

PG&E L-021A Napa River Crossing Replacement Project
Phase 1: Air Pollutant and Greenhouse Gas Emissions Totals

Task	Average Pounds/Day					Total English Tons					Metric Tons			
	NOx	ROG	PM10*	PM2.5*	CO	NOx	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	CO2E
Phase 1: Mobilization and Excavation	29.08	2.84	0.99	0.92	19.39	0.067	0.007	0.002	0.002	0.045	22.3	0.0009	0.001	22.7
Phase 1: Pipe String Welding	112.84	11.04	4.25	3.91	79.79	0.977	0.102	0.035	0.032	0.820	145.0	0.007	0.003	146.1
Phase 1: HDD Operations	54.28	6.66	1.90	1.75	63.31	1.512	0.187	0.054	0.050	1.735	380.7	0.015	0.007	383.2
Phase 1: Pipe Testing, Tie-in and Pipe Ramming	26.77	3.08	0.93	0.86	40.72	0.187	0.021	0.006	0.006	0.191	60.2	0.003	0.002	60.8
Phase 1: Demobilization and Site Restoration	17.57	1.76	0.64	0.59	14.09	0.084	0.008	0.003	0.003	0.063	24.1	0.001	0.001	24.4

Total/Peak Day	112.84	11.04	4.25	3.91	79.79	2.826	0.325	0.100	0.092	2.855	632.3	0.027	0.015	637.2
*With fugitive dust added to PM exhaust emissions			276.55	44.76				9.60	1.52					

Fugitive Dust:

PM10	PM2.5
272.3	40.85 lb/day
9.5	1.43 total tons

PG&E L-021A Napa River Crossing Replacement Project
Phase 2: Mobilization, Pigging and Flushing Pipelines

OFF-ROAD SOURCES

Source	Fuel	BHP	Number	Average Hours/Day	Emission Factors: pounds/BHP-hr ^{1,3}								Pounds/Day								Total Days	Total English Tons																			
					NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O												
Excavator	Diesel	310	0	0	0.00096	0.00012	0.00003	0.00003	0.00093	0.44493	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Hydroexcavator	Diesel	300	0	0	0.00205	0.00019	0.00008	0.00007	0.00122	0.48420	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Light plant	Diesel	15	0	0	0.00237	0.00031	0.00006	0.00006	0.00384	0.39140	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Air compressor (185 cfm)	Diesel	50	2	4	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	1.62	0.23	0.05	0.05	2.04	240.8	0.009	0.004	10	0.008	0.001	0.000	0.000	0.010	1.2	0.000	0.000												
Welding machine	Diesel	20	1	8	0.00371	0.00050	0.00012	0.00011	0.00446	0.56406	0.000023	0.000010	0.59	0.08	0.02	0.02	0.71	90.2	0.004	0.002	10	0.003	0.000	0.000	0.000	0.004	0.5	0.000	0.000												
Wheeled loader	Diesel	240	2	8	0.00142	0.00015	0.00005	0.00004	0.00093	0.42010	0.000023	0.000010	5.45	0.58	0.18	0.17	3.57	1613.2	0.090	0.038	10	0.027	0.003	0.001	0.001	0.018	8.1	0.000	0.000												
Dozer	Diesel	310	0	0	0.00321	0.00029	0.00013	0.00012	0.00172	0.49864	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Water pump	Gasoline	20	1	2	0.00253	0.00148	0.00008	0.00006	0.12496	1.19160	0.000023	0.000010	0.10	0.06	0.00	0.00	5.00	47.7	0.001	0.000	10	0.001	0.000	0.000	0.000	0.025	0.2	0.000	0.000												
Concrete pump	Diesel	250	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Hydrojet truck (pump)	Diesel	300	1	6	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.67	0.14	0.03	0.03	1.31	640.6	0.042	0.018	4	0.001	0.000	0.000	0.000	0.003	1.3	0.000	0.000												
Survey vessel	Diesel	270	0	0	0.00448	0.00050	0.00013	0.00013	0.00351	0.40731	0.000008	0.000018	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Derrick barge crane	Diesel	330	0	0	0.00507	0.00068	0.00015	0.00015	0.00398	0.46091	0.000011	0.000011	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Derrick barge generator	Diesel	100	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Support tug main engine	Diesel	500	0	0	0.00523	0.00041	0.00026	0.00026	0.00151	0.33228	0.000007	0.000015	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Support tug generator	Diesel	75	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Crew boat main engine	Diesel	100	0	0	0.00467	0.00073	0.00027	0.00027	0.00351	0.40731	0.000008	0.000018	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Crew boat generator	Diesel	50	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Diving air compressor	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
Toyo pump generator	Diesel	400	0	0	0.00046	0.00011	0.00002	0.00002	0.00078	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000												
													8.43	1.09	0.28	0.26	12.64	2632.5	0.146	0.062		0.040	0.005	0.001	0.001	0.059	11.241	0.001	0.000												

