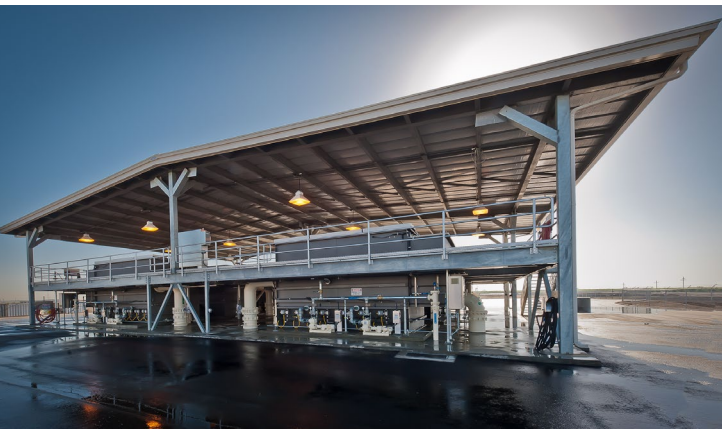
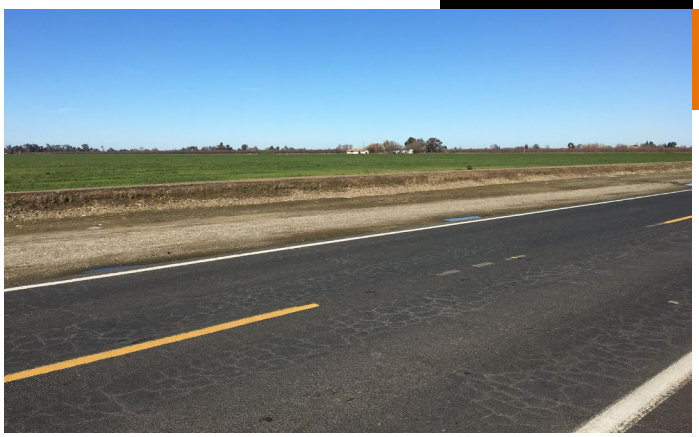
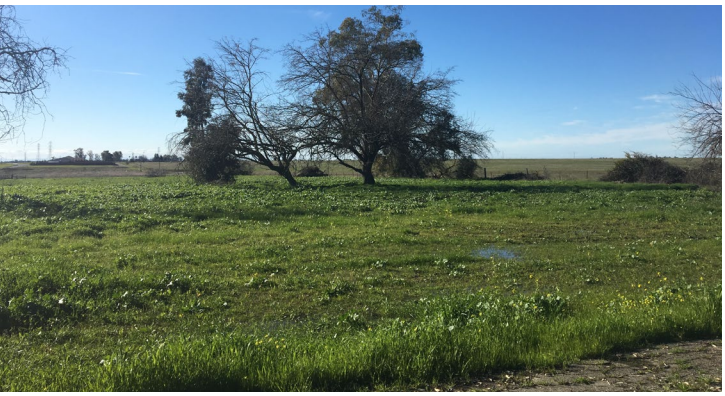
City Of Merced Wastewater Collection System Master Plan

DRAFT ENVIRONMENTAL IMPACT REPORT

APPENDIX B
September 2020







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Appendix B AIR QUALITY

B.1 CITY OF MERCED 2017 WASTEWATER COLLECTION SYSTEM MASTER PLAN CONSTRUCTION AND OPERATIONS ASSUMPTIONS MEMORANDUM FOR AIR QUALITY AND GREENHOUSE GASES

B.2 CALEEMOD RESULTS

To:	Ken Elwin	From:	Elena Nuno, Air Quality Specialist and Kim Clyma, JD, Project Manager
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File:	184030360	Date:	July 6, 2020

Reference: City of Merced 2017 Wastewater Collection System Master Plan Update Construction and Operations Assumptions Memorandum for Air Quality and Greenhouse Gases

This memorandum provides construction and operation details associated with implementation of the City of Merced 2017 Wastewater Collection System Master Plan (2017 WCSMP). The intent of the memorandum is to document assumptions and estimates to support the air quality and greenhouse gas modeling for the 2017 WCSMP Program. The modeling results and information contained in this memorandum are used to support the Draft Environmental Impact Report assessment of construction and operational impacts associated with the Program and proposed Projects.

MODELING ASSUMPTIONS

The specific Projects identified in the 2017 WCSMP and the Draft EIR are within the of the San Joaquin Valley Air Basin governed by the San Joaquin Valley Air Pollution Control District. The following assumptions were used as inputs into the California Emissions Estimator Model (CalEEMod) to quantify 2017 WCSMP emissions.

CONSTRUCTION ASSUMPTIONS

Construction Schedule

Construction of the Program is anticipated over the course of reasonable build-out of the Merced Vision 2030 General Plan. The construction period of the Program as a whole is conservatively estimated to be from 2022 to approximately 2045; however, construction would occur until reasonable build out of the SUDP/SOI is achieved. Specific projects identified by the Program such as the Northern and Southern Trunk Sewer Projects would occur in the more near term estimated to begin in approximately 2022. Duration of active construction activities associated with these proposed Projects and the proposed WWTRF Expansion Projects, and the Program in general are illustrated in Table 1. It is anticipated that the proposed Trunk Sewer Projects would be completed by approximately the fourth quarter of 2024; however, this date is highly variable and dependent on many unpredictable factors. These target dates provide flexibility in construction scheduling and Project timing. For modeling purposes it was assumed that the proposed Projects would be operational by 2027 but it is possible that they could be operational as early as 2024 or as late as 2045 depending on how reasonable buildout occurs, since they'd be installed as demand warrants. This realistically extends the date reasonable build-out is achieved beyond the year 2045. Table 1 provides approximate estimates of duration for each construction stage. These durations were estimated conservatively to quantify the most significant potential air quality/greenhouse gas impacts that could result from implementation of the Program and proposed Projects.

