once it would exactly double count the trips. Using URBEMIS will result in consistent analysis from project to project. Emission reductions achieved by the rule from offsite measures will be calculated using emission factors and methods consistent with the SIP. Onsite measures will be credited in accordance with EPA Voluntary and Emerging Emission Measures Policy.

146. COMMENT: Residential Fees Appear Understated in Socioeconomic Report – In addition to the comments summarized above on the URBEMIS model, we also have concerns with the fee estimates for typical residential developments contained in the District's socioeconomic analysis of the ISR rules. Table 16 of the socioeconomic report cites "worst-case" fee estimates ranging from $856 per unit in 2006 to $2,841 per unit in 2010. The supporting text offers no explanation of how these estimates were developed.

Its fundamental flaws notwithstanding, Sierra independently estimated residential fees using URBEMIS, and the fee formulas and cost reduction ratios contained in the August drafts of Rule 9510 and 3180. Our analysis found fees were twice as high ($1,607-$7,971 per unit) over the same period for a single-family residential development, assuming a default housing density of 3 units/acre. When the housing density was doubled (to 6 units/acre), per unit fees were still over 50% higher ($1,295-$5,556 per unit) than those cited (without explanation) In the socioeconomic report. . We also calculated fees assuming a 93% vs. 7% split between single and multi-family units, based on the average number of new single- and multi-family housing units permitted in the San Joaquin Valley in

2002 obtained from the California Department of Finance (http://countingcalifornia.cdlib.org/title/castat.html). Even under these mixed use assumptions, our fee estimates ranged from $1,550-$7,702 per unit, still nearly twice as high as those in the socioeconomic report.

Thus, we question how the estimates in that report were developed. Our analysis suggests that the worst case residential fees are substantially higher than those employed in the socioeconomic analysis. If this is correct, then the impacts quantified in the study are understated and would need to be revised.

RESPONSE: Sierra incorrectly calculated the construction emission reductions. This accounts for the differences between the District's numbers in the socio-economic impact report and Sierra's inflated numbers.

147. COMMENT: Revenue From Residential Fees Will Dramatically Exceed the Cost of Purchasing Mitigation Needed to Meet ISR SIP Commitments – Using information developed by the District for this rulemaking, Sierra prepared estimates of the funds that will be generated from residential fees and spent purchasing mitigation between 2006 and 2010. We found incoming fee revenue exceeded outgoing mitigation expenses by $146 to $728 million depending on the level of the fee assumed (the percent difference ranges from 377% to 1,873%). The magnitude of these differences indicates that the rule is seriously flawed. There are two primary reasons for the discrepancy between fee revenue and mitigation expenses. First, as noted above, URBEMIS default assumptions include biases that lead to significant overestimates of project emissions, which in turn lead to overpayment of mitigation fees. Second, there is a fundamental flaw in the fee formulas developed for the rule that overstates the cost of purchasing mitigation.

The fee formulas are designed to advance to the District a monetary sum necessary to mitigate excess emissions not mitigated onsite for a period of ten years. Assuming no onsite mitigation, the operational NOx formula requires payment for 2.5 times and the operational PM_{10} formula requires payment for 5 times the estimated base year emissions. The important point is that developers would be required to pay mitigation fees that offset several years of project emissions. Mitigation expenses, however, are not denominated in years. Instead they represent a single one-time purchase that continues to provide emission reductions for multiple years. According to the staff report the average project life for NOx mitigation is 7 years and for PM_{10} it is 12 years.

Thus, assuming no onsite mitigation, a project applicant can expect to pay for 17.5 years of mitigation for the base year NOx emissions of the project (i.e., 2.5 × 7) and 60 years of mitigation for the base year PM_{10} emissions of the project (i.e., 5 × 12). This bias is extreme and comes on top of the significant default biases incorporated into URBEMIS. Collectively, they explain the huge absolute

and percentage difference between incoming fees and outgoing mitigation expenses. Since the residential fees in this analysis are used to purchase all of the ISR SIP mitigation commitments, the inclusion of both residential and non-residential (e.g., industrial) development fees would only worsen the already enormous inconsistency between ISR revenue and expenses.

RESPONSE: The fee formula does not include a project life multiplier of 7 or 12 years. Any funds collected will be used on projects with average project lives of 7 for NOx or 12 years for PM10, so the mitigation is effective for that long on average. The fee formula calculates an amount of emissions in tons that must be mitigated at the cost of reductions for each year. For most projects funded, the reductions may be considered permanent since at the end of the project life new engines/devices will be purchased that achieve reductions that are equivalent or better.

148. COMMENT: Conclusions.
The draft ISR rules have serious and fundamental flaws related to their reliance on URBEMIS and its extreme overstatement of residential project emissions. Moreover, our analysis of incoming and outgoing revenue streams indicates that the ISR fee formulas dramatically overstate the amount of revenue needed to buy emission reduction offsets for NOx and PM_{10} at "market" prices estimated by the District.

RESPONSE: The District strongly disagrees with this conclusion. Sierra based its conclusions on erroneous calculations and comparisons.

SIERRA RESEARCH
ATTACHMENT A
DETAILED COMMENTS

Our detailed comments on the ISR rules are presented below. Some of these comments were provided by Sierra to the District in July in response to the preceding versions of the draft rules. For completeness and where relevant as related to the District's response to these earlier comments, they are repeated in this letter. At the end of each of these comments, we have listed the District's response as contained in Appendix A of the August version of the ISR rule packet and provided follow-up comments to these responses.

149. COMMENT: URBEMIS Fleet Mix Overstates Residential Project Emissions – One of the most striking instances of inappropriate default data in URBEMIS is the distribution of vehicle types (e.g., passenger cars, light trucks, heavy trucks, etc.) or "fleet mix" employed in the model. Fleet mix differences can significantly impact calculated vehicle emissions because of the relative stringency imposed on different vehicle types under emission certification standards adopted and implemented by the state Air Resources Board (ARB). Generally speaking,

passenger cars must meet more stringent (i.e., lower) emission standards than larger vehicle types such as heavy-duty trucks.

The default fleet mixes in URBEMIS (which vary slightly by calendar year) are based on statewide average distributions contained in ARB's EMFAC2002 model. Those default distributions assume that roughly 3% of the vehicles are heavy-duty vehicles (trucks and buses). This is reasonable for a statewide or air basin average of a large vehicle fleet, but clearly not representative of the mix of vehicles operating in a new residential project. New residential projects are not likely to contain any heavy-duty vehicles (in the "operating" phase following construction). Thus, the use of the URBEMIS default fleet mixes that contain heavy-duty vehicles is clearly inappropriate for these projects.

Table 1 compares the results of URBEMIS runs with default and "no heavy-duty" adjusted fleet mixes. These URBEMIS runs were performed for hypothetical 100-unit residential development with single family detached housing for calendar year 2005 using default assumptions for the remaining inputs and assume no mitigation.

The upper portion of Table 1 shows the existing default fleet mix and the corrected fleet mix which was adjusted by removing all heavy-duty vehicle categories and renormalizing the remaining percentages. The lower portion compares operating emissions calculated by URBEMIS using each fleet mix. Although the emission impacts for ROG and PM_{10} are minimal, NOx emissions are some 23% lower (2.13 vs. 2.76 tpy) when representative fleet mix is used to model residential project emissions.

Table 1
Emission Impacts of Corrected Vehicle Fleet Mix
(SJV Fleet, Calendar Year 2005)

Vehicle Class	Default Mix (%)	Adjusted Mix (%)
Light Auto	56.1	58.1
Light Truck 1	15.1	15.6
Light Truck 2	15.5	16.1
Med Truck	6.8	7.0
Light-Heavy Truck 1	1.0	-
Light-Heavy Truck 2	0.3	-
Med-Heavy Truck	1.0	-
Heavy-Heavy Truck	0.8	-
Line Haul	0.0	-
Urban Bus	0.1	-
Motorcycle	1.6	1.7
School Bus	0.3	-
Motor Home	1.4	1.5
FLEET TOTALS	100.0	100.0
Heavy-Duty Pct.	3.5	0.0
Operating Emissions (tpy) for 100-Unit Residential Project:		
ROG	2.18	2.16
NOx	**2.76**	**2.13**
PM_{10}	1.99	1.98

This is a clear instance where URBEMIS default inputs are not appropriate and significantly overstate NOx emissions and resulting mitigation fees that would be calculated under the District proposed ISR rules. This finding clearly points out the need for the District to thoroughly review the default assumptions in URBEMIS and carefully consider the technical capabilities of applicants as end users of the model under these rules.

RESPONSE: The District is working to ensure that the fleet mix assumptions in URBEMIS are appropriate for each land use type. The District will provide updated land use specific fleet mix information for residential development and possibly other land uses prior to rule implementation. URBEMIS data files containing the updated fleet mix data will be available for ease of use. We will accept changes to default information such as fleet mix when supported by adequate documentation. While the fleet average may somewhat overstate emissions [from] residential developments there are heavy-duty truck emissions associated with them. These include school buses, refuse collection, package delivery and other service vehicles.

150. COMMENT: Follow-Up – Refuse collection vehicles are contained in the heavy-heavy truck (HHT) category. In 2004, ARB adopted a statewide rule for controlling emissions from solid waste collection vehicles

(http://www.arb.ca.gov/regact/dieselswcv/dieselswcv.htm). Under that effort, a solid waste collection vehicle emissions inventory was prepared which identified the statewide population of both residential and commercial refuse collection vehicles as 11,778 in calendar year 2000. According to EMFAC2002, the statewide population of all HHTs in 2000 was 158,204. Thus, residential and commercial refuse collection vehicles represent only 7% (11,778 ÷ 158,204) of the total HHT population, with residential collection vehicles less than that.

Package delivery and other service vehicles generally span the light-heavy truck (LHT) and medium-heavy truck (MHT) categories, but the vehicle populations and vehicle miles traveled for those vehicles serving residential customers is likely much less than those serving commercial customers. Thus, the EMFAC2002 fleet percentages for the LHT and MHT categories still overstate the fractions of those vehicles serving residential areas.

To address these issues, the analysis presented earlier in Table 1 was revised to include school buses and all LHTs and MHTs at the same proportions of the original EMFAC2002 fleet mix. This addresses the District concern that school buses be included and conservatively overstates the representation of residential package delivery and other service vehicles. Since residential refuse collection vehicles represent a very small fraction of all HHTs (less than 7%), the HHT residential fleet fraction was set to zero. Using this revised residential fleet mix, NOx emissions were calculated to be 2.44 tpy, which are 12% lower (2.44 vs. 2.76 tpy) than those based on URBEMIS defaults.

Thus, we believe NOx emissions for a properly determined residential fleet mix are still 12-20% lower than if URBEMIS defaults are used, depending on what assumptions are made with respect to the package delivery and other service vehicle fractions of LHTs and MHTs.

RESPONSE: EMFAC emission projections are revised periodically to account for changes from adopted motor vehicle emission regulations. The next version of EMFAC is expected to be released in 2006. The District will help fund the next upgrade to URBEMIS to utilize the new EMFAC. The District's methodology for estimating land use specific fleet mixes will be available prior to rule implementation

151. COMMENT: URBEMIS Age Distribution Overstates Residential Project Emissions – Another area where URBEMIS does not accurately reflect particular project conditions relates to the distribution of vehicle ages internally built in to the model. The vehicle age distributions contained in URBEMIS are based on statewide average vehicle registrations for the entire on-road fleet contained in the EMFAC2002 model. These distributions likely reflect a generally older vehicle fleet than exists in a new residential project. Vehicle emissions strongly depend on vehicle age due to ARB's implementation of dramatically tighter

emission standards over the last 30 years. New vehicles today are approximately 10-20 times cleaner than those introduced in the early 1970s. And this trend will continue into the future. Thus, it is necessary to accurately represent the age distribution of a fleet of vehicles when calculating their emissions.

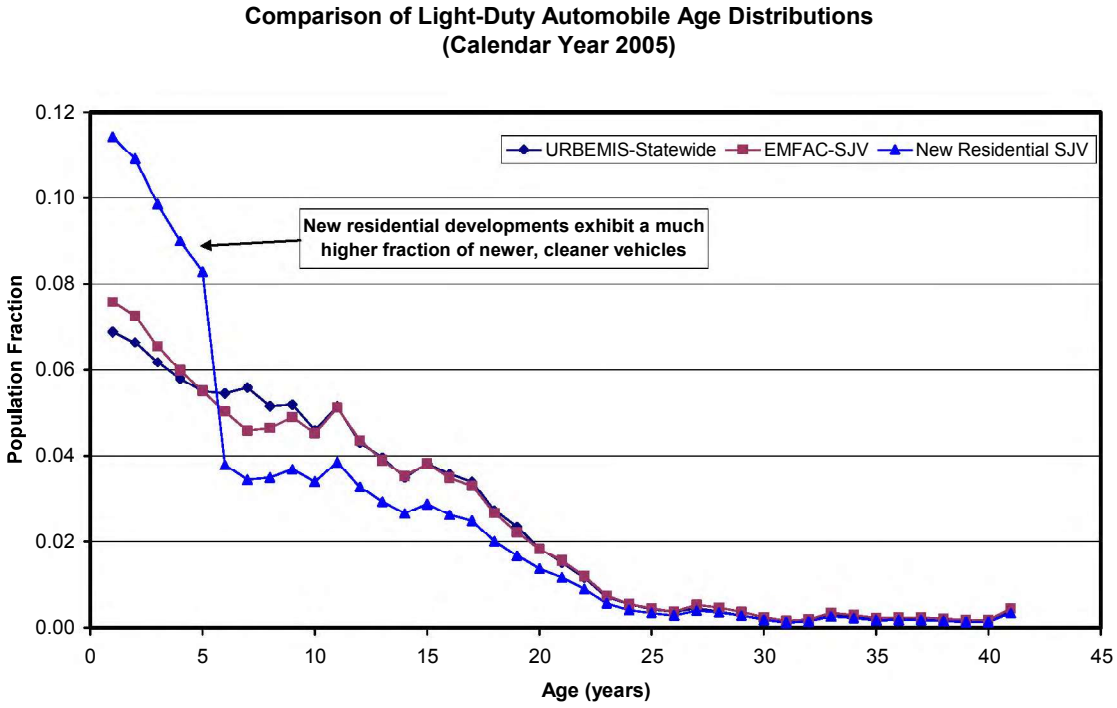
Our subcontractor Dowling has compiled statistics on housing age and vehicle fleet age from two readily available data sources: 1) the 2000 U.S. Census; and 2) the 2001 Caltrans Statewide Household Travel Survey. They compared vehicle age from households in the San Joaquin Valley in two groups:

1. "new" households defined as those that were ≤ 10 years old; and
2. "old" households defined as those older than 10 years.

Dowling found that the "new" housing areas had a 49.5% to 50.5% mix between vehicles ≤ 5 years old and vehicles > 5 years old. In the "old" household areas, the split between ≤ 5 year old vehicles and vehicles > 5 years old was 35.7% to 64.3%, indicating that new households in the San Joaquin Valley reflect a newer vehicle fleet than represented by the URBEMIS model defaults for the entire area.

Figure 1 illustrates the differences in vehicle age distributions between those in the EMFAC2002 model (upon which URBEMIS is based) and those developed for a typical new residential development based on Dowling's findings. As highlighted in Figure 1, new residential developments exhibit a much larger fraction of newer and therefore generally cleaner vehicles.

Figure 1



The emissions impact of using a younger age distribution typically found in new residential developments was determined from a series of spreadsheet calculations by individual model year using age-specific emissions factors extracted from the EMFAC2002 model.

Table 2 presents and compares resulting light-duty automobile exhaust emission factors (in grams per mile) during summer in calendar year 2005. Table 2 also shows the percentage difference in emission factors (and thus calculated project exhaust emissions) using the URBEMIS and New Residential age distributions.

Table 2
Exhaust Emission Impacts of Corrected Vehicle Age Distribution
(SJV Light-Duty Auto Fleet, Calendar Year 2005, Summer)

Quantity/Age Distribution	ROG	NOx	PM_{10}
Emission Factor (grams/mile) - URBEMIS Default	0.177	0.290	0.0082
Emission Factor (grams/mile) - New Residential	0.132	0.222	0.0065
% Difference (New Residential vs. URBEMIS)	**-25.6%**	**-23.3%**	**-20.5%**

As highlighted in Table 2, exhaust emissions of light-duty automobiles were found to be over 20% lower for ROG, NOx and PM_{10} when an age distribution representative of a typical new residential neighborhood is used compared to the

existing fleet-average age distribution contained in URBEMIS. These emission impacts calculated for automobiles are likely to be similar for light-duty trucks as well, which together with automobiles account for about 90% of the vehicles in a residential project fleet.

RESPONSE: The District will consider adding an age correction factor in the fee calculation formula for residential development. The emissions for PM10 in the table appear to be from exhaust and are small compared to the entrained road dust that is not affected by the age of the vehicle.

152. COMMENT: Unlike the previous fleet mix problem which can be addressed by issuing guidance to supply a different fleet mix in one of the URBEMIS input screens, the model cannot be easily revised to properly account for a representative residential vehicle fleet age distribution. The way URBEMIS is currently designed, it internally uses a series of calendar year and season specific emission factor files developed from "upstream" runs of the EMFAC2002 model for a statewide average vehicle fleet. Although it is possible to generate air basin-specific EMFAC2002 files, URBEMIS would need to be re-programmed to utilize these air basin-specific emission factors. More importantly, fleet age distributions for an air basin as a whole are still not likely to reflect those of a typical new residential project. This can clearly be seen from the "EMFAC-SJV" and "New Residential SJV" distribution plotted earlier in Figure 1.

The EMFAC2002 model maintained by ARB is designed to produce several types of outputs under the following three modes: 1) "Burden"; 2) "Emfac"; and 3) "Calimfac". URBEMIS is currently designed to work with "Emfac" mode outputs from EMFAC2002. Although EMFAC2002 can be run with different age distributions, this feature is only available under the "Burden" output mode, not the "Emfac" mode.

Thus, we believe the District will need to completely overhaul the design of URBEMIS and its interaction with ARB's "official" EMFAC2002 emission factor model or consider another analysis method/tool to adequately address this age distribution issue for residential project analyses under the ISR rules.

RESPONSE: The District continues to believe that URBEMIS is the appropriate tool for the job. The District will consider an off model vehicle age correction if well documented. However, the District believes that the fleet average is a reasonable assumption for new development projects. There are a number of factors that impact emissions including age, vehicle class, and fleet turnover. If more specific information is available, the District would consider utilizing project specific numbers.

153. COMMENT: Follow-Up – When asked to clarify this response at the September 1 workshop, District staff indicated that their primary concern with simply using the revised age distributions presented earlier by Sierra/Dowling was that light-duty vehicle class mixes may also be different in new residential areas than represented by URBEMIS defaults. Specifically, the concern was that residential vehicle fleets contain a much higher fraction of sport utility vehicles (SUVs) and pickups than represented in a region-wide fleet.

Our original analysis of the emission impacts of corrected vehicle age distribution was conservatively applied only to passenger cars (which make up less than 60% of the residential fleet), instead of all light-duty vehicles (which comprise roughly 90% of the fleet). We revised our original analysis to include all light-duty vehicles (which include both passenger cars and the light-duty truck categories) because the household survey data upon which the revised age distributions were based included both cars and light-trucks. And to conservatively address the District's concern that a residential fleet would contain a higher fraction of SUVs and pickups than in a region-wide fleet, we doubled the existing fraction of the Light-Duty Truck 2 (LDT2) category (which contains most of the SUVs and large pickups) from roughly 16% to 32%.

Table 3 compares the results of this revised analysis, which applies the newer age distribution to all light-duty vehicles and doubles the LDT2 fleet fraction, to those based on the original URBEMIS defaults. The percentage differences shown in Table 3 are very similar to those presented earlier in Table 2. The reason for this is that although light-duty trucks (specifically LDT2s) have been historically required to meet less stringent in-use emission standards than passenger cars, this gap in stringency has narrowed in recent years and more importantly, their standards have been tightened over time much like passenger car standards. Thus, dramatically increasing the assumed light-duty truck fraction in the residential fleet has much less effect on the relative emission impact compared to URBEMIS defaults and accounting for the younger age distributions of all light-duty vehicles found in newer residential vehicle fleets.

Table 3
Exhaust Emission Impacts of Corrected Vehicle Age Distribution and Doubled LDT2 Fleet Fraction
(SJV Light-Duty Vehicle Fleet, Calendar Year 2005, Summer)

Quantity/Age Distribution	ROG	NOx	PM_{10}
Emission Factor (grams/mile) - URBEMIS Default	0.180	0.345	0.0103
Emission Factor (grams/mile) - New Residential	0.133	0.267	0.0084
% Difference (New Residential vs. URBEMIS)	**-26.1%**	**-22.5%**	**-17.9%**

Therefore, even when accounting for a higher fraction of SUVs and pickups in new residential fleets, we maintain that URBEMIS still overstates NOx and PM_{10} exhaust emissions by approximately 20% due to unrepresentative age distribution assumptions. We believe we have provided the District with ample and readily-available evidence regarding residential fleet age distributions, whose impacts overwhelm those due to what may be higher SUV and pickup fractions in new residential developments. Furthermore, even if fleet data were collected through a survey of new residential developments, the District has not answered the question of how to apply these data since they cannot be accommodated within URBEMIS.

RESPONSE: The District still believes that URBEMIS is the best model for the job and has consistently stated that it would use better data when available. The District will consider applying an age correction factor to the output to address this concern.

154. COMMENT: URBEMIS Silt Loading Factors Inconsistent with ARB Inventory, Overstates Residential Project Emissions – This is another striking example where URBEMIS default assumptions dramatically overstate actual residential project emissions; in this case, by nearly 50% of total operating PM_{10} emissions.

The default silt loading factor supplied to the user by URBEMIS for calculation of entrained (i.e., fugitive dust) PM_{10} emissions is inconsistent with those used by ARB on its emissions inventory and the District's PM_{10} SIP.

In URBEMIS and in ARB's emissions inventory, fugitive dust PM_{10} emissions are calculated for vehicle travel on paved roads using the following equation:

$$EFpaved = k \times (sL/2)^{0.65} \times (W/3)^{1.5}$$

Where:

EFpaved is the emission factor (lb per vehicle mile traveled);
k is the particle size multiplier (0.016 for PM_{10});
sL is the road surface silt loading factor (in grams per square meter);
W is the average weight of vehicle traveling on the road (4,850 lbs is default).

The default road surface silt loading factor in URBEMIS is 0.1 grams per square meter. This value is higher and does not comport with San Joaquin Valley values used by ARB in its statewide inventory for entrained road dust on paved roads, which are different for each roadway type as follows:

- 0.020 g/m^2 for freeways
- 0.035 g/m^2 for major arterials

- 0.035 g/m^2 for collectors
- 0.320 g/m^2 for urban locals
- 1.6 g/m^2 for rural locals.

Using data compiled by the Federal Highway Administration (FHWA) under the Highway Performance Monitoring System (HPMS), the San Joaquin Valley exhibits the following travel percentages by the road types listed above:

- Freeways – 33.25%
- Major Arterials – 38.97%
- Collectors - 27.59%
- Urban Locals – 0.19%
- Rural Locals – 0.01%

The weighted average silt loading factor using these travel fractions and ARB's silt factors by roadway type was calculated to be 0.031 grams per square meter, which is well below the 0.1 default values contained in URBEMIS. Using this ARB and HPMS-based weighted average silt factor for the San Joaquin Valley in the above equation results in a paved road dust emission factor that is 53.6% below that based upon the URBEMIS default silt factor. Use of the ARB-consistent silt factor will also result in a 53.6% reduction in paved road dust PM_{10} emissions computed using URBEMIS defaults.

According to emissions inventory summary data available from ARB on-line at http://www.arb.ca.gov/ei/emsmain/reportform.htm paved road dust PM_{10} emissions make up about 90% of total on-road vehicle PM_{10} emissions in the San Joaquin Valley, excluding unpaved road travel. (We exclude unpaved road dust under the assumption that operating emissions of vehicles in a new residential project exhibit little travel on unpaved roads.) Thus, use of a paved road silt loading factor consistent with ARB's inventory would translate to a 48.2% reduction on total operation PM_{10} emissions of a residential project as described below:

$$\%Reduction = PavedFrac \times (1 - \%SiltReduction) + RemainingFrac$$
$$= 90\% \times (1-53.6\%) + 10\%$$
$$= 48.2\%$$

Where *PavedFrac* is the fraction of project emissions from paved road dust, *%SiltReduction* is the relative reduction in paved road emissions using the ARB-consistent silt factor compared to URBEMIS and *RemainingFrac* is the remaining project emissions of PM_{10} (from exhaust, brake wear and tire wear).

Again, this issue and the alarmingly high overstatement of PM_{10} emissions based on model defaults points out the need to further review and provide detailed guidance for use of URBEMIS in calculating project-specific emissions under the proposed ISR rules.

RESPONSE: The District concurs with Sierra's methodology and will ensure that the correct silt loading factors are utilized in URBEMIS defaults.

155. COMMENT: Follow-Up – We appreciate the District's response to correct the existing silt load factors in URBEMIS. However, when questioned during the September 1 workshop about how and when these silt loading corrections (as well as corrections related to the earlier fleet mix and vehicle age issues) would be addressed, staff indicated that these corrections to URBEMIS defaults would not be completed and released for review prior to the District Board hearing in mid-November for adoption of the ISR rules. Moreover, staff was unclear whether these corrections would be handled by revising the URBEMIS model, or by developing written guidance for users of the model under the ISR rules instructing them how to correct the overstated model defaults when applied to residential development projects.

Given the significance of the impacts of the flawed model defaults on the costs to comply with these proposed rules, we believe these model revisions or guidance documents should be developed and publicly reviewed before ISR rules are adopted if the District intends to pursue the rules despite URBEMIS' deficiencies.

RESPONSE: The District is developing guidance for preparing the air quality impact assessment required by the rule. The guidance will include the default silt-loading factor provided by Sierra Research. The District will provide URBEMIS data files updated with changes that can be used without having to enter the new data. The next upgrade to URBEMIS will contain much of the updated information. The staff report has been updated to describe the impact of these changes on the emissions estimates and economic impacts.

156. COMMENT: URBEMIS Is Inconsistent With SIP Methodology – When a typical residential project was modeled using both URBEMIS and a SIP-based modeling URBEMIS estimates over 60% higher vehicle miles traveled (VMT) and over 50% higher emissions for all pollutants than SIP-based approach.

This is not surprising. The URBEMIS model was originally written as a "sketch-planning" tool, designed to produce intentionally conservative analyses of localized emission impacts from different land uses. For over ten years, the URBEMIS model has been used to assess development project emissions under the California Environmental Quality Act (CEQA) review process. Under CEQA, use of URBEMIS as a conservative (i.e., over-predictive) screening tool is entirely appropriate for comparing project emissions to "significance thresholds"

established under air district guidelines since CEQA requires disclosure of project impacts and significance, but not compliance with regional or state air quality plans or standards. Under this process, URBEMIS-based emission impacts can acceptably err on the side of caution or over-prediction.

RESPONSE: URBEMIS has been continuously updated to provide increased accuracy with each new version. Many of the default values that are based on statewide averages can be changed to use local information when available. The District appreciates the review conducted by Sierra Research to identify additional areas of improvement. The next version of URBEMIS will contain many of these improvements. In the interim, applicants will be instructed to enter local information that is currently available. This information will be provided in a District guidance document. Analyses prepared by the District will also use the local information. URBEMIS remains the best tool for performing project level analyses and provides reasonable estimates of project impacts.

157. COMMENT: Conversely, these ISR rules are being implemented to address specific emission reduction commitments made by the District in Ozone and PM_{10} SIPs for the San Joaquin Valley. Region-wide pollutant emissions calculated under these SIPs use a more rigorous set of models that have been validated with direct measurements to determine motor vehicle travel impacts and resulting emission impacts than represented in URBEMIS. During the ISR rule development, the District has provided no clear evidence that URBEMIS is capable of calculating emissions from development projects in a manner that is consistent with SIP-level emissions. The District has simply asserted the appropriateness of URBEMIS under these proposed ISR rules despite the fact that CEQA guidelines published by other air districts such as the Bay Area and Sacramento clearly characterize URBEMIS as a conservative sketch-planning tool.

RESPONSE: The District believes that URBEMIS has been improved beyond its characterization as a sketch planning tool. Very few of the modules of the program are overly conservative. Most modules rely on statewide averages extracted from the emission inventory which should not be considered conservative estimates. The most important module is the mobile source module that includes the same emission factors used to build the emission inventory. It does a good job of arriving at a composite emission rate needed for a project level analysis. Models can always be made more accurate by individualizing more and more input factors. The District believes that URBEMIS balances data requirements with reasonable output accuracy and ease of use. The travel demand models described by Sierra Research are extremely data intense and would be very costly to run for the approximately 1,000 projects that will be submitted to the District each year. It is uncertain whether the demand models are more accurate for project level analyses than URBEMIS with local information.

158. COMMENT: To test the District's assertion, Sierra and Dowling performed an equivalent, side-by-side analysis of travel and emissions impacts of a typical hypothetical "suburban fringe" residential project using both URBEMIS and the Fresno County regional travel demand model3 (one of several county-level travel demand models used to calculate vehicle travel under the SIP. (As in URBEMIS, emission impacts were calculated using the Air Resources Board's EMFAC2002 vehicle emission factor model.)

For our investigation, we considered a 500-unit single family residential project located within a 160-acre parcel in an undeveloped/lightly-developed area in Clovis northeast of downtown Fresno near the intersection of Minnewawa and Shepherd at the edge of the urban area. This was intended to represent a typical suburban project at the fringe of an urbanized area and roughly matches the default single family residential project density assumed in URBEMIS of three units per acre. We looked at travel activity and emissions during Summer 2010.

Dowling ran the Fresno COG travel demand model in 2010 for a baseline (no project) case and a "with project" case under which the 500-unit project was simulated within the affected traffic analysis zone. The detailed travel model outputs were then fed into ARB's current EMFAC2002/BURDEN model to calculate associated emission impacts with the added project. These results were then compared to an URBEMIS simulation of a 500-unit single-family residential project in the San Joaquin Valley. The URBEMIS run assumed pass-by trips were accounted for and assumed an urban land use type. Since we simulated a single land use (single family residential) in both the travel model and URBEMIS runs, there was no need to apply the "double-counting" correction within URBEMIS.

Our analysis found that URBEMIS estimated daily VMT from this project at 35,817, compared to 21,886 using the SIP-based travel model, an increase of nearly 64%. Emission impacts using URBEMIS were also higher for all pollutants and ranged above 50% compared to the SIP-based approach.

3 Regional travel models such as the Fresno County model mathematically simulate vehicle trip movements over a regional roadway network by dividing the region into demographically similar "traffic analysis zones" (TAZs) similar to census tracts. Demographic and socioeconomic data for each TAZ are used to estimate the number and types of person trips taken between each TAZ. These person trips are then translated into vehicle trips (or non-vehicle trips such as walking or bicycle trips) and loaded onto a series of roadway links that spatially approximate the actual regional roadway network.

From our analysis of the underlying elements of the two approaches, we have preliminarily concluded that the discrepancy in VMT is caused by two related factors:

1. overstated defaults trip lengths for typical suburban residential projects in the San Joaquin Valley; and

2. the inherent underreporting of short trips in household survey data upon which average trip length estimates are based.

The trip generation rates in both models were identically-matched because they both rely on the same source, trip generation rates by land use from the Institute of Transportation Engineers (ITE). The ITE Trip Generation rates are a more accurate representation of vehicle traffic at a particular land use than rates based on household travel surveys. The ITE rates are based on actual driveway traffic counts at many land uses across the United States, and do not rely on self-reporting of trips. Therefore, the use of ITE trip generation rates in URBEMIS would accurately represent total trip-making, if the characteristics of the higher numbers of trips were identical to the characteristics survey-based trips used to determine average trip lengths. However, there is evidence that this is not the case, particularly for trip lengths.

RESPONSE: The District will contact the 8 Valley transportation planning agencies to obtain new recommended trip lengths for each county. This information will be included in the guidance provided by the District for use in URBEMIS. The District is not convinced that using the Transportation Demand Model will provide more accurate results.

159. COMMENT: The 2000-2001 Caltrans travel survey included a parallel study of actual vehicle movements using GPS units. The vehicle movements from the GPS surveys were compared with the self-reported trips from the same households. Overall, the GPS surveys resulted in 29 percent more trips than the self-reported travel survey results.

A related study4 identified the characteristics of underreported trips.5 In particular, the study found that short trips were much more likely to be underreported in travel surveys. Although trips of 10 minutes or less made up 48 percent of the total sample, the short trips accounted for 71 percent of the trips that were missing in self-reported results but identified by the GPS survey. Therefore, the short trips were about 50 percent more likely to be missing from the travel survey results.

4 Joanna Zmud and Jean Wolf, "Identifying the Correlates of Trip Misreporting – Results from the California Statewide Household Travel Survey GPS Study," 10th International Conference on Travel Behaviour Research, August, 2003.
5 Joanna Zmud and Jean Wolf, "Identifying the Correlates of Trip Misreporting – Results from the California Statewide Household Travel Survey GPS Study," 10th International Conference on Travel Behaviour Research, August, 2003.

The URBEMIS model therefore overestimates vehicle-miles of travel by basing the total trip generation on the higher ITE Trip Generation rates, but basing the average trip length characteristics on a smaller survey-based subset of trips that excludes many of the shorter trips. Moreover, it may not be easy or simple to correct this discrepancy because unbiased GPS or instrumented vehicle data may not be available for the San Joaquin Valley.

RESPONSE: It seems that Sierra is attempting to discredit URBEMIS by over complicating the emission calculation process. The differences between the project modeling done by URBEMIS and the regional modeling done by transportation demand models are not a valid comparison. With minor corrections URBEMIS will produce results very close to the SIP inventory model and URBEMIS will continue to be improved with each new version.

160. COMMENT: Although our side-by-side analysis of URBEMIS against a SIP-based approach was limited to a single hypothetical case study of a suburban "fringe" residential development, this case was intentionally selected because in addition to being a common example, it also represented conditions (i.e., urban edge) where it was believed that travel impacts from both approaches would be in closest agreement. Thus, the fact that this case study showed URBEMIS overstated SIP-based travel and emissions impacts by over 60% and 50%, respectively, casts doubt on the validity of broadly applying URBEMIS under the ISR rule as URBEMIS clearly does not produce SIP-consistent emission impacts.

Under both public and private sector work performed throughout California for over twenty years, Sierra has found no precedent at any air pollution control district that employs a fundamentally inconsistent methodology in implementing, monitoring and tracking emission reductions of a district rule from that used to calculate its SIP-based commitments. Given the above findings, we believe District bears the "burden-of-proof" that URBEMIS is consistent with SIP-based methods.

RESPONSE: The District disagrees with the assertion that URBEMIS is fundamentally inconsistent with SIP commitment methodologies. Since the emission inventory is built on a regional basis, the differences in individual projects are not addressed. Benefits of on-site measures and surrounding land uses are not credited in the inventory. URBEMIS is the only tool that can quantify emissions and on-site measures at the project level using readily available emission factors and activity data consistent with other inventory models.

The SIP credit expected from the rule comes from two sources – off-site reductions purchased by the District through its grant programs, and onsite

reductions achieved through project design and infrastructure built into the project. The off-site reductions from projects such as diesel engine replacements and retrofits are quantified using engine specific emission factors and use data and enforced by legally binding contracts. These meet the most stringent SIP monitoring and tracking requirements. The onsite measures are voluntary measures selected by the project developer that are more difficult to quantify and monitor. The District will claim reductions from onsite measures in accordance with EPA's Voluntary and Emerging Measures Program. In this program, EPA recognized that many nonattainment areas will need to implement innovative measures that may not be as quantifiable as traditional SIP measures. Sierra has found no precedent for this at other Districts because the San Joaquin Valley is the first to pursue an indirect source program that will be claimed for SIP credit.

161. COMMENT: Residential Fees Appear Understated in the Socioeconomic Report – In addition to the comments summarized above on the URBEMIS model, we also have concerns with the fee estimates for typical residential developments contained in the District's socioeconomic analysis of the ISR rules. Table 16 of the socioeconomic report cites "worst-case" fee estimates ranging from $856 per unit in 2006 to $2,841 per unit in 2010. The supporting text offers no explanation of how these estimates were developed.

Its fundamental flaws notwithstanding, Sierra independently estimated residential fees using URBEMIS, and the fee formulas and cost reduction ratios contained in the August drafts of Rule 9510 and 3180. For construction emissions, project construction equipment emission factors were assumed to equal those of the statewide inventory. URBEMIS runs were generated for a 100-unit residential project in the urban San Joaquin Valley for calendar years 2006 through 2010 using model defaults except where noted below. A 4% administration fee was assumed and included in our comparisons. Attachment B provides the details of our analysis.

Our analysis found fees were twice as high ($1,607-$7,971 per unit) over the same period for a single-family residential development, assuming a default housing density of 3 units/acre. When the housing density was doubled (to 6 units/acre), per unit fees were still over 50% higher ($1,295-$5,556 per unit) than those cited (without explanation) in the socioeconomic report. We also calculated fees assuming a 93% vs. 7% split between single and multi-family units, based on the average number of new single- and multi-family housing units permitted in the San Joaquin Valley in 2002 obtained from the California Department of Finance (http://countingcalifornia.cdlib.org/title/castat.html). Even under these mixed use assumptions, our fee estimates ranged from $1,550-$7,702 per unit, still nearly twice as high as those in the socioeconomic report.

Thus, we question how the estimates in that report were developed. Our analysis suggests that the worst case residential fees are substantially higher than those employed in the socioeconomic analysis. If this is correct, then the impacts quantified in the study are understated and would need to be revised.

RESPONSE: Sierra calculated the construction emission fee incorrectly. The District-estimated costs will be lower for residential development after the analysis is revised to account for the change to the fleet mix and silt loading factor. If the trip length and vehicle age changes can be verified, they too would lower the impact of the fee.

162. COMMENT: Revenue From Residential Fees Will Dramatically Exceed the Cost of Purchasing Mitigation Needed to Meet ISR SIP Commitments – A spreadsheet was created to prepare an estimate of the revenue that would be generated from residential fees for the 2006-2010 period and the cost of purchasing the mitigation needed to supply the ISR SIP emission reduction commitments during the same time period. Key assumptions used to support the development of these estimates include:

Number of Residential Units Subject to the Rule – According to the Construction Industry Research Board, construction permits were issued for 34,000 residential units in the San Joaquin Valley in 2004. This value represents a mixture of single and multi-family homes and was held constant for the years 2006 – 2010. Since the ISR rule provides an exemption for residential projects that have less than 50 units, this value was discounted by 10% to determine the number of units that would be subject to the rule. Using this approach it was determined that a total of 153,000 units would be subject to ISR fees between 2006 and 2010.

Residential ISR Fees – As noted earlier there is considerable difference between the worst case fees employed in the District's socioeconomic analysis and those that result from the use of default assumptions employed in URBEMIS. Given the discrepancy (i.e., the fees based on default URBEMIS values exceed the District's worse case values), four scenarios were used to cover the potential range in fees:

1. One half district worst-case estimate employed in the socioeconomic analysis was used to represent the low end of potential fees;
2. District worse case fees from the socioeconomic analysis represent the only per unit fee estimate available from the District;
3. URBEMIS default values, which are based on a density of 3 homes per acre represent a true worst case fee; and
4. URBEMIS default values adjusted to represent a higher density of 6 homes per acre represents a lower cost fee.

A summary of the fees that would be required to comply with these scenarios is presented in Table 4. It shows that there are considerable differences between the worst-case District values and those produced using default assumptions from URBEMIS. The URBEMIS based values assume that developers do not supply any on-site mitigation and are required to pay the fee-based expense of mitigation. We do not know what level of on-site mitigation was included in the District's estimate.

Table 4
Per Unit Mitigation Fees ($) For Each of the Scenarios Considered

Calendar Year	One Half District Worst Case	District Worst Case	URBEMIS Default 3du/acre	URBEMIS 6du/acre
2006	468	856	1,545	1,245
2007	705	1,409	3,088	2,385
2008	1,001	2,001	4,847	3,584
2009	1,230	2,459	6,637	4,804
2010	1,421	2,841	7,665	5,343

RESPONSE: The District used 3 units per acre for single family dwelling units in the socioeconomic impact analysis and continues to arrive at the same numbers. Sierra uses a figure of 34,000 units per year for its estimates of overall potential fees. The District used 20,000 units per year based on historical data that included years when construction occurred at a much slower rate and population projections used for the District's attainment plans. We believe that it is inappropriate to base future projections on record years that many expect may be a bubble. If the growth rates do continue, that means that the impact of growth will be much greater than projected and the increased revenue from greater participation in the rule by more units would be needed to offset the additional emissions.

Residential Revenue – This value was computed by multiplying the number of units subject to the Rule times the annual fee (i.e., # of units × $/unit = $).

SIP Emission Reduction Targets – The ton/day pollutant specific reduction targets established in the SIP for NOx and PM_{10}. The same values were employed in the rule making and were documented in Appendix B of the ISR rules packet.

District-Estimated Cost of Reductions – The annual pollutant specific $/ton cost of reductions specified in the residential fee schedule for Rule 9510.

Revenue Demanded – This value was computed by multiplying the pollutant specific incremental ton per day reduction commitment established in the SIP by

the District estimated cost pollutant specific reductions by 365.25 (average days per year) by 1.05 (to account for a combination of the administrative fee of Rule 3180 and an assumed 1% application fee). A key assumption in this calculation is that developers did not provide any onsite mitigation, so the District purchased all of the reductions needed to satisfy the SIP commitment.

Attachment C presents a listing of the spreadsheet values developed for each of the above parameters for each the four mitigation fee scenarios listed above. A summary of the cumulative revenue and mitigation values computed for each scenario for the period from 2006 to 2010 is listed in Table 5. It shows that the revenue varies depending on the ISR fees established by the scenario and that the cost of mitigation is constant. Regardless of the scenario considered, incoming revenue exceeds the mitigation expense by a huge margin. As noted in the summary, we believe that this is a result of biases built into URBEMIS default assumptions and the mitigation fees established for operational emissions from residential units.

Table 5
Analysis of Residential Revenue and Mitigation Expense ($ in millions)

Fee Scenario	Revenue	Mitigation Expense	Unexpended Revenue	Relative Difference (%)
One Half District Worst Case	146.3	38.8	107.5	377%
District Worst Case	292.7	38.8	253.9	754%
URBEMIS Defaults	727.7	38.8	688.9	1,873%
URBEMIS High Density	531.2	38.8	492.4	1,368%

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

URBEMIS 8.7 ANNUAL AVERAGE EMISSIONS FOR
100-UNIT SF RESIDENTIAL DEVELOPMENT PROJECT (unmitigated)
USING ALL MODEL DEFAULT VALUES

	Construction		Area Source		Operational (Vehicle)		Area+Operational		Total (C+A+O)	
Calendar	Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)	
Year	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10
2006	30.75	2.59	0.30	0.61	2.58	1.99	2.88	2.60	33.63	5.19
2007	29.38	2.48	0.30	0.61	2.42	1.99	2.72	2.60	32.10	5.08
2008	28.01	2.35	0.30	0.61	2.24	1.99	2.54	2.60	30.55	4.95
2009	26.66	2.28	0.30	0.61	2.05	1.98	2.35	2.59	29.01	4.87
2010	25.36	2.18	0.30	0.61	1.87	1.98	2.17	2.59	27.53	4.77

URBEMIS 8.7 ANNUAL AVERAGE EMISSIONS FOR
100-UNIT SF HIGH-DENSITY (6 units/ac) RESIDENTIAL DEVELOPMENT PROJECT (unmitigated)
USING ALL MODEL DEFAULT VALUES (except single family residential density)

	Construction		Area Source		Operational (Vehicle)		Area+Operational		Total (C+A+O)	
Calendar	Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)	
Year	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10
2006	26.30	1.79	0.30	0.61	2.29	1.76	2.59	2.37	28.89	4.16
2007	25.14	1.70	0.30	0.61	2.14	1.76	2.44	2.37	27.58	4.07
2008	23.98	1.59	0.30	0.61	1.98	1.76	2.28	2.37	26.26	3.96
2009	22.85	1.53	0.30	0.61	1.82	1.76	2.12	2.37	24.97	3.90
2010	21.75	1.45	0.30	0.61	1.66	1.76	1.96	2.37	23.71	3.82

URBEMIS 8.7 ANNUAL AVERAGE EMISSIONS FOR
100-UNIT SF RESIDENTIAL DEVELOPMENT PROJECT (unmitigated)
USING ALL MODEL DEFAULT VALUES

	Construction		Area Source		Operational (Vehicle)		Area+Operational		Total (C+A+O)	
Calendar	Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)		Emissions (tpy)	
Year	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10	NOx	PM10
2006	12.62	0.81	0.21	0.61	1.86	1.43	2.07	2.04	14.69	2.85
2007	*12.07*	*0.77*	*0.21*	*0.61*	*1.73*	*1.43*	1.94	2.04	14.02	2.81
2008	*11.53*	*0.72*	*0.21*	*0.61*	*1.61*	*1.43*	1.82	2.04	13.34	2.76
2009	*10.98*	*0.68*	*0.21*	*0.61*	*1.48*	*1.43*	1.69	2.04	12.67	2.72
2010	10.43	0.63	0.21	0.61	1.35	1.43	1.56	2.04	11.99	2.67

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

SJV DRAFT RULE 9510 ISR NOx IMPACT FEE CALCULATIONS

Formula:

$$AIMF_{NOx} = \sum_{i=1}^{n} [(EBE_i \times 7.5 / 3) - (EBE_i \times 7.5 \times APM_i)] \times CNR$$

Calendar Year	Cost of NOx Red. ($/ton)
2006	$4,650
2007	$7,100
2008	$9,350
2009	$11,500
2010	$13,250
2011	$13,250
2012	$13,250
2013	$13,250
2014	$13,250
2015	$13,250

where

AIMF = Air Impact Mitigation Fee (in dollars)
i = each phase
n = last phase
EBE = Estimated Baseline Emissions of NOx as documented in the District approved air impact assessment application (in tons/year)
APM = Actual Percent Mitigation, as documented in the District approved air impact assessment application (as a fraction of one)
CNR = Cost of NOx Reductions (in dollars per ton)

$$CN\ AIMF_{NOx} = \sum_{i=1}^{n} [AEE_i - (0.8 \times SEE_i)] \times CNR$$

where

CN AIMF = Construction NOx Air Impact Mitigation Fee (in dollars)
i = each phase
n = last phase
AEE = Actual Estimated Equipment NOx Emissions as documented in District approved air impact assessment application (in total tons)
SEE = Statewide Average Equipment NOx Emissions as calculated by the District (in total tons)
CNR = Cost of NOx Reductions (in dollars per ton)

Calculations:

					Area + Operational Sources				Construction Sources					
	Calendar Years			Units per	Estimated Baseline Emissions	Actual Percent Mitigation	Air Impact Mitigation Fee	Area+Ops Fee/Unit	Actual Equipmt Emis AEE	Assumed % AEE	State Avg Equipmt Emis SEE	Constr Air Impact Fee	Constr Fee/Unit	Total Fee/Unit
Scenario	Start	End	Phases	Phase	EBE (tpy)	APM (%)	AIMF ($)	($)	(total tons)	Over SEE	(total tons)	CN AIMF ($)	($)	($)
SF Resid	2006	2006	1	100	2.88	0%	$33,480	$335	102.95	0%	102.95	$95,744	$957	$1,292
SF Resid	2007	2007	1	100	2.72	0%	$48,298	$483	141.85	0%	141.85	$201,422	$2,014	$2,497
SF Resid	2008	2008	1	100	2.54	0%	$59,373	$594	166.30	0%	166.30	$310,985	$3,110	$3,704
SF Resid	2009	2009	1	100	2.35	0%	$69,325	$693	184.82	0%	184.82	$436,176	$4,362	$5,055
SF Resid	2010	2010	1	100	2.17	0%	$71,881	$719	182.29	0%	182.29	$483,071	$4,831	$5,550
HD Resid	2006	2006	1	100	2.59	0%	$30,109	$301	79.19	0%	79.19	$73,643	$736	$1,038
HD Resid	2007	2007	1	100	2.44	0%	$43,310	$433	108.88	0%	108.88	$154,612	$1,546	$1,979
HD Resid	2008	2008	1	100	2.28	0%	$53,295	$533	127.80	0%	127.80	$238,989	$2,390	$2,923
HD Resid	2009	2009	1	100	2.12	0%	$62,540	$625	142.90	0%	142.90	$337,253	$3,373	$3,998
HD Resid	2010	2010	1	100	1.96	0%	$64,925	$649	141.21	0%	141.21	$374,211	$3,742	$4,391
MF Resid	2006	2006	1	100	2.07	0%	$24,064	$241	38.37	0%	38.37	$28,243	$282	$523
MF Resid	2007	2007	1	100	1.94	0%	$34,479	$345	41.63	0%	41.63	$59,168	$591	$936
MF Resid	2008	2008	1	100	1.82	0%	$42,426	$424	48.90	0%	48.90	$91,435	$914	$1,339
MF Resid	2009	2009	1	100	1.69	0%	$49,781	$498	54.65	0%	54.65	$128,968	$1,290	$1,787
MF Resid	2010	2010	1	100	1.56	0%	$51,675	$517	53.90	0%	53.90	$142,827	$1,428	$1,945

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

SJV DRAFT RULE 9510 ISR PM10 IMPACT FEE CALCULATIONS

Formula:

$$AIMFper10 = \sum_{i=1}^{n} [(MBE - 0.5\,EBE)_i \times 10\,MCE)_i] \times CR$$

where

AIMF = Air Impact Mitigation Fee (in dollars)
i = each phase
n = last phase
EBE = Estimated Baseline Emissions of PM10 as documented in the District approved air impact assessment application (in tons/year)
MBE = Mitigated Baseline Emissions, as documented in the District approved air impact assessment application (in tons/year)
MCE = Mitigated Construction Emissions, as documented in the District approved air impact assessment application (as total tons)
CR = Cost of Reductions (in dollars per ton)

Calendar Year	Cost of PM10 Red ($/ton)
2006	$2,907
2007	$5,594
2008	$8,011
2009	$11,306
2010	$13,850
2011	$13,850
2012	$13,850
2013	$13,850
2014	$13,850
2015	$13,850

$$AIMFper10 = \sum_{i=1}^{n} [(MBE - 0.5\,EBE)_i \times 10\,MCE)_i] \times CR$$

$$CN\,AIMFper10 = \sum_{i=1}^{n} [AEE_i - (0.9 \times SEE)_i] \times CPR$$

where
CN AIMF = Construction PM10 Air Impact Mitigation Fee (in dollars)
i = each phase
n = last phase
AEE = Actual Estimated Equipment PM10 Emissions as documented in District approved air impact assessment application (in total tons)
SEE = Statewide Average Equipment PM10 Emissions as calculated by the District (in total tons)
CPR = Cost of PM10 Reductions (in dollars per ton)

Calculations:

				Area + Operational Sources					Construction Sources					
Scenario	Calendar Years Start	Calendar Years End	Phases	Units per Phase	Estimated Baseline Emissions EBE (tpy)	Active Percent Mitigation APM (%)	Air Impact Fee AIMF ($)	Area+Op Fee/Unit ($)	Actual Equipmt Emis AEE (total tons)	Assumed % AEE Over SEE	State Avg Equipmt Emis SEE (total tons)	Constr Air Impact Fee CN AIMF ($)	Constr Fee/Unit ($)	Total Fee/Unit ($)
SF Resid	2006	2006	1	100	2.60	0%	$10,896	$109	4.89	0%	9.02	$6,802	$64	$253
SF Resid	2007	2006	1	100	2.60	0%	$36,361	$364	9.02	0%	9.02	$22,700	$227	$591
SF Resid	2008	2006	1	100	2.60	0%	$58,577	$586	13.76	0%	13.76	$35,814	$359	$1,044
SF Resid	2009	2006	1	100	2.59	0%	$73,719	$737	16.69	0%	16.69	$84,949	$849	$1,587
SF Resid	2010	2006	1	100	2.59	0%	$89,679	$897	19.55	0%	19.55	$121,845	$1,218	$2,115
MD Resid	2006	2006	1	100	2.59	0%	$10,823	$108	3.37	0%	3.37	$3,939	$39	$208
MD Resid	2007	2007	1	100	2.44	0%	$34,123	$341	5.80	0%	5.80	$6,899	$69	$486
MD Resid	2008	2008	1	100	2.28	0%	$51,363	$514	8.17	0%	8.17	$11,710	$117	$631
MD Resid	2009	2009	1	100	2.12	0%	$59,932	$599	9.17	0%	9.17	$20,738	$207	$807
MD Resid	2010	2010	1	100	1.96	0%	$67,965	$679	9.84	0%	9.84	$27,258	$273	$951
MF Resid	2006	2006	1	100	2.04	0%	$14,826	$148	1.20	0%	1.20	$4,571	$46	$194
MF Resid	2007	2006	1	100	2.04	0%	$28,529	$285	2.18	0%	2.18	$5,894	$59	$344
MF Resid	2008	2006	1	100	2.04	0%	$45,956	$460	3.31	0%	3.31	$13,417	$134	$594
MF Resid	2009	2006	1	100	2.04	0%	$57,671	$577	3.89	0%	3.89	$19,809	$198	$775
MF Resid	2010	2006	1	100	2.04	0%	$70,635	$706	4.45	0%	4.45	$27,735	$277	$984

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

SJV DRAFT ISR RULE FEE CALCULATIONS FOR TYPICAL RESIDENTIAL PROJECTS

Scenario	Calendar Year	Construction Emis. %AEE Over SEE NOx	Construction Emis. %AEE Over SEE PM10	Rule 3180 Admin Fee (%)	Per Unit NOx Fees Area+Op	Per Unit NOx Fees Constr.	Per Unit PM10 Fees Area+Op	Per Unit PM10 Fees Constr.	Total Fees Per Unit Area+Op	Total Fees Per Unit Constr.	Total Fees Per Unit Admin	Total	Total Less Admin
100-Unit SF Res	2006	0%	0%	4%	$335	$957	$189	$64	$524	$1,021	$62	$1,607	$1,545
100-Unit SF Res	2007	0%	0%	4%	$483	$2,014	$364	$227	$846	$2,241	$124	$3,211	$3,088
100-Unit SF Res	2008	0%	0%	4%	$594	$3,110	$586	$558	$1,179	$3,668	$194	$5,041	$4,847
100-Unit SF Res	2009	0%	0%	4%	$693	$4,362	$732	$849	$1,425	$5,211	$265	$6,902	$6,637
100-Unit SF Res	2010	0%	0%	4%	$719	$4,831	$897	$1,218	$1,616	$6,049	$307	$7,971	$7,665
100-Unit HD SF Res	2006	0%	0%	4%	$301	$736	$188	$20	$489	$756	$50	$1,295	$1,245
100-Unit HD SF Res	2007	0%	0%	4%	$433	$1,546	$341	$65	$774	$1,611	$95	$2,481	$2,387
100-Unit HD SF Res	2008	0%	0%	4%	$533	$2,390	$534	$187	$1,067	$2,577	$143	$3,727	$3,584
100-Unit HD SF Res	2009	0%	0%	4%	$625	$3,373	$599	$207	$1,225	$3,580	$192	$4,997	$4,805
100-Unit HD SF Res	2010	0%	0%	4%	$649	$3,742	$679	$273	$1,328	$4,015	$214	$5,556	$5,343
100-Unit MF Res	2006	0%	0%	4%	$241	$282	$148	$64	$389	$346	$29	$765	$735
100-Unit MF Res	2007	0%	0%	4%	$345	$591	$285	$227	$630	$818	$50	$1,498	$1,448
100-Unit MF Res	2008	0%	0%	4%	$424	$914	$460	$558	$884	$1,472	$94	$2,451	$2,356
100-Unit MF Res	2009	0%	0%	4%	$498	$1,298	$577	$849	$1,075	$2,139	$129	$3,342	$3,214
100-Unit MF Res	2010	0%	0%	4%	$517	$1,439	$706	$1,218	$1,223	$2,647	$159	$4,029	$3,870
Resid Mix - 93% SF, 7% MF	2006	0%	0%	4%	$328	$911	$186	$64	$515	$975	$60	$1,550	$1,490
Resid Mix - 93% SF, 7% MF	2007	0%	0%	4%	$473	$1,917	$358	$227	$832	$2,144	$119	$3,095	$2,976
Resid Mix - 93% SF, 7% MF	2008	0%	0%	4%	$582	$2,960	$577	$558	$1,159	$3,518	$187	$4,864	$4,677
Resid Mix - 93% SF, 7% MF	2009	0%	0%	4%	$680	$4,152	$722	$849	$1,401	$5,001	$250	$6,653	$6,403
Resid Mix - 93% SF, 7% MF	2010	0%	0%	4%	$705	$4,598	$884	$1,218	$1,589	$5,817	$296	$7,702	$7,406

Calendar Year	Worst-Case Socio Report Resid Fees Res Fee ($/Unit)	One-Half Worst-Case Resid Fees Res Fee ($/Unit)
2006	$856	$428
2007	$1,409	$705
2008	$2,001	$1,001
2009	$2,459	$1,230
2010	$2,841	$1,421

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:

34,600 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)

10% of residential units exempted from ISR rules under the 50-unit project threshold

SocioHalf source of estimated residential fees (SocioWC = SE report/worst-case; SocioHalf = SE report/one half worst-case; URBDft = URBEMIS Defaults; URBHD = URBEMIS High Density)

	SJV ISR Residential Revenue				SJV ISR Revenue Needed to Achieve SIP Targets				
	Est. New	Residential	Residential		SIP Emission Reduction		District-Estimated Cost		"Revenue"
Calendar Year	Residential Units*	ISR Fee ($/Unit)	Revenue ($/year)	Calendar Year	Targets (tons/day) NOx	PM10	of Reductions ($/ton) NOx	PM10	Demanded ($/year)
2006	30,600	$428	$13,096,800	2006	0.0	1.2	$4,650	$2,907	$1,337,845
2007	30,600	$705	$21,557,700	2007	2.8	2.4	$7,100	$5,594	$10,198,671
2008	30,600	$1,001	$30,615,300	2008	4.0	3.5	$9,350	$9,011	$8,104,475
2009	30,600	$1,230	$37,622,700	2009	5.0	4.6	$11,000	$11,309	$9,295,883
2010	30,600	$1,421	$43,467,300	2010	5.8	5.7	$13,250	$13,950	$9,908,045
Cumulative Totals 2006 to 2010:			**$146,359,800**						$38,844,869
Relative Difference in Revenue: (Supplied vs. Demanded)						377%			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold

** Includes 5% "overhead" fee; 4% admin fee per Rule 3180, plus assumed 1% application fee

RESPONSE: The table provided above fails to include the average project life of the emission reduction projects that will be funded by the revenue collected. This results in severely understating the revenue required to purchase emission reductions. NOx projects have an average life of 7 years. PM10 projects have an average life of 12 years. The $/ton number in the fee formula is based on annualized cost divided by annual reductions. This allows for comparison of projects with different project lives. To arrive at the funding needed to achieve the SIP emission reduction commitment, multiply the annual reductions required times the cost per ton of each pollutant.

The District considers it inappropriate to base housing projections on 34,000 units per year. The SIP growth projections are derived from population projections provided by the Valley transportation planning agencies. If these record growth rates continue until 2010, the SIP emission budgets will need to be increased and additional reductions would be needed to achieve attainment on schedule. Rule 9510 would provide some of these additional reductions if growth exceeds predictions.

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:

34,000 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)
10% of residential units exempted from ISR rules under the 50-unit project threshold
SocioWC source of estimated residential fees (SocioWC = SE report/worst-case, SocioHalf = SE report/one half worst-case, URBEMIS = URBEMIS Defaults, URBHD = URBEMIS High Density)

	SJV ISR Residential Revenue				***SJV ISR Revenue Needed to Achieve SIP Targets***				
Calendar Year	Est. New Residential Units*	Residential ISR Fee ($/Unit)	**Residential Revenue ($/year)**	Calendar Year	SIP Emission Reduction Targets (tons/day) NOx	PM10	District Estimated Cost of Reductions ($/ton) NOx	PM10	**Revenue** Demanded ($/year)**
2006	30,600	$856	**$26,193,600**	2006	0.0	1.2	$4,650	$2,907	**$11,217,630**
2007	30,600	$1,409	**$43,115,400**	2007	2.9	2.4	$7,100	$5,594	**$30,198,571**
2008	30,600	$2,001	**$61,230,600**	2008	4.0	3.5	$9,350	$9,011	**$68,304,425**
2009	30,600	$2,459	**$75,245,400**	2009	5.0	4.6	$11,800	$11,308	**$80,295,883**
2010	30,600	$2,041	**$86,934,600**	2010	5.8	5.7	$13,250	$13,850	**$79,908,945**
Cumulative Totals 2006 to 2010:			**$292,719,600**						**$289,844,869**
Relative Difference in Revenue: (Supplied vs. Demanded)						**754%**			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold
** Includes 5% "overhead" fee, 4% admin fee per Rule 3180, plus assumed 1% application fee

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:
14,000 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)
10% of residential units exempted from ISR rules under the 50-unit project threshold
URBDflt source of estimated residential fees (SocioWC = SE report/worst-case, SocioHalf = SE report/one half worst-case, URBDflt = URBEMIS Defaults, URBHD = URBEMIS High Density)

SJV ISR Residential Revenue				**SJV ISR Revenue Needed to Achieve SIP Targets**					
Calendar Year	Est. New Residential Units*	Residential ISR Fee ($/Unit)	**Residential Revenue ($/year)**	Calendar Year	SIP Emission Reduction Targets (tons/day) NOx	PM10	District-Estimated Cost of Reductions ($/ton) NOx	PM10	**Revenue** Demanded ($/year)**
2006	30,600	$1,545	**$47,283,711**	2006	0.0	1.2	$4,650	$2,907	**$11,337,845**
2007	30,600	$3,088	**$94,481,494**	2007	2.8	2.4	$7,100	$5,594	**$40,198,671**
2008	30,600	$4,847	**$148,331,356**	2008	4.0	3.5	$9,350	$9,011	**$68,104,425**
2009	30,600	$6,637	**$203,082,914**	2009	5.0	4.6	$11,800	$11,306	**$99,295,883**
2010	30,600	$7,665	**$234,541,633**	2010	5.8	5.7	$13,250	$13,850	**$129,908,045**
Cumulative Totals 2006 to 2010:			**$727,721,108**						**$348,844,869**
Relative Difference in Revenue: (Supplied vs. Demanded)						**-873%**			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold
** Includes 5% "overhead" fee - 4% admin fee per Rule 3180, plus assumed 1% application fee

SIERRA RESEARCH
ATTACHMENT B
PER UNIT RESIDENTIAL FEE CALCULATIONS

ANALYSIS OF ISR REVENUE SUPPLIED VS. DEMANDED FROM SIP

Assumptions:

34,000 residential units per year in SJV (Source: Construction Industry Research Board, CY2004 Permits)

10% of residential units exempted from ISR rules under the 50-unit project threshold

URBHD source of estimated residential fees (SocioWC = SE report/worst-case, SocioHalf = SE report/one half worst-case, URECAt = URBEMIS Defaults, URBHD = URBEMIS High Density)

SJV ISR Residential Revenue				*SJV ISR Revenue Needed to Achieve SIP Targets*					
Calendar Year	Est. New Residential Units*	Residential ISR Fee ($/Unit)	**Residential Revenue ($/year)**	Calendar Year	SIP Emission Reduction Targets (tons/day) NOx	PM10	District Estimated Cost of Reductions ($/ton) NOx	PM10	**Revenue** Demanded ($/year)**
2006	30,600	$1,245	**$38,107,242**	2006	0.0	1.2	$4,650	$2,907	**$1,317,615**
2007	30,600	$2,385	**$72,991,721**	2007	2.9	2.4	$7,100	$5,594	**$10,190,571**
2008	30,600	$3,584	**$109,659,478**	2008	4.0	3.5	$9,350	$9,011	**$8,304,425**
2009	30,600	$4,805	**$147,021,892**	2009	5.0	4.6	$11,800	$11,308	**$10,295,823**
2010	30,600	$5,343	**$163,483,390**	2010	5.6	5.7	$13,250	$13,850	**$19,908,945**
Cumulative Totals 2006 to 2010:			**$531,263,724**						**$50,017,379**
Relative Difference in Revenue: (Supplied vs. Demanded)						**1368%**			

* Discounted to reflect 10% of residential project units exempted under the 50-unit threshold

** Includes 5% "overhead" fee, 4% admin fee per Rule 3190, plus assumed 1% application fee

RESPONSE: The tables provided above are based on erroneous information and so should be disregarded.

PETROtech Environmental Solutions
Date: September 19, 2005

Good morning. It was good to see you at the Chamber of Commerce Meeting on Friday.

163. **COMMENT:** My comment regarding SJVUAPCD Rule 9510 is as follows: I would like to see Exemption Section 4.1.4 changed to read as follows:

"Oil EXPLORATION, Production and Processing"

The way the exemption reads now, only Production and Processing would be covered.

RESPONSE: The Rule will be amended to read "Oil Exploration, Production and Processing.**"**

164. **COMMENT:** I also have a comment regarding Air Quality Guidelines for General Plans. Seyed, until about 5-7 years ago, residential development was ongoing, but it was a fraction of what it is today. I will bet that very few folds from Bakersfield paid attention to them when they were drafted. If PETROtech hadn't started doing Air Quality Impact Assessments, I would have never thought about Rule 9510. But the concern that folds have is based on their fears that sometimes Guidelines, or suggested control measures become part of the requirements.

RESPONSE: Comment Noted.