ON-ROAD SOURCES

On Road Sources	Miles/Trip	Average Daily One-way Trips	Emission Factors, grams/mile ²								Pounds/Day								Total Days	Total English Tons																
			NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O									
Light-duty truck (workers)*	20	12	0.0630	0.0104	0.0012	0.0011	0.8662	304.71	0.00320	0.00620	0.0333	0.0055	0.0006	0.0006	0.4583	161.2	0.0017	0.0033	10	0.000	0.000	0.000	0.000	0.002	0.8	0.000	0.000									
Heavy-duty truck (equipment mobilization)	60	11	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	1.7115	0.0141	0.0154	0.0148	0.1563	2088.5	0.0035	0.3333	2	0.002	0.000	0.000	0.000	0.000	2.1	0.000	0.000									
Heavy-duty truck (pipe & supplies delivery)	60	2	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.3112	0.0026	0.0028	0.0027	0.0284	379.7	0.0006	0.0606	3	0.000	0.000	0.000	0.000	0.000	0.6	0.000	0.000									
Heavy-duty truck (import fill)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000									
Heavy-duty truck (solid waste disposal)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000									
Heavy-duty truck (vacuum trucks)	40	2	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.2075	0.0017	0.0019	0.0018	0.0189	253.1	0.0004	0.0404	4	0.000	0.000	0.000	0.000	0.000	0.5	0.000	0.000									
Heavy-duty truck (concrete trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000									
Heavy-duty truck (water delivery/disposal)	40	8	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.8298	0.0068	0.0075	0.0072	0.0758	1012.6	0.0017	0.1616	5	0.002	0.000	0.000	0.000	0.000	2.5	0.000	0.000									
Totals =>											3.0934	0.0307	0.0282	0.0271	0.7377	3895.2	0.0079	0.5993											0.0048	0.0001	0.0000	0.0000	0.0027	6.5	0.000	0.001

Off-Road & On-Road Source Totals **11.527** **1.122** **0.312** **0.287** **13.379** **6527.6** **0.1539** **0.6617** **0.0450** **0.0051** **0.0014** **0.0013** **0.0620** **17.7** **0.0006** **0.0012**

Notes:
¹ Emission factors from OFFROAD 2021 (ver 1.0.3) for Napa County, year 2024
² Emission factors from EMFAC 2021 (ver 1.0.2) for Napa County, 40 mph average speed, year 2024
³ Marine vessel main engine, crane and generator emissions factors from the San Pedro Bay Emissions Inventory Methodology Report
* Worker trips based on 1.5 persons/vehicle