Table 1 Estimated Construction Activity Schedule[i]

Construction Stage	Program Combined Activities	Northern Trunk Sewer Project	Southern Trunk Sewer Project	WWTRF Expansion Project (per 4 to 5 Mgal/day)
Site Preparation/Grading	300 days	60 days	60 days	90 days[ii]
Facilities Construction	1,800 days	500 days[iii]	330 days [ii]	264 days[iv]
Paving	180 days	15 days[v]	15 days [iii]	60 days
Architectural Coating	90 days	30 days[vi]	5 days [vii]	60 days

For the purpose of the air quality modeling, construction of all components in the same timeframe would result in the most conservative (worst case) scenario for air quality emissions. It is likely that construction of individual components would not happen concurrently, but to achieve disclosure of the most significant potential impact that could occur, model inputs were set up to assume all activities would occur simultaneously. If individual projects are undertaken in a step-wise manner, Program and proposed Project emissions would be less than those modeled because the emissions would be spread out over time instead of occurring all at once. Additionally, more stringent regulatory requirements beginning in October of 2020 (such as the California Air Resources Board (CARB) In-Use Off-Road Diesel-Fueled Fleets rule) would lower estimated construction emissions by further restricting construction equipment emissions after the late 2020-time frame. It is expected that any construction previously schedule prior to that date would have lowered emission estimates if construction were delayed until after the regulations take effect.

Construction Footprint Assumptions

Table 2 illustrates the assumptions used for direct impact ground disturbances, total site footprints, staging areas, and total site graded areas assumed for the proposed Projects and estimated for a representative Program activity. These values were used as applicable as inputs into the air quality modeling.

Table 2 Construction Footprint Assumptions

Program Component	Impact Length (ft)	Impact Width (ft)	Trenchless Impact Area (sq ft)	Total Footprint Area (sq ft[ac])	Staging Areas (sq ft[ac])	Total – Graded Area[viii] (sq ft[ac])
Northern Trunk Pipeline	~92,456	~10	~80,000	~1,009,560 [23.18]	~566,280[13]	**1,570,840 [36.06]**
Southern Trunk Pipeline	~51,031	~10	~80,000	~590,310 [13.55]	~435,600[10]	**1,025,910 [23.55]**
WWTRF 4 to 5 Mgal/d	n/a	n/a	n/a	~980,100 [22.5]	W/in footprint	**980,100 [22.5]**
Representative Program Activity	~5,000	~10	TBD	~50,000 [1.15]	~217,800 [5]	**267,800 [6.15]**

Construction Off-Road Equipment

Construction emissions can vary substantially from day to day, depending on the amount of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site emissions principally consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly particulate matter or PM_{10}) from disturbed soil.

The construction equipment lists for typical types of projects associated with the Program are provided in Tables 3 through 6. Similar to construction durations, the construction fleet modeled is based on a reasonable

approximation of construction equipment and often times overestimated for the purpose of resulting in reasonably conservative model results.

Table 3 Northern Trunk Sewer Project Construction Equipment Assumptions[ix]

Construction Stage	Equipment	Unit Amount	Hours Per Day	Horsepower	Load Factor
Site Preparation / Grading	Rubber Tired Dozers	1	4	247	0.4
	Tractors/Loaders/Backhoes	2	8	97	0.37
	Excavators	2	8	158	0.38
	Dump Truck	1	4	402	0.38
Pipeline and Facility Construction	Cranes	1	1	231	0.29
	Forklifts	1	5	89	0.2
	Generator Sets[x]	2	8	84	0.74
	Tractors/Loaders/Backhoes	3	4	97	0.37
	Welders[xi]	1	3	46	0.45
Paving	Pavers	2	7	130	0.42
	Paving Equipment	2	7	132	0.36
	Rollers	2	7	80	0.38
Architectural Coating	Air Compressors	3	4	78	0.48

Table 4 Southern Trunk Sewer Project Construction Equipment Assumptions[xii]

Construction Stage	Equipment	Unit Amount	Hours Per Day	Horsepower	Load Factor
Site Preparation / Grading	Rubber Tired Dozers	1	4	247	0.4
	Tractors/Loaders/Backhoes	2	4	97	0.37
	Excavators	2	4	158	0.38
Pipeline and Facility Construction	Forklifts	1	4	89	0.2
	Generator Sets[xiii]	2	8	84	0.74
	Tractors/Loaders/Backhoes	2	4	97	0.37
	Welders[xiv]	1	2	46	0.45
Paving	Pavers	2	6	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38
Architectural Coating	Air Compressors	2	4	78	0.48

Table 5 WWTRF (4 to 5 Mgal/d) Expansion Project Construction Equipment Assumptions

Construction Stage	Equipment	Unit Amount	Hours Per Day	Horsepower	Load Factor
Site Preparation / Grading	Rubber Tired Dozers	1	2	247	0.4
	Tractors/Loaders/Backhoes	3	2	97	0.37
	Scraper	2	1	367	0.48
	Excavators	3	2	158	0.38
	Graders	1	2	187	0.41
Pipeline and Facility Construction	Cranes	1	1	231	0.29
	Forklifts	2	1	89	0.2
	Generator Sets [x]	1	8	84	0.74
	Tractors/Loaders/Backhoes	2	2	97	0.37
	Welders [xi]	1	1	46	0.45
Paving	Pavers	1	4	130	0.42
	Paving Equipment	4	4	132	0.36
	Rollers	2	4	80	0.38
Architectural Coating	Air Compressors	4	4	78	0.48

Table 6 Representative Program Activity Construction Equipment Assumptions

Construction Stage	Equipment	Unit Amount	Hours Per Day	Horsepower	Load Factor
Site Preparation / Grading	Rubber Tired Dozers	1	4	247	0.4
	Tractors/Loaders/Backhoes	2	4	97	0.37
	Excavators	2	4	158	0.38
Pipeline and Facility Construction	Forklifts	1	4	89	0.2
	Generator Sets[xv]	2	8	84	0.74
	Tractors/Loaders/Backhoes	2	4	97	0.37
	Welders[xvi]	1	2	46	0.45
Paving	Pavers	2	6	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38
Architectural Coating	Air Compressors	2	4	78	0.48

On-Road Construction-Related Vehicle Trips

On-road construction emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM_{10}). Tables 7 through 9 provide a summary of the estimated construction-related on-road vehicle trips. If one load of material is delivered, the CalEEMod model assumes that one haul truck importing material will also have a return trip with an empty truck (e.g., 2 one-way trips).

The fleet mix for worker trips is light-duty passenger vehicles to light-duty trucks. The vendor trips fleet mix is composed of a mixture of medium and heavy-duty diesel trucks. The hauling trips are assumed to be 100 percent heavy-duty diesel truck trips. These estimates are provided for air quality modeling purposes, however, may not be representative of daily scenarios during construction activities, and therefore may differ from what is included for traffic impacts in the Draft EIR.