The California League of Food Processors (CLFP)
Date: September 15, 2005

165. COMMENT: CLFP's primary concern is that it is not entirely clear how some of the provisions of Rule 9510 will apply to a range of manufacturing applications, and the potential compliance costs. Based on a review of the draft CLFP suggests that the District amend the proposed rule as follows:

1. Expand the list of exemptions to include food processing facilities. These facilities should be exempted for the following reasons:
    - A large portion of NOx emissions at most food processing plants can be attributed to stationary sources such as boilers or dryers, and most of this equipment is, or soon will be, subject to new emissions reduction regulations.
    - Forklifts, one of the most common vehicles used at processing facilities, will soon be subject to new emissions control regulations.
    - Unlike many manufacturing and commercial operations, most food processors operate on a seasonal basis, and some only operate for a few months per year. This significantly limits the total amount of employee and product delivery vehicle traffic on the site.
    - A number of the emissions mitigation options suggested by the District are not viable for many food processing facilities. Most processing plants are located in rural areas near where the crops are grown. Charging workers for parking or providing free bus passes to encourage the use of mass transit won't be effective if there is no mass transit available. Cannery workers cannot telecommute or teleconference to conduct their duties, and few may want to ride a bicycle home after working a shift in a factory. Options for creating mixed use facilities may be quite limited. In the case of food processors and many other manufacturers, locating new facilities based on reducing worker travel will imply hauling the raw product further, generating longer trips and additional diesel emissions. The economic viability of investing in some energy savings devices may be limited by the seasonal nature of the business. So, there may be a narrow range of cost effective mitigation measures available to food processors.

RESPONSE: The District will expand the definition to include food manufacturing.

166. COMMENT: 2. The District should clarify how baseline emissions will be calculated for manufacturing and industrial facilities.

RESPONSE: Manufacturing and industrial facilities whose primary function is regulated by the District will be exempt. For those industries subject to the rule such as warehouse distribution centers, only indirect and area source emissions

are used for the baseline calculation. A proposed new facility going through the CEQA process would prepare an air quality impact assessment. The assessment would include an URBEMIS run to quantify area source and mobile source emissions. The facility would concurrently apply to the District for an Authority to Construct for any stationary source equipment/devices subject to permitting. District staff would then estimate stationary emissions.

167. COMMENT: 3. The District should consider the impact of cumulative regulatory costs on industry. Many firms located in the San Joaquin Valley are currently expending substantial funds to comply with an array of new air and water quality environmental regulations. Rule 9510 will place an additional cost burden on industry which will have a direct effect on competitiveness in the global marketplace.

RESPONSE: The District recognizes the cumulative impact of air regulations on industry and the major investments made in stationary source emission controls in compliance with District rules and regulations and has provided exemptions for sources whose primary function is permitted by the District.

Manufacturers Council of the Central Valley
Date: September 15, 2005

On behalf of the Manufacturers Council of the Central Valley, I want to thank you for the opportunity to provide comments on the draft rule 9510 (Decreasing Emissions' Significant Impact from Growth and New Development – DESIGN) and Draft Rule 3180 of the San Joaquin Valley Unified Air Pollution Control District's Rule 4309. The Council represents a number of food processing and related companies in the San Joaquin Valley including several who will be impacted by this rule – some quite significantly and others, quite unexpectedly, unless there are major modifications prior to its adoption by the Governing Board later this year.

These comments are intended to augment those submitted earlier by Rob Neenan of the California League of Food Processors and which we fully support, but will not, in the interest of time, duplicate.

168. COMMENT: As I have communicated to you in a telephone conversation and at the public workshop, the MCCV is particularly concerned with the lack of clarity provided in section 4.1.4 concerning development projects whose primary source of emissions are from stationary sources which are subject to rule 2201 or Rule 2010. At the minimum we would like to see the list of industries expanded to include food processing related companies (including snack foods, candy, milk and cheese), corrugated box manufacturers, can manufacturers, and wineries.

However, even this is insufficient to adequately address the concerns unless a categorical exemption is provided for these industries because the first question

that will be asked is what is the definition of primary? And the subsequent question is how will this be determined? For new developments, this will be somewhat straightforward:

A) If stationary source emissions are projected to be greater than 50 percent of the construction emissions (as calculated by the yet undeveloped emissions calculator) plus the indirect emissions (as calculated by URBEMIS) then project is EXEMPT
B) If less than 50 percent then project is NOT EXEMPT

However, if the development project is an expansion of an existing facility in a jurisdiction which requires discretionary approval, due to its particular ordinance, how will the district review the project and calculate the emissions? What will be the baseline? Will only that portion of the project that is being expanded be subject to the rule? Or will that revert to the policy of the jurisdiction? There are a number of questions that arise and this just touches the surface.

RESPONSE: The rule has been revised to clarify the sources that will be exempt from the rule.

Western States Petroleum Association (WSPA)
Date: September 16, 2005

The Western States Petroleum Association (WSPA[1]) would like to take advantage of the brief opportunity made available by District staff for industry to provide comment on the June 30, 2005 draft of the proposed Rule 9510 (Decreasing Emissions' Significant Impact from Growth and New Development – DESIGN). Our comments on critical development issues related to the rule are attached. We look forward to discussing these issues with the District during future workshop sessions and if necessary providing additional comments should it prove necessary. Preparation of such comments is a crucial aspect of the Rule development process and as such, should be afforded sufficient time for a thorough review of the draft District document and preparation of meaningful comments.

169. COMMENT: I. Indirect Source Review and the SIP
In our July 22, 2005 comments, the Western States Petroleum Association (WSPA) requested that the District designate requirements derived from the proposed regulation as "not federally enforceable". WSPA cited the Federal Clean Air Act at Section 110(a)(5)(A)(i) and the California Health and Safety Code at Section 39602, which we believe support our request.

The Clean Air Act (CAA) at section 110(a)(5)(A)(i) states the following:

1 WSPA is a non-profit trade association representing a full spectrum of companies which explore for, produce, refine, transport, and market petroleum and petroleum products in the Western United States.

"Any state may include in a state implementation plan, but the administrator may not require as a condition of approval of such a plan under this section, any indirect source review program. The administrator may review and enforce as part of an applicable implementation plan an indirect source review program which a state chooses to adopt and submit as part of its plan."

The California Health and Safety Code at Section 39602 states the following:

"…the state implementation plan shall only include those provisions necessary to meet the requirements of the Clean Air Act."

We believe that these sections of the Federal Clean Air Act (CAA) and the California Health and Safety Code when considered together clearly preempt inclusion of indirect source review programs in the California state implementation plan.

The District's response to our comment is contained in Appendix-A of September 1, 2005 draft of the proposed regulation. The District contends that indirect source review programs are required by the CAA, since emission reductions are required to attain ambient air quality standards.

WSPA disagrees. The indirect source review program proposed by the District would be enforceable as a "state only" requirement. Emission reductions from the program would still occur and would reduce ambient concentrations to the same extent. The designation of indirect source review requirements as "federally enforceable" or "non-federally enforceable" has no effect on the attainment of air quality standards.

In California, inclusion of indirect source review programs in state implementation plan is prohibited by H&SC Section 39602 and the CAA section 110(a)(5)(A)(i). Consequently, WSPA requests the proposed regulation include a statement that Rule 9510 is a "state only" regulation.

We believe this to be a critical issue since federal requirements contained in applicable implementation plans must be included in Title V operating permits for major sources. Therefore, under the proposed regulation, mitigation contracts entered into by major stationary sources would require approval (or veto) by the U.S. EPA.

RESPONSE: The District disagrees with the interpretation of CAA sections cited in the comment. The intent of the section was to prohibit EPA from requiring indirect source programs as a Federal Implementation Plan (FIP) measure. Since the District requires the reductions for Rule 9510 to meet commitments in the PM10 Plan, the rule must be enforceable. The enforcement approach we

are proposing is not traditional since this program breaks new ground. The emission reduction projects are enforceable by the District through contract legal actions, but not EPA. If the reductions from the rule and its measures are not achieved, EPA enforcement should require the District to take corrective action to make up for the reductions in accordance with CAA milestone requirements. Since EPA is precluded from requiring the program, they would need to use alternative strategies in the event that a FIP were promulgated.

170. COMMENT: II Rule Applicability

A. Applicability Trigger Date.

In our July 22, 2005 comments WSPA proposed that applications for development projects filed prior to the rule adoption date be reviewed under existing regulations. We continue to believe these development projects should be reviewed under existing regulations. Under existing regulations, projects with significant environmental effects must include all feasible mitigation. The District is provided with notice and an opportunity for commenting on all such projects that are conducted within the San Joaquin Valley. Consequently, the District either has had or will have an opportunity to comment on these projects and to propose mitigation for indirect source and area source emissions. WSPA sees no reason why these projects should have to undergo a second round of regulatory review.

B. Indirect Source Review

As pointed out in our prior comments, Health and Safety Code Section 40717.5 sets forth guidelines and procedures that must be followed by any air district that proposes to adopt or amend a rule or regulation pursuant to Section 40716 or Section 40717.

The requirements contained in Section 40717.5(a) through 40717.5(c) are designed to ensure that emissions from indirect sources are properly allocated to projects that cause an increase in vehicular activity and to ensure that indirect source review requirements are not duplicative of other requirements imposed by the District or other agencies.

The draft version of District Rule does not comply with H&SC Section 40717.5(a)(1) which limits the applicability of indirect source review to those activities that contribute to, "…air pollution by generating vehicle trips that would otherwise not occur".

The District response to WSPA comments (Appendix-A, comment #24, #29) and to similar comments submitted by other was that:

"by their nature new development projects ultimately result in new trips which would not otherwise occur".

The District does not provide any information in support of this generalization and has not made any attempt to determine which types of activities result in an increase in indirect source emissions. In response to other comments the District acknowledges that the proposed rule is intended to control growth induced emissions from indirect sources and new construction (Appendix-A, comment #2, #8, #16). Not all development projects result in growth.

In our July 22, 2005 comments WSPA requested that Rule 9510 be revised to limit rule applicability to indirect source and area source emissions increases. We continue to believe that indirect source review programs established under authority at H&SC Section 40717 and Section 40715.5 are limited to regulation of growth induced indirect source and area source emissions.

WSPA believes that indirect source emissions and area source emissions that are already occurring, or area included in an application for a development project filed before the rule adoption date, should be considered existing emissions and only emissions increase above existing emissions should be subject to Rule 9510 applicability.

RESPONSE: The rule does not target *all* new development, but that development that results in the generation of at least 2 tons per year of NOx or PM10. Certain development, such as an expansion of a manufacturing facility, would be exempt if it does not result in and *increase* of at least 2 tons per year of NOx or PM10 through area and mobile emissions. Therefore, the rule accounts for the *increase* in pollution generation from development projects, and does not place requirements on those developments that do not result in the increase stated above. It is the District's position that projects that result in an increase in pollution emissions are a part of growth. It would be impractical to determine on a case-by-case basis if a project subject to the rule that emits emissions above the applicability threshold is or is not a project resulting from growth in the region.

In regards to projects that have filed for City/County permits *prior* to implementation of the rule, the rule language will be revised to limit the applicability to projects that have applied for a discretionary permit prior to implementation date but have not yet received approval.

171. COMMENT: C Proposed Revision to Applicability
In light of the guidelines specified in the California H&SC at Section 40717.5, and District response to comments, WSPA requests that the following subsection of the Rule Applicability Section 2.0, be revised as follows:

Subsection 2.1

2.1 This rule shall only apply to those elements of a project that require discretionary approval and only if those elements are determined to be part of a development project that meets the following conditions

a. The application for the development project is filed on or after the effective date of this rule.
b. The development project results in an increase in emissions of a pollutant for which the area is designated as nonattainment for either the California, primary ambient air quality standards (CAAQS) or the national, primary ambient air quality standards (NAAQS), for ozone or PM10.
c. The development project results in an increase in indirect source or area source emissions above previously approved existing emissions.

RESPONSE: Comment noted.

172. COMMENT: Subsection 2.1.3

Section 2.1.3 specifies an applicability threshold level of 25,000 square feet for the industrial space category. In our prior comments WSPA requested that the industrial space category be separated into "light Industrial" space and "heavy industrial" space since the vehicle trip ends (VTE) generated by these land use categories differ significantly. For example, according to the institute of Transportation Engineers, "Trip Generation Manual (7th Edition)" the light industrial land use category generates 6.97 VTE per 1,000 square feet. The "heavy industrial" land use category generates 1.5 VTE per 1,000 square feet. The District response to our prior comment was that:

"Most heavy industrial projects would be exempt from this rule, so distinguishing between the different types of industrial would not be productive." (sic)

The District fails to explain why heavy industrial sources would be exempt from the rule's requirements. Furthermore, the District is now proposing to apply the rule to uncategorized discretionary projects involving more than 9,000 square feet. WSPA is again requesting that the "industrial use" category be separated into "light industrial" and "heavy industrial" categories and that the applicability thresholds for these land use categories be established at 25,000ft^2 and 100,000ft^2 respectively.

RESPONSE: Comment noted. The applicability section of the draft rule will be revised to include 25,000 square feet of light industrial, and 100,000 square feet of heavy industrial.

173. COMMENT: Subsection 2.1.9

Delete subsection 2.1.9. The District has not documented why any discretionary project, not otherwise included in a section 2.1 land use category and that is

greater than 9,000 square feet (~1.4 acre) is automatically presumed to have significant indirect source or area source emissions.

RESPONSE: The District prepared emission estimates for all projects listed in the section to determine if they would exceed 2 tons per year of either PM10 or NOx. These projects would be required to prepare an air quality assessment based on their actual design, on-site measures, and characteristics, so in some cases the assessment would determine that no off-site fee is required.

174. COMMENT: Subsection 2.3.2

Delete Subsection 2.3.2. With the exception of the applicability threshold established for "50 residential units", Subsection 2.3.2 supersedes and essentially eliminates the other land use category size thresholds. It can be easily argued that any land use involving nonresidential development, (e.g. commercial, industrial, medial, etc) could accommodate development projects that emit more than 2.0 tons per year of NOx or PM10 (~11ld/day or 0.5 lb/hr).

The District is also proposing that the amount of required mitigation be based on the ability of the property to accommodate future development, whether or not such future development is planned or included as part of the development project responsible for triggering review under this rule.

WSPA believes that developers should not have to provide mitigation for unplanned projects solely because the property has the potential for future development. Future discretionary projects might or might not result in an increase in emissions of air contaminants. Consequently, we request that Subsection 2.3.2 be deleted.

RESPONSE: The rule requires the applicant to come to the District at the last discretionary approval for the project. For industrial and commercial projects this may be a conditional use permit or site plan review. If the use is not known, the general trip rate for the expected use is used to calculate the proposed fee amount. Then, the applicant can use a fee deferral schedule to allow time to identify the actual use. If there were no increase in actual emissions based on the use, the applicant could revise the air assessment and the off-site fee would be not need to be paid.

175. COMMENT: III Definitions

WSPA requests that the following revisions be made to the definitions. We believe the proposed changes will ensure that the definitions are consistent with the stated purpose and applicability of the proposed rule, and will help clarify rule requirements.

Subsection 3.7

In our July 22, 2005 comments WSPA requested that the definition of a development project be revised to exclude projects that require discretionary approval but are required solely to comply with a rule regulation or order of a public agency.

For example, District prohibitory rules frequently require that source operators install control equipment on emission units such as tanks, steam generators, turbines, etc. Installation of the control equipment requires the issuance of an Authority to Construct (ATC) permit which typically involves discretionary approval of an "emission control plan" and control equipment. Depending on the control measure, a source operator could be required to retrofit literally hundreds of individual emission units. The District response to our concerns is summarized below:

> *"The current definition of a development project adequately addresses projects that have ancillary discretionary approvals relating to the project. The applicability of the rule includes not only discretionary approvals but, minimum sizes of projects that must comply with the rule."*

WSPA is confused by the meaning of the first sentence. WSPA requests that the District provide additional explanation of how the current definition of a development project addresses "ancillary discretionary approvals relating to the project".

WSPA assumes that the language contained in the second sentence of the District response means that the District believes that equipment retrofit projects (e.g. steam generators, vapor control systems, etc) are too small to trigger rule applicability. In some cases this may be true. In other cases the size of the control system or facility equipment could easily exceed size threshold specified for industrial sources.

The existing New Source Review Rule (Rule 2201) and many of the prohibitory rules adopted by the District recognize the difference between projects initiated for development and projects undertaken to comply with regulatory requirements. Consequently, WSPA is again requesting that the definition of a development project be revised as follows;

3.7 Development Project: any project, or portion thereof , that is subject to a discretionary approval by a public agency, and will ultimately result in the construction or reconstruction of a building, facility or structure. The Discretionary approval of a project undertaken solely to comply with a rule regulation or order of a public agency shall not be considered a development project.

WSPA also requests that the District staff report clarify the meaning of the word "facility". The use of the word units current context is consistent with the logical meaning of the word and implies that the word "facility" means *"something that is installed or erected to serve a particular purpose".*

RESPONSE: The definition of a development project, in combination with the baseline definition ("area source and operational emissions") effectively eliminates the type of projects the author is commenting about. Permitted equipment emissions are *not* included in the calculations. It is the District's position that all applicable projects that have a baseline above two tons per year of NOx or PM10 from the combination of area and mobile sources should be subject to the emission reduction requirements of the rule, excepting for stated exemptions, regardless of the reason for the project.

176. COMMENT: IV Exemptions

WSPA requests that the exemption section of the rule be revised to include the following changes:

Section 4.1.4

The District has proposed an exemption for a, "development project, whose primary source of emissions are from stationary sources subject to Rule 2201 (New and Modified Stationary Source Review Rule) or Rule 2010 (permits required…". WSPA supports the proposed exemption. However, WSPA requests that the District clarify several items related to the exemption.

First, in response to questions raised by stakeholders during the September 1, 2005 workshop, District staff stated that they though the phrase "primary source of emissions: meant 51% or more of the emissions. Second, in our reading of the proposed exemption we interpret the phrase "stationary sources" to mean air pollutant emitting activities, other than indirect sources and area sources; and not "stationary source" as defined by District Rule 2201.

Assuming our interpretation is correct, then the proposed exemption would be available to development projects where operational emissions from activities other than indirect sources or area sources, comprise 51% or more of the total operating emissions from the development project.

WSPA requests that the District address these issues in their staff report and either confirm our understanding of how the exemption will be applied or provide additional guidance on how subsection 4.1.1 is to be interpreted.

RESPONSE: The District has clarified the exemption section to provide more specifics on the applicable sources that qualify.

177. COMMENT: V Application Requirements

WSPA continues to believe that applications for development projects be submitted to public agencies prior to the effective date of the proposed rule should continue to be processed under the regulations in effect at the time of application submittal. Consequently, we have requested revisions to the applicability section of the rule to be revised accordingly.

Subsection 5.5.5

Delete Subsection 5.5.5. This subsection requires that mitigation, monitoring and reporting programs (MMRP) include provisions for failure to comply, such as stop work authority, permit revocation, civil enforcement, and or administrative appeal. WSPA believes that this subsection should be deleted. The District already has authority to enforce compliance with rules and regulations adopted by the District.

RESPONSE: The District will revise the section to refer to Response to Comment 180, which states the District's authority to enforce provisions of the rule.

178. COMMENT: VI Mitigation

WSPA continues to believe that H&SC Section 477.16 and 47717.5 limit indirect source review programs to control growth induced emissions from indirect sources and area sources. Mitigation should only be required to the extent that a development project causes an increase in indirect emissions or an increase in area source emissions that would not otherwise occur. As we discussed in our prior (July 22, 2005) comments on Rule 9510, WSPA supports the District proposal to allow developers to use a combination of onsite mitigations and offsite mitigation. Developers should also be able to use offsite mitigation resulting from voluntary control of operational emissions from existing development projects upon showing that the emission reductions are surplus and enforceable.

In our July 22, 2005 comments WSPA requested that the District provide a mechanism to enable developers to receive credit for surplus mitigation. We also requested that developers be allowed to provide offsite mitigation by controlling emissions from existing sources through enforceable offsite mitigation programs. Our prior comments are summarized below.

1. For construction emissions, if a developer employs an offsite mitigation strategy, the emission reductions continue to exist after construction is completed. These reductions should be credited to the developer and the developer should be allowed to use the reductions for mitigating construction emissions from future development projects.
2. For operational emissions, developers should receive credit for offsite emission reductions created through voluntary mitigation activities applied ot

previously approved projects. For example, a developer could revegetate or reclaim disturbed surfaces in order to reduce fugitive dust. The developer could then commit these reductions to construction or operational emissions from proposed development projects.

The District response to our comments was:

"The District will consider offsite mitigation proposed by a developer on a case by case basis.".

Based on the District's response, WSPA requests that he District revise Subsection 6.3 as follows:

Subsection 6.3

The requirements listed in Section 6.1 and Section 6.2 above can be met through any combination of onsite or offsite mitigation. Developers may also satisfy the requirements of Section 6.1 and 6.2 by providing mitigation made available by reducing emissions from offsite activities. "the District will consider offsite mitigation proposed by a developer on a case by case basis."

RESPONSE: The District has partially addressed the authors concerns in the September 1, 2005 draft Rule 9510 version in section 7.4.

7.4 The developer shall receive credit for any off-site mitigation measures that have been completed and/or paid for, prior to the adoption of this rule, if the following conditions have been met:

7.4.1 The prior off-site mitigation measures were part of an air quality mitigation agreement with the APCO; or

7.4.2 The developer demonstrates to the satisfaction of the APCO that the off-site emission reduction measures result in real and surplus reduction in emissions**.**

The District will be implementing an off-site emission reduction program that uses fees from the rule to achieve the tonnage reduction required. The District believes that this is the most efficient and effective way to acquire, achieve and track off-site emission reductions. Off-site emission reduction projects that have been coordinated and approved through the District by means of an Air Quality Mitigation Agreement have been thoroughly analyzed and will be administered by the District. Therefore, emission reductions from Air Quality Mitigation Agreements are appropriate to use in the ISR program. However, although a project applicant may be able to find and fund off-site emission reduction projects, it is undesirable to have an applicant administer off-site emission reduction projects to be reviewed by the District on a case-by-case basis. For the purposes of consistency, efficiency, and enforceability, it is most appropriate for off-site emission reduction projects to be administered under the same program.

Applicants and the general public may propose projects for funding through the District's off-site emission reduction program, and the program will have annual review and reporting available to the public.

PUBLIC:

Ann M. Gallon
Date: September 6, 2005

I attended the Sept. 1 Workshop in Bakersfield. This was my first involvement with the Air Pollution Control District. I planned to address you as a private citizen, but all the developers with lengthy statements were a bit intimidating – especially their off screen head nodding and grimacing. They obviously were distressed to have any "controls" of their development projects come under discussion and regulation.

179. COMMENT: What I would have said is that I applaud your plans to contain pollution in our Valley, and I would urge you to stick to your guns – or even tighten up on some rules. As an aside, my stepson once sued the EPA on behalf of the Canadian people for not enforcing their own regulations and causing acid rain which drifted over Canada. The Canadian government prevailed in calling the EPA into action.

RESPONSE: Comment Noted.

180. COMMENT: Applicability to developers of 50-plus residential homes gives them wiggle room to design multiple projects so they could fall under that 50-unit threshold. Another concern of mine is that developers of fewer than 50 units may be less sophisticated in the industry and may create more pollution than you will prevent in the larger developments. I urge you to consider dropping the applicability to 25 units.

RESPONSE: The 50-unit applicability for residential units was specifically chosen for the following reasons:

1. Based on the District's data on the number and units of development occurring in the valley, a threshold of 50 units would capture the majority of the pollution generation from new developments while keeping the number of projects for District assessment at a practical level.
2. Modeling shows with no on-site measures, 50 units may generate approximately 2 tons per year of NOx in 2006
3. This threshold, with the associated 'penetration' of the rule, achieves the emission reductions committed to in the PM10 and ozone plans.

The District will be vigilant to prevent 'piecemealing' of projects to evade compliance with the rule. Rule 9510 §2.3.1 and §2.3.2 specifically address the issue of contiguous or adjacent properties. In addition, District Rule 1110 (Circumvention) states:

A person shall not build, erect, install, or use any source operation, the use of which, without resulting in a reduction in the total release of air

contaminants to the atmosphere, reduces, dilutes or **conceals an emission which would otherwise constitute a violation** of Division 26 of the Health and Safety Code of the State of California or **of these Rules and Regulations**. This rule shall not apply to cases in which the only violation involved is of Section 41700 of the Health and Safety Code of the State of California or of Rule 4102 (Nuisance of these Rules and Regulations. **Violation of this rule is a misdemeanor pursuant to the provisions of Section 42400 of the Health and Safety Code of the State of California**.
(Sections are bolded for emphasis)

181. COMMENT: To give you an example of development traffic, in July we endured seven days of 8am-4pm diesel truck traffic past our home. Trucks were hauling fill dirt to one large residential lot around the corner from us. The whole week we had to remember to close our front windows against the diesel fumes, noise, and dust clouds rising from dirt shoulders.

Mind you, this was a HOT July and we were trying to use just our evaporative cooler (needs open windows to vent) to save money. When the truck traffic continued into the next week I finally called our Supervisor's office to complain and ask if the trucks could travel on the arterial roads instead of on our residential street. I wrote down the following IN and OUT times one morning for 30 minutes:

IN	OUT
	9:35
9:39	9:41
9:44	9:48
9:51	10:01
9:58	10:09
10:05	

By Wednesday, when Supervisor Watson's field rep, Trice Harvey, arrived at our house to look into our complaint, wouldn't you know it – the truck traffic was over. And he said he couldn't tell trucks which roads to take to a construction site. We were going to be pretty much stuck with traffic when there is building going on in our area.

RESPONSE: The author's comments on truck traffic is noted. In addition, the District's Regulation VIII (Fugitive PM10 Prohibitions) contain prohibitions concerning the emissions of dust from construction sites, bulk materials hauling and carryout/trackout. Although these are requirements, certain developments on occasion do not comply with the rule. The District is responsible for enforcing compliance with the rules and employs field inspectors for these issues; however, it is not always possible to catch violations as they occur at the widely disbursed construction sites within the Valley. The District maintains a complaint

hotline for the public to call when they see a violation of the District's rules, including violations of Regulation VIII and Rule 4102 (Nuisance).

County of Residence	Toll Free Number
San Joaquin, Stanislaus, Merced	(800) 281-7003
Madera, Fresno, Kings	(800) 870-1037
Tulare, Valley portion of Kern	(800) 926-5550

182. **COMMENT:** So… please stand firm with the building industry – and with Cal Trans who seemed to think they were exempt from air pollution regs – and let's ask everyone to take their share of the responsibility for cleaning up OUR AIR.

RESPONSE: Comment Noted.

183. **COMMENT:** PS That argument of one man about mitigation fees of $2000 pricing thousands of people out of homes in California was statistical but not logical. If they can *only* qualify for a $300,000 home and the $2,000 fee is going to put them "out of the market," then they can just drop their expectations and builder options and by a home for $295,000. Also, it is bad financial planning to try to buy the most expensive house you can qualify for.

RESPONSE: Comment Noted.

ENVIRONMENTAL

Clean Water & Air Matter (CWAM)
Date: September 15, 2005

Thank you for the opportunity to comment on the above mentioned draft rules as proposed for the District. In addition to my verbal comments made during the September 1, 2005 workshop, I wanted to touch on the following topics.

184. COMMENT: No net gain does not equal a loss. When we begin to mitigate more pollution than we create while adding new pollutants, we will finally begin to achieve reductions in total pollutant levels. Until this happens, we are still adding to the pollutant total without ever actually subtracting anything.

RESPONSE: The author's comment does not hold when applied to mobile emissions. Emissions from mobile sources are reducing over time due to regulations on new vehicles. For example, no net increase in the number of vehicles would result in lower future emissions from vehicle turnover to cleaner fleets. The District takes this and other factors into account in the PM10 and Ozone attainment plans. The plans identify growth and reductions in source categories. The plans quantify the reduction from current District rules and proposed rules as well as state and federal regulations, and then model future emissions to determine if the District may reach attainment for applicable pollutants. For development projects, the 'subtracting' occurs through on-site and off-site emission reductions *and* mobile emission reductions over time. The PM10 and Ozone plans have determined that the ISR rule, in addition to existing and future rules and conditions, will help the Valley clean the air and reach attainment.

185. COMMENT: The Californian Environmental Quality Act (CEQA) is very clear when it comes to mitigation measures and how they must be available for public review before the decision makers (who also must have them for review) vote on the project. In reference to Section 5.0 Application Requirements it is imperative that the mitigation measures not be deferred until after project approval.

In Sundstrom v. County of Mendocino (1st Dist. 1988) 202 Cal. App. 3d 296 [248 Cal Rptr. 352] the court ruled that the deferral of an environmental assessment (in this case a hydrological study) until after the project approval violated CEQA's policy that impacts must be identified before project momentum reduces or eliminates the agency's flexibility to subsequently change it course of action. In addition, because the permit authorized the applicant himself, subject to planning staff approval, to conduct the required analysis, the county had violated CEQA's requirement that an agency's decisionmaking body must ultimately review and vouch for all environmental analysis mandated by CEQA. (202 Cal.App.3d at 306-308]

RESPONSE: Rule 9510 §5.0 has been revised to make application and review of ISR projects concurrent with or prior to the CEQA process a project would undertake with the local land use agency. It should be noted that the ISR program does not involve discretionary approval and therefore not itself a CEQA process. Additionally, compliance with District Rules is a *requirement,* not mitigation.

186. COMMENT: Furthermore, local agencies are instructed to integrate the CEQA review process into the other planning and environmental review procedures they are legally or otherwise obligated to conduct. To the maximum extent feasible, CEQA procedures and other procedures should run concurrently, rather than consecutively. (Pubic Resources Code Section 21003 subd. (a).) Regarding Comment #50- CEQA is a state law and does not vary by jurisdiction. This comment should be changed.

RESPONSE: Concerning timing of application to the ISR program, see the response to comment above. Although CEQA itself does not vary by jurisdiction, the implementation of the time requirements does. CEQA provides the master timeline in the framework of minimum and maximum times for various activities. Each jurisdiction has the authority to implement CEQA with procedures that reduce a particular activity's time to far below the maximum time allowed under CEQA. Therefore, each jurisdiction may have a different timeline for project review and approval based on individual procedures that comply with CEQA. The District will not change response to comment #49 from the June 30, 2005 workshop.

187. COMMENT: While there are exceptions, contextually, the agency is creating a broad, sweeping plan to cover many projects, including but not limited to, commercial, industrial and residential. Consideration of public involvement in the process would facilitate information regarding mitigation at the beginning of the process, rather than after the project has been approved.

This issue, when addressed early in the application process can carry over to all levels of approval, rather than have the public or decision makers continually have to request effective, enforceable mitigation as part of the project not only with the lead agency, but the responsible agency as well.

RESPONSE: While the District concurs that public involvement is important, and will amend the rule and staff report to include mechanisms for public involvement, the ISR program is *not* a CEQA process. ISR is a ministerial action not subject to CEQA, per PRC §21080 *Division Application to Discretionary*

Projects; Nonapplication; Negative Declarations; Environmental Impact Report Preparation (b)(1):

(b) This division does not apply to any of the following activities:
(1) Ministerial projects proposed to be carried out or approved by public agencies.

188. COMMENT: There should be some method for the dispersal of funds to account for project area pollutants and either the on-site or near-by mitigation funded by said project. Money going into the big pot in Fresno and ending up who knows where, by some group that has asked, will not address source point pollution.

RESPONSE: The District will track the location, by City and County, of the projects funded through the off-site emission reduction fund. The District will also complete annual reporting of how much, where and what tons of reductions occurred, which will be made available to the public. The District is unsure of the author's intent with the comment on point source pollution. This rule does not attempt to address emissions from source points. However, if an off-site emission reduction project is a point source, that information will be available in the District's annual reporting, and upon request.

189. COMMENT: Regarding the pollution prevention proposals, it would a be beneficial to have some long-term pollution reduction by means of phyto-remediation. Trees are known, quantifiable and effective pollution reduction technique. The use of trees should be encouraged to help cleanse the valley air. This mitigation could be achieved with tree farms using mitigation banking credits for a controlled system of distribution.

RESPONSE: The District is aware of the air quality benefits of trees. Specifically, trees reduce ambient temperature (reducing formation of ozone), cool housing and AC units (reduce energy consumption), cool cars and paving in parking lots (reduced evaporation of volatiles[6]). It is also known that some of these benefits are quantifiable. The District would entertain a tree program as an off-site project if it meets the requirements set forth in the rule, including cost effectiveness.

190. COMMENT: Enforcement of air quality mitigation measures is the responsibility of the District. I mention again in these comments a critical issue: Currently the district is notified of a project's start when there is a complaint filed by a member of the public. While this is not always the case, this type of complaint based enforcement system is inefficient as best and at worst, a heavy burden on the public to be responsible to see that the approved mitigation measures are actually followed or the best possible attempt to prevent more air pollution

6 McPherson, E. Gregory. Sacramento's parking lot shading ordinance: environmental and economic costs of compliance. Landscape and Urban Planning 57 (2001) 105-123

RESPONSE: The District is notified of the start of a project through several means. The CEQA process allows an opportunity for the District to review and comment on development projects within the Valley. The District also receives Dust Control Plans (DCP) and Notifications from project developers as a *requirement* of Regulation VIII (Fugitive PM10 Prohibitions). It should be noted that District rules are *requirements* and not mitigation, and the District has the authority to take enforcement action for non-compliant projects. The District is notified of Regulation VIII non-compliance through mandatory self-reporting (DCPs, etc.)

191. COMMENT: Additionally, it would be beneficial to both the public and all decision makers reviewing environmental air quality assessment to have the inputs for the baseline for the modeling runs at the beginning of the reports and if the report is quoted in the document, in the text of the document as well.

RESPONSE: The preparation of environmental CEQA documents is the responsibility of the lead agency. The District will make project specific information available to the lead agency and the public (See Response to Comments #8 and #59), but the District cannot prescribe a format that lead agencies must follow.

Kern-Kaweah Chapter of the Sierra Club
Date: September 15, 2005

Here are the comments of the Kern-Kaweah Chapter of the Sierra Club. Our chapter has 1,600 members and there are a few thousand other Sierra Club members in the San Joaquin Valley.

My copy of the September 1 draft is post marked August 26. Does the Air District Staff believe in summer vacation and Labor Day Weekend?

Instead of including our July 15, 2005 letter by reference, we put chunks of it in this letter and put the rest at the end of this letter.

GENERAL REMARKS ON THE RULE

192. **COMMENT:** At the September 1 workshop I learned that air quality regulations forbid the development industry from sheltering those of us with low or even moderate incomes. At previous workshops I learned that air quality regulations prevent farmers from feeding us and prevent various industries from affording to employ us. Perhaps the best plan is for residents to continue to suffer asthma and for those who die prematurely of heart or lung disease to be eulogized as "heroes of the economy".

RESPONSE: Comment Noted.

193. **COMMENT:** Our previous comments applauded 6.1 "The developer shall mitigate 100% of the construction emissions associated with its development project." Construction emissions do not last as long as operational emissions, but exposure to pollution is the same whether the pollution is from construction or from operation; thus, mitigation for construction emissions should be briefer and equally vigorous as construction from operation.

RESPONSE: The draft rule does not require 100% mitigation from construction. Rule 9510 Section 6.1.1 states that exhaust emissions must be reduced from the statewide average by 20% for NOx and by 45% for PM10.

194. **COMMENT:** We object to having developers choose consultants to prepare an Air Impact Assessment; we think consultants will not be chosen by developers unless they make findings as favorable to the developer as possible. The air impact assessment must be produced by the District or by a consultant of the District's choosing. Developers shall pay for the air impact assessment.

RESPONSE: The District will require all inputs and assumptions for the Air Impact Assessment, per the requirements of the rule. This information is contained in the application. The District will review the inputs, assumptions and modeling for accuracy, and will require additional information and/or revision for items that are inaccurate, inconsistent or unjustified. The modeling must be replicable and reasonable, and the emission reduction measures selected must be incorporated into the project and enforced through either other public agency requirements or by a District Monitoring and Reporting Schedule.

195. **COMMENT:** I did not find anything about mitigation by replacing inefficient equipment. Our July 18, 2005 letter said: "If existing equipment is replaced because it is worn out, no mitigation credits must be given unless the new equipment is better than other equipment that could be used. The mitigation credit must be limited to the difference in cost between the cheapest equipment that could have been obtained and the lower emitting equipment that was obtained."

RESPONSE: It is unclear if this comment pertains to on-site emission reduction or off-site emission reductions. For on-site emission reductions from construction, no justification is necessary to achieve credit for cleaner engines. For off-site emission reductions, the reductions will be achieved through the ISR off-site funding program, which will follow criteria and established emission reduction calculations. For programs that replace existing engines with new engines, the old engine must be operational and have a remaining useful life that is the basis of the emission reductions. How those emission reductions are calculated depends on the type of project and the specific components of the project. See the Staff Report and Appendix E – Cost Effectiveness Analysis for additional information on off-site emission reduction projects.

GENERAL REMARKS ON THE NOx REDUCTION OF THE RULE

196. COMMENT: Rule 9510 sets the goal of reducing emissions from projects that produce more than two tons per year of NOx by half. There is no justification for mitigating only 50% of emissions. Reducing NOx by half, rather than complete reduction, would be acceptable if all trips to or from the regulated development projects were to other projects that also reduced their NOx emissions by half. For the most part, rule 9510 regulates new development projects on the edge of town; most of the trips associated with those projects will be to or from long established business, recreational or work sites that have never paid any air quality mitigation fee and have no on site mitigation. If the trip to those sites had been made from an older development nearer the established sites, air emissions would be less. That is why the goal should be complete mitigation for all polluting emissions from all sources including Area Sources.

RESPONSE: The goal of the rule is to achieve an emission reduction from growth that was identified in the PM10 and ozone plans. The District calculated the level of reduction needed on a per-project basis that would achieve the emission reduction committed to in the PM10 and ozone attainment plans. The rule sets levels that are in compliance with state law regarding indirect source regulations and are feasible to achieve. Charging a fee for trips that are the responsibility of another new source or an existing indirect source would not equitably distribute responsibility for existing and new vehicle trips as required by H&S 40717.5. The 33% accounts for declining mobile emissions over a ten year period – see the fee formula.

197. COMMENT: How much NOx will future vehicles make? When will increased gasoline prices cause us to use fewer light trucks and more efficient sedans? The staff report, bottom of page 3, says cars are predicted to decrease pollution between 1994 and 2003. Has this occurred?

RESPONSE: NOx emissions were reduced substantially between 1994 and 2003; however, certain heavy-duty diesel vehicles showed an increase during that period due to use of computer controls that enabled the vehicles to meet emission tests but emit at higher levels during actual operation. This problem has now been corrected. The amount of future NOx is identified in Attachment 2 of Appendix B – Emissions Reduction Analysis for Rule 9510 (ISR). Studies of the effects of gasoline prices indicate that very large price increases would be needed to significantly change travel behavior.

198. COMMENT: Here are examples where rule 9510 may cause someone to pay more than their share to mitigate air quality. Someone might move to a newly built home in order to take a job near that home; they would create emissions only when they drove to established business, recreational sites not I their new neighborhood or visited persons living a distance from their new home. A retired person who moved to a newly built home in order to be near the people they most often visit would generate fewer emissions than most of those who move to a newly built home. These exceptional cases do not seem to justify making this rule weaker or more complex.

RESPONSE: The District recognizes that there are a variety of factors that affect emissions from new projects. It is infeasible to model or account for all this variation at the development stage. In addition, there is no guarantee that those cases of less-emissions, same-house would occur over the ten years assessed by the rule, let alone the life of the project. The District considers the URBEMIS model to be the most accurate model available that meets the needs of the ISR rules. More information on URBEMIS may be found in the Staff Report and in Appendix D – Recommended Changes to URBEMIS.

APPENDIX A: RESPONSE TO COMMENTS

Industry and Public:

199. COMMENT: Comment 1 Each individual development must be held responsible for all the travel it generates. When persons move to the edge of town from a site closer to the center of town, their old home is occupied; the emissions of their old home do not change. The emissions of their new home must all be mitigated. Consider a mitigation fee for those who move into an existing home that is further from the center of the City than their previous home.

RESPONSE: The District agrees that each individual development should be responsible for the trips it generates, but also must consider that the reductions required must be fair and feasible. The District may consider a future rule revision or other program to address existing indirect sources.

200. **COMMENT:** Comment 7 If the emissions of a structure continue beyond ten years, so should the mitigations. Can the air district prove that cleaner cars will allow us to attain PM 10 and ozone standards in ten years and prevent increased emissions thereafter? What if attainment in does not permanently occur?

RESPONSE: The mobile source regulations currently in place and scheduled to go into effect in the next few years provide for a cleaner car and truck fleet well into the future even when accounting for projected growth in trips and vehicle miles traveled. Continued diligence will be required to ensure maintenance of the standards. This is accomplished through a maintenance plan that will provide the reductions needed to keep emissions from increasing due to growth.

201. **COMMENT:** Comments 11 and 18 Response 11 correctly anticipates new standards. Response 18 implies that PM 2.5 is not likely to be one of those new standards because attaining PM 10 standards will control PM 2.5. So far it looks like a lot of PM 10 is geologic particulates that are not as harmful as the smaller particles included in PM 10. The smaller particles, PM 2.5, are products of combustion or are a combination of ammonia and NOx. If so, decreasing PM 10 will not decrease PM 2.5.

RESPONSE: The rule is designed to reduce both fugitive dust PM10 and combustion PM10. Most engine replacement and retrofit projects provide NOx and PM10 benefits. Most of the combustion PM10 is comprised of the fine fraction less than 2.5 micrometers in diameter. The PM10 standard cannot be achieved without fugitive PM10 reductions and so must be part of this rule.

202. **COMMENT:** Comment 25 Some recreational space reduces motor vehicle use, such as a park that many persons can easily access on foot or by bicycle. Some recreational space increases motor vehicle use, such as a motocross facility or any facility that attracts visitors from a distance.

RESPONSE: Recreational uses that attract vehicle trips and exceed the operational threshold of 2 tons/year of NOx or PM10 will be subject to the rule. Uses that attract pedestrians or bicyclists would not trigger the rule.

203. **COMMENT:** Comments 67 and 70 The Socioeconomic impact of these rules must include the decrease in the cost of illness and death that this rule will cause. The cost of illness includes pain, suffering, premature loss of income, absence from school, absence from work and loss of companionship. To estimate the incidence of these events, please consult physicians who have reported such figures to CARB; for example, there are 106,695 workdays lost in Kern County due to PM10.

RESPONSE: See Response to Comment #98.

204. **COMMENT:** Comment 87 I do not bicycle on very hot days and most folks stay indoors those days. When I do bicycle on days of elevated ozone levels, I expose myself to ozone rather than use my car to raise ozone levels for everyone else. There are, or would be if bike paths are constructed, many persons as virtuous as I.

RESPONSE: Comment Noted.

205. **COMMENT:** Comment 96 Mitigating air pollution as close as reasonably possible to the source of the pollution may be more acceptable to the public than distant mitigation; however, insistence on mitigating in the immediate area can be used as a way to make mitigation more difficult.

RESPONSE: See Response to Comment #188.

206. **COMMENT:** Comment 98 Limiting mitigations to those that match the source of the mitigations can be used as a way to make mitigation more difficult. A ton of NOx generated by Valley traffic is the same as a ton of NOx mitigated by reducing Valley generation of electricity from fossil fuel.

RESPONSE: See Response to Comments #188.

207. **COMMENT:** Comment 102 As inflation and the completion of the most cost effective measures occur, how will mitigation fees be increased?

RESPONSE: Off-site fees are dictated by the amount it would take to offset a ton of the applicable pollutant. The District has included the fee schedules for 2006 through 2008. If an adjustment is required, for example, if during implementation the District finds that there aren't enough off-site projects achieve the set cost-effectiveness, the District can amend the cost-effectiveness schedule in the rule through a rule amendment. Rule amendment procedures are standard, and must be adopted by the Board.

EPA

208. **COMMENT:** Comment 7 p. A 25 Is EPA completely satisfied with this response to their thoughtful comment?

RESPONSE: See Response to Comment #5 for additional comments to the issue of surplus mitigation.

209. **COMMENT:** Comment 18 p. A 28 A high density residential project far from jobs, shopping, schools and other services does not decrease emissions except for trips between residents. A high density project that enables residents to

access jobs, shopping, schools and other services on foot, bus or bicycle decreases emissions and should get credit for on site mitigation.

RESPONSE: See Response to Comments #7 and #9 for discussion on URBEMIS on-site measure quantifications.

210. COMMENT: Comment 36 p. A 30 We are pleased that low-income housing is not exempt from the rule. Low-income housing often has elderly residents whose diseased lungs and hearts are especially susceptible to air pollution. Government can help pay the small cost of clean air for poor people if the voters wish.

RESPONSE: Comment noted.

Remarks On The Wording Of The Rule

211. COMMENT: 1.1
Does the reference to "particulate matter" include PM 2.5 and the smaller particles such as PM 0.1 that can be inhaled from ambient air into the blood stream? Comments 11 and 18 apply: Response 11 correctly anticipates new standards. Response 18 implies that PM 2.5 is not likely to be one of those new standards because attaining PM 10 standards will control PM 2.5. So far it looks like a lot of PM 10 is geologic particulates that are not as harmful as the smaller particles included in PM 10. The smaller particles, PM 2.5, are products of combustion or are a combination of ammonia and NOx. If so, decreasing PM 10 will not decrease PM 2.5.

RESPONSE: See Response to Comments #57 and #65 for the Districts response to which pollutants, and how much reduction was chosen.

212. COMMENT:2.1.8
Comment 25 applies: Some recreational space reduces motor vehicle use, such as a park that many persons can easily access on foot or by bicycle. Some recreational space increases motor vehicle use, such as a motocross facility or any facility that attracts visitors from a distance.

RESPONSE: The Air Quality Impact Assessment uses URBEMIS to calculate mobile source emissions from each project. URBEMIS uses trip generation rates for each type of use and allows for different trip rates to be used for different types of recreational facilities. This will allow for an accurate differentiation between the uses mentioned in the comment.

213. COMMENT: 2.3.1 & 2.3.2
We wish to thank whoever brought to your attention that the draft of 9510 dated June 30, 2005 did not address cumulative impact of adjacent development.

These paragraphs at least call our attention to this failing. As I understand 2.3.1 & 2.3.2, if I had one piece of land big enough to build 147 units, I could build 49 residential units that rule 9510 would not apply to. Then, in lieu of inheritance I could give each of my two children land so that they each build 49 residential units. We would thus build 147 residential units without having to comply with rule 9510. No one would ever know if I benefited financially from my children's property.

RESPONSE: See Response to Comment #214.

214. COMMENT: The only way I can write rule 9510 to avoid this problem and avoid high administrative cost is to say that even one house will be subject to this rule but that small tracts can pay a mitigation fee, rather than have their emissions determined and mitigated.

Our comments of July 18, 2005 on 2.2 and 4.2 of rule 9510 are included here:

The rule should apply to even the smallest projects so that developers do not piece meal. Building many little developments can have a major cumulative effect; CEQA has cumulative impact concerns. Among the 6 30 05 comments that supported not omitting projects that make only two tons of NOx and only two tons of PM 10 per year was one by a City of Clovis employee who forecast developments of 49 houses. Dr. Nipp has commented on over a dozen housing developments that somehow had just under ten tons per year of NOx and just under ten tons per year of ROG. Several years ago several natural gas 48 or 49 MW cogeneration power plants were built in Kern County; 50 MW plants had to be reviewed by the California Energy Commission.

These exemptions could also increase administrative costs and give some developers an advantage over others. What happens if soon after a new 20,000 square feet store is occupied, it fails or for some other reason becomes general office space? The store has paid a fee that it would not have paid if it had been built as general office space.

Please disregard our next paragraph of July 18, 2005; it is in error. It read: The rule could say that if a project is small, and no developer has enough land at the site to develop any other source of emissions small projects could be exempted.

RESPONSE: The District added rule language that prohibits piecemealing of projects to evade the applicability threshold. In addition, the District will implement procedures for identifying non-compliant projects and will have staff assigned to ensure compliance with the rule.

215. COMMENT: 3.22 & 3.23
In view of the decrease in emissions that will result from replacing some of our private auto travel with public transit, we might need to mitigate emissions form public transit construction less stringently than emissions from other construction. Since building new roads leads to more car and truck use, and therefore more pollution, road building emissions must be strictly mitigated.

RESPONSE: The District has determined that transit projects involving construction in excess of 2 tons total of NOx and PM10 combined should remain subject to the rule.

216. COMMENT: 4.1.4
Agriculture should be among these exemptions provided it is regulated under other rules as provided in the SB 700 series of bills.

RESPONSE: See Response to Comment #45.

217. COMMENT: 4.3
Transportation Projects should not be exempt from the requirements of the rule. If more roads, as opposed to mass transit, are made available, more people will use the roads rather than mass transit. This is called induced traffic. If bicycle paths and mass transit become available, some of us will choose to use them.

RESPONSE: The District specifically exempted transportation projects from the 'operational emission reduction requirements of the rule. Transportation projects are subject to the construction emission reduction requirements of the rule. Although not part of this rule, the District may consider including operational and area requirements in a future rule or rule amendment.

218. COMMENT: 5.0
CEQA provides that information such as provided by an AIA be available to the public and to decision makers before any discretionary action is approved. Please change the first sentence of 5.0 so that if complies with the CEQA.

RESPONSE: The District intends to submit air quality impact assessments to local agencies so that they may use them in their CEQA documents prepared for the land use approval. Although the rule provides analysis and emission reductions that will be useful in the CEQA process, the main focus of the rule is attainment of PM10 and ozone standards. (See Response to Comments #8 and #59). Also keep in mind, the ISR program is not discretionary approval and therefore *not* a CEQA process (See Response to Comment #187).

219. COMMENT: 5.1
Any consultant involved by any developer must be identified.

RESPONSE: The District will amend the rule language to include the above.

220. COMMENT: 5.4.1.1
Does this say that any mitigation required by laws existing before a development occurs can not be counted as an indirect source mitigation under rule 9510? We hope the answer to this question is "yes". The Air District intends to obtain agreed upon mitigations, as 5.5.6 shows.

RESPONSE: Any on-site measure that is quantifiable through the APCO approved model shall be counted towards on-site emission reduction. Only measures that do not have an enforcement mechanism through city/county or other requirements will be required to complete a monitoring and reporting schedule with the District.

221. COMMENT: 6.1.1
Are a 20% reduction in NOx emissions and a 45% reduction in PM10 emissions all developers are reasonably capable of, or is it just enough to attain a CAA standard deadline? Why does the Federal Clean Air Act allow areas like Bakersfield, that fail to attain daily 8 hour ozone standards on more days than any other place in the USA, to employ RACM, not BACM?

Does the Air District intend to wait for 2007 to complete a plan to attain federal 8-hour ozone standards? If so, how do you justify this to children who can not play outdoors when there is too much ozone in the air?

RESPONSE: The emission reduction requirements were based on the availability of new technology that can achieve the results allowing for a reasonable period of time for equipment owners to phase in the cleaner equipment considering the high cost of large construction equipment and its long useful life.

The District is working as rapidly as it can on 8-hour ozone planning. We are currently working with a Northern California 8-hour State Implementation Plan Working Group to coordinate the modeling and other efforts to get the plans out on time. The atmospheric modeling now beginning is needed to identify the reductions required. The District continually works to identify control measures that can be adopted to achieve reductions as early as possible. The District's goal is to complete the 8-hr plan in the spring of 2007.

Appendix C: On-Site Mitigation Checklist

222. **COMMENT:** Except for push mowers, this is identical to our July 18, 2005 letter. Local office holders must be tested on various parts of appendix C and recalled if they fail.

RESPONSE: Comment Noted.

223. **COMMENT:** 1 Bicycle Infrastructure:
Class II bike lanes on arterial/collector streets are more dangerous than class I.

RESPONSE: Comment noted. The corresponding URBEMIS mitigation component states "Percent of Arterials/Collectors with Bike Lanes: Or Where Suitable, Direct Parallel Routes Exist." 'Bike Lane' is the Class II category. 'Bike Path' is the more desirable Class I category. In addition, the District believes appropriate "complete street" planning adequately addresses the issue of safety.

224. **COMMENT:** 7 Pedestrian Oriented Infrastructure:
Place store entrances just off the sidewalk. Folks dislike walking across busy, un-shaded parking lots.

RESPONSE: The District will add the above to the items listed under "Pedestrian Oriented Infrastructure"

225. **COMMENT:** 16 Parking
Some employers offer employees about $40/month in lieu of free parking; employees who accept are left to choose among transit, bicycle, car pool, walking etc.

RESPONSE: This type of measure is appropriate for projects where the building tenant is known at the time the project review is accomplished. It could be included as an employer Transportation Demand Management Program. The emission reductions will depend on individual measures that the employer will implement and the pedestrian, bicycle, and transit service at the project site.

226. **COMMENT:** 25 Energy Efficiency
Provide space for outdoor passive solar clothes dryers, once known as wash lines and space for portable indoor drying racks.
Shaded, reflective or white roofs are not as good as the items you mention, but they are better than dark, unshaded roofs. Roof overhangs that shade windows in summer decrease heating costs.
Water heater should be located in most sinks so that a central hot water heater does not need to be turned on just to get hot water in one sink.
Provide fluorescent lighting, including compact bulbs.

If air conditioners, rather than swamp coolers, are insisted upon, they should be placed on the ground, north of the building, in the shade.

RESPONSE: The items listed above relate to the individual components that may increase energy efficiency. The On-Site Emission Reduction List contains the following measure:

> *Increase the building energy efficiency rating above what is required by Title 24 requirements. This can be accomplished by any combination of the following (this list should not be considered comprehensive):*

The list mentioned is an 'idea list' to inform the applicant of the variety of components that are available. The District will amend the list as additional energy-saving components are identified.

227. COMMENT: 47 Landscaping
At least let folks know push mowers are available at stores and they lower body weight.

RESPONSE: The District has a Public Information Department that has an excellent track record in getting the word out on the many options available for individuals to reduce their air impacts.

Appendix F: Socioeconomic Analysis

228. COMMENT: We agree that the affect of rule 9510 on home prices and rents will be small if the assumptions of the study by "Applied Development Economics" are made. We think that in general and in the Valley's housing market, supply and demand have a much greater effect on price than costs do; therefore we think the rule will have negligible effect on prices.

Our remarks on comments 67 and 70 above apply.

RESPONSE: Comment Noted.

229. COMMENT: If rule 9510 results in increased use of public transit, it will decreases the amount of money spent on gasoline. Sixty per cent of America's crude oil is imported. If residents divert money from partly imported gasoline to local products and to paying the wages of those employed by public transit, it will increase the gross domestic product of the Valley except for a decrease in money going to local oil drilling and refining. Would the net of this have a significant effect on Valley incomes? What if we decrease crude imports without decreasing local crude oil production?

RESPONSE: The District believes that although the implementation of Rule 9510 will have some economic impacts, it also will have a potentially significant beneficial economic effect on the San Joaquin Valley's economy through funding

off-site emission reduction projects. For example, a PM10 project may be paving unpaved roadways. This could result in an increase in jobs. However, the District does not speculate on the rule's potential secondary impact on the petroleum industry due to increase or decrease in fuel use.

230. COMMENT: If society desires a certain rate of home ownership among those with lower income, or otherwise wishes to increase the standard of living for those with lower income society can subsidize their mortgage payments, pay more for their work or tax them less and tax others more.

RESPONSE: Comment Noted.

Environmental Defense
Association of Irritated Residents
Steven and Michele Kirsch Foundation
Union of Concerned Scientists
Latino Issues Forum
Relational Culture Institute
Center for Energy Efficiency and Renewable Technologies
Fresno Metro Ministry
Natural Resources Defense Council
Merced/Mariposa County Asthma Coalition
Earthjustice
Date: September 14, 2005

We represent national, regional and local environmental, public health, and community organizations that are actively engaged in finding solutions to the San Joaquin Valley's air pollution. We have been closely following the district's development of DESIGN (Rule 9510) and the accompanying air impact assessment application fee (Rule 3180). We believe that together these rules have great potential for reducing and mitigating air pollution that accompanies growth in the Valley.

As noted in the comment letter many of us signed regarding the June 30 version of the draft rules, we believe the two rules have great potential for improving the quality of life for everyone in the Valley, and not just through the direct benefit of cleaner air. The two rules can increase opportunities and incentives for affordable housing located near jobs; reduce the climb in daily vehicle miles traveled; reduce traffic congestion and encourage viable transportation choices; protect agricultural lands from encroachment; and be the first words in a regional conversation about how to best accommodate growth without increasing pollution.

We believe that the September 1 version of the draft rule is an improvement over the June 30 draft. We are pleased that the latest draft has more detail. We also appreciate the district's effort to prevent gaming of the rule by ensuring that projects on contiguous

or adjacent property under common ownership of a single entity will be treated as one project. However, we believe that overall, the current version still falls short of ensuring that the DESIGN program meets its full potential to reduce air pollution.

We urge the district to consider the following comments and make appropriate changes to the September 1 draft rule before submitting it to the board for approval.

231. COMMENT: Section 2.0 Applicability. The thresholds for the size of developments covered by the rule are too high. The thresholds appear to be set to cover developments that would be expected to produce two or more tons per year of pollution. Neither the staff report nor the draft rule provides any strong logic for ignoring developments that produce less than 2 tons but at least 1 ton per year. Leaving tons on the table unnecessarily reduces the rule's effectiveness and eliminates cost-effective opportunities to protect public health. The thresholds should be set to cover developments that produce 1 ton or more per year.

RESPONSE: See Response to Comments #57 and #180 for the District's determination of the applicability level.

232. COMMENT: Section 3.5 Definition of Baseline Emissions. The wording for this definition needs to be clearer. The current wording leaves it unclear whether the first year of the project or any phase of the project is included in the baseline emissions. Additionally, as we discuss below, the emissions covered should include reactive organic gases.

RESPONSE: See Response to Comment #91.

233. COMMENT: Section 3.14.7 Definition of Recreational. The definition is too inclusive. It should be refined to ensure that facilities within this category generate similar levels of pollution. A community park, for instance, does not generate the same amount of pollution as a movie theater. Movie theaters and fitness clubs are probably more appropriately included in commercial categories.

RESPONSE: See Response to Comment #88.

234. COMMENT: Section 4.1.5 Housing Projects Exemption. This definition needs to be clearer. It appears that the district is interested in exempting housing that would qualify as affordable housing and that is receiving public funding to ensure its status as affordable housing. However, the definition as it now stands could be interpreted as offering a much broader exemption, and including any housing that receives federal- or state-backed loans. The definition should be more clearly and narrowly stated to reflect the district's intent.

RESPONSE: The District has eliminated this exemption in the proposed rule.

235. COMMENT: Section 5.3 Air Impact Assessment (AIA), Section 5.4 On-site Mitigation Checklist, Section 5.5 Mitigation Monitoring and Reporting Program (MMRP), and Section 5.6 Air Impact Mitigation Fee Deferral Schedule (FDS). The rule should overtly guarantee public access to documents and information required by these sections. While state law would allow public access, to ensure that access is available in a timely fashion, and not subject to delays resulting from the need to file public records act requests, the rule should specifically note that the district will make available to the public the application and information described in sections 5.3, 5.4, 5.5 and 5.6 within two weeks of the district's receipt and review of these documents.

RESPONSE: The ISR program will not be a discretionary program, and thus is not subject to the public review requirements of CEQA (See Response to Comment #187). The District will be including mechanisms for public agency and public review of certain ISR documents. See Response to Comment #8 for Public Agency access. See Response to Comment #59 for public access. See Response to Comments #178 and #188 for public access to the Off-Site Program.

236. COMMENT: Section 6.1 Construction Equipment Emissions. Construction equipment emissions reduction goals should be set as a minimum standard for individual vehicles, not as a fleet average. We applaud the district's inclusion in this draft of a section specifically requiring reductions in construction vehicle tailpipe pollution. Uncontrolled construction equipment represents some of the dirtiest and most health-threatening mobile emissions. However, the fleet average approach suggested in the draft rule fails to protect those working and living closest to, and therefore at most risk from, the emissions from individual pieces of the dirtiest uncontrolled equipment. We recommend requiring a minimum level of control for all construction equipment that limits emissions to those achieved by Tier 1 controlled construction equipment, in combination with a fleet average as described in the rule.

RESPONSE: The District does not have the authority to set emission standards for mobile sources. Please see Response to Comment # 6 for additional information.

237. COMMENT: Section 6.2 Operational and Area Source Emissions. The rule should fully mitigate the most health-threatening indirect source pollutants. We are pleased that the district has clarified that PM 2.5 will be included in the emissions controlled. However, we continue to believe that, like the June 30th version, the September 1 draft rule does not provide the level of health protection warranted. The rule addresses only oxides of nitrogen (NOx) and coarse and fine particulate matter (PM 10 and PM 2.5). It should also require mitigation of reactive organic gases (ROG), a precursor that leads to the

formation of ground-level ozone. Mobile sources account for almost 40% of ROG emissions in the San Joaquin Valley.

Additionally, the draft rule continues to call for reducing just a third of the NOx emissions and half of the operational PM 10 emissions over a ten-year period. This approach leaves the majority of pollutants produced by a new development unmitigated. The district staff has arrived at these discounts short of 100 percent mitigation to avoid double counting. It has thus assumed that every vehicle traveling to or from a new development is starting or ending the trip at another new development also covered by the rule. This is an unreasonable expectation.

At the very least, if the district believes it must discount mitigation levels to avoid double counting, it should arrive at the proposed discount in a logical, defensible fashion. The district should engage the URBEMIS update advisory group, composed of professional air regulators familiar with the model and the literature on land use and transportation, to define a reasonable and defensible default number for discounting trips to avoid double counting.

RESPONSE: See Response to Comments #57 and #65 for the District's response on the amount, pollutant type, and calculations for emission reductions. By ensuring that the program does not mitigate more than half the trips generated by the project, the District is ensuring compliance with the H&S Code that requires indirect source programs to differentiate between new and existing trips. URBEMIS accounts for all trips related to a development but does not differentiate between new and existing trips. When analyzing a project in an area that is planned but not built out, some of the trips will be going to new development that will also be subject to the rule in the future and other trips will be going to existing development not subject to the rule. Both types of trips should not be charged to the project being analyzed so that impacts are fairly allocated among all uses

238. COMMENT: Additionally, the mitigation requirement should extend beyond ten years. One need not look very far in California to see that most buildings continue to attract pollution-emitting traffic for much longer than ten years. The DESIGN rule should more faithfully reflect the real life of—and real life of emissions from—the development project. We suggest a minimum of 30 years, which assumes a development will last at least as long as a standard mortgage.

The rule should also recognize that developments have variations in emissions over their lives. This change reflects the changing demographics in housing developments over time, and the changing uses of buildings, including commercial and industrial buildings. The rule should include that variation in emissions modeling and the district should require a review of actual emissions from projects at least once every five years to ensure that the match between emissions and required mitigation is strong.

RESPONSE: See Response to Comment #198 for the District's response on variations.

239. COMMENT: Section 10.2 Administration of Mitigation Funds. Mitigation measures should be permanent. The district, in Section 10.2, the draft rule indicates that it will use mitigation fees to fund quantifiable, enforceable and surplus NOx and PM10 emissions from off-site mitigation projects. All mitigation, whether on-site or off-site, should be permanent as well.

Some mitigation measures, such as the incremental improvement from retrofitting a diesel truck engine, are not permanent. The incremental improvements last only as long as that retrofitted or replaced engine is in operation and go away once a newer, cleaner engine replaces that older engine. Yet the pollution those measures intend to mitigate do not change. Therefore, short-term mitigation measures should be sequenced with other mitigation measures, to ensure that mitigation lasts as long as the mitigated pollution does.

RESPONSE: The District disagrees with this commenter's characterization of permanent reductions. The key is that all equipment and vehicles wear out and must be replaced over time. If the old equipment is replaced at the end of its useful life with new equipment that is as clean or cleaner than the old equipment then the emissions continue at the same or lower rate and the reductions should be considered permanent. If the equipment were replaced with dirtier equipment at the end of its useful life, the reduction would not be permanent. The District uses project life estimates from the Carl Moyer program that are very conservative. For example, ag IC engines are allowed a project life of 7 years, but our experience in the grant program has shown that many engines are operated for 20 to 30 years.

240. COMMENT: The District Should Develop Long-Term Measures with Mitigation Funds, and Invite the Public to Participate.

The September 1 draft, like the earlier drafts, is vague and uncertain about how monies will be spent and leaves critical decision-making about spending the funds up to the air district. The district should use the Carl Moyer program as a model. Broad areas for expenditure are outlined in the statute establishing the Moyer program, and then the lead regulatory agency, after public workshops and hearings, adopts guidelines about the specifics of how the Moyer funds will be spent.

Mitigation funds collected from developers for off-site mitigation should help create and fund long-term air pollution mitigation measures. Improving transportation choices by investing in vanpool systems and providing incentives for affordable housing located near existing job sites are examples of just two

long-term measures. The district needs to engage the public, local government and other agencies to identify the best uses of mitigation funds to get these long-term emissions reductions. The rule should establish development of a public process and guidelines for determining the best uses of the mitigation funds.

RESPONSE: Long-term measures as described in the comment may be funded if they can meet the reductions are quantifiable and enforceable. There will be opportunities to add programs once the rule is adopted.

241. COMMENT: Include Discussion of Health Costs of Air Pollution**.**
In the staff draft report, in the draft rules, and in the socioeconomic analysis, there is no indication that air pollution costs money. There is no indication that the main purpose for this and every other rule adopted by the air district is to make the air healthier to breath. The air district staff, and by extension the air district board, does itself and the cause of clean air a disservice by continually ignoring this critical issue. Dirty air is costly. It impairs health and costs residents in time lost at work, in lost productivity, in lost days at school, in direct health care costs. It also costs crop damage and materials damage. More than a decade ago, researchers established that not meeting federal ambient air quality standards in the Los Angeles air basin costs that region at least $9 billion a year.

We continue to be disappointed by the district staff's refusal to note in its rule reports and socioeconomic analyses that air pollution has costs, especially health costs. We urge the district to use this rulemaking opportunity to bring to the public's attention the very real health costs associated with air pollution. Ample information is available from the California Air Resources Board and other state and national environmental agencies to help district staff provide sound information about the costs of air pollution.

RESPONSE: See Response to Comment #98.

242. COMMENT: Finally, we applaud the district for its decision to develop rules 9510 and 3180, and we appreciate the district staff's hard work on this rule. We hope to see another draft that incorporates the changes we have recommended. We also look forward to further discussions with the district about the rule as it moves forward.