Greenhouse Gas Emissions Summary

Metric Tons	15.841	0.001	0.001
CO2E	15.84	0.015	0.288
Total CO2E			16.1



**PG&E L-021A Napa River Crossing Replacement Project
Phase 2: Excavation**

OFF-ROAD SOURCES

Source	Fuel	BHP	Number	Average Hours/Day	Emission Factors: pounds/BHP-hr ^{1,3}								Pounds/Day								Total Days	Total English Tons														
					NO _x	ROG	PM10	PM2.5	CO	CO ₂	CH ₄	N ₂ O	NO _x	ROG	PM10	PM2.5	CO	CO ₂	CH ₄	N ₂ O		NO _x	ROG	PM10	PM2.5	CO	CO ₂	CH ₄	N ₂ O							
Excavator	Diesel	310	2	8	0.00096	0.00012	0.00003	0.00003	0.00093	0.44493	0.000023	0.000010	4.76	0.60	0.15	0.14	4.61	2206.9	0.116	0.050	25	0.060	0.007	0.002	0.002	0.058	27.6	0.001	0.001							
Hydroexcavator	Diesel	300	1	6	0.00205	0.00019	0.00008	0.00007	0.00122	0.48420	0.000023	0.000010	3.69	0.34	0.14	0.13	2.20	871.6	0.042	0.018	2	0.004	0.000	0.000	0.000	0.002	0.9	0.000	0.000							
Light plant	Diesel	15	4	6	0.00237	0.00031	0.00006	0.00006	0.00384	0.39140	0.000023	0.000010	0.85	0.11	0.02	0.02	1.38	140.9	0.008	0.004	30	0.013	0.002	0.000	0.000	0.021	2.1	0.000	0.000							
Air compressor (185 cfm)	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Welding machine	Diesel	20	0	0	0.00371	0.00050	0.00012	0.00011	0.00446	0.56406	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Wheeled loader	Diesel	240	2	8	0.00142	0.00015	0.00005	0.00004	0.00093	0.42010	0.000023	0.000010	5.45	0.58	0.18	0.17	3.57	1613.2	0.090	0.038	30	0.082	0.009	0.003	0.002	0.054	24.2	0.001	0.001							
Dozer	Diesel	310	0	0	0.00321	0.00029	0.00013	0.00012	0.00172	0.49864	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Water pump	Gasoline	20	0	0	0.00253	0.00148	0.00008	0.00006	0.12496	1.19160	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Concrete pump	Diesel	250	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Hydrojet truck (pump)	Diesel	300	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Survey vessel	Diesel	270	0	0	0.00448	0.00050	0.00013	0.00013	0.00351	0.40731	0.000008	0.000018	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Derrick barge crane	Diesel	330	0	0	0.00507	0.00068	0.00015	0.00015	0.00398	0.46091	0.000011	0.000011	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Derrick barge generator	Diesel	100	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Support tug main engine	Diesel	500	0	0	0.00523	0.00041	0.00026	0.00026	0.00151	0.33228	0.000007	0.000015	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Support tug generator	Diesel	75	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Crew boat main engine	Diesel	100	0	0	0.00467	0.00073	0.00027	0.00027	0.00351	0.40731	0.000008	0.000018	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Crew boat generator	Diesel	50	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Diving air compressor	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
Toyo pump generator	Diesel	400	0	0	0.00046	0.00011	0.00002	0.00002	0.00078	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000							
													14.76	1.62	0.50	0.46	11.76	4832.5	0.256	0.110									0.158	0.018	0.005	0.005	0.134	54.769	0.003	0.001

ON-ROAD SOURCES

On Road Sources	Miles/Trip	Average Daily One-way Trips	Emission Factors, grams/mile ²								Pounds/Day								Total Days	Total English Tons															
			NO _x	ROG	PM10	PM2.5	CO	CO ₂	CH ₄	N ₂ O	NO _x	ROG	PM10	PM2.5	CO	CO ₂	CH ₄	N ₂ O		NO _x	ROG	PM10	PM2.5	CO	CO ₂	CH ₄	N ₂ O								
Light-duty truck (workers)*	20	12	0.0630	0.0104	0.0012	0.0011	0.8662	304.71	0.00320	0.00620	0.0333	0.0055	0.0006	0.0006	0.4583	161.2	0.0017	0.0033	30	0.001	0.000	0.000	0.000	0.007	2.4	0.000	0.000								
Heavy-duty truck (equipment mobilization)	60	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000								
Heavy-duty truck (pipe & supplies delivery)	60	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000								
Heavy-duty truck (import fill)	40	2	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.2075	0.0017	0.0019	0.0018	0.0189	253.1	0.0004	0.0404	2	0.000	0.000	0.000	0.000	0.000	0.3	0.000	0.000								
Heavy-duty truck (solid waste disposal)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000								
Heavy-duty truck (vacuum trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000								
Heavy-duty truck (concrete trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000								
Heavy-duty truck (water delivery/disposal)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000								
											Totals =>	0.2408	0.0072	0.0025	0.0024	0.4772	414.4	0.0021	0.0437									0.0007	0.0001	0.0000	0.0000	0.0069	2.7	0.000	0.000