Table 7 Construction Related Worker Vehicle Trips[xvii]

Construction Stage	Trips				Average Length (mi) [xviii]
	Northern Pipeline (per day) [xiv]	Southern Pipeline (per day) [xiv]	WWTRF (per day) [xiv]	Program (per day)[xix]	
Site Preparation / Grading	30	15	15	12	10.8
Pipeline and/or Facility Construction	55	30	50	20	10.8
Paving	20	10	10	7	10.8
Architectural Coating	3	3	5	3	10.8

Table 8 Construction Related Vendor Vehicle Trips

Construction Stage	Trips				Average Length (mi) [xx]
	Northern Pipeline (per day) [xvi]	Southern Pipeline (per day) [xvi]	WWTRF (per day) [xvi]	Program (per day)[xxi]	
Site Preparation / Grading	10	5	5	5	7.3
Pipeline and Facility Construction	75	45	60	30	7.3
Paving	10	5	5	5	7.3
Architectural Coating	0	0	0	0	7.3

Table 9 Construction Related One Way Haul Vehicle Trips[xxii]

Construction Stage	Northern Pipeline (total)	Southern Pipeline (total)	WWTRF (total)	Program (total)[xxiii]	Avg. Trip Length (mi) [xxiv]
Site Preparation / Grading	130[xxv]	80 [xxiv]	20[xxvi]	60	20
Pipeline and Facility Construction	1,200[xxvii]	1,000 [xxvii]	500[xxviii]	500	20
Paving	40[xxix]	30 [xxix]	10	10	20
Architectural Coating	0	0	0	0	20

OPERATIONAL MODELING ASSUMPTIONS

Operational emissions are those emissions that occur during operation of the Program. The only substantial new sources of operational air quality emissions associated with operation of the Program would be potential increased truck trips associated with solids handling and disposal from the WWTRF and occasional worker trips associated with maintenance and upkeep of the Program components throughout the City. Maintenance and additional worker trips would equate to approximately 10 additional trips per year which would result in a negligible about of emissions and are therefore not included in the model. Additionally, the increase in truck trips for the biosolids could reach a maximum of 621 truck trips per year, which would equate to an additional 2 trips per day if all biosolids would require hauling offsite to a disposal facility. The City anticipated biosolids could continue to be land applied at the WWTRF and agricultural areas near the WWTRF, however, if all biosolids would require hauling offsite for disposal the additional 2 truck trips per day would not constitute a substantial increase based on modeling inputs and therefore were not modeled. Consequently, the change in operational conditions from the Program was negligible and did not warrant consideration in the modeling.

SUMMARY

Estimated construction equipment and durations for the Program are just that, estimates. Implementation of construction activities is anticipated to happen approximately as outlined in this memorandum, however some variability such as delays, increases in duration, or modifications in necessary equipment are anticipated. This memo was prepared to document the most conservative reasonable estimates of how long-term implementation of the Program would look. To this point, the construction schedule utilized in the analysis represents a conservative (worst case) scenario since emission factors for construction equipment decrease as the number of years in the analysis increase, due to improvements in technology and more stringent regulatory requirements. As a result, construction emissions would decrease if the construction schedule were to last or be spread out over additional years. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as require per CEQA guidelines. Minor changes to actual construction requirements from the assumptions included herein are not anticipated to significantly alter model results or disclosure of potential Program impacts.

ASSUMPTION NOTES

[i] For modeling, durations assume start date and estimated number of active construction days per phase. Assumes max emissions in shortest duration. Active days would be over duration of reasonable build-out. Construction equipment quantities and hours of use were adjusted to conserve the total hours of equipment use for the duration of construction phases.
[ii] Conservative approximations for several site preparation projects.
[iii] Assumes construction of the pipeline 22 days a month for 15 months.
[iv] Assumes 4 to 5 million gallons per day (Mgal/day) expansion would take 12 months for 22 days a month.
[v] Assumes temporary paving as the pipeline progresses and a permanent pave at project completion.
[vi] Assumes architectural coatings for 20 manholes.
[vii] Assumes architectural coatings for 20 manholes.
[viii] Graded area is sum of staging areas, pipeline, and trenchless piping
[ix] Estimated for construction of the northern sewer alignment and pump station..
[x] Assumes dewatering would only occur for a third of total duration. Assumes other uses such as temporary field office power will not require generator.
[xi] Conservatively assumes welding will be needed. May vary based on pipe selection
[xii] Estimated for construction of the southern trunk sewer alignment.
[xiii] Assumes dewatering would only occur for a third of total duration. Assumes other uses such as temporary field office power will not require generator.
[xiv] Conservatively assumes welding will be needed. May vary based on pipe selection
[xv] Assumes dewatering would only occur for a third of total duration. Assumes other uses such as temporary field office power will not require generator.
[xvi] Conservatively assumes welding will be needed. May vary based on pipe selection
[xvii] Assumes trips are based on engineering estimates based on typical projects with similar scope and scale.
[xviii] Assumes CalEEMod default trip lengths for worker trips were used.
[xix] Estimates for a representative, or typical, project that would occur during Program implementation.
[xx] CalEEMod default trip lengths for vendor trips were used for WCSMP impact calculations.
[xxi] Estimates for a representative, or typical, project that would occur during Program implementation.
[xxii] Assumes delivery of materials such as concrete and fill materials
[xxiii] Estimates for a representative, or typical, project that would occur during Program implementation.
[xxiv] CalEEMod default trip lengths for haul trips were used.
[xxv] Assumes 22 days of site preparation/grading needed per month for 3 months and assumed one third of the Project is “off-road” and does not need site preparation and two thirds of 120 trips is approximately 80 trips.
[xxvi] Assumes 2 trips per day for 2 weeks
[xxvii] Assumes 10,000CY and 10CY per truck capacity

[xxviii] Assumes 5,000CY and 10CY per truck capacity
[xxix] Assumes two trips per day for 15 days

City of Merced Wastewater Collection System Master Plan EIR-Northern Trunk Sewer Pipelines

San Joaquin Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	36.06	1,570,840.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Air Quality Memorandum for assumptions.

Land Use - See Air Quality Memorandum for assumptions.

Construction Phase - See Air Quality Memorandum for assumptions- Dates are defualt, but total number of days matches assumptions in Air Qulaity Memo

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See AQ memo for assumptions on equipment

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Trips and VMT - See Air Quality Memorandum for assumptions.

Grading - See Air Quality Memorandum for assumptions.

