

APPENDIX A
Emission Inventory of Ozone Precursors in the District
For 2008, 2012, 2014, 2017, 2020 and 2021 (tons per day)

SOURCE CATEGORY	2008		2012		2014		2017		2020		2021	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
ELECTRIC UTILITIES	0	0	0	0	0	0	0	0.005	0	0.005	0	0.005
COGENERATION	0.035	0.479	0.031	0.432	0.038	0.452	0.046	0.424	0.045	0.415	0.045	0.415
MANUFACTURING AND INDUSTRIAL	0.041	1.702	0.032	1.244	0.035	1.342	0.026	1.465	0.026	1.448	0.026	1.448
FOOD AND AGRICULTURAL PROCESSING	0.003	0.041	0.002	0.025	0.001	0.024	0.001	0.01	0.001	0.009	0.001	0.008
SERVICE AND COMMERCIAL	0.032	0.312	0.068	0.574	0.034	0.452	0.239	0.449	0.252	0.479	0.254	0.484
OTHER (FUEL COMBUSTION)	0	0	0	0	0	0	0.007	0.179	0.007	0.182	0.007	0.183
SEWAGE TREATMENT	0	0	0	0	0	0	0.005	0	0.005	0	0.005	0
LANDFILLS	0.0379	0	0.035	0	0.036	0	0.04	0.002	0.041	0.002	0.041	0.002
OTHER (WASTE DISPOSAL)	0	0	0	0	0	0	0	0	0	0	0	0
LAUNDERING	0	0	0	0	0	0	0.004	0	0.004	0	0.004	0
DEGREASING	0.934	0	0.419	0	0.506	0	0.468	0	0.461	0	0.470	0
COATINGS AND RELATED PROCESS SOLVENTS	0.131	0	0.115	0	0.116	0	0.158	0.009	0.167	0.009	0.169	0.01
PRINTING	0	0	0	0	0	0	0	0	0	0	0	0
ADHESIVES AND SEALENTS	0.045	0	0.039	0	0.041	0	0.042	0	0.041	0	0.042	0
OTHER (CLEANING AND SURFACE COATINGS)	0.003	0	0.012	0	0.017	0	0.001	0	0.001	0	0.001	0
OIL AND GAS PRODUCTION	0	0	0	0	0	0	0	0.001	0	0.001	0	0.001
PETROLEUM REFINING	0.004	0	0	0	0	0	0.002	0	0.002	0	0.002	0
PETROLEUM MARKETING	0.127	0	0.115	0	0.09	0	0.145	0	0.134	0	0.132	0
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0	0	0.003	0	0	0	0	0	0	0	0	0
CHEMICAL	0	0	0	0	0	0	0	0	0	0	0	0
FOOD AND AGRICULTURE	0	0	0	0	0	0	0	0	0	0	0	0
MINERAL PROCESSES	0.098	13.828	0.092	10.896	0.206	8.293	0.163	10.162	0.153	9.398	0.161	10.09
METAL PROCESSES	0	0.009	0	0.009	0	0.008	0	0.009	0	0.010	0	0.01
WOOD AND PAPER	0	0	0	0	0	0	0	0	0	0	0	0
OTHER (INDUSTRIAL PROCESSES)	0.006	0.002	0	0.001	0	0.001	0.024	0.005	0.025	0.005	0.025	0.005
STATIONARY SUBTOTAL	1.498	16.372	0.963	13.181	1.121	10.572	1.4	12.719	1.392	11.962	1.415	12.662