RESPONSE: Comment Noted.

Yokuts Group, Sierra Club
Date: September 1, 2005

243. COMMENT: While I think several of the commentators today made the point, I, as a long-time low-income person, would like to tell your socioeconomic that, yes, a $100 increase in rent or mortgage, DOES make a difference. Obviously

he has never been in the position of not having enough money to pay all of his bills.

I'm not qualified to comment on the rest of the presentation, but that I do know about.

RESPONSE: The author's comment on the impacts of pricing on low income persons is well taken. It is important to point out that the rule exempts housing of less than 50 units; and it applies to only *new* housing developments. In addition, the impacts discussed in the Socioeconomic Analysis are the unlikely 'worst-case' scenario where all developments contain no sidewalks, all residential is built at 3-units per acre, there are no transit services, bike racks or any other measure that reduces emissions. The District believes that the exemptions and applicability stated above as well as the more likely, less-fee scenario reduce the impacts on housing affordability beyond that stated in the Socioeconomic Analysis.

244. COMMENT: And I would agree with Kathryn that the cost of *not* doing anything about pollution has to be spelled out. All too often only the costs of rectifying our past neglect are all we look at. That, actually is only relevant when comparing the benefits of several alternatives for cleaning our air.

RESPONSE: The District believes that rule by rule analysis of the health benefits of individual rules is not appropriate; however, the cumulative benefit of the District's attainment strategy on health is extremely important. The District will be revising the Staff Report to include discussion on health impacts as addressed in the PM10 and Ozone plans.

Late Comments

City of Manteca
October 7, 2005

245. COMMENT: The Manteca City Council recently adopted the attached Resolution opposing the adoption of Draft Rules 9510 and 3180. We are aware that we live in a non-attainment area. We are also in favor of lowering the amount of PM-10 and NOx emissions. However, before the assessment of additional fees occurs, a program needs to be presented that will show how the funds collected will be used to lower the emissions.

We will be happy to reconsider our actions when a positive plan has been presented.

RESPONSE: The District has provided a clear and positive plan for use of fees in Appendix E – Cost Effectiveness Analysis for Rule 9510. Detailed program guidance for new programs will be developed once the rule is adopted.

Resolution No R2005-446
A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MANTECA OPPOSITION THE SAN JOAQUIN AIR POLLUTION CONTROL DISTRICT DRAFT RULES 9510 AND 3180

246. COMMENT: WHEREAS, the San Joaquin Valley Air Pollution Control District has proposed two potentially costly draft rules (9510 and 3180) that will impose new taxes and fees on every new office building, home, retail store, restaurant and other private development in the counties of Fresno, Madera, Merced, Kern, Kings, San Joaquin, Stanislaus and Tulare; and

RESPONSE: The Draft Rules 9510 and 3180 do not apply to all new development, nor does it place fees on all development. Please refer to Response to Comment #170. See also Response to Comments #46, #51, and #78, and #175.

247. COMMENT: WHEREAS, every Central Valley Resident will pay for these new air district taxes and fees, as business pass along their new costs through increased prices on goods and services; and

RESPONSE: Please refer to Response to Comments #89, #138, and #180.

248. COMMENT: WHEREAS, adding tens of millions in new taxes and fees every year will hamper the Valley's economic development and job-growth in a region that has among the highest unemployment rates in California; and

RESPONSE: Please refer to Response to Comment #137. See also Response to Comment #55 and #102.

249. COMMENT: WHEREAS, the air district taxes and fees will exacerbate the housing affordability problem in the Central Valley by adding more than $50 million in new costs each year to the construction of homes and apartments, driving up the cost of mortgages and rents and pricing thousands of families out of homes they can no longer afford; and

RESPONSE: Please refer to Response to Comment #137.

250. COMMENT: WHEREAS, the air district taxes and fees would fund the expansion of a bureaucracy that lacks accountability or any specific plan to improve air quality. The air district has failed to present a plan of what improvements to the region's air quality it will make with its new taxes and fees; and

RESPONSE: Please refer to Response to Comments #101, #104, #108, #113, #114, #115 and #137, and #188. Also refer to Rule 9510 Section 10.

251. COMMENT: WHEREAS, the air district has failed to provide scientific evidence to support the new taxes and fees it is proposing; and

RESPONSE: Please refer to Response to Comments #135. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards.

252. COMMENT: WHEREAS, the air district taxes and fees will interfere and conflict with local government land use authority by creating a new and competing review process, that will erode local control over land-use decision making; and

RESPONSE: Please refer to Response to Comments #8, #81, #133, and #140. . In addition, please refer to the Staff Report Section (B) *District Authority and Limitations*, and Section (D) *State Environmental Review – CEQA*

253. COMMENT: WHEREAS, the air district land-use power is redundant and conflicts with existing environmental rules and safeguards, such as the California Environmental Quality Act and existing air quality and environmental reviews.

RESPONSE: The District does not have land-use power, nor does it desire to usurp the local land-use authorities discretion on land use power. Please refer to Response to Comments #8, #81, #133 and #140. In addition, please refer to the Staff Report Section (B) *District Authority and Limitations*, and Section (D) *State Environmental Review – CEQA*

254. COMMENT: ***NOW, THEREFORE, BE IT RESOLVED*** that the City Council of the City of Manteca opposes the San Joaquin Valley Air Pollution Control District Draft Rules 9510 and 3180

RESPONSE: Opposition noted. The District notes that the substance of the letter is unsupported - see Response to Comments #245 to #253.

STOP the AIR BOARD TAX – We'll All Pay! (Coalition)

A.L. Gilbert Company.
African American Chamber of Commerce of San Joaquin County
Building Industry Association of Central California
Building Industry Association of the Delta
Building Industry Association of Kern County
Building Industry Association of San Joaquin Valley
Building Industry Association of Tulare and Kings Counties
Business, Industry & Government (BIG) Coalition of the South San Joaquin Valley
Cal Bennett's
California Black Chamber of Commerce
California Building Industry Association
California Business Properties Association
California Manufacturers & Technology Association
California Mexican American Chamber of Commerce
California Restaurant Association
California Retailers Association
California Senior Advocates League
California Taxpayers' Association
Central California Hispanic Chamber of Commerce
Constructing Industry Air Quality Coalition
Consulting Engineers and Land Surveyors of California
Consumers First, Inc
City of Avenal
City of Clovis
City of Escalon
City of Lodi
Coalinga Area Chamber of Commerce
Greater Bakersfield Chamber of Commerce

Greater Merced Chamber of Commerce
Howard Jarvis Taxpayers Association
J.F. Shea Co., Inc
KRC Safety
Kern County Farm Bureau
Kern County Hispanic Chamber of Commerce
Kern County Taxpayers Association
International Council of Shopping Centers
Lemke Construction
Lodi Association of REALTORS, Inc
Lodi Chamber of Commerce
Madera Hispanic Chamber of Commerce
Matthews Homes
National Association of Industrial and Office Properties – California Chapters
National Coalition of Hispanic Organizations
National Tax Limitation Committee
Orange Belt Board Realtors
Raymus Homes
Rainscape
Reason Foundation
San Joaquin Valley Black Chamber of Commerce
San Joaquin Chamber of Commerce
Scolari Tile & Co., Inc
Self-Help Enterprises
Sharp Insurance & Bonding
Small business Action Committee
The Hispanic Chamber of Commerce of Stanislaus County
Tulare and Kings Counties Builders Exchange
The Tulare/Kings Hispanic Chamber of Commerce
Tulare Chamber of Commerce
Tulare County Association of REALTORS
Tulare County Farm Bureau
Valley Taxpayer's Coalition
Valley Outdoor Advertising
Visalia Chamber of Commerce

255. COMMENT: On behalf of small business, labor, taxpayer, local government, community and other diverse organizations, we strongly oppose draft Rules 9510 and 3180. These measures will impose new taxes and fees on Central Valley residents, hurting our economic development and job-growth but offering no accountability and no guarantees of cleaner air.

RESPONSE: New Taxes: The Draft Rules 9510 and 3180 do not apply to all new development, nor does it place fees on all development. Please refer to

Response to Comment #170. See also Response to Comments #46, #51, and #78, and #175.

Hurt Economy: Thee is no factual evidence that implementation of the rules will hurt the economy. Please See the Staff Report and Appendix F – Socio Economic Impact Analysis for more information. Please refer to Response to Comment #137. See also Response to Comment #55 and #102.

Accountability: The authors' statement is untrue. Accountability is built into the rule. Refer to Rule 9510 Section 10. See also Response to Comments #101, #104, #108, #113, #114, #115 and #137, and #188.

256. COMMENT: The proposed rules will impose a slew of new taxes and fees that will apply to every newly constructed property – offices, homes, retail stores, restaurants and small or large businesses. Combined, these taxes and fees are expected to cost hundreds of millions of dollars over the next five years. This fee will price tens of thousands of families out of housing they can afford and worsen the housing crisis in the Central Valley.

RESPONSE: New Taxes: The Draft Rules 9510 and 3180 do not apply to all new development, nor does it place fees on all development. Please refer to Response to Comment #170. See also Response to Comments #46, #51, and #78, and #175.

Costs of Rule: The District analyzed the calculations that the BIA provided via Sierra Research, and concluded that the analysis was flawed and inaccurate. Please see Response to Comments #161 and #162.

Housing Impact: The Socioeconomic Impact Analysis did not find a significant impact to housing builders or housing buyers/renters. See the Staff Report and Appendix F for more information. In addition, please see Response to Comments #137, #41, and #53.

257. COMMENT: By imposing similar costs on new businesses, these measures will hamper the Valley's economic development and job-growth which will be particularly disastrous in a region that has among the highest unemployment rates in California.

Ultimately, these additional costs will be passed along to consumers, meaning we all pay.

RESPONSE: The District disagrees that the rule will hamper economic development in the Valley. Please see Response to Comment #55.

258. COMMENT: Most troubling is the fact that there are no accountability mechanisms built into the draft Rules and no guarantees that the funds will actually improve the air quality. The Air Board has failed to present a detailed list of the specific air-quality-improvement activities it intends to pursue and has failed to provide credible scientific support for the proposed rules.

RESPONSE: Accountability: The authors' statement is incorrect. Accountability is built into the rule. Refer to Rule 9510 Section 10. See also Response to Comments #101, #104, #108, #113, #114, #115 and #137, and #188.

Credible Scientific Support: Again, the authors' statement is not valid. The District has been developing the rule over several years, involving extensive research and documentation. Please refer to Response to Comments #135, the Staff Report, and associated Appendixes. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards.

259. COMMENT: Lastly, the new bureaucracy will interfere with local government land use decision-making by creating a new and unworkable process that erodes local control over land-use planning. This will stall much-needed new housing, businesses and other economic growth in our communities. For example, the draft Rules are redundant and even conflict with existing environmental rules and safeguards, such as the California Environmental quality Act and Existing air quality and environmental reviews

RESPONSE: First, 100% of off-site fees will be used for off-site emission reduction programs only. None of the off-site fees will be used for District administration or other uses. Second, the rules are not redundant, conflicting, unworkable, or otherwise interfere with the environmental review process, existing laws, or the land-use agencies' discretionary land use authority.

The District does not have land-use power, nor does it desire to usurp the local land-use authorities discretion on land use power. Please refer to Response to Comments #8, #81, #133 and #140. In addition, please refer to the Staff Report Section (B) *District Authority and Limitations*, and Section (D) *State Environmental Review – CEQA*

260. COMMENT: Draft Rules 9510 and 3180 are misguided solutions that will hurt every Central Valley Resident, potential new homeowners and renters and the

economic climate in the Central Valley. For these reasons we the undersigned oppose draft Rules 9510 and 3180 and urge your opposition as well.

RESPONSE: Opposition Noted. The District notes that the substance of the letter is unsupported – See Response to Comments #255 to #259 above.

Merced County Economic Development Corporation (MCEDCO)
Dated September 13, 2005
Received September 19, 2005

261. COMMENT: On behalf of the Merced County Economic Development Corporation (MCEDCO) we urge members of the San Joaquin Valley Air Pollution Control District (Air Board) to oppose draft Rules 9510 and 3180. The draft Rules will impose hundreds of millions in new fees on residential, commercial and business developments, discourage investments and job growth throughout the Central Valley and hinder affordable housing without any guarantee that they will directly improve the situation

RESPONSE: The factual evidence supports the District's position that the Draft Rules will have a less-than-significant effect on the housing market in the Valley, and a minimal effect on other land use projects. In addition, there is no supporting evidence that the rules would 'discourage investments and job growth'. Finally, there is solid scientific evidence that the rules will benefit the air quality of the valley. The District has been developing the rule over several years, involving extensive research and documentation. Please refer to Response to Comments #135, the Staff Report, and associated Appendixes. Accountability is built into the rule as draft Rule 9510 Section 10. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards. See also Response to Comment #55.

262. COMMENT: MCEDCO is a private/public nonprofit 501c4 organization that offers economic development expertise to the incorporated cities and unincorporated communities within Merced County. MCEDCO's primary mission is to promote and facilitate net, new employment growth, encourage increased corporate investment and assist in the diversification of the Merced County economy. MCEDCO focuses on retention and expansion of existing businesses, small business start-up, and recruitment of new enterprises

MCEDCO's efforts serve the entire community by encouraging new jobs opportunities for residents, increased sales and improved productivity for local business and new tax and fee revenues to support programs and services

offered by the cities and county. Without new business investment, employment growth is not realized and subsequently residential growth falters.

California is already recognized as a costly business location. Businesses frequently cite high fees and development expenses as a disincentive to new investment. The rising cost of property in tandem with additional fees and high operating costs jeopardizes potential wealth generation opportunities.

Environmental issues, in particular clean air for the Valley, are important matters to prospective business investors. However, MCEDCO is concerned that the draft Rules may not directly improve the situation and may deter residential and other construction that is often considered a primary trigger to economic development.

RESPONSE: The District recognizes the author's concerns. However, the District has provided detailed calculations of the emission reductions predicted by the rule as well as potential off-site emission reduction projects available, Appendix B and E respectively. In addition, considerable study and analysis went into the District's PM10 and ozone attainment plans, which identified reductions from Indirect Sources as a requirement for attainment of the PM10 and ozone standards. See also Response to Comment #55.

263. COMMENT: The draft Rules may also thwart affordable housing, a top priority in the Merced area given our ranking as the least affordable community in the nation. Balancing environmental concerns with affordable housing and new employment is a daunting challenge, not likely to be furthered by the draft Rules. Efforts to improve air quality are supported by the MCEDCO provided that said activities reflect a balanced approach with a clear plan for improvements.

RESPONSE: The District feels that it has met the criteria stated by the author. The draft ISR rules are part of a larger plan, the PM10 and ozone attainment plans, that identified emissions inventories for various activities and land uses, looked at the predicted growth, identified controls, modeled future air quality and determined a mix of actions that would reduce air pollutant emissions to bring the valley into attainment for PM10 and ozone. Part of this plan (also mandated by state law – SB 709) is to reduce emissions from indirect and area sources. As stated in Response to Comment # 17, the ISR development process has taken several years, multiple workshops, as well as working with the state-wide URBEMIS working group, careful analysis of existing regulations and programs. For more information, please see the Staff Report and associated Appendixes.

SUMMARY OF COMMENTS AND RESPONSES FROM THE PUBLIC WORKSHOP HELD ON JUNE 30, 2005

EPA: No comment received.

ARB: No comment received.

Industry and Public:

General Comments

1. **COMMENT:** The rule does not address the increase in trip length or vehicle trips resulting within the region from existing development.

RESPONSE: The purpose of the rule is to mitigate the emissions that result directly from new development. While the growth in the footprint of the region can result in increased travel, it is not practical to assign that growth to an individual development.

2. **COMMENT:** With new housing growing the housing inventory by at most 3% a year, we are therefore ignoring 97% of the homes and cars that create pollution. Our legislators have a responsibility to address the issue head on and not hide behind the pretense that burdening 3% of the households can mitigate the pollution of the other 97%.

RESPONSE: The District agrees that Rule 9510 does not address the emissions associated with existing residential, commercial, and industrial development. Given the requirements of the Health and Safety Code Section 40717.5, the District is precluded from regulating emissions resulting from existing trips associated with existing development. The purpose of the rule is to mitigate growth which is occurring at a rate of about 3% per year. In 10 years, the cumulative growth will constitute 30 percent of emissions. In other words, without growth at the projected rate, emissions would be 30 percent lower in 10 years.

3. **COMMENT:** Stakeholders are gravely concerned about the District's ability to take on these complex new tasks accordant workload.

RESPONSE: The District has a long history of analyzing the impact from new developments and suggesting appropriate mitigation. Additionally, the District has extensive experience operating incentive program to purchase off-site emissions reductions. In conjunction with the rule adoption the District will provide an assessment of workload and an appropriate staffing recommendation.

4. **COMMENT:** There needs to be protections built into the program for speedy processing of air quality assessments.

RESPONSE: The draft rule contains timelines for the District process applications. The District received a number of comments concerning how those timelines relate to the land-use approval process. The District will make every effort to ensure that the timelines in the rule do not unduly delay the land-use approval process. The rule allows developers to submit applications prior to beginning the CEQA process. For projects where the project description is not expected to change, all analysis and preliminary emissions estimates can be accomplished prior to the CEQA document being released for public review.

5. **COMMENT:** Why are only NOx and PM10 being addressed when CEQA requires all pollutants to be quantified and mitigated to the extent that they exceed thresholds?

RESPONSE: Rule 9510 is being developed to meet commitments that the District has made in the PM10 and Ozone attainment demonstration plans. The District has not committed to reductions of other pollutants in this rule. While the mitigation contained in the rule will help applicants comply with CEQA that is not the primary purpose of the rule. The revision to the GAMAQI document will outline how this rule will work under CEQA.

6. **COMMENT:** Not all of the classes of development projects identified in Section 2.2 are defined in Section 3.11.

RESPONSE: The District will make the appropriate changes ensure that there are no internal discrepancies in the rule.

7. **COMMENT:** Most buildings in the SJVAB last longer than ten years. The ten-year period should be expanded to at least thirty years, since that is the term of the standard mortgage.

RESPONSE: The District selected ten years based upon a number of factors. First, since the rule has been committed to attain the federal ozone and PM10 standards in 2010 the ten-year time frame is sufficient to get past the attainment deadlines and ensure that they last into the maintenance period. Also, utilizing a thirty-year time period would have a significant financial impact on the region.

8. **COMMENT:** What would happen if a change of use occurs and the previous use required fees that were already paid, and the actual use did not?

RESPONSE: The District is not proposing to re-assess a project at change of use. The program will only deal with new construction.

9. **COMMENT:** Better clarification of the definition of "baseline emissions" is needed.

RESPONSE: The District will ensure that the definition is clear.

10. **COMMENT:** Consultants should either be chosen by the District or the District itself should performed the Air Impact Assessment, so that consultants will be less likely to manipulate numbers.

RESPONSE: The District can ensure that air impact assessments are properly performed. This can be achieved with the District performing the analysis or with private consultants performing an analysis that is reviewed by the District.

11. **COMMENT:** Projected NOx emissions reductions exceed the 2010 SIP commitment. The reductions should stay in line with SIP commitments.

RESPONSE: The District has utilized the plan commitment as a guideline for rule development but the final emissions reductions will be governed by developing an effective rule. Final reductions from the rule will be within range of the SIP commitment. It is also important to achieve as many reductions as feasibly possible, since there are numerous new standards that the District will need to meet.

12. **COMMENT:** The inclusion of the proposed rule in the SIP is prohibited by the Health and Safety Code since this is voluntary compliance with the Clean Air Act and not required.

RESPONSE: The emissions reductions associated with the rule are required to achieve attainment of the federal ozone and PM10 standards and are therefore federally required and are commitments in two federally enforceable plans.

13. **COMMENT:** All requirements pertaining to indirect source review or derived there from should be designated as "not federally enforceable."

RESPONSE: See previous response.

14. **COMMENT:** The inclusion of the proposed rule in the SIP is prohibited by the Health and Safety Code since the authority for this rule is to attain a state, not federal, ambient air quality standard.

RESPONSE: The District is not aware of any such prohibitions since the emissions reductions associated with the rule are needed to attain the applicable National Ambient Air Quality Standards.

15. **COMMENT:** The definition of a development project should include the following additional language: The issuance of a permit for construction or reconstruction, where such permit is required solely to comply with a rule, regulation or order of a local agency shall not be considered to be a development project. The issuance of an operating permit shall not be considered a development project.

RESPONSE: The current definition of a development project adequately addresses projects that have ancillary discretionary approvals relating to the project. The applicability of the rule includes not only discretionary approvals, but also minimum sizes of projects that must comply with the rule.

16. **COMMENT:** It appears that the mitigation measure resulting from this rule are to be used to comply with mandates of attainment plans for ameliorating existing air pollution problems in the Valley. That is, the rule is not primarily intended to prevent new pollution from occurring, they are intended to address pollution that has occurred/is occurring from existing development. Case law in this area would indicate that new development should not be expected to remedy impacts created by previously approved and existing development.

RESPONSE: The purpose of the rule is to reduce the emissions impact from projected development in the San Joaquin Valley not existing development. The emissions inventory in the relevant PM10 and ozone plans contain estimates of emissions totals that include the growth in emissions. The emissions reductions commitment for this rule does not exceed the emissions projected for growth, and therefore only addresses the impact of new development.

17. **COMMENT:** It is unclear how the District will track the various developments and the various iterations of each approval.

RESPONSE: The District will work with local government agencies to ensure that appropriate tracking mechanisms are in place.

18. **COMMENT:** PM2.5 should be included as well.

RESPONSE: The definition for PM10 includes particulates less than 10 microns in size. By definition this would include PM2.5 emissions.

19. COMMENT: The rule should require that all NOx and PM emissions be mitigated.

RESPONSE: There are specific previsions of the Health and Safety Code that make it difficult to mitigate 100 percent of projects emissions without violating state law. Additionally, the District has committed to specific emissions reduction levels in the applicable ozone and PM10 plans. The District can achieve these reductions without requiring 100 percent mitigation from projects.

20. COMMENT: Discounting the trips at 50% is not defensible. The District should engage the URBEMIS group, composed of professional air regulators to define a reasonable and defensible default number for discounting trips.

RESPONSE: The purpose of discounting the trips by 50% is to ensure that the district does not charge fees on both ends of a trip. If the District did not discount the trips by 50% there is a very real possibility of charging both residential and commercial projects for the same trips, which could result in double counting.

21. COMMENT: The rule should recognize the variation in emissions over the life of the development. Therefore, the rule should include a review of actual emissions every five years to ensure that the match between the emissions and the required mitigation is strong.

RESPONSE: The URBEMIS model contains average assumptions for types of development projects. While there is some variation from project to project, and over the life of a project, the assumptions in the model are adequate when applied over a large number of projects.

Applicability

22. COMMENT: What was the basis for establishing the project build-out thresholds?

RESPONSE: The project build-out thresholds are based upon the emissions associated with those types of projects. The thresholds reflect 2 tons per year. By setting project build-out thresholds, the District can address the maximum amount of the emissions associated with new development while minimizing the administrative burden on small projects.

23. COMMENT: The rule should be set to cover developments that upon build-out create 1 ton or more per year of any pollutant. The size associated with each development project listed in section 2.2 would then be cut in half.

RESPONSE: See previous response.

24. **COMMENT:** The applicability section should include the following language: The increase in emissions from the development project result from an increase in vehicular activity that would not otherwise occur, or the increase in emissions from the development project results from new area sources, not previously authorized.

RESPONSE: By their nature new development projects ultimately result in new trips that would not otherwise occur.

25. **COMMENT:** Other land use categories should be added, such as recreational space and military bases, since these activities generate a significant number of vehicular trip ends.

RESPONSE: The District will add these categories.

26. **COMMENT:** The industrial space threshold should be replaced with light industrial space at 25,000 square feet and heavy industrial space at 100,000 square feet, since trip generation from these types of land use differ significantly.

RESPONSE: Most heavy industrial projects would be exempt from this rule, so distinguishing between the different types of industrial would not be productive.

29. **COMMENT:** The proposed rule does not comply with H&SC Section 40717.5(a)(1) which limits the applicability to activities that contribute to "…air pollution by generating vehicle trips that would not otherwise occur."

RESPONSE: By their nature new developments ultimately result in new trips that would not have otherwise occurred.

30. **COMMENT:** Under the proposed rule, the installation of equipment, wherein such installation requires a public agency "exercise judgment" in approving the permit, would make the project discretionary and subject to Rule 9510 even though the project might not result in vehicular activity.

RESPONSE: These projects would not be subject to the rule since the size of the equipment would be lower than the applicability thresholds of the rule.

31. **COMMENT:** 55,000 square feet of general office space is excessive.

RESPONSE: Comment noted.

32. **COMMENT:** The rule should not retroactively apply to permit applications filed prior to the effective date of the rule. This appears to defer or circumvent CEQA

analysis. The seriousness of the pollution problem in the SJVAB makes all information on air pollution and its mitigation extremely pertinent and necessary to consideration of development projects prior to project approval.

RESPONSE: The rule is not intended to replace the CEQA review for projects. The mitigation developed for a project through the CEQA process can be credited to the requirements of the rule.

33. COMMENT: The applicable square footage thresholds in section 2.2 are discriminatory in that "government space" thresholds are considerably less than non-government identified spaces.

RESPONSE: The applicable square footage thresholds are based upon emissions estimates for different land-use types. These estimates are influenced by a number of factors including trip generation rates that are specific to each land-use type. Government spaces tend to have higher trip rates, so a lower threshold for those spaces are warranted.

34. COMMENT: Will the rule as it relates to urban residential development be applicable to development proposed in the unincorporated areas of the county?

RESPONSE: The rule will apply to new development projects in the entire San Joaquin Valley Air Basin.

35. COMMENT: The definition of "discretionary" projects would be applied inconsistently throughout the SJVAB since different jurisdictions handle them differently. By defaulting to the jurisdictions' interpretation of the term, the District is allowing for the rule to be applied inconsistently.

RESPONSE: The District does not have the authority to change the local government process. Therefore the District is defaulting to the jurisdictions' interpretation, so as not to interfere with the local jurisdictions' land use authority.

36. COMMENT: A simplified and flexible approach should apply to all projects smaller than the exemption thresholds. Smaller projects should be exempt from the detailed analysis, but should still be required to implement all feasible onsite mitigation strategies and make a contribution to offsite mitigation.

RESPONSE: Projects that go through CEQA and have a significant impact are required to implement all feasible mitigation.

Exemptions

37. **COMMENT:** There should be a new exemption section added, section 4.3, which should include the following: Any project subject to federal Section 7 or Section 10 consultations with the United States Fish and Wildlife Services (USFWS) or a 2081 consultation with California Department of Fish and Game (CDFG), since these projects will require life of project mitigation.

RESPONSE: It is not understood how a project that is required to mitigate the life of the project for Fish and Wildlife, would mitigate their air impact. Therefore, this exemption will not be added.

38. **COMMENT:** Section 4.1.4 should read as follows: A development project where the emissions primarily result from direct sources or from emissions units as defined by Rule 2201 (New and Modified Stationary Source Review Rule); or projects subject to Rule 2010 (Permits Required). Examples of exempt sources can be expanded to include: Oil Production and Natural Gas Production, Refineries and Natural Gas Processing Plants, Waste Disposal and Waste Management Facilities, Mineral Extraction and Processing Plants.

RESPONSE: Comment noted, with the exception of waste facilities and mineral facilities. These types of facilities may include a significant traffic component, therefore they should be subject to the rule. The stationary source emissions associated with all facilities will not be included.

39. **COMMENT:** Section 4.1.4 needs to be modified to include gas plants, bulk loading terminals, and gas liquid processing plants.

RESPONSE: See previous response.

40. **COMMENT:** The 50 unit exemption is bound to result in “gaming” or several tract maps coming in at 49 units.

RESPONSE: The District will modify the rule to minimize the potential for circumventing the requirements of the rule.

41. **COMMENT:** The exemption for the applicability should be extended to the reconstruction of owner occupied low-income housing.

RESPONSE: Reconstruction of a single unit would be below the thresholds for rule applicability.

42. **COMMENT:** What is the rationale for exempting transit and transportation projects?

RESPONSE: The exemptions for transit and transportation projects were intended to be from the operational emissions portion of the rule. Since these

projects do not generate or attract trips it would not be appropriate to include these projects operational emission. There are significant emissions from the construction of these projects. The rule will be modified so that the construction requirements apply to transportation projects. Transit projects will continue to be exempt, since they are ultimately considered mitigation.

43. **COMMENT:** This rule is akin to the local conformity rule, Rule 9110 and overlaps with US EPA's General Conformity requirements of 40 CFR 51. In fact, the conformity rules are more stringent that this proposed rule. Sources subject to general conformity should be exempt from the rule.

RESPONSE: In some cases the general conformity rule is more stringent than the DESIGN rule. In those cases federal sources will be given credit for the efforts to meets conformity requirements. In other cases, federal sources are not required to mitigate their emissions if they are already included in the SIP. In those cases the DESIGN rule would be more stringent than the general conformity provisions.

44. **COMMENT:** The definition of projects subject to the rule does not address whether general, regional, community, or specific plan adoption would be considered "discretionary" projects subject to the rule. These plans and subsequent information for URBEMIS inputs are too general to furnish precise estimates of pollution as a result of those plans. Therefore, the consideration and adoption of specific plans should be exempt from the rule, unless the adopting land jurisdiction does, in fact, intend to issue development/construction permits pursuant to a specific plan without subsequent environmental analysis.

RESPONSE: As long as the general, regional, community, or specific plan are not the last discretionary approval of a project or portion of that project, the rule would not be applied to these approvals, but rather to the later more specific discretionary action for the project. If these plans were the last discretionary approval, perhaps the plan or CEQA document could contain a condition of approval or mitigation measure requiring the developer to provide an analysis to the District once the project design is finalized and prior to final ministerial site plan review or subdivision map or issuance of the building permit.

CEQA

45. **COMMENT:** The proposed rule does nothing to protect against CEQA lawsuits with respect to air quality mitigation.

RESPONSE: Due to limitations in state law, the District is unable to develop a rule that provides the same level of mitigation that some communities are seeking through the CEQA process. The District has established a program

through which project proponents can work with the District to fully mitigate their projects through CEQA.

46. **COMMENT:** There is a disconnect between the levels of significance in the Guidelines for Assessing and Mitigating Air Quality Impacts (GAMAQI) and the proposed rule.

RESPONSE: The purpose of the rule is to assist the District in attaining clean air standards. The rule is not intended to satisfy the requirements of CEQA. However, the GAMAQI will be revised to describe how compliance with this rule would affect CEQA.

47. **COMMENT:** What is the basis for the exemption of projects that have a mitigated baseline below two tons per year? Is this basis evidence that 10 projects in the same area producing less than two tons per year each are not cumulatively considerable under CEQA?

RESPONSE: The threshold was in part determined by selecting a level where reductions achieved would meet the commitments outlined in the PM10 and ozone plans. The revisions to the GAMAQI will outline the issue of cumulative impacts, in relation to this rule.

48. **COMMENT:** The District should include in this rulemaking, clear direction from the Governing Board to amend the GAMAQI, through a public hearing process, to formally adopt the concept of NOx mitigation over ten years in Air Quality Assessment methodology for CEQA documents. This would provide clear direction for the connection of this rule to CEQA and provide support for the Lead Agency in the current challenges to Air Assessment methodology in CEQA documents.

RESPONSE: The District will continue to improve its CEQA process to insure that appropriate analysis and mitigation are included for projects. Pending Governing Board adoption of this rule, the GAMAQI will be revised through a public process.

49. **COMMENT:** Please clarify why the District is not committed to amending the GAMAQI to define the exact role that this rule will have in the CEQA process, which would clearly provide relief for local government in CEQA litigation in a matter, air impacts, for which the District is the recognized expert.

RESPONSE: As was mentioned previously, the purpose of the rule is to achieve the emissions reductions necessary to attain the federal PM10 and ozone standards. The primary purpose of the rule is not CEQA compliance. However, the GAMAQI will be revised, and will provide clarification on how this rule works under CEQA.

50. **COMMENT:** The appropriate time for District analysis of projects under the rule would be during the early consultation process, before the overall environmental analysis of a project is completed and before the mitigation measures are approved for the project.

RESPONSE: Since the timelines for land use approval and CEQA vary greatly from jurisdiction to jurisdiction, the District cannot prescribe a timeline that will fit all jurisdictions. To that end, it is up to the developer to determine when would be the best time to approach the District. It is the District's preference that it is as early in the process as practicable so that the analysis and impact assessement could be completed prior to circulation of the CEQA document.

Regulatory Process

51. **COMMENT:** The best time to analyze and mitigate environmental impacts is at the comprehensive higher plan level. However, this rule discourages master planning in favor of piecemeal, small projects due to the liabilities stated for changes in design.

RESPONSE: The applicability of the rule at the last discretionary approval stage does not provide a disincentive to planning at a higher plan level. In fact, the opposite is true. Building in mitigation at the comprehensive plan level will assist in complying with the requirements of the rule.

52. **COMMENT:** The proposed rule creates a major burden for project applicants by imposing new requirements for preparation of detailed air quality studies.

RESPONSE: Many projects are already doing comprehensive analysis during the CEQA process. It is intended that the analyses and work for this rule provide a foundation for and/or complement the analyses required under CEQA. The District will work to provide tools and training to streamline the analysis process.

53. **COMMENT:** The mitigation agreement is wholly duplicative of the mitigation procedures set forth in CEQA, and will create chaos and confusion.

RESPONSE: Given that mitigation is consistent with the CEQA process it should not create chaos or confusion. The mitigation should in most cases be included as a mitigation measure in the CEQA document. Measures provided by the developer after the CEQA process is complete will require an agreement to ensure compliance.

54. **COMMENT:** The requirement for a new assessment based on changes to the construction schedule approaches absurdity with a master-planned community. How can one accurately predetermine market forces over a 20-year period?

RESPONSE: The fact that the rule is applied at the last discretionary approval of a project will mitigate the need to reanalyze projects. If a project is phased over an extremely long period of time it is appropriate to re-analyze the project if the schedule is significantly altered.

55. **COMMENT:** There is a conflict when the review of the Air Impact Assessment Application is to be done and when the review and assessment of the EIR must be accomplished.

RESPONSE: The District will not prescribe when the application is required. Therefore, it is likely that the same analysis could be used for both purposes.

56. **COMMENT:** The developer, who might be expected to pay for the mitigation fees in order to get land entitlements, may not be the same entity that purchases the project to eventually build the development. So if the latter decides to terminate the project and not build, there would be an administrative headache in terms of refunds.

RESPONSE: The District has offered the option for a fee deferral agreement that could defer the fees for projects that have an uncertain future.

57. **COMMENT:** The 30 day review process, plus the time necessary to process an application will significantly add to the development review time for a project's approval.

RESPONSE: The District has altered the timeframes in the rule to ensure that the rule will not result in unnecessary delays in the development process.

58. **COMMENT:** How would the rule apply to Master Plan Communities/Developments? Would each project in that plan need to be evaluated or just the plan? The difference in administration of the two options would be enormous.

RESPONSE: The rule requires the review at the last discretionary approval for a project.

59. **COMMENT:** The approval of the Air Impact Assessment should be done prior to CEQA hearings, and the details of the calculations should be made available to the public prior to those hearings.

RESPONSE: It is the District's intent to have the Air Impact Assessment available prior to the adoption of the project.

60. **COMMENT:** We request that the 30 day review period for determining an application complete be shortened to 10 days, since that is more in line with the 10 day review period for Initial Study consultation comments, and since URBEMIS analyses can be done within a matter of minutes, with the exception of EIRs since those can have a 30 day response time.

RESPONSE: Comment noted.

61. **COMMENT:** We request that the District forward a copy of the URBEMIS findings to the local jurisdictions for incorporation in their CEQA documentation prepared for projects.

RESPONSE: The District is willing to share information with local jurisdictions and in fact regularly comments on CEQA documents.

62. **COMMENT:** The rule proposes that cities and counties withhold building permits pending satisfaction of the District requirements.

RESPONSE: The rule does not include this provision.

63. **COMMENT:** The District should ensure timely public access to information used to calculate emissions. This would include publishing the information.

RESPONSE: The District will make all appropriate information available to the public.

Mitigation Fee Act

64. **COMMENT:** The draft rule fails to comply with the nexus test required by AB1600.

RESPONSE: The District has determined that this rule is not subject to AB 1600 (the Mitigation Fee Act) for two reasons. First, the District has no approval authority over development projects and, therefore, is not imposing a fee as a "condition of approval of a development project." Any fee will be assessed as a separate regulatory fee after the project has been approved by the local land use agency. Second, the Mitigation Fee Act applies only to fees assessed for the purpose of defraying the cost of "public facilities." The District does not believe that air pollution mitigation projects such as diesel engine retrofits are public facilities. However, notwithstanding the above, the District has met the "nexus" test under the Mitigation Fee Act or any other legal standard. New developments subject to the rule attract pollution caused by construction activities and vehicle traffic. The rule seeks to mitigate such pollution by allowing the developer to (1) include on-site mitigation measures in the design of the development that mitigate the types of air pollution caused; and/or (2) pay a fee

that will be used to fund emissions reduction projects, such as engine retrofits, that will mitigate the types of air pollution caused. Thus, the purpose of the fee and its uses are clear. In addition, there is clearly a reasonable relationship between new development and a fee imposed to mitigate the air pollution it causes. Finally, the fees will be reasonable in amount in that they will be directly tied to the cost of reducing the emissions caused by the development. The fee is established on a site-specific basis through URBEMIS modeling designed to determine the amounts and types of excess emissions caused by the development and then calculating the cost of reducing those emissions. URBEMIS is currently the best tool in existence for quantifying such emissions and has been used in similar contexts in the past. Thus, the fee meets all nexus requirements outlined in AB 1600.

65. **COMMENT:** The draft rule does not distinguish between the two-prong analytical paths in AB1600.

RESPONSE: See previous response.

66. **COMMENT:** The District has not circulated any documentation reflecting a nexus study.

RESPONSE: See previous response.

Socioeconomic Impact Analysis

67. **COMMENT:** The District has not released a socioeconomic impact analysis as required by the Health and Safety Code.

RESPONSE: The District will be distributing the socioeconomic impact analysis in conjunction with this draft of the rule.

68. **COMMENT:** The socioeconomic Impact analysis should demonstrate the impacts on the following: housing costs, rents, low-income families.

RESPONSE: Comment noted.

69. **COMMENT:** The socioeconomic Impact analysis should demonstrate the impacts of the processing, fee and mitigation proposals on new businesses.

RESPONSE: Comment noted.

70. **COMMENT:** The socioeconomic analysis should make a note of the overall costs to the public of air pollution.

RESPONSE: The District will include a general discussion of the impacts of air pollution on public health in the socioeconomic analysis.

URBEMIS

71. **COMMENT:** URBEMIS is a useful tool for calculating emissions only at the "sketch planning" level. It is not capable of evaluating specific design elements and operational measures, and accordingly, there is no way to do an accurate project-specific analysis of mitigation.

RESPONSE: The District does not agree. In fact, URBEMIS has been utilized to analyze the impact from projects through the CEQA process for years. The model has recently been updated based upon an extensive review of travel behavior studies to ensure that it provides proper credit for design features that are built into a project.

72. **COMMENT:** Please clarify how URBEMIS will be used in the process. Is the operating assumption that all discretionary development, regardless of its consistency with the general plan, is "new" for the purposes of modeling (i.e. additional development, and not replacing land uses/emissions already assumed within the model), or will the assessment be based on its placeholder land use?

RESPONSE: The analysis will be conducted at the last discretionary approval for a project regardless of whether the project is consistent with the existing general plan. If the general plan is the last discretionary approval for that particular land-use the district will analyze the land-use based upon the highest emitting use that could be built under that land-use category. The modeling would be based on approved land uses or those proposed in the case of a large plan area that contains the project being analyzed. This will enable credit to be taken for innovative community design and layout.

73. **COMMENT:** The URBEMIS fleet mix overstates residential emissions by roughly 50%. It is based on the statewide mix of vehicle types, which is comprises 3% of heavy-duty trucks.

RESPONSE: The District is working to ensure that the fleet mix assumptions in URBEMIS are appropriate for each land-use type. While the fleet average may somewhat overestimate emissions residential developments there are heavy duty truck emissions associated with them. These include school buses, refuse collection, package delivery, and other service vehicles.

74. **COMMENT:** The URBEMIS age distribution overstates residential project emissions. The defaults are based on the statewide mix of vehicle types, which are generally older than a new residential fleet. Vehicles, in new housing units that were 10 years or younger, had a 50/50% split on vehicles 5 years or

younger, and older than five years. Housing units older than 10 years had a 36/64% split. This problem cannot be easily revised within the current framework of URBEMIS.

RESPONSE: The District believes that the fleet average is a reasonable assumption for new development projects. There are a number of factors that impact emissions including age, vehicle class, and fleet turnover. If more specific information is available, the District would consider utilizing project specific numbers.

75. **COMMENT:** URBEMIS silt loading factors for entrained PM10 emissions overstate residential project emissions by nearly 50%.

RESPONSE: The District will ensure that the correct silt loading factors are utilized.

76. **COMMENT:** URBEMIS trip lengths are inconsistent with TPA model data and recent statewide travel surveys.

RESPONSE: The District will continue to update trip lengths with local data as the model is updated. Project proponents can utilize project specific information in lieu of the URBEMIS defaults.

77. **COMMENT:** URBEMIS default vehicle speed and estimated vehicle speeds vary by as much as 50-100% of survey data.

RESPONSE: The defaults for vehicle speeds may be modified if project specific information is available.

78. **COMMENT:** URBEMIS is not based on the most recent version of EMFAC in the Ozone SIP.

RESPONSE: As the URBEMIS model is updated it will be updated with the most recent version of EMFAC that is available. The District will ensure that emissions are credited to the Ozone SIP in the proper SIP currency.

79. **COMMENT:** Many commercial and industrial buildings are permitted and built, not knowing who the tenant will be in advance. How will URBEMIS estimate emissions for these types of development?

RESPONSE: In this case the analysis will assume the highest emitting use that would be allowed under the land-use designation.

Construction

80. COMMENT: Construction activities are not considered to be indirect sources.

RESPONSE: The purpose of the rule is to mitigate the emissions associated with new developments, not just indirect source emissions.

81. COMMENT: The rule overlaps and conflicts with existing District and ARB regulations that control emissions from construction activities and equipment, specifically Regulation VIII and the Dust Control Plan requirement.

RESPONSE: The District is proposing modifications to the rule that do not target dust emissions, but rather target mitigating emissions associated with the construction fleet.

82. COMMENT: There is no precedent in District or state regulations that require 100% mitigation of a particular source. 100% mitigation is not reasonable or feasible, as required by CEQA.

RESPONSE: Comment noted.

83. COMMENT: Regulation VIII should address more stringent controls on fugitive PM10 from construction activities and not an indirect source rule.

RESPONSE: Comment Noted.

84. COMMENT: The Regulation VIII list serve and mailing list should be notified of the rule.

RESPONSE: Comment noted.

On-site Mitigation

85. COMMENT: Reductions from many of the individual measures on the Mitigation Checklist are “off-model.”

RESPONSE: The rule includes the provisions that the APCO can approve alternative modeling methodologies. This would include approving appropriate “off-model” adjustments for mitigation that cannot be analyzed in URBEMIS. Many of the mitigation measures that are currently not included in URBEMIS have been removed from the checklist.

86. COMMENT: The Mitigation Checklist needs to be reviewed and modified with input from the development community.

RESPONSE: The District is happy to discuss the checklist with stakeholders.

87. **COMMENT:** Reduction measures such as requiring motorists to abandon vehicles in lieu of intermittent bus scheduling or biking on a 100 degree not appear capable of substantially reducing the amount of smog forming pollutants in our air.

RESPONSE: Any reduction in vehicle use would reduce emissions. URBEMIS accounts for differences in transit service and the quality of the road system to accommodate bicycling. The District is not requiring any on-site mitigation measures, but allowing them to be used. It is the discretion of the developer and the local jurisdiction to require those types of measures.

88. **COMMENT:** Most local jurisdictions are concerned about the mitigation measures being land use and urban design strategies, since these matters are not the District's province. By intending to consider and apply mitigation measures after all other analysis is done, it would appear that the rules would be positioning the District as the ultimate authority on land use and urban design.

RESPONSE: The mitigation measures in the checklist are voluntary. A developer can choose many measures, some measures, or no measures from the checklist. It is up to the local jurisdiction to approve of those measures, in regards to their land use authority. The District expects any design and infrastructure measures must comply with all local development standards and would be included in city/county approved plans and maps. The District has no authority to require that particular measures be included in the project.

89. **COMMENT:** If mixed uses or conjunctive residential and non-residential uses are considered to be a mitigation measure, how will the timing of construction be controlled, since commercial uses tend to postpone construction until the demographics can be analyzed?

RESPONSE: The project will be credited based upon the uses that are planned to be constructed. If the planned uses were changed that would be considered in a subsequent analysis.

90. **COMMENT:** Local land use jurisdictions should be made a party to any mitigation agreements entered with the developer.

RESPONSE: Comment noted.

Off-site Mitigation

91. **COMMENT:** The District has calculated that fees will escalate rapidly and allows for APCO adjustment based on actual costs. This fails the nexus test.

RESPONSE: The District has eliminated the option for APCO discretion to change the fee amount.

92. COMMENT: The District fails to state how the fees will be used.

RESPONSE: The fees will be utilized to purchase emissions reductions through the District's incentive programs.

93. COMMENT: The sequencing of payments does not fit the reality of permitting, financing, and constructing homes.

RESPONSE: The district has provided the option of paying the fees based upon the schedule in the rule, or through a fee deferral agreement with the District. The fee deferral agreement allows the flexibility to collect the fees based upon the project's unique financing situation.

94. COMMENT: The Mitigation Fee Act states that local agencies shall not require the payment of fees until the date of final inspection or the date of certificate of occupancy.

RESPONSE: See response to #64 above.

95. COMMENT: The fee formula needs to be simplified so that there is predictability and a lack of opportunity for controversy.

RESPONSE: The District will develop templates and/or calculators that will allow applicants to easily assess their projects and have predictable outcomes.

96. COMMENT: The impact revenue should be used, first and foremost, within the immediate area of the project that the fees are collected from.

RESPONSE: Fees collected from a project will be spent to mitigate the impacts associated with the particular development project.

97. COMMENT: The district should indicate whether increased district enforcement of existing regulations would be an eligible expenditure of mitigation fees. Air quality improvement would be expected given the responses from the District that its enforcement staff is very limited when apparent violations have been reported.

RESPONSE: The District is not proposing to utilize fees to increase enforcement staff other than staff to enforce the provisions of this rule.

98. **COMMENT:** The fees collected should be used on "traceable" mitigation measures (mitigation must be traced to the activity which the agency approves) as specified in CEQA. Since the proposed rule mainly targets vehicle traffic, traffic synchronization appears to be a logical solution.

RESPONSE: The District proposes to utilize funds for cost-effective emissions reduction projects. The District will track the emissions reductions achieved through the expenditure of fees generated by the rule. If an application for grant funds for traffic synchronization were submitted, the District would assess whether or not it could be funded based on cost-effectiveness and other criteria such as whether the reductions can be verified over time.

99. **COMMENT:** The APCD should develop a Regional Intelligent Transportation Authority (RITA) responsible for regional traffic synchronization, regional transit and intermodal planning, assisting cities with TCM implementation, and integrated collaboration with Caltrans. RITA should be funded by the rule and Section 40605(b) surcharge fees.

RESPONSE: The District will continue to assess opportunities, such as this suggestion, to utilize fees to achieve cost-effective emissions reductions.

100. **COMMENT:** The emissions reduction calculations for off-site mitigation need to calculate the benefit from a new piece of equipment to a less-emitting new piece of equipment.

RESPONSE: There are a variety of incentive programs that the fees can be utilized for. In some cases it is appropriate to compare a base new piece of equipment to less-emitting new piece of equipment. In other cases, where there is useful life left in a piece of equipment, and the equipment is taken out of service, it is appropriate to provide credit for emissions that are eliminated by retiring the old equipment.

101. **COMMENT:** Developers should receive credit for offsite emission reductions created through voluntary implementation of additional mitigation measures applied to previously approved projects. For example, a developer could revegetate or reclaim disturbed surfaces in order to reduce fugitive dust. The developer could then commit these reductions to construction or operational emissions from proposed development projects.

RESPONSE: The District will consider off-site mitigation proposed by a developer on a case-by-case basis. Any mitigation must be surplus and quantifiable.

102. **COMMENT:** We opposed the unilateral authorization to adjust the cost of controls. The APCO should be allowed to adjust the cost of reductions after

providing notice and an opportunity for public comment. We strongly believe that any increase in the mitigation fees should be subject to a cost effectiveness analysis and the approval of any fee increase should be subject to approval by the Governing Board.

RESPONSE: The District has eliminated the APCO discretion to modify fees.

103. COMMENT: It is a concern that the District intends to use these revenues primarily to fund existing programs and activities such as scrapping old vehicles and replacing lawnmowers, rather than to partner more closely with cities and counties to make alternative transportation more accessible and useful. The best use of the money would be to expand/create mass transit systems and alternative transportation routes in the Valley, and to fund measures that reduce traffic volume and relieve traffic congestion.

RESPONSE: The District will consider programs that achieve cost-effective emissions reductions.

104. COMMENT: The District should ensure that the off-site mitigation measures are permanent, as opposed to the short-term benefit of replacing engines. Examples include vanpool systems, incentives for locating affordable housing close to existing job sites.

RESPONSE: While the benefits from the District's incentive programs are credited for a short period of time, the actual reductions from the projects will continue. Additionally, the District has committed a specific tonnage requirement in the short-term to attain the ozone and PM10 attainment deadline of 2010. If the reductions were stretched over an extended period of time the District would not meet its plan goals, or attain the standards. It should also be noted that vanpool systems are currently eligible projects under the REMOVE II incentive program, and would be eligible for funds collected under this rule.

105. COMMENT: The District needs to engage the public, local government, and other agencies to identify the best uses of the funds, and establish a public process and guidelines for determining those best uses.

RESPONSE: Any new incentive program is subject to Governing Board approval, and thus it will be subject to public review.

106. COMMENT: Long-term reductions strategies may appear costly at first, but they can have the largest cumulative emissions avoidance benefits, making them cost effective in the long run. Not only will initial reductions occur, but they will have a self-perpetuating ripple effect of infill and/or redevelopment.

RESPONSE: Cost-effectiveness calculations used by the Moyer Program and the District account for the project life, so long lived projects with low annual reductions may have good cost-effectiveness compared to short lived projects with higher annual reductions. The proposed rule is primarily focused on existing incentive program projects, since they are already established and can demonstrate cost-effective reductions. Upon adoption of the rule, the District will take a closer look at other types of emission reduction projects, and develop incentive program and procedures for viable and cost-effective project types.

107. COMMENT: Similar to an investment portfolio, the District needs to identify a variety of short-, mid- and long-term off-site mitigation strategies.

RESPONSE: See previous response.

Rule 3180

108. COMMENT: If the air impact Assessment Application is done at the same time as the SJVAPCD review of the air impact in a CEQA document, the rule could be a source of funding for the SJVAPCD review of EIR documents.

RESPONSE: It may be possible that some projects that would have been reviewed under CEQA, would now be subject to this rule which requires a more comprehensive look at it. To that end, the District needs to recover any time and materials spent related to this rule.

109. COMMENT: The administrative fee should be reduced initially, and there should be a sunset clause on it once the basic fund is built up to the point that the interest revenue from the funds is sufficient to cover the cost of the program.

RESPONSE: The District will amend the portions of the rule, which is subject to a public review and adoption, if the need arises.

COMMENTS FROM FOCUSED WORKSHOPS HELD ON MARCH 11, 15, 24, 31, 2004

EPA:

1. **COMMENT:** The District should ensure that a "District approved model" is identified by name in the rule and that their use is appropriate based on consultation with EPA and other federal agencies.

   RESPONSE: The rule specifies the District approved model and allows additional models to be approved by the District.

2. **COMMENT:** Section 5.3.2.3 allows the use of the Institute of Transportation Engineers Trip Generation Manual. It is unclear whether this is the same manual that was developed by the Department of Transportation (DOT). We consider the trip generation rates in the DOT manual to be appropriate.

   RESPONSE: The Institute of Transportation Engineers Trip Generation Manual is used by the California Department of Transportation (DOT).

3. **COMMENT:** More specificity is needed for sections: 5.1, 5.3.1.1, 5.3.2.2-4, 5.3.3.6, 5.4.2-3, 5.5, and 5.7.2.2-3, 5.7.3.2

   RESPONSE: Comment noted.

4. **COMMENT:** Section 3.27 defines a "vested project," however; the rule does not specify the process by which a project will be designated as "vested." The rule should indicate what minimum components are required to become a "vested project."

   RESPONSE: "Vested projects" is a relatively standard development procedure in which the developer requests the applicable agency to vest his/her project. If a project is vested, it cannot be liable for future changes in regulations for that agency. In exchange for that status, the applicable agency may require other items or actions of the developer. The procedure for vesting status varies by jurisdiction. The current version of the rule should eliminate the need to specify that process, since vested projects will be treated the same as non vested projects.

5. **COMMENT:** Section 3.25 excludes developments where streets are a portion of the project from the definition of "transportation projects." Rule 9510 should not allow sources to receive credit for road paving associated with new developments, which it appears to allow by this definition and the exemption contained in Section 4.3. The rule should also define those developments where streets are a portion of the project.

RESPONSE: The definition of transportation projects has been modified to exclude projects where the traffic surfaces are a portion of the project. It would be virtually impossible to define developments where the traffic surfaces are a portion of the project, since most developments are designed to accommodate transportation. The emissions from constructing internal roads in a project are included in the construction emissions for the land use and are not considered a transportation project.

6. **COMMENT:** Section 5.5 would be clearer if it stated that the developer shall provide the project information "Upon final local agency discretionary approval."

RESPONSE: Comment noted.

7. **COMMENT:** The District needs to ensure that the level of mitigation that is required under Section 5.1 exceeds the level of mitigation already required under other rules and programs in place, specifically Regulation VIII.

RESPONSE: URBEMIS contains district-specific emission factors, and therefore only the portion of non-regulated emissions will be counted in the estimated project baseline total. The emissions totals contained in Appendix B already have Regulation VIII control subtracted from them.

8. **COMMENT:** In order to ensure consistency between the implementation of this rule and the transportation conformity activities of the MPOs, the District may want to work with these agencies on implementation procedures or additional rule language.

RESPONSE: The District will coordinate with the MPOs.

9. **COMMENT:** Rule 9510 should distinguish the various types of agencies and the various types of permits that would be subject to the rule.

RESPONSE: Many jurisdictions handle permits and projects differently. However, writing a prescriptive rule that identified every kind of project at varying stages of planning would be extremely difficult. To that end, the wording of the current rule meets our needs. If an individual agency had a question regarding their coverage by the rule, the District could make a determination.

10. **COMMENT:** Monitoring programs in Section 5.3.3.6 should be further described for clarity.

RESPONSE: Comment noted.

ARB: No comments.

INDUSTRY/PUBLIC:

Trips

1. **COMMENT:** The proposed program should only regulate new trips and not redirected trips.

RESPONSE: The proposed program has been designed to regulate new sources of emissions.

2. **COMMENT:** Double-counting trips will lead to overestimating and overcharging.

RESPONSE: The proposed program will not be double-counting trips and appropriate modifications have been made to prevent that.

3. **COMMENT:** Trip lengths in URBEMIS are not accurate.

RESPONSE: The trip lengths in URBEMIS are based on data submitted by the local transportation planning agencies. If project specific trip lengths are available, they should be used instead of URBEMIS defaults.

4. **COMMENT:** URBEMIS double-counts reductions from existing rules.

RESPONSE: URBEMIS contains district-specific emission factors, and therefore only the portion of non-regulated emissions will be counted in the estimated project baseline total.

5. **COMMENT:** There are emissions impact from mitigation measures, such as lighting, and increased energy use.

RESPONSE: Any emissions impact from this rule will be considered under CEQA. Emissions from power generation is small in comparison to emissions reduced from vehicles and combustion equipment used at the project site due to emission controls at the power plant and higher efficiency of electrical equipment such as electric lawnmowers.

6. **COMMENT:** There should be a de minimis level of new trips.

   RESPONSE: The rule sets an applicability threshold based upon the emissions from a project.

URBEMIS/Analysis

7. **COMMENT:** URBEMIS is not reliable for establishing a fee schedule.

   RESPONSE: The district maintains that URBEMIS is the right tool for this program. URBEMIS contains district and state specific emissions factors, and is the most widely-used air emissions model in the State of California, and many courts have made decisions based on its output. URBEMIS has also been updated to reflect the state-of-the-science on air mitigation measures.

8. **COMMENT:** Future changes to URBEMIS should be a public process.

   RESPONSE: URBEMIS is owned by all the air districts in the state of California, as well as ARB. The district does not have direct control over whether or not changes to URBEMIS should be public.

9. **COMMENT:** The option of another model should be given.

   RESPONSE: Comment noted.

10. **COMMENT:** Consultants should not be conducting an analysis of the development. There is opportunity for “tweaking” the numbers. It would be more efficient and consistent if the District were to do it.

    RESPONSE: There are adequate safeguards in place to ensure that the District can verify the work of applicant or the applicant’s consultant. Each URBEMIS run creates a document that specifies any changes that were made to default values. The District can then verify any changes with the applicant or the applicant’s consultant.

11. **COMMENT:** The District should use a checklist approach instead of an analysis approach, so that the process is streamlined and there is no fee.

    RESPONSE: Emissions reductions associated with each mitigation measure is dependant upon project specific variables, and therefore cannot be streamlined to a checklist approach.

12. **COMMENT:** There needs to be clear time limits on analyses conducted by the District.

RESPONSE: Comment noted.

13. **COMMENT:** The Expedited Review option sends a mixed message, almost a pay-to-pollute message.

RESPONSE: Comment noted.

14. **COMMENT:** Construction emissions should be addressed, since some projects can take up to 10 years to fully construct.

RESPONSE: Comment noted.

15. **COMMENT:** There should be an appeals section for all analyses.

RESPONSE: Comment noted.

On-Site Mitigation

16. **COMMENT:** The proposed rule would allow the District to indirectly regulate land use at the local level through its required on-site mitigation measures.

RESPONSE: The current draft of rule 9510 gives the developer the option of how to comply with the rule. If certain on-site mitigation measures, such as mixed use development, are not allowed in a jurisdiction, then the developer cannot use that measure. On-site mitigation measures are designed to give the developer the option to reduce the emissions on-site. The developer can choose from a broad range of on-site mitigation measures. Any on-site measures that reduce emissions will reduce the amount emissions that need to be mitigated through fees. This rule does not impinge upon local agency land use authority.

17. **COMMENT:** Some mitigation measures, such as traffic signals or sidewalks, are not put in place for 5-20 years.

RESPONSE: Traffic flow improvements, such as traffic signals, will not be used as a mitigation measure under this program. Sidewalks, if used as a mitigation measure, should be constructed prior to operation of the project.

18. **COMMENT:** Credit should be given for high-density residential projects.

RESPONSE: Comment noted.

19. **COMMENT:** Some of the on-site mitigation measures lack enforceability or may not work.

RESPONSE: The mitigation measures in URBEMIS have been revised to help alleviate that problem. Also, the current version of the rule requires developer and the district will enter into a mitigation agreement that will include provisions for enforcement, in the event that the local jurisdiction does not have enforcement mechanisms in place.

20. **COMMENT:** The fees from this program will overlap with traffic mitigation fees.

RESPONSE: Fees collected for traffic mitigation are primarily aimed alleviating congestion and/or fixing roads. While those items may have an incidental, temporary air benefit, this program intends to directly mitigate emissions from projects. If an activity is conducted or developed, or a mitigation measure is included for traffic mitigation, and it benefits air quality, the assessment/URBEMIS will quantify the air quality benefits.

21. **COMMENT:** There should be a list of mitigation measures so that developers can fast track the process.

RESPONSE: Comment noted. Please see Appendix C.

22. **COMMENT:** The effectiveness of the mitigation measures is unlikely given the climate of the SJVAB.

RESPONSE: The mitigation measures included in the new mitigation component of are based on the most recent research available.

23. **COMMENT:** The district should provide the control efficiencies of the proposed mitigation measures.

RESPONSE: The control efficiencies are contained in Appendix D of this staff report.

24. **COMMENT:** The list of mitigation measures should be open-ended, to allow for new and innovative measures.

RESPONSE: While the District would like to encourage new and innovative mitigation measures, each measure needs to have substantial evidence demonstrating the emissions are in fact reduce because of that measure. The District will consider giving credit to additional mitigation measures as they are proposed.

25. **COMMENT:** The 30-day review time period is excessive given the timelines required by CEQA. It should be 10 days.

RESPONSE: The District will streamline the process where possible**.**

26. **COMMENT:** Title 24 is already being implemented.

RESPONSE: The mitigation measure seeks to take credit for emissions reductions achieved by going above and beyond Title 24.

General

27. **COMMENT:** The program should regulate existing as well as new homebuyers.

RESPONSE: The District is precluded by the Health and Safety Code from charging fees to mitigate existing trips.

28. **COMMENT:** The District should consider an annual fee approach for residential sources.

RESPONSE: Due to provisions of the Health and Safety Code, this approach would be an excessive administrative and enforcement burden.

29. **COMMENT:** Indirect regulations are not the way to go.

RESPONSE: The concept of mitigating the indirect emissions from new development has a long history of being implemented through the California Environmental Quality Act. Likewise, the purpose of this program is to mitigate the impacts of new development.

30. **COMMENT:** Area sources do not generate new vehicle trips.

RESPONSE: The applicability has been changed to reflect new emissions.

31. **COMMENT:** Why is the District focusing on the cleanest developments in the air basin?

RESPONSE: New development is not necessarily the cleanest developments. Depending upon location of the new development, it could be responsible for more vehicle miles traveled and/or trips.

32. **COMMENT:** The District should form a technical advisory committee.

RESPONSE: Comment Noted.

Applicability

33. **COMMENT:** This program should include schools, regional parks, and churches.

RESPONSE: This program will include any new development that is estimated to emit equal to or more than the threshold where indirect sources are the primary source of emissions from the project.

34. **COMMENT:** The current wording of Section 2.0 would include projects that come to the District for an Authority to Construct. Is it the District's intent to include those projects?

RESPONSE: It was not the original intent. The exemptions have been expanded to exempt projects where stationary sources of emissions from a development are the primary source of emissions.

35. **COMMENT:** The current wording of Section 2.0 would exclude State projects, because they do not have to apply for or obtain development permits.

RESPONSE: The new wording should include state projects.

Exemptions

36. **COMMENT:** Low-income housing should not be exempt because 1) residents tend to drive older, more polluting vehicles, 2) there are higher concentrations of people, and 3) those residents can benefit from alternate forms of transportation.

RESPONSE: Comment noted. There is no exemption for low-income housing in the current version of the rule.

37. **COMMENT:** If there is not an exemption for low-income housing with a broader scope, many contractors will go out of business.

RESPONSE: Comment noted.

38. **COMMENT:** Structures that are required to obtain a Permit to Operate (PTO) should be exempt from the rule.

RESPONSE: See response to comment #34.

39. **COMMENT:** Infill projects, schools, public parks, and other public facilities should be exempt.

RESPONSE: See response to comment #33.

40. **COMMENT:** General plans, specific plans, and community plans should be exempt from the rule.

RESPONSE: The rule applies to the last discretionary approval for a project.

Nexus

41. **COMMENT:** The Nexus should identify the benefits of the program.

RESPONSE: As with all District rule, an analysis of the emissions reduction associated with the rule has been developed.

Misc.

42. **COMMENT:** The rule should not distinguish between ministerial and discretionary projects.

RESPONSE: Many jurisdictions handle discretionary and ministerial differently. However, writing a prescriptive rule that identified every kind of project at varying stages of planning would extremely difficult.

43. **COMMENT:** Local agencies may use the Mitigation Agreement as a tool to hinder mitigation for projects.

RESPONSE: Local agencies may disapprove of measures in a Mitigation Agreement due to health, safety, and welfare reasons. For example, if a bus bulb was desired, but the bulb interferes with a pedestrian element, it might be a legitimate cause for disapproval.

44. **COMMENT:** How will the Bakersfield Metropolitan Project be addressed?

RESPONSE: That project will be handled separately through a “task force.”

45. **COMMENT:** How will overlap with CEQA be handled?

RESPONSE: This rule may meet many of the air-related CEQA issues for development in this air basin. The Guidelines for Assessing and Mitigating the Air Quality Impacts (GAMAQI) document will be revised and adopted prior to implementation of the program, and will explicitly define how the district interprets this program in relation to CEQA.

46. **COMMENT:** The socioeconomic analysis should look at the per unit cost differential between a home built in a large residential development and a home built on a smaller development.

RESPONSE: Comment noted.

47. **COMMENT:** The socioeconomic analysis should consider the costs of health if the program was not implemented.

RESPONSE: The socioeconomic analysis is an analysis that is mandated by the Health and Safety Code. That portion of the cost does not require a health benefit analysis. That type of analysis is better handled at the plan stage when demonstrating attainment of a health based standard.

48. **COMMENT:** There should be a clause in the rule that protects developers from later changes of the rule, similar to the Safe Harbor clause in habitat regulations.

RESPONSE: Any potential changes to District rules go through a public process. Any discussion of exemptions to rules or changes to rules should be handled through that process.

49. **COMMENT:** There should not be an administrative fee as well.

RESPONSE: An administrative fee is imperative to recover the districts costs associated with administering this program.

50. **COMMENT:** There should be a broader spectrum of stakeholders involved.

RESPONSE: Notices are distributed via newspapers in all eight counties and published on the district's website. Whether or not portions of the public choose to become involved is up to them.

51. **COMMENT:** The draft rule is silent on enforcement mechanisms. How will this be enforced?

RESPONSE: Any on-site mitigation measures included in the design of the project will be identified in a mitigation checklist. Those measures that do not have an enforcement mechanism through the local agency will be subject to a mitigation agreement between the district and the developer. That agreement will identify those measures and their enforcement.