Architectural Coating - Square footage for architectural coatings for manholes

Vehicle Trips - See AQ Memo for assumptions

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Water And Wastewater - Water/wastewtaer no applicable to pipelines

Solid Waste - no solid waste assumed for pipelines

Fleet Mix -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
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tblArchitecturalCoating	EF_Parking	150.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	0.00
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tblConstructionPhase	NumDays	45.00	60.00
tblConstructionPhase	NumDays	35.00	15.00
tblGrading	AcresOfGrading	0.00	36.06
tblLandUse	LandUseSquareFeet	1,000.00	1,570,840.00
tblLandUse	LotAcreage	0.02	36.06
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
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tblTripsAndVMT	HaulingTripNumber	0.00	40.00
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tblTripsAndVMT	VendorTripNumber	236.00	75.00
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tblVehicleTrips	WD_TR	6.97	0.00
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tblWater	ElectricityIntensityFactorToSupply	2,117.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
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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					
2022	0.2040	2.3121	1.9743	5.7600e-003	0.2207	0.0735	0.2941	0.0821	0.0702	0.1523	0.0000	520.8964	520.8964	0.0651	0.0000	522.5228
2023	0.1812	2.0652	1.9098	6.0600e-003	0.1308	0.0595	0.1903	0.0362	0.0576	0.0939	0.0000	549.1017	549.1017	0.0460	0.0000	550.2515
2024	0.0400	0.4058	0.4389	1.1900e-003	0.0286	0.0127	0.0413	7.6900e-003	0.0122	0.0199	0.0000	107.1527	107.1527	0.0117	0.0000	107.4450
Maximum	**0.2040**	**2.3121**	**1.9743**	**6.0600e-003**	**0.2207**	**0.0735**	**0.2941**	**0.0821**	**0.0702**	**0.1523**	**0.0000**	**549.1017**	**549.1017**	**0.0651**	**0.0000**	**550.2515**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2040	2.2526	1.9743	5.7600e-003	0.2207	0.0735	0.2941	0.0821	0.0702	0.1523	0.0000	520.8961	520.8961	0.0651	0.0000	522.5225
2023	0.1812	2.0652	1.9098	6.0600e-003	0.1308	0.0595	0.1903	0.0362	0.0576	0.0939	0.0000	549.1015	549.1015	0.0460	0.0000	550.2512
2024	0.0400	0.4058	0.4389	1.1900e-003	0.0286	0.0127	0.0413	7.6900e-003	0.0122	0.0199	0.0000	107.1526	107.1526	0.0117	0.0000	107.4450
Maximum	**0.2040**	**2.2526**	**1.9743**	**6.0600e-003**	**0.2207**	**0.0735**	**0.2941**	**0.0821**	**0.0702**	**0.1523**	**0.0000**	**549.1015**	**549.1015**	**0.0651**	**0.0000**	**550.2512**

	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	N20	CO2e
Percent Reduction	**0.00**	**1.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2022	3-31-2022	0.5403	0.4805
2	4-1-2022	6-30-2022	0.6533	0.6533
3	7-1-2022	9-30-2022	0.6605	0.6605
4	10-1-2022	12-31-2022	0.6637	0.6637
5	1-1-2023	3-31-2023	0.5557	0.5557
6	4-1-2023	6-30-2023	0.5602	0.5602
7	7-1-2023	9-30-2023	0.5663	0.5663
8	10-1-2023	12-31-2023	0.5680	0.5680
9	1-1-2024	3-31-2024	0.4104	0.4104
10	4-1-2024	6-30-2024	0.0262	0.0262
		Highest	0.6637	0.6637

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Grading	1/1/2022	3/24/2022	5	60	

2	Pipeline and Appurtenant Facilities Construction	Building Construction	3/25/2022	2/22/2024	5	500	
3	Paving	Paving	2/23/2024	3/14/2024	5	15	
4	Architectural Coating	Architectural Coating	3/15/2024	4/25/2024	5	30	

Acres of Grading (Site Preparation Phase): 36.06

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 500; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	4.00	247	0.40
Site Preparation	Scrapers	0	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pipeline and Appurtenant Facilities Construction	Cranes	1	1.00	231	0.29
Pipeline and Appurtenant Facilities Construction	Forklifts	1	5.00	89	0.20
Pipeline and Appurtenant Facilities Construction	Generator Sets	2	8.00	84	0.74
Pipeline and Appurtenant Facilities Construction	Tractors/Loaders/Backhoes	3	4.00	97	0.37
Pipeline and Appurtenant Facilities Construction	Welders	1	3.00	46	0.45
Paving	Pavers	2	7.00	130	0.42
Paving	Paving Equipment	2	7.00	132	0.36
Paving	Rollers	2	7.00	80	0.38
Architectural Coating	Air Compressors	3	4.00	78	0.48
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

Site Preparation	9	30.00	10.00	130.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline and Appurtenant Facilities	8	55.00	75.00	1,200.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	20.00	10.00	40.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

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					0.1076	0.0000	0.1076	0.0509	0.0000	0.0509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0418	0.3929	0.4267	8.1000e-004		0.0187	0.0187		0.0172	0.0172	0.0000	71.1524	71.1524	0.0230	0.0000	71.7277
Total	**0.0418**	**0.3929**	**0.4267**	**8.1000e-004**	**0.1076**	**0.0187**	**0.1263**	**0.0509**	**0.0172**	**0.0681**	**0.0000**	**71.1524**	**71.1524**	**0.0230**	**0.0000**	**71.7277**

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	4.5000e-004	0.0149	2.3800e-003	5.0000e-005	1.1100e-003	4.0000e-005	1.1500e-003	3.0000e-004	4.0000e-005	3.5000e-004	0.0000	4.7368	4.7368	2.5000e-004	0.0000	4.7431
Vendor	8.8000e-004	0.0308	5.4700e-003	8.0000e-005	1.9600e-003	8.0000e-005	2.0300e-003	5.6000e-004	8.0000e-005	6.4000e-004	0.0000	7.8183	7.8183	5.8000e-004	0.0000	7.8328
Worker	3.1900e-003	2.0200e-003	0.0213	7.0000e-005	7.0800e-003	5.0000e-005	7.1200e-003	1.8800e-003	4.0000e-005	1.9200e-003	0.0000	5.9137	5.9137	1.4000e-004	0.0000	5.9173