Emission Inventories

SOURCE CATEGORY	2008		2012		2014		2017		2020		2021	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
CONSUMER PRODUCTS	0.652	0	0.648	0	0.649	0	0.656	0	0.728	0	0.691	0
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.212	0	0.17	0	0.173	0	0.177	0	0.181	0	0.183	0
PESTICIDES/FERTILIZERS	0.044	0	0.123	0	0.109	0	0.067	0	0.072	0	0.072	0
ASPHALT PAVING/ROOFING	0.071	0	0.069	0	0.073	0	0.063	0	0.069	0	0.071	0
RESIDENTIAL FUEL COMBUSTION	0.025	0.130	0.027	0.126	0.034	0.108	0.023	0.116	0.023	0.122	0.023	0.122
FARMING OPERATIONS	0.109	0	0.104	0	0.1	0	0.094	0	0.089	0	0.087	0
CONSTRUCTION AND DEMOLITION	0	0	0	0	0	0	0	0	0	0	0	0
PAVED ROAD DUST	0	0	0	0	0	0	0	0	0	0	0	0
UNPAVED ROAD DUST	0	0	0	0	0	0	0	0	0	0	0	0
FUGITIVE WINDBLOWN DUST	0	0	0	0	0	0	0	0	0	0	0	0
FIRES	0.002	0	0.002	0	0.002	0.001	0.002	0.001	0.002	0.001	0.002	0.001
MANAGED BURNING AND DISPOSAL	0	0	0.002	0.001	0.006	0.001	0.002	0.001	0.005	0.001	0.005	0.001
COOKING	0.006	0	0.006	0	0.006	0	0.007	0.001	0.007	0	0.007	0
OTHER (MISCELLANEOUS PROCESSES)	0	0	0	0	0	0	0	0	0	0	0	0
AREA-WIDE SUBTOTAL	1.123	0.131	1.151	0.127	1.152	0.11	1.09	0.118	1.176	0.124	1.142	0.124
LIGHT DUTY PASSENGER (LDA)	0.729	0.560	0.505	0.364	0.414	0.286	0.297	0.195	0.00	0.132	0.204	0.118
LIGHT DUTY TRUCKS – 1 (LDT1)	0.212	0.129	0.145	0.088	0.103	0.063	0.082	0.046	0.06	0.03	0.055	0.027
LIGHT DUTY TRUCKS – 2 (LDT2)	0.437	0.517	0.335	0.342	0.296	0.276	0.236	0.198	0.186	0.131	0.175	0.115
MEDIUM DUTY TRUCKS (MDV)	0.236	0.296	0.207	0.218	0.204	0.192	0.182	0.147	0.146	0.101	0.136	0.088
LIGHT HEAVY DUTY GAS TRUCKS – 1 (LHDGT1)	0.111	0.095	0.094	0.070	0.108	0.066	0.087	0.054	0.064	0.039	0.06	0.036
LIGHT HEAVY DUTY GAS TRUCKS – 2 (LHDGT2)	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.025	0.026	0.013	0.016	0.009	0.013	0.005	0.007	0.003	0.005	0.003	0.005
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0.007	0.012	0.005	0.010	0.001	0.001	0	0	0	0	0	0
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.024	0.639	0.023	0.517	0.022	0.022	0.018	0.398	0.018	0.305	0.017	0.278
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.006	0.155	0.006	0.127	0.006	0.110	0.006	0.098	0.006	0.077	0.005	0.071
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.056	0.519	0.030	0.292	0.029	0.287	0.021	0.226	0.013	0.173	0.01	0.153
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.551	6.337	0.332	4.107	0.209	3.276	0.121	2.451	0.082	2.068	0.07	1.936