Off-Road & On-Road Source Totals 14.998 1.632 0.502 0.464 12.240 5246.9 0.2586 0.1533 0.1585 0.0182 0.0051 0.0047 0.1411 57.4 0.0030 0.0014

Notes:
¹ Emission factors from OFFROAD 2021 (ver 1.0.3) for Napa County, year 2024
² Emission factors from EMFAC 2021 (ver 1.0.2) for Napa County, 40 mph average speed, year 2024
³ Marine vessel main engine, crane and generator emissions factors from the San Pedro Bay Emissions Inventory Methodology Report
 * Worker trips based on 1.5 persons/vehicle

Greenhouse Gas Emissions Summary

Metric Tons	51.29	0.003	0.001
CO₂E	51.29	0.075	0.331
Total CO₂E	51.7		



**PG&E L-021A Napa River Crossing Replacement Project
Phase 2: Terrestrial Decommissioning**

OFF-ROAD SOURCES

Source	Fuel	BHP	Number	Average Hours/Day	Emission Factors: pounds/BHP-hr ^{1,3}								Pounds/Day								Total Days	Total English Tons									
					NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		
Excavator	Diesel	310	2	8	0.00096	0.00012	0.00003	0.00003	0.00093	0.44493	0.000023	0.000010	4.76	0.60	0.15	0.14	4.61	2206.9	0.116	0.050	10	0.024	0.003	0.001	0.001	0.023	11.0	0.001	0.000		
Hydroexcavator	Diesel	300	0	0	0.00205	0.00019	0.00008	0.00007	0.00122	0.48420	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000		
Light plant	Diesel	15	4	6	0.00237	0.00031	0.00006	0.00006	0.00384	0.39140	0.000023	0.000010	0.85	0.11	0.02	0.02	1.38	140.9	0.008	0.004	20	0.009	0.001	0.000	0.000	0.014	1.4	0.000	0.000		
Air compressor (185 cfm)	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Welding machine	Diesel	20	1	8	0.00371	0.00050	0.00012	0.00011	0.00446	0.56406	0.000023	0.000010	0.59	0.08	0.02	0.02	0.71	90.2	0.004	0.002	30	0.009	0.001	0.000	0.000	0.011	1.4	0.000	0.000		
Wheeled loader	Diesel	240	2	8	0.00142	0.00015	0.00005	0.00004	0.00093	0.42010	0.000023	0.000010	5.45	0.58	0.18	0.17	3.57	1613.2	0.090	0.038	30	0.082	0.009	0.003	0.002	0.054	24.2	0.001	0.001		
Dozer	Diesel	310	0	0	0.00321	0.00029	0.00013	0.00012	0.00172	0.49864	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Water pump	Gasoline	20	0	0	0.00253	0.00148	0.00008	0.00006	0.12496	1.19160	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Concrete pump	Diesel	250	1	4	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.37	0.08	0.02	0.01	0.73	355.9	0.023	0.010	2	0.000	0.000	0.000	0.000	0.001	0.4	0.000	0.000		
Hydrojet truck (pump)	Diesel	300	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Survey vessel	Diesel	270	0	0	0.00448	0.00050	0.00013	0.00013	0.00351	0.40731	0.000008	0.000018	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Derrick barge crane	Diesel	330	0	0	0.00507	0.00068	0.00015	0.00015	0.00398	0.46091	0.000011	0.000011	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Derrick barge generator	Diesel	100	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Support tug main engine	Diesel	500	0	0	0.00523	0.00041	0.00026	0.00026	0.00151	0.33228	0.000007	0.000015	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Support tug generator	Diesel	75	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Crew boat main engine	Diesel	100	0	0	0.00467	0.00073	0.00027	0.00027	0.00351	0.40731	0.000008	0.000018	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Crew boat generator	Diesel	50	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Diving air compressor	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Toyo pump generator	Diesel	400	0	0	0.00046	0.00011	0.00002	0.00002	0.00078	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
												12.03	1.44	0.39	0.36	11.01	4407.1	0.241	0.103					0.123	0.014	0.004	0.004	0.102	38.351	0.002	0.001