52. **COMMENT:** The proposed certified mitigation program to be administered by local agencies is impractical.

RESPONSE: Comment noted.

Off-Site Mitigation

53. **COMMENT:** Section 5.8 should allow local jurisdictions to use the fees collected because they may know of local opportunities.

RESPONSE: The District will consider local projects when allocating any fees collected through this program.

54. **COMMENT:** Section 5.8 needs to be more specific.

RESPONSE: Comment noted.

55. **COMMENT:** There should be an appeals section for the expenditure of fees.

RESPONSE: See response to comment #15.

56. **COMMENT:** A process for fee reimbursement should be provided if emissions reductions are not achieved.

RESPONSE: Comment noted.

57. **COMMENT:** There needs to be a mechanism in place to expand off-site projects.

RESPONSE: Comment noted.

58. **COMMENT:** Fee expenditures should be located in the jurisdiction of origination.

RESPONSE: Fee expenditures will be located in a manner that will mitigate the emissions impact from the project.

59. **COMMENT:** All fleets should have the opportunity to obtain grants.

RESPONSE: The district is currently drafting a fleet grant program. Any fleet that submits a cost-effect project consistent with the District's guidelines will be eligible to receive funds.

60. **COMMENT:** There should be an appeals section for all project types, not just the Complete Analysis.

RESPONSE: See response to comment #15.

61. **COMMENT:** The grant programs should focus on diesel and smoking vehicles.

RESPONSE: The grant programs will focus on getting the most cost effective emissions reduction.

62. **COMMENT:** There should not be a limitation on spending the fees on research.

RESPONSE: The district needs to obtain immediate and quantifiable emissions reduction. Research does not meet the district objectives for this program.

63. **COMMENT:** The fees should go towards traffic congestion mitigation.

RESPONSE: The purpose of the program is to mitigate the impacts of development on air quality. While traffic congestion may be a part of the air quality problem, there are already traffic congestion fees in some jurisdictions. Also, traffic congestion mitigation is a temporary fix to the air quality problem. Studies have shown that increasing traffic flow increases capacity, and more capacity attracts more traffic.

COMMENTS FROM SCOPING MEETINGS HELD ON OCTOBER 7 - 9, 2003

EPA: None received.

ARB: None received.

INDUSTRY:

1. **COMMENT:** Public input and oversight should be built into the process.

   RESPONSE: The District intends to provide periodic reports to the District Governing Board that will be available to the public that will enable public oversight. The development of the indirect source rules will be conducted in an open public process that allows for public input at every stage.

2. **COMMENT:** The fee structure implemented should be a Mello-Roos based fee requiring an annual payment by the owner of record.

   RESPONSE: The DESIGN program is designed to reduce the impact that new development has on the growth in emissions. The program gives credit to projects based upon design features that are incorporated into a project to reduce emissions. Any fees charged are utilized to make up the gap between mitigation measures incorporated in the project and a 50% reduction in emissions. This type of program would not be appropriate for a Mello-Roos based program.

3. **COMMENT:** This program should be handled similarly to that of the school district fees.

   RESPONSE: The calculation and collection of school fees is relatively simple compared to calculating air quality impacts of the project. The proposed program gives the opportunity for a project applicant to incorporate design measures that could potentially reduce emissions over the life of that project. This means that each project may need its own determination of emissions after on-site mitigation have been accounted for to calculate the appropriate fee amount.

4. **COMMENT:** How will the indirect source fee's impact on air pollution be measured and monitored?

RESPONSE: Projects funded with indirect source fees will have annual reporting requirements that will demonstrate that the emissions claimed are being achieved. The District will physically inspect all projects to ensure that the project is accomplished as claimed by the applicant for the funds and will credit those reductions in the appropriate attainment plans and progress reports.

5. COMMENT: What provisions will be made for repealing the fee if it is enacted but is not effective at reducing air pollution from automobiles?

RESPONSE: The emission reductions achieved from any fee collected will be subject to reporting and monitoring requirements. All projects that are based on retrofit or replacement of old technology with new technology must use equipment/devices that are emission certified or verified by the California Air Resource Board (ARB) and so are proven effective. The District will consider a periodic review of the entire program to ensure that the anticipated emissions reductions have in fact occurred. District staff would then present the results of the review and a recommendation to the governing board.

6. COMMENT: An indirect source fee will act as a disincentive for homebuyers to help clean the air by purchasing a new home.

RESPONSE: The decision to purchase a new home is influenced by a number of factors. If a subdivision incorporates on-site mitigation measures that reduce trips and area source emissions, which would lessen the fee amount and add value to the development, there may be more of an incentive to purchase a new home.

7. COMMENT: If fees are to be charged based on automobile usage, all development, not just new development, should be charged.

RESPONSE: The purpose of the program is to reduce the emissions associated with new development. The District prefers a preventative approach. One of the key features of the DESIGN program is to incorporate mitigation measures on-site, which will reduce emissions over the life of the development. This is possible during the design of new projects. It would not be feasible to "retrofit" existing homes and development; accordingly, they would probably pay 100% of the fee amount.

8. COMMENT: Infill developments with special measures incorporated into their design should receive a credit from this program.

RESPONSE: The reductions achieved by the DESIGN program are a combination of on-site design elements and off-site emissions reductions that are achieved by buying emissions reductions with fees to make up any shortfall

in on-site mitigation. In-fill projects that incorporate design features that reduce the emissions associated with the project will be given credit for those reductions and will reduce their potential fee amount.

9. **COMMENT:** Fees should be roughly proportional to the number of trips generated by that land use, as directed by the U.S. Supreme Court in the case of Nollan v. California Coastal Commission (1987) and Dolan v. City of Tigard (1994).

RESPONSE: The District expects any fee collected under this rule to meet this condition. The fee formula is based upon the emissions associated with the project.

10. **COMMENT:** The District needs to demonstrate how assessing a fee on land development will mitigate air pollution from automobiles.

RESPONSE: The purpose of the program is to mitigate the emissions associated with new development through on-site mitigations and potential fees. The District will outline the Nexus between any potential fees charged and the projects that they are mitigating.

11. **COMMENT:** Fees should be collected no earlier than at the final inspection or certificate of occupancy and paid at close of escrow, when the calculated emissions would actually begin.

RESPONSE: The fees need to be collected early enough to achieve emissions reductions prior to occupancy. Collecting the fee at occupancy would not provide adequate time to achieve the necessary emissions reductions prior to occupancy. Additionally, not all local agencies within the SJVAB have a Certificate of Occupancy permit for all uses, which would make enforcement of proposed requirements difficult. The proposed Rule 3180 may include the option for a Fee Deferral Agreement, which will operate under the capabilities of the local agency involved.

12. **COMMENT:** Fees should be collected at close of escrow, so <u>all</u> homebuyers are charged. This will lower the fee and generate funding at a much quicker rate.

RESPONSE: Please see Response #7.

13. **COMMENT:** Funds generated should be restricted for use in the jurisdiction where they were generated and should be restricted to uses that relate directly to whichever land use is paying the fee.

RESPONSE: The District will utilize any fees collected to mitigation the impact of the emissions associated with the projects that paid the fees.

14. **COMMENT:** Funds should be collected by the local agency at the building permit stage, and that local agency should utilize the funds for emission reduction activities. The local agency would then provide periodic reports to the District.

RESPONSE: The District has over 10 years of experience managing projects that reduce emissions. Providing training and oversight to all jurisdictions within the SJVAB, to ensure proper use of the funds and track emissions reductions would be time-consuming. Also, the District wants to ensure that existing local agency funds are not replaced with indirect source funds to pay for a project that would have occurred anyways. In order to utilize the funds generated in the most efficient and consistent manner, the District has proposed to manage the funds collected.

15. **COMMENT:** Consideration should be given to projects with low-cost housing or in economically depressed areas.

RESPONSE: The District will consider potential exemptions during the rule development process. On-site measures that enable people to use alternatives to the automobile for their personal transportation needs are very important in low-income areas.

16. **COMMENT:** Several jurisdictions already have fees for the purpose of reducing traffic congestion and automobile emissions that it creates. There should not be another fee that accomplishes the same purpose.

RESPONSE: The District will calculate the benefit of mitigation that is included in the project. If existing fees result in real, quantifiable, surplus emissions reductions the District will credit those reductions to the project.

17. **COMMENT:** There may be some overlap with conformity analyses. This needs to be addressed.

RESPONSE: Emission reductions from the indirect source program are reflected in the motor vehicle conformity budgets in the PM10 Plan. When budgets are set for the next ozone plan, they will also reflect emission reduction estimates. Conformity analysis done for individual transportation projects could take into account changes in trip generation rates and VMT resulting from mitigation incorporated by new development when determining if the transportation project will result in a decrease or increase in emissions. However, the transportation models may not provide the level of detail that would enable the user to provide input for individual development projects.

18. **COMMENT:** How will final build out versus phasing be addressed?

RESPONSE: That issue will be discussed at length during the Administrative Procedures focused workshop.

19. COMMENT: The applicant should assume the responsibility of interacting with the District.

RESPONSE: The District has incorporated this suggestion into the rule language.

20. COMMENT: Fees collected through this program should not fund projects that would have otherwise occurred.

RESPONSE: The District agrees that these projects not be funded. The District will take suggestions on how to prevent that.

21. COMMENT: The computed fee should be increased by 25% or more to fund projects that would improve our air, instead of just offsetting emissions.

RESPONSE: The DESIGN Program is being developed to ensure that any fees will meet the nexus standard. Thus, the fee cannot be set "above" the anticipated emissions.

22. COMMENT: Double counting should be addressed.

RESPONSE: The District is limiting the mitigation associated with the project to 50% of the projects base year emissions. This eliminates any potential double counting.

23. COMMENT: Funds should not be spent on public education processes or research type activities, but on projects where emissions reductions are quantifiable.

RESPONSE: It is mandatory that all projects funded will result in real and quantifiable emissions reductions. The specific policies on how the funds will be spent will be included in the draft staff report at the final workshop.

24. COMMENT: A grant-like program could potentially result in large amounts of fees collected with no projects being implemented. An expenditure program managed by the District and/or the Councils of Governments (COGs) should be developed.

RESPONSE: The District is currently formulating how the funds will be spent.

25. **COMMENT:** The District should clearly explain the relationship between the reductions from this program to the CEQA threshold discussions in the District's Guide to Assessing and Mitigating Air Quality Impacts (GAMAQI). The GAMAQI should be used as an implementation tool for this rulemaking project and it should be updated to provide consistent direction on the preparation of environmental documents.

RESPONSE: The District will calculate emissions for each project based on mitigation measures included in the project. If a project has agreed to mitigation measures as part of CEQA, then those measures will be reflected in the emission calculation. It is anticipated that the GAMAQI will be revised after the rules are adopted to show the relationship between the rules and CEQA.

26. **COMMENT:** Construction emissions should be included in the emissions total, and hence, subject to a fee.

RESPONSE: The District intends to include mitigation for construction emissions in the formula.

27. **COMMENT:** It is likely that mitigation fees will be used to fund the most cost-effective projects first. Thus, as time goes on, costs associated with pollution reduction projects will probably rise. The schedule of fees should be subject to upwards revisions based on this contingency.

RESPONSE: The types of projects available for funding are not static. The District has analyzed the types of projects that it anticipates will be available in the near future and has adjusted the cost-effective factor appropriately for future years.

APPENDIX B

Emissions Reduction Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Indirect Source Review)

December 15, 2005

EMISSION REDUCTION ANALYSIS FOR RULE 9510 (Indirect Source Review)

I. INTRODUCTION

Both the 2003 PM10 Plan and the Extreme Ozone Attainment Demonstration Plan, contain emissions reduction commitments for proposed Rule 9510 of 4.1 tons per day of NOx and 5.2 tons per day of PM10 to be achieved by 2010. Those estimates were based on assumptions at the time and are commitments that are necessary to assist the district in meeting the federal and state PM10 and ozone standards. This appendix contains emissions and emissions reduction estimates that update those original estimates.

II. BASELINE EMISSIONS

A. Sources of Emissions from New Development

It is generally accepted in both air quality and transportation planning, as well as in case law that new emissions occur from new development. The construction of new structures is undertaken in order to accommodate the growth in population of a particular area. With the projected growth and development in the San Joaquin Valley Air Basin (SJVAB), there will also be a corresponding growth in emissions from energy usage, landscape maintenance equipment, wood combustion, motor vehicles, and entrained dust from paved and unpaved roads.

Energy Usage

Emissions associated with energy usage from new development primarily occur from two different sources, electricity generation and fuel combustion. NOx and PM10 emissions result from using space heating, water heating, cooking, and from other miscellaneous electrical appliances/equipment. ARB estimates fuel combustion emissions from natural gas, distillate oil or LPG, using EPA emission factors, and gas sales.[1] Emissions attributed to use of electricity generated at power plants are not easily quantified due to the variety of sources that supply electricity, which are located in and out of the basin and the state. Therefore, electrical generation emissions associated with new development will not be quantified or addressed for this program.

1 Air Resources Board, Emissions Inventory Procedural Manual, Vol. III, Methods for Assessing Area Source Emissions, October 1997 with revisions through November 1998, section 7.2-7.3.

Landscape maintenance equipment

Landscape maintenance equipment generates NOx and PM10 emissions from fuel combustion (gasoline, diesel, or LPG or CNG) and from evaporation of unused fuel. Equipment in this category can include leaf blowers, lawn mowers, trimmers, edgers, chainsaws, chippers, etc. ARB uses the OFF-ROAD model to estimate PM10 and NOx emissions using population, activity duration, and emission factors.[2] URBEMIS uses OFF-ROAD results and quantifies emissions by the number of homes and business units.[3] Based on District analysis, the growth in NOx and PM10 emissions from residential landscape maintenance equipment is relatively small, 15 tons per year, despite a projected increase of nearly 1.8 million pieces of residential landscape equipment in the SJVAB. The primary reason for the small emissions increase is that the new equipment is significantly cleaner than the older equipment.

Wood Combustion

Residential wood combustion emissions of PM10 and NOx come from burning wood or similar materials inside fireplaces, wood stoves and inserts. ARB estimates emissions totals using the following factors: tons of wood used per house, BTU rating per cord, number of houses, fraction of active wood combustion devices, average number of days burned per house, and other representative factors.[4] The recent amendment to Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) will reduce a significant portion of emissions from those devices. Rule 4901 contains limits on wood combustion devices in new development, however, it still allows new devices in a development of a certain size or larger. Therefore, reductions from this category can still occur if the development can still install those devices and chooses not to.

Motor Vehicle Emissions

Motor vehicle emissions is the largest category of emissions attributed to new development. The inventory includes estimates of exhaust and evaporative VOCs, NOx, and PM10 associated with exhaust, tire wear and brake wear. On-road motor vehicles account for approximately 43% of the entire NOx inventory for 2002.[5] ARB estimates emissions from on-road vehicles using the EMFAC2002 model, which uses emission factors, vehicle numbers and vehicle activity. Emission rates are derived primarily from direct testing by the state or EPA. Vehicle population and vehicle age data are obtained from the Department of Motor Vehicles (DMV). Travel activity, which includes vehicle miles traveled (VMT), distribution of VMT by speed, the number of trips taken per vehicle each day, are provided by the California Department of Transportation

2 Staff report for Public Meeting to Consider Approval of the California Small Off-road engine emissions inventory, http://www.arb.ca.gov/msei/off-road/pubs/sore_final.doc

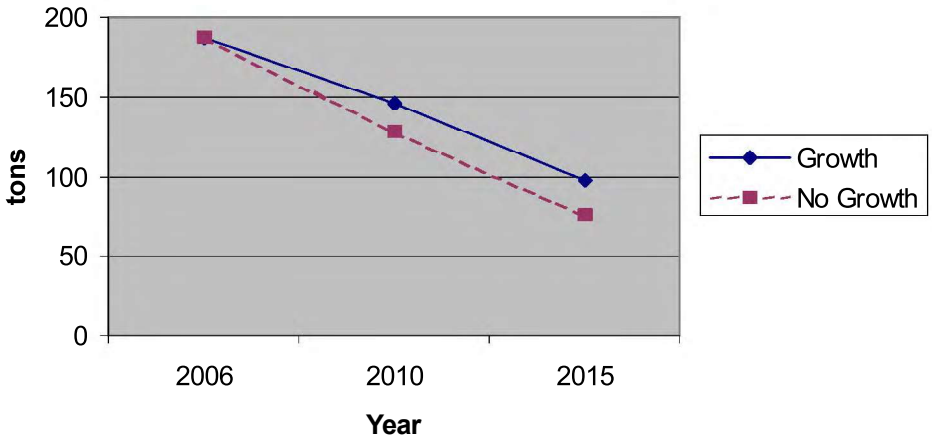
3 URBEMIS2002 Users' Guide, Version 7.4, May 2003, Appendix B.

4 Air Resources Board, Emissions Inventory Procedural Manual, Vol. III, Methods for Assessing Area Source Emissions, October 1997 with revisions through November 1998, section 7.1.

5 2003 PM10 Plan, Chapter 3, NOx Emissions Inventory

(Caltrans), local Metropolitan Planning Organizations (MPOs), local Councils of Governments (COGs), and fleet monitoring.[6] URBEMIS quantifies vehicle emissions attributed to a particular development based on the emission factors and vehicle activity found in EMFAC2002, in combination with project specific data. While the motor vehicle emissions inventory in both the PM10 and ozone plans show that vehicle emissions are declining, emissions would have declined even more if growth were not to occur, thus hampering the ability of the region to reach attainment of the PM10 and ozone standards. The following chart shows the emissions from all motor vehicles for the current population if it would have remained constant (No-Growth), and the emissions from vehicles for the projected population as reported in the 2003 PM10 Plan emissions inventory (Growth). Based on an analysis performed by ARB using EMFAC2002, which can be found in Attachment 1, the difference is an estimated 17.3 tons per day of NOx attributed to projected increase in growth in the SJVAB between 2006 and 2010.

Figure 1
Difference in NOx Emissions for All Vehicle Types



Re-entrained Road Dust

PM10 emissions from road dust occur by vehicles driving on unpaved roads, or by vehicles entraining or re-entraining dust on paved roads. ARB estimates PM10 emissions by using the following factors for different road types: silt loading on roads, vehicle weight, and VMT traveled. The majority of new development occurs on or creates new paved roads, however, some development in rural areas still use unpaved roads. Unpaved road emissions are estimated by using an emission factor and total VMT traveled.[7]

6 Overview of the On-Road Emissions Inventory, http://www.arb.ca.gov/msei/on-road/briefs/emfac6.pdf

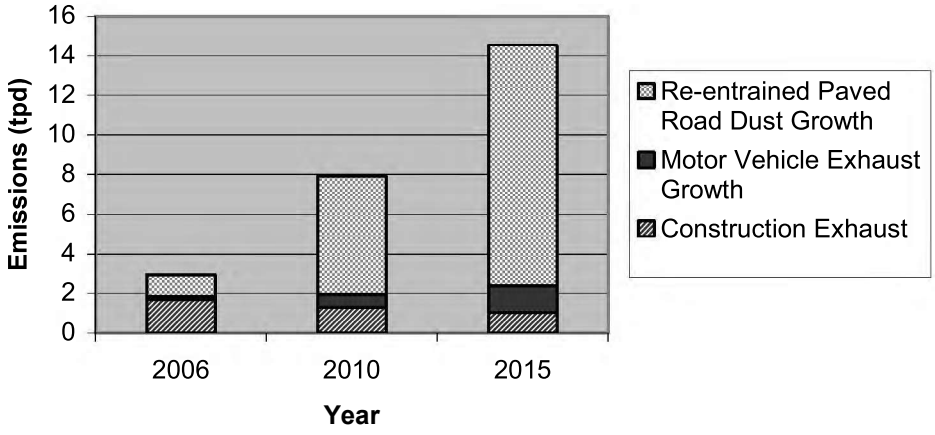
7 Air Resources Board, Emissions Inventory Procedural Manual, Vol. III, Methods for Assessing Area Source Emissions, October 1997 with revisions through November 1998, section 7.9-7.10.

Construction

This category of emissions differ slightly from the others, since all emissions from construction are due to new development, regardless of growth in the category. Emissions associated with construction activities occur for the purpose of building residential, commercial, industrial, institutional, or governmental structures. Emissions result predominantly from equipment associated with site preparation work, which may include scraping, grading, loading, digging, compacting, and other operations. ARB estimates construction emissions by utilizing a computer model called OFF-ROAD. The construction emissions in the OFF-ROAD model are estimated using the population, activity, and fuel usage of the varied types of construction equipment.

The following figure demonstrates PM10 emissions and emissions growth from construction equipment, re-entrained paved road dust, and vehicle exhaust associated with new development.

Figure 2
PM10 Emissions from Development



B. Projected Emissions from New Development

The following table illustrates the projected growth in emissions, as can be discerned from the emissions inventory:

Total Emissions Attributed to Land Use Growth in the SJVAB in 2010

NOx

Emissions Category	Emissions from Growth In 2010 (tpd)	Emissions from Growth during 2006-2010 (tpd)
On-road Vehicles[A]	2.2	17.3
Construction Equipment[C]	21.3	21.3
Total NOx	**23.5**	**137.8**

PM10

Construction Equipment[C]	1.4	1.4
On-road Vehicles[A]	0.2	0.6
Paved Road Dust[B]	1.1	5.2
Total PM10	**2.7**	**13.4**

A. Emissions Growth between 2006 and 2010 was estimated based on an ARB EMFAC 2002 version 2.2 run, dated June 10, 2005 (Attachment 1). This will be revised to obtain a total for 2006.

B. 2003 PM10 Plan emissions inventory

C. ARB Emission Inventory for 2010

It should be noted that some sources of emissions from new development are not included in the above table for several reasons. While there may be difficulties in assessing what portions of the emissions inventory are resulting from new growth, there are new emissions from growth occurring. Therefore, the above table represents a conservative estimate of what will occur, and does not overestimate. Therefore, any reductions applied to the emissions outlined in the above table will represent a conservative estimate of actual reductions resulting from this program.

III. EMISSIONS REDUCTION OPTIONS FOR NEW DEVELOPMENT

A. On-site Project-Specific Emissions Reductions

On-site mitigation measures and their corresponding emission reduction methodologies were developed by Nelson/Nygaard and put into URBEMIS. The following discussion lists measures/conditions, if implemented that would result in emissions reductions from a development project. The maximum percent reduction is in general terms. The actual reduction relies on project specific information and factors, and how the mitigation measure is used in combination with other measures.

Increase Energy Efficiency Beyond Title 24

This measure would reduce emissions by decreasing the amount of natural gas that is needed and in turn combusted for a particular development. Examples of how this could be achieved include: using insulation in the attic and walls, insulating ductwork, using whole house fans, double-paned and/or high performance glazed windows, maximizing the use of natural lighting, installing EnergyStar appliances, orienting the

building north or south to utilize passive heating and cooling, designing the building to maximize natural ventilation, or any number of other items that would decrease the use of natural gas, and therefore decrease emissions. The emissions reductions associated with this mitigation measure in URBEMIS would require a quantification of the % reduction beyond what is already required by Title 24 as determined by a computer model developed for Title 24 purposes.

Electrical landscape maintenance equipment

This measure would reduce emissions by eliminating some or all of the combustion of gasoline or diesel in standard landscape equipment by replacing it with equipment that relies on batteries, an electrical outlet, or manually-powered equipment. Emissions reductions are quantified by using the % of the development that would use non-combustion powered equipment.

Hearth

This measure would reduce emissions by eliminating construction of a wood combustion device that would have otherwise been allowed under Rule 4901.

Net Residential Density

Emissions reductions from this measure would occur when an individual from a particular residential use forgoes the use of the automobile and uses an alternate form of transportation. A considerable volume of research has investigated the links between density and travel behavior and has determined that there is a significant and quantifiable relationship between residential density and automobile use. Three key studies of travel behavior and density itself have identified elasticities, which has been used to develop a formula to determine the reduction in vehicle trips and vehicle miles traveled, and the corresponding emissions reductions. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 55%.

Mix of Uses

Emissions reductions from this measure would occur when an individual forgoes the use of the automobile and uses other forms of transportation. Research has shown that there is an impact of diversity or mix of uses on travel behavior, which can occur at the macro-scale, such as jobs-housing balance. Numerous studies of travel behavior and mix of uses have identified elasticities, which has been used to develop a formula to determine the reduction in vehicle trips and vehicle miles traveled, and the corresponding emissions reductions. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 9%.

Local Serving Retail

Emissions reductions from this measure occur when an individual forgoes the use of the automobile, since the proximity of the retail encourages other forms of transportation. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 2%.

Transit Service

Emissions reductions from this measure would occur when an individual forgoes the use of the automobile and uses transit. Transit choices could include buses, light rail, dedicated shuttles, and trolleys. Since emissions from transit services already exist, the elimination of trip(s) from the automobile would result in emissions reductions. URBEMIS determines emissions reductions from transit use based on a Transit Service Index, which is based on the latest California-specific research on transit use. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 15%.

Bicycle and Pedestrian Facilities

Emissions reductions from this measure would when an individual forgoes the use of the automobile and uses a bicycle or walks. Since the use of a bicycle or the action of walking does not emit emissions, the elimination of trip(s) from the automobile would result in emissions reductions. URBEMIS determines emissions reductions from bicycle use and pedestrian activities based on quantitative values of network density, sidewalk completeness and bike lane completeness. The maximum reduction in trips/VMT and resulting emissions that may occur from this measure is calculated to be 9%.

Affordable Housing/Senior Housing/ Assisted Living

This measure would reduce emissions by designating residential units as deed-restricted below-market-rate (BMR) housing. Research has shown that lower-income households and senior citizens own fewer vehicles and drive less. By designating residential units as deed-restricted BMR, only lower-income individuals that use the automobile less would occupy those units, which would result in lower emissions due to less automobile use. The maximum reduction in trips/VMT and resulting emissions and resulting emissions that may occur from this measure is calculated to be 4%.

Transportation Demand Management Programs

TDM Programs can include free transit passes, parking restrictions and telecommuting. Emissions reductions from this measure would occur when a landlord provides an incentive, such as transit passes, to individual(s), who then forgoes the use of the automobile and uses transit. These programs provide an incentive for the individual(s) to use the transit, and studies have show that these programs both increase transit ridership and reduce vehicle trips. The maximum reduction in trips/VMT and resulting emissions and resulting emissions that can be achieved under this measure is 25%.

Fleet Modifications

Reductions from this measure occur when a fleet owner makes vehicle specific modifications or agrees to purchase and/or use only vehicles with controls, such as a particulate filters or catalysts. There are numerous options available. The maximum reduction in emissions that can be achieved under this measure varies by control option.

It is important to note that many of the mitigation listed above requires a change in travel behavior of an individual in order for the emissions reductions to occur. It is not guaranteed that the mitigation measures will be successful at changing travel behavior to the exact amount as calculated, however, it represents the best estimate/projection of what will occur based on the most recent research conducted on existing travel behavior to date.

B. Off-site Emissions Reductions

In the event that the emissions impact of a particular project is not fully mitigated on site a proportional fee will be assessed and collected for the NOx and PM10 emissions not mitigated. The fees collected would be placed into a mitigation fund for each pollutant and county, and expended on projects that reduce emissions of that pollutant in that county, utilizing a grant-like program. The district has over eleven years experience with grant programs designed to reduce primarily NOx, and some VOC. Each grant program has had strict guidelines on emissions reductions, qualifying equipment, and the related administration of the program. Based on that experience, the District has decided that a grant program would provide the most cost-effective emissions reductions for the money that will be collected.

The District has employed the California Air Resources Board (ARB) and the California Department of Transportation document "*Methods to Find the Cost Effectiveness of Funding Air Quality Projects"* for finding the cost effectiveness and emission reduction benefits for a wide variety of emission reduction projects. This document can also be accessed through an associated on-line database. The methods described are generally accepted and include: a list of information needed to calculate cost effectiveness, emission factors, project life, defaults that may be used when project-specific data is not available (assumptions) and formulas to calculate vehicle emission reductions for three major pollutants, NOx, PM10, and VOC's. Many of those methods were used to develop the grant programs that could be funded under this program.

The most successful District grant program has been the Heavy-Duty Engine Incentive Program. This program replaces older model high polluting engines with newer and cleaner burning engines. Eligible project types funded under the heavy-duty program include, but are not limited to: on-road and off road vehicles and equipment, agricultural pump engines, marine vessels, forklifts, truck stop electrification technology, and school bus projects.

The Voluntary Accelerated Vehicle Retirement (Scrap) Program is designed to accelerate the voluntary retirement of older, higher polluting passenger vehicles. Monetary incentives are provided to individuals who agree to scrap their high polluting passenger vehicles. Ideally, this incentive money will help them purchase newer vehicles with cleaner burning engines.

The Light and Medium Duty Vehicle Incentive Program is designed to encourage the purchase and use of cleaner engine technology for passenger vehicles. To be eligible under the program, the light and medium duty vehicles must be powered by natural gas, electricity, fuel cells, or gasoline-electric hybrid technology.

The Carl Moyer Program provides incentive funds for significant near-term reductions in NOx. Eligible project types under the Carl Moyer Program include: new alternative fuel vehicle projects, on and off-road vehicle engine replacement projects, agricultural pump engine replacements, locomotive engine replacements, marine vessels, forklifts, and airport ground support equipment engine replacements. Projects are funded based on cost effectiveness, utilizing criteria developed by the state in coordination with the air districts and the statewide Incentive Program Implementation Team (IPI).

In addition to the sources listed above, the District receives grant funds from other state and federal funding sources including: the State's Lower Emission School Bus Program, Peaker Plant Offset funds, and the State's NOx and PM Program funds.

IV. EMISSIONS REDUCTION OPTIONS FOR CONSTRUCTION

Construction PM10 emissions can be mitigated in numerous ways. The following discussion lists measures/conditions, if implemented that would result in emissions reductions from construction activities. The percent reduction identified was based on the URBEMIS2002 Users' Guide.

A. On-site Reduction Options

There are several on-site construction emissions reductions available. The following lists the current mitigation measures that reduce PM10 and NOx. There is a statewide effort to update the construction portion of URBEMIS, so there may be more mitigation measures identified that are not included in this appendix.

Equipment Exhaust Control

There are several options available for controlling NOx and PM10 emissions from equipment used for construction. Options can include, purchasing newer equipment, altering fuel usage, modifying an engine, using exhaust after-treatments, or renting equipment that help meet the rule requirements. New equipment can provide a high percentage of emissions reductions, depending on the horsepower and the year of the equipment. Reductions that can occur from using newer equipment reductions range from 8-62% for PM10, and 20-38% for NOx. Different fuels are available for use that would reduce emissions from construction equipment. Ultra-low sulfur diesel can achieve a 5-9% reduction in PM10. Alternative diesel fuels can achieve 5-16% reduction in NOx and a 40-63% reduction in PM10. Diesel oxidation catalysts can reduce PM10 by 25-50%. Diesel particulate filters can reduce PM10 by 85%. Selective Catalytic Reduction can reduce NOx by 80% and PM10 by 25%.

Worker Commute Trip Reductions

This measure would entail using a shuttle to take construction workers to a retail establishment for lunch. This would eliminate numerous trips, which would reduce vehicle exhaust, and entrained and/or re-entrained road dust. The maximum PM10 reduction from this measure is 1.3%.

B. Off-site Reduction Options

Since any fees collected will reduce construction emissions off-site, the same emissions reduction options listed in section III above apply.

V. PROJECT-SPECIFIC EMISSIONS REDUCTIONS

Each development project, subject to Rule 9510, will have an assessment of the project performed. The assessment will include an APCO-approved model run that identifies the project or project phase baseline emissions and the emissions reduction resulting from on-site mitigation measures. The remaining emissions will be quantified and will fund emissions reduction project(s), using the fee formulas identified below.

Area and Operational NOx Fee Formula

The NOx fee formula must identify the total tonnage of mitigation required, subtract the tonnage mitigated on-site, and multiply the remaining tonnage by the cost of reductions in order to determine the cost to reduce emissions off-site.

Figure 3

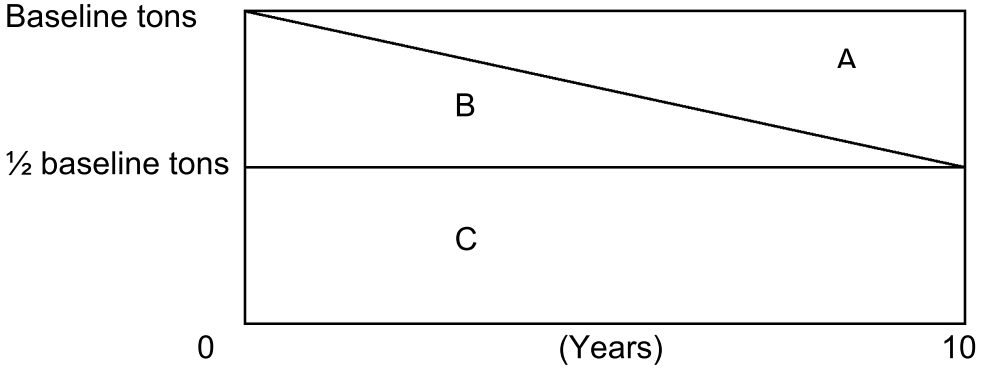


Figure 3 represents a development project's NOx emissions over a period of ten years. Section A represents the emissions reductions projected to be achieved from ARB's tailpipe control, which is 25% of the total project's 10 years emissions. The remaining 75% is the project's estimated NOx emissions for ten years. The mitigation required by Rule 9510 is represented by the triangle B, which equal to a third of the non-A section. Thus, the total tonnage of mitigation required can be identified as follows:

$$\frac{\text{Estimated Baseline Emissions (tons) x 10 years x 75\%}}{3}$$

which is equal to:

$$\text{EBE (tons) x 2.5}$$

The next step is to subtract the percent reduction achieved from on-site mitigation measures. This is determined by using the estimated baseline emissions over ten years and applying the percent mitigation, as follows:

$$\text{Estimated Baseline Emissions (tons) x 10 years x 75\% x Actual \% Mitigation} = \text{EBE x 7.5 x APM}$$

Thus,

$$\text{(EBE x 2.5) - (EBE x 7.5 x APM)}$$

determines the total emissions remaining to mitigate off-site. That number then needs to multiplied by dollars per ton, in order to determine total dollars required to mitigation emissions off-site. The resulting NOx Air Impact Mitigation Fee is as follows:

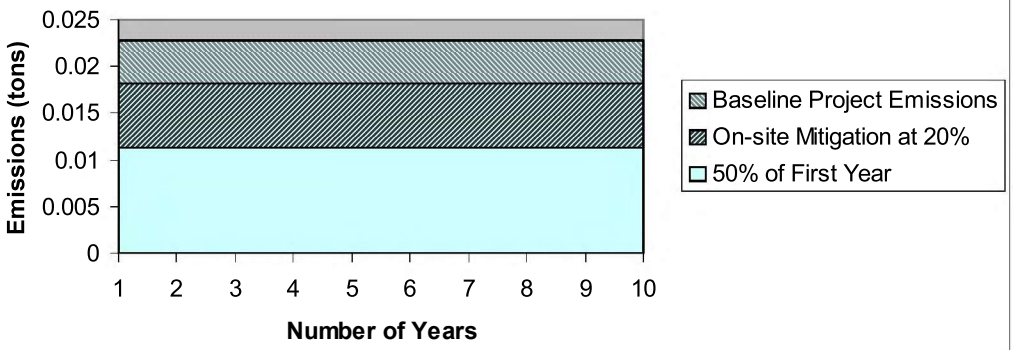
$$\text{[EBE x 2.5] - [EBE x 7.5 x APM] x [Cost of NOx Reductions/ton]}$$

It is important to note that the percent reduction achieved onsite, results in a greater reduction of the NOx fee. While on-site mitigation is not required, the “bigger bang for the buck” is achieved with as much on-site mitigation as possible.

Area and Operational PM10 Fee Formula

The Air Impact Mitigation Fee for PM10 is more straightforward since a project’s PM10 emissions remain relatively constant over the life of the project. For ease of understanding, Figure 4 below demonstrates the relationship between baseline emissions, mitigated emissions and half of the baseline emissions.

Figure 4
PM10 Project Emissions and Reductions Compared to 50% of the First Year Emissions



The required PM10 mitigation is half of the baseline emissions for ten years. In order to determine the emissions that are subject to a fee, half of the baseline emissions need to be subtracted from the Mitigated Emissions and multiplied by cost of reductions in dollars per ton. Thus the resulting PM10 Air Impact Mitigation Fee is calculated as follows:

(Mitigated PM10 emissions – ½ Baseline PM10 emissions) (Cost of PM10 Reductions)

Construction Formulas

The Air Impact Mitigation Fees for construction are based on the project's estimated construction equipment emissions, and compared to the statewide fleet average emissions. The required information is as follows: 1)a list of construction equipment used, 2)the model year, and 3)the hours estimated to be used is compiled, which can be determined from the National Construction Estimator or using project-specific information if known. Then the model specific emission factors are used to determine the actual estimated emissions (designated as AEE). The same hours are multiplied by a statewide average fleet emission factor for a particular year, to determine the statewide average estimated emissions (designated as SEE). Since the requirement is to reduce construction NOx emissions by 20% beyond the statewide average, this is determined as follows:

NOx Construction = (AEE) – [(1.00 x SEE) – (SEE x 0.20)]
(AEE) – [1.00SEE – 0.20SEE]
(AEE – 0.8SEE)

PM10 is almost identical, except that the requirement is to reduce construction PM10 emissions by 45% beyond the statewide average.

PM10 Construction = (AEE) – [(1.00 x SEE) – (SEE x 0.45)]
(AEE) – [1.00SEE – 0.45SEE]
(AEE – 0.55SEE)

VI. EMISSIONS REDUCTIONS FROM RULE 9510

Both the 2003 PM10 Plan and the Extreme Ozone Attainment Demonstration Plan, contain emissions reduction commitments for proposed Rule 9510 of 4.1 tons per day of NOx and 5.2 tons per day of PM10 to be achieved by 2010. Those estimates were based on assumptions at the time and are commitments that are necessary to assist the district in meeting the federal and state PM10 and NOx standards. The methodology contained in this section and related attachments demonstrate the draft emission reductions for the program.

As part of determining the emissions reductions, sources that are exempt from the rule need to be subtracted out. The District has numerous years of experience in commenting on projects subject to CEQA. Based on that experience and the thresholds contained in Rule 9510, it is estimated that 15% of all development project emissions will be exempt from the provisions that rule. Attachment 2 and Attachment 3 identify the growth in emissions for each pollutant for each year, and subtract the emissions that will be exempt from the program. Once the emissions subject to the program are identified, the required mitigation is applied, which is 33.3% of baseline NOx emissions over ten years, 50% of baseline operational PM10 emissions over ten years, 20% of construction NOx emissions and 45% of construction PM10 emissions. The reductions achieved on-site were calculated by multiplying the estimated percent of sources opting to use on-site measures, the percent reduction achieved on-site, by the baseline emissions. Off-site reductions were estimated differently. Since grant programs typically rely on project life to determine cost effectiveness and emissions reductions, the reduction was divided by the average project life for that pollutant's cost-effectiveness, which is 7 years for NOx and 12 years for PM10, and spread out over that number of years. Attachment 2 and 3 contain the detailed emission reductions calculations. The results of those calculations reveal that the program, as currently defined, will result in reductions of 5.4 tons per day of NOx in 2010 and 5.8 tons per day of PM10 in 2010.

Attachment 1 - Emissions and Growth in Emissions from Motor Vehicles

Passenger Cars						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	46,763,000	1,186,080	27.53	25.64	1.69	282.88
CY 2007	48,037,000	1,215,840	25.06	23.34	1.73	260.25
CY2008	49,324,000	1,246,060	22.80	21.26	1.77	239.16
CY2009	50,625,000	1,276,970	20.74	19.32	1.81	219.49
CY2010	51,952,000	1,308,670	18.80	17.52	1.85	200.89
CY2011	53,253,000	1,340,690	17.11	15.87	1.90	184.01
CY2012	54,544,000	1,373,190	15.61	14.39	1.94	168.64
CY2013	55,835,000	1,406,290	14.28	13.07	1.99	154.78
CY2014	57,127,000	1,440,000	13.12	11.89	2.04	142.42
CY2015	58,427,000	1,474,400	12.12	10.85	2.08	131.38
Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	46,763,000	1,186,080	27.53	25.64	1.69	282.88
CY 2007	46,817,000	1,184,970	23.52	21.39	1.68	242.70
CY2008	46,857,000	1,183,740	20.86	18.97	1.68	217.58
CY2009	46,878,000	1,182,430	18.52	16.81	1.67	194.91
CY2010	46,885,000	1,181,030	16.38	14.86	1.67	174.13
CY2011	46,849,000	1,179,460	14.55	13.13	1.67	155.73
CY2012	46,784,000	1,177,840	12.96	11.61	1.67	139.41
CY2013	46,702,000	1,176,250	11.58	10.29	1.66	125.00
CY2014	46,601,000	1,174,680	10.39	9.13	1.66	112.39
CY2015	46,487,000	1,173,100	9.37	8.14	1.66	101.32
Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	1,220,000	30,870	1.54	1.95	0.05	17.55
CY2008	2,467,000	62,320	1.94	2.29	0.09	21.58
CY2009	3,747,000	94,540	2.22	2.51	0.14	24.58
CY2010	5,067,000	127,640	2.42	2.66	0.18	26.76
CY2011	6,404,000	161,230	2.56	2.74	0.23	28.28
CY2012	7,760,000	195,350	2.65	2.78	0.27	29.23
CY2013	9,133,000	230,040	2.70	2.78	0.33	29.78
CY2014	10,526,000	265,320	2.73	2.76	0.38	30.03
CY2015	11,940,000	301,300	2.75	2.71	0.42	30.06

Light-Duty Truck (GVWR < 3,751 lbs)						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	19,277,000	504,871	16.65	16.97	0.75	191.39
CY 2007	19,879,000	518,651	15.59	15.63	0.77	177.66

CY2008	20,503,000	532,766	14.54	14.39	0.78	164.45
CY2009	21,148,000	547,300	13.50	13.21	0.80	151.41
CY2010	21,810,000	562,308	12.50	12.10	0.82	138.99
CY2011	22,456,000	577,812	11.70	11.10	0.84	128.18
CY2012	23,103,000	593,638	10.97	10.22	0.86	118.33
CY2013	23,754,000	609,742	10.27	9.41	0.88	109.08
CY2014	24,410,000	626,177	9.61	8.68	0.90	100.56
CY2015	25,072,000	642,987	9.02	8.01	0.93	92.73
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	19,277,000	504,871	16.65	16.97	0.75	191.39
CY 2007	19,374,000	505,480	14.54	14.03	0.75	163.40
CY2008	19,478,000	506,121	13.21	12.57	0.74	147.26
CY2009	19,582,000	506,782	11.96	11.22	0.74	132.09
CY2010	19,683,000	507,465	10.80	10.01	0.74	118.19
CY2011	19,756,000	508,326	9.87	8.96	0.74	106.40
CY2012	19,816,000	509,186	9.04	8.04	0.74	95.88
CY2013	19,869,000	510,001	8.26	7.22	0.74	86.35
CY2014	19,912,000	510,803	7.55	6.49	0.74	77.79
CY2015	19,949,000	511,590	6.93	5.86	0.74	70.11
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	505,000	13,171	1.05	1.60	0.02	14.26
CY2008	1,025,000	26,645	1.33	1.82	0.04	17.19
CY2009	1,566,000	40,518	1.54	1.99	0.06	19.32
CY2010	2,127,000	54,843	1.70	2.09	0.08	20.80
CY2011	2,700,000	69,486	1.83	2.14	0.10	21.78
CY2012	3,287,000	84,452	1.93	2.18	0.12	22.45
CY2013	3,885,000	99,741	2.01	2.19	0.14	22.73
CY2014	4,498,000	115,374	2.06	2.19	0.16	22.77
CY2015	5,123,000	131,397	2.09	2.15	0.19	22.62

Light-Duty Truck (GVWR 3,751 to 5,750 lbs)

Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	14,206,000	363,542	11.60	15.81	0.74	133.05
CY 2007	14,550,000	373,494	11.03	14.80	0.76	125.36
CY2008	14,919,000	383,713	10.48	13.85	0.78	117.89
CY2009	15,308,000	394,213	9.95	12.93	0.80	110.66
CY2010	15,718,000	405,048	9.44	12.05	0.83	103.67
CY2011	16,150,000	416,094	8.90	11.17	0.85	96.52
CY2012	16,591,000	427,382	8.39	10.34	0.87	89.90
CY2013	17,045,000	438,884	7.89	9.56	0.90	83.57
CY2014	17,507,000	450,596	7.40	8.83	0.92	77.55
CY2015	17,972,000	462,557	6.97	8.16	0.95	72.09

Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	14,206,000	363,542	11.60	15.81	0.74	133.05
CY 2007	14,180,000	364,010	10.37	13.49	0.74	116.90
CY2008	14,173,000	364,523	9.61	12.29	0.74	107.14
CY2009	14,175,000	365,028	8.90	11.17	0.74	98.08
CY2010	14,185,000	365,543	8.25	10.14	0.74	89.63
CY2011	14,208,000	366,056	7.59	9.16	0.75	81.45
CY2012	14,230,000	366,582	6.99	8.27	0.75	74.06
CY2013	14,257,000	367,092	6.42	7.46	0.75	67.24
CY2014	14,281,000	367,573	5.87	6.72	0.75	60.96
CY2015	14,300,000	368,032	5.41	6.06	0.75	55.36
Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	370,000	9,484	0.66	1.31	0.02	8.46
CY2008	746,000	19,190	0.87	1.56	0.04	10.75
CY2009	1,133,000	29,185	1.05	1.76	0.06	12.58
CY2010	1,533,000	39,505	1.19	1.91	0.09	14.04
CY2011	1,942,000	50,038	1.31	2.01	0.10	15.07
CY2012	2,361,000	60,800	1.40	2.07	0.12	15.84
CY2013	2,788,000	71,792	1.47	2.10	0.15	16.33
CY2014	3,226,000	83,023	1.53	2.11	0.17	16.59
CY2015	3,672,000	94,525	1.56	2.10	0.20	16.73

Medium-Duty Truck (GVWR 5,751 to 8,500 lbs)						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	5,521,000	141,790	5.01	7.94	0.29	57.52
CY 2007	5,679,000	146,113	4.79	7.46	0.30	54.45
CY2008	5,844,000	150,494	4.57	7.00	0.31	51.57
CY2009	6,017,000	155,025	4.36	6.56	0.32	48.81
CY2010	6,196,000	159,717	4.16	6.15	0.33	46.11
CY2011	6,369,000	164,373	3.96	5.74	0.33	43.46
CY2012	6,547,000	169,143	3.77	5.35	0.34	40.99
CY2013	6,728,000	174,015	3.60	4.99	0.36	38.71
CY2014	6,914,000	178,995	3.44	4.65	0.37	36.65
CY2015	7,105,000	184,102	3.29	4.34	0.38	34.70
Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	5,521,000	141,790	5.01	7.94	0.29	57.52
CY 2007	5,535,000	142,403	4.47	6.84	0.29	50.71
CY2008	5,552,000	142,967	4.16	6.25	0.29	46.84
CY2009	5,571,000	143,548	3.87	5.71	0.29	43.19
CY2010	5,591,000	144,140	3.60	5.20	0.29	39.82
CY2011	5,603,000	144,606	3.35	4.73	0.29	36.65
CY2012	5,615,000	145,080	3.12	4.30	0.30	33.75

CY2013	5,628,000	145,550	2.91	3.91	0.30	31.12
CY2014	5,640,000	146,015	2.72	3.55	0.30	28.80
CY2015	5,653,000	146,480	2.54	3.24	0.30	26.65
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	144,000	3,710	0.32	0.62	0.01	3.74
CY2008	292,000	7,527	0.41	0.75	0.02	4.73
CY2009	446,000	11,477	0.49	0.85	0.03	5.62
CY2010	605,000	15,577	0.56	0.95	0.04	6.29
CY2011	766,000	19,767	0.61	1.01	0.04	6.81
CY2012	932,000	24,063	0.65	1.05	0.04	7.24
CY2013	1,100,000	28,465	0.69	1.08	0.06	7.59
CY2014	1,274,000	32,980	0.72	1.10	0.07	7.85
CY2015	1,452,000	37,622	0.75	1.10	0.08	8.05

Light Heavy-Duty Truck (GVWR 8,501 to 10,000 lbs)						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	2,281,000	34,879	2.13	5.00	0.12	12.85
CY 2007	2,304,000	35,651	1.96	4.95	0.12	11.55
CY2008	2,321,000	36,449	1.84	4.89	0.13	10.52
CY2009	2,334,000	37,270	1.74	4.84	0.13	9.70
CY2010	2,344,000	38,123	1.68	4.71	0.13	9.01
CY2011	2,351,000	38,998	1.65	4.58	0.13	8.49
CY2012	2,356,000	39,887	1.63	4.46	0.13	8.06
CY2013	2,362,000	40,784	1.63	4.34	0.13	7.67
CY2014	2,371,000	41,696	1.63	4.23	0.13	7.34
CY2015	2,384,000	42,634	1.64	4.13	0.13	7.04
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	2,281,000	34,879	2.13	5.00	0.12	12.85
CY 2007	2,246,000	34,746	1.91	4.82	0.12	11.24
CY2008	2,205,000	34,626	1.74	4.64	0.12	9.99
CY2009	2,161,000	34,511	1.61	4.48	0.12	8.97
CY2010	2,115,000	34,405	1.51	4.24	0.12	8.13
CY2011	2,068,000	34,309	1.45	4.02	0.11	7.46
CY2012	2,021,000	34,213	1.40	3.82	0.11	6.91
CY2013	1,976,000	34,113	1.36	3.63	0.11	6.42
CY2014	1,934,000	34,014	1.33	3.45	0.11	5.98
CY2015	1,897,000	33,921	1.31	3.28	0.10	5.60

Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	58,000	905	0.05	0.13	0.00	0.31
CY2008	116,000	1,823	0.10	0.25	0.01	0.53
CY2009	173,000	2,759	0.13	0.36	0.01	0.73

CY2010	229,000	3,718	0.17	0.47	0.01	0.88
CY2011	283,000	4,689	0.20	0.56	0.02	1.03
CY2012	335,000	5,674	0.23	0.64	0.02	1.15
CY2013	386,000	6,671	0.27	0.71	0.02	1.25
CY2014	437,000	7,682	0.30	0.78	0.02	1.36
CY2015	487,000	8,713	0.33	0.85	0.03	1.44

Light Heavy-Duty Truck (GVWR 10,001 to 14,000 lbs)						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	624,000	10,645	0.76	2.78	0.06	4.45
CY 2007	626,000	10,885	0.75	2.67	0.05	4.18
CY2008	630,000	11,133	0.74	2.57	0.05	3.93
CY2009	637,000	11,387	0.72	2.47	0.05	3.67
CY2010	645,000	11,651	0.70	2.33	0.05	3.42
CY2011	653,000	11,922	0.68	2.19	0.05	3.18
CY2012	664,000	12,200	0.66	2.06	0.05	2.98
CY2013	674,000	12,484	0.64	1.93	0.05	2.79
CY2014	686,000	12,773	0.62	1.81	0.05	2.63
CY2015	699,000	13,071	0.60	1.70	0.05	2.46
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	624,000	10,645	0.76	2.78	0.06	4.45
CY 2007	611,000	10,609	0.73	2.60	0.05	4.07
CY2008	599,000	10,576	0.70	2.43	0.05	3.73
CY2009	590,000	10,544	0.67	2.29	0.05	3.40
CY2010	582,000	10,514	0.63	2.10	0.05	3.09
CY2011	575,000	10,489	0.60	1.92	0.04	2.80
CY2012	569,000	10,465	0.56	1.76	0.04	2.56
CY2013	564,000	10,442	0.53	1.61	0.04	2.34
CY2014	560,000	10,420	0.50	1.48	0.04	2.15
CY2015	556,000	10,400	0.47	1.35	0.04	1.96
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	15,000	276	0.02	0.07	0.00	0.11
CY2008	31,000	557	0.04	0.14	0.00	0.20
CY2009	47,000	843	0.05	0.18	0.00	0.27
CY2010	63,000	1,137	0.07	0.23	0.00	0.33
CY2011	78,000	1,433	0.08	0.27	0.01	0.38
CY2012	95,000	1,735	0.10	0.30	0.01	0.42
CY2013	110,000	2,042	0.11	0.32	0.01	0.45
CY2014	126,000	2,353	0.12	0.33	0.01	0.48
CY2015	143,000	2,671	0.13	0.35	0.01	0.50

Medium Heavy-Duty Truck (GVWR 14,001 to 33,000 lbs)						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	1,844,000	32,324	4.23	20.26	0.61	31.38
CY 2007	1,897,000	33,004	3.94	19.34	0.58	29.10
CY2008	1,951,000	33,694	3.69	18.42	0.57	27.07
CY2009	2,005,000	34,411	3.45	17.53	0.56	25.24
CY2010	2,058,000	35,155	3.22	16.29	0.54	23.47
CY2011	2,113,000	35,925	3.00	15.10	0.52	21.80
CY2012	2,168,000	36,711	2.79	13.96	0.50	20.22
CY2013	2,223,000	37,512	2.60	12.87	0.49	18.77
CY2014	2,279,000	38,329	2.40	11.85	0.48	17.36
CY2015	2,334,000	39,167	2.23	10.88	0.46	16.05
Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	1,844,000	32,324	4.23	20.26	0.61	31.38
CY 2007	1,849,000	32,166	3.83	18.83	0.56	28.33
CY2008	1,853,000	32,009	3.49	17.48	0.54	25.68
CY2009	1,856,000	31,864	3.19	16.21	0.52	23.34
CY2010	1,857,000	31,726	2.90	14.68	0.49	21.15
CY2011	1,859,000	31,605	2.64	13.27	0.46	19.15
CY2012	1,860,000	31,488	2.39	11.96	0.43	17.32
CY2013	1,859,000	31,376	2.17	10.76	0.41	15.68
CY2014	1,859,000	31,267	1.96	9.65	0.39	14.15
CY2015	1,857,000	31,163	1.77	8.65	0.37	12.76
Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	48,000	838	0.11	0.51	0.02	0.77
CY2008	98,000	1,685	0.20	0.94	0.03	1.39
CY2009	149,000	2,547	0.26	1.32	0.04	1.90
CY2010	201,000	3,429	0.32	1.61	0.05	2.32
CY2011	254,000	4,320	0.36	1.83	0.06	2.65
CY2012	308,000	5,223	0.40	2.00	0.07	2.90
CY2013	364,000	6,136	0.43	2.11	0.08	3.09
CY2014	420,000	7,062	0.44	2.20	0.09	3.21
CY2015	477,000	8,004	0.46	2.23	0.09	3.29

Heavy Heavy-Duty Truck (GVWR 33,001 to 60,000 lbs)						
Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	4,845,000	31,643	6.00	82.30	1.85	44.21
CY 2007	4,978,000	32,260	5.70	78.05	1.72	41.00
CY2008	5,123,000	32,896	5.44	73.87	1.65	38.44
CY2009	5,281,000	33,555	5.18	69.88	1.60	36.18
CY2010	5,449,000	34,235	4.90	64.43	1.52	33.93
CY2011	5,628,000	34,939	4.64	59.06	1.44	31.99

CY2012	5,817,000	35,648	4.39	53.91	1.37	30.10
CY2013	6,019,000	36,370	4.13	49.01	1.31	28.31
CY2014	6,235,000	37,118	3.91	44.50	1.26	26.84
CY2015	6,451,000	37,891	3.68	40.44	1.22	25.19
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	4,845,000	31,643	6.00	82.30	1.85	44.21
CY 2007	4,852,000	31,440	5.49	75.87	1.67	39.47
CY2008	4,866,000	31,251	5.10	69.98	1.57	36.07
CY2009	4,890,000	31,071	4.73	64.51	1.48	33.09
CY2010	4,918,000	30,896	4.37	57.97	1.37	30.23
CY2011	4,951,000	30,738	4.03	51.80	1.27	27.78
CY2012	4,989,000	30,577	3.71	46.09	1.18	25.48
CY2013	5,034,000	30,420	3.41	40.86	1.10	23.37
CY2014	5,086,000	30,279	3.15	36.19	1.03	21.61
CY2015	5,133,000	30,148	2.90	32.08	0.97	19.78
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	126,000	820	0.21	2.18	0.05	1.53
CY2008	257,000	1,645	0.34	3.89	0.08	2.37
CY2009	391,000	2,484	0.45	5.37	0.12	3.09
CY2010	531,000	3,339	0.53	6.46	0.15	3.70
CY2011	677,000	4,201	0.61	7.26	0.17	4.21
CY2012	828,000	5,071	0.68	7.82	0.19	4.62
CY2013	985,000	5,950	0.72	8.15	0.21	4.94
CY2014	1,149,000	6,839	0.76	8.31	0.23	5.23
CY2015	1,318,000	7,743	0.78	8.36	0.25	5.41

School Bus						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	186,000	3,982	0.32	2.54	0.10	3.59
CY 2007	190,000	4,082	0.31	2.57	0.10	3.39
CY2008	195,000	4,185	0.31	2.60	0.10	3.35
CY2009	200,000	4,290	0.31	2.63	0.10	3.26
CY2010	205,000	4,398	0.31	2.65	0.10	3.22
CY2011	210,000	4,512	0.31	2.67	0.10	3.19
CY2012	216,000	4,627	0.32	2.66	0.10	3.15
CY2013	221,000	4,743	0.31	2.64	0.10	3.03
CY2014	227,000	4,861	0.31	2.62	0.10	2.93
CY2015	232,000	4,981	0.31	2.60	0.10	2.81
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	186,000	3,982	0.32	2.54	0.10	3.59
CY 2007	185,000	3,978	0.30	2.50	0.10	3.30
CY2008	185,000	3,975	0.29	2.47	0.10	3.17

CY2009	185,000	3,972	0.29	2.43	0.09	3.01
CY2010	185,000	3,969	0.28	2.39	0.09	2.90
CY2011	185,000	3,969	0.28	2.34	0.09	2.80
CY2012	185,000	3,968	0.27	2.27	0.09	2.69
CY2013	185,000	3,967	0.26	2.20	0.09	2.53
CY2014	185,000	3,966	0.25	2.13	0.08	2.39
CY2015	185,000	3,963	0.24	2.06	0.08	2.23
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	5,000	104	0.01	0.07	0.00	0.09
CY2008	10,000	210	0.02	0.13	0.00	0.18
CY2009	15,000	318	0.02	0.20	0.01	0.25
CY2010	20,000	429	0.03	0.26	0.01	0.32
CY2011	25,000	543	0.03	0.33	0.01	0.39
CY2012	31,000	659	0.05	0.39	0.01	0.46
CY2013	36,000	776	0.05	0.44	0.01	0.50
CY2014	42,000	895	0.06	0.49	0.02	0.54
CY2015	47,000	1,018	0.07	0.54	0.02	0.58

Urban Bus						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	330,000	2,407	1.30	4.70	0.08	11.25
CY 2007	338,000	2,468	1.29	4.69	0.08	11.08
CY2008	347,000	2,531	1.28	4.68	0.08	10.88
CY2009	356,000	2,595	1.28	4.67	0.08	10.78
CY2010	365,000	2,661	1.27	4.66	0.08	10.55
CY2011	374,000	2,730	1.27	4.64	0.08	10.29
CY2012	384,000	2,800	1.26	4.56	0.08	9.87
CY2013	393,000	2,870	1.26	4.54	0.08	9.41
CY2014	403,000	2,942	1.26	4.44	0.08	9.05
CY2015	413,000	3,014	1.25	4.40	0.08	8.47
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	330,000	2,407	1.30	4.70	0.08	11.25
CY 2007	330,000	2,406	1.25	4.56	0.07	10.78
CY2008	329,000	2,404	1.21	4.44	0.07	10.32
CY2009	329,000	2,403	1.17	4.31	0.07	9.97
CY2010	329,000	2,402	1.14	4.19	0.07	9.51
CY2011	329,000	2,402	1.11	4.07	0.07	9.04
CY2012	329,000	2,401	1.07	3.90	0.07	8.45
CY2013	329,000	2,401	1.04	3.79	0.06	7.86
CY2014	329,000	2,400	1.02	3.61	0.06	7.37
CY2015	329,000	2,398	0.98	3.49	0.06	6.72

Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	8,000	62	0.04	0.13	0.01	0.30
CY2008	18,000	127	0.07	0.24	0.01	0.56
CY2009	27,000	192	0.11	0.36	0.01	0.81
CY2010	36,000	259	0.13	0.47	0.01	1.04
CY2011	45,000	328	0.16	0.57	0.01	1.25
CY2012	55,000	399	0.19	0.66	0.01	1.42
CY2013	64,000	469	0.22	0.75	0.02	1.55
CY2014	74,000	542	0.24	0.83	0.02	1.68
CY2015	84,000	616	0.27	0.91	0.02	1.75

Motorhome

Total - Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	531,000	34,851	0.84	2.04	0.03	21.00
CY 2007	552,000	36,150	0.80	2.01	0.03	19.78
CY2008	574,000	37,508	0.75	1.97	0.03	18.26
CY2009	598,000	38,927	0.70	1.93	0.03	16.91
CY2010	624,000	40,417	0.66	1.86	0.03	15.57
CY2011	651,000	42,003	0.60	1.79	0.03	14.09
CY2012	679,000	43,650	0.56	1.72	0.03	12.73
CY2013	709,000	45,360	0.50	1.63	0.04	11.26
CY2014	741,000	47,134	0.45	1.54	0.04	9.86
CY2015	772,000	48,973	0.40	1.46	0.04	8.67
Total - No Growth						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2006	531,000	34,851	0.84	2.04	0.03	21.00
CY 2007	538,000	35,232	0.78	1.95	0.03	19.27
CY2008	546,000	35,632	0.71	1.87	0.03	17.33
CY2009	554,000	36,045	0.65	1.78	0.03	15.65
CY2010	563,000	36,475	0.59	1.68	0.03	14.04
CY2011	573,000	36,951	0.53	1.57	0.03	12.39
CY2012	583,000	37,440	0.48	1.47	0.03	10.92
CY2013	593,000	37,940	0.42	1.36	0.03	9.41
CY2014	604,000	38,449	0.37	1.25	0.03	8.04
CY2015	615,000	38,965	0.32	1.15	0.03	6.89

Total - Difference						
	VMT	Pop	ROG	NOx	PM10	CO
CY 2007	14,000	918	0.02	0.06	0.00	0.51
CY2008	28,000	1,876	0.04	0.10	0.00	0.93
CY2009	44,000	2,882	0.05	0.15	0.00	1.26
CY2010	61,000	3,942	0.07	0.18	0.00	1.53
CY2011	78,000	5,052	0.07	0.22	0.00	1.70
CY2012	96,000	6,210	0.08	0.25	0.00	1.81
CY2013	116,000	7,420	0.08	0.27	0.01	1.85

CY2014	137,000	8,685	0.08	0.29	0.01	1.82
CY2015	157,000	10,008	0.08	0.31	0.01	1.78

Motorcycle						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	342,000	38,680	2.17	0.55	0.02	20.14
CY 2007	352,000	39,251	2.14	0.57	0.03	20.42
CY2008	361,000	39,854	2.06	0.57	0.02	19.23
CY2009	369,000	40,483	1.99	0.56	0.02	18.12
CY2010	376,000	41,132	1.93	0.56	0.02	17.19
CY2011	383,000	41,807	1.88	0.56	0.02	16.31
CY2012	389,000	42,499	1.85	0.56	0.02	15.62
CY2013	395,000	43,204	1.83	0.56	0.02	15.05
CY2014	401,000	43,920	1.81	0.57	0.02	14.58
CY2015	408,000	44,655	1.80	0.57	0.02	14.21
Total - No Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	342,000	38,680	2.17	0.55	0.02	20.14
CY 2007	343,000	38,255	2.08	0.55	0.02	19.89
CY2008	343,000	37,861	1.95	0.54	0.02	18.27
CY2009	342,000	37,486	1.84	0.52	0.02	16.79
CY2010	339,000	37,121	1.74	0.51	0.02	15.52
CY2011	337,000	36,780	1.66	0.49	0.02	14.37
CY2012	333,000	36,453	1.59	0.48	0.02	13.42
CY2013	330,000	36,136	1.53	0.47	0.02	12.61
CY2014	327,000	35,827	1.48	0.46	0.02	11.91
CY2015	324,000	35,529	1.43	0.45	0.02	11.32
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	9,000	996	0.06	0.02	0.01	0.53
CY2008	18,000	1,993	0.11	0.03	0.00	0.96
CY2009	27,000	2,997	0.15	0.04	0.00	1.33
CY2010	37,000	4,011	0.19	0.05	0.00	1.67
CY2011	46,000	5,027	0.22	0.07	0.00	1.94
CY2012	56,000	6,046	0.26	0.08	0.00	2.20
CY2013	65,000	7,068	0.30	0.09	0.00	2.44
CY2014	74,000	8,093	0.33	0.11	0.00	2.67
CY2015	84,000	9,126	0.37	0.12	0.00	2.89

San Joaquin Valley - Total						
Total - Growth						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	96,748,000	2,385,690	78.53	186.52	6.33	813.73
CY 2007	99,384,000	2,447,850	73.37	176.07	6.25	758.21
CY2008	102,094,000	2,511,290	68.48	166.08	6.27	704.76
CY2009	104,878,000	2,576,430	63.91	156.53	6.30	654.24
CY2010	107,741,000	2,643,520	59.57	145.29	6.30	606.01
CY2011	110,590,000	2,711,800	55.70	134.46	6.30	561.51
CY2012	113,456,000	2,781,370	52.19	124.18	6.32	520.59
CY2013	116,360,000	2,852,260	48.93	114.56	6.34	482.43
CY2014	119,300,000	2,924,540	45.95	105.61	6.38	447.77
CY2015	122,271,000	2,998,430	43.32	97.54	6.43	415.80
Total - No Growth						
	VMT	**Pop***	**ROG**	**NOx**	**PM10**	**CO**
CY 2006	96,748,000	2,385,690	78.53	186.52	6.33	813.73
CY 2007	96,860,000	2,385,690	69.25	167.42	6.09	710.08
CY2008	96,988,000	2,385,690	63.03	153.93	5.95	643.40
CY2009	97,114,000	2,385,690	57.40	141.45	5.83	582.49
CY2010	97,233,000	2,385,690	52.20	127.97	5.68	526.32
CY2011	97,291,000	2,385,690	47.65	115.47	5.54	476.01
CY2012	97,315,000	2,385,690	43.59	103.99	5.42	430.85
CY2013	97,326,000	2,385,690	39.89	93.55	5.30	389.92
CY2014	97,319,000	2,385,690	36.58	84.13	5.20	353.53
CY2015	97,284,000	2,385,690	33.68	75.81	5.12	320.71
Total - Difference						
	VMT	**Pop**	**ROG**	**NOx**	**PM10**	**CO**
CY 2007	2,524,000	62,160	4.12	8.65	0.16	48.13
CY2008	5,106,000	125,600	5.45	12.15	0.32	61.36
CY2009	7,764,000	190,740	6.51	15.08	0.47	71.75
CY2010	10,508,000	257,830	7.37	17.32	0.62	79.69
CY2011	13,299,000	326,110	8.05	18.99	0.76	85.50
CY2012	16,141,000	395,680	8.60	20.19	0.90	89.74
CY2013	19,034,000	466,570	9.04	21.01	1.04	92.51
CY2014	21,981,000	538,850	9.37	21.48	1.18	94.24
CY2015	24,987,000	612,740	9.64	21.73	1.31	95.09

* Note: The EMFAC model slightly redistributed vehicle populations within vehicle classes; however, the total vehicle population are all CY2006 numbers. See below:

CY2007 with CY2006 Veh Pop: 2,385,695 Compared to: 2,385,690
% Difference: 0.00021%

Attachment 2
NOx Emissions and Emissions Reductions

	NOx Emissions (tons per day)								
Emission Inventory Category	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Total Growth in Motor Vehicle Emissions[A]	0.0	8.3	11.6	14.3	16.4	17.9	19.0	19.8	20.2
Total Annual Growth in Motor Vehicles Emissions[A]	0.0	8.3	3.2	2.7	2.1	1.5	1.1	0.7	0.5
Rule Penetration (tpd)[B]	0.0	7.1	2.7	2.3	1.8	1.3	1.0	0.6	0.4
On-Site Reductions									
Estimated Sources to perform on-site reductions[C]	40%	45%	50%	55%	60%	65%	70%	70%	70%
Average Mitigation achieved on-site (%)[C]	7%	9%	11%	13%	14%	15%	15%	15%	15%
Reductions from 2006 Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reductions from 2007 Development		0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Reductions from 2008 Development			0.2	0.1	0.1	0.1	0.1	0.1	0.1
Reductions from 2009 Development				0.2	0.2	0.1	0.1	0.1	0.1
Reductions from 2010 Development					0.1	0.1	0.1	0.1	0.1
Reductions from 2011 Development						0.1	0.1	0.1	0.1
Reductions from 2012 Development							0.1	0.1	0.1
Reductions from 2013 Development								0.1	0.1
Reductions from 2014 Development									0.0
Total On-site Reductions[D]	**0.0**	**0.3**	**0.4**	**0.6**	**0.7**	**0.8**	**0.8**	**0.8**	**0.8**
Off-site Reductions									
Remaining Subject Emissions[E]	0.0	6.8	2.6	2.2	1.6	1.2	0.9	0.5	0.4
Reductions from 2006 Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Reductions from 2007 Development		2.4	2.4	2.4	2.4	2.4	2.4	2.4	
Reductions from 2008 Development			0.9	0.9	0.9	0.9	0.9	0.9	0.9
Reductions from 2009 Development				0.8	0.8	0.8	0.8	0.8	0.8
Reductions from 2010 Development					0.6	0.6	0.6	0.6	0.6
Reductions from 2011 Development						0.4	0.4	0.4	0.4
Reductions from 2012 Development							0.3	0.3	0.3
Reductions from 2013 Development								0.2	0.2
Reductions from 2014 Development									0.1
Total Off-site Reductions[F]	**0.0**	**2.4**	**3.4**	**4.1**	**4.7**	**5.1**	**5.4**	**5.6**	**3.3**
Total Reductions	**0.0**	**2.7**	**3.8**	**4.7**	**5.4**	**5.9**	**6.3**	**6.5**	**4.2**

A. ARB performed an EMFAC2002 model run that estimated the growth between 2006 and 2015 (Attachment 1). Since this analysis needs growth per year, the current year's missions are subtracted by the previous year's emissions to obtain the annual growth.