Emission Inventories

SOURCE CATEGORY	2008		2012		2014		2017		2020		2021	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
MOTORCYCLES (MCY)	0.232	0.06	0.211	0.053	0.21	0.052	0.196	0.050	0.177	0.044	0.172	0.042
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0	0.006	0	0.001	0	0.001	0	0	0	0	0	0
HEAVY DUTY GAS URBAN BUSES (UBG)	0	0	0	0	0	0	0	0	0	0	0	0
SCHOOL BUSES – GAS (SBG)	0.001	0.002	0.001	0.001	0	0	0	0	0	0	0	0
SCHOOL BUSES – DIESEL (SBD)	0.003	0.034	0.002	0.031	0.001	0.03	0	0.028	0	0.025	0	0.024
OTHER BUSES – GAS (OBG)	0.002	0.006	0.002	0.005	0.001	0.005	0.001	0.003	0.001	0.002	0.001	0.002
OTHER BUSES – MOTOR COACH – DIESEL (OBC)	0.001	0.016	0.001	0.012	0.001	0.010	0	0.008	0	0.006	0	0.005
ALL OTHER BUSES – DIESEL (OBD)	0.002	0.019	0.002	0.013	0.001	0.005	0	0.003	0	0.002	0	0.002
MOTOR HOMES (MH)	0.009	0.033	0.006	0.026	0.004	0.022	0.003	0.019	0.002	0.015	0.002	0.014
ON-ROAD SUBTOTAL	2.653	9.466	1.927	6.3	1.622	5.167	1.264	3.938	0.982	3.159	0.915	2.918
AIRCRAFT	2.481	1.278	2.502	1.282	2.512	1.284	2.525	1.286	2.536	1.289	2.541	1.289
TRAINS	0.224	3.174	0.153	2.454	0.121	2.284	0.079	1.677	0.085	1.874	0.085	1.903
RECREATIONAL BOATS	1.108	0.157	0.936	0.142	0.894	0.139	0.774	0.132	0.671	0.127	0.64	0.126
OFF-ROAD RECREATIONAL VEHICLES	0.056	0.001	0.046	0.001	0.042	0.001	0.039	0.001	0.037	0.001	0.036	0.001
OFF-ROAD EQUIPMENT	0.782	0.761	0.558	0.3647	0.504	0.654	0.461	0.654	0.439	0.552	0.432	0.518
OFF-ROAD EQUIPMENT (PERP)	0.018	0.213	0.014	0.177	0.012	0.154	0.011	0.136	0.009	0.01	0.009	0.098
FARM EQUIPMENT	0.247	1.324	0.208	1.104	0.187	1.014	0.159	0.899	0.027	0.0131	0.025	0.0127
FUEL STORAGE AND HANDLING	0.094	0	0.073	0	0.067	0	0.06	0	0.055	0	0.054	0
OFF-ROAD SUBTOTAL	5.01	6.907	4.49	5.806	4.338	5.53	4.109	4.786	3.859	3.955	3.823	3.947
TOTAL	10.284	32.876	8.531	25.414	8.233	21.379	7.863	21.561	7.409	19.2	7.295	19.651

Source: CARB CEPAM emissions inventory, CEPAM2019v1.04 with approved external emission adjustment factors.

**Projected Emission Inventory for Future Years
2018, 2026, 2032**

SOURCE CATEGORY	2018		2026		2032	
	VOC	NOx	VOC	NOx	VOC	NOx
ELECTRIC UTILITIES	0	0.005	0	0.005	0	0.005
COGENERATION	0.045	0.416	0.045	0.415	0.047	0.432
MANUFACTURING AND INDUSTRIAL	0.026	1.455	0.026	1.45	0.027	1.465
FOOD AND AGRICULTURAL PROCESSING	0.001	0.01	0	0.007	0	0.005
SERVICE AND COMMERCIAL	0.242	0.46	0.263	0.499	0.268	0.509
OTHER (FUEL COMBUSTION)	0.007	0.179	0.007	0.175	0.007	0.174
SEWAGE TREATMENT	0.005	0	0.005	0	0.006	0
LANDFILLS	0.041	0.002	0.044	0.002	0.047	0.002
OTHER (WASTE DISPOSAL)	0	0	0	0	0	0
LAUNDERING	0.004	0	0.005	0	0.005	0
DEGREASING	0.477	0	0.52	0	0.569	0
COATINGS AND RELATED PROCESS SOLVENTS	0.159	0.009	0.184	0.01	0.196	0.011
PRINTING	0	0	0	0	0	0
ADHESIVES AND SEALANTS	0.042	0	0.042	0	0.042	0
OTHER (CLEANING AND SURFACE COATINGS)	0.001	0	0.001	0	0.001	0
OIL AND GAS PRODUCTION	0	0.001	0	0.001	0	0.001
PETROLEUM REFINING	0.002	0	0.002	0	0.002	0
PETROLEUM MARKETING	0.141	0	0.125	0	0.119	0
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0	0	0	0	0	0
CHEMICAL	0.018	0	0.017	0	0.018	0
FOOD AND AGRICULTURE	0	0	0	0	0	0
MINERAL PROCESSES	0.164	10.216	0.157	9.759	0.158	9.777
METAL PROCESSES	0	0.009	0	0.012	0	0.012
WOOD AND PAPER	0	0	0	0	0	0
OTHER (INDUSTRIAL PROCESSES)	0.025	0.005	0.026	0.005	0.027	0.005
STATIONARY SUBTOTAL	1.411	12.766	1.481	12.34	1.55	12.399