ON-ROAD SOURCES

On Road Sources	Miles/Trip	Average Daily One-way Trips	Emission Factors, grams/mile ²								Pounds/Day								Total Days	Total English Tons											
			NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O				
Light-duty truck (workers)*	20	10	0.0630	0.0104	0.0012	0.0011	0.8662	304.71	0.00320	0.00620	0.0278	0.0046	0.0005	0.0005	0.3819	134.4	0.0014	0.0027	60	0.001	0.000	0.000	0.000	0.011	4.0	0.000	0.000				
Heavy-duty truck (equipment mobilization)	60	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (pipe & supplies delivery)	60	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (import fill)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (solid waste disposal)	40	2	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.2075	0.0017	0.0019	0.0018	0.0189	253.1	0.0004	0.0404	20	0.002	0.000	0.000	0.000	0.000	2.5	0.000	0.000				
Heavy-duty truck (vacuum trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (concrete trucks)	40	2	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.2075	0.0017	0.0019	0.0018	0.0189	253.1	0.0004	0.0404	2	0.000	0.000	0.000	0.000	0.000	0.3	0.000	0.000				
Heavy-duty truck (water delivery/disposal)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Totals =>												0.4427	0.0080	0.0043	0.0041	0.4198	640.6	0.0023	0.0835					0.0031	0.0002	0.0000	0.0000	0.0117	6.8	0.000	0.001

Off-Road & On-Road Source Totals 12.474 1.451 0.394 0.366 11.430 5047.7 0.2437 0.1867 0.1265 0.0142 0.0040 0.0037 0.1136 45.2 0.0021 0.0014

Notes:

- ¹ Emission factors from OFFROAD 2021 (ver 1.0.3) for Napa County, year 2024
 - ² Emission factors from EMFAC 2021 (ver 1.0.2) for Napa County, 40 mph average speed, year 2024
 - ³ Marine vessel main engine, crane and generator emissions factors from the San Pedro Bay Emissions Inventory Methodology Report
- * Worker trips based on 1.5 persons/vehicle

Greenhouse Gas Emissions Summary

Metric Tons	40.33	0.002	0.001
CO2E	40.33	0.053	0.346
Total CO2E	40.7		



PG&E L-021A Napa River Crossing Replacement Project
Phase 2: Pre-Project Bathymetric Survey and Riverine Decommissioning