Medium-Heavy and Heavy-Heavy Duty emissions have been reduced by 12% to account for through-valley traffic

B. Rule penetration is estimated to be 85% based on District experience with CEQA projects.

C. Staff estimate

D. Determined by multiplying rule penetration of operational emissions, estimated sources to perform on-site reductions, average mitigation achieved on-site, and adding the reductions for each year

E. Determined by subtracting a particular years on-site reduction from the Rule Penetration of Operational Emissions for that year.

F. Determined by multiplying Remaining Subject Emissions with 250%, and dividing by 7 to account for the average project life of the estimated emission reduction projects.

G. The rule requires mitigation of 250% of the first years emissions. That total was then divided by 7 to account for the average project life of the estimated emission reduction projects.

On-Site reductions are reduced over time to account for the reduction in mobile emissions

Attachment 3
PM10 Emissions and Emissions Reductions

	ANNUAL GROWTH IN PM10 EMISSIONS (tons per day)[A]								
EMISSIONS INVENTORY CATEGORY	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Operational PM10 Emissions									
Re-entrained Paved Road Dust[B]:									
Freeway	0.4	0.4	0.4	0.3	0.3	*0.3*	*0.3*	*0.3*	*0.3*
Collector Streets	0.1	0.1	0.1	0.1	0.1	*0.1*	*0.1*	*0.1*	*0.1*
Major Streets	0.4	0.4	0.4	0.4	0.4	*0.5*	*0.5*	*0.5*	*0.5*
Local Streets	0.2	0.2	0.1	0.2	0.2	*0.2*	*0.2*	*0.2*	*0.2*
Rural Streets	0.4	0.4	0.4	0.4	0.4	*0.5*	*0.5*	*0.5*	*0.5*
On-road vehicles[C]	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total Annual Growth in Operational PM10 Emissions	**1.1**	**1.2**	**1.1**	**1.3**	**1.3**	**1.5**	**1.5**	**1.5**	**1.5**
Cumulative Growth in Operational PM10 Emissions[D]	1.1	2.3	3.4	4.7	6.0	7.5	9.1	10.6	12.2
Rule Penetration of Operational Emissions (tpd)[E]	0.9	1.0	1.0	1.1	1.1	1.3	1.3	1.3	1.3
On-site Reductions									
Estimated Sources to perform on-site reductions[F]	40%	45%	50%	55%	60%	65%	70%	70%	70%
Average Mitigation achieved on-site (%)[F]	7%	9%	11%	13%	14%	15%	15%	15%	15%
Reductions from 2006 Development	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Reductions from 2007 Development		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Reductions from 2008 Development			0.05	0.05	0.05	0.05	0.05	0.05	0.05
Reductions from 2009 Development				0.08	0.08	0.08	0.08	0.08	0.08
Reductions from 2010 Development					0.09	0.09	0.09	0.09	0.09
Reductions from 2011 Development						0.13	0.13	0.13	0.13
Reductions from 2012 Development							0.14	0.14	0.14
Reductions from 2013 Development								0.14	0.14
Reductions from 2014 Development									0.14
Total On-site Reductions (tpd)[G]	**0.0**	**0.1**	**0.1**	**0.2**	**0.3**	**0.4**	**0.6**	**0.7**	**0.8**
Off-site Reductions									
Remaining Subject Emissions[H]	0.9	1.0	0.9	1.0	1.0	1.2	1.2	1.2	1.2
Reductions from 2006 Development	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2007 Development		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2008 Development			0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2009 Development				0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2010 Development					0.4	0.4	0.4	0.4	0.4
Reductions from 2011 Development						0.5	0.5	0.5	0.5
Reductions from 2012 Development							0.5	0.5	0.5
Reductions from 2013 Development								0.5	0.5
Reductions from 2014 Development									0.5
Total Off-site Reductions[I]	**0.4**	**0.8**	**1.2**	**1.6**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**
Total Operational PM10 Reductions[J]	**0.4**	**0.9**	**1.3**	**1.8**	**2.3**	**2.9**	**3.5**	**4.2**	**4.8**

A-P

See footnotes on following pages.

EMISSIONS INVENTORY CATEGORY	ANNUAL EMISSIONS (tons per day)[K] 2006	2007	2008	2009	2010	2011	2012	2013	2014
Construction Equipment Emissions									
Total Construction Equipment NOx Emissions[L]	26.9	25.5	24.1	22.7	21.3	20.1	18.9	17.6	16.4
Construction Equipment PM10 Equivalent[M]	17.9	17.0	16.1	15.1	14.2	13.4	12.6	11.7	10.9
Rule Penetration of Construction Equipment Emissions (tpd)[E]	15.2	14.4	13.7	12.9	12.1	11.4	10.7	10.0	9.3
On-site Reductions									
Estimated Sources to perform fleet reductions (%)[F]	10%	20%	30%	40%	50%	50%	50%	50%	50%
Average Fleet Reductions (%)[N]	20%	20%	20%	20%	20%	20%	20%	20%	20%
Construction Fleet Reductions[G]	**0.3**	**0.6**	**0.8**	**1.0**	**1.2**	**1.1**	**1.1**	**1.0**	**0.9**
Off-site Reductions									
Remaining Emissions (tpd)[4]	14.9	13.9	12.8	11.8	10.9	10.3	9.6	9.0	8.4
Reductions from 2006 Development	0.4	0.4	0.4	0.4	0.4	0.4	0.4		
Reductions from 2007 Development		0.4	0.4	0.4	0.4	0.4	0.4	0.4	
Reductions from 2008 Development			0.4	0.4	0.4	0.4	0.4	0.4	0.4
Reductions from 2009 Development				0.3	0.3	0.3	0.3	0.3	0.3
Reductions from 2010 Development					0.3	0.3	0.3	0.3	0.3
Reductions from 2011 Development						0.3	0.3	0.3	0.3
Reductions from 2012 Development							0.3	0.3	0.3
Reductions from 2013 Development								0.3	0.3
Reductions from 2014 Development									0.2
Total Off-site Reductions[O]	**0.4**	**0.8**	**1.2**	**1.5**	**1.8**	**2.1**	**2.4**	**2.2**	**2.1**
Construction Equipment Reductions[J]	**0.7**	**1.4**	**2.0**	**2.5**	**3.0**	**3.2**	**3.4**	**3.2**	**3.0**

A. Annual Growth in emisions were determined by subtracting one years emissions from the previous year's emissions. Emissions' growth in 2011-2014 were determined by taking the difference between 2015 and 2010 and dividing that by 5 years.

B. The growth in these emissions were taken directly from the emissions inventory, and were reported by road type. Control for Regulation VIII is accounted for.

C. These totals were obtained from ARB. Current year's emissions are subtracted by the previous year's emissions to obtain the annual growth.

D. Cumulative growth was determined by creating a running total of emissions from each year

E. Rule penetration is estimated to be 85% based on District experience with CEQA projects.

F. District staff estimate

G. Determined by multiplying rule penetration of operational emissions, estimated sources to perform on-site reductions, average mitigation achieved on-site, and adding the reductions for each year.

H. Determined by subtracting a particular years on-site reduction from the Rule Penetration of Operational Emissions for that year.

I. Equals 5 x Remaining Subject Emissions That total was then divided by 12 to account for the average project life of the estimated emission reduction projects.

J. Determined by adding On-site Reductions and Off-site Reductions

K. Total emissions were used for each year, since all construction activity each year is for new development

L. These emissions were taken from ARB and interpolated based on 2005, 2010, and 2015.

M. Modeling in the 2003 PM10 indicated that 1.5 tons of NOx are equivalent to 1.0 tons of PM10.

N. This is a rule requirement

O. Determined by multiplying Remaining Subject Emissions with 20%, and dividing by 7 to account for the average project life of the estimated emission reduction projects.

P. Determined by multiplying Remaining Subject Emissions with 45%, and dividing by 12 to account for the average project life of the estimated emission reduction projects.

ANNUAL PM10 EMISSIONS (tons per day)[K]

EMISSIONS INVENTORY CATEGORY	2006	2007	2008	2009	2010	2011	2012	2013	2014
Construction PM10 Exhaust Emissions									
PM10 Exhaust from Construction Equipment[L]	1.7	1.6	1.5	1.4	1.4	1.3	1.2	1.2	1.1
Rule Penetration of Construction PM10 & PM10 Equiv. Emissions (tpd)[E]	1.4	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9
On-site Reductions									
Estimated Sources to perform on-site reductions (%)[F]	10%	20%	30%	40%	50%	50%	50%	50%	50%
Average Mitigation achieved on-site (%)[N]	45%	45%	45%	45%	45%	45%	45%	45%	45%
Onsite Reductions (tpd)[G]	**0.1**	**0.1**	**0.2**	**0.2**	**0.3**	**0.2**	**0.2**	**0.2**	**0.2**
Off-site Reductions									
Remaining Emissions (tpd)[H]	1.4	1.2	1.1	1.0	0.9	0.8	0.8	0.8	0.7
Reductions from 2006 Development	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Reductions from 2007 Development		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Reductions from 2008 Development			0.04	0.04	0.04	0.04	0.04	0.04	0.04
Reductions from 2009 Development				0.04	0.04	0.04	0.04	0.04	0.04
Reductions from 2010 Development					0.03	0.03	0.03	0.03	0.03
Reductions from 2011 Development						0.03	0.03	0.03	0.03
Reductions from 2012 Development							0.03	0.03	0.03
Reductions from 2013 Development								0.03	0.03
Reductions from 2014 Development									0.03
Reductions from 2015 Development									
Total Off-site Reductions[P]	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**
Total Construction PM10 Reductions (tpd)[J]	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
TOTAL ESTIMATED PM10 REDUCTIONS (tpd)	**1.2**	**2.4**	**3.6**	**4.7**	**5.8**	**6.6**	**7.5**	**7.9**	**8.3**

A. Annual Growth in emisions were determined by subtracting one years emissions from the previous year's emissions. Emissions' growth in 2011-2014 were determined by taking the difference between 2015 and 2010 and dividing that by 5 years.

B. The growth in these emissions were taken directly from the emissions inventory, and were reported by road type. Control for Regulation VIII is accounted for.

C. These totals were obtained from ARB. Current year's emissions are subtracted by the previous year's emissions to obtain the annual growth.

D. Cumulative growth was determined by creating a running total of emissions from each year

E. Rule penetration is estimated to be 85% based on District experience with CEQA projects.

F. District staff estimate

G. Determined by multiplying rule penetration of operational emissions, estimated sources to perform on-site reductions, average mitigation achieved on-site, and adding the reductions for each year.

H. Determined by subtracting a particular years on-site reduction from the Rule Penetration of Operational Emissions for that year.

I. Equals 5 x Remaining Subject Emissions That total was then divided by 12 to account for the average project life of the estimated emission reduction projects.

J. Determined by adding On-site Reductions and Off-site Reductions

K. Total emissions were used for each year, since all construction activity each year is for new development

L. These emissions were taken from ARB and interpolated based on 2005, 2010, and 2015.

M. Modeling in the 2003 PM10 indicated that 1.5 tons of NOx are equivalent to 1.0 tons of PM10.

N. This is a rule requirement

O. Determined by multiplying Remaining Subject Emissions with 20%, and dividing by 7 to account for the average project life of the estimated emission reduction projects.

P. Determined by multiplying Remaining Subject Emissions with 45%, and dividing by 12 to account for the average project life of the estimated emission reduction projects.

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APPENDIX C

On-Site Emission Reduction Checklist for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications) and On-Site Enhancing Measures List

November 17, 2005

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MIXED USE OR NON-RESIDENTIAL ON-SITE EMISSION REDUCTION LIST

No.	Measure – Objective
	LOCATION
Bicycle Infrastructure	
M-1	Project is located within 1/2 mile of existing or planned Class I or II bike lanes on arterial/collector streets, or where a suitable parallel route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
Mass Transit Infrastructure	
M-2	Project is located within 1/4-1/2 mile of a transit stop. *(URBEMIS Location: Operation Emissions: Mitigation Measures: Transit Service Node)*
	* Office floor area ratio is 0.75 greater within 1/4 mile of existing transit stop.
Mixed Use/Density	
M-3	Include high density residential, mixed, or retail/commercial uses on site or locate near (within a 1/2 mile of project center). *(URBEMIS Location: Operational Emissions: Mitigation Measures: Mix of Uses Node and/or Operational Emissions: Mitigation Measures: Local Serving Retail)*
	* Day care facilities
	* Restaurant or cafeteria
	* Bank or ATM
	* Dry cleaners
	* Post office / services
	* Entertainment (movie / video)
	* Recreation facility / fitness center
	* Public Park
	* Residential development / On-site employee living spaces
M-4	Average Residential density is 7 Dwelling Units (DU) per acre or greater. *(URBEMIS Location: Land Use Selection - Acreage)*
	▪ Project contains ancillary residential units - "Granny Flats"
M-5	Designate a portion of residential units as deed-restricted below-market-rate (BMR) housing. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Affordable Housing Node)*
	▪ Include Affordable Housing/Senior Housing/ Assisted Living
	BICYCLE/PEDESTRIAN
Bicycle Storage	
M-6	Provide Class I and Class II bicycle parking facilities on-site. Bicycle parking facilities should be near destination points and easy to find. At least one bicycle parking space for every 20 vehicle parking spaces. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* One bicycle parking space for every 10 car parking spaces is considered appropriate.
	* Provide secure bicycle storage at public parking facilities.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-7	Provide shower and locker facilities to encourage employees to bike and/or walk to work, typically one shower and three lockers for every 25 employees. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-8	Provide Class I bicycle parking at apartment complexes or condos without garages. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*

Pedestrian- Bicycle Oriented Infrastructure

M-9	Install Class I or II bike lanes on arterial/collector streets, or where a suitable route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
M-10	Install complete, separate, safe, and convenient pedestrian sidewalks/paths that connect multiple uses. This can be implemented through the following project designs: *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
	* Provide direct pedestrian connections
	* Provide paths and building access which are physically separated from street parking lot traffic and that eliminates physical \barriers such as walls, berms, landscaping and slopes that impede the use of pedestrians, bicycle facilities, or public transportation vehicles
	* Place store entrances close to adjacent sidewalks.
	* Provide pedestrian signalization and signage to improve pedestrian safety
	* Provide continuous sidewalks separated from the roadway by landscaping and on-street parking.
	* Provide clearly delineated crosswalks at intersections.
	* Provide on and off-site pedestrian facility improvements such as overpasses and wider sidewalks
	* Provide on and off-site pedestrian facility improvements such as trails linking them to designated pedestrian commuting routes and/or on-site overpasses and wider sidewalks.
	* Provide street lighting
	* Provide shaded pathways (e.g. provide street trees or building overhangs)
	* Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel
	* Provide traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds, to encourage pedestrian and bicycle travel.
	* Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances
	* Provide pedestrian access between bus service and major transportation points and destination points within the project.
	* Minimize building setback to adjacent existing or planned pedestrian infrastructure
	* Setback distance is minimized between development and transit, bicycle, or pedestrian corridor
	* Setback distance is minimized between development and neighboring properties

TRANSPORTATION DESIGN

Signage

M-11	Provide a display case or kiosk displaying transportation information in a prominent area accessible to employees, residents, or visitors. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Display Bike Route Maps
	* Display Bus Schedules
	* Display other transportation information such as carpooling, carsharing, etc.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
Streets	
M-12	Project design uses models by the Local Government Commission (LGC) in the "Smart Growth Guidebook," such as: street block patterns that form an interconnected grid, short block faces, numerous alleys and narrow streets. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
PARKING	
Strategies: Pricing and Preferential Parking	
M-13	Develop and implement parking pricing strategies, such as charging parking lot fees to low occupancy (single occupant vehicles) vehicles. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-14	Provide preferential parking spaces near the entrance of buildings for those who carpool/vanpool/rideshare and provide signage. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
Parking Amount	
M-15	Provide parking reduction. The following are guidelines: *(URBEMIS Location: Operational Emissions: Mitigation Measures: Parking Supply)*
	* Office 25%
	* Medical office 8%
	* Commercial 5%
	* Industrial 10%
	* Additional 10-20% if located along transit station
BUILDING/SITE DESIGN	
Energy Efficiency	
M-16	Increase the building energy efficiency rating above what is required by Title 24 requirements. This can be accomplished by any combination of measures. The following is an idea list of measures that may be implemented to achieve this measure (this list should not be considered comprehensive): *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
	General
	* Participate in and implement available PUC energy-efficient rebate programs including air conditioning, gas heating, refrigeration, and lighting programs.
	* Install efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces and boiler units beyond Title 24 requirements (see Title 24, Part 6, Energy Efficiency Standards for Residential and Nonresidential Buildings: http://www.energy.ca.gov/title24/standard)
	* Capture waste heat and re-employ it in nonresidential buildings.
	* Trees should be carefully selected and located to protect the building(s) from energy consuming environmental conditions and to shade paved areas
	* Improve the thermal integrity/efficiency of buildings, and reduce the thermal load with automated and timed temperature controls or occupant sensors.
	Roof
	* Install "Green Roof" System
	* Install EPA/DOE Energy Star labeled roof materials
	* Install roof photovoltaic energy systems as a standard feature (on new homes)

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-16 Cont	*Solar Design*
	* Design buildings with proper orientation, fenestration, and other design components that maximize the potential of passive cooling and heating, include shading master plan
	Components
	* Use devices that minimize the combustion of fossil fuels.
	* Install low nitrogen oxide (NOx) hot water heaters.
	* Install high efficiency Energy Star heating or ground source heat pumps
	* Install energy efficient interior lighting.
	* Install built-in energy efficient appliances.
	* Install door sweeps and weather stripping if more efficient doors and windows are not available.
	* Install energy-efficient and automated controls for air conditioning
	* Install of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces and boiler units.
	* Install electrical outlets on the exterior walls of both the front and back of residences or all commercial buildings to promote the use of electric landscape maintenance equipment.
	* Install electric vehicle recharging station with both conductive and inductive charging capabilities in residential garages / parking lots.
	* Install a gas outlet for use with outdoor cooking appliances, and in any proposed fireplaces, including outdoor recreational fireplaces or pits.
	* Use low energy street lights (i.e. sodium).
	* Use low energy traffic signals (i.e. light emitting diode).
	* Install Medium Efficiency Filters
	* Install High Efficiency Filters
	* Install HEPA (High Efficiency Particle Arrestance) Filters
	* Install "whole-house" or "fresh-air" ventilation system

Building Maintenance/Indoor Air Quality

M-17	Reduce VOC emissions from Architectural Coatings⊗ *(URBEMIS Location: Area Emissions: Architectural Coatings - Nonresidential)*
	* Use Low-VOC Coatings
	* Use surfaces that do not require coatings, such as stone or brick
	* Use No-VOC Coatings

Fuel Combustion

M-18	Provide Electrical outlets at front and rear of residences for the use of electrically powered landscape equipment (See Measure 47 below) *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
M-19	Provide electrical outlets at non-residential units for the use of electrically powered landscape equipment. In combination with Measure M-31 below. *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
M-20	Reduce Wood Fireplaces and/or Woodstove above that required by District Rule 4901. *(URBEMIS Location: Area Emissions: Hearth Fuel Combustion Node)*

OPERATIONAL MEASURES

Telecommunication

M-23	Implement an employee telecommuting policy *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Install videoconferencing system
	* Include teleconferencing capabilities, such as web cams or satellite linkage, which will allow employees to attend meetings remotely without requiring them to travel out of the area.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-23	* Offer low cost financing to employees for the purchase of telecommuting equipment, or lend company-owned equipment.
Cont	* Provide satellite work offices when appropriate. Applicable to office/industrial and educational institutions.

Alternative Transit

M-24	Provide guaranteed ride home⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-25	Provide carpool matching assistance⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-26	Provide Car-Sharing Services⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-27	Employ or appoint an Employee Transportation Coordinator to work with the TMA and the District⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Implement a rideshare program
	* Provide incentives to employees to carpool/vanpool, take public transportation, telecommute, walk, bike, etc.
	* Participate in an employee "flash-pass" program, which provides free travel on transit buses.
	* Provide transit pass subsidy (100%) and/or commute alternative allowance
	* Participate in alternative transportation programs such as CalTrans rideshare where deemed appropriate by local transportation planning agencies and/or APCD
	* Provide transit-use incentives, as approved by applicable transportation planning agencies such as subsidized transit passes and accommodation of unusual work schedules to encourage transit use
	* Provide funds for on line computer rideshare matching.
	* Provide an employer subsidized shuttle service to connect to existing transit sites.
	* Provide an employer subsidized free or reduced transit fares for midday central business district trips.
	* Provide financial incentives to carpoolers for vehicle tune-up or maintenance
	* Implement a lunchtime shuttle to reduce single occupant vehicle trips.
	* Provide Flextime for non-SOV (single occupancy vehicle) commuters
	* Maintain a fleet of bicycles for employee and business use
M-28	Provide transit pass subsidy (100%) and/or commute alternative allowance⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
M-29	Provide a display case or kiosk displaying transportation information in a prominent area accessible to employees or residents. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Provide ridesharing information in a homeowner's association package.

Work Schedules

M-30	Implement alternative work schedules such as compressed workweek schedules where weekly work hours are compressed into fewer than five days.⊗ Examples of these options are: 9/80, 4/40, 3/36 *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*

Landscaping

M-31	Project provides and/or requires use of electric maintenance equipment; including, but not limited to electric lawn mowers, electric leaf blowers. In combination with measure M-19. *(URBEMIS Location: Area Emission: Mitigation Measures Node)*
	* Prohibit gas powered landscape maintenance equipment within developments.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-31 *Cont*	* Contract only with commercial landscapers who operate with equipment that complies with the most recent California Air Resources Board certification standards, or standards adopted no more than three years prior to date of use.
	* Provide battery powered or electric landscape maintenance equipment for new residences, commercial and industrial land uses.

Fleet / Engines

M-32	Implement clean air business practices such as using low-emission delivery vehicles, contract with alternative-fuel waste hauling companies, contracting with carrier, delivery, security, or other services utilizing electric, low-emission, alternative fuel, convert fleet to cleaner vehicles or utilizing heavy-duty vehicles that are CARB certified to optional low-emission standards for NOx.⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: On-Road Trucks)*
	Medium Trucks - 5,751 to 8,500 lbs
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	Light Heavy - 8,501 to 10,000 lbs
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	Light Heavy - 10,001 to 14,000 lbs
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	Medium Heavy - 14,001 to 33,000 lbs
	* AZ Purifier & AZ Purimuffler (Cummins & Navistart: 1991-03)
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel fuel
	* DPM DPF muffler with/Series 6300 catalyst formulation
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Lubrizol Engine Control Systems Purifilter
	* Cleaire Longview (ultra low diesel)

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-32 Cont	*Heavy Heavy - 33,001 to 60,000 lbs*
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* Cleaire Flash and Match oxidation catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* DPM DPF muffler w/series 6300 catalyst formulation
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Lubrizol Engine Control Systems Purifilter
	* Cleaire Flash Match system (Cummins M11 engines only)
	* Cleaire Longview (ultra low diesel)
	Line Haul Vehicles >60,000 lbs
	* DCM DOC Muffler w/series 6000 or 6100 catalyst
	* Cleaire Flash and Match oxidation catalyst
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* DPM DPF muffler w/series 6300 catalyst formulation
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Lubrizol Engine Control Systems Purifilter
	* Cleaire Flash Match system (Cummins M11 engines only)
	* Cleaire Longview (ultra low diesel)
	Urban Bus
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	School Bus
	* ESW Particulate Reactor
	* PuriNOx Emulsified Diesel Fuel
	* CCRT Particulate Filter
	* CRT Particulate Filter
	* Cleaire Longview (ultra low diesel)
	General
	* Utilize electric fleet vehicles
	* Utilize Ultra Low-Emission fleet vehicles
	* Utilize methanol fleet vehicles
	* Utilize liquid propane gas fleet vehicles

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
M-32	* Utilize compressed natural gas fleet vehicles
Cont	* Replace diesel fleet with alternative fuel engine technology and infrastructure
	* Retrofit existing equipment to reduce emissions using methods such as particulate filters, oxidation catalysts, or other approved technologies.
	* Fleet vehicles that use clean-burning fuels as may be practicable
	* Adopt a Vehicle Idling Policy requiring all vehicles under company control to adhere to a 5 minute idling policy.
	* Conversion to cleaner engines
	* Use of cleaner (reduced sulfur) fuel
	* Regular maintenance – keep equipment well tuned
	* Add-on control devices, e.g., particulate traps, catalytic oxidizers
	* Repower/Retrofit heavy-duty diesel fleet with cleaner diesel engine technology and/or diesel particulate filter after-treatment technology
	* Replace diesel fleet with alternative fuel engine technology and infrastructure
	* Replace auxiliary power units with cleaner engine technology, alternative fuels, or require electric connection while at loading dock
	* Replace diesel fleet vehicles with cleaner fueled low emission vehicles (i.e. school buses, buses, on- and off- road heavy duty vehicles, lighter duty trucks and passenger vehicles)

RESIDENTIAL ON-SITE EMISSION REDUCTION LIST

No.	Measure - Objective
	LOCATION
	Bicycle Infrastructure
R-1	Project is located within 1/2 mile of existing or planned Class I or II bike lanes on arterial/collector streets, or where a suitable parallel route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
	Mass Transit Infrastructure
R-2	Project is located within 1/4-1/2 mile of a transit stop. *(URBEMIS Location: Operation Emissions: Mitigation Measures: Transit Service Node)*
	Mixed Use/Density
R-3	Include high density residential, mixed, or retail/commercial uses on site or locate near (within a 1/2 mile of project center) these uses to minimize the need for trips. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Mix of Uses Node and/or Operational Emissions: Mitigation Measures: Local Serving Retail)*
	* Day care facilities
	* Restaurant or cafeteria
	* Bank or ATM
	* Dry cleaners
	* Post office/services
	* Entertainment (movie/video)
	* Recreation facility/fitness center
	* Public Park
	* Residential development/On-site employee living spaces
R-4	Average Residential density is 7 Dwelling Units (DU) per acre or greater. *(URBEMIS Location: Land Use Selection- Acreage)*
	* Project contains ancillary residential units - "Granny Flats"
R-5	Designate a portion of residential units as deed-restricted below-market-rate (BMR) housing. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Affordable Housing Node)*
	* Include Affordable Housing/Senior Housing/ Assisted Living
	BICYCLE/PEDESTRIAN
	Bicycle Storage
R-6	Provide Class I bicycle parking at apartment complexes or condos without garages *(URBEMIS Location: Operational Emissions: Mitigation Measure: Transportation Demand Management Node)*
	Pedestrian- Bicycle Oriented Infrastructure
R-7	Install Class I or II bike lanes on arterial/collector streets, or where a suitable route exists. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
R-8	Install complete, separate, safe, and convenient pedestrian sidewalks/paths that connect multiple uses. This can be implemented through the following project designs: *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*
	* Provide direct pedestrian connections

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
R-18	* Provide paths and building access which are physically separated from street parking lot traffic and that eliminates physical \barriers such as walls, berms, landscaping and slopes that impede the use of pedestrians, bicycle facilities, or public transportation vehicles.
Cont	* Place store entrances close to adjacent sidewalks.
	* Provide pedestrian signalization and signage to improve pedestrian safety
	* Provide continuous sidewalks separated from the roadway by landscaping and on-street parking.
	* Provide clearly delineated crosswalks at intersections.
	* Provide on and off-site pedestrian facility improvements such as overpasses and wider sidewalks
	* Provide on and off-site pedestrian facility improvements such as trails linking them to designated pedestrian commuting routes and/or on-site overpasses and wider sidewalks.
	* Provide street lighting
	* Provide shaded pathways (e.g. provide street trees or building overhangs)
	* Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel
	* Provide traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds, to encourage pedestrian and bicycle travel.
	* Provide pedestrian access between bus service and major transportation points and destination points within the project.

Transportation Design

Signage

R-9	Provide a display case or kiosk displaying transportation information in a prominent area accessible to residents, or visitors. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
	* Display Bike Route Maps
	* Display Bus Schedules
	* Display other transportation information such as carpooling, carsharing, etc.

Streets

R-10	Project design uses models by the Local Government Commission (LGC) in the “Smart Growth Guidebook,” such as: street block patterns that form an interconnected grid, short block faces, numerous alleys and narrow streets. *(URBEMIS Location: Operational Emissions: Mitigation Measures: Bicycle and Pedestrian Node)*

Building/Site Design

Energy Efficiency

R-12	Increase the building energy efficiency rating above what is required by Title 24 requirements. This can be accomplished by any combination of measures. The following is an idea list of measures that may be implemented to achieve this measure (this list should not be considered comprehensive): *(URBEMIS Location: Area Emissions: Mitigation Measures Node)* *General*
	* Participate in and implement available PUC energy-efficient rebate programs including air conditioning, gas heating, refrigeration, and lighting programs.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
R-12	* Install efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces and boiler units beyond Title 24 requirements (see Title 24, Part 6, Energy Efficiency Standards for Residential and Nonresidential Building
Cont	* Trees should be carefully selected and located to protect the building(s) from energy consuming environmental conditions and to shade paved areas
	* Improve the thermal integrity/efficiency of buildings, and reduce the thermal load with automated and timed temperature controls or occupant sensors.
	Roof
	* Install "Green Roof" Technology
	* Install EPA/DOE Energy Star labeled roof materials
	* Install roof photovoltaic energy systems as a standard feature (on new homes)
	Solar Design
	* Design buildings with proper orientation, fenestration, and other design components that maximize the potential of passive cooling and heating, include shading master plan
	Components
	* Use devices that minimize the combustion of fossil fuels.
	* Install low nitrogen oxide (NOx) hot water heaters.
	* Install high efficiency Energy Star heating or ground source heat pumps
	* Install energy efficient interior lighting.
	* Install built-in energy efficient appliances.
	* Install door sweeps and weather stripping if more efficient doors and windows are not available.
	* Install energy-efficient and automated controls for air conditioning
	* Install of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces and boiler units.
	* Install electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment.
	* Install electric vehicle recharging station with both conductive and inductive charging capabilities in residential garages / parking lots.
	* Install a gas outlet for use with outdoor cooking appliances, and in any proposed fireplaces, including outdoor recreational fireplaces or pits.
	* Use low energy street lights (i.e. sodium).
	* Use low energy traffic signals (i.e. light emitting diode).
	* Install Medium Efficiency Filters
	* Install High Efficiency Filters
	* Install HEPA (High Efficiency Particle Arrestance) Filters
	* Install "whole-house" or "fresh-air" ventilation system

Fuel Combustion

R-13	Provide Electrical outlets at front and rear of residences for the use of electrically powered landscape equipment (See Measure R-18 below). *(URBEMIS Location: Area Emissions: Mitigation Measures Node)*
R-14	Reduce Wood Fireplaces and/or Woodstove above that required by District Rule 4901. *(URBEMIS Location: Area Emissions: Hearth Fuel Combustion Node)*

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

No.	Measure - Objective
	OPERATIONAL MEASURES
Alternative Transit	
R-15	Provide Car-Sharing Services⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
R-16	Transit pass subsidy (100%) and/or commute alternative allowance⊗ *(URBEMIS Location: Operational Emissions: Mitigation Measures: Transportation Demand Management Node)*
R-17	Provide a display case or kiosk displaying transportation information in a prominent area accessible to residents. *(URBEMIS Location: Operational Emissions: Mitigation Measure: Transportation Demand Management Node)* * Provide ridesharing information in a homeowner's association package. * Provide an opportunity to receive either a complimentary bicycle or electric bicycle retrofit kit to each residential buyer * Provide electric shuttle or minibus service to transit stops * Provide free transfers between all shuttles and transit. * Operation of a shuttle bus to shopping, health care, public services sites and other nearby trip attractors to reduce automobile use.
Landscaping	
R-18	Project provides and/or requires use of electric maintenance equipment; including, but not limited to electric lawn mowers, electric leaf blowers, etc (In combination with measure R-13 above).⊗ *(URBEMIS Location: Area Emissions: Mitigation Measures Node)* * Prohibit gas powered landscape maintenance equipment within developments. * Contract only with commercial landscapers who operate with equipment that complies with the most recent California Air Resources Board certification standards, or standards adopted no more than three years prior to date of use. * Provide battery powered or electric landscape maintenance equipment for new residences.

⊗ These operational, program-oriented measures must be implemented for at least 10years from build-out to qualify as an emission reduction measure

ON-SITE ENHANCING MEASURES

No.	Measure - Objective
	LOCATION
Mass Transit Infrastructure	
A	* Project is located within one mile of a park and ride lot operated by a transportation agency.
	TRANSPORTATION DESIGN
Transit Support	
B	Include transit support features in the project where deemed appropriate by the local agency with jurisdiction over the project as demand and service routes warrant subject to review and approval by local transportation planning agencies, including (but not limited to):
	* On-site/off-site turnouts
	* Route signs and displays
	* Bus turnouts/bulbs
	* Street lighting
	* Passenger benches
	* Shelters at transit access points
C	Develop park-and-ride lots
Streets	
D	Make street design/speeds consistent with requirements for neighborhood electric vehicles
	PARKING
Parking Amount	
E	Use of any excess parking over zone code requirements as on-site parking-n-ride lots.
Parking Construction	
F	Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances
G	Loading and unloading facilities for transit and carpool/vanpool users. (Provide Signage)
H	Provide grass paving or reflective surface paving for unshaded parking lot areas, driveways, or fire lanes that reduce standard paving by 10% or more.
	* Portland concrete is the preferred paving material
	* Other reflective surfaces to be determined in consultation with SJVAPCD.
	* "Chip Seal" methodology
	* Green Pavement http://www.invisiblestructures.com/GP2/grasspave.htm
I	Structural soil should be used under paved areas to improve tree growth.
J	Provide electric vehicle charging facilities with preferential parking

ON-SITE ENHANCING MEASURES

No.	Measure - Objective
	BUILDING/SITE DESIGN
Telecommuting Infrastructure	
K	Provide necessary infrastructure for telecommuting
	* Provide fiber optic wiring and connections
	* Provide T1 wiring and connections
	* Install a teleconferencing facility
	* Install a on-site telecommunications center
	* Build new homes with internal wiring/cabling that allows telecommuting, teleconferencing, and telelearning
Landscaping	
L	Plant trees sufficient to shade 1/2 the paved area within 15 years after development is constructed.
M	Landscape with low-emission native drought-resistant species (plants, trees and bushes) to reduce the demand for gas powered landscape maintenance equipment. Contact the District for a list of low-emission trees and shrubs.
	OPERATIONAL MEASURES
Telecommunication	
N	Provide free-access telework terminals in multi-family projects
O	Provide a community videoconferencing system coordinated with TMA.
P	Design and implement "Shop by Telephone" or "Shop-by-Computer" services. Applicable to shopping centers and retail facilities.
Goods Movement	
Q	Establish delivery services. Applicable to retail facilities (frequent use), shopping centers, and restaurants.
R	If the development is a grocery store or large retail facility, provide home delivery service for customers.
S	Schedule goods movement for off-peak traffic hours.

APPENDIX D

Recommended Changes to URBEMIS for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

Area and On-road: Jones & Stokes Memo
Operational: Nelson/Nygaard Memo

November 17, 2005

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Jones & Stokes

Revised Memorandum

Date: October 20, 2004

To: Jennifer Barba, San Joaquin Valley Unified Air Pollution Control District

From: Tim Rimpo

Subject: **Recommendations for URBEMIS2002 On-Road and Area Source Mitigation Measures**

Introduction

This memorandum describes Jones & Stokes' proposed approach for updating URBEMIS2002's on-road and area source emission calculations and mitigation measures. The information included in the memo combines and modifies information in two previous memos based on comments received from the District and the URBEMIS Working Group during several conference calls held during the summer of 2004.

ON-ROAD MITIGATION MEASURES

The current version of URBEMIS2002 (version 7.5.0) includes operational mitigation measures that focus on travel behavior. They include measures designed to encourage individuals to walk, bike, or use transit in lieu of driving. A separate memo prepared by Nelson\Nygaard Consulting Associates (September 9, 2004) describes proposed changes to URBEMIS2002's operational mitigation measures.

In its current format, URBEMIS does not allow the user to enter mitigation measures to reduce on-road emissions associated with medium- and heavy-duty vehicles. This memorandum describes Jones & Stokes' proposed approach for incorporating operational on-road mitigation measures into URBEMIS2002.

The proposed addition of on-road mitigation to URBEMIS would focus on those measures that can be used to reduce emissions from diesel powered medium and heavy-duty engines (over 14,000 lbs). Although these on-road mitigation measures could be used to reduce emissions for any land use designation, they are most useful for land uses with a high percentage of on-road truck use, such as warehouses, manufacturing firms, and industrial uses. Other land uses that have a large number of on-road truck trips, such as large retail stores, may also reduce emissions using this new mitigation option.

Jones & Stokes' original proposal was to group on-road mitigation measures into the following four categories:

- Repower existing engines,
- Retrofit existing engines,
- Purchase new engines, and/or
- Use alternative fuels.

However, after discussing this topic with the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) during the May 13th, 2004 conference call, it became clear that this approach had too many uncertainties and could not be accurately estimated by URBEMIS.

Instead, for project applicants wishing to provide on-road mitigation for medium- or heavy-duty trucks, the applicant would be required to work with the SJVUAPCD to estimate the pounds per day and tons per year emission reductions associated with the project. URBEMIS would be modified so that the user has the option of entering the pounds per day and tons per year emission reductions as calculated by the SJVUAPCD.

This approach would work much the same way in other air districts. The project applicant would need to work with the air district to determine the emission reduction associated with a project. That emission reduction would then be entered directly into URBEMIS.

AREA SOURCE MITIGATION MEASURES

URBEMIS2002 currently can be used to estimate emissions from five categories:

- Natural gas fuel combustion,
- Woodstove fuel combustion,
- Fireplace wood combustion,
- Landscape fuel combustion, and
- Consumer products.

We propose adding one additional area source category, architectural coatings, to the area source emissions module. Each of these six area source emission categories is discussed separately below.

Natural Gas Combustion

Emission Factors

URBEMIS2002 can be used to estimate natural gas fuel combustion emissions from cooking and water and space heating using an approach first described in Tables A9-12, A9-12-A, and A9-12-B in the South Coast Air Quality Management District CEQA handbook (South Coast Air Quality Management District 1993). The equation used to estimate CO, ROG, NOx, and PM10 emissions from natural gas combustion is described in the URBEMIS2002 User's Manual. No changes are proposed to those emission factors.

Mitigation Measures – Natural Gas Combustion

URBEMIS currently includes three categories of area source mitigation measures: residential, commercial, and industrial. The residential and commercial categories include several mitigation measure check boxes that apply to space and water heating. They include:

- Solar water heaters;
- Central water heaters;
- Orient buildings north/south; and
- Increase insulation beyond Title 24.

One additional mitigation measure - all electric landscape maintenance equipment – is included in URBEMIS for residential and commercial land uses. That mitigation measure is described separately below under the landscape fuel combustion heading. Orienting buildings north/south is currently the only industrial mitigation measure included within URBEMIS.

Jones & Stokes proposes modifying the natural gas combustion mitigation measures so that only three measures are included, one each for residential, commercial, and industrial land uses. Each measure would be based on building energy efficiency relative to Title 24, California's energy efficiency regulation for residential and nonresidential buildings. The three URBEMIS measures are as follows:

- Residential Land Uses: Increase energy efficiency ___% beyond Title 24.
- Commercial Land Uses: Increase energy efficiency ____% beyond Title 24.
- Industrial Land Uses: Increase energy efficiency ____% beyond Title 24.

The user would be required to turn on the appropriate measure and enter the percentage increase in energy efficiency. Emission reductions would be proportional to the increase in building energy efficiency beyond Title 24. For example, the developer of a

commercial land use that proposes an increase in energy efficiency 10% beyond the Title 24 requirements would receive a 10% reduction in natural gas combustion emissions compared to uncontrolled emissions.

Title 24 requires that compliance (with Title 24) be demonstrated before a building permit can be issued. This requirement applies to any heated building in California. Consequently, the percentage increase in energy efficiency beyond Title 24 would be based on the required compliance documentation.

Residential natural gas combustion primarily includes space heating, water heating, and cooking. One comment raised during the May 13th conference call was whether natural gas used for cooking is properly accounted for in the above mitigation. Data published by the California Air Resources Board (Emission Inventory Source Category 7.2 Residential Natural Gas Combustion, Revised November 1998) lists the percentage of residential natural gas use by category. That evaluation shows that approximately six percent of natural gas used in California residences is for cooking. Title 24 includes specific measures for natural gas cooking equipment. Since Title 24 covers natural gas cooking and because the cooking category is relatively small compared to total gas use, the mitigation measures listed above for total natural gas are sufficient to account for natural gas used for cooking.

Wood Stoves, Natural Gas Fireplaces, and Wood Fireplaces

Currently, URBEMIS includes wood stoves and wood fireplaces as separate area source emission categories. We propose modifying how these two emission source categories appear within URBEMIS and adding a third category, natural gas fireplaces.

The user, upon selecting this category, would be shown a screen with four tabs, which represent four separate screens that can be selected. As illustrated in the following table, the first screen would list the percentage of woodstoves, natural gas stoves, and fireplaces associated with the selected residential land uses. The remaining three screens would show the values that could be modified by the user for woodstoves, natural gas fireplaces, and wood fireplaces, respectively.

In the San Joaquin Valley, the percentage of homes with each of the three hearth options would vary based on housing density allowed by the SJVUAPCD's Rule 4901. For example, if the residential land uses entered by the user had a housing density of three per acre, then URBEMIS would, on the first "hearth" screen, show the percentages in the second column of Table 1.

The following table illustrates the percentages for the three situations allowed by Rule 4901. Where the housing density is 3 per acre, 2 homes or 67% could use woodstoves and 33% of the homes would be allowed to have wood stoves. For housing densities

exceeding three per acre, the percentage of woodstoves would decrease and the percentage of natural gas stoves would increase. Where the density of homes is between 2 and 3, 100% of homes are assumed to have wood stoves. Finally, when the density of homes is 2 per acre, half are assumed to have a fireplace and half are assumed to have woodstoves.

Table 1. Wood Stove, Natural Gas Fireplace, and Wood Fireplace Percentages

	PERCENTAGE OF HOMES WITH THIS OPTION		
	3 or more homes per acre	More than 2, less than 3 homes per acre	2 or fewer homes per acre
Wood Stoves	67%	100%	50%
Natural Gas Stoves	33%	0%	0%
Fireplaces	0%	0%	50%
None of the Above	0%	0%	0%
Total	100%	100%	100%
Assumption	Assumes 3 per acre	Assumes 2.5 per acre	Assumes 2 per acre
Based on SJVUAPCD Rule 4901.			

For areas outside of the San Joaquin Valley, URBEMIS will assume the following percentages:

- Wood Stoves: 35%
- Natural Gas Stoves: 55%
- Fireplaces: 10%
- None of the above: 0%.

These percentages represent the existing percentages within URBEMIS for wood stoves and fireplaces while also assuming that the remaining homes will have natural gas stoves.

Each air district would have the option to modify these default percentages.

Wood Stove Emission Factors

The emission factors currently used by URBEMIS to calculate wood stove emissions are the most recently available, based on a review of the wood stove emission factors at the U.S. EPA's emission factor web site (http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s10.pdf). Consequently, no changes are proposed to URBEMIS' wood stove emission rates. The emission rate equations are listed in the URBEMIS2002 User's Manual.

Natural Gas Stove Emission Factors

Jones & Stokes will incorporate natural gas stove emission factors into URBEMIS using the AP-42 emission factors for natural gas combustion (U.S. EPA, 1998). Emissions will be estimated using the following equations:

Pounds per day = A * B * C * D

Tons per year = Pounds per day * (E / 2000)

Where: A = fireplace emission rate for each pollutant,

- 94 pounds NOx / standard cubic foot (scf),
- 40 pounds CO/scf,
- 5.5 pounds ROG/scf,
- 7.6 pounds PM10/scf, and
- 0.6 pounds SO_2/scf.

B = amount of natural gas burned per day (scf),
C = number of residential units,
D = percentage of units with natural gas fireplaces, and
E = days per year (for tons per year emission calculations).

The emission equation will assume that the average stove is 30,000 Btu's, that there is 1,020 Btu's per standard cubic foot of gas, that the stove is used for an average of 2 hours per day during the winter months, and 100 days per year (200 hours per year).

Wood Fireplace Emission Factors

The emission factors currently used by URBEMIS to calculate fireplace emissions are the most recently available, based on a review of the fireplace emission factors at the U.S. EPA's emission factor web site http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s09.pdf Consequently, no changes are proposed to URBEMIS' fireplace emission rates.

Wood Stoves, Natural Gas Fireplaces, and Wood Fireplaces Mitigation Measures

Currently, URBEMIS2002 has no mitigation measures for woodstoves or wood fireplaces (Natural gas fireplaces are not currently part of URBEMIS2002.). Mitigation measures will be included in URBEMIS2002. The proposed change will allow the user to make changes to the percentages of wood stoves, natural gas fireplaces, and wood fireplaces that will be installed in new residences.

Landscape Fuel Combustion

Emission Factors

Landscape maintenance equipment generates emissions from fuel combustion, from evaporation of unburned fuel, and from fugitive dust generated by equipment such as leaf blowers. Emissions include NOx, ROG, CO, and PM10. The emission factors used to estimate equipment emissions include exhaust and evaporation. Emission factors have not yet been developed for the fugitive dust generated by certain types of equipment generate.

Equipment in the landscape category includes lawn mowers, roto tillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used in residential and commercial applications. Engines in this category are 25 horsepower or less. This category also includes air compressors, generators, and pumps used primarily in commercial applications (California Air Resources Board 2004).

The California Air Resources Board has enacted regulations to limit emissions from landscape maintenance equipment. Beginning in 1994 these regulations imposed emission limits on all landscape maintenance equipment sold. Those regulations became more stringent for equipment sold in 1999 and later. Consequently, the emissions from this source category are similar to automobile emissions in that the turnover in the equipment fleet plays an important part in how quickly emission reductions are achieved.

URBEMIS2002 estimates emissions from this source category based on the year in which the user is attempting to estimate emissions. The California Air Resources Board has prepared estimates of emissions in 2000 and 2010. The proposed equations for this source category are divided into residential and commercial categories. The residential equation applies only to SFHU. The commercial equation is based on emissions per business unit and includes multifamily residential land uses.

The equations shown below are similar to those currently used by URBEMIS except that the pounds of pollutant per single-family residential unit and commercial business have been updated to reflect recent data developed by the California Air Resources Board (Cordero, M. and W. Wong, 2003).

2000 Emissions - Residential
ROG (pounds/day) = 0.0077 pounds ROG / SFHU/day * SFHU
CO (pounds/day) = 0.0449 pounds CO / SFHU/day * SFHU
NOx (pounds/day) = 0.0003 pounds NOx / SFHU/day * SFHU
PM10 (pounds/day) = 0.0002 pounds PM10 / SFHU/day * SFHU

2000 Emissions - Commercial
ROG (pounds/day) = 0.1593 pounds ROG / Business Unit * Number Business Units
CO (pounds/day) = 0.9298 pounds CO / Business Unit * Number Business Units
NOx (pounds/day) = 0.0061 pounds NOx / Business Unit * Number Business Units
PM10 (pounds/day) = 0.0041 pounds / PM10 Business Unit * Number Business Units

2010 Emissions - Residential
ROG (pounds/day) = 0.0038 pounds ROG / SFHU/day * SFHU
CO (pounds/day) = 0.0305 pounds CO / SFHU/day * SFHU
NOx (pounds/day) = 0.0005 pounds NOx / SFHU/day * SFHU
PM10 (pounds/day)= 0.0001 pounds PM10 / SFHU/day * SFHU

2010 Emissions - Commercial
ROG (pounds/day) = 0.0899 pounds ROG / Business Unit *Number Business Units
CO (pounds/day) = 0.6310 pounds CO / Business Unit * Number Business Units
NOx (pounds/day) = 0.0094 pounds NOx / Business Unit * Number Business Units
PM10 (pounds/day)= 0.0013 pounds PM10 / Business Unit * Number Business Units

The residential emission factors shown in the 2000 emission equations are based on total California single family residential emissions divided by the total number of California SFHU in 2000. Similarly, the commercial emission factors for 2000 are based on total California non-farm business emissions divided by the California's total 2000 business units (U.S. Department of Commerce 2003). For the commercial equations, URBEMIS2002 bases the number of business units on the number of non single-family housing land uses specified by the user.

The 2010 emission rates are based on ARB's estimates of emissions for this source category, broken into residential and commercial categories.

URBEMIS2002 will use the emission rates shown for 2000 for 2000 emissions. For 2001 through 2009, URBEMIS2002 will use interpolated emission factors by assuming a uniform decrease in the emission rate each year between 2000 and 2010. In 2010 and succeeding years, the 2010 emission rates will be used.

Average annual emissions assume that daily emissions would occur only during the summer period of 180 days. The end user will be able to modify the length of the summer period.

Mitigation Measures – Landscape Fuel Combustion

URBEMIS2002 currently allows the user to specify a mitigation measure in which electric powered equipment can be used to replace gas-powered equipment. However, this is currently an all or none mitigation measure. The following measure will allow the user to enter a percentage representing the proportion of residential and non-residential equipment that will be replaced by electrically powered equipment as follows:

- Replace ____% of residential landscape equipment with electrically powered equipment and provide electrical outlets at the front and rear of residences.

- Replace ____% of non-residential landscape equipment with electrically powered equipment and provide electrical outlets for the use of such equipment.

Consumer Products

Emission Factors

Consumer products comprise one of the largest solvent-use categories of reactive organic gases in California. Consumer product emissions are any chemically formulated product used by household and institutional consumers. They include a wide range of product categories, including air fresheners, automotive products, household cleaners, and personal care products (California Air Resources Board, 2000).

Emissions associated with these products primarily depend on the increased population associated with residential development. URBEMIS estimates consumer products when one or more residential land uses have been selected by the user. ROG emissions associated with consumer product use are currently estimated with the following equation:

ROG (pounds/day) = 0.0171 daily pounds of ROG per person * number of residential units * 2.861 persons per residence

The revised consumer products emission factor equation includes modifications of the pounds ROG per person and persons per residence variables:

ROG (pounds/day) = 0.013 daily pounds of ROG per person * number of residential units * 2.93 persons per residence (will vary by county).

The ROG emission factor is based on an average of the total estimated ROG emissions from consumer products divided by the total California population (California Air Resources Board, 2004; California Department of Finance, 2004). The ROG pounds per person emission factor ranges from 0.1927 in 2003 to 0.2182 in 2020. An average of these emission factors – 0.2055 pounds ROG per person – will be incorporated into URBEMIS as the default emission factor.

The persons-per-residence shown in the equation above is a California average. Within URBEMIS, separate estimates of persons per residence will be included for each county.

Mitigation Measures – Consumer Products

No feasible mitigation measures have been identified to reduce consumer product emissions.

Architectural Coatings

Emission Factors

Currently, URBEMIS estimates architectural coatings emissions as part of the construction module but not as part of area sources. However, a percentage of buildings are repainted each year and the ROG emissions associated with those buildings will be incorporated as an area source emission category.

Architectural coating emissions will be calculated using the same approach as in the construction module except that two additional variables will be added, one for residential coatings and one for non-residential. Those variables, which can be edited by the user, will show the percentage of a project's total square footage that will be repainted each year. We currently propose using 10% for both residential and non-residential buildings. However, this value may change as we continue to research this issue. Also, the individual air districts will have the option of modifying this percentage.

Mitigation Measures – Architectural Coatings

There are few feasible mitigation measures available to reduce evaporative emissions associated with architectural coatings. The best approaches involve using materials that require no architectural coatings during building construction or using coatings with lower ROG content than are currently required by regulation.

Instead of being considered a mitigation measure, we will assume that the use of "no-coatings" building materials is part of the project. Consequently, the use of coatings free building materials would have to be accounted for within the unmitigated portion of URBEMIS. This could be accounted for be reducing the coating thickness or the conversion factors (2.7 for residential, 2.0 for non-residential) that is used to convert building square footage to the amount of surfact area to be painted.

Although the use of low ROG content coatings is a feasible mitigation measure, it is considered unenforceable, especially during the operational phase of a project. Consequently, no mitigation measures will be incorporated into the architectural coatings category of the URBEMIS area source mitigation measures.

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M E M O R A N D U M

To: Tim Rimpo

From: Patrick Siegman

Date: October 10, 2004

Subject: **Final Recommendations for URBEMIS 2002 Mitigation Measures**

Introduction

This memorandum sets out recommendations to revise the operational mitigation component of URBEMIS 2002. These have been developed with three main aims in mind:

- **Simplify** the existing mitigation component, which while extremely detailed, is daunting to new users and has extensive data requirements. In particularly, the division between "environment factors" and "mitigation measures" can be confusing.
- **Improve consistency.** Many of the inputs to the mitigation component are extremely subjective (e.g. whether some, few or no bike routes provide wide paved shoulders and have few curb cuts). We propose making these more quantitative, and/or providing additional guidance in the users' manual or within the program itself.
- **Improve accuracy and transparency.** While many of the inputs to the current mitigation component have been proven to have an impact of travel behavior, research is still at an early stage of assessing quantitative impacts, and how these interrelate with other mitigation strategies. The recommendations here update the current mitigation component in the light of new research.

An extensive body of research has been compiled as to the impacts of particular mitigation strategies on travel behavior. However, in general, this has either had an academic focus, or been undertaken for the purposes of developing citywide or regional travel models. For example, many agencies have sophisticated procedures for assessing non-single occupancy auto travel at the level of TAZ or above, but not at the development level. There is extremely little guidance on how to use this data in the type of application needed for URBEMIS 2002 – namely, to provide quantitative estimates of the impact on trip generation and vehicle miles traveled (VMT) at the development level.

Many agencies do provide credits for individual developments that implement mitigation measures, for example when assessing impact fees or conducting traffic studies. Some California examples include C/CAG in San Mateo County and VTA in Santa Clara County. A brief, national review was also conducted for purposes of this memorandum.1 In general, however, these credit programs are only loosely based on the latest travel research, and it could be argued that they function more at a policy level, in providing incentives for developers to incorporate elements such as demand management programs that the agency considers desirable.

The recommendations here therefore attempt to bridge the gap between academic studies and complex regional or area-wide models on the one hand, and more site-specific traffic assessments on the other hand. The emphasis is on providing the best possible estimate while minimizing data requirements. The overall effect, compared to the existing mitigation component, is to reduce the number of inputs required, but make them more quantitative.

It cannot be too highly stressed that the trip reductions recommended here are valid at a sketch-planning level only, and are subject to considerable uncertainty. While they should ideally be expressed as a range, in order to expressly account for this uncertainty, a single value is needed for purposes of the Indirect Source Review in order to allow the appropriate fee to be calculated. The same limitations noted in the documentation for the existing mitigation component still apply, and are worth repeating here:

> The URBEMIS 2002 mitigation component is a significant advance over past attempts to quantify the benefits of air quality mitigation measures, however, users should recognize that travel behavior is very complex and difficult to predict. The component relies on the user to determine factors critical to travel behavior that are somewhat subjective. As GIS and electronic traffic monitoring and data collection become a reality in many cities, the ability to identify factors critical to walking, bicycling, and transit use will be enhanced. The URBEMIS 2002 mitigation component provides a starting point for using currently available data to demonstrate the benefits of urban design and traditional mitigation measures in reducing air quality impacts.

1 Agencies contacted included: New York Metropolitan Transportation Council; Atlanta Regional Commission; Alameda County, CA; and San Luis Obispo County, CA.

The mitigation component results, however, should still be interpreted as the mid-point of a range. Recent research has pointed towards the dangers inherent in reporting precise values, when the results are the subject of considerable uncertainty (Shoup, 2003). However, although the methodological dangers are obvious, there is generally no question about the *direction* of the relationship, only its size and the appropriate variable. Some adjustment is better than none at all – which is what most conventional trip generation methodologies provide (Ewing & Cervero, 2001). In addition, existing project-level trip generation methodologies, even though well-accepted within the transportation planning and engineering profession, are themselves subject to considerable uncertainty, and results are reported with unwarranted precision (Shoup, 2003).

Other considerations that should be noted include:

- The key output that is sought here is reduction in *vehicle trips.* Research results, however, often report results in terms of VMT. Where no alternative is available, we assume that VMT is proportional to vehicle trips.
- Elasticities are generally used to make the calculations, since when used with care, they provide a satisfactory, means of preparing first-cut aggregate response estimates for various types of transportation system changes (Pratt *et. al.,* 2000). They also provide a transparent and accessible method of reporting results, that can be transferred from one region to another (Ewing & Cervero, 2001).
- There are major theoretical issues regarding the direction of causality that have still to be resolved in the research. For example, does an increase in density lower vehicle trip generation rates, or do more dense places attract people who tend to make fewer vehicle trips? For the purposes of this analysis, however, the distinction is unimportant. The key issue (using the same example) is that more dense places are associated with fewer vehicle trips.
- Local planning controls and development economics are assumed to provide an important "reasonableness" check on the recommended trip reductions. For example, reductions in parking supply will not normally be allowed unless the local jurisdiction is confident that complementary trip reduction measures will be applied. Equally, it is unlikely that frequent transit service will be provided to a destination with low potential ridership, given competing demands on an agency for service.

About the Trip Generation Manual

At its heart, the URBEMIS mitigation component is a tool for modifying the average trip rates reported in the Institute for Transportation Engineers' *Trip Generation* manual to make

them more accurate, so that they fairly reflect the particular characteristics of a proposed development. Before modifying these average rates, it is therefore useful to understand the manual itself: how the average rates were derived; the original data sources that underlie the manual; and the manual's own recommendations about when, and why, its average trip generation rates should be modified. Some key points are these:

- The ITE manual normally predicts trip generation from new buildings using just two variables. Typically, the user first selects a broad *land use type* (e.g. "High-Rise Residential Condominium/Townhouse"). Second, the user inputs the *quantity* of that land use type (e.g. "100 dwelling units").
- An important advantage of this simple approach is that very little information about a project is needed to predict trip generation, and trip generation calculations are simple.
- A primary disadvantage of such two-variable formulas is that they do not take into account the multiple other variables (parking price, transit service, etc.) that transportation research has shown to strongly affect trip generation, and so the variation in trip rates *within* each land use category is frequently very high.

Recognizing these points, the *Trip Generation* manual therefore advises the reader that the average trip generation rates reported in the manual "represent weighted averages from studies conducted throughout the United States and Canada since the 1960s. Data were primarily collected at suburban locations having little or no transit service, nearby pedestrian amenities, or travel demand management (TDM) programs. At specific sites, the user may wish to modify trip generation rates presented in this document to reflect the presence of public transportation service, ridesharing or other TDM measures, enhanced pedestrian and bicycle trip-making opportunities, or other special characteristics of the site or surrounding area."

However, while the studies may have been *primarily* conducted at such suburban sites, it appears from the sources referenced that for some land uses, particularly higher density residential land uses, many sites studied included at least some transit service, sidewalks, and other characteristics associated with lower vehicle trip rates. For the "High-Rise Residential Condominium/Townhouse", for example, the manual's text shows that sites were surveyed in such cities as Vancouver, Canada: a city where it is difficult to find high-density condominiums that lack sidewalks, transit service, and a mix of uses nearby.

As part of our research, we made several calls to and exchanged correspondence with the staff at the Institute for Transportation Engineers. The staff was unable to provide any additional data (beyond the text of the manual itself) on the characteristics of the developments used in its trip generation studies, and was also unable to provide the actual studies – the original data – which underlie the manual's conclusions. Therefore, it is not possible to define with certainty the precise characteristics of an "average site".

Given this paucity of information available on the original sources for the *Trip Generation* manual's, conclusions about the average characteristics of the different land uses in the manual (e.g., average residential density, or the percentage of neighborhood streets with sidewalks) necessarily must be estimated, rather than precisely calculated. Fortunately, a large body of other research on travel behavior and land use is available, and reasonable estimates can be made based upon this research.

Recommendations

1. Combine "environmental factors" and "mitigation measures."

URBEMIS 2002 distinguishes between "environmental factors" for pedestrians, cyclists and transit (i.e., the character of the existing neighborhood), and "mitigation measures" (i.e. those added by the development). The environmental factors both provide a mitigation measure in themselves (e.g. the credit for existing or planned transit service), and are also used to weight the mitigation measures (i.e., a lower credit is given for a mitigation measure in an area that has a low environmental factor).

The distinction does make it easier to give credits for specific mitigation measures (e.g. bus bulbs, sidewalks and bicycle parking). However, we recommend that the distinction be removed, since it also brings several important disadvantages. Most of these relate to either complexity, or the relative advantages of infill vs. greenfield development, as follows:

- The pedestrian environmental factors appear to be given less weight than the mitigation measures, even when it is taken into account that the environmental factors are also used to weight the mitigation measures. The credit for the surrounding pedestrian environment is 2%, compared to the maximum allowable reduction of 9%. This means that smaller, infill developments will be eligible for lower credits, since by their nature they will be more dependent on the surrounding environment and have more limited ability to fund mitigation measures.
- On a related point, the importance of the environmental factors compared to mitigation measures is largely a function of scale, i.e. development size. Larger projects, particularly on greenfield sites, will be starting from a "blank sheet," and on-site mitigation measures will be paramount. The appropriate trip reductions for smaller, infill developments, in contrast, will be more a function of the surrounding environment.
- Combining the environmental factors and mitigation measures would make the component easier to understand, particularly for inexperienced users. At present, the separation can be confusing.

2. Scale

This question relates to the area that should be analyzed. We recommend that this should be either the area within a half-mile radius from the center of the project, or the entire project area, whichever is larger. This is the same approach taken in the existing URBEMIS mitigation component. In effect, the smaller the development, the greater the consideration given to the wider project area.