Total	**4.5200e-003**	**0.0478**	**0.0292**	**2.0000e-004**	**0.0102**	**1.7000e-004**	**0.0103**	**2.7400e-003**	**1.6000e-004**	**2.9100e-003**	**0.0000**	**18.4687**	**18.4687**	**9.7000e-004**	**0.0000**	**18.4932**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1076	0.0000	0.1076	0.0509	0.0000	0.0509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0418	0.3334	0.4267	8.1000e-004		0.0187	0.0187		0.0172	0.0172	0.0000	71.1524	71.1524	0.0230	0.0000	71.7277
Total	**0.0418**	**0.3334**	**0.4267**	**8.1000e-004**	**0.1076**	**0.0187**	**0.1263**	**0.0509**	**0.0172**	**0.0681**	**0.0000**	**71.1524**	**71.1524**	**0.0230**	**0.0000**	**71.7277**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0149	2.3800e-003	5.0000e-005	1.1100e-003	4.0000e-005	1.1500e-003	3.0000e-004	4.0000e-005	3.5000e-004	0.0000	4.7368	4.7368	2.5000e-004	0.0000	4.7431
Vendor	8.8000e-004	0.0308	5.4700e-003	8.0000e-005	1.9600e-003	8.0000e-005	2.0300e-003	5.6000e-004	8.0000e-005	6.4000e-004	0.0000	7.8183	7.8183	5.8000e-004	0.0000	7.8328
Worker	3.1900e-003	2.0200e-003	0.0213	7.0000e-005	7.0800e-003	5.0000e-005	7.1200e-003	1.8800e-003	4.0000e-005	1.9200e-003	0.0000	5.9137	5.9137	1.4000e-004	0.0000	5.9173
Total	**4.5200e-003**	**0.0478**	**0.0292**	**2.0000e-004**	**0.0102**	**1.7000e-004**	**0.0103**	**2.7400e-003**	**1.6000e-004**	**2.9100e-003**	**0.0000**	**18.4687**	**18.4687**	**9.7000e-004**	**0.0000**	**18.4932**

3.3 Pipeline and Appurtenant Facilities Construction - 2022

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	0.1134	1.0151	1.2364	2.0600e-003		0.0521	0.0521		0.0505	0.0505	0.0000	176.7010	176.7010	0.0244	0.0000	177.3100
Total	**0.1134**	**1.0151**	**1.2364**	**2.0600e-003**		**0.0521**	**0.0521**		**0.0505**	**0.0505**	**0.0000**	**176.7010**	**176.7010**	**0.0244**	**0.0000**	**177.3100**

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	1.7000e-003	0.0564	8.9800e-003	1.9000e-004	8.7200e-003	1.7000e-004	8.8900e-003	2.2600e-003	1.6000e-004	2.4300e-003	0.0000	17.8749	17.8749	9.6000e-004	0.0000	17.8989
Vendor	0.0226	0.7873	0.1399	2.1000e-003	0.0500	2.0200e-003	0.0520	0.0144	1.9400e-003	0.0164	0.0000	199.7640	199.7640	0.0148	0.0000	200.1351
Worker	0.0199	0.0126	0.1332	4.1000e-004	0.0442	2.9000e-004	0.0445	0.0118	2.7000e-004	0.0120	0.0000	36.9353	36.9353	9.0000e-004	0.0000	36.9579
Total	**0.0442**	**0.8563**	**0.2821**	**2.7000e-003**	**0.1029**	**2.4800e-003**	**0.1054**	**0.0285**	**2.3700e-003**	**0.0308**	**0.0000**	**254.5742**	**254.5742**	**0.0167**	**0.0000**	**254.9919**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.1134	1.0151	1.2364	2.0600e-003		0.0521	0.0521		0.0505	0.0505	0.0000	176.7008	176.7008	0.0244	0.0000	177.3098
Total	**0.1134**	**1.0151**	**1.2364**	**2.0600e-003**		**0.0521**	**0.0521**		**0.0505**	**0.0505**	**0.0000**	**176.7008**	**176.7008**	**0.0244**	**0.0000**	**177.3098**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.7000e-003	0.0564	8.9800e-003	1.9000e-004	8.7200e-003	1.7000e-004	8.8900e-003	2.2600e-003	1.6000e-004	2.4300e-003	0.0000	17.8749	17.8749	9.6000e-004	0.0000	17.8989
Vendor	0.0226	0.7873	0.1399	2.1000e-003	0.0500	2.0200e-003	0.0520	0.0144	1.9400e-003	0.0164	0.0000	199.7640	199.7640	0.0148	0.0000	200.1351
Worker	0.0199	0.0126	0.1332	4.1000e-004	0.0442	2.9000e-004	0.0445	0.0118	2.7000e-004	0.0120	0.0000	36.9353	36.9353	9.0000e-004	0.0000	36.9579
Total	**0.0442**	**0.8563**	**0.2821**	**2.7000e-003**	**0.1029**	**2.4800e-003**	**0.1054**	**0.0285**	**2.3700e-003**	**0.0308**	**0.0000**	**254.5742**	**254.5742**	**0.0167**	**0.0000**	**254.9919**

3.3 Pipeline and Appurtenant Facilities Construction - 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	0.1355	1.2147	1.5938	2.6600e-003		0.0582	0.0582		0.0565	0.0565	0.0000	228.6280	228.6280	0.0309	0.0000	229.4009
Total	**0.1355**	**1.2147**	**1.5938**	**2.6600e-003**		**0.0582**	**0.0582**		**0.0565**	**0.0565**	**0.0000**	**228.6280**	**228.6280**	**0.0309**	**0.0000**	**229.4009**

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	1.4900e-003	0.0494	9.6800e-003	2.3000e-004	9.0300e-003	8.0000e-005	9.1100e-003	2.3700e-003	8.0000e-005	2.4500e-003	0.0000	22.3594	22.3594	8.5000e-004	0.0000	22.3807
Vendor	0.0203	0.7865	0.1494	2.6500e-003	0.0646	7.8000e-004	0.0654	0.0187	7.5000e-004	0.0194	0.0000	252.1191	252.1191	0.0132	0.0000	252.4487
Worker	0.0240	0.0146	0.1570	5.1000e-004	0.0572	3.7000e-004	0.0575	0.0152	3.4000e-004	0.0155	0.0000	45.9952	45.9952	1.0400e-003	0.0000	46.0213
Total	**0.0457**	**0.8505**	**0.3161**	**3.3900e-003**	**0.1308**	**1.2300e-003**	**0.1321**	**0.0362**	**1.1700e-003**	**0.0374**	**0.0000**	**320.4737**	**320.4737**	**0.0151**	**0.0000**	**320.8507**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1355	1.2147	1.5938	2.6600e-003		0.0582	0.0582		0.0565	0.0565	0.0000	228.6278	228.6278	0.0309	0.0000	229.4006
Total	**0.1355**	**1.2147**	**1.5938**	**2.6600e-003**		**0.0582**	**0.0582**		**0.0565**	**0.0565**	**0.0000**	**228.6278**	**228.6278**	**0.0309**	**0.0000**	**229.4006**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	1.4900e-003	0.0494	9.6800e-003	2.3000e-004	9.0300e-003	8.0000e-005	9.1100e-003	2.3700e-003	8.0000e-005	2.4500e-003	0.0000	22.3594	22.3594	8.5000e-004	0.0000	22.3807
Vendor	0.0203	0.7865	0.1494	2.6500e-003	0.0646	7.8000e-004	0.0654	0.0187	7.5000e-004	0.0194	0.0000	252.1191	252.1191	0.0132	0.0000	252.4487
Worker	0.0240	0.0146	0.1570	5.1000e-004	0.0572	3.7000e-004	0.0575	0.0152	3.4000e-004	0.0155	0.0000	45.9952	45.9952	1.0400e-003	0.0000	46.0213
Total	**0.0457**	**0.8505**	**0.3161**	**3.3900e-003**	**0.1308**	**1.2300e-003**	**0.1321**	**0.0362**	**1.1700e-003**	**0.0374**	**0.0000**	**320.4737**	**320.4737**	**0.0151**	**0.0000**	**320.8507**