OFF-ROAD SOURCES

Source	Fuel	BHP	Number	Average Hours/Day	Emission Factors: pounds/BHP-hr ^{1,3}								Pounds/Day								Total Days	Total English Tons										
					NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O			
Excavator	Diesel	310	0	0	0.00096	0.00012	0.00003	0.00003	0.00093	0.44493	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Hydroexcavator	Diesel	300	0	0	0.00205	0.00019	0.00008	0.00007	0.00122	0.48420	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Light plant	Diesel	15	0	0	0.00237	0.00031	0.00006	0.00006	0.00384	0.39140	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Air compressor (185 cfm)	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Welding machine	Diesel	20	0	0	0.00371	0.00050	0.00012	0.00011	0.00446	0.56406	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Wheeled loader	Diesel	240	0	0	0.00142	0.00015	0.00005	0.00004	0.00093	0.42010	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Dozer	Diesel	310	0	0	0.00321	0.00029	0.00013	0.00012	0.00172	0.49864	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Water pump	Gasoline	20	0	0	0.00253	0.00148	0.00008	0.00006	0.12496	1.19160	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Concrete pump	Diesel	250	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Hydrojet truck (pump)	Diesel	300	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000			
Survey vessel	Diesel	270	1	10	0.00448	0.00050	0.00013	0.00013	0.00351	0.40731	0.000008	0.000018	12.10	1.35	0.35	0.35	9.48	1099.7	0.022	0.049	1	0.006	0.001	0.000	0.000	0.005	0.5	0.000	0.000			
Derrick barge crane	Diesel	330	1	12	0.00507	0.00068	0.00015	0.00015	0.00398	0.46091	0.000011	0.000011	20.08	2.69	0.59	0.59	15.76	1825.2	0.044	0.044	30	0.301	0.040	0.009	0.009	0.236	27.4	0.001	0.001			
Derrick barge generator	Diesel	100	1	12	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	6.34	1.18	0.36	0.36	4.78	553.1	0.019	0.025	30	0.095	0.018	0.005	0.005	0.072	8.3	0.000	0.000			
Support tug main engine	Diesel	500	1	2	0.00523	0.00041	0.00026	0.00026	0.00151	0.33228	0.000007	0.000015	5.23	0.41	0.26	0.26	1.51	332.3	0.007	0.015	30	0.078	0.006	0.004	0.004	0.023	5.0	0.000	0.000			
Support tug generator	Diesel	75	1	12	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	4.75	0.88	0.27	0.27	3.58	414.8	0.014	0.019	30	0.071	0.013	0.004	0.004	0.054	6.2	0.000	0.000			
Crew boat main engine	Diesel	100	1	2	0.00467	0.00073	0.00027	0.00027	0.00351	0.40731	0.000008	0.000018	0.93	0.15	0.05	0.05	0.70	81.5	0.002	0.004	30	0.014	0.002	0.001	0.001	0.011	1.2	0.000	0.000			
Crew boat generator	Diesel	50	1	2	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.53	0.10	0.03	0.03	0.40	46.1	0.002	0.002	30	0.008	0.001	0.000	0.000	0.006	0.7	0.000	0.000			
Diving air compressor	Diesel	50	1	3	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.61	0.09	0.02	0.02	0.77	90.3	0.004	0.002	30	0.009	0.001	0.000	0.000	0.011	1.4	0.000	0.000			
Toyo pump generator	Diesel	400	1	4	0.00046	0.00011	0.00002	0.00002	0.00078	0.35591	0.000023	0.000010	0.74	0.18	0.03	0.03	1.25	569.5	0.037	0.016	30	0.011	0.003	0.000	0.000	0.019	8.5	0.001	0.000			
													51.30	7.02	1.97	1.97	38.22	5012.4	0.150	0.174					0.594	0.086	0.024	0.024	0.436	59.240	0.002	0.002

ON-ROAD SOURCES

On Road Sources	Miles/Trip	Average Daily One-way Trips	Emission Factors, grams/mile ²								Pounds/Day								Total Days	Total English Tons										
			NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O			
Light-duty truck (workers)*	20	20	0.0630	0.0104	0.0012	0.0011	0.8662	304.71	0.00320	0.00620	0.0556	0.0092	0.0011	0.0010	0.7638	268.7	0.0028	0.0055	30	0.001	0.000	0.000	0.000	0.011	4.0	0.000	0.000			
Heavy-duty truck (equipment mobilization)	60	5	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.7780	0.0064	0.0070	0.0067	0.0710	949.3	0.0016	0.1515	2	0.001	0.000	0.000	0.000	0.000	0.9	0.000	0.000			
Heavy-duty truck (pipe & supplies delivery)	60	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (import fill)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (solid waste disposal)	40	2	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.2075	0.0017	0.0019	0.0018	0.0189	253.1	0.0004	0.0404	10	0.001	0.000	0.000	0.000	0.000	1.3	0.000	0.000			
Heavy-duty truck (vacuum trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (concrete trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Heavy-duty truck (water delivery/disposal)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000				
Totals =>											1.0410	0.0173	0.0099	0.0095	0.8538	1471.2	0.0048	0.1974					0.0026	0.0002	0.0000	0.0000	0.0116	6.2	0.000	0.000

Off-Road & On-Road Source Totals 52.338 7.035 1.981 1.976 39.074 6483.6 0.1547 0.3719 0.5967 0.0858 0.0245 0.0244 0.4475 65.5 0.0020 0.0023

Notes:

- ¹ Emission factors from OFFROAD 2021 (ver 1.0.3) for Napa County, year 2024
- ² Emission factors from EMFAC 2021 (ver 1.0.2) for Napa County, 40 mph average speed, year 2024
- ³ Marine vessel main engine, crane and generator emissions factors from the San Pedro Bay Emissions Inventory Methodology Report
- * Worker trips based on 1.5 persons/vehicle