3. Provide Post-Modeling Adjustments to Reward Other Mitigation Measures

One of the impacts of these recommendations would be to narrow the range of mitigation measures that are considered in the analysis. Some potential mitigation measures are excluded even though they are likely to have a travel behavior impact, either because they cannot be readily quantified, or because this would risk double counting an impact already quantified elsewhere (i.e. another variable, such as intersection density, serves as a proxy). We therefore recommend consideration of how post-model adjustments can be used to provide financial incentives for developers to incorporate these mitigation measures. This may include all those that are in the current mitigation component, but are not recommended for continued inclusion, including:

- Street trees
- Traffic calming
- Design maximizing visual interest for pedestrians, and "eyes on the street"
- Zero building setbacks
- Direct pedestrian connections
- Street furniture and artwork
- Pedestrian signalization and signage
- Street lighting
- Low speed limits on bicycle routes
- Safe routes to schools
- Bicycle parking ordinance
- Transit stop amenities
- Route signs and displays
- Bus turnouts and bulbs
- Structured parking

4. Modifying Average Trip Generation Rates

In general, both the recommended trip rate modifications and the overall philosophy of the mitigation component are similar to those in the existing URBEMIS model, and build extensively off this work. The major differences between the existing mitigation component and these recommendations are found in (a) the input variables, which are

designed to be more quantitative and less subjective, and are fewer in number, and (b) the formulas, which take advantage of the latest research on residential travel behavior.

Neighborhood-level trip generation and vehicle miles traveled vary by more than 80% in California cities (Figure 1). As the documentation for the existing mitigation component recognizes, areas with low trip generation and VMT levels have the highest development densities, a wide variety of uses within walking distance, safe and comfortable pedestrian access, paid parking requirements, and a high level of transit service.

Similarly, residential trip rates reported in the *Trip Generation* manual vary widely, both *within* individual land use types, and *between* land use types (Figure 2). For the land use type "Single Family Detached Housing", for example, reported rates ranged from a low of 4.31 daily trips per dwelling unit, to a high of 21.85 daily trips. The *Trip Generation* manual reports that, "This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category." Between residential land use categories, the variation is still greater, as would be expected. For example, the average trip rate for the "Residential Condominium/Townhouse" land use type is 5.86 (or 39% lower than the average single-family detached house), while the lowest trip rate is 1.83 (or 80.9% lower). At the extremes, considering all residential land uses, the highest residential rate reported (21.85 trips/day) is more than ten-fold higher than the lowest rate reported (1.83 trips/day).

Figure 1 Daily Trips by Density, San Francisco Bay Area

	Households/Residential Acre					
	< 2	2-5	5-10	10-20	20-50	> 50
Mean Households/Residential Acre	1.4	3.6	6.7	13.5	30.6	121.9
Daily Vehicle Trips/Household	6.4	5.9	5.0	3.8	2.9	1.2
% Reduction in Daily Vehicle Trips/Household compared to lowest density areas	0%	9%	23%	41%	55%	82%

Source: MTC Household Travel Survey, 1990, cited in Holtzclaw, 2002

Figure 2 ITE Trip Rates for Selected Residential Land Uses

Land Use Code	Land Use Type	ITE Trip Rate		
		Low	Average	High
210	Single-Family Detached Housing	4.31	9.57	21.85
221	Low-Rise Apartment	5.1	6.59	9.24
230	Residential Condominium/Townhouse	1.83	5.86	11.79
222	High-Rise Apartment	3	4.2	6.45
232	High-Rise Residential Condo./Townhouse	3.91	4.18	4.93

Based on these data in Figures 1 and 2, and a wide range of additional transportation research, we have developed a set of formulas for modifying the average trip rates for residential land uses has been developed. For the URBEMIS user, the procedure for modifying residential trip generation rates will remain generally similar to the existing process, with three basic steps:

1. In the "Land Use Selection" screen, the user will enter the land use types (e.g. "Apartment, Low-Rise") and the number of dwelling units of each type.
2. Next, if the mitigation component is used, the user will be prompted to review the default values for several key variables (e.g. residential density, level of transit service) for each residential land use type. If the project's land uses have characteristics that are different from the default values (as they usually will be), the user will enter the correct values, in place of the default values.
3. Within the program, the formulas described hereafter will be used to calculate the resulting trip generation rates.

In keeping with the conclusions of current transportation research, a single set of formulas is used to modify the trip rates for all residential land use types. The input variables for these formulas assess five key land use characteristics (or "mitigation measures", in URBEMIS terms):

- Net residential density (measured by Households per Residential Acre)
- Mix of uses (using a jobs/housing measure)
- Presence of local-serving retail
- Level of transit service (measured by a transit service index)
- Bicycle and pedestrian friendliness (measured by an "pedestrian factor" index based on intersection density, sidewalk completeness, and bike lane completeness)

For each ITE residential land use type, a set of default values for these variables has been defined. If the default values for a residential land use type are left unchanged when running the mitigation component, then the resulting trip generation rate will be the standard ITE average trip generation rate for that land use type. For single-family detached housing, for example, the default values include a residential density of three units per residential acre, a transit service index score of 0 (representing no transit service within one-quarter mile of the site), and an intersection density of 250 intersections per square mile (typical of post-war cul-de-sac residential subdivisions). Figure 4 shows the default values for each land use type.

To achieve the lowest residential trip rate reported in *Trip Generation* (a manual which primarily measures stand-alone, single-use projects with little or no transit service), the input values required would include a density of 160 units per residential acre, the maximum level of transit service, the best possible mix of uses and local retail, and a pedestrian score equivalent to a complete sidewalk coverage with a network of blocks no larger than 300 feet on a side. This would result in a rate of 1.83 trips/day, or an 81% reduction from the average single-family house rate).

This is similar to the 82% difference in household trip generation between the lowest density areas with the poorest transit service (6.4 vehicle trips per household per day), and the highest-density areas with good transit and a higher quality pedestrian environment (1.2 vehicle trips per household per day), as shown in Figure 1. Figure 4 shows the input values that would be required to achieve this rate, as well as the input values required to achieve maximum possible reduction allowed.

In theory, choosing the maximum possible values for each of the *physical design variables* described above could result in a residential trip generation rate as low as 0.9 daily trips per unit. This represents a 90% reduction from the average rate for a single-family detached house. To achieve this rate, however, a neighborhood would have to have remarkable characteristics, similar to Manhattan or Hong Kong: a density of 380 units per acre, or more than three times the average density of San Francisco's densest neighborhoods (North Beach and Chinatown), the highest possible level of transit service, and so on.2

The recommended reductions for the individual physical design mitigation measures for residential uses are summarized in Figure 3. The remainder of the memorandum discusses the justification for these levels, along with the mitigation measures for non-residential uses. In general, the recommended maximums for individual components have been set at a level so that this overall 90% maximum reduction from the average single-family house

2 While rare in California, these extreme cases of Manhattan-like densities can be seen in projects such as San Francisco's single-room occupancy hotels for very low income residents, which achieve such densities by omitting parking and providing very small living quarters.

rate is maintained for residential land uses. While a greater reduction may sometimes seem warranted for an individual measure, a lower value has been selected to stay within this 90% maximum – a practice that helps avoid the considerable dangers of double counting.

In addition to the variables above, which primarily measure physical design characteristics, the formulas include mitigation measures that assess *demand management programs and similar measure*s. A maximum additional reduction of 7.75% from the average single-family house rate is possible through these measures.

Non-Residential Land Uses

For non-residential land uses, the general procedure for modifying rates is similar, and based upon many of the same research results. To modify non-residential trip generation rates, the following procedure is used:

1. For *physical design* mitigation measures, the formulas to determine percentage reductions are identical to the formulas for residential land uses, except for the 'Residential Density' measure, which cannot apply.
2. Additional mitigation measures are applied for *demand management programs and similar measures.* For non-residential uses, the number of available demand management measures is greater, as is the possible percentage reduction.

However, there is a key difference between the formulas used to modify residential rates, and the formulas used to modify non-residential rates:

1. For residential land uses, the percentage reductions shown for each mitigation measure refer to the percentage reduction from 9.57 trips per day (the rate for single family homes). The default values for each residential land use (Figure 4) are set at levels such that keeping these values generates the average trip rate for that land use.

2. For non-residential land uses, the percentage reductions shown for each mitigation measure refer simply to the percentage reduction from the average ITE trip generation rate for that land use. No special default values are required: they are simply set to create a 0% reduction as the starting value.

Figure 3 Summary of Recommended Trip Reductions

	Residential	Non-Residential	Comments
Physical Measures			
Net Residential Density	Up to 55%	N/A	
Mix of Uses	Up to 9%	Up to 9%	
Local-Serving Retail	2%	2%	
Transit Service	Up to 15%	Up to 15%	
Pedestrian/Bicycle Friendliness	Up to 9%	Up to 9%	
Physical Measures sub-total	*Up to 90%*	*Up to 35%*	
Demand management and similar measures			
Affordable Housing	Up to 4%	N/A	
Parking Supply	N/A	No limit	Only if greater than sum of other trip reduction measures
Parking Pricing/Cash Out	N/A	Up to 25%	
Free Transit Passes	25% * reduction for transit service	25% * reduction for transit service	
Telecommuting	N/A	No limit	Not additive with other trip reduction measures (see text)
Other TDM Programs	N/A	Up to 2%, plus 10% of the credit for transit and ped/bike friendliness	
Demand Management sub-total3	*Up to 7.75%*	*Up to 31.65%*	

3 This sub-total excepts the measures for parking supply and telecommuting, which have no limit.

Figure 4 Default Values for Residential Land Use Trip Generation Formulas

Default Values for Residential Trip Rate Formulas

Land Use Code	Land Use Type	Residential Density	Housing Units	Employees	Retail?	Transit Service	Inter-section Density	Side walks	Bike Lanes	Ped factor	ITE Trip Rate Low	ITE Trip Rate Average	ITE Trip Rate High
210	Single-Family Detached Housing	3	100	17	no	0.00	250	0	0	0.06	**4.31**	**9.57**	**21.85**
221	Low-Rise Apartment	16	100	26	no	0.06	250	0.5	0	0.23	**5.1**	**6.59**	**9.24**
230	Residential Condominium/Townhouse	16	100	60	yes	0.10	400	1	0	0.44	**1.83**	**5.86**	**11.79**
223	Mid-Rise Apartment	38	100	60	yes	0.14	400	1	0	0.44	**NA**	**4.68**	**NA**
222	High-Rise Apartment	62	100	60	yes	0.14	400	1	0	0.44	**3**	**4.2**	**6.45**
232	High-Rise Residential Condo./Townhouse	64	100	60	yes	0.14	400	1	0	0.44	**3.91**	**4.18**	**4.93**

Trip Rates Resulting When Default Values Are Used

Land Use Code	Land Use Type	Residential Density	Mix of Uses	Reductions Local Retail	Reductions Transit	Bike/ Ped	Total	Resulting Trip Rate
210	Single-Family Detached Housing	0.0%	-0.6%	0.0%	0.0%	0.6%	0.0%	9.57
221	Low-Rise Apartment	27.9%	0.5%	0.0%	0.6%	2.1%	31.1%	6.59
230	Residential Condominium/Townhouse	27.9%	3.9%	2.0%	1.1%	3.9%	38.8%	5.86
223	Mid-Rise Apartment	39.8%	3.9%	2.0%	1.5%	3.9%	51.1%	4.68
222	High-Rise Apartment	44.8%	3.9%	2.0%	1.5%	3.9%	56.1%	4.20
232	High-Rise Residential Condo./Townhouse	45.1%	3.9%	2.0%	1.5%	3.9%	56.3%	4.18

Example Residential Trip Rate Calculations

Land Use Code	Land Use Type	Residential Density	Housing Units	Employees	Retail?	Transit Service	Inter-section Density	Side walks	Bike Lanes	Ped factor	ITE Trip Rate Low	ITE Trip Rate Average	ITE Trip Rate High
210	"Worst Case" Single-Family	0.1	100	0	no	0.00	80	0	0	0.02	-	-	**21.85**
230	"Best Case" Res. Condo/Townhouse	160	100	150	yes	1.00	1300	1	0	0.67	**1.83**	-	-
NA	Maximum Possible Reduction	380	100	150	yes	1.00	1300	1	1	1.00	**NA**	**NA**	**NA**

Trip Rates Resulting When Example Values Are Used

Land Use Code	Land Use Type	Residential Density	Mix of Uses	Reductions Local Retail	Reductions Transit	Bike/ Ped	Total	Resulting Trip Rate
210	"Worst Case" Singe-Family Detached	-20.7%	-3.0%	2.0%	0.0%	0.2%	-21.5%	11.63
230	"Best Case" Res. Condo/Townhouse	51.4%	9.0%	2.0%	12.5%	6.0%	80.9%	1.82
NA	Maximum Possible Reduction	55.0%	9.0%	2.0%	15.0%	9.0%	90.0%	0.95

5. Data Requirements

Figure 5 shows the inputs that are required to complete the mitigation component in full, along with suggested data sources. Note, however, that the mitigation component can still be run, even if some of these inputs are missing. While no reduction would be granted for the particular mitigation measure for which the input was required, credits could be granted for other trip reduction measures.

Figure 5 Data Requirements and Suggested Sources

Required Input	Suggested Source		Comments
	Project	Surrounding Development	
Net residential density	Project plans	Block-level census data	Net residential data excludes land not devoted to residential uses
Number of housing units	Project plans	Block-level census data	Same basic source as for net residential density
Number of jobs	Project plans	Census Transportation Planning Package. Local jurisdiction may provide more current or fine-grained data	If data are only available per square foot, US Dept. Energy produces figures on average employee density
Local serving retail	Project plans	Site observations	
Below-market-rate units	Project plans	N/A	
Parking supply	Project plans	N/A	
Transit service	Transit agency maps/schedules		
Intersection density	Project plans	Street plans	Count can be automated if available in GIS
Sidewalk completeness	Project plans	Site observations	Count can be automated if available in GIS
Bike lane completeness	Project plans	Site observations	Count can be automated if available in GIS
Parking pricing	Development agreement or similar	Site observations (if applicable)	
Free transit pass provision	Development agreement or similar	N/A	
Telecommuting/flexible work schedules	Development agreement or similar	N/A	
Other TDM programs	Development agreement or similar	N/A	

6. Procedure for Small Projects

For developments in an established urban area below a certain size threshold, we recommend allowing them to adjust their trip generation rates based on the mode share in that census tract. This would avoid a disproportionate burden in gathering the data to document their likely trip reduction. (The analyst would need to certify that the project was similar in character to the existing development.) The recommended threshold is 50 average daily baseline vehicle trips, with the baseline being that calculated by URBEMIS before any of the reductions from mitigation measures are applied.

7. Substitute Methodologies

The recommended mitigation levels are, in our judgment, the most appropriate for a model that must apply to an extremely wide range of projects and geographic contexts. However, it must be recognized that there may be "special cases," where these standard reductions may not apply. For this reason, we recommend that any methodology for calculating reductions in VMT and vehicle trips may be substituted, provided that this is mutually agreed between the Air District and project proponent.

8. Measures Reducing VMT

The existing mitigation component allows for reductions in VMT (but not trip generation) for park-and-ride lots and satellite telecommuting centers. We do not recommend any changes to this aspect of the mitigation component.

9. Correction Factors

The existing mitigation component provides for trip type correction factors, based on evidence suggesting that certain trips are more likely to be captured by one mode rather than another. We do not recommend any changes to this aspect of the mitigation component.

A second correction factor in the existing mitigation component relates to trip distance, because, the documentation argues, bicycle and walking trips replace mostly shorter automobile trips. We recommend that this correction factor be eliminated, as there is little evidence to suggest that this phenomenon exists. Indeed, more complex changes in travel behavior are likely, such as mode shift to bicycling and walking trips being accompanied by a shift to closer destinations. For example, rather than drive to a grocery store on a freeway interchange, a household may walk to a smaller store in the neighborhood. Mixed use, compact neighborhoods are characterized by short overall trip lengths (see, for example, Kuzmyak et. al., 2003). Further evidence comes from the elasticities for trip reduction with respect to density, which are the same for both vehicle trips and VMT (Ewing & Cervero, 2001), suggesting that there is no impact on trip length.

Detailed Justification of Recommended Mitigation Levels

Default Values for Residential Land Uses

To develop the default values for residential land uses shown in Figure 4, we had to overcome a significant hurdle: ITE retains no data on the characteristics of the developments used in their trip generation studies. Default values for average density, transit service levels, and other variables had to be estimated using two alternative methods. First, we reviewed representative projects through research of literature and discussions with professionals in the fields of architecture and town planning, to ascertain typical ranges for density and other characteristics of each land use type (for useful summaries, see Calthorpe, 1993, and Local Government Commission,2002).

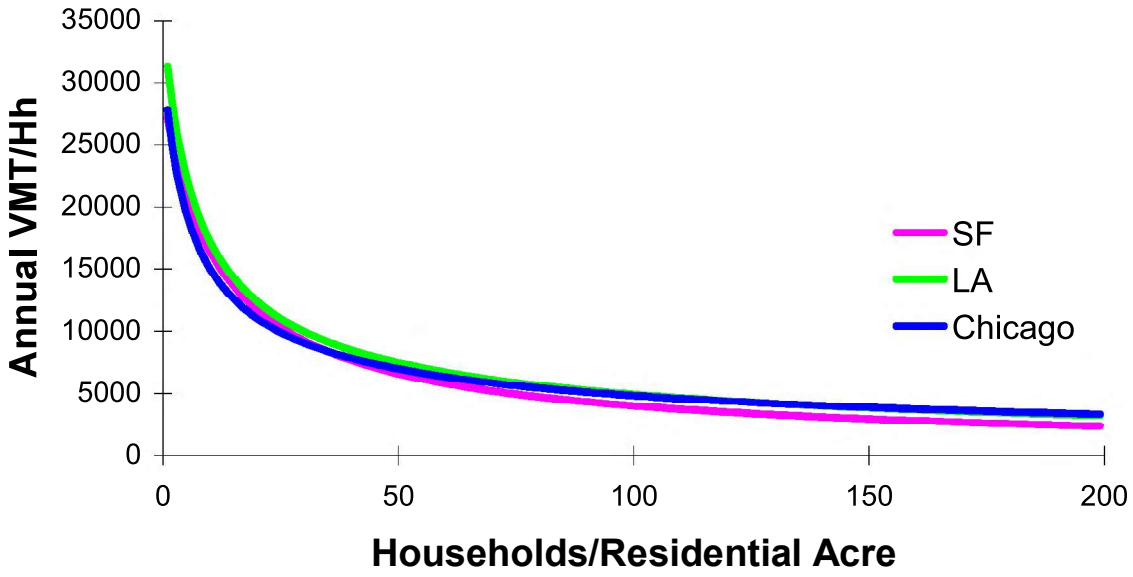
Second, these ranges of values were plugged into the formulas for the mitigation measures, and adjusted until the baseline values for each characteristic equaled the average ITE trip generation rates for each land use. For example, baseline density for Mid-Rise Apartments (64 units per residential acre) falls within the typical range observed from research of 45 to 125 units/acre, and when combined with other baseline characteristics for the land use, results in a 56.1% reduction in trip generation from the average rate for single family homes – the average reduction set forth in the ITE manual.

Finally, since the *Trip Generation* manual provides no daily trip generation rate for the "Mid-Rise Apartment" land use, we estimated a rate by extrapolating from the daily trip rate for the "High-Rise Apartment" land use type. The PM peak hour trip rate of 0.39 trips per unit for mid-rise apartments is 11.4% higher than the PM peak hour rate for high-rise apartments (0.35 trips/unit). Therefore, the daily trip rate for the "Mid-Rise Apartment" land use was estimated to be 4.68 trips per unit, or 11.4% higher than the daily trip for high-rise apartments (4.2 trips/unit).

Density

A considerable volume of research has investigated the links between density, particularly residential density, and travel behavior (for summaries, see Kuzmyak et. al, 2003; Boarnet & Crane, 2001). Overall, the conclusions can be summarized thus: there is a significant, quantifiable relationship between residential density and automobile use (see Figure 6), but there is uncertainty regarding the degree to which this effect is due to the inherent effects of density, as opposed to factors for which density serves as a proxy, such as parking price, local retail, transit service frequency and pedestrian friendliness.

Figure 6 Residential Density Vs. Vehicle Travel



Source: Holtzclaw et. al. (2002).

Fewer studies have attempted to disentangle the effects of density itself. Three of the main exceptions are:

- Typical elasticities for vehicular travel with respect to density are –0.1 to –0.04. These elasticities refer to the effect of density itself, isolated from variables that tend to be correlated with density such as transit frequency, and are additive to elasticities of other built environment factors. When these factors are not isolated, typical elasticities for VMT with respect to density are –0.22 to –0.27 (Kuzmyak et. al, 2003).
- The elasticity of density, when isolated from three other variables (diversity, design and destinations), is –0.043 with respect to vehicle trips, and – 0.035 with respect to VMT (Criterion and Fehr & Peers, 2001). However, this does not control for transit service levels.
- Cervero & Ewing (2001), in an update to this work, suggest a slightly higher elasticity of –0.05 with respect to both vehicle trips and VMT.

Note that density has been shown to have a nonlinear relationship with vehicle travel, with a threshold value of 25-30 units per acre below which the travel impacts of increased density are particularly large (Holtzclaw et. al, 2002). Holtzclaw et. al found that the best single variable equations to predict household vehicle travel (VMT per household, or

VMT/Hh) relied on Households per Residential Acre (Hh/RA). For the Los Angeles region, San Francisco and Chicago regions, these equations varied only slightly, producing the curves shown in Figure 6. For the Los Angeles region, this formula takes the form:

$$\frac{\text{VMT}}{\text{Hh}} = 19749\left(\frac{4.814 + \text{Hh/RA}}{4.814 + 7.140}\right)^{-0.639}$$

Based on this formula, the following elasticity formula is recommended for vehicle trips with respect to density. It is the same as Holtzclaw et. al' work, but reduced by 40% to take account of the fact that much of this impact will be realized through transit service, mix of uses and bicycle and pedestrian levels (which tends to correlate with density). The baseline assumed to correspond to a zero percent trip reduction is three units per acre, at which density the Holtzclaw formula results in 25,914 annual vehicle miles traveled per household. This translates into the following formula:

Trip reduction
$=0.6*(1-(19749*((4.814+$ households per residential acre $)/(4.814+7.14))^{-0.639})/25914)$

An apartment development of 16 units per residential acre, for example, would be estimated to generate 27.9% fewer trips than a three unit per acre project. The maximum allowable reduction recommended is 55% (equivalent to a 380 unit per acre development).

With this formula, "negative" reductions also apply, with less dense developments below the baseline level of three units per acre (for example large-lot housing) resulting in higher trip generation rates. (However, as long as the mitigation component is optional for developers or project proponents to complete, they will be unlikely to use it for projects whose overall score, for all components, will result in a finding to their disadvantage. For purposes of more accurately predicting vehicle trips and emissions, however, this negative reduction is useful and reflects the findings of the research literature.

Trip generation at the non-residential end is also influenced by density, but to a much lesser degree (Cervero, 1989, cited in Kuzmyak et. al, 2003). There are also far fewer studies investigating this relationship, and there is no comparable dataset to that for residential density. No reduction is recommended here.

Mix of Uses

Many references point to the impact of "diversity" or mix of uses on travel behavior. This is true both at the macro-scale, e.g. jobs-housing balance, and the micro-scale, e.g. the availability of services within walking distance. Key references, related to both the direction and magnitude of this relationship, include:

- Higher densities are most beneficial to transit ridership when they result in a mix of residential, commercial and office uses (Lund et. al., 2004).
- The elasticity of vehicle trips with respect to "diversity" is –0.051. The elasticity of VMT is –0.032. In this case, "diversity" is a measure of how the project affects regional population/employment balance. (Criterion and Fehr & Peers, 2001)
- Typical elasticities for vehicle trips with respect to local diversity (mix) are –0.03, and those for VMT are –0.05 (Ewing & Cervero, 2001).
- A balance of 1.5 jobs per household is estimated to produce a bus mode share 2 percentage points over the share for a single use area, although the degree of mix is not a useful estimating variable (Messenger & Ewing, 1996, cited in Kuzmyak et. al, 2003).
- Suburban activity centers with some on-site housing had 3-5% more transit, bike and walk commute trips (Cervero, 1989, cited in Kuzmyak et. al, 2003).
- The presence of retail reduces auto mode share by 2-5%, depending on neighborhood density. (Parsons Brinkerhoff, 1996, cited in Kuzmyak et. al, 2003).
- At suburban activity centers, the presence of retail in office buildings lowers vehicle trip rates by 6-8% (NTI, 2000, cited in Kuzmyak et. al, 2003).
- Employment sites with "good" nearby retail and commercial services have a vehicle trip rate 21.5% below the ambient rate. Sites with "fair" services showed an 8.3% reduction, and those with "poor" services a 5.3% reduction. This is attributed not just to the presence of these services, but the fact that they make TDM programs more likely to succeed (Comsis, 1994, cited in Kuzmyak et. al, 2003).

The analysis is complicated by the fact that some of the most beneficial developments from this perspective may be single-use, in an area where another use is predominant (e.g. residential in an employment area). To take this into account, the following procedure is proposed (adapted from Criteron and Fehr & Peers, 2001):

$$\text{Trip reduction} = (1- (\text{ABS} (1.5 * h - e) / (1.5 * h + e)) - 0.25) / 0.25 * 0.03$$

Where: h = study area households (or housing units)
e = study area employment

Negative reductions of up to 3% can result, and should be included.

This formula assumes an "ideal" housing balance of 1.5 jobs per household, based on Messenger & Ewing (1996), and a baseline diversity of 0.25. The maximum possible reduction using this formula is 9%.

This reduction takes into account overall jobs-population balance. The presence of local serving *retail* can be expected to bring further trip reduction benefits, and an additional reduction of 2% is recommended. This is towards the lower end of the values presented in the research discussed above, in order to avoid double counting with the diversity indicator.

Transit

The existing URBEMIS 2002 mitigation model places its primary emphasis on mode, i.e. whether service is provided by high-speed rail, commuter rail or bus. Within this framework, consideration is given to frequency (e.g. bus headways of 15 minutes or less score more highly than headways of 15-30 minutes).

For example, the current mitigation component would award the maximum score of 100 to a development 0.5 miles from a BART station, even if no other transit were available. A part of the city with several bus lines offering 10-minute service, in contrast, would score much lower, even though these transit lines would carry many more passengers.

Current transit planning thinking, however, emphasizes that frequency and speed are two of the most important factors determining mode choice, rather than whether the service is provided by bus, bus rapid transit, or rail. Researchers have found that there is no *inherent* preference for rail over bus, provided that the quality of service is the same (for example, Ben-Akiva & Morikawa, cited in Transportation & Land Use Coalition, 2002).

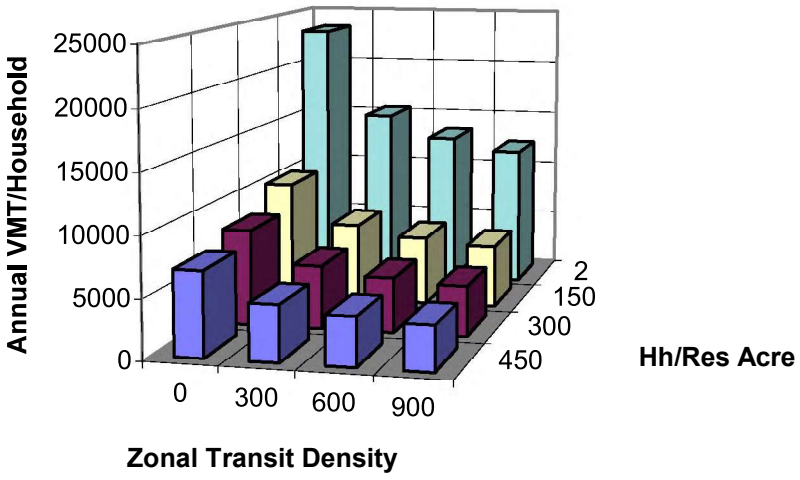
Key references include:

- The average elasticity of ridership with respect to frequency is +0.3 to +0.5. Higher elasticities of +1.0 have been observed in suburban systems, with the +0.3 value more typical of urban systems. (Kittselson & Associates et. al, 2003).
- Pratt et. al. (2003) suggest an elasticity of ridership with respect to service hours (i.e. a combined measure of frequency and service span) of +0.5. Ridership is most sensitive to frequency changes when the past service was infrequent.
- Modeling in Massachusetts suggests that halving transit service headways from 30 to 15 minutes leads to an 8% drop in vehicle trips. A further decrease to 5 minutes leads to a further 4% drop in vehicle trips (Pratt et. al., 2003).
- Holtzclaw et. al. (2002) show that vehicle travel falls as transit service levels increase, even when holding density constant (Figure 7). In the San Francisco Bay Area, a doubling of transit service from 300 to 600 (using the index described below) is associated with a 13% drop in VMT. An increase from 300 to 900 is associated with a 20% drop in VMT. In the Los Angeles region, the decreases in VMT are 12% and 18% respectively. However, the variable was omitted from the

vehicle travel model presented in this paper, since density was used as a proxy for transit service.

- The maximum distance that people are willing to walk to transit tends to be 0.25 miles for bus, and 0.5 miles for rail (and, presumably bus rapid transit). (Kittelson & Associates et. al, 2003). It is unclear whether there is a "distance decay" effect, whereas people are more likely to use transit at closer distances within this range (see Lund et. al, 2004).

Figure 7 VMT vs. Residential Density and Transit Use, San Francisco Bay Area



Source: Holtzclaw et. al. (2002).

Unfortunately, the elasticity of service with respect to transit ridership is difficult to convert to vehicle trip reduction, firstly because the baseline ridership needs to be known, and secondly because only a proportion (18-67% is cited by Pratt et. al., 2003) of new transit trips were formerly made by private auto. While it is clear that there is a direct correlation between transit service and vehicle trips, it is difficult to employ these elasticities directly. For this reason, the approach here is more in line with the existing mitigation component, which assumes a maximum percentage reduction for transit, and then reduces this based on a transit environment factor.

Various frequency-based transit service indices have been developed which have shown strong correlations with ridership. For example:

- In Los Angeles, the quality of four components of transit service (MTA rail, Rapid Bus, local bus and regional services) were rated on a scale of 0-3 for each community area, and then summed to provide the Transit Service Index on a scale of 0-12. (Nelson\Nygaard, 2002b).
- The studies by Holtzclaw et. al. (2002) used Zonal Transit Density, defined as the daily average number of buses or trains per hour times the fraction of the zone within 1/4 mile of the bus stop, or 1/2 mile of the rail station or ferry terminal, summed for all transit routes in or near the zone.

The Transit Service Index recommended here would combine the important features of all these approaches, with emphasis on frequency but with greater weighting given to rail services. Greater weight is also given to dedicated shuttles, in recognition of the fact that these are likely to be more closely targeted to the needs of the development. The Transit Service Index would be determined as follows:

- Number of average daily weekday buses stopping within 1/4 mile of the site; plus
- *Twice* the number of daily rail or bus rapid transit trips stopping within 1/2 mile of the site
- *Twice* the number of dedicated daily shuttle trips
- Divided by 900, the point at which the maximum benefits are assumed. (This equates to a BART station on a single line, plus four bus lines at 15-minute headways.)
- Developments that are larger than 0.5 miles across in any direction must be broken into smaller units for purposes of determining the transit service index. The average of all units would then be used.

Figure 8 shows some examples of how service frequencies translate into Transit Service Index scores (note these are additive, if a location has more than one component).

Figure 8 Example Transit Service Index Scores

Transit Service	Score	Assumptions
BART (single line)	0.33	150 trips per day (15-20 minute headways in each direction from 4 AM-12 AM)
15-minute bus, 5 AM – 12 AM	0.17	
30-minute bus, 5 AM – 7 PM	0.06	
Amtrak San Joaquin	0.03	6 trips per day in each direction
Dedicated commute shuttle	0.02	5 trips per commute period (single direction)

As well as existing service, planned and funded transit service would be included in the calculation. Purely demand responsive service would not be included.

A maximum trip reduction of 15% is recommended. This is the same as the existing URBEMIS 2002 trip reduction for existing and planned transit service.

In order to account for non-motorized access to transit, we also recommend that half the reduction be dependent on the pedestrian/bicycle friendliness score (calculated in the following section), similar to the approach taken in the existing mitigation component. This ensures that places with good pedestrian and bicycle access to transit are rewarded.

Trip reduction = t * 0.075+ t * ped/bike score * 0.075

Where t = transit service index

Bicycle and Pedestrian

Since bicycle mode share and pedestrian mode share depend on similar neighborhood characteristics, such as a fine-grained street grid, we recommend that a single factor be used to account for both modes. The bicycle and pedestrian components of the URBEMIS 2002 mitigation component are already well developed. However, the inputs are largely subjective, and there is still little evidence to justify the precise amount of credits for many of the individual mitigation measures (e.g. street trees).

Many street design factors have, however, been shown to promote walking and cycling. These include:

- Street connectivity, with traditional street networks that are more New Urbanist or grid-like, as opposed to the loops, lollipops and cul-de-sacs of most conventional subdivision. There are various measures of connectivity (summarized in Dill, 2003), such as:
    - Block length, size or density
    - Intersection density
    - Street density
    - Connected node ratio (number of street intersections divided by the number of intersections plus cul-de-sacs)
    - Link-node ratio (links are roadway or pathway segments between two nodes, which are intersections or cul-de-sac ends)
    - Grid pattern (percentage of intersections that are four- or more way).
    - Pedestrian Route Directness (ratio of route distance to straight line distance)
    - Effective Walking Area (% of parcels within 1/4 mile, that are also within 1/4 mile walking distance)

- Human-scale streetscapes with adequate pedestrian amenities, access to shopping and other amenities, and higher densities (Lund et. al., 2004)

Other relevant research includes:

- A composite indicator, the "Pedestrian Environment Factor," provides a statistically significant correlation with trip generation and VMT. It is comprised of four inputs (Parsons Brinkerhoff, 1993):
    - Ease of street crossings
    - Sidewalk continuity
    - Local street characteristics (grid vs. cul de sac)
    - Topography
- In Portland, OR, an increase in the PEF from "pedestrian hostile" to "almost average" reduces daily vehicle trips by 0.4 per household (7%). An increase from "almost average" to "fairly good" provides a daily reduction of 0.2 trips (Parsons Brinkerhoff, 1993, cited in Kuzmyak et. al, 2003).
- Sidewalk completeness, route directness and network density together have a vehicle trip elasticity of –0.05 (Ewing & Cervero, 2001).
- For a high degree of walkability, block lengths of approximately 300 feet are recommended. Short blocks provide more pedestrian crossing opportunities and direct walking routes, and mean that traffic is more likely to be dispersed. Downtown Los Angeles, for comparison, has about 150 intersections per square mile. (Ewing, 1999).

There is a strong tradeoff here between simplicity and low data requirements on the one hand, and robustness and accuracy on the other. Pedestrian and bicycle level of service work for the Florida Department of Transportation and FHWA, for example, has shown that there are numerous statistically significant factors that can be included to assess the quality of the bicycle and pedestrian environment. These include motor vehicle volumes and speeds, truck volumes, roadway widths, urban design, and lateral separation between pedestrians and motor vehicles (for example, FHWA, 1998; Landis et. al, 2001).

However, we recommend that in order to keep data requirements to a minimum, one or two of the street design indicators discussed by Dill (2003) and Ewing and Cervero (2001) be used, together with a single bicycle measure. Since route directness and network density measure similar characteristics, we recommend the use of one of these (network density, which is inversely related to block size) plus sidewalk completeness and bicycle network completeness. The pedestrian/bicycle factor would then be calculated as follows:

Ped/bike factor =
(network density + sidewalk completeness + bike lane completeness) / 3

Where:

Network density = intersections per square mile / 1300 (or 1.0, whichever is less)

Note: In most GIS applications, intersections are counted based on the number of line segment terminations, or each "valence." Intersections have a valence of 3 or higher – a valence of 3 is a "T" intersection, 4 is a four-way intersection, and so on.4 (Georgia Institute of Technology, 2002). Therefore, if intersections are counted manually on a map or project plan, care needs to be taken to distinguish between 3-, 4- and 5-way intersections, and factor them up accordingly. The 1,300 value roughly equates to a dense grid with four-way intersections every 300 feet, per the recommendation of Ewing (1999). Intersections with dedicated routes for pedestrians and/or bicyclists should be included in this calculation.

Sidewalk completeness =

% streets with sidewalks on both sides + 0.5 * % streets with sidewalk on one side

Bike lane completeness =

% arterials and collectors with bicycle lanes, or where suitable, direct parallel routes exist

A maximum reduction of 9% is proposed, based on the existing URBEMIS mitigation component.5 The trip reduction would then be calculated as:

Trip reduction = 9% * ped/bike factor

No reduction should be allowed if the entire area within a half-mile walk of the project center consists of a single use. (Note that this applies to a half-mile walk, rather than straight-line distance, to account for barriers such as freeways.) However, the ped/bike factor can still be used to calculate pedestrian access to transit, as part of the transit mitigation measure.

Affordable and Senior Housing

A significant amount of evidence points to the fact that lower-income households and senior citizens own fewer vehicles and drive less. Research includes:

4 A valence of 1 indicates that a line segment has terminated, e.g. in a cul-de-sac. A valence of 2 means that the street is continuing.

5 Note that this excludes the bicycle reduction in the current mitigation component. However, this compensates for the fact that the reductions recommended for the mixed use and density variables will be realized in practice through pedestrian and bicycle mode share.

- Russo (2001) cites evidence from the San Francisco Bay Area travel survey, which shows that households earning under $25,000 per year make 5.5 vehicle trips per day, compared to a regional average of 7.6. High income households (earning more than $75,000 per year) make an average of 10.5 trips. Note that this data does not control for other factors, such as density and transit access.
- In the San Francisco Bay Area, Los Angeles and Chicago, income was one of four variables with sufficient independent explanatory power to include in the model of VMT and vehicle ownership (Holtzclaw et. al., 2002).

Obviously, it is difficult if not impossible to account for the exact incomes of residents in URBEMIS, most obviously because the occupants are not known at the pre-development stage. However, the percentage of deed-restricted below-market-rate (BMR) housing does offer a way to incorporate this effect.

We recommend a 3% reduction in vehicle trips for each deed-restricted BMR unit.6 Thus, the total reduction is as follows:

Trip reduction = % units that are BMR * 0.04

A development with 20% BMR units would thus gain a 0.8% reduction. A development with 100% BMR units would gain a 4% reduction.

Parking Supply

Significant correlations between parking supply and employee mode split have been observed. For example, a study of the link between parking availability and transit use in eight Canadian downtowns found an extremely high elasticity of –0.77 (Morrall & Bolger, 1996, cited in Kuzmyak et. al., 2003b). In California, the number of parking spaces per worker was found to be one of the main two elements of a binomial logit model predicting transit mode share among TOD office workers (Lund et. al, 2004).

As with residential density, the extent to which parking supply itself is a causal factor is uncertain. In practice, it probably serves as a proxy for variables such as price, high quality public transit, mix of uses, and pedestrian friendliness (Kuzmyak et. al., 2003b). Indeed, in practice there is a two-way relationship between parking supply and mode split. Free parking, for example, can be seen as both a cause of high parking supply (more parking is

6 Calculated from Holtzclaw et. al. (2002), assuming 12,000 average annual VMT per vehicle, median per capita income of $33,000 (2002 figures per California State Department of Finance), and an average income in BMR units 25% below median. Holtzclaw calculate the coefficient of -0.0565. Therefore, expected VMT reduction can be calculated as 0.0565 * 33,000 * 0.25 / 12,000 = 4%

needed to satisfy the greater demand), and a consequence (the market price of parking is zero once an effectively unlimited supply is provided) (see, for example, Shoup, 1999).

Theoretically, it is possible to reduce parking provision to below the level of actual demand, should drivers park in neighboring lots or on-street in surrounding areas. However, planning approval is not likely to be granted for developments that significantly under-provide parking, unless complementary Residential Permit Parking programs or other measures to combat this type of overspill are introduced. Indeed, the main reason for minimum parking requirements levied by local jurisdictions is to address these overspill issues (Shoup, 1999).

Similarly, market realities are likely to prevent a developer from providing too little parking. The challenges in persuading lenders to finance developments that have below-code parking are difficult enough to overcome, even where there is clear, documented evidence to show that parking supply will be enough to meet demand (see for example, Parzen & Sigal, 2004). In contrast, the opposite tendency is likely to be apparent – that developments are prevented from taking full advantage of the opportunities to reduce parking supply by zoning codes (see, for example, Nelson\Nygaard, 2002).

The measure proposed here uses the Institute of Transportation Engineers' *Parking Generation* handbook as the baseline. This is assumed to equate to unconstrained demand. The trip reduction can therefore be calculated as follows:

Trip reduction = Actual parking provision / ITE Parking Generation rate

Since ITE parking generation rates use the same land use codes as the trip generation rates, these could be provided within the URBEMIS model itself. The user would only be required to enter the actual parking provision for each land use.

For land uses with rates for both weekday and weekend, the formula will use whichever rate is higher. The *Parking Generation* handbook covers most common land uses. For some land uses, however, no parking generation rates are available: in these cases, this particular mitigation measure may not be used.7 Those land uses without parking generation rates include:

- Single Family Detached Housing
- Mid-rise Apartments
- High-rise Condominium/Townhouse

7 The next edition of *Parking Generation,* currently under development by an ITE Task Force, is likely to provide date for some of these missing land uses. While it would be ideal to have parking generation data for every single land use before introducing this mitigation measure into URBEMIS, the data does not yet exist. Rather than abandoning this mitigation measure entirely until perfect data exists, we recommend allowing the measure to be used for the many land uses where reasonable data is available.

- Mobile Home Parks
- Residential Planned Unit Development (PUD)
- Day-care center
- Elementary school
- Junior High school
- Library
- City Park
- Discount Superstore
- Discount Club
- Electronic Superstore
- Home Improvement Superstore
- Gas/Service Station
- Pharmacy/Drugstore with and with/out Drive Through
- Medical Office Building
- General Heavy Industry

To avoid double counting with other trip reduction measures, the impacts of parking supply are proposed to be assessed in conjunction with all other non-residential trip reduction measures as follows:

- The total of all other non-residential trip reduction measures should be used if this is greater than or equal to the trip reduction from parking supply measures. For example, if parking supply is reduced 10% from ITE levels, and transit, mixed use and pedestrian/bicycle trip reductions amount to 20%, the 20% figure would be used.
- If the total of all other non-residential trip reduction measures (r_1) is less than the trip reduction from parking supply measures (r_2), the total trip reduction is as follows:

  $$r_1 + 0.5 * (r_2 - r_1)$$

  In effect, the parking supply reduction is only used if it is greater than the impact from other trip reduction measures, and the difference is discounted by 50%. For example, if parking supply is reduced 25% from ITE levels, and transit, mixed use and pedestrian/bicycle credits amount to 15%, the total reduction would be:

  $$15 + 0.5 * (25\text{-}15) = 20\%.$$

This reduction should only be granted if measures to control overspill are in place, such as Residential Permit Parking programs, time limits or meters.

Transportation Demand Management

Transportation Demand Management programs have been shown to have a major impact on travel behavior. Site-level employee vehicle trip reductions of up to 38% have been achieved, particularly for programs that have included parking pricing (Shoup & Willson, 1980; Comsis, 1993; Valk & Wasch, 1998; Pratt, 2000). Parking price elasticities of –0.1 to –0.3 have been reported (Pratt, 2000).

This component of the existing URBEMIS 2002 mitigation component is well developed. However, there is considerable scope to adapt it in two ways:

- Provide greater emphasis for the three elements that have the greatest impact on travel behavior – parking pricing/cash out; free transit passes; and telecommuting.
- Simplify the remaining elements, through offering broader options such as "major program", "minor program", and "no program," for elements that are likely to have a smaller trip reduction potential.

We recommend that none of these reductions be permitted, unless they form part of a legally enforceable agreement specifying, for example, minimum parking prices and other TDM measures. This might form part of a development agreement, be enforced through any TDM ordinance in the local jurisdiction, or consist of another mechanisms mutually agreed by the air district and project proponent. Otherwise, there is little to guarantee that some of the promised measures (e.g. parking pricing) will actually be implemented and maintained.

Parking Pricing and Cash Out

We recommend that a maximum trip reduction of 25% be applied to projects that commit to introducing parking pricing. This is based on the approximate midpoint of observed reductions, which range from 15% to 38% (Shoup & Willson, 1990; Comsis, 1993; Pratt, 2000). Note that most of these studies apply to before-after or with-without comparisons, with no increase in transit service or other measures to reduce vehicle trips. This maximum reduction should apply to prices of $6 per day or greater (in 2004 dollars).

The trip reduction will therefore be as follows:

Trip reduction = daily parking charge / 6 * 0.25

If the parking charge is more than $6, the 25% reduction is taken. If parking charges do not apply to all trips to a site (e.g. customers are exempt), the reduction is pro-rated by the percentage of trips that the charges apply to. If little or no on-site parking is provided, the parking charges should be those of surrounding public facilities.

Parking cash-out programs should be eligible for 50% of the reduction for direct parking charges, in recognition of the fact that their impacts tend to be significantly lower (Pratt, 2000). This is partly due to the fact that cash-out payments are a taxable benefit.

Free Transit Passes

Some California transit agencies, most notably VTA in Santa Clara County, have EcoPass or similar programs, whereby employers or property managers bulk-purchase transit passes for (free) distribution to their employees or tenants. Eco Pass programs have been shown to increase transit ridership by 50-79% (City of Boulder, undated; Caltrans, 2002), and reduce vehicle trips by 19% (Shoup, 1999). (Note that many of these new riders were making new trips, or ones previously made by walking or cycling.)

We therefore recommend that any project committing to providing free transit passes would receive an additional credit equivalent to 25% of the reduction granted for transit service. Thus, the credit is more valuable in places that have good transit service. This reduction would only apply to the portion of trips generated by those granted the free transit passes (e.g. residents and/or employees, but excluding shoppers and other visitors).

Telecommuting

We recommend the retention of the reductions granted for telecommuting and compressed work schedules in the existing mitigation component, with two clarifications:

- As with the reductions for other mitigation measures, there must be an enforceable commitment (e.g. development agreement), which covers both the take-up rate (employees actually telecommuting or using compressed work schedules) as well as the provision of the option.
- The percentage reduction should not be additive (in contrast to most other trip reduction measures). For example, if 20% of employees telecommute, and other trip reduction measures are estimated to reduce vehicle trips from 1,000 to 800 per day, the 20% reduction would apply to the 800 trips, not the original 1,000.

Other TDM Programs

Other TDM program elements, that do not include financial incentives, tend to have a smaller impact on travel behavior. We recommend that reductions be based on the number of the following elements incorporated into the program, per Figure 7:

- Secure bicycle parking (at least one space per 20 vehicle parking spaces)
- Showers/changing facilities
- Guaranteed Ride Home

- Car-sharing services
- Information on transportation alternatives, such as bus schedules and bike maps
- Dedicated employee transportation coordinator
- Carpool matching programs
- Preferential carpool/vanpool parking

The impact of a TDM program will also depend on the travel alternatives available. A program will have more impact if the site is served by frequent transit, for example (although note that a TDM program can do much to promote carpooling even in other locations). For this reason, we recommend that part of the TDM credit be used to adjust the credits granted for transit service and pedestrian/bicycle friendliness (see Figure 9).

Figure 9 Recommended TDM Program Reductions

Level	Number of Elements	Recommended Reduction
Major	At least 5 elements	2%, plus 10% of the credit for transit and pedestrian/bike friendliness
Minor	At least 3 elements	1%, plus 5% of the credit of transit and pedestrian/bike friendliness
No program	None	None

Examples

It is important to recognize that any type of calibration is beyond the scope of this analysis, which relies on existing references to build on the ranges established in the existing mitigation component. Figure 10, however, does provide some examples to indicate the trip reductions that would apply to specific places.

The data are drawn from the database compiled for the Location Efficient Mortgage program (for details, see Holtzclaw et. al., 2002), and from the San Francisco Bay Area Metropolitan Transportation Commission's TAZ files. For these reasons, the examples are limited to the San Francisco Bay Area. Transit service was estimated from schedules and route maps. Sidewalk and bike lane completeness were estimated based on local knowledge. For these reasons of limited data, the examples are intended as illustrations only, rather than to refer to a particular project.

The reductions are calculated for the physical and environmental factors only, for residential uses. They exclude any additional reductions from TDM programs and affordable housing.

The final column compares average vehicle miles traveled (no vehicle trip data were readily available) in these neighborhoods to the Brentwood baseline, as a rough

comparison to the reductions granted through the proposed trip reductions for URBEMIS. As can be seen, while there are significant discrepancies, the overall correspondence is acceptable for this type of sketch planning model.

Figure 10 Example Trip Reductions

Example	TAZ	Residential Density	Mix of Uses	Local Retail	Transit	Ped/bike friendliness	Total Reduction	% Reduction in VMT from Brentwood
Brentwood	899	1.4%	-3.0%	0.0%	0.1%	1.7%	0.3%	0.0%
Orinda	831	-9.5%	5.8%	0.0%	3.7%	1.4%	1.4%	5.6%
Pleasant Hill BART	806	14.4%	7.2%	3.0%	8.3%	3.3%	36.3%	40.2%
Emeryville	723	39.0%	1.7%	3.0%	4.4%	4.9%	53.1%	47.8%
Downtown Palo Alto	245	19.8%	4.4%	3.0%	6.1%	7.5%	40.8%	50.6%

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APPENDIX E

Cost Effectiveness Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

November 17, 2005

I. INTRODUCTION

California Health and Safety Code (CH&SC) Section 40920.6(a) requires the San Joaquin Valley Unified Air Pollution Control District (District) to conduct a cost effectiveness analysis of the proposed control options prior to the adoption of the proposed rules. The purpose of conducting a cost effectiveness analysis is the evaluation of the possible economic effect of the pollution control measures (rules). The analysis also serves a guideline in developing the control requirements for the rule.

II. SUMMARY AND CONCLUSION

The CH&SC section cited above requires a cost effectiveness analysis for the most likely compliance scenario, and an incremental cost effectiveness analysis on an alternative compliance scenario. Absolute cost effectiveness of a control option for traditional rules are typically determined by taking the added annual cost (in $/year) of the control technology or technique, divided by the emission reduction achieved (in tons/year). The costs can include capital equipment costs, engineering design costs, installation costs, and any cost savings, such as from decreased energy usage and decreased maintenance costs.

Rule 9510 would require developers to reduce the following project's operational and area source emissions: 33.3% of NOx emissions and 50% of the PM10 emissions, over a ten-year period. Rule 9510 would also require the developers to reduce emissions from equipment used during the construction phase by 20% for NOx and 45% for PM10 emissions compared to the statewide average. The construction emissions may be reduced on-site by using newer fleets than the statewide construction average, using add-on controls, and/or by using clean fuels. The rules are structured to allow flexibility in complying with the rule requirements due to various requirements and limitations imposed by local agencies in the projects' jurisdiction. Methods of compliance include the following: achieving the necessary reductions entirely through on-site emission reduction measures; reducing, in varying degrees, partially on-site and partially off-site through the off-site emission reduction fee; reducing entirely off-site through the payment of an off-site emission reduction fee. The fee for emissions not reduced in the design of the project or with equipment controls would fund off-site emission reduction projects. The fee for these off-site projects would be calculated by multiplying the required emission reductions by a cost effectiveness factor. This rule differs from traditional rules, in that a cost effectiveness value is predetermined and the control costs are based on that cost effectiveness value.

Cost effectiveness is a primary criterion for the District to fund emission reduction projects. Cost effectiveness of a off-site emission reduction project is based on the amount of pollution (per pound or ton of a pollutant) the project eliminates for each

dollar spent. There are different methodologies to determine cost effectiveness for different programs, but in general, cost effectiveness is determined by dividing the cost of the project by the amount of emissions reduced. Several factors are used to determine the emission reductions for a particular mitigation project, including: the age of the vehicle or engine being replaced, project life (how long in terms of time the emission reductions can be expected to be surplus), and activity level, which is usually represented in annual hours of operation or mileage. Project life allows the District to determine how many emission reductions can occur per year. This is important in determining timelines for emission reductions and will assist the District in attaining the ozone and PM10 standards.

To determine the cost effectiveness for the ISR Program, District staff identified NOx emission reduction projects that have previously been funded and the costs associated with each project. Table E–1*, Estimated NOx Emission Reductions from Current and Historical Grant Programs by the District* summarizes the grant programs.

Table E-1
Estimated NOx Emission Reductions from Current and Historical Grant Programs

	Emissions Tons	Emissions Pounds	Grant Funded Dollar Amounts	Cost Effectiveness* $/Pound	Cost Effectiveness* $/Ton
All External Projects					
1992 -1993	400	800,000	$3,665,200	$4.58	$9,163.00
1993 -1994	525	1,050,000	$4,773,814	$4.55	$9,092.98
1994 - 1995	590	1,180,000	$3,594,486	$3.05	$6,092.35
1995 - 1996	650	1,300,000	$3,688,311	$2.84	$5,674.32
1996 - 1998	885	1,770,000	$6,309,952	$3.56	$7,129.89
1998 - 2004	30,419	60,838,805	$60,798,609	$1.00	$1,998.68
Total	***33,469***	***66,938,805***	***$82,830,372***	***$3.26***	***$6,525.20***
REMOVE Program					
1992 - 1993 Phase I	400	800,000	$3,665,200	$4.58	$9,163.00
1993 - 1994 Phase II	525	1,050,000	$4,773,814	$4.55	$9,092.98
1994 - 1995 Phase III	590	1,180,000	$3,594,486	$3.05	$6,092.35
1995 - 1996 Phase IV	325	650,000	$2,688,311	$4.14	$8,271.73
1996 - 1998 Phase V	360	720,000	$5,309,952	$7.37	$14,749.87
1998 - 1999 Phase VI	104	208,247	$2,556,403	$12.28	$24,551.64
1999 - 2000 Phase VII	304	607,640	$2,422,741	$3.99	$7,974.26
2002 - 2003 Phase VIII	156	311,059	$1,210,648	$3.89	$7,784.04
Total	*2,608*	*5,526,946*	*$26,221,555*	*$5.48*	*$10,959.98*
Vehicle Buy-Back					
1995 - 1996	325	650,000	$1,000,000	$1.54	$3,076.92
1997 - 1998	525	1,050,000	$1,000,000	$0.95	$1,904.76
Total	*850*	*1,700,000*	*$2,000,000*	*$1.25*	*$2,490.84*
Heavy-Duty Program					
1997 - Jan 2004	29,811	59,622,859	$53,381,817	$2.28	$4,564.13
Lt. & Med.-Duty Vehicle Program					
2001 - Jan 2003	22	43,000	$750,000	$17.44	$34,883.72
1999 Lawnmower Replacement Program					
2001 - 2002	23	46,000	$477,000	$10.37	$20,739.13

Please note that beginning in 1995-96 vehicle buy-back was no longer included in the REMOVE Program. A separate program for heavy-duty vehicle projects was established beginning in 1997.

III. GRANT PROGRAMS

This section identifies the existing grant programs and different types of projects that are funded under those programs that are possible candidates for any off-site emission reduction fees collected under Rule 9510. In addition, this section identifies additional projects that may be funded through the ISR program. The District will also consider projects and programs for funding in addition to the ones discussed in this section, when other projects and programs are identified.

REMOVE/REMOVE II

The Reduce Motor Vehicle Emissions (REMOVE) Program was the first District grant program implemented in 1992 to fund projects that reduced emissions associated with motor vehicle trips. Due to the lengthy REMOVE evaluation committee process, the District's Governing Board approved the revised REMOVE II Program on March 13, 2005. The REMOVE II Program awards grant funding on a first-come, first-serve basis and consists of a broad range of mobile source incentive projects. The following separate components within the REMOVE II Program have established parameters and funding caps to achieve prudent cost effectiveness levels: E-Mobility (Telecommunications) Incentive Component; Public Transportation and Commuter Vanpool Passenger Subsidy Component Bicycle Infrastructure Component; Light and Medium Duty Incentive Component. The components establish guidelines to maximize the emission reduction potential for individual projects. The criterion for evaluating potential projects is ARB's methodology for calculating cost effectiveness and emission reductions. Additionally, the District has established requirements for applicants to validate the emission reductions generated by REMOVE II incentive program components.

The E-Mobility Component of the REMOVE II Program provides funding for the development or expansion of electronic telecommunications services in municipal government and public education. The electronic technology will serve as direct replacement of vehicle trips to public sites for conferencing, document transactions, general information, work functions, school instruction, and related applications. E-Mobility projects include: distance-learning technology, telecommute center equipment, teleconference systems, E-government technology, E-court technology and related electronic applications.

The Public Transportation and Commuter Vanpool Passenger Subsidy Component of the REMOVE II Program, provides funding to attract new participants to public transportation and commuter vanpools. The passenger subsidies will serve to attract new participants to public transportation and commuter vanpools as an alternative to single occupant vehicle (SOV) commutes. Passenger subsidy projects include: incentives for transit bus agencies, shuttles, commuter vanpools, rail, and park-and-ride lot construction.

The Bicycle Infrastructure Component of the REMOVE II Program will fund the development of a comprehensive bicycle transportation network. The component will

support the expansion and linkage of bicycle transportation facilities that promotes the practice of commuter bicycling as a safe and viable transportation alternative. Bicycle infrastructure projects may include the development of Class I Bicycle Paths (construction) and Class II Bicycle Lanes (striping).

The Light and Medium Duty Incentive Component of the REMOVE II Program will fund a portion of the purchase cost of low-emission light-duty and medium-duty motor vehicles for public agencies. The purpose for the component is to encourage and increase the introduction of reduced emission alternative fuel vehicles. Low-emission vehicles may include Zero Emission Vehicles, Super Ultra Low Emission Vehicles, Ultra Low Emission Vehicles, and Electric Bicycles based on ARB emission standards.

Heavy-Duty Program

The Heavy-Duty Engine Emission Reduction Incentive Program (Heavy-Duty Program) initially evolved from REMOVE in 1997 and the District continues to administer the program. The Heavy-Duty Program replaces older model high polluting engines with newer and cleaner burning engines. The Heavy-Duty Program also encourages the early introduction of on-road and off-road heavy-duty motor vehicles with engines that include reduced-emission technologies. Eligible project types funded under this program include: marine vessels, forklifts, agricultural pump engines, on-road and off road vehicles and equipment, agricultural harvesters, hay bailers, tractors, delivery trucks, sprayers, yard spotters, earthmovers, line haul trucks, back hoes, dump trucks, earth movers and drills, transit and school buses, and forklifts. This program has been expanded to assist in the development of alternative fuel infrastructure, particulate filters on eligible diesel school buses, and idle reduction technologies for heavy-duty vehicles.

Emission reductions are obtained when the project applicant purchases vehicles and engines that are cleaner than required by current emission standards or installs an emission certified retrofit kit on an existing engine. The District pays the differential cost of purchasing the lower emitting technology compared to conventional technology. Emission reduction, calculations, and horsepower categories are used to determine an incentive amount. Project monitoring is conducted to verify eligibility, to ensure proper use of public funds and to validate the emission reductions. Applicants are required to enter into contracts with the District and are required to submit annual usage reports for five years after the technology is purchased.

The Heavy Duty Program is primarily aimed at NOx reductions, but many projects also achieve particulate matter (PM10) reductions. Historically, this incentive program has been exceptionally cost effective, replacing approximately 4,484 engines[1].

[1] *SJVAPCD Heavy-Duty Engine Incentive Program Database*

PM10 Incentive Program

The District currently does not have an incentive program that primarily targets PM10 emissions reductions, however an incentive program will be needed for Rule 9510. Initially, District staff surveyed the PM10 emissions inventory to determine the largest sources of emissions and related factors, the extent of existing or planned control, and types of control options that are available. District staff identified unpaved traffic surfaces and unpaved shoulders as the most viable options for emission reduction projects. Other potential sources include the use of PM10-efficient street sweepers and fireplace retrofits/replacement. The District is proposing to develop an Unpaved Road and Traffic Surface Program that would fund or partially fund the treating or paving of unpaved roads or unpaved shoulders within the San Joaquin Valley Air Basin, in time to implement and achieve the reductions committed to for this rule. Once that program is established, the District will continue to explore and develop other PM10 incentive programs, such as PM10-efficient street sweepers, fireplace retrofits/replacement, and/or leaf blowers.

The duration of the contract will vary depending on the project. Some contracts will be completed upon installation, while others may require reporting for 5 years. For example, a road-paving project would have a contract that is completed upon installation, whereas an engine contract typically contains a 5-year reporting requirement. The staff report will be amended to include this information.

IV. RULE 9510 ESTIMATED COST EFFECTIVENESS

The District's future prospects for funding the most cost effective NOx reduction projects are currently declining. Many of engines that qualify for the Heavy-Duty Program incentive funds have been replaced or retrofitted. Diesel engines greater then 50 horsepower are being regulated by the State and the District resulting in cleaner operating engines with lower emissions. Consequently, the most cost-effective projects (e.g. diesel engines manufactured before 1996) have previously been funded resulting in projects that will cost more in the future to fund.

To determine future cost effectiveness for NOx emission reduction projects, staff reviewed previously funded projects' NOx cost effectiveness, the types of projects, and the future availability of those projects. Attachment 1 compiles the necessary information and determines the resulting cost effectiveness. The general concept for NOx projects in Attachment 1, is that the types of grant applications received will move from the heavy duty projects to lighter duty projects at a rate of 5% per year, and that the cost of heavy duty projects will increase approximately $2000 more per ton. Attachment 1, can be summarized as follows:

NOx Cost-Effectiveness

Year	Cost to Reduce One ton of NOx
2006	$4,650.00
2007	$7,100.00
2008 and beyond	$9,350.00

Presently, most of the Districts incentive funds have been used to fund NOx emission reductions. In order to determine future cost effectiveness for PM10 emission reduction projects, District staff researched PM10 emissions and reductions. Initially, the PM10 emissions inventory was surveyed to determine the largest sources of emission factors, the extent of existing or planned control, and types of control options that are available. District staff identified unpaved traffic surfaces and unpaved shoulders as the most viable options for emission reduction projects. Other potential sources include the use of PM10-efficient street sweepers and fireplace retrofits/replacement.

Once the sources were identified, each source was analyzed in terms of emission factors, thresholds, available control effectiveness, and costs of those controls. Attachment 1 also compiles the necessary information and determines the resulting cost effectiveness for PM10 projects. There are several concepts for PM10 projects that are incorporated in Attachment 1. Initially, the District is anticipating that it will receive a high number of applications to treat or pave unpaved roads, with the most cost effective projects coming in the first few years. The District is also expecting the cost to treat or pave unpaved roads to increase by 75% each year for each ton reduced. The District is anticipating receiving a higher number of applications for unpaved shoulders and street sweepers, each year. Attachment 1, can be summarized as follows for PM10:

PM10 Cost-Effectiveness

Year	Cost to Reduce One ton of PM10
2006	$2,907.00
2007	$5,594.00
2008 and beyond	$9,011.00

V. SOURCES OF COST DATA

District staff used cost effectiveness information derived from actual NOx emissions reduction projects administered by the District. This data is sent to the California Air

Resources Board (ARB) on an annual basis. The following data sources were used for the PM10 analysis:

1. Effectiveness Demonstration of Fugitive Dust Control Methods for Unpaved Roads and Unpaved Shoulders on Paved Roads
   DRI document No. 685-5200.1F1
   Desert Research Institute
   December 31, 1996

2. Methods to find Cost-effectiveness of Funding Air Quality Projects: For Evaluating Motor Vehicle Registration Fee Projects and Congestion Mitigation and Air Quality Improvement (CMAQ) Projects
   California Air Resources Board
   2003 Edition

3. Final BACM Technological and Economic Feasibility Analysis
   Sierra Research, Inc.
   Prepared for the SJVAPCD
   March 2003

4. Entrained Road Dust from Paved Road Travel: Emission Estimation Methodology, Background Document
   Section 7.9
   California Air Resources Board
   Updated July 1997

5. Unpaved Road Dust (non-farm roads, SJV only)
   Section 7.10 SJV
   California Air Resources Board
   Patrick Gaffney
   Updated May 2004

6. Spreadsheet used for San Joaquin Valley Air Pollution Control District PM10 SIP, 2003
   Spreadsheet, “Unpaved1999Mar_13_2003Final.xls”
   California Air Resources Board
   Patrick Gaffney

7. Conversations and E-mail correspondence with Mel Zeldin, consultant

Attachment 1
Anticipated Use of ISR Funds
for Determining Cost Effectiveness

For 2006					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	90%	$1,694	$15,000	$1,819	
Unpaved Shoulders	5%	$11,838	$15,000	$12,907	
Street Sweepers	5%	$10,000	$15,000	$12,500	
Overall PM10		**$1,694**	**$15,000**	**$9,075**	**$ 2,907**
NOx					
Heavy Duty Program	95%	$3,000	$5,000	$4,000	
REMOVE	5%	$14,000	$20,000	$17,000	
Overall NOx		**$3,000**	**$20,000**	**$10,500**	**$ 4,650**

For 2007					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	75%	$1,900	$15,000	$3,183	
Unpaved Shoulders	20%	$11,838	$15,000	$12,907	
Street Sweepers	5%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$9,530**	**$ 5,594**
NOx					
Heavy Duty Program	90%	$5,000	$7,000	$6,000	
REMOVE	10%	$14,000	$20,000	$17,000	
Overall NOx		**$5,000**	**$20,000**	**$11,500**	**$ 7,100**

Anticipated Use of ISR Funds for Determining Cost Effectiveness

For 2008					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	55%	$1,900	$15,000	$5,571	
Unpaved Shoulders	35%	$11,838	$15,000	$13,419	
Street Sweepers	10%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$10,497**	**$ 9,011**
NOx					
Heavy Duty Program	85%	$7,000	$9,000	$8,000	
REMOVE	15%	$14,000	$20,000	$17,000	
Overall NOx		**$7,000**	**$20,000**	**$12,500**	**$ 9,350**

For 2009					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	55%	$1,900	$15,000	$9,749	
Unpaved Shoulders	35%	$11,838	$15,000	$13,419	
Street Sweepers	10%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$11,889**	**$ 11,308**
NOx					
Heavy Duty Program	80%	$9,000	$12,000	$10,500	
REMOVE	20%	$14,000	$20,000	$17,000	
Overall NOx		**$9,000**	**$20,000**	**$13,750**	**$ 11,800**

Anticipated Use of ISR Funds
for Determining Cost Effectiveness

For 2010					
	Projected % of Fund Use	Cost Effectiveness ($/ton reduced)			
		Likely Minimum	Cap[1]	Representative Cost Effectiveness[2]	Weighted Representative Factor
PM10					
Unpaved Roads/Traffic Areas	45%	$1,900	$15,000	$14,682	
Unpaved Shoulders	40%	$11,838	$15,000	$13,419	
Street Sweepers	15%	$10,000	$15,000	$12,500	
Overall PM10		**$1,900**	**$15,000**	**$13,534**	**$ 13,850**
NOx					
Heavy Duty Program	75%	$11,000	$13,000	$12,000	
REMOVE	25%	$14,000	$20,000	$17,000	
Overall NOx		**$11,000**	**$20,000**	**$14,500**	**$ 13,250**

1 The cost effectiveness cap in this column represents the cap that this program would require, not necessarily the historical cap.