3.3 Pipeline and Appurtenant Facilities Construction - 2024

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	0.0190	0.1710	0.2387	4.0000e-004		7.5900e-003	7.5900e-003		7.3500e-003	7.3500e-003	0.0000	34.2992	34.2992	4.5500e-003	0.0000	34.4130
Total	**0.0190**	**0.1710**	**0.2387**	**4.0000e-004**		**7.5900e-003**	**7.5900e-003**		**7.3500e-003**	**7.3500e-003**	**0.0000**	**34.2992**	**34.2992**	**4.5500e-003**	**0.0000**	**34.4130**

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	2.2000e-004	7.2600e-003	1.4300e-003	3.0000e-005	7.8900e-003	1.0000e-005	7.9000e-003	1.9600e-003	1.0000e-005	1.9700e-003	0.0000	3.3285	3.3285	1.3000e-004	0.0000	3.3317
Vendor	2.9500e-003	0.1170	0.0211	4.0000e-004	9.7000e-003	1.2000e-004	9.8100e-003	2.8000e-003	1.1000e-004	2.9100e-003	0.0000	37.5319	37.5319	2.0100e-003	0.0000	37.5821
Worker	3.3500e-003	1.9600e-003	0.0217	7.0000e-005	8.5700e-003	5.0000e-005	8.6300e-003	2.2800e-003	5.0000e-005	2.3300e-003	0.0000	6.6370	6.6370	1.4000e-004	0.0000	6.6405

Total	**6.5200e-003**	**0.1263**	**0.0443**	**5.0000e-004**	**0.0262**	**1.8000e-004**	**0.0263**	**7.0400e-003**	**1.7000e-004**	**7.2100e-003**	**0.0000**	**47.4974**	**47.4974**	**2.2800e-003**	**0.0000**	**47.5543**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0190	0.1710	0.2387	4.0000e-004		7.5900e-003	7.5900e-003		7.3500e-003	7.3500e-003	0.0000	34.2992	34.2992	4.5500e-003	0.0000	34.4130
Total	**0.0190**	**0.1710**	**0.2387**	**4.0000e-004**		**7.5900e-003**	**7.5900e-003**		**7.3500e-003**	**7.3500e-003**	**0.0000**	**34.2992**	**34.2992**	**4.5500e-003**	**0.0000**	**34.4130**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	7.2600e-003	1.4300e-003	3.0000e-005	7.8900e-003	1.0000e-005	7.9000e-003	1.9600e-003	1.0000e-005	1.9700e-003	0.0000	3.3285	3.3285	1.3000e-004	0.0000	3.3317
Vendor	2.9500e-003	0.1170	0.0211	4.0000e-004	9.7000e-003	1.2000e-004	9.8100e-003	2.8000e-003	1.1000e-004	2.9100e-003	0.0000	37.5319	37.5319	2.0100e-003	0.0000	37.5821
Worker	3.3500e-003	1.9600e-003	0.0217	7.0000e-005	8.5700e-003	5.0000e-005	8.6300e-003	2.2800e-003	5.0000e-005	2.3300e-003	0.0000	6.6370	6.6370	1.4000e-004	0.0000	6.6405
Total	**6.5200e-003**	**0.1263**	**0.0443**	**5.0000e-004**	**0.0262**	**1.8000e-004**	**0.0263**	**7.0400e-003**	**1.7000e-004**	**7.2100e-003**	**0.0000**	**47.4974**	**47.4974**	**2.2800e-003**	**0.0000**	**47.5543**

3.4 Paving - 2024

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	6.4800e-003	0.0625	0.0960	1.5000e-004		3.0700e-003	3.0700e-003		2.8300e-003	2.8300e-003	0.0000	13.1424	13.1424	4.2500e-003	0.0000	13.2487
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.4800e-003**	**0.0625**	**0.0960**	**1.5000e-004**		**3.0700e-003**	**3.0700e-003**		**2.8300e-003**	**2.8300e-003**	**0.0000**	**13.1424**	**13.1424**	**4.2500e-003**	**0.0000**	**13.2487**

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	9.0000e-005	3.1000e-003	6.1000e-004	1.0000e-005	3.4000e-004	1.0000e-005	3.5000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.4224	1.4224	6.0000e-005	0.0000	1.4238
Vendor	1.5000e-004	6.0000e-003	1.0800e-003	2.0000e-005	5.0000e-004	1.0000e-005	5.0000e-004	1.4000e-004	1.0000e-005	1.5000e-004	0.0000	1.9247	1.9247	1.0000e-004	0.0000	1.9273
Worker	4.7000e-004	2.7000e-004	3.0400e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9283	0.9283	2.0000e-005	0.0000	0.9287
Total	**7.1000e-004**	**9.3700e-003**	**4.7300e-003**	**4.0000e-005**	**2.0400e-003**	**3.0000e-005**	**2.0600e-003**	**5.5000e-004**	**3.0000e-005**	**5.8000e-004**	**0.0000**	**4.2754**	**4.2754**	**1.8000e-004**	**0.0000**	**4.2799**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	6.4800e-003	0.0625	0.0960	1.5000e-004		3.0700e-003	3.0700e-003		2.8300e-003	2.8300e-003	0.0000	13.1424	13.1424	4.2500e-003	0.0000	13.2487
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.4800e-003**	**0.0625**	**0.0960**	**1.5000e-004**		**3.0700e-003**	**3.0700e-003**		**2.8300e-003**	**2.8300e-003**	**0.0000**	**13.1424**	**13.1424**	**4.2500e-003**	**0.0000**	**13.2487**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	3.1000e-003	6.1000e-004	1.0000e-005	3.4000e-004	1.0000e-005	3.5000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.4224	1.4224	6.0000e-005	0.0000	1.4238
Vendor	1.5000e-004	6.0000e-003	1.0800e-003	2.0000e-005	5.0000e-004	1.0000e-005	5.0000e-004	1.4000e-004	1.0000e-005	1.5000e-004	0.0000	1.9247	1.9247	1.0000e-004	0.0000	1.9273
Worker	4.7000e-004	2.7000e-004	3.0400e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9283	0.9283	2.0000e-005	0.0000	0.9287
Total	**7.1000e-004**	**9.3700e-003**	**4.7300e-003**	**4.0000e-005**	**2.0400e-003**	**3.0000e-005**	**2.0600e-003**	**5.5000e-004**	**3.0000e-005**	**5.8000e-004**	**0.0000**	**4.2754**	**4.2754**	**1.8000e-004**	**0.0000**	**4.2799**