Greenhouse Gas Emissions Summary

Metric Tons	58.47	0.002	0.002
CO2E	58.47	0.049	0.572
Total CO2E			59.1



PG&E L-021A Napa River Crossing Replacement Project
Phase 2: Restoration, Demobilization and Post-Project Bathymetric Survey

OFF-ROAD SOURCES

Source	Fuel	BHP	Number	Average Hours/Day	Emission Factors: pounds/BHP-hr ^{1,3}								Pounds/Day								Total Days	Total English Tons																								
					NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O																	
Excavator	Diesel	310	1	8	0.00096	0.00012	0.00003	0.00003	0.00093	0.44493	0.000023	0.000010	2.38	0.30	0.08	0.07	2.31	1103.4	0.058	0.025	5	0.006	0.001	0.000	0.000	0.006	2.8	0.000	0.000																	
Hydroexcavator	Diesel	300	0	0	0.00205	0.00019	0.00008	0.00007	0.00122	0.48420	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Light plant	Diesel	15	0	0	0.00237	0.00031	0.00006	0.00006	0.00384	0.39140	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Air compressor (185 cfm)	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Welding machine	Diesel	20	0	0	0.00371	0.00050	0.00012	0.00011	0.00446	0.56406	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Wheeled loader	Diesel	240	2	8	0.00142	0.00015	0.00005	0.00004	0.00093	0.42010	0.000023	0.000010	5.45	0.58	0.18	0.17	3.57	1613.2	0.090	0.038	14	0.038	0.004	0.001	0.001	0.025	11.3	0.001	0.000																	
Dozer	Diesel	310	1	8	0.00321	0.00029	0.00013	0.00012	0.00172	0.49864	0.000023	0.000010	7.96	0.72	0.32	0.30	4.27	1236.6	0.058	0.025	14	0.056	0.005	0.002	0.002	0.030	8.7	0.000	0.000																	
Water pump	Gasoline	20	0	0	0.00253	0.00148	0.00008	0.00006	0.12496	1.19160	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Concrete pump	Diesel	250	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Hydrojet truck (pump)	Diesel	300	0	0	0.00037	0.00008	0.00002	0.00001	0.00073	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Survey vessel	Diesel	270	1	10	0.00448	0.00050	0.00013	0.00013	0.00351	0.40731	0.000008	0.000018	12.10	1.35	0.35	0.35	9.48	1099.7	0.022	0.049	2	0.012	0.001	0.000	0.000	0.009	1.1	0.000	0.000																	
Derrick barge crane	Diesel	330	0	0	0.00507	0.00068	0.00015	0.00015	0.00398	0.46091	0.000011	0.000011	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Derrick barge generator	Diesel	100	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Support tug main engine	Diesel	500	0	0	0.00523	0.00041	0.00026	0.00026	0.00151	0.33228	0.000007	0.000015	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Support tug generator	Diesel	75	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Crew boat main engine	Diesel	100	0	0	0.00467	0.00073	0.00027	0.00027	0.00351	0.40731	0.000008	0.000018	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Crew boat generator	Diesel	50	0	0	0.00528	0.00098	0.00030	0.00030	0.00398	0.46091	0.000016	0.000021	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Diving air compressor	Diesel	50	0	0	0.00405	0.00058	0.00013	0.00012	0.00511	0.60188	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
Toyo pump generator	Diesel	400	0	0	0.00046	0.00011	0.00002	0.00002	0.00078	0.35591	0.000023	0.000010	0.00	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																	
																							27.89	2.94	0.93	0.89	19.62	5053.0	0.228	0.137									0.112	0.011	0.004	0.004	0.070	23.807	0.001	0.001