2 The representative cost effectiveness is the anticipated cost effectiveness for that year. This is based on district staff forecast.

APPENDIX E
Attachment 1

Project Spending Plan for Proposed Rule 9510 (Indirect Source Review)

November 17, 2005

I. INTRODUCTION

The purpose of this document is to demonstrate that any funds collected by the District will meet their intended purpose of reducing emissions caused by new development in the air basin. It provides a plan for spending any funds generated by the rule in a cost-effective and responsible manner.

Rule 9510 is projected to generate up to $103 million between 2006 and 2008. After 2008 the District will provide a new estimate based on experience with the program and the amount of development occurring in the San Joaquin Valley. The new estimates may be higher or lower than the amounts currently in the rule. To demonstrate the capability to distribute these funds to cost-effective projects, the District has analyzed the potential emission reduction projects available that meet requirements for being surplus, quantifiable, and enforceable. Once the potential projects were identified, staff performed additional research into the cost of individual projects and the potential for owners of the equipment, vehicles, etc. to take advantage of incentive funding.

The District plans on using existing grant programs that are available for immediate funding of projects and to develop new programs for non-traditional sources not eligible for other funding sources such as DMV Surcharge Fees and California Carl Moyer Program funds.

II. Existing Programs

The following existing programs and programs where the District has operated programs in the past are described in Appendix E.

- **Heavy-Duty Engine Incentive Program**
- **REMOVE II Program**
- **Lawnmower Buyback Program**
- **Light and Medium Duty Vehicle Program**
- **Voluntary Accelerated Vehicle Retirement**

The Heavy-Duty Engine Incentive Program and REMOVE II Program are currently in operation and can be used as an outlet for funds from ISR immediately. Other programs where the District has past experience can be implemented quickly.

III. New Programs

Stationary Source Incentive Program

Program concept: Some control options that are in excess of current rule requirements and best available control technology (BACT) thresholds can be implemented with the help of incentive funding. These options typically exceed BACT cost-effectiveness limits or were not required by the rule due to economic impacts; however, relatively cost-effective control options may be available in a variety of industries.

All projects would be required to demonstrate that they are:

- Surplus to all federal, state, and local requirements
- Quantifiable – emission reductions can be determined
- Enforceable – a mechanism is available to ensure that reductions occur
- Permanent – reductions are maintained for the life of the credit

There are several potential ways in which stationary source operators would be attracted to the incentive program:

- Applicant initiated - Applicant proposing expansion or equipment replacement approaches the District with equipment or control technologies in excess of requirements.

- District initiated - District permit engineers identify control technology in excess of BACT requirements and rule requirements during project review and suggest to applicant the potential for going beyond requirements with the help of incentive funding.

- Ongoing program - The District identifies specific equipment or technologies in excess of requirements in a grant program and open application process.

Stationary Source Project Review Process Outline:

1. For projects identified during BACT analysis required under Rule 2201, permit engineers identify potential control technology that exceeds BACT requirements and is surplus of all regulations.
2. The engineer contacts Emission Reduction Incentive Program (ERIP) staff to forward cost effectiveness analysis. *Note: the cost effectiveness performed for ERIP purposes is not the BACT cost effectiveness*.
3. ERIP determines whether project meets ISR funding criteria and contacts PSD and applicant.
4. If not, the project, as initially proposed, is processed by Permit Staff.
5. If yes, 3-parts meeting (ERIP, PSD, Applicant) to review feasible options (technical aspects and funding).

6. Project, as initially proposed, is on hold, waiting for ERIP and applicant final approval/decision.
7. Applicant determines whether the project would be feasible at their facility.
8. If not, the project, as initially proposed, is processed by Permit Staff.
9. If yes, ERIP staff initiates incentive funding application process.
10. For eligible projects, the applicant would complete an application providing contact information and complete project and cost information.
11. Initial project amended to incorporate new proposed control technology.
12. The application would be approved by ERIP and Permit Service Division (PSD).
13. ERIP staff would prepare a contract for the project between the applicant and the District.
14. PSD would incorporate the new controls and emission amounts into the applicant's permit application.
15. PSD issues an Authority to Construct (ATC) allowing the applicant to install the new control.
16. Compliance staff conducts an inspection, that may include a source test for some projects, to verify the emission reductions.
17. Compliance notifies PSD and ERIP that the installation is complete.
18. ERIP approves claim for payment for the contract.
19. Finance issues payment for the project to the applicant.
20. Long term monitoring and reporting is accomplished through the normal process for permitted equipment.
21. ERIP reports emission reductions in periodic reports to the Governing Board.

Projects may also enter the system that are initiated by operators of the permitted sources. In these cases, PSD will conduct an assessment to determine technological feasibility and if the project is surplus and enforceable. PSD would then turn the project over to ERIP for application processing and contracting. Project types that have the potential for large numbers of applications may become an ongoing program component with outreach to recruit applicants.

Example Projects

The following are examples of projects that illustrate the potential to obtain emission reductions through a stationary source incentive program. All projects listed would require additional research and analysis prior to offering incentives.

Example: Replace natural gas fired boilers/burners with cleaner model.

Under District Rule 4306, boilers rated from greater than 5 up to 20 MMBTU per hour are required to achieve a NOx emission rate of 15 ppm. If the applicant currently operated a 30 ppm boiler, when it comes time to replace the boiler, he would be required to install a 15 ppm boiler. Due to advances in technology there are now 9 ppm ultra-low NOx burners available. The cost is in excess of the District's BACT threshold, so the applicant is not required to purchase the 9 ppm boiler. The increment between

the 15 ppm boiler and the 9 ppm boiler are therefore surplus reductions. The incentive amount would be set to cover the extra cost of installing the cleaner boiler. There are approximately 420 units between 5 to 20 MMBTU per hour that are subject to Rule 4306. Complete new burner unit costs are in the range of $28,000 to $57,000 depending on size, based on contact with venders. The differential cost between low emitting and high emitting burners ranges from $5,000 to $7,000

Another possible source of surplus reductions may occur from boilers rated from 2 to 5 MMBTU per hour and subject to proposed Rule 4307, which has a NOx limit of 30 ppm. Some boilers that currently operate above 30 ppm may be exempt from rule retrofit requirements now under development, so the surplus reductions for those units may be calculated from the uncontrolled emissions of 55 ppm down to 9 ppm. The incentive would need to cover 100 percent of the cost of the installation. There are no increased operating costs expected with the 9 ppm burners. There could be more than 300 of these exempt units eligible for an incentive. Unit costs for 2.5 MMBtu/hr 9 ppm burners are about $41,000 based on contact with vendors.

Example: Electrification of stationary non-emergency IC engines.

Stationary engines are required to meet a NOx emission limit specified by Rule 4702. Installing an electric motor in place of the engine would result in a surplus reduction for the increment between the emission limit and the zero emission electric motor. Depending on the current electric rate and price of fuel, there may be a cost increase from changing to electric. The incentive would need to cover the cost of replacing the engine with an electric motor and increased operating costs. There are hundreds of units installed that could take advantage of this program with sufficient incentive amounts. Costs have not been researched.

Example: Install SCR at a flat glass melting furnace.

Glass melting furnaces are required to meet NOx emission limits specified in Rule 4354 when the furnace is next rebuilt. These furnaces are rebuilt approximately every 7 years. The rule requirements can be exceeded with installation of selected catalyst reduction. The surplus reductions can be achieved by using SCR instead of oxy fuel or in addition to oxy fuel in some cases. The cost of control may exceed $10 million per unit, but the large potential emission reductions result in relatively good cost-effectiveness. SCR has high operating costs and would most likely require incentives to cover increased operating costs. There are two potential candidates for this project in the San Joaquin Valley.

Example: Install plenum chambers or additional cyclone separators in cotton gins.

Cotton gins are required to reduce PM10 emissions produced during the ginning process under Rule 4204. Additional controls may be possible for some gins if an

incentive were provided. Installing a plenum chamber before the required cyclone separators may provide reductions if there is room for the equipment in the building. After the cyclone separators there may be potential to add either cyclone separators in or a bag house in series. Feasibility will depend on the gin configuration. There are increased operating costs with adding cyclone separators and bag houses that may impact cost-effectiveness of these options.

PM10 Public Agency Road and Unpaved Surface Program

The District has identified several sources of fugitive PM10 from paved and unpaved roads that provide significant emission reduction potential for the ISR rule. The most promising projects are:

- Paving unpaved roads
- Paving unpaved road shoulders
- Long-term contracts for chemical suppressants on unpaved roads
- Long-term contracts for chemical dust suppressants on unpaved road shoulders
- Purchase of PM10 Efficient Street Sweepers

Program Concept

The District envisions this program as a coordinated effort between the District, Valley Transportation Planning Agencies, city and county road agencies, and public works departments. The funds collected for PM10 will be spent in the county of origin to the extent possible.

The District will develop an application process and evaluation procedure for funding road projects. Some of the key features are outlined below:

General Program Features

1. Each county and the cities within each county will be competing for funds generated in the county
2. The Council of Governments/Transportation Planning Agencies may coordinate the process of identifying funding priorities among the local member jurisdictions.
3. The primary consideration in funding priorities is cost-effectiveness.
4. Projects must not supplant funding from any source.
5. A mix of projects with higher cost-effectiveness may be funded as long as the average cost-effectiveness for the year is consistent with the District's annual target.
6. Once a list of eligible projects is created and ranked, funding would be allocated twice each year as fees are collected by the District.

Unpaved Roads

1. Provide a list of unpaved road segments in descending average daily trip (ADT) sequence (same data used for compliance with Rule 8061).
2. Indicate road segments that will be paved or chemical treated in compliance with Rule 8061.
3. If economic hardship is claimed for Rule 8061, provide justification.
4. As a general rule, the highest ADT road segments should be paved or treated first.
5. Other factors to consider in scoring projects:
   Roads with significant truck traffic should receive added points
   Roads in or near to urban areas should receive added points
6. Payment will be made to the agency after the project is complete.
7. Suppressant projects would be paid annually under a continuing agreement.
8. A single project could be based on total miles of road segments from a jurisdiction so that different roads could be done under one contract.

Paved Road Shoulder Paving Projects

1. Provide a list of unpaved road shoulders in descending average daily trip (ADT) sequence (same list used for compliance with Rule 8061).
2. Indicate road shoulder segments that will be paved or chemical treated in compliance with Rule 8061.
3. Other criteria should be same as unpaved road projects

PM10 Efficient Street Sweepers

1. Provide a description of the existing street sweeping program if any, including sweeping schedule and types of sweepers (PM Efficient or Standard)
2. Demonstrate compliance with Rule 8061 sweeper purchase requirements or provide economic hardship justification.
3. Provide an estimate of the curb miles that will be swept by the new sweeper(s).
4. Projects proposing natural gas vehicles may be eligible for additional funding based on NOx and PM10 exhaust emission reductions.

Agricultural Project Incentive Program

The District has identified several potential projects for agricultural equipment and emission sources not currently eligible for other funding sources. The projects must be surplus to agricultural regulations and be able to demonstrate quantifiable emission reductions.

Program Concept: Although many agricultural sources are now regulated, there are some opportunities for early implementation of controls that are scheduled far enough in the future to result in surplus reductions. In some cases, it is possible to go beyond

current regulations. For example, measures in addition to those required by the Agricultural Conservation Management Program rule.

Agricultural Projects:

- ❖ Lower emitting almond harvester purchase
- ❖ Chippers and shredder purchases as alternative to burning

Project descriptions:

New almond harvesters that emit 35 to 70 percent less PM10 than older units are currently available. Field-testing results completed for the harvesters is currently under analysis by UC Davis. Early introduction of lower emitting almond harvesters will result in significant reductions.

Chipping and shredding wood waste in the orchard instead of burning results in substantial reductions of PM10, NOx, and ROG. Although Rule 4103 phases out most burning by 2010, some will be exempt due to lack of an economic alternative to burning. The District would purchase chippers and shredders for growers that were unable to implement an alternative to burning and had not selected this as a practice for their CMP Plan.

IV. Potential Projects Lists for NOx and PM10

The following tables list potential projects along with estimates of the number of potential projects, costs, emission reductions and cost-effectiveness for each type of project. The purpose of the list is to show that sufficient projects are available at a cost-effectiveness to achieve program goals. The list is not all inclusive. There are many Heavy-Duty Engine Incentive Program and REMOVE II eligible projects that could also be funded. New projects may also become available as retrofit devices are certified and new technologies are released to the market. The conclusion that can be drawn from this information is that projects well in excess of projected funding are available for the ISR program.

Tables are also provided for 2006, 2007, and 2008 containing a demonstration that the cost-effectiveness targets can be met with the types of projects that are available. This is not intended as a funding allocation system. Participation in grant programs is voluntary and on a first come, first served basis. The District may perform targeted outreach and may set up funding pots for the most cost-effective projects if necessary to achieve emission reduction commitments.

NOx Project Availability

	Individual Project Cost	Annual Reduction (t/y)	Project Life	Lifetime Reductions	Project CE $/ton	Projects Available	Total Cost	Cumulative Cost	Category Reductions Life (tons)	Total Reductions t/d	Cumulative Reductions tons	Cumulative CE
Marine Vessels (Harbor Craft) 04 repower	$197,850	7.6	16	121.6	1627.5	1	$197,850	$197,850	121.57	0.02	121.6	$1,627.46
Ag Irrigation Pump Electrification	$21,558	3.0	10	29.9	720.8	142	$3,061,273	$3,259,124	4247.22	0.58	4368.8	$746.00
Marine Vessels (Harbor Craft) 03 repower	$69,288	3.3	16	52.8	1313.3	1	$69,288	$3,328,412	52.8	0.01	4421.6	$752.77
Ag Irrigation Pumps Portable Diesel Repowers	$27,144	2.3	7	15.9	1705.0	50	$1,357,198	$4,685,610	796.0	0.11	5217.6	$898.05
HDD Trucks Idle Reduction	$9,883	0.6	5	3.0	3316.3	320	$3,162,411	$7,848,021	953.6	0.13	6171.2	$1,271.73
Open Burning Chippers Almond	$227,182	5.7	10	57.2	3971.7	1	$227,182	$8,075,203	57.2	0.01	6228.4	$1,296.52
Off-Road Vehicles/Equipment large ag	$48,382	1.7	7	11.8	4100.2	10	$483,820	$8,559,023	118.0	0.02	6346.4	$1,348.65
Auxiliary Power Units (Transportation Refridgeration Units)	$12,518	0.4	5	1.8	6878.1	294	$3,680,348	$12,239,371	535.1	0.07	6881.4	$1,778.61
Ag non self-propelled ICE	$9,200	0.1	7	1.0	8846.2	10	$92,000	$12,331,371	10.4	0.00	6891.8	$1,789.27
On-Road HD Vehicles - Fleet Modernization	$88,756	1.0	10	10.2	8744.4	1000	$88,755,962	$101,087,334	10150.0	1.39	17041.8	$5,931.72
Glass Melting Furnaces - SCR	$22,120,500	239.0	10	2390.0	9255.4	1	$22,120,500	$123,207,834	2390.0	0.33	19431.8	$6,340.52
Off-Road Vehicles/Equipment small ag repowers	$12,677	0.2	7	1.3	9981.9	20	$253,540	$123,461,374	25.4	0.00	19457.2	$6,345.27
Ag non self-propelled ICE - repowers	$15,500	0.2	7	1.5	10402.7	12	$186,000	$123,647,374	17.9	0.00	19475.1	$6,348.99
Small Boilers, Steam Generators, and Process Heaters - replacement	$13,000	0.1	10	1.2	10743.8	1207	$15,691,000	$139,338,374	1460.5	0.20	20935.6	$6,655.58
School Bus Replacement	$110,000	0.3	10	3.1	35483.9	1000	$110,000,000	$249,338,374	3100.0	0.42	24035.6	$10,373.72
Locomotives	$1,414,286	6.0	18.6	111.7	12664.7	10	$14,142,857	$263,481,231	1116.7	0.15	25152.3	$10,475.44
Small Boilers, Steam Generators, and Process Heaters - replacement	$6,000	0.0	10	0.3	18181.8	552	$3,312,000	$266,793,231	182.2	0.02	25334.5	$10,530.85
Forklifts (Electric, ICE, SI)	$44,457	0.4	5	2.0	22798.7	50	$2,222,873	$269,016,104	97.5	0.01	25432.0	$10,577.88
Airport Ground Support Equipment - Electric replacements	$27,889	0.2	5.0	1.1	24753.5	73	$2,035,889	$271,051,993	82.2	0.01	25514.2	$10,623.57
Open Burning Chippers Figs	$185,212	0.6	10	5.7	32379.7	12	$2,222,544	$273,274,537	68.6	0.01	25582.8	$10,681.95
Gross Polluter - VAVR	$3,000	0.1	1	0.08	37500.0	100	$300,000	$273,574,537	8.0	0.00	25590.8	$10,690.33
Old Vehicle - VAVR	$3,000	0.02	3	0.06	50000.0	5000	$15,000,000	$288,574,537	300.0	0.04	25890.8	$11,145.82
									25890.8	3.55		

PM10 Project Availability

	Individual Project Cost	Annual PM10 Reduction (t/y)	Project Life	Lifetime Reductions	Project CE $/ton	Projects Available	Total Cost	Cumulative Cost	Category Reductions Life (tons)	Total Reductions t/d	Cumulative Reductions tons	Cumulative CE
Unpaved Roads - City and County												
Paving 75 ADT roads	$290,000	27.1	20	542.0	535.1	10	$2,900,000	$2,900,000	5420	0.7	5420	$535.06
Paving 25 ADT roads	$290,000	9.0	20	180.7	1605.2	90	$26,100,000	$29,000,000	16260	2.2	21680	$1,337.64
Paving 10 ADT roads	$290,000	3.6	20	72.0	4027.8	100	$29,000,000	$58,000,000	7200	1.0	28880	$2,008.31
Suppressants 10 year contract	$140,080	3.5	10	35.0	4002.3	100	$14,008,000	$72,008,000	3500	1.0	32380	$2,223.84
Paved Roads											32380	
Paving Shoulders	$100,000	0.2	20	3.8	26315.8	500	$50,000,000	$122,008,000	1900	0.5	34280	$3,559.16
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	30231.3	500	$24,185,000	$146,193,000	800	0.2	35080	$4,167.42
PM Efficient Street Sweepers	$152,000	0.9	8	7.3	20821.9	15	$2,280,000	$148,473,000	109.5	0.0	35189.5	$4,219.24
Stationary Source Projects												
Cotton Gin - Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	460.1	12	$90,000	$148,563,000	195.6	0.0	35275.6	$4,211.49
Cotton Gin - Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	2173.9	12	$720,000	$149,283,000	331.2	0.0	35606.8	$4,192.54
Cotton Gin - Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	2536.2	12	$840,000	$150,123,000	331.2	0.1	35938	$4,177.28
Charbroiler Replacement	$6,600	0.2	10	2.4	2750.0	135.0	$891,000	$151,014,000	324	0.1	36262	$4,164.52
Other Ag Projects												
Almond Harvester Purchase	$145,000	3.6	10	35.7	4061.6	260	$37,700,000	$188,714,000	9282	2.5	45220	$4,173.24
										8.5		

NOx Cost-Effectiveness Demonstration

NOx Project Mix in 2006 to achieve an average cost effectiveness of $4650/ton with $6,006,379 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2006	Total cost	Total tons	Project CE $/ton
Ag Projects									
Ag Irrigation Pump Electrification	$21,558	3.0	10	29.9	142	20	$431,165	598.2	721
Ag Irrigation Pumps Portable Diesel Repowers	$27,144	2.3	7	15.9	50	10	$271,440	159.2	1,705
Off-Road Vehicles/Equipment large ag repowers	$48,382	1.7	7	11.8	10	4	$193,528	47.2	4,100
Ag non self-propelled ICE repowers hay bayler	$9,200	0.1	7	1.0	10	1	$9,200	1.0	8,846
Ag non self-propelled ICE repowers spray rig	$15,500	0.2	7	1.5	12	2	$31,000	3.0	10,403
Off-Road Vehicles/Equipment small ag repowers	$12,677	0.2	7	1.3	20	3	$38,031	3.8	9,982
Open Burning - Chipping Almonds	$227,182	5.7	4	22.9	1	1	$227,182	22.9	9,921
Open Burning - Chipping Figs	$185,212	0.6	4	2.28	12	1	$185,212	2.3	81,233
Marine Projects									
Marine Vessels (Harbor Craft) 03 repower	$69,288	3.3	16	52.8	1	1	$69,288	52.8	1,313
Marine Vessels (Harbor Craft) 04 repower	$197,850	7.6	16	121.6	1	1	$197,850	121.6	1,627
HD Truck/Bus Projects									
HDD Trucks Idle Reduction	$9,883	0.6	5	3.0	320	0	$0	0.0	#DIV/0!

NOx Cost-Effectiveness Demonstration

NOx Project Mix in 2006 to achieve an average cost effectiveness of $4650/ton with $6,006,379 available

HD Truck/Bus Projects *Cont*									
Auxiliary Power Units (Transportation Refridgeration Units) repowers	$12,518	0.4	5	1.8	294	20	$250,364	36.4	6,878
On-Road HD Vehicles Fleet Modernization	$88,756	1.0	10	10.2	1000	10	$887,560	101.5	8,744
School Bus Replacement	$110,000	0.3	10	3.1	1000	9	$990,000	27.9	35,484
Locomotives Tier 0 to Tier 2 or hybrid	$1,414,286	6.0	18.6	111.7	10	1	$1,414,286	111.7	12,665
Stationary Source Projects									
Glass Melting Furnaces	$22,120,500	239.0	10	2390.0	1	0	$0	0.0	#DIV/0!
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	$13,000	0.1	10	1.2	1207	1	$13,000	1.2	10,744
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	$6,000	0.0	10	0.33	552	12	$72,000	4.0	18,182
Off-Road Mobile									
Forklifts (Electric, ICE, SI)	$44,457	0.4	5	1.95	50	5	$222,287	9.8	22,799
Airport Ground Support Equipment - Electric	$27,889	0.2	5	1.13	73	3	$83,667	3.4	24,753
Other Mobile									
Gross Polluter - VAVR	$3,000	0.1	1	0.08	100	0	$0	0.0	#DIV/0!
Old Vehicle - VAVR	$3,000	0.02	3	0.06	5000	150	$450,000	9.0	50,000
				Overall cost and average CE for 2006			**$6,037,059**	**1316.7**	**4,585**

NOx Project Mix in 2007 to achieve an average cost effectiveness of $7100/ton with $14,407,974 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2007	Total cost	Total tons	Project CE $/ton
Ag Projects									
Ag Irrigation Pump Electrification	21,558	3.0	10	29.9	122	20	$431,165	598.2	721
Ag Irrigation Pumps Portable Diesel Repowers	27,144	2.3	7	15.9	40	20	$542,879	318.4	1,705
Off-Road Vehicles/Equipment large ag repowers	48,382	1.7	7	11.8	6	4	$193,528	47.2	4,100
Ag non self-propelled ICE repowers hay bayler	9,200	0.1	7	1.0	9	4	$36,800	4.2	8,846
Ag non self-propelled ICE repowers spray rig	15,500	0.2	7	1.5	10	4	$62,000	6.0	10,403
Off-Road Vehicles/Equipment small ag repowers	12,677	0.2	7	1.3	17	4	$50,708	5.1	9,982
Open Burning - Chipping Almonds	227,182	5.7	3	17.2	0	0	$0	0.0	#DIV/0!
Open Burning - Chipping Figs	185,212	0.6	3	1.71	11	0	$0	0.0	#DIV/0!
Marine Projects									
Marine Vessels (Harbor Craft) 03 repower	69,288	3.3	16	52.8	0	0	$0	0.0	#DIV/0!
Marine Vessels (Harbor Craft) 04 repower	197,850	7.6	16	121.6	0	0	$0	0.0	#DIV/0!
HD Truck/Bus Projects					0				
HDD Trucks Idle Reduction	9,883	0.6	5	3.0	320	0	$0	0.0	#DIV/0!
Auxiliary Power Units	12,518	0.4	5	1.8	274	40	$500,728	72.8	6,878

NOx Project Mix in 2007 to achieve an average cost effectiveness of $7100/ton with $14,407,974 available

HD Truck/Bus Projects *Cont.*									
On-Road HD Vehicles - Fleet Modernization	88,756	1.0	10	10.2	990	45	$3,994,018	456.8	8,744
School Bus Replacement	110,000	0.3	10	3.1	991	40	$4,400,000	124.0	35,484
Locomotives	1,414,286	6.0	18.6	111.7	9	2	$2,828,571	223.3	12,665
Stationary Source Projects					0				
Glass Melting Furnaces	22,120,500	239.0	10	2390.0	1	0	$0	0.0	#DIV/0!
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	13,000	0.1	10	1.2	1206	2	$26,000	2.4	10,744
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	6,000	0.0	10	0.33	540	6	$36,000	2.0	18,182
Off-Road Mobile									
Forklifts (Electric, ICE, SI)	44,457	0.4	5	1.95	45	3	$133,372	5.9	22,799
Airport Ground Support Equipment - Electric	27889	0.2	5.0	1.13	70	4	$111,556	4.5	24,753
Other Mobile									
Gross Polluter - VAVR	$3,000	0.1	1	0.08	100	5	$15,000	0.4	37,500
Old Vehicle - VAVR	$3,000	0.02	3	0.06	4850	350	$1,050,000	21.0	50,000
				Overall cost and average CE for 2007			**$14,412,326**	**1892.0**	**7,617**

NOx Project Mix in 2008 to achieve an average cost effectiveness of $9350/ton with $22,373,287 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2008	Total cost	Total tons	Project CE $/ton	Comments
Ag Projects										
Ag Irrigation Pump Electrification	21,558	3.0	10	29.9	102	18	$388,049	538.4	721	
Ag Irrigation Pumps Portable Diesel Repowers	27,144	2.3	7	15.9	20	10	$271,440	159.2	1,705	
Off-Road Vehicles/Equipment large ag repowers	48,382	1.7	7	11.8	2	2	$96,764	23.6	4,100	
Ag non self-propelled ICE repowers hay bayler	9,200	0.1	7	1.0	5	5	$46,000	5.2	8,846	
Ag non self-propelled ICE repowers spray rig	15,500	0.2	7	1.5	6	6	$93,000	8.9	10,403	
Off-Road Vehicles/Equipment small ag repowers	12,677	0.2	7	1.3	13	8	$101,416	10.2	9,982	
Open Burning - Chipping Almonds	227,182	5.6	2	11.1	1	1	$227,182	11.1	20,467	Rule 4103 2010 Implementation
Open Burning - Chipping Figs	185,212	0.6	2	1.14	11	0	$0	0.0	#DIV/0!	Rule 4103 2010 Implementation
Marine Projects										
Marine Vessels (Harbor Craft) 03 repower	69,288	3.3	16	52.8	0	0	$0	0.0	#DIV/0!	
Marine Vessels (Harbor Craft) 04 repower	197,850	7.6	16	121.6	0	0	$0	0.0	#DIV/0!	
HD Truck/Bus Projects					0					
HDD Trucks Idle Reduction	9,883	0.6	5	3.0	320	50	$494,127	149.0	3,316	Idle Aire req. min order of 50 units

NOx Project Mix in 2008 to achieve an average cost effectiveness of $9350/ton with $22,373,287 available

HD Truck/Bus Projects *Cont.*										
Auxiliary Power Units - Repower	12,518	0.4	5	1.8	234	40	$500,728	72.8	6,878	
On-Road HD Vehicles - Fleet Modernization	88,756	1.0	10	10.2	945	66	$5,857,894	669.9	8,744	
School Bus Replacement	110,000	0.3	10	3.1	951	50	$5,500,000	155.0	35,484	
Locomotives	1,414,286	6.0	18.6	111.7	7	4	$5,657,143	446.7	12,665	
Stationary Source Projects					0					
Glass Melting Furnaces	22,120,500	239.0	10	2390.0	1	0	$0	0.0	#DIV/0!	
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	13,000	0.1	10	1.2	1204	60	$780,000	72.6	10,744	
Small Boilers, Steam Generators, and Process Heaters Replace Existing units with new	6,000	0.0	10	0.33	534	60	$360,000	19.8	18,182	
Off-Road Mobile					0					
Forklifts (Electric, ICE, SI)	44,457	0.4	5	1.95	42	5	$222,287	9.8	22,799	
Airport Ground Support Equipment - Electric	27889	0.2	5.0	1.13	10	5	$139,444	5.6	24,753	
Other Mobile					0					
Gross Polluter ID & Replace - VAVR	$3,000	0.1	1	0.08	95	50	$150,000	4.0	37,500	
Old Vehicle - VAVR	$3,000	0.02	3	0.06	4500	500	$1,500,000	30.0	50,000	
				Overall cost and average CE for 2008			**$22,385,473**	**2391.7**	**9,359**	

NOx Cost Effectiveness Demonstration

Year	Nox Projected Revenue	NOx CE $/ton
2006	$6,006,379	4,650
2007	$14,407,974	7,100
2008	$22,373,287	9,350
Total	$42,787,640	

PM10 Cost-Effectiveness Demonstration

Project Mix in 2006 to achieve an average cost effectiveness of $2907/ton with $5,941,908 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2006	Total cost	Total tons	Project CE $/ton
Unpaved Roads									
Paving 75 ADT roads	$290,000	27.1	20	542	10	2	$580,000	1084.0	535
Paving 25 ADT roads	$290,000	9.0	20	180.7	90	2	$580,000	361.3	1,605
Paving 10 ADT roads	$290,000	3.6	20	72.0	100	4	$1,160,000	288.0	4,028
Suppressants 10 year contract	$140,080	3.5	10	35.0	100	6	$840,480	210.0	4,002
Paved Roads									
Paving Shoulders	$100,000	0.2	20	3.8	500	14	$1,400,000	53.2	26,316
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	500	16	$773,920	25.6	30,231
PM Efficient Sweeper Purchase	$152,000	0.9	8	7.3	25	2	$304,000	14.6	20,879
Cotton Gins									
Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	12	2	$15,000	32.6	460
Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	12	2	$120,000	55.2	2,174
Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	12	2	$140,000	55.2	2,536
Other Ag Equipment									
Almond Harvester Purchase	$145,000	3.6	10	35.7	260	0	$0	0.0	#DIV/0!
Average CE in 2006						**Overall cost and CE for 2006**	**$5,913,400**	**2179.7**	**2,713**

Project Mix in 2007 to achieve an average cost effectiveness of $5594/ton with $20,861,575 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2007	Total cost	Total tons	Project CE $/ton
Unpaved Roads									
Paving 75 ADT roads	$290,000	27.1	20	542	8	0	$0	0.0	#DIV/0!
Paving 25 ADT roads	$290,000	9.0	20	180.7	88	5	$1,450,000	903.3	1,605
Paving 10 ADT roads	$290,000	3.6	20	72.0	96	22	$6,380,000	1584.0	4,028
Suppressants 10 year contract	$140,080	3.5	10	35.0	94	16	$2,241,280	560.0	4,002
Paved Roads					0				
Paving Shoulders	$100,000	0.2	20	3.8	486	55	$5,500,000	209.0	26,316
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	484	50	$2,418,500	80.0	30,231
PM Efficient Sweeper Purchase	$152,000	0.9	8	7.3	23	12	$1,824,000	87.4	20,879
Cotton Gins									
Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	10	2	$15,000	32.6	460
Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	10	2	$120,000	55.2	2,174
Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	10	2	$140,000	55.2	2,536
Other Ag Equipment									
Almond Harvester Purchase	$145,000	3.6	10	35.7	260	2	$290,000	71.4	4,062
Average CE in 2007						**Overall cost and CE for 2007**	**$20,378,780**	**3638.1**	**5,602**

Project Mix in 2008 to achieve an average cost effectiveness of $9011/ton with $33,883,309 available

	Project Cost	Annual Reduction (t/y)	Project Life	Life Reductions	Total No. Projects Available	Number of Projects in 2008	Total cost	Total tons	Project CE $/ton
Unpaved Roads									
Paving 75 ADT roads	$290,000	27.1	20	542	8	1	$290,000	542.0	535
Paving 25 ADT roads	$290,000	9.0	20	180.7	83	5	$1,450,000	903.3	1,605
Paving 10 ADT roads	$290,000	3.6	20	72.0	74	10	$2,900,000	720.0	4,028
Suppressants 10 year contract	$140,080	3.5	10	35.0	78	5	$700,400	175.0	4,002
Paved Roads					0				
Paving Shoulders	$100,000	0.2	20	3.8	431	175	$17,500,000	665.0	26,316
Suppresants on Shoulder 10 yr	$48,370	0.2	10	1.6	434	160	$7,739,200	256.0	30,231
PM Efficient Sweeper Purchase	$152,000	0.9	8	7.3	11	11	$1,672,000	80.1	20,879
Cotton Gins					0				
Install barrel cyclone before master trash 1D3D cyclone	$7,500	1.6	10	16.3	8	2	$15,000	32.6	460
Install barrel cyclone or 1D2D cyclone before mote system 1D3D cyclone	$60,000	2.8	10	27.6	8	2	$120,000	55.2	2,174
Install plenum chamber before the unloading system and the drying/cleaning systems	$70,000	2.8	10	27.6	8	2	$140,000	55.2	2,536
Other Ag Equipment									
Almond Harvester Purchase	$145,000	3.6	10	35.7	258	6	$870,000	214.2	4,062
Average CE in 2008						**Overall cost and CE for 2008**	**$33,396,600**	**3698.6**	**9,029**

PM10 Cost-Effectiveness Demonstration

Year	PM10 Projected Revenue	PM10 CE $/ton
2006	$5,941,908	2,907
2007	$20,306,433	5,594
2008	$33,883,309	9,011
Total	$60,131,650	

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APPENDIX F

Socioeconomic Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

November 17, 2005

SOCIOECONOMIC ANALYSIS PROPOSED INDIRECT SOURCE RULE: DRAFT RULES 9510 AND 3180

4 November 2005

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1. EXECUTIVE SUMMARY

The San Joaquin Valley Unified Air Pollution Control District ("District") seeks to adopt New Rule 9510 and 3180 to meet certain United States Environmental Protection Agency (US EPA) mandates and timelines with regards to improved air quality in the region. This section of the report summarizes the findings of the socioeconomic analysis of Rules 9510 and 3180.

The analysis indicates that while the worst-case residential fee that a typical residential development would pay under Draft Rule 9510 and 3180 can increase the amount of household income required to finance the purchase of a new home, the estimated increase represents a small fraction of the original household income required to finance a new home in the event no air quality fees were in place. The affect of the fees on rents is similarly small.

The analysis also examines the question of housing affordability from the vantage point of low- and moderate-income households. The analysis demonstrates that, even before the imposition of an air quality fees, most low-income and households in the Central Valley are priced out of newly constructed multifamily unit market, the rents for which need to be at levels that account for price of land, development costs, developer fees, and an adequate level of profit, among other things. The analysis discusses how public subsidies can assist in enhancing the financial feasibility of a real estate project in which a certain portion of units are set-aside as below-market rental units.

The analysis also examines the impacts of proposed worst-case off-site emission reduction fees on commercial, industrial and institutional projects. While a typical non-residential development can absorb the 2006 and 2008 fees, projects will have to recover the cost of the fee over a period of time.

It is important to note that any fee identified in the report is the estimated maximum fee in the worst-case scenario for a typical development project, with the understanding that the

actual fee will vary with the particulars of any project. Any fee in the report is presented for the purposes of analyzing potential impacts given costs associated with reducing quantifiable emissions resulting from what constitutes typical residential, commercial and industrial developments. It is also important to note that the developer may reduce fees by incorporating on-site emission reduction measures into the projects. There may or may not be costs associated with on-site measures. In any event, it is anticipated that the developer will choose the least costly option.

2. INTRODUCTION

This report describes the socioeconomic impacts of Rule 9510 (Indirect Source Review – ISR) and 3180 (Administrative Fees for Indirect Source Review). Following this introduction, the report summarizes the proposed amendments and describes the methodology for the socioeconomic analysis. In Section 5, the report describes the economic characteristics of sources affected by Rule 9510 and 3180. The sixth section analyzes the socioeconomic impacts of compliance costs on the regional economy.

The report is prepared pursuant to the provisions of AB2051 (Section 40728.5 of the California Health and Safety Code), which requires an assessment of socioeconomic impacts of proposed air quality rules. The findings in this report can assist District staff in understanding the socioeconomic impacts of Rules 9510 and 3180, and can assist staff in preparing a refined version of the rule. A final report will be presented at the Governing Board hearing by District staff in December 2005. Figure 1 is a map of the eight-county region that comprises the San Joaquin Valley Air Basin. As indicated in the map, Kern County is not completely in the District.

FIGURE 1
San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) Air Basin



3. DESCRIPTION OF NEW RULES 9510 & 3180

The San Joaquin Valley Air Basin (SJVAB) is classified as a nonattainment area for the state and federal health based ambient ozone and PM 10 standards by the California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA). The SJVAB is currently classified as serious nonattainment for the 24-hour and annual National Ambient Air Quality Standards (NAAQS) for particulate matter 10 microns in size and smaller (PM10), extreme nonattainment for the federal 1-hour ozone standard, serious nonattainment for the new federal 8-hour ozone standard, and severe nonattainment for the 1-hour state ozone standard.

The San Joaquin Valley Unified Air Pollution Control District's (District) adopted 2003 PM10 Plan projects attainment of NAAQS for PM10 at the earliest practicable date of December 31, 2010. The Indirect Source Rule[1] (ISR) is one of the commitments contained in the 2003 PM10 Plan to achieve these emissions reductions. The ISR commitment will be implemented through Rules 9510 and 3180. The purpose of Draft Rule 9510 is to reduce emissions of NOx and PM10 from new development projects. The purpose of Draft Rule 3180 is to recover the costs of administering Draft Rule 9510. Implementation of these draft rules is expected to reduce NOx and PM10 emissions by 5.4 and 5.8 tons per day respectively.

The District identified several examples of air pollution agencies in California that are currently reviewing land use projects for indirect source impacts and/or collecting mitigation fees in their districts. District staff reviewed programs being implemented by the Mendocino County and Shasta County Air Quality Management Districts and the Great Basin, Colusa County, and Placer County Air Pollution Control Districts. District staff also considered a number of

[1] Indirect Sources are land uses that attract or generate motor vehicle trips.

program types including District permitting, city/county review, District review, and simple fee.

Despite significant air pollution reductions from both mobile and stationary sources, the District exceeds state and federal air quality standards for ozone and PM10. Although today's new cars pollute about 90 percent less than models produced 25 years ago (due to California's strict vehicle emissions standards), large increases in population and driving partially offset the benefits these cleaner-burning vehicles provide. The District's total population increased by 22 percent between 1990 and 2000; and, California's Department of Finance projects that the SJVAB's population will increase by 24 percent between 2000 and 2010. With increased population, there is an increase in emissions from area sources, such as consumer products, fuel combustion, landscape maintenance equipment, etc.

The total number of vehicle miles traveled (VMT) in the District has increased at a rate faster than population growth. The district witnessed a nine percent increase between 1999 and 2002, and is expecting a 27 percent increase from 2002 to 2010. Entrained and re-entrained paved road dust and corresponding PM10 emissions increase as VMT increases.

To reduce emissions of NOx and PM10, Draft Rule 9510 would apply to development projects that will seek to gain a discretionary approval for projects that, upon full build-out will include any one of the following: 50 residential units, 2,000 square feet of commercial space, 25,000 square feet of industrial space, 20,000 square feet of medical office space, 39,000 square feet of general office space, 9,000 square feet of educational space, 10,000 square feet of government space, 20,000 square feet of recreational space, or 9,000 square feet of unidentified space. Certain transportation projects, transit projects, reconstruction projects that result from a natural disaster, and development projects whose primary source of emissions are subject to District Rule 2201 or 2010 would be exempt from this Draft Rule. Also, development projects that have a mitigated baseline below two tons per year for each pollutant would be exempt from the emission reduction requirements of the rule.

Draft Rule 9510 would require new development project applicants to submit an Air Impact Assessment application to the District prior to or at application for a project's final discretionary approval with a public agency. The application would include an assessment, project location and description, an on-site emission reduction checklist, a proposed Monitoring and Reporting Schedule (MRS), and a fee deferral agreement if necessary. The District would have 10 days to determine whether or not the application is complete. After deeming an application complete, the district would have 30 days to approve the application and notify the applicant of the fee amounts.

Draft Rule 9510 would require developers to reduce cumulative NOx emissions in excess of 50 percent of the project's first-year operational baseline emissions until the emissions reach 50 percent of the first-year baseline emissions (approximately 10 years). Developers would be required to reduce PM10 emissions equal to half of the first-year emissions after build-out for the same time period required for NOx reductions. Developers would also be required to reduce emissions from construction equipment NOx by 20%, and PM10 by 45% compared to the statewide fleet average. Emissions could be reduced through on-site emission reduction measures, by paying the District a fee to fund emission reduction projects off-site, or through a combination of the two.

To recover the costs of administering Draft Rule 9510, Draft Rule 3180 would include a non-refundable application filing fee to be paid when an application is submitted to the District. Once an application and application fee are received, District staff would log the total staff hours spent on the project. So that only the cost of the actual hours spent on the project is recovered, the cost of the hours spent on the project (hours multiplied by a weighted average labor rate) would be subtracted from the application fee. Draft Rule 3180 would also contain a fee, payable when the off-site emission reduction fees are collected, equal to four percent of the off-site fees to recover the cost of administering off-site emission reduction projects.

4. METHODOLOGY

The socioeconomic analysis involves the use of information provided directly by affected sources, as well as secondary data used to describe the industries affected by the proposed provisions of Rule 9510 and 3180. The approach is briefly described below.

This report relies heavily on the most current data available from a variety of sources. For commercial-industrial prices, this report relies on Dataquick, Loopnet.com and Realtor.com. For construction trends, this report relied on the Construction Industry Research Board. When estimating cost of construction, we used "Commercial Square Foot Building Costs: 2004", by Deloitte Saylor Publication, as well as per square foot cost of construction estimates used by many cities when estimating the value of a project. For purposes of estimating profits, ADE relied on Dun and Bradstreet, as well as corporate reports of major home builders and developers of commercial-industrial space operating in California and the Central Valley.

With the above information, ADE was able to estimate profit ratios for sources affected by the draft rule. ADE calculated ratios of profit per dollar of revenue for affected industries. The result of the socioeconomic analysis shows what proportion of profits the compliance costs represent. Based on assumed thresholds of significance, ADE discusses in the report whether the affected sources are likely to pass on costs to consumers or to reduce jobs as a means of recouping the cost of rule compliance or as a result of reducing business operations. To the extent that such job losses appear likely, the indirect multiplier effects of the jobs losses are estimated using a regional IMPLAN input-output model.

When analyzing the socioeconomic impacts of proposed new rules and amendments, ADE works closely within the parameters of accepted methodologies discussed in a 1995 California Air Resources Board report called "Development of a Methodology to Assess the Economic Impact Required by SB513/AB969" (by Peter Berck, PhD, UC Berkeley

Department of Agricultural and Resources Economics, Contract No. 93-314, August, 1995). The author of this report reviewed a methodology to assess the impact that California Environmental Protection Agency proposed regulations would have on the ability of California businesses to compete. The California Air Resources Board (ARB) has incorporated the methodologies described in this report in its own assessment of socioeconomic impacts of rules generated by ARB. One methodology relates to determining a level above or below which a rule and its associated costs is deemed to have significant impacts. When analyzing the degree to which its rules are significant or insignificant, ARB employs a threshold of significance that ADE follows. Berck reviewed the threshold in his analysis and wrote, "The Air Resources Board's (ARB) use of a 10 percent change in [Return on Equity] ROE (i.e. a change in ROE from 10 percent to a ROE of 9 percent) as a threshold for a finding of no significant, adverse impact on either competitiveness or jobs seems reasonable or even conservative."

5. IMPACT INDUSTRIES SUBJECT TO NEW RULES 9510 & 3180 (INDIRECT SOURCE RULE)

This section of the socioeconomic analysis describes demographic and economic trends in the San Joaquin Valley region. The first part of this section compares the San Joaquin Valley region against California as a whole, and provides a context for understanding demographic and economic changes that occurred within the San Joaquin Valley region between 1998 and 2003. Starting with sub-section 5.2, the second part of this section narrows the focus of the socioeconomic analysis to industries affected by New Rules 9510 and 3180. The second part of this section describes the economic characteristics of potentially impacted industries that might be subject to Rules 9510 and 3180.

In this report, the San Joaquin Valley region is defined as Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare counties. Data for Kern County in Tables 1 and 2 are for all of Kern County, although Kern County is only partially in the San Joaquin Valley Air Basin. Starting with Table 3, data for Kern County are for the part of Kern County that is in the San Joaquin Valley Air Basin.

5.1 REGIONAL DEMOGRAPHIC AND ECONOMIC TRENDS

REGIONAL DEMOGRAPHIC TRENDS

The San Joaquin Valley region experienced tremendous population growth during the 1990s. Many came to this area because of affordable housing. As a result, population increased significantly. The eight-county region's population increased by 22 percent (or approximately 2.0 percent annually), from 2.9 million in 1993 to 3.6 million in 2003. While the State of California's population increased by 15 percent (or approximately 1 percent annually), all the counties in the region experienced faster rates of growth, and two counties grew at rates that were triple the State's growth rate, as Table 1 shows. While by many standards Madera County continues to be a small county– at 135,262 residents

according to the Department of Finance–it still experienced a 35 percent growth in population during the last decade (or three percent annually). Kings County also grew by three percent per year. As demonstrated in the following section on regional economic trends, the demographic changes that occurred in the San Joaquin Valley region during the 1990s significantly influenced the economy of this eight-county region.

TABLE 1
Population Growth: San Joaquin Valley Region, 1993 - 2003

	1993	1998	2003	Distribution, 2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	31,303,452	32,670,019	36,144,267		1%	2%	1%
SJV Region	2,959,911	3,192,439	3,615,696	10%	2%	3%	2%
Fresno	722,608	781,936	862,642	24%	2%	2%	2%
Kern	593,087	637,227	724,883	20%	1%	3%	2%
Kings	109,648	120,957	141,434	4%	2%	3%	3%
Madera	100,297	114,137	135,262	4%	3%	3%	3%
Merced	191,883	203,181	232,141	6%	1%	3%	2%
San Joaquin	507,170	546,852	630,577	17%	2%	3%	2%
Stanislaus	400,417	428,272	491,929	14%	1%	3%	2%
Tulare	334,801	359,877	396,828	11%	1%	2%	2%

Source: Applied Development Economics, based on California Department of Finance

Housing construction in the San Joaquin Valley Air Basin has paralleled this increase in population. Low interest and the availability of land at prices lower than in coastal areas of California has fueled construction activity in the Central Valley. Tables 2 and 3 track building permits for single-family and multi-family homes. According to the California Construction Industry Research Board, home-builders typically take out building permits only when they are ready to construct housing. Thus, building permits is a good indicator of housing production. As Table 2 shows, the amount of single-family building permits increased by 14 percent annually between 1998 and 2003 in the Central Valley, easily surpassing the statewide annual rate of eight percent. Almost forty percent of all single family building permits was for projects in San Joaquin and Stanislaus County in 2003. As the tables below show, the amount of new construction for single-family homes greatly exceeds new

construction for multi-family housing, for reasons related to market demand, availability of land, and historically low-interest rates, among other reasons.

TABLE 2
Single-Family Residential Building Permit Trends:
San Joaquin Valley, 1993-2003

	---------- SFU Building permits ----------						
	1993	1998	2003	Distribution, 2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	69,901	94,298	138,762		6%	8%	7%
SJV Region	15,055	14,280	27,080	20%	-1%	14%	6%
Fresno	3,743	2,742	4,479	17%	-6%	10%	2%
Kern	3,082	3,025	5,529	20%	0%	13%	6%
Kings	530	526	835	3%	0%	10%	5%
Madera	694	473	1,144	4%	-7%	19%	5%
Merced	1,087	960	2,489	9%	-2%	21%	9%
San Joaquin	2,545	3,170	6,727	25%	4%	16%	10%
Stanislaus	1,835	1,997	3,884	14%	2%	14%	8%
Tulare	1,539	1,387	1,993	7%	-2%	8%	3%

Source: Applied Development Economics, based on Construction Industry Research Board

TABLE 3
Multi-Family Residential Building Permit Trends: San Joaquin Valley, 1993-2003

	---------- MFU Building permits ----------						
	1993	1998	2003	Distribution, 2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	14,755	31,409	56,920		16%	13%	14%
SJV Region	1,309	1,403	3,699	6%	1%	21%	11%
Fresno	404	292	1,520	41%	-6%	39%	14%
Kern	314	428	583	16%	6%	6%	6%
Kings	13	231	143	4%	78%	-9%	27%
Madera	105	160	90	2%	9%	-11%	-2%
Merced	20	72	457	12%	29%	45%	37%
San Joaquin	83	59	225	6%	-7%	31%	10%
Stanislaus	148	93	284	8%	-9%	25%	7%
Tulare	222	68	397	11%	-21%	42%	6%

Source: Applied Development Economics, based on Construction Industry Research Board

While the value of single-family unit building permits in the Central Valley is lower by almost $40,000 than the value of single family building permits for the state as a whole, it is worth noting that between 1998 and 2003 average values rose

faster in the region as compared to the state (see Table 4). Using average construction cost figures adjusted for regional and historical variations, local officials estimate the value of single-family, multi-family and commercial and industrial building permits for reasons related to calculating fees and maintaining departmental budgets. The actual price of housing on the market is typically higher than the estimated value of the building permit, though changes in the value of building permits are a good indication as to the trajectory of change in the actual housing market.

TABLE 4
Average Value of Single-Family Unit Building Permit, San Joaquin Valley

	---------- Average Value ----------					
	1993	1998	2003	Annual Per. Chng 93-98	Annual Per. Chng 98-03	Annual Per. Chng 93-03
California	$183,559	$218,055	$217,271	4%	0%	2%
SJV Region	$130,879	$141,956	$170,604	2%	4%	3%
Fresno	$135,736	$150,044	$183,122	2%	4%	3%
Kern	$130,191	$130,167	$149,816	0%	3%	1%
Kings	$141,740	$136,190	$119,485	-1%	-3%	-2%
Madera	$100,791	$102,214	$150,562	0%	8%	4%
Merced	$135,439	$140,674	$153,139	1%	2%	1%
San Joaquin	$143,809	$161,303	$197,209	2%	4%	3%
Stanislaus	$119,981	$143,309	$176,566	4%	4%	4%
Tulare	$118,658	$122,141	$153,456	1%	5%	3%

Source: Applied Development Economics, based on Construction Industry Research Board

Table 5 below identifies the median price for for-sale owner-occupied housing in the Central Valley. The data comes from Dataquick. In the last two years, the median selling price of homes sold on the market has increased substantially. Dataquick's median housing price data cover transactions involving newly built homes, reselling of older homes, and condominiums and townhouses. At almost $300,000 the median price of a home in Madera County is almost twice what is was in July 2003.

TABLE 5
Median Home Sale Prices: San Joaquin Valley, 2003-2005 ($2005)

	July 2003	July 2004	July 2005	03-04	04-05
Fresno County	$171,220	$220,955	$265,000	29%	20%
Kern County	$136,353	$176,041	$236,500	29%	34%
Madera County	$151,811	$242,638	$299,500	60%	23%
Merced County	$207,151	$242,638	$335,000	17%	38%
San Joaquin County	$247,295	$320,075	$403,000	29%	26%
Stanislaus County	$245,165	$278,775	$360,000	14%	29%
Tulare County	$131,494	$159,005	$215,500	21%	36%
	$184,356	$234,304	$302,071	27%	29%

Source: Applied Development Economics, based on Dataquick

REGIONAL ECONOMIC TRENDS

The influx of people moving into the region in search of homes that are more affordable than homes in the San Francisco Bay Area affects more than the housing market. The affect of more people in the San Joaquin Valley region can also be seen in the changing economic profile of the region.

Economic development practitioners and planners have traditionally divided economies into two broad industrial categories—the economic base and local support industries. Economic base industries are the drivers of local and regional economies in that these industries draw income into a local economy by selling products outside of the local economy, much like the export industries of a national economy. Accrued earnings then circulate throughout the local area in the form of wages and salaries, investments, purchases of fixed assets, and goods and services, generating more jobs and wealth.

The economic base is typically comprised of industries within the manufacturing, minerals-resource extraction, and agricultural sectors. There are also the "local support industries" such as retail or service sectors, the progress of which is a function of the economic base and demographic changes, and more so the latter than the former. As population increases in a given area, demand for services–such as realtors, teachers, and healthcare–increases, as does

demand for basic retail items like groceries, gas for commuting, or clothing at the local apparel shops.

Agriculture is the economic base of the San Joaquin Valley region by virtue of the amount of goods this sector produces and exports throughout the nation and the globe. Fourteen percent of all workers in the region are employed by industries within agriculture, as Table 2 shows. However, in 1998 the proportion of workers in agriculture was 18 percent. In fact, over the five-year period between 1998 and 2003, employment in agriculture declined by three percent per year, or by 15 percent over five years.

Between 1998 and 2003, local support industries gained in prominence within the San Joaquin Valley region. Service-rendering industries employed the most workers as a proportion of total employment in the region. As Table 2 shows, excluding wholesale, retail and transportation, service-rendering industries comprise the largest employment sector in the region, at 647,100 or 53 percent of all jobs. With retail, transportation and wholesale, services accounts for slightly over 70 percent of all jobs. In 1998, service-rendering industries represented 50 percent of all jobs, and when including retail, wholesale and transportation in the mix, 67 percent.

Increases in employment in service-rendering industries are consistent with regional population growth. In the region, local support industries of construction, education and health, financial activities, and government increased annually by six percent, four percent, three percent and three percent respectively between 1998 and 2003.

TABLE 6
Employment Profile Of The San Joaquin Valley Region 1998 – 2003

MAJOR SECTORS	San Joaquin Valley Region Employment 1998	San Joaquin Valley Region Employment 2003	San Joaquin Valley Region Employment Distribution, 2003	Annual Percent Change 1998 to 2003	California Employment Distribution, 2003	Annual Percent Change 1998 to 2003
Agriculture	204,200	174,900	14%	-3%	3%	-2%
Resources, Mining and Construction	57,400	78,100	6%	6%	5%	5%
Manufacturing	114,300	110,300	9%	-1%	10%	-4%
Wholesale	34,400	39,000	3%	3%	4%	1%
Retail	121,400	133,200	11%	2%	11%	2%
Transportation/Warehousing/Utilities	37,600	45,700	4%	4%	3%	-1%
Information	15,000	14,200	1%	-1%	3%	-0.5%
Financial Activities	40,400	46,600	4%	3%	6%	3%
Professional and Business Services	88,000	95,100	8%	2%	14%	1%
Educational and Health Services	101,500	122,200	10%	4%	10%	3%
Leisure, Hospitality and Other Srvcs	112,500	116,400	9%	1%	13%	2%
Government	221,200	252,600	21%	3%	16%	2%
Total Employment	**1,147,900**	**1,228,300**	**100%**	**1%**	**100%**	**1%**

Source: Applied Development Economics, based on data from California Employment Development Department LMID

The emergence of local support industries in the San Joaquin Valley region mirrors and leads statewide trends, as Table 6 shows. In the region, construction, health-education, and government increased annually by six percent, four percent and three percent, whereas, statewide, these industries grew by five percent, three percent and two percent per year between 1998 and 2003. In short, while agriculture remains the leading edge of the economy, the San Joaquin Valley region's economy has become more diverse, with the growth occurring within population-driven local support industries rather than the export-focused economic base industries of manufacturing and agriculture.

5.2 DESCRIPTION OF AFFECTED INDUSTRIES

The analysis below examines trends of industries that will be likely affected by Draft Rules 9510 and 3180. According to the rule, developers of applicable development projects will have to pay a fee to reduce emissions related to the project that are not reduced on-site. The analysis below seeks to understand the possible impact of the fee on the economics of a development project, particularly with respect to project profitability and with respect to impacts on the final user,

which, in the case of housing, is the homebuyer or renter. The report takes into consideration existing fees that are already in place, meaning that the analysis is on the incremental impact of the new fee on top of existing fees.

The following section reviews residential and commercial-industrial trends in certain number of cities in the eight-county region. The report focuses on 27 cities in the region. Table 7 below organizes the 27 cities into different typologies. The consultant obtained information regarding existing fees on residential and commercial development from many of these jurisdictions. In addition, the report references a report issued by State of California's Housing and Community Development Department, called "Pay to Play." This report also tracks residential development fees for many cities in the Central Valley.

TABLE 7
Select Central Valley Cities By Type

Type	Cities
Large Urban	Fresno, Bakersfield
Bay Area Commuter Shed	Stockton, Modesto, Manteca, Lodi, Tracy
Medium	Visalia, Clovis, Merced, Turlock, Hanford, Porterville, Tulare
Small/Med Bedroom Community	Ceres, Sanger, Atwater, Selma, Linden
Small Rural/Farming	Mendota, Wasco, Firebaugh, Avenal, Taft, Orange Cove, Oakhurst, Shafter

Source: San Joaquin Valley Unified Air Pollution Control District

HOUSING TRENDS IN SELECT CITIES

Table 8 below identifies the population for the 27 cities that are the focus of this analysis. These cities consist of over 2 million residents, or 55 percent of all people in the eight-county San Joaquin Valley region. Between 1998 and 2003, population in these cities grew by three percent annually, which is consistent with annual population growth rates for the region as a whole (see Table 1).

TABLE 8
Population Trends of Select Cities in the San Joaquin Valley Region, 1993-2003

			------ Population ------				
	City	**County**	**1993**	**1998**	**2003**	**1993-1998**	**1998-2003**
Large Urban	Bakersfield	Kern	192,351	220,771	268,914	3%	4%
	Fresno	Fresno	385,914	409,070	450,614	1%	2%
			578,265	**629,841**	**719,528**	**2%**	**3%**
Bay Area Commuter Shed	Lodi	San Joaquin	52,936	55,844	60,317	1%	2%
	Manteca	San Joaquin	42,833	47,256	57,485	2%	4%
	Modesto	Stanislaus	176,241	182,929	203,498	1%	2%
	Stockton	San Joaquin	222,992	241,777	262,553	2%	2%
	Tracy	San Joaquin	39,913	47,687	69,987	4%	8%
			534,915	**575,493**	**653,840**	**1%**	**3%**
Medium	Clovis	Fresno	57,036	67,291	76,545	3%	3%
	Hanford	Kings	33,892	39,012	44,833	3%	3%
	Merced	Merced	59,270	61,705	68,155	1%	2%
	Porterville	Tulare	32,310	36,286	42,181	2%	3%
	Tulare	Tulare	37,342	40,848	46,538	2%	3%
	Turlock	Stanislaus	46,481	50,958	62,256	2%	4%
	Visalia	Tulare	84,725	93,856	99,460	2%	1%
			351,056	**389,956**	**439,968**	**2%**	**2%**
Small/Med Bedroom Community	Atwater	Merced	22,528	22,944	26,216	0.4%	3%
	Ceres	Stanislaus	29,331	32,289	36,449	2%	2%
	Linden	San Joaquin	1,090	1,068	1,046	-0.4%	-0.4%
	Mendota	Fresno	7,287	7,521	8,203	1%	2%
	Sanger	Fresno	17,927	18,557	19,993	0.7%	2%
	Selma	Fresno	16,462	17,937	21,003	2%	3%
			94,625	**100,316**	**112,910**	**1%**	**2%**
Small Rural/Farming	Avenal	Kings	11,459	12,178	15,428	1%	5%
	Firebaugh	Fresno	5,031	5,565	6,201	2%	2%
	Oakhurst	Madera	2,570	2,519	2,833	0%	2%
	Orange Cove	Fresno	5,709	7,095	8,782	4%	4%
	Shafter	Kern	10,771	11,182	13,443	0.8%	4%
	Taft	Kern	6,508	7,375	9,027	3%	4%
	Wasco	Kern	17,212	20,083	22,400	3%	2%
			59,260	**65,996**	**78,114**	**2%**	**3%**
San Joaquin Valley Air Basin			**1,618,121**	**1,761,601**	**2,004,360**	**2%**	**3%**

Source: Applied Development Economics, based on California Department of Finance and US Census

Table 9 identifies the number of single-family dwelling unit building permits issued by the 27 cities. As the table shows, the cities issued 17,641 single-family building permits in 2003, which represents almost two-thirds of all single-family building permits issued in the eight-county region as a whole. Table 10 identifies the number of multi-family dwelling units issued by the 27 cities. The amount of these permits represents almost 80 percent of all multi-family building permits issued in the region as a whole in 2003. For these reasons, the cities are representative of the larger region.

TABLE 9 Single-Family Dwelling Units Building Construction Permits, San Joaquin Valley Region 2000-2003

	2000		2001		2002		2003		2000 - 2003	
	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Annual Change in Permits	Annual Change in Avg. Value
01 Large Urban	3,381	$132,038	4019	$132,089	4083	$137,988	5162	$152,257	15%	5%
02 Bay Area Commuter Shed	6,223	$161,757	4699	$172,165	6084	$172,996	6208	$176,852	-0.1%	3%
03 Medium	2,705	$125,488	3585	$141,040	4178	$153,806	5218	$156,243	24%	8%
04 Small/Med Bedroom Community	365	$105,702	542	$112,427	651	$118,285	801	$128,044	30%	7%
05 Small Rural/Farming	190	$83,956	262	$87,732	314	$85,667	252	$98,046	10%	5%
	12,864	$143,580	13107	$147,205	15310	$154,305	17641	$160,217	11%	4%

TABLE 10 Multi-Family Dwelling Units Building Construction Permits, San Joaquin Valley Region 2000-2003

	2000		2001		2002		2003		2000 - 2003	
	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Nos. of Permits	Avg. Value	Annual Change in Permits	Annual Change in Avg. Value
01 Large Urban	177	$67,079	182	$73,639	454	$61,259	1150	$67,333	87%	0%
02 Bay Area Commuter Shed	84	$56,183	368	$59,905	514	$65,380	275	$69,075	48.5%	7%
03 Medium	206	$63,512	27	$64,680	155	$76,627	1119	$77,362	76%	7%
04 Small/Med Bedroom Community	51	$48,135	7	$38,617	71	0	162	$22,627	47%	-22%
05 Small Rural/Farming	83	$40,584	135	$36,997	4	$48,978	194	$56,369	33%	12%
	601	$59,067	719	$59,052	1,198	$61,344	2900	$68,137	69%	5%

Source: Applied Development Economics, based on Construction Industry Research Board

Table 11 identifies the average selling price of a new 3 to 4 bedroom home in the select cities. As expected, housing prices in the Bay Area Commuter Shed tend to be higher, in large part because of the close proximity to the San Francisco Bay Area housing market. Prices there are on average $402,644 per 3-4 bedroom unit, versus almost $250,000 for new units in Small/rural farming communities such as Avenal (Kings County) or Orange Cove (Fresno County).

TABLE 11 Average Selling Price of New Single-Family and Multi-Family Housing San Joaquin Valley Region 2005

	------ Single-Family Units ------				------ Multi-Family Units ------		
	Avg 3-4 BR SFU Values	Avg 3-4 BR SFU Size	Lot Size 3-4 BR SFU	Value Per SQFT	Average MFU Values	Average MFU Size	Value Per SQFT
01 Large Urban	$338,047	1,893	5,407	$179	$146,914	1,071	$137
02 Bay Area Commuter Shed	$402,664	2,112	6,034	$191	$180,603	1,071	$169
03 Medium	$296,428	1,779	5,083	$167	$137,357	1,071	$128
04 Small/Med Bedroom Community	$314,030	1,883	5,379	$167	$136,062	1,071	$127
05 Small Rural/Farming	$247,836	1,644	4,697	$151	$125,482	1,071	$117
	$323,966	1,862	5,320	$171	$145,283	1,071	$136

Source: Applied Development Economics, based on Realtor.com, Dataquick, and California Housing and Community Development, "Pay to Play"

Table 12 identifies existing fees on residential development in the 27 cities. As the table shows, fees amount to approximately five to six percent of values for single- and multi-family units. Data for fees comes from a variety of sources, including local jurisdictions and the California Department of Housing and Community Development (HCD), which issued a detailed report on residential developer fees of many cities throughout California. In using the HCD figures, this report adjusted the amount for general inflation and housing price inflation.