3.5 Architectural Coating - 2024

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					
Archit. Coating	1.7400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4200e-003	0.0366	0.0543	9.0000e-005		1.8300e-003	1.8300e-003		1.8300e-003	1.8300e-003	0.0000	7.6598	7.6598	4.3000e-004	0.0000	7.6705
Total	**7.1600e-003**	**0.0366**	**0.0543**	**9.0000e-005**		**1.8300e-003**	**1.8300e-003**		**1.8300e-003**	**1.8300e-003**	**0.0000**	**7.6598**	**7.6598**	**4.3000e-004**	**0.0000**	**7.6705**

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	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	1.4000e-004	8.0000e-005	9.1000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2785	0.2785	1.0000e-005	0.0000	0.2786
Total	**1.4000e-004**	**8.0000e-005**	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2785**	**0.2785**	**1.0000e-005**	**0.0000**	**0.2786**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4200e-003	0.0366	0.0543	9.0000e-005		1.8300e-003	1.8300e-003		1.8300e-003	1.8300e-003	0.0000	7.6598	7.6598	4.3000e-004	0.0000	7.6705
Total	**7.1600e-003**	**0.0366**	**0.0543**	**9.0000e-005**		**1.8300e-003**	**1.8300e-003**		**1.8300e-003**	**1.8300e-003**	**0.0000**	**7.6598**	**7.6598**	**4.3000e-004**	**0.0000**	**7.6705**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	8.0000e-005	9.1000e-004	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2785	0.2785	1.0000e-005	0.0000	0.2786
Total	**1.4000e-004**	**8.0000e-005**	**9.1000e-004**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2785**	**0.2785**	**1.0000e-005**	**0.0000**	**0.2786**

City of Merced Wastewater Collection System Master Plan EIR-Southern Trunk Sewer

San Joaquin Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	23.55	1,025,910.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Air Quality Memorandum for assumptions.

Land Use - See Air Quality Memorandum for assumptions.

Construction Phase - See Air Quality Memorandum for assumptions- defualt dates used, but total days changed to match the assumptions in the AQ Memo

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See AQ memo for assumptions on equipment

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Trips and VMT - See Air Quality Memorandum for assumptions.

Grading - See Air Quality Memorandum for assumptions.

Architectural Coating - Articetural coating assumed for manholes only

Vehicle Trips - no operational trips assumed for pipelines

Energy Use -

Water And Wastewater - no water/wastewater needs for pipelines

Solid Waste - no soild waste genreation assumed for pipelines

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	512,955.00	500.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	1,538,865.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	0.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	370.00	330.00
tblConstructionPhase	NumDays	35.00	60.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	PhaseEndDate	9/15/2023	7/28/2023
tblConstructionPhase	PhaseEndDate	7/21/2023	6/30/2023
tblConstructionPhase	PhaseEndDate	2/18/2022	3/25/2022
tblConstructionPhase	PhaseEndDate	8/18/2023	7/21/2023
tblConstructionPhase	PhaseStartDate	8/19/2023	7/22/2023
tblConstructionPhase	PhaseStartDate	2/19/2022	3/26/2022
tblConstructionPhase	PhaseStartDate	7/22/2023	7/1/2023
tblGrading	AcresOfGrading	150.00	23.55
tblLandUse	LandUseSquareFeet	1,000.00	1,025,910.00
tblLandUse	LotAcreage	0.02	23.55
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	80.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,000.00
tblTripsAndVMT	HaulingTripNumber	0.00	30.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	168.00	45.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	431.00	30.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	86.00	3.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	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					
2022	0.1048	1.2975	0.9466	3.1900e-003	0.2600	0.0366	0.2965	0.1191	0.0349	0.1541	0.0000	290.2928	290.2928	0.0334	0.0000	291.1269
2023	0.0528	0.6131	0.5299	1.8500e-003	0.0434	0.0165	0.0599	0.0119	0.0160	0.0279	0.0000	168.6791	168.6791	0.0145	0.0000	169.0410
Maximum	**0.1048**	**1.2975**	**0.9466**	**3.1900e-003**	**0.2600**	**0.0366**	**0.2965**	**0.1191**	**0.0349**	**0.1541**	**0.0000**	**290.2928**	**290.2928**	**0.0334**	**0.0000**	**291.1269**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1048	1.2975	0.9466	3.1900e-003	0.2600	0.0366	0.2965	0.1191	0.0349	0.1541	0.0000	290.2926	290.2926	0.0334	0.0000	291.1267
2023	0.0528	0.6131	0.5299	1.8500e-003	0.0434	0.0165	0.0599	0.0119	0.0160	0.0279	0.0000	168.6790	168.6790	0.0145	0.0000	169.0409
Maximum	**0.1048**	**1.2975**	**0.9466**	**3.1900e-003**	**0.2600**	**0.0366**	**0.2965**	**0.1191**	**0.0349**	**0.1541**	**0.0000**	**290.2926**	**290.2926**	**0.0334**	**0.0000**	**291.1267**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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

1	1-1-2022	3-31-2022	0.3261	0.3261
2	4-1-2022	6-30-2022	0.3554	0.3554
3	7-1-2022	9-30-2022	0.3594	0.3594
4	10-1-2022	12-31-2022	0.3616	0.3616
5	1-1-2023	3-31-2023	0.2971	0.2971
6	4-1-2023	6-30-2023	0.2993	0.2993
7	7-1-2023	9-30-2023	0.0653	0.0653
		Highest	0.3616	0.3616