ON-ROAD SOURCES

On Road Sources	Miles/Trip	Average Daily One-way Trips	Emission Factors, grams/mile ²								Pounds/Day								Total Days	Total English Tons																										
			NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O		NO _x	ROG	PM10	PM2.5	CO	CO2	CH4	N2O																			
Light-duty truck (workers)*	20	12	0.0630	0.0104	0.0012	0.0011	0.8662	304.71	0.00320	0.00620	0.0333	0.0055	0.0006	0.0006	0.4583	161.2	0.0017	0.0033	14	0.000	0.000	0.000	0.000	0.003	1.1	0.000	0.000																			
Heavy-duty truck (equipment demobilization)	60	6	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.9336	0.0077	0.0084	0.0081	0.0852	1139.2	0.0019	0.1818	5	0.002	0.000	0.000	0.000	0.000	2.8	0.000	0.000																			
Heavy-duty truck (pipe & supplies delivery)	60	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																			
Heavy-duty truck (import fill)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																			
Heavy-duty truck (solid waste disposal)	40	2	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.2075	0.0017	0.0019	0.0018	0.0189	253.1	0.0004	0.0404	5	0.001	0.000	0.000	0.000	0.000	0.6	0.000	0.000																			
Heavy-duty truck (vacuum trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																			
Heavy-duty truck (concrete trucks)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																			
Heavy-duty truck (water delivery/disposal)	40	0	1.1763	0.0097	0.0106	0.0102	0.1074	1435.35	0.00240	0.22910	0.0000	0.0000	0.0000	0.0000	0.0	0.0000	0.0000	0.0000	0	0.000	0.000	0.000	0.000	0.000	0.0	0.000	0.000																			
Totals =>																							1.1744	0.0149	0.0109	0.0105	0.5625	1553.5	0.0040	0.2255									0.0031	0.0001	0.0000	0.0000	0.0035	4.6	0.000	0.001
Off-Road & On-Road Source Totals											29.065	2.958	0.942	0.896	20.183	6606.5	0.2315	0.3621									0.1150	0.0112	0.0041	0.0038	0.0736	28.4	0.0012	0.0011												

Notes:
¹ Emission factors from OFFROAD 2021 (ver 1.0.3) for Napa County, year 2024
² Emission factors from EMFAC 2021 (ver 1.0.2) for Napa County, 40 mph average speed, year 2024
³ Marine vessel main engine, crane and generator emissions factors from the San Pedro Bay Emissions Inventory Methodology Report
 * Worker trips based on 1.5 persons/vehicle

Greenhouse Gas Emissions Summary

Metric Tons	25.37	0.001	0.001
CO2E	25.37	0.030	0.276
Total CO2E			25.7

PG&E L-021A Napa River Crossing Replacement Project
Phase 2: Air Pollutant and Greenhouse Gas Emissions Totals

Task	Average Pounds/Day					Total English Tons					Metric Tons			
	NOx	ROG	PM10*	PM2.5*	CO	NOx	ROG	PM10	PM2.5	CO	CO2	CH4	N2O	CO2E
Phase 2: Mobilization, Pigging and Flushing Pipelines	11.53	1.12	0.31	0.29	13.38	0.045	0.005	0.001	0.001	0.062	15.8	0.001	0.001	16.1
Phase 2: Excavation	15.00	1.63	0.50	0.46	12.24	0.159	0.018	0.005	0.005	0.141	51.3	0.003	0.001	51.7
Phase 2: Terrestrial Decommissioning	12.47	1.45	0.39	0.37	11.43	0.127	0.014	0.004	0.004	0.114	40.3	0.002	0.001	40.7
Phase 2: Pre-Project Bathymetric Survey and Riverine Decommissioning	52.34	7.04	1.98	1.98	39.07	0.597	0.086	0.025	0.024	0.448	58.5	0.002	0.002	59.1
Phase 2: Restoration, Demobilization and Post-Project Bathymetric Survey	29.06	2.96	0.94	0.90	20.18	0.115	0.011	0.004	0.004	0.074	25.4	0.001	0.001	25.7
Total/Peak Day	52.34	7.04	1.98	1.98	39.07	1.042	0.135	0.039	0.038	0.838	191.3	0.008	0.007	193.3

*With fugitive dust added to PM exhaust emissions

138.28 22.42

4.04 0.64

Fugitive Dust: **PM10 136.3** **PM2.5 20.4** lb/day
4.0 0.6 total tons