TABLE 12 Existing Fees On A Per Unit Basis

	Existing Fees On 3-4 BR SFU Unit	All Fees As Percent of Value	Existing Fees On MFU Unit	All Fees As Percent of Value
01 Large Urban	$17,796	5%	$6,149	4%
02 Bay Area Commuter Shed	$24,576	6%	$8,093	4%
03 Medium	$19,266	6%	$7,355	5%
04 Small/Med Bedroom Community	$21,162	7%	$11,883	9%
05 Small Rural/Farming	$12,689	5%	$5,969	5%
	$18,552	6%	$7,890	5%

Source: Applied Development Economics, based on Realtor.com, Dataquick, and California Housing and Community Development, "Pay to Play"

Tables 13 and 14 compare existing fees against other development costs, including the price of land, to estimate profit and a profit rate. The profit rates calculated below are similar to what would be found in corporate reports of national homebuilders, particularly Centex Homes, Kaufman and Broad, Lennar, and Pulte Homes, whose combined average profit rate is approximately eight percent.[2]

TABLE 13 Home Prices, Construction Costs, Fees and Profit: Single Family Housing

Community Types	Avg 3-4 BR SFU Values	Land Value Per 3-4 BR SFU Unit	All Fees Per 3-4 BR SFU Unit	Site Development Cost Per 3-4 BR Unit	Building Construction Costs Per 3-4 BR Unit	TOTAL COSTS	Profit per Unit	Profit as % Value
Large Urban	$338,047	$77,124	$21,759	$40,233	$167,600	**$306,716**	$31,330	9%
Bay Area Commuter Shed	$402,664	$93,015	$26,957	$46,410	$200,828	**$367,210**	$35,454	9%
Medium-Sized Cities	$296,428	$50,069	$19,266	$37,346	$159,484	**$266,165**	$30,263	10%
Small\Medium Bedroom Communities	$314,030	$74,468	$21,162	$34,570	$157,136	**$287,336**	$26,694	9%
Small Rural\Farming Communities	$247,836	$47,847	$12,689	$28,825	$131,024	**$220,386**	$27,450	11%
	$323,966	$68,505	$20,367	$38,373	$166,739	**$293,983**	$29,982	9%

[2] www.sec.gov see Form 10-K

TABLE 14 Home Prices, Construction Costs, Fees and Profit: Multi-Family Housing

Community Types	Avg MFU Values	Land Value Per MFU Unit	All Fees Per MFU Unit	Site Development Cost Per MFU Unit	Building Construction Costs Per MFU Unit	TOTAL COSTS	Profit per Unit	Profit as % Value
Large Urban	$146,914	$12,999	$6,149	$20,324	$81,295	**$120,767**	$26,147	18%
Bay Area Commuter Shed	$180,603	$14,794	$8,093	$23,116	$92,464	**$138,467**	$42,136	23%
Medium-Sized Cities	$137,357	$10,831	$7,355	$19,519	$80,260	**$117,964**	$19,393	14%
Small\Medium Bedroom Communities	$136,062	$12,868	$11,883	$19,435	$80,926	**$125,113**	$10,949	8%
Small Rural\Farming Communities	$125,482	$10,955	$5,969	$17,085	$77,658	**$111,666**	$13,815	11%
	$145,283	$12,489	$7,890	$20,140	$83,179	**$123,698**	$21,585	15%

Commercial-Industrial Trends

Table 15 below estimates the value, costs and profit associated with developing one acre of commercial, industrial and office development. Information for the table comes from a variety of sources, including Realtor.com and Loopnet.com for current price of new industrial and commercial projects in the Central Valley. When estimating cost of construction, we used "Commercial Square Foot Building Costs: 2004", by Deloitte Saylor Publication, as well as per square foot cost of construction estimates used by many cities when estimating the value of a project. In determining the amount of fees on a commercial-industrial development, we asked building officials in five cities to calculate the amount of fees that would be generated by a 10,000 square feet light industrial development on a 2.5-acre parcel and by a 10,000 square feet retail project on a similarly-sized piece of land. We converted the fees into a per acre amount. The per acre values in the table below were calculated after having calculated the development costs, based on a profit of ten percent, and these values were checked against what we found on Loopnet.com and Realtor.com. The 10 percent profit is based on a review of Deloitte-Saylor's "Commercial Square Foot Building Costs: 2004." It is also based on a review of corporate reports of Catellus (industrial developer) and ProLogis (warehouse

distribution developer). It should be noted that while data in the residential section above represents trends in 27 cities in the Central Valley, information in this section is for five cities that fit the different city types.

As Table 15 shows, existing fees on commercial and office developments are significantly higher than on industrial projects. This is so because of the traffic generated by retail and office is much higher than traffic generated by industrial users, which then requires a corresponding amount of reduction via fees.

TABLE 15 Commercial-Industrial Trends: San Joaquin Valley Region, 2005

		Avg. Value Per Acre (Land and Building)	Unimproved Land Value Per Acre	Fees Per Acre	Site Development Cost Per Acre	Building Construction Costs Per Acre	TOTAL Costs per Acre	Est. Profit Per Acre	Profit As percent of Value
Large Urban									
	Industrial	$1,594,742	$157,518	$14,726	$60,768	$1,202,256	$1,435,268	$159,474	10%
	Commercial	$1,910,201	$546,032	$35,306	$45,576	$1,092,267	$1,719,181	$191,020	10%
	Office	$2,828,107	$546,032	$35,306	$45,576	$1,918,382	$2,545,296	$282,811	10%
Bay Area Commuter Shed									
	Industrial	$1,679,815	$200,905	$47,904	$60,768	$1,202,256	$1,511,833	$167,981	10%
	Commercial	$2,011,879	$522,536	$150,312	$45,576	$1,092,267	$1,810,692	$201,188	10%
	Office	$2,929,785	$522,536	$150,312	$45,576	$1,918,382	$2,636,807	$292,979	10%
Medium-sized Cities									
	Industrial	$1,546,952	$100,000	$29,233	$60,768	$1,202,256	$1,392,257	$154,695	10%
	Commercial	$1,748,583	$303,178	$132,704	$45,576	$1,092,267	$1,573,724	$174,858	10%
	Office	$2,666,489	$303,178	$132,704	$45,576	$1,918,382	$2,399,840	$266,649	10%
Small/Medium Bedroom Community									
	Industrial	$1,631,301	$130,700	$74,447	$60,768	$1,202,256	$1,468,171	$163,130	10%
	Commercial	$1,668,338	$280,576	$83,085	$45,576	$1,092,267	$1,501,504	$166,834	10%
	Office	$2,586,244	$280,576	$83,085	$45,576	$1,918,382	$2,327,619	$258,624	10%
Small Rural\Farming Communities									
	Industrial	$1,877,846	$350,642	$76,395	$60,768	$1,202,256	$1,690,061	$187,785	10%
	Commercial	$1,653,475	$217,800	$136,292	$41,769	$1,092,267	$1,488,127	$165,347	10%
	Office	$2,567,106	$217,800	$132,444	$41,769	$1,918,382	$2,310,395	$256,711	10%

6. SOCIOECONOMIC IMPACTS

This section of the report compares the economic characteristics of affected industries against the possible Rule 9150 and 3180 air quality fees. The first part of this section discusses annual compliance cost. Section 6.2 discusses general business responses to compliance costs. Section 6.3 analyzes the socioeconomic impacts of Draft Rules 9510 and 3180.

6.1 NEW RULE 9510 AND 3180 FEE

Tables 16 through 18 identify the worst-case fees associated with New Rules 9510 and 3180. To reduce emissions of NOx and PM10, Draft Rule 9510 would apply to development projects that will seek to gain a final discretionary approval for projects that, upon full build-out will include any one of the following: 50 residential units, 2,000 square feet of commercial space, 25,000 square feet of industrial space, 20,000 square feet of medical office space, 39,000 square feet of general office space, 9,000 square feet of educational space, 10,000 square feet of government space, 20,000 square feet of recreational space, or 9,000 square feet of unidentified space. Certain transportation projects, transit projects, reconstruction projects that result from a natural disaster, and development projects whose primary source of emissions are subject to District Rule 2201 or 2010 would be exempt from this Draft Rule. Also, development projects that have a mitigated baseline below two tons per year for each pollutant would be exempt from the emission reduction requirements of the rule.

It is important to note that any fee identified below are the estimated maximum fee in the worst case scenario for a typical residential, commercial and or industrial development, with the understanding that the actual fee will vary with the particulars of any project. Any fee below is presented for the purposes of analyzing potential impacts given costs associated with reducing quantifiable emissions resulting from what constitutes typical applicable developments. The fee amounts

identified include all off-site emission reduction fees and all administrative fees.

In the worst case, the fee that a typical residential development will pay is estimated at $784 per unit starting in 2006, climb to $1,268 the following year, and above $1,772 in the years starting in 2008. The fee could be lower depending on the strategies that a developer employs to reduce emissions.

TABLE 16
Worst Case Estimate: Fee That Corresponds to A Typical Residential Development

Year	Per Unit
2006	$784.12
2007	$1,268.09
2008	$1,772

TABLE 17
Worst Case Estimate: Fee That Corresponds To The Typical Industrial Development

Use	Average Acres	Corresponding Fee Total
2006		
Heavy Industrial	300.0	$357,394.75
Light Industrial	75.0	$240,508.75
Warehouses	25.0	$83,645.68
Misc. Industrial (industrial park)	39.0	$143.797.05
2008		
Heavy Industrial	300.0	$747,626
Light Industrial	75.0	$518,237
Warehouses	25.0	$179,956
Misc. Industrial	39.0	$309,965

TABLE 18
Worst Case Estimate: Fee That Corresponds To a Typical Commercial Development

TYPE OF SHOPPING CENTERS	SIZE RANGE	TYPICAL SIZE (sq ft)	Corresponding Fee Total
	2006		
convenience shopping center	up to 30,000	20,000	$24,524.94
neighborhood shopping center	30,000 to 100,000	50,000	$61,599.54
community shopping center	100,000 to 450,000	150,000	$184,647.45
super community shopping center	200,000 to 300,000	250,000	$403,546.91
regional shopping center	300,000 to 700,000	450,000	$626,791.07
superregional shopping center	500,000 to 2 million	900,000	$1,253,582.15
	2008		
convenience shopping center	up to 30,000	20,000	$52,971.24
neighborhood shopping center	30,000 to 100,000	50,000	$131,689.99
community shopping center	100,000 to 450,000	150,000	$397,483.34
super community shopping center	200,000 to 300,000	250,000	$872,322.57
regional shopping center	300,000 to 700,000	450,000	$1,353,824.12
superregional shopping center	500,000 to 2 million	900,000	$2,708,116.82

6.2 BUSINESS RESPONSES TO PROPOSED FEES

Industries impacted by the proposed new rule may respond in a variety of ways when faced with new regulatory costs. These responses may range from simply absorbing the costs and accepting a lower rate of return, to shutting down the affected business operation altogether and, where practical, shift from lower-value to higher-value product. Affected sources may also seek to renew efforts to increase productivity and reduce costs elsewhere in their operation in order to recoup the regulatory costs and maintain profit levels. Based on the discussion during a focus group meeting held in July, 2005, industries impacted by the new rules will in all likelihood seek to pass the costs on to homebuyers and renters in the case of residential fees, to the extent that the market allows.

6.3 IMPACTS ON AFFECTED INDUSTRIES

This section of the report analyzes revenues and profits of affected industries against anticipated costs associated with

implementation of the draft rule. The analysis first examines impacts on builders of single-family homes. Then, it analyzes impacts on builders of multi-family units. In addition to impacts on homebuilders, the section analyzes how changes in price affect prospective homebuyers and renters. Finally, the section below examines impacts on non-residential developments, particularly commercial retail, industrial, and office projects.

Single-Family Dwelling Units

Tables 19 through 21 compare the fee that a typical residential development would pay in the year 2006, 2007 and 2008, or $784, $1,268 and $1,772, against estimated profits. In calculating the impacts of the fee, we have included the additional $400 administrative cost associated with Rule 3180. As Tables 19, 20 and 21 show, the fees do not significantly impact affected builders of single-family homes in a negative manner. The fee amounts to approximately three, four and six percent of estimated net profits, meaning that affected stakeholders would still garner between 94 sand 97 percent of their original profit. Moreover, the impact is below the ten percent significance threshold employed in this analysis.

TABLE 19 Impact Analysis of 2006 Air Quality Fee on Typical Single-Family Development: $784 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $.421/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Home Value @ 5.85%, 30 yrs and 20% down	(7) Home Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Initial Home Value @ 6.85%, 30 yrs and 20% down	(9) Home Value @ 6.85%, 30 yrs and 20% down: With Air Fee	(10) Affect of Fee	(11) Affect of 1% Change in Interest Rate
Large Urban	11.5%	$797	-2.1%	<significant	11.3%	$93,624	$93,846	$101,737	$101,979	$223	$8,113
Bay Area Commuter Shed	10.8%	$889	-2.1%	<significant	10.6%	$111,520	$111,768	$121,184	$121,454	$248	$9,664
Medium-Sized Cities	8.3%	$749	-3.1%	<significant	8.0%	$82,097	$82,307	$89,212	$89,439	$209	$7,114
Small\Medium Bedroom Communities	8.5%	$793	-3.0%	<significant	8.2%	$86,972	$87,194	$94,509	$94,750	$221	$7,537
Small Rural\Farming Communities	10.6%	$692	-2.7%	<significant	10.3%	$68,639	$68,833	$74,587	$74,798	$193	$5,948
All Select Cities Average	9.3%	$784	-2.6%	<significant	9.0%	$89,724	$89,943	$97,499	$97,737	$219	$7,775

TABLE 20 Impact Analysis of 2007 Air Quality Fee on Typical Single-Family Development: $1,268 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $.681/sqft	(3) Profit as % Value	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Home Value @ 5.85%, 30 yrs and 20% down	(7) Home Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Initial Home Value @ 6.85%, 30 yrs and 20% down	(9) Home Value @ 6.85%, 30 yrs and 20% down: With Air Fee	(10) Affect of Fee	(11) Affect of 1% Change in Interest Rate
Large Urban	11.5%	$1,289	-3.3%	<significant	11.2%	$93,624	$93,983	$101,737	$102,127	$359	$8,113
Bay Area Commuter Shed	10.8%	$1,438	-3.3%	<significant	10.5%	$111,520	$111,920	$121,184	$121,619	$400	$9,664
Medium-Sized Cities	8.3%	$1,212	-5.0%	<significant	7.9%	$82,097	$82,435	$89,212	$89,578	$337	$7,114
Small\Medium Bedroom Communities	8.5%	$1,282	-4.8%	<significant	8.1%	$86,972	$87,329	$94,509	$94,897	$357	$7,537
Small Rural\Farming Communities	10.6%	$1,120	-4,3%	<significant	10.2%	$68,639	$68,951	$74,587	$74,925	$312	$5,948
All Select Cities Average	9.3%	$1,268	-4.3%	<significant	8.9%	$89,724	$90,007	$97,499	$97,883	$353	$7,775

TABLE 21 Impact Analysis of 2008 Air Quality Fee on Typical Single-Family Development: $1,772 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $.952/sqft	(3) Profit as % Value	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Home Value @ 5.85%, 30 yrs and 20% down	(7) Home Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Initial Home Value @ 6.85%, 30 yrs and 20% down	(9) Home Value @ 6.85%, 30 yrs and 20% down: With Air Fee	(10) Affect of Fee	(11) Affect of 1% Change in Interest Rate
Large Urban	11.5%	1,802	-4.6	<significant	11.0%	$93,624	$94,125	$101,737	$102,281	$501	$8,113
Bay Area Commuter Shed	10.8%	2,011	-4.6	<significant	10.3%	$111,520	$112,079	$121,184	$121,791	$559	$9,664
Medium-Sized Cities	8.3%	1,694	-6.9	<significant	7.7%	$82,097	$82,568	$89,212	$89,723	$471	$7,114
Small\Medium Bedroom Communities	8.5%	1,792	-6.7	<significant	7.9%	$86,972	$87,471	$94,509	$95,050	$498	$7,537
Small Rural\Farming Communities	10.6%	1,565	-6.0	<significant	10.0%	$68,639	$69,074	$74,587	$75,060	$435	$5,948
All Select Cities Average	9.3%	1,773	-5.9	<significant	8.7%	$89,724	$90,217	$97,499	$98,035	$493	$7,775

TABLE 22 Median Home Sale Prices in Small to Medium Communities, 2003-2005

		July 2003	July 2004	July 2005	03-04 Change	04-05 Change	03-04 Per Chg	04-05 Per Chg
Medium	Merced (Merced)	$204,341	$226,741	$322,500	$22,400	$95,759	11%	42%
	Tulare (Tulare)	$125,379	$161,146	$204,000	$35,767	$42,854	29%	27%
	Turlock (Stanislaus)	$240,088	$284,330	$369,500	$44,242	$85,170	18%	30%
	Visalia (Tulare)	$154,723	$185,938	$270,000	$31,215	$84,062	20%	45%
Small/Medium Bedroom Community	Atwater (Merced)	$207,009	$232,422	$324,250	$25,413	$91,828	12%	40%
	Mendota (Fresno)		$77,438	$120,000		$42,563		55%
	Sanger (Fresno)	$161,659	$171,734	$276,500	$10,075	$104,766	6%	61%
	Selma (Fresno)	$123,245	$177,158	$249,250	$53,912	$72,092	44%	41%
Small Rural/Farming	Oakhurst (Madera)	$209,143	$273,742	$306,000	$64,599	$32,258	31%	12%
	Taft (Kern)	$82,697	$77,474	$110,000	-$5,223	$32,526	-6%	42%
	Wasco (Kern)	$93,101	$103,299	$132,000	$10,198	$28,701	11%	28%
		$160,139	$179,220	$244,000	$19,082	$64,780	12%	36%

Source: Applied Development Economics, based on Dataquick

A close review of Tables 19 through 21 reveals that the fees under consideration could potentially impacts different community types in different ways. For Medium-sized communities, Small\medium bedroom communities, and Small rural\farming communities, the impact of the possible fee on profits is slightly higher than impact to home builders operating in the large urban and Bay Area Commuter Shed markets. This is so because prices of new homes are higher in the latter markets. To understand the influence of the $784, 1,268 or $1,772 fee on home prices in the Medium-sized cities, Small\medium bedroom communities, and Small rural\farming communities, it is worthwhile to compare the fees against recent changes in home prices in cities in these three community types.

Table 22 above includes recent data from Dataquick. Among other things, it shows that between July 2003 and July 2004 and July 2004 and July 2005, median prices of homes increased by $19,000 and $65,000 in specific cities in Medium-sized cities, Small\medium bedroom communities, and Small rural\farming communities. Table 22 includes all homes sold, not just newly constructed three-to-four bedroom homes. While the fee could raise home prices by $784 to $1,772, it is apparent that larger market forces are the primary culprit behind the increase in housing prices in these three community types. The fee associated with Draft Rules 9510 and 3180 would amount to, at most, three percent of recent change in housing prices in these three community types (or $1,772 divided by $65,000).

Tables 19 through 21 above also include an analysis on how the $784, $1,268 or $1,772 fee would impact potential homebuyers. In other words, we assume that the homebuilder will pass this cost on to homebuyers to the fullest extent possible allowed by the market. As Table 11 above previously showed, the price of a new three-to-four bedroom home in the San Joaquin Valley region is approximately $324,000. In large urban areas of Bakersfield and Fresno, the average price of a new three-to-four bedroom home is $338,000, while in the Bay Area Commuter Shed, it is even higher at $402,700. Housing is more affordable in rural communities such as Avenal, where the

average price of a new home is $247,800 (see Table 11 above).

In Column Six of Tables 19 though 21, we estimate the minimum household income required to qualify for conventional financing for new three-to-four bedroom homes in the different market types. We assume that the potential homebuyer is a first-time homebuyer, meaning that there are no proceeds from the sale of a previous home to put towards the purchase of the new home. We assume that the potential homebuyer will have a downpayment equal to 20 percent of the market value of the unit. We also factor in a 5.85 interest rate, monthly bills, homeowners insurance, and property taxes when calculating the minimum household income needed to qualify for a new three-to-four bedroom home in the San Joaquin Valley.

To qualify for financing for a $324,000 home in the Central Valley, a prospective first-time home buying household would need to earn approximately $89,724 annually. Columns Seven and Ten to the tables above show the extent to which the different fees raise the minimum qualifying household income. As a result of the $784, $1,268 and $1,772 fees, minimum qualifying incomes for the region as a whole would rise, on average, by $219, $353, and $493 respectively. The $219 to $493 amount is less than one percent of the original income needed to qualify for a new three-to-four bedroom home in the Central Valley.

For comparative purposes, Tables 19 through 21 include Columns Eight and Eleven, which show what would happen if interest rates rose from 5.85 percent to 6.85 percent. If this occurred, the minimum qualifying income would rise from $89,724 to $97,499, or by $7,775. In other words, while the fees have the potential to increase the amount of income required to qualify for financing, larger market forces such as interest rates and market-driven price fluctuations play a significantly greater role in determining the income level needed to qualify for a new three-to-four bedroom home.

Multi-Family Dwelling Units

Tables 23 through 25 show the affects of the fees on construction of multi-family dwelling units. Small\medium

bedroom communities and Small rural\farming communities are affected negatively more so than the other communities, because the price of multi-family dwelling units elsewhere are higher than in these community types. Columns Six and Seven in each of the tables below estimate the minimum income required to purchase a multi-family unit such as a condominium or townhouse, and the extent to which the impact fee could raise this amount, in the event developers of multi-family units pass costs onto the consumers. The fee could raise the minimum income needed to qualify for financing for the purchase of a condominium or townhouse valued at $145,300 (see Table 14 above), from $40,237 to $40,455 ($784 fee), $40,589 ($1,268 fee) or at most $40,696 ($1,772 fee), which represent at most a one percent change. Tables 23 through 25 below show that the fee would only slightly affect rents, in the event units were rented out as opposed to sold.

TABLE 23 Impact Analysis of 2006 Fee on Typical Multi-Family Housing Development: $784 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ .732/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down	(7) Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Minimum Rent without Air Fee	(9) Minimum Rent with Air Fee	(10) Qualifying Rental Household without Air Fee	(11) Qualifying Rental Household with Air Fee
Large Urban	17.7%	$788	-3.0%	<significant	17.3%	$40,689	$40,907	$1,150	$1,157	$41,453	$41,675
Bay Area Commuter Shed	23.3%	$788	-1.9%	<significant	22.9%	$50,019	$50,237	$1,414	$1,420	$50,958	$51,180
Medium	14.1%	$788	-4.1%	<significant	13.5%	$38,042	$38,260	$1,076	$1,082	$38,756	$38,978
Small/Med Bedroom Community	8.0%	$788	-7.2%	<significant	7.5%	$37,683	$37,901	$1,065	$1,072	$38,391	$38,613
Small Rural/Farming	11.0%	$788	-5.7%	<significant	10.4%	$34,753	$34,971	$983	$989	$35,405	$35,628
All Select Cities Average	14.9%	$788	-3.6%	<significant	14.3%	$40,237	$40,455	$1,138	$1,144	$40,992	$41,215

TABLE 24 Impact Analysis of 2007 Fee on Typical Multi-Family Housing Development: $1,268 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ $1.184/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down	(7) Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down: With Air Fee	(8) Minimum Rent without Air Fee	(9) Minimum Rent with Air Fee	(10) Qualifying Rental Household without Air Fee	(11) Qualifying Rental Household with Air Fee
Large Urban	17.7%	$1,268	-4.9%	<significant	16.9%	$40,689	$41,041	$1,150	$1,160	$41,453	$41,812
Bay Area Commuter Shed	23.3%	$1,268	-3.0%	<significant	22.6%	$50,019	$50,371	$1,414	$1,424	$50,958	$51,317
Medium	14.1%	$1,268	-6.6%	<significant	13.2%	$38,042	$38,394	$1,076	$1,086	$38,756	$39,115
Small/Med Bedroom Community	8.0%	$1,268	-11.6%	significant	7.1%	$37,683	$38,035	$1,065	$1,075	$38,391	$38,749
Small Rural/Farming	11.0%	$1,268	-9.2%	<significant	10.0%	$34,753	$35,105	$983	$993	$35,405	$35,764
All Select Cities Average	14.9%	$1,268	-5.9%	<significant	14.0%	$40,237	$40,589	$1,138	$1,148	$40,992	$41,351

TABLE 25 Impact Analysis of 2008Fee on Typical Multi-Family Housing Development: $1,772 per unit

Community Types	(1) Profit as % Value	(2) Air Quality Fee on New Res. Cons. @ 1.655/sqft	(3) Impact on Profit	(4) Impact Significance	(5) Modified Profit as Percent of Value	(6) Initial Condo-Townhouse Value @ 5.85%, 30 yrs and 20% down	(7) Condo-Townhouse Value @ 5.*5%, 30 yrs and 20% down: With Air Fee	(8) Minimum Rent without Air Fee	(9) Minimum Rent with Air Fee	(10) Qualifying Rental Household without Air Fee	(11) Qualifying Rental Household with Air Fee
Large Urban	17.7%	$1,657	-6.3%	<significant	16.7%	$40,689	$41,148	$1,150	$1,150	$41,453	$41,920
Bay Area Commuter Shed	23.3%	$1,657	-3.9%	<significant	22.4%	$50,019	$50,478	$1,414	$1,427	$50,958	$51,426
Medium	14.1%	$1,657	-8.5%	<significant	12.9%	$38,042	$38,501	$1,076	$1,089	$38,756	$39,224
Small/Med Bedroom Community	8.0%	$1,657	-15.1%	significant	6.8%	$37,683	$38,142	$1,065	$1,078	$38,391	$38,858
Small Rural/Farming	11.0%	$1,657	-12.0%	significant	9.7%	$34,753	$35,212	$983	$996	$35,405	$35,873
All Select Cities Average	14.9%	$1,657	-7.7%	<significant	13.7%	$40,237	$40,696	$1,138	$1,151	$40,992	$41,460

Affordable Housing For Low-and Moderate Income Households

The discussion above focused on how fees would affect first-time homebuyers of single-family and multi-family units, as well as potential renters. In that context, housing affordability refers to the minimum income required to qualify for either a mortgage or the minimum income needed to pay a certain rent, with the understanding that the annual housing payment must not exceed one-third of annual household income. The federal agency called the Department of Housing and Urban Development (HUD) and private lenders use the one-third threshold as a way to gauge housing affordability. Anyone paying more than one-third of his or her income on housing is living in an unaffordable situation.

Affordable housing also refers to the extent to which low-income and moderate-income households can access housing at affordable rents. Every year, the federal government issues guidelines as to what constitutes low-income and moderate-income households, particularly for the purposes of qualifying households for federal housing programs such as Section 8 or the Low-Income Housing Tax Credit program. In turn, state and local agencies adopt these guidelines when carrying out their respective housing programs.

Table 26 below identifies the federal Housing and Urban Development's (HUD) 2005 income guideline for most of the Central Valley, and this guideline adjusts for number of people in a household. A single individual earning no more than $27,500 is a low-income individual, while a single individual make $27,502 would be a moderate-income person.

TABLE 26 HUD Income Guidelines, 2005

	Low Income		Moderate	
	Minimum	Maximum	Minimum	Maximum
1 person	$0	$27,500	$27,501	$41,250
2 persons	$0	$31,400	$31,401	$47,100
3 persons	$0	$35,350	$35,351	$53,025
4 persons	$0	$39,300	$39,301	$58,950
5 persons	$0	$42,400	$42,401	$63,600
6 persons	$0	$45,550	$45,551	$68,325
7 persons	$0	$48,700	$48,701	$73,050
8 or more persons	$0	$51,850	$51,851	$77,775

Source: Applied Development Economics, based on Department of Housing and Urban Development

More importantly for the purposes of this analysis, a single person making no more than $27,500 a year and who, at the same time, pays a rent that does not exceed one-third of her or his income lives in an affordable situation. Conversely, a single individual making no more than $27,500 who is paying a rent that exceeds one-third of his or her income is living in an unaffordable situation. Table 27 below calculates the rents that would be affordable to low- and moderate-income households. For the most part, rents that low-income households should pay are substantially below the rents that typical new multi-family units constructed in the region should command, even before the imposition of the air fee. For example, 2-person low-income households should pay no more than $785 on rent. As Tables 23 through 25 showed, rent for a newly constructed apartment unit should be $1,138, which is unaffordable to 2-person low-income households by standards established by HUD. On the other hand, a two-person moderate-income household that paid the $1,138 would be living in an affordable situation, since the maximum rent for purposes of calculating affordability is $1,178. A one-person moderate-income household should pay no more than $1,031 toward rent; thus the $1,138 rent calculated in Table 23 through 25 would constitute unaffordable housing.

TABLE 27 Affordable Monthly Rents

	Affordable Rent: Low Income		Affordable Rent: Moderate Income	
	Minimum	Maximum	Minimum	Maximum
1 person	$0	$688	$689	$1,031
2 persons	$0	$785	$786	$1,178
3 persons	$0	$884	$885	$1,326
4 persons	$0	$983	$984	$1,474
5 persons	$0	$1,060	$1,061	$1,590
6 persons	$0	$1,139	$1,140	$1,708
7 persons	$0	$1,218	$1,219	$1,826
8 or more persons	$0	$1,296	$1,297	$1,944

Without public subsidies to either the renting households or to housing developers, most low-income households in the Central Valley are priced out of newly constructed multifamily units, the rents for which need to be at a level to take into account price of land, development costs, developer fees, and an adequate level of profit, among other things. For the region as a whole, the market rate rent for a typical multi-family unit is calculated at $1,138, though rents are higher or lower depending on the community type, with Large Urban communities and the Bay Area Commuter Shed requiring higher rents (see Tables 23 through 25 Column Eight). Moderate-income households consisting of no more than three persons should be able to afford newly constructed multi-family units with monthly rents at or about $1,138, although the same cannot be said for moderate-income households consisting of four or more persons, who will need higher-priced living quarter with additional rooms.

There are a number of housing programs and policies that can assist low- and moderate-income households to live in market rate housing. Federal housing programs such as Section 8 provide the difference between the amount[3] that a low-income household can pay and the actual rent for an apartment in the private sector that is willing to accept Section 8. However, local governments receive only a limited number of Section 8 vouchers from the federal government,

[3] The amount that a Section 8 tenant contributes toward rent on an out of pocket basis must not exceed one-third of the tenant's annual income.

resulting in waiting lists consisting of many households waiting a relatively long time. Other public subsidies are aimed at encouraging the private sector to set-aside some, if not all, newly constructed housing as affordable to low- and moderate-income households. The federal Low-Income Housing Tax Credit (LIHTC) or, at the local level, the twenty percent housing redevelopment tax increment set-aside are just two revenue sources that can increase the feasibility of setting aside units at below market rents for low- and moderate-income households. Like the Section 8 program, there are some inherent limitations to the LIHTC and the tax increment set-aside programs. The financing via the federal LIHTC program is not readily available as it is accessed on a competitive basis. Not all cities have redevelopment agencies, and, of those with such agencies, it takes some time to generate the necessary amount of revenues (also known as tax increment) for a successful housing set-aside program.

Some cities have what are called "inclusionary housing" policies, meaning that in order to obtain approval for this or that housing project, the developer must guarantee that a certain portion (typically 15 percent) is reserved for low- and moderate-income households. Some cities sweeten their inclusionary policies with public financing, and some do not. It is argued that "inclusionary housing" policies without public subsidies result in overall higher rents or home prices, as developers required to set-aside housing at below-market levels for some units make up the difference by driving up the price of rest of the bulk of the units in a project.[4]

Non-Residential Development

Table 28 below analyzes the impacts of the Draft Rule 9510 and 3180 commercial and industrial fees on a per acre basis. In 2006, the fee on a typical retail and office development will amount to $15,286 and $7,914 per acre respectively. In the year 2008, fees on a per acre basis are expected to increase to $33,008 (retail) and $17,099 (office). As the table shows, in

4 Home Builders Association of Northern California - HBA News, (www.hbanc.org/ news2000/ JulAug2001/ JulAug01feat2.html) / "The Inclusionary Housing Debate - Who Really Pays for Affordable ..." (www.realtor.org/sg3.nsf/Pages/housingdebatepays?OpenDocument)

the year 2006 possible off-site emission reduction fees on new typically-sized commercial and office developments will not exceed the threshold of significance. The possible off-site fee amounts to an estimated 21 percent of profits in the year 2006. In 2008, the possible air off-site fees on new typically-sized commercial retail developments will exceed the threshold of significance by six to ten percent, depending on the community in which development occurs. The dollar amount in excess of the threshold in the year 2008 ranges from $12,889 to $16,324 per acre for commercial developments.

TABLE 28 Impact Analysis of 2006 and 2008 Fee on Typical Commercial-Industrial Project

	Avg. Value Per Acre	Est. Profit Per Acre	Profit as percent of Value	Est. Fees Per Acre		Est. Fees As % of Profit		Percent Above Significance Threshold		Dollar Amount Above Significance Threshold	
				2006	2008	2006	2008	2006	2008	2006	2008
Large Urban											
Industrial	$1,594,742	$159,474	10%	$1,880	$4,000	1%	3%	< sig.	< sig.		
Commercial	$1,910,201	$191,020	10%	$15,286	$33,008	8%	17%	< sig.	7%		$13,906
Office	$2,828,107	$282,811	10%	$7,914	$17,099	3%	6%	< sig.	< sig.		
Bay Area Commuter Shed											
Industrial	$1,679,815	$167,981	10%	$1,880	$4,000	1%	2%	< sig.	< sig.		
Commercial	$2,011,879	$201,188	10%	$15,286	$33,008	8%	16%	< sig.	6%		$12,889
Office	$2,929,785	$292,979	10%	$7,914	$17,099	3%	6%	< sig.	< sig.		
Medium-sized Cities											
Industrial	$1,546,952	$154,695	10%	$1,880	$4,000	1%	3%	< sig.	< sig.		
Commercial	$1,748,583	$174,858	10%	$15,286	$33,008	9%	19%	< sig.	9%		$15,522
Office	$2,666,489	$266,649	10%	$7,914	$17,099	3%	6%	< sig.	< sig.		
Small/Medium Bedroom Community											
Industrial	$1,631,301	$163,130	10%	$1,880	$4,000	1%	2%	< sig.	< sig.		
Commercial	$1,668,338	$166,834	10%	$15,286	$33,008	9%	20%	< sig.	10%		$16,324
Office	$2,586,244	$258,624	10%	$7,914	$17,099	3%	7%	< sig.	< sig.		
Small Rural\Farming Communities											
Industrial	$1,877,846	$187,785	10%	$1,880	$4,000	1%	2%	not sig.	not sig.		
Commercial	$1,653,475	$165,347	10%	$15,286	$33,008	9%	20%	not sig.	10%		
Office	$2,567,106	$256,711	10%	$7,914	$17,099	3%	7%	not sig.	not sig.		

It is not clear how the development community will adjust to the additional costs. Rather than absorb the costs, the developer (or a subsequent owner of an affected project site) might seek to pass costs onto commercial tenants in the form of rent increases. Table 29 translates the amount of the total fee into a per square foot rent for significantly impacted commercial uses. While the 2006 fee does not significantly impact developers of commercial uses, the 2008 fee significantly impacts these developers to the tune of $13,905. This amounts to almost one cent per square foot, which developers will pass onto future commercial tenant.

It is worth noting that the 2006 and 2008 fee, in effect, sets the bar slightly higher with respect to lease rates on all new commercial developments in the region. Comparable office developments that have been in place prior to the new fees could conceivably raise monthly rents by one cent. In addition, comparable retail sites in place prior to the new fees could conceivably raise rents by two cents in 2008.

TABLE 29
2006 and 2008 Fee on Typical Commercial-Industrial Project: Affect of Fee on Monthly Rent

	2006 Dollar Amount Significance Threshold	Fee as a Percent of Profit	Amount Above Significance Threshold	2006 Fee Per SqFt	2006 Per Sqft Fee As Monthly Rent Increase Over Typical Amortization Period (15 years)	2008 Dollar Amount Significance Threshold	Fee as a Percent of Profit	Amount Above Significance Threshold	2008 Fee Per SqFt	2008 Per Sqft Fee As Monthly Rent Increase Over Typical Amortization Period (15 years)
Large Urban										
Industrial	< sig.	1%	< sig.			< sig.	3%	< sig.		
Commercial	< sig.	8%	< sig.			$13,906	17%	7%	$1.28	$0.007
Office	< sig.	3%	< sig.			< sig.	6%	< sig.		
Bay Area Commuter Shed										
Industrial	< sig.	1%	< sig.			< sig.	2%	< sig.		
Commercial	< sig.	8%	< sig.			$12,889	16%	6%	$1.18	$0.007
Office	< sig.	3%	< sig.			< sig.	6%	< sig.		
Medium-sized Cities										
Industrial	< sig.	1%	< sig.			< sig.	3%	< sig.		
Commercial	< sig.	9%	< sig.			$15,522	19%	9%	$1.43	$0.008
Office	< sig.	3%	< sig.			< sig.	6%	< sig.		
Small/Medium Bedroom Community										
Industrial	< sig.	1%	< sig.			< sig.	2%	< sig.		
Commercial	< sig.	9%	< sig.			$16,324	20%	10%	$1.50	$0.008
Office	< sig.	3%	< sig.			< sig.	7%	< sig.		
Small Rural\Farming Communities										
Industrial	< sig.	1%	< sig.			< sig.	2%	< sig.		
Commercial	< sig.	9%	< sig.			$16,473	20%	10%	$1.51	$0.008
Office	< sig.	3%	< sig.			< sig.	7%	< sig.		

6.4 IMPACT ON SMALL BUSINESSES

In addition to analyzing the various impacts of the Proposed Indirect Source Rule (Draft Rules 9510 and 3180) that are discussed above, state legislation requires that the socioeconomic analysis assess whether small businesses are disproportionately affected by air quality rules. This section discusses how fees that are assessed on developers of residential and commercial projects are typically passed onto the consumer. Because of the additional costs associated with the proposed off-site emission reduction fee, prospective buyers must either increase their respective household incomes or produce a downpayment that is larger than the typical 20 percent. Thus, prospective homebuyers may have to delay purchasing goods and services as a result of the need to raise additional downpayment, resulting in impacts to local stores, particularly small businesses. This section discusses potential small business impacts resulting from Draft Rule 9510 and 3180.

Off-Site Emission Reduction Fees, Minimum Household Income, and the Downpayment

As the analysis above demonstrated, the 2006, 2007 and 2008 off-site emission reduction fee under consideration could slightly raise the minimum qualifying incomes for obtaining a conventional loan by, on average, $219, $353, and $493. In other words, to finance a new three to four bedroom home valued at $323,966 in the region, a first-time homeowner would need an income of at least $89,724.[5] The 2006 fee could raise this minimum by a slight $219, to $90,217

What if a lender is inflexible and will not extend a loan to household that is $219 to $493 short of the minimum income needed to qualify for financing? In cases such as this, the prospective homeowner will have to produce a larger downpayment or pay a higher interest rate. The table below identifies the amount of additional downpayment above the

[5] This minimum will change depending on the housing market, with households in Large Urban and Bay Area Commuter Shed communities needing more income than households in other part of the region.

amount generated by the typical 20 percent downpayment rate.

As Table 30 shows, in the region in general, a household with at least $89,724 in income can afford to purchase a newly constructed three to four bedroom unit priced at $323,966 so long it has a downpayment in the amount of $64,793, or 20 percent of the value of the home. In general, the 2006 through 2008 off-site emission reduction fees will require prospective homeowners to produce an additional $970 to $2,147 that will go towards the downpayment, in the event a lender is unwilling to exercise flexibility with respect to minimum income needed to qualify for a loan. The amount of additional downpayment differs between housing markets, with households in the Large Urban communities and the Bay Area Commuter Shed having to pay more.

Table 30 Potential Per Household Impact of Off-Site Emission Reduction Fees On Downpayment: Single Family Unit

	Initial Qualifying Household Income Prior to Fee: SFU	Initial Downpayment	Additional Downpayment (2006 fee: $784)	Additional Downpayment (2007 fee: $1,268)	Additional Downpayment (2008 fee: $1,772)
Large Urban	$93,624	$67,609	$1,008	$1,616	$2,231
Bay Area Commuter Shed	$111,520	$80,533	$1,188	$1,906	$2,629
Medium-Sized Cities	$82,097	$59,286	$894	$1,434	$1,980
Small\Medium Bedroom Communities	$86,972	$62,806	$947	$1,519	$2,097
Small Rural\Farming Communities	$68,639	$49,567	$761	$1,221	$1,686
All Select Cities Average	$89,724	$64,793	$970	$1,556	$2,147

Table 31 is similar to Table 30, although it focuses on the additional amount of downpayment required of prospective buyers of townhouses and condominiums. In general, the 2006 through 2008 off-site emission reduction fees will require prospective homeowners to produce an additional downpayment ranging from $932 to $1,948.

Table 31 Potential Per Household Impact of Off-Site Emission Reduction Fees On Downpayment: Multi-Family Unit

	Initial Qualifying Household Income Prior to Fee: MFU	Initial Downpayment	Additional Downpayment (2006 fee: $784)	Additional Downpayment (2007 fee: $1,268)	Additional Downpayment (2008 fee: $1,772)
Large Urban	$40,907	$29,383	$940	$1,529	$1,966
Bay Area Commuter Shed	$50,237	$36,121	$1,119	$1,818	$2,336
Medium-Sized Cities	$38,260	$27,471	$890	$1,447	$1,860
Small\Medium Bedroom Communities	$37,901	$27,212	$883	$1,435	$1,846
Small Rural\Farming Communities	$34,971	$25,096	$827	$1,344	$1,730
All Select Cities Average	$40,455	$29,057	$932	$1,515	$1,948

Prospective Homebuyers and Small Business Disproportionate Impact Analysis

Faced with the need to increase the amount of downpayment, a household will have to save by cutting back on expenditures, which could result in a decline in purchases of discretionary items from local retail and services establishments. Consumers may stop spending altogether, or shift their spending toward lower-priced goods and services. As we shall see, there is ample reason to believe that impacts associated with the decline in spending that corresponds to the 2006, 2007 and 2008 fees will be temporary. Before engaging in that discussion, below is a brief summary of what constitutes a small business for the purposes of analysis.

For purposes of qualifying small businesses for bid preferences on state contracts and other benefits, the State of California defines small businesses in the following manner[6]. To be eligible for small business certification, a business:

- Must be independently owned and operated;
- Cannot be dominant in its field of operation;
- Must have its principal office located in California

[6] State of California. Department of General Services. "California Small Business Certification" (http: www.pd.dgs.ca.gov/smbus/sbcert.htm)

- Must have its owners (or officers in the case of a corporation) domiciled in California; and
- Together with its affiliates, be either:
  - A business with 100 or fewer employees, and an average gross receipts of $10 million or less over the previous tax years, or
  - A manufacturer with 100 or fewer employees

Data is available as to the number of retail and services establishments in the eight-county region, and with this data we can estimate sales by stores with 100 or fewer employees. Table 32 below provides an estimate on the number of retail, accommodations-food services, and arts-entertainment-recreation establishments in the region, including estimates on their respective sales. Data comes from the County Business Patterns and the US Economics Census.

TABLE 32
Number of Commercial Establishments That Sell Goods and Select Discretionary Services: San Joaquin Valley Air Basin, 2002

	Total Establishments	Sales	Total Nos. Small Businesses	Sales By Small Businesses
Commercial				
Retail*	8,792	$21,790,159,759	8,601	$14,971,588,578
Accommodations and Food Services	627	$532,590,300	615	$365,953,623
Arts, Entertainment and Recreations	5,139	$3,048,315,000	5,108	$2,809,025,816
Gasoline stations	1,044	$2,909,895,000	1,044	$2,909,895,000
	15,602	$28,280,960,059	15,368	$21,056,463,017

* Apparel, groceries, home improvement, specialty retail, auto (except gas stations)

As Table 32 shows, in 2002 there were 15,602 stores that sold consumer goods and select number of discretionary services (such as entertainment venues and restaurants) and, of these, 15,368 employed less than 100 workers. These small stores generated approximately $21.1 billion in sales. Based on a review of ten-year's worth of data from Dun and Bradstreet, we estimate that retail generates after tax net profits that amount to 2.2 percent of sales, while both accommodations-

food services and arts-entertainment-recreations generate returns of 5.1 percent of sales. Combined, these industries generated an estimated $548.6 million in net profits.

Table 33 estimates the aggregate amount of additional dollars that households will have to set aside as a result of the 2006, 2007 and 2008 off-site emission reduction fees. The additional downpayment per household is multiplied against the number of new single-family units that are built in the region. According to the California Department of Finance, the eight-county region grew by an average of 15,000 single-family units per year between 1995 and 2005. This amount is somewhat consistent with data in Table 2, which shows that between 1993 and 2003, homebuilders took out building permits to construct 15,000 and 27,000 single-family homes in those years, for an annual average of 18,800 single-family homes. In calculating the aggregate amount of additional dollars that all households will need to set aside because of the air quality fees, we adjusted for the fact that not all are first-time homebuyers.[7]

TABLE 33
Aggregate Amount of Dollars All Households Will Need to Set Aside As A Result of Off-Site Emission Reduction Fees

		Additional Downpayment (2006 fee)	Additional Downpayment (2007 fee)	Additional Downpayment (2008 fee)
		$970	**$1,556**	**$2,147**
Scenario 1: Low	15,000 units	$5,820,000	$9,336,000	$12,882,000
Scenario 2: Mid	19,000 units	$7,760,000	$12,448,000	$17,176,000
Scenario 3: High	30,000 units	$11,640,000	$18,672,000	$25,764,000

If 15,000 newly constructed single-family units are sold in 2006, then the aggregate additional downpayment amount attributable to first-time homebuyers will equal $5.8 million, as Table 33 shows. If the number of units goes as high as 30,000, then the additional downpayment will equal $11.6 million. In the highest scenario in year 2008, the aggregate

[7] Scenario 1 2006 fee = (15,000 x 40% rate of rentership) x $970 = $5,820,000

amount of additional downpayment could equal $25.8 million. Thus, local retail and services establishments, particularly small businesses, could lose anywhere between $5.8 million to $25.8 million.

Table 34 below compares the amounts in Table 33 against the estimated net profits of retail and services establishments that employ less than 100 workers. As the table shows, the aggregate amount of additional dollars that households will need to set aside as a result of the off-site emission reduction fee amounts to one to five percent of net profits of small retail and select services establishments. These impacts are below the ten percent threshold of significance employed in this and other socioeconomic analyses for the purposes of evaluating proposed air quality rules.[8] It is worth noting that the analysis assumes that all of the dollars in Table 33 are spent at small business establishments, which, in reality, would not be the case. As a result, the table below overstates impacts on small businesses. Thus, the proposed rule does not disproportionately impact small businesses.

TABLE 34
Impact on Net Profits of Small Business Retail and Select Services Establishments

		Additional Downpayment (2006 fee)	Additional Downpayment (2007 fee)	Additional Downpayment (2008 fee)
		$970	**$1,556**	**$2,147**
Scenario 1: Low	15,000 units	1%	2%	2%
Scenario 2: Mid	19,000 units	1%	2%	3%
Scenario 3: High	30,000 units	2%	3%	5%

In all likelihood, the impacts identified in Table 34 are temporary. More than likely, the purchase of a new home will spur additional spending at retail and services establishments in excess of what is shown in Table 33. A

[8] It should be noted that the report does not include a corresponding analysis for multi-family units because the impacts on net profits were significantly less than one percent, in large part because the number of newly constructed and sold new townhouses in the eight-county region is so low, ranging from 50 to 100 units per year.

recent Pittsburgh Post-Gazette newspaper article on spending habits of new homeowners quotes the web-site of a marketing data company, which indicated that "New homeowners are golden opportunities for the enterprising businessman. These prospects are full of hope and ready to spend money."[9] Clickdata.com reports that many new homeowners purchase a new car within the first year at their new address.[10]

New homeowners are in a spending mood not simply because of the number of new credit cards and or other financing instruments that lenders eagerly extend to households that have demonstrated the financial wherewithal to purchase something as significant as a new home. For some, a new home represents a new phase in the life cycle of a household, including the addition of new family members such as children or a spouse. Others simply need bigger and better space. Inevitably, the new stage in the life cycle involves corresponding needs for goods and services from retail and service establishments, including small businesses.

Small Business Disproportionate Impact Analysis and Non-Residential Developments

The section directly above examined potential impacts on small businesses that sell retail items to consumers, particularly as the impacts relate to how households shift from funds from spending to saving. The section concludes that impacts will be temporary and more than compensated for when a household purchases a home. New Rule 9510 and 3180 could potentially impact small businesses in other ways as well. In particular, small business may not be able to absorb rent increases contemplated in Section 6.3 above.

This section evaluates the impacts of rent increases discussed in Section 6.3 on small businesses, particularly those that occupy commercial developments. As Section 6.3 demonstrated, new commercial development and are potentially significantly impacted by the proposed new rule.

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[9]Caitlin Cleary, "New homeowners welcomes with onslaught of new mail" (Pittsburgh Post-Gazette), 10-15-05

[10]www.clickdata.com/consumer/newequity.asp

For purposes of analysis, commercial development refers to retailers, restaurants, and entertainment and recreation venues.

The analysis below examines how all commercial small businesses are impacted, not just new ones. As Section 6.3 noted, comparable commercial developments that have been in place prior to the new fees could conceivably have their monthly rents raised by one cent per square foot starting in 2008.

If small businesses cannot pass costs onto consumers, and if they are unable to increase sales, then these businesses will have to absorb the additional rent, resulting in a decline in net profits. Lease rates for new and older but well-maintained commercial space is approximately $1.50 per square foot in the San Joaquin Valley region. Scant data on arts and entertainment space suggest these areas go for $1.25 per square foot a month.[11] Older buildings away from busy commercial corridors will in all likelihood command less than the $1.50 that new buildings in busy areas command. Thus, in using the $1.50 (retail and restaurants), $1.10 (gas stations) and $1.25 (arts and entertainment), we will overstate the cost in relation to net profits.

Table 35 shows that the 2008 fee will impact net profits of commercial small businesses by 1.5 percent. The bulk of impacts are borne by small businesses because these entities comprise almost 98 percent of commercial businesses and gas stations in the region.[12] However, the impacts are less than significant. Thus, small businesses are not disproportionately impacted by the rule.

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[11] For the purposes of analysis, we assume that all commercial spaces pay these rents. Similar to the analysis directly above, commercial space refers to retail and select services such as restaurants and arts and entertainment venues. Select services exclude office space for industries such as accounting, medical, legal assistance, etc., because office uses are significantly impacted by the rule, as shows in Section 6.3.

[12] 15,368dividedby15,602 = 98%

TABLE 35
Small Business Impact of Additional Rent Resulting From Proposed Air Quality Mitigation Fee

Total Number of Retail and Select Services Establishments	15,602
Total Number of Small Business Retail and Select Services Establishments	14,324
Total Number of Small Business Retail and Select Services: Sales	$18,146,568,017
Total Number of Small Business Retail and Select Services: Net Profits	$485,376,512
Dollar Amount of One Cent Rent Increase (2008 fee: commercial)	$7,230,586
Impact of One Cent Rent Increase on Net Profit of commercial uses (2008 fee)	1.5%
Impact of One Cent Rent Increase on Net Profit of commercial uses (2008 fee)	Less than significant

APPENDIX A: ECONOMIC BENEFITS ASSOCIATED WITH DRAFT RULE 9510 AND 3180

The San Joaquin Valley Air Pollution Control District (SJVUAPCD) will use the Off-Site Emission Reduction Fees will be used to fund off-site emission reduction projects located within the San Joaquin Valley. Besides providing a health benefit to all Valley residents by reducing overall emissions in the air basin, the funding projects would benefit the Valley's economy. Potential projects for funding through this program are numerous and varied ranging from public works construction project such as road paving, procuring cleaner vehicles and equipment for businesses and local government agencies, to school bus upgrades. If all projects that go through the ISR program only reduce emissions through the off-site fee, the District may receive approximately $11 million dollars in 2006 and approximately $56 million in 2008 (allowing for fee deferrals) for use in the off-site emission reduction program. All of the money received as an off-site fee will be spent on projects within the region that make the air cleaner. The program would benefit the economy through three beneficial impacts:

LOCAL PURCHASES

Projects that require a purchase of equipment, materials, or services will result in money being re-circulated into the regional economy. The District cannot guarantee that the manufacturer or provider would be located within the Valley, but it can be expected that the majority will be Valley businesses that benefit. For example, road-paving projects would require asphalt and similar materials that would be provided by Valley businesses. A project that buys a cleaner engine would benefit the Valley engine dealer that sells the engine.

LOCAL PROJECTS

It has already been stated that the program would fund local projects. This means that the school, city, industry or private group that receives the funding for an emission reduction

project would benefit economically from the program. For example, a school district may receive a new, cleaner school bus. A manufacturing facility may receive assistance in procuring a new, cleaner piece of equipment or pollution control device not required by District rules and regulations. A city or county would receive money that makes a road-paving project possible or enables their fleets to operate cleaner new vehicles.

JOB CREATION

The off-site funding program made possible by the ISR Program may also lead to short-term and perhaps long-term job creation. For a financially strapped company or public agency, the funding allows for the purchase and installation or construction of the item (be it a school bus or road project). The installation and construction aspects of the program may benefit the local economy through short-term job creation. Since the ISR program will provide ongoing funding as development occurs over time, it is expected to continue to provide this type of benefit while the rule is in effect. In addition, more efficient equipment may reduce costs and may allow for later expansion that can create long-term jobs.

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APPENDIX G

Rule Consistency Analysis for Proposed Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Air Impact Assessment Applications)

November 17, 2005

RULE CONSISTENCY ANALYSIS FOR DRAFT RULE 9510 (INDIRECT SOURCE REVIEW) AND RULE 3180 (ADMINISTRATIVE FEES FOR AIR IMPACT ASSESSMENT APPLICATIONS)

I. REQUIREMENTS OF ANALYSIS

Pursuant to Section 40727.2 of the California Health and Safety Code, prior to adopting, amending, or repealing a rule or regulation, the District is required to perform a written analysis that identifies and compares the air pollution control elements of draft Rules 3180 and 9510 with the corresponding elements of existing or proposed District and United States Environmental Protection Agency (US EPA) rules, regulations, and guidelines that apply to the same source category.

For this analysis, the comparison with other District and US EPA rules and guidelines mainly cover the rules' purpose and applicability. Unlike other District prohibitory rules, Rule 9510 reduces emissions from area sources, not from distinct units considered as point sources that are amenable to analysis in terms of emissions limits, source testing, or recordkeeping requirements. This approach analyzes whether Rule 9510 is in conflict or is redundant with the purpose of other District or federal rules and guidelines already in place, and it also clarifies the applicability of other rules relevant to the development projects covered by Rule 9510.

II. RESULTS OF ANALYSIS

A. District Rules

Consistency with District Fee Rules

The stated purpose of Rule 3180 is to recover District cost for administering the requirements of Rule 9510 and the applicability of Rule 3180 is specific to developments projects subject to the requirements of Rule 9510. There are no other District fee rules with a similar purpose and applicability. The fee requirements stated in District Rule 3100 (California Environmental Quality Act Fee) is specifically for permitted sources subject to District rules and regulations and does not apply to development projects subject to Rule 9510. The process for Rule 9510 is different from the District Permit Program---development projects are required to submit an Air Impact Assessment application, which the District evaluates and approves, and assesses a off-site emission reduction fee if emissions are not reduced on-site. The exact role Rule 9510 in the CEQA process will be determined when the District revises its Guidelines for Assessing and Mitigating the Air Quality Impacts (GAMAQI) document.

Consistency with Rule 2010 (Permits Required)

The applicability of Rule 9510 concerns development projects that have not been traditionally under the purview of District Permit Requirements. In lieu of permitting requirements, development projects covered by Rule 9510 are required to submit an Air Impact Assessment application, which the District evaluates and approves, and assesses a off-site emission reduction fee if emissions are not reduced on-site. There may be some new developments that could be subject to Rule 2010 for particular piece(s) of equipment, however, Rule 9510 will only apply to the area and operational (motor vehicle) emissions, and will not apply to the stationary sources of emissions from a particular development. Therefore, Rule 9510 requirements will not duplicate the requirements in Rule 2010.

Consistency with Rule 9110 (General Conformity)

Proposed Rule 9510 is designed to reduce emissions of PM10 and PM10 precursors and fulfills commitments in the 2003 PM10 Plan, which has been SIP-approved. After Rule 9510 is adopted, it will be submitted for SIP approval. With the approval of Rule 9510 into the SIP, District Rule 9110 (General Conformity) is triggered. The District's Rule 9110 adopted by reference the federal conformity rule which states that (40 CFR 51.850): "No department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan." Therefore any development project subject to Rule 9110 (General Conformity) must make a determination of conformity with the District's SIP-approved rules and regulations, including Rule 9510. A federal actions that result in direct and indirect emissions equal to or exceeding 10 tons of ozone precursors (VOCs or NOx) in extreme nonattainment areas or 70 tons of PM10 in serious nonattainment areas is required to perform conformity determination (40 CFR 51.853).

There is no provision in Rule 9510 exempting federal actions in total. Federally sanctioned actions subject to Rule 9110 are exempt from the requirements of Rule 9510 if they fall under any of the following categories: (1) transportation projects that meet specific conditions, (2) transit projects, (3) reconstruction of any development project that is damaged or destroyed and is rebuilt to essentially the same use, or (4) a development project whose primary emission source are from stationary sources subject to Rule 2201 (New and Modified Stationary Source Review) and Rule 2010 (Permits Required). In the event that a project that is subject to Rule 9110 and 9510, any action or emissions used to demonstrate general conformity, can also be used as credit towards the required emission reductions, as long as they meet the requirements in Rule 9510. In the event that there is a shortfall in meeting the emission reduction requirements, the project will need to reduce the remaining emissions either with additional on-site measures or with off-site measures to be in full compliance with the requirements of Rule 9510.

Consistency with Regulation VIII Rules

The baseline emissions for construction, as used in this rule's emission reduction analysis, do not include emissions from fugitive dust, as required by Regulation VIII. However, any control technique performed for purposes of complying with Regulation VIII that reduces the project's construction equipment exhaust emissions will reduce the required reduction and the corresponding fee amount required under Rule 9510.

Consistency with Other District Rules

The baseline emissions attributed to sources subject to Rule 9510 include emissions from area sources that are assumed to be already in compliance with the requirements of other District rules (for residential sources) such as: Rule 4601 (Architectural Coatings), Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), Rule 4902 (Residential Water Heaters), and Proposed Rule 4905 (Residential Central-Heating Furnaces). These rules don't require permits for affected units, and the enforcement mechanism is through certification by manufacturers or distributors prior to the sale and installation of these units within the San Joaquin Valley. Other District rules, which regulate non-residential sources and apply to and control specific stationary or area source emissions that are assumed to be already in compliance with other District rules requirements, are not included in the emissions baseline for Rule 9510. These include but may not be limited to: Rule 4351, 4305, 4306 (Boilers, Steam Generators, and Process Heaters), Rule 4622 (Gasoline Transfer into Motor Vehicle Fuel Tanks), Rule 4672 (Petroleum Solvent Dry Cleaning Operations), Rule 4692 (Commercial Charbroiling), and other process-specific District rules.

Consistency with Rule 1070

Rule 1070 provides the basis of authority for the District enforcement activities such as site inspections to verify compliance with mitigation measures.

B. US EPA RULES AND GUIDELINES

There are no specific federal guidelines applying to development projects as a source of NOx, PM10, or PM10 precursors in terms of New Source Performance Standards (NSPS), Control Technique Guidelines (CTG), Maximum Achievable Control Technology (MACT) and National Emission Standards for Hazardous Pollutants (NESHAP).

As previously mentioned, District's Rule 9110 adopted by reference the federal conformity rule which states that (40 CFR 51.850): "No department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan." Its relationship to Rule 9501 is discussed above.

BEFORE THE GOVERNING BOARD OF THE
SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

IN THE MATTER OF: PROPOSED RULE 9510 (Indirect Source Review) and PROPOSED RULE 3180 (Administrative Fees for Indirect Source Review)) **RESOLUTION NO.** 05-12-16

WHEREAS, the San Joaquin Valley Unified Air Pollution Control District (District) is a duly constituted unified district, as provided in California Health and Safety Code (CH&SC) Sections 41050 to 40161; and

WHEREAS, said District is authorized by CH&SC Section 40702 to make and enforce all necessary and proper orders, rules, and regulations to accomplish the purpose of Division 26 of the CH&SC; and

WHEREAS, Section 40716 of the CH&SC authorizes the District to adopt and implement regulations to reduce or mitigate emissions from indirect and areawide sources of pollution; and

WHEREAS, Section 42311(g) of the CH&SC authorizes districts to adopt a schedule of fees on areawide or indirect sources which are regulated, but for which permits are not issued, to cover the costs of District programs related to this source; and

WHEREAS, Section 40604 of the CH&SC (SB 709), directs the San Joaquin Valley Unified Air Pollution Control District to adopt a schedule of fees to be assessed on areawide or indirect sources of emission; and

WHEREAS, pursuant to Section 107 of the Clean Air Act and pursuant to Section 39608 of the CH&SC, the San Joaquin Valley Air Basin has been classified as a nonattainment area for the national and state health based ambient ozone and particulate matter 10 microns in size and smaller (PM10); and

WHEREAS, the District's 2004 Extreme Ozone Attainment Demonstration Plan as amended by the Governing Board on October 20, 2005 and the District's 2003 PM10 Plan as amended by the Governing Board on December 18, 2003 and May 19, 2005 commits the District to adopt and implement control measures to reach attainment; and

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WHEREAS, the Indirect Source Program is a control strategy contained in both the District's 2004 Extreme Ozone Attainment Demonstration Plan and 2003 PM10 Plan to be implemented through Rule 9510 (Indirect Source Review), and Rule 3180 (Administrative Fees for Indirect Source Review); and

WHEREAS, a public hearing for adopting Rule 9510 and Rule 3180 was duly noticed for public hearing on November 3, 2005 in accordance with CH&SC Sections 40725 and 40727.2.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. The Governing Board hereby adopts Rule 9510 (Indirect Source Review), and Rule 3180 (Administrative Fees for Indirect Source Review) as set forth in the attached hereto and incorporated herein by this reference. Said rules shall become effective on December 15, 2005.

2. The Governing Board hereby finds, based on the evidence and information presented at the hearing upon which its decision is based, all notices required to be given by law have been duly given in accordance with CH&SC Section 40725, Section 42311(e) and Section 40727.2, and the Board has allowed public testimony in accordance with CH&SC Section 40726.

3. In connection with the proposed requirements of said rules, the Board makes the following findings as required by CH&SC Section 40727:

a. **NECESSITY.** The Governing Board finds, based on the staff report, public and industry testimony on the record for this rulemaking proceeding, that a need exists for the adoption of Rule 9510 (Indirect Source Review) and Rule 3180 (Administrative Fees for Indirect Source Review). Said action is necessary to meet the commitments of the submitted State Implementation Plan and requirements of the federal Clean Air Act.

b. **AUTHORITY.** The Governing Board finds that it has the legal authority to adopt said rules under the California Health & Safety Code Sections 40000 and 40001.

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c. **CLARITY.** The Governing Board finds that said rules are written or displayed so that their meaning can be easily understood by those persons or industries directly affected by them.

d. **CONSISTENCY.** The Governing Board finds that said rules are in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

e. **NONDUPLICATION.** The Governing Board finds that said rules do not impose the same requirements as any existing state or federal regulation.

f. **REFERENCE.** The Governing Board finds that said rulemakings implement Section 40604 of the California Health and Safety Code.

4. The Governing Board hereby finds that the requirements of the California Health and Safety Code Section 40728.5 have been satisfied to the greatest extent possible, and that the Governing Board has actively considered and made a good faith effort to minimize any adverse socioeconomic impacts associated with the proposed rulemakings.

5. The District has completed an Initial Study for said rules that indicate that the project will not result in any significant adverse effects to the environment, and a Proposed Negative Declaration has been prepared and properly noticed pursuant to the California Environmental Quality Act Guidelines (CEQA). The Governing Board of the District has duly considered said Initial Study and Proposed Negative Declaration. Accordingly, the Governing Board of the District (a) certifies that the Initial Study and Negative Declaration reflect the independent judgment of the District; (b) finds that the above-described project will have a de minimis impact on fish and wildlife resources; and (c) approves and adopts a Negative Declaration for said rulemaking effort pursuant to CEQA requirements. In accordance with the provisions of Section 15075 of the *California Environmental Quality Act Guidelines*, the Executive Director/Air Pollution Control Officer is hereby directed to cause to be

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filed a Notice Determination with the County Clerks of each of the counties in the District.

6. To the maximum extent feasible, the offsite emission reduction fees collected by the District shall be expended in a manner that provides for localized air quality benefits commensurate with the emissions from the new development projects.

7. The District shall explore support of legislative initiatives that provide appropriate litigation relief on air quality issues in conjunction with the California Environmental Quality Act (CEQA) process for new development projects that satisfy the District emission reduction requirements of Rule 9510 or more stringent standards set by local communities and land use agencies.

8. No later than December 31, 2010, and after holding at least one series of public workshops, the Air Pollution Control Officer shall submit Rules 9510 and 3180 to the District Governing Board for reevaluation and reauthorization.

9. The District shall prepare an annual report that will be available to the public regarding the expenditure of offsite fee funds, and shall include the following: total amount of offsite fees received; total monies spent; total monies remaining; any refunds distributed; a list of all projects funded; total emissions reductions realized, and; the overall cost-effectiveness factor for the projects funded.

10. The Executive Director/Air Pollution Control Officer is directed to file with all appropriate agencies certified copies of this resolution and the rules adopted herein and is directed to maintain a record of this rulemaking proceeding in accordance with CH&SC Section 40728.

11. The Air Pollution Control Officer is directed to transit Rule 9510 (Indirect Source Review) to the California Air Resources Board for incorporation in the State Implementation Plan.

12. The Governing Board authorizes the Air Pollution Control Officer to

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include in the submittal or subsequent documentation any technical corrections, clarifications, or additions that may be needed to secure EPA approval, provided such changes do not alter the substantive requirements of the approved rule.

THE FOREGOING was passed by the following vote of the Governing Board of the San Joaquin Valley Unified Air Pollution Control District this 15th day of December 2005, to wit:

AYES: Patrick, Anderson, Worthley, Barba, Nelson, Dominici, Sieglock, Prince, Maggard and Mayfield.

NOES: None.

ABSENT: Armentrout.

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

By: _____
Thomas W. Mayfield, Chair
Governing Board

ATTEST:

By: _____
Sissy Smith