

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Manila Drainage Project - Construction

Humboldt County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.36	1000sqft	0.08	3,360.00	0
City Park	0.35	Acre	0.35	15,246.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	103
Climate Zone	1			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MW hr)	203.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Only

Land Use - Apprx. 0.35 acres of grading activity for swales, and 3,360sf of repaving

Construction Phase - Site Prep increased to 5 working days. Grading and Repaving increased to 10 working days each.

Off-road Equipment - Default Equipment and Activity

Grading - 1,000 CY for Veg Offhaul, 1,099 CY for Swales off-haul

Demolition - 60.9 Tons of Asphalt to Haul

Trips and VMT - Default Worker and Haul Trips. Assumed 1 Vendor trip per day during repaving.

Vehicle Trips - Construction Only

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	PhaseEndDate	2/15/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	7/12/2023	7/19/2023
tblConstructionPhase	PhaseEndDate	2/13/2023	2/17/2023
tblGrading	MaterialExported	0.00	1,099.00
tblGrading	MaterialExported	0.00	1,000.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	WD_TR	0.78	0.00

2.0 Emissions Summary**2.1 Overall Construction****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0142	0.1472	0.1228	3.2000e-004	0.0332	5.6100e-003	0.0388	0.0143	5.2400e-003	0.0196	0.0000	28.1573	28.1573	5.1000e-003	1.3300e-003	28.6802
Maximum	0.0142	0.1472	0.1228	3.2000e-004	0.0332	5.6100e-003	0.0388	0.0143	5.2400e-003	0.0196	0.0000	28.1573	28.1573	5.1000e-003	1.3300e-003	28.6802

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition - Pavement	Demolition	1/30/2023	2/10/2023	5	10	
2	Site Preparation - Vegetation Removal	Site Preparation	2/11/2023	2/17/2023	5	5	
3	Grading - Swale	Grading	2/14/2023	2/27/2023	5	10	
4	Paving - Repaving	Paving	7/6/2023	7/19/2023	5	10	

Acres of Grading (Site Preparation Phase): 2.5**Acres of Grading (Grading Phase): 7.5****Acres of Paving: 0.08****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition - Pavement	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition - Pavement	Rubber Tired Dozers	1	1.00	247	0.40
Demolition - Pavement	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation - Vegetation Removal	Graders	1	8.00	187	0.41
Site Preparation - Vegetation Removal	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading - Swale	Graders	1	6.00	187	0.41
Grading - Swale	Rubber Tired Dozers	1	6.00	247	0.40
Grading - Swale	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving - Repaving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving - Repaving	Pavers	1	7.00	130	0.42
Paving - Repaving	Rollers	1	7.00	80	0.38
Paving - Repaving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition - Pavement	4	10.00	0.00	6.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation - Vegetation Removal	2	5.00	0.00	125.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Swale	3	8.00	0.00	137.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving - Repaving	7	18.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**3.2 Demolition - Pavement - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5000e-004	0.0000	6.5000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2300e-003	0.0289	0.0370	6.0000e-005		1.4100e-003	1.4100e-003		1.3500e-003	1.3500e-003	0.0000	5.2091	5.2091	9.5000e-004	0.0000	5.2328
Total	3.2300e-003	0.0289	0.0370	6.0000e-005	6.5000e-004	1.4100e-003	2.0600e-003	1.0000e-004	1.3500e-003	1.4500e-003	0.0000	5.2091	5.2091	9.5000e-004	0.0000	5.2328

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.2000e-004	9.0000e-005	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1772	0.1772	0.0000	3.0000e-005	0.1855
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.5000e-004	2.4100e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4974	0.4974	2.0000e-005	2.0000e-005	0.5033
Total	3.6000e-004	7.7000e-004	2.5000e-003	1.0000e-005	6.5000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6746	0.6746	2.0000e-005	5.0000e-005	0.6888

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**3.3 Site Preparation - Vegetation Removal - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3800e-003	0.0000	1.3800e-003	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	0.0155	9.8100e-003	2.0000e-005		5.7000e-004	5.7000e-004		5.2000e-004	5.2000e-004	0.0000	2.1374	2.1374	6.9000e-004	0.0000	2.1547
Total	1.3400e-003	0.0155	9.8100e-003	2.0000e-005	1.3800e-003	5.7000e-004	1.9500e-003	1.5000e-004	5.2000e-004	6.7000e-004	0.0000	2.1374	2.1374	6.9000e-004	0.0000	2.1547

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-004	0.0108	1.7900e-003	4.0000e-005	1.0300e-003	9.0000e-005	1.1200e-003	2.8000e-004	9.0000e-005	3.7000e-004	0.0000	3.6906	3.6906	1.0000e-005	5.8000e-004	3.8637
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1244	0.1244	0.0000	0.0000	0.1258
Total	2.7000e-004	0.0109	2.3900e-003	4.0000e-005	1.1800e-003	9.0000e-005	1.2700e-003	3.2000e-004	9.0000e-005	4.1000e-004	0.0000	3.8150	3.8150	1.0000e-005	5.8000e-004	3.9895

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**3.4 Grading - Swale - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0266	0.0000	0.0266	0.0129	0.0000	0.0129	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6700e-003	0.0509	0.0278	7.0000e-005		2.1000e-003	2.1000e-003		1.9300e-003	1.9300e-003	0.0000	6.1905	6.1905	2.0000e-003	0.0000	6.2406
Total	4.6700e-003	0.0509	0.0278	7.0000e-005	0.0266	2.1000e-003	0.0287	0.0129	1.9300e-003	0.0148	0.0000	6.1905	6.1905	2.0000e-003	0.0000	6.2406

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	0.0119	1.9600e-003	4.0000e-005	1.1300e-003	1.0000e-004	1.2300e-003	3.1000e-004	1.0000e-004	4.1000e-004	0.0000	4.0449	4.0449	1.0000e-005	6.4000e-004	4.2346
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	1.9300e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3979	0.3979	1.0000e-005	1.0000e-005	0.4027
Total	4.8000e-004	0.0121	3.8900e-003	4.0000e-005	1.6100e-003	1.0000e-004	1.7100e-003	4.4000e-004	1.0000e-004	5.4000e-004	0.0000	4.4429	4.4429	2.0000e-005	6.5000e-004	4.6372

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - Repaving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0600e-003	0.0275	0.0351	6.0000e-005		1.3200e-003	1.3200e-003		1.2300e-003	1.2300e-003	0.0000	4.6996	4.6996	1.3700e-003	0.0000	4.7338
Paving	1.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.1600e-003	0.0275	0.0351	6.0000e-005		1.3200e-003	1.3200e-003		1.2300e-003	1.2300e-003	0.0000	4.6996	4.6996	1.3700e-003	0.0000	4.7338

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.7000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0929	0.0929	0.0000	1.0000e-005	0.0968
Worker	6.3000e-004	4.6000e-004	4.3300e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8954	0.8954	3.0000e-005	3.0000e-005	0.9060
Total	6.4000e-004	7.3000e-004	4.4100e-003	1.0000e-005	1.1100e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.9882	0.9882	3.0000e-005	4.0000e-005	1.0028