Emission Inventories

SOURCE CATEGORY	2018		2026		2032	
	VOC	NOx	VOC	NOx	VOC	NOx
CONSUMER PRODUCTS	0.665	0	0.727	0	0.802	0
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.179	0	0.192	0	0.205	0
PESTICIDES/FERTILIZERS	0.05	0	0.07	0	0.069	0
ASPHALT PAVING/ROOFING	0.067	0	0.076	0	0.081	0
RESIDENTIAL FUEL COMBUSTION	0.023	0.116	0.023	0.123	0.024	0.127
FARMING OPERATIONS	0.092	0	0.081	0	0.075	0
CONSTRUCTION AND DEMOLITION	0	0	0	0	0	0
PAVED ROAD DUST	0	0	0	0	0	0
UNPAVED ROAD DUST	0	0	0	0	0	0
FUGITIVE WINDBLOWN DUST	0	0	0	0	0	0
FIRES	0.002	0	0.003	0.001	0.003	0.001
MANAGED BURNING AND DISPOSAL	0.119	0.007	0.005	0.001	0.005	0.001
COOKING	0.007	0	0.007	0	0.008	0
OTHER (MISCELLANEOUS PROCESSES)	0	0	0	0	0	0
AREA-WIDE SUBTOTAL	1.203	0.124	1.185	0.125	1.271	0.129
LIGHT DUTY PASSENGER (LDA)	0.264	0.169	0.152	0.079	0.124	0.066
LIGHT DUTY TRUCKS – 1 (LDT1)	0.073	0.039	0.04	0.016	0.027	0.01
LIGHT DUTY TRUCKS – 2 (LDT2)	0.217	0.172	0.134	0.065	0.1	0.04
MEDIUM DUTY TRUCKS (MDV)	0.169	0.13	0.099	0.045	0.077	0.027
LIGHT HEAVY DUTY GAS TRUCKS – 1 (LHDGT1)	0.0775	0.048	0.043	0.022	0.031	0.013
LIGHT HEAVY DUTY GAS TRUCKS – 2 (LHDGT2)	0.078	0.004	0.043	0.002	0.031	0.002
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.004	0.208	0.002	0.073	0.001	0.055
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0	0.208	0	0.073	0	0.055
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.078	0.365	0.043	0.162	0.031	0.075
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.006	0.091	0.004	0.043	0.003	0.024
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.018	0.208	0.001	0.073	0.001	0.055
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.106	2.32	0.046	0.805	0.049	0.641

Emission Inventories

SOURCE CATEGORY	2018		2026		2032	
	VOC	NOx	VOC	NOx	VOC	NOx
MOTORCYCLES (MCY)	0.189	0.048	0.148	0.036	0.131	0.033
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0	0	0	0	0	0
HEAVY DUTY GAS URBAN BUSES (UBG)	0	0	0	0	0	0
SCHOOL BUSES – GAS (SBG)	0	0	0	0	0	0
SCHOOL BUSES – DIESEL (SBD)	0	0.027	0	0.018	0	0.014
OTHER BUSES – GAS (OBG)	0.001	0.003	0.001	0.001	0.001	0.001
OTHER BUSES – MOTOR COACH – DIESEL (OBC)	0	0.008	0	0.002	0	0.001
ALL OTHER BUSES – DIESEL (OBD)	0	0.003	0	0.002	0	0.003
MOTOR HOMES (MH)	0.002	0.017	0.001	0.01	0	0.007
ON-ROAD SUBTOTAL	1.153	3.661	0.686	1.385	0.556	1.014
AIRCRAFT	0	1.287	0	1.294	0	1.299
TRAINS	0.085	1.82	0.085	2.024	0.086	2.158
RECREATIONAL BOATS	0.738	0.131	0.513	0.119	0.403	0.115
OFF-ROAD RECREATIONAL VEHICLES	0.038	0.001	0.031	0.001	0.023	0.001
OFF-ROAD EQUIPMENT	0.448	0.616	0.354	0.394	0.219	0.312
OFF-ROAD EQUIPMENT (PERP)	0.011	0.126	0.007	0.059	0.007	0.05
FARM EQUIPMENT	0.031	0.015	0.017	0.01	0.01	0.007
FUEL STORAGE AND HANDLING	0.058	0	0.05	0	0.048	0
OFF-ROAD SUBTOTAL	3.938	3.996	3.62	3.902	3.386	3.941
TOTAL	7.705	20.547	6.972	17.752	6.763	17.483

Source: CARB CEPAM emissions inventory, CEPAM2019v1.04 with approved external emission adjustment factors.