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Grading	1/1/2022	3/25/2022	5	60	
2	Pipeline and Appurtenant Facilities Construction	Building Construction	3/26/2022	6/30/2023	5	330	
3	Paving	Paving	7/1/2023	7/21/2023	5	15	
4	Architectural Coating	Architectural Coating	7/22/2023	7/28/2023	5	5	

Acres of Grading (Site Preparation Phase): 23.55

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 500; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	3	2.00	158	0.38
Site Preparation	Graders	1	2.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	2.00	247	0.40
Site Preparation	Scrapers	2	1.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	3	2.00	97	0.37

Pipeline and Appurtenant Facilities Construction	Cranes	1	1.00	231	0.29
Pipeline and Appurtenant Facilities Construction	Forklifts	2	1.00	89	0.20
Pipeline and Appurtenant Facilities Construction	Generator Sets	1	8.00	84	0.74
Pipeline and Appurtenant Facilities Construction	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Pipeline and Appurtenant Facilities Construction	Welders	1	1.00	46	0.45
Paving	Pavers	1	4.00	130	0.42
Paving	Paving Equipment	4	4.00	132	0.36
Paving	Rollers	2	4.00	80	0.38
Architectural Coating	Air Compressors	4	4.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	8	15.00	5.00	80.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline and Appurtenant Facilities	9	30.00	45.00	1,000.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	10.00	5.00	30.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

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					0.1932	0.0000	0.1932	0.1007	0.0000	0.1007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2501	0.2112	4.1000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	36.3489	36.3489	0.0118	0.0000	36.6428

Total	**0.0238**	**0.2501**	**0.2112**	**4.1000e-004**	**0.1932**	**0.0110**	**0.2041**	**0.1007**	**0.0101**	**0.1108**	**0.0000**	**36.3489**	**36.3489**	**0.0118**	**0.0000**	**36.6428**

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	2.8000e-004	9.3500e-003	1.4900e-003	3.0000e-005	6.8000e-004	3.0000e-005	7.1000e-004	1.9000e-004	3.0000e-005	2.2000e-004	0.0000	2.9643	2.9643	1.6000e-004	0.0000	2.9683
Vendor	4.5000e-004	0.0157	2.7800e-003	4.0000e-005	9.9000e-004	4.0000e-005	1.0300e-003	2.9000e-004	4.0000e-005	3.3000e-004	0.0000	3.9754	3.9754	3.0000e-004	0.0000	3.9828
Worker	1.6200e-003	1.0200e-003	0.0109	3.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	3.0069	3.0069	7.0000e-005	0.0000	3.0088
Total	**2.3500e-003**	**0.0260**	**0.0151**	**1.0000e-004**	**5.2700e-003**	**9.0000e-005**	**5.3600e-003**	**1.4400e-003**	**9.0000e-005**	**1.5300e-003**	**0.0000**	**9.9467**	**9.9467**	**5.3000e-004**	**0.0000**	**9.9599**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1932	0.0000	0.1932	0.1007	0.0000	0.1007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2501	0.2112	4.1000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	36.3488	36.3488	0.0118	0.0000	36.6427
Total	**0.0238**	**0.2501**	**0.2112**	**4.1000e-004**	**0.1932**	**0.0110**	**0.2041**	**0.1007**	**0.0101**	**0.1108**	**0.0000**	**36.3488**	**36.3488**	**0.0118**	**0.0000**	**36.6427**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.3500e-003	1.4900e-003	3.0000e-005	6.8000e-004	3.0000e-005	7.1000e-004	1.9000e-004	3.0000e-005	2.2000e-004	0.0000	2.9643	2.9643	1.6000e-004	0.0000	2.9683
Vendor	4.5000e-004	0.0157	2.7800e-003	4.0000e-005	9.9000e-004	4.0000e-005	1.0300e-003	2.9000e-004	4.0000e-005	3.3000e-004	0.0000	3.9754	3.9754	3.0000e-004	0.0000	3.9828
Worker	1.6200e-003	1.0200e-003	0.0109	3.0000e-005	3.6000e-003	2.0000e-005	3.6200e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	3.0069	3.0069	7.0000e-005	0.0000	3.0088
Total	**2.3500e-003**	**0.0260**	**0.0151**	**1.0000e-004**	**5.2700e-003**	**9.0000e-005**	**5.3600e-003**	**1.4400e-003**	**9.0000e-005**	**1.5300e-003**	**0.0000**	**9.9467**	**9.9467**	**5.3000e-004**	**0.0000**	**9.9599**

3.3 Pipeline and Appurtenant Facilities Construction - 2022

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	0.0522	0.4736	0.5532	9.6000e-004		0.0239	0.0239		0.0232	0.0232	0.0000	82.2318	82.2318	0.0105	0.0000	82.4948
Total	**0.0522**	**0.4736**	**0.5532**	**9.6000e-004**		**0.0239**	**0.0239**		**0.0232**	**0.0232**	**0.0000**	**82.2318**	**82.2318**	**0.0105**	**0.0000**	**82.4948**

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	2.1300e-003	0.0708	0.0113	2.4000e-004	7.7100e-003	2.1000e-004	7.9200e-003	2.0500e-003	2.0000e-004	2.2500e-003	0.0000	22.4570	22.4570	1.2100e-003	0.0000	22.4872
Vendor	0.0135	0.4701	0.0835	1.2600e-003	0.0298	1.2100e-003	0.0310	8.6200e-003	1.1600e-003	9.7700e-003	0.0000	119.2621	119.2621	8.8600e-003	0.0000	119.4837
Worker	0.0108	6.8300e-003	0.0723	2.2000e-004	0.0240	1.6000e-004	0.0241	6.3700e-003	1.5000e-004	6.5200e-003	0.0000	20.0463	20.0463	4.9000e-004	0.0000	20.0585
Total	**0.0264**	**0.5477**	**0.1671**	**1.7200e-003**	**0.0615**	**1.5800e-003**	**0.0631**	**0.0170**	**1.5100e-003**	**0.0185**	**0.0000**	**161.7654**	**161.7654**	**0.0106**	**0.0000**	**162.0294**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0522	0.4736	0.5532	9.6000e-004		0.0239	0.0239		0.0232	0.0232	0.0000	82.2317	82.2317	0.0105	0.0000	82.4947
Total	**0.0522**	**0.4736**	**0.5532**	**9.6000e-004**		**0.0239**	**0.0239**		**0.0232**	**0.0232**	**0.0000**	**82.2317**	**82.2317**	**0.0105**	**0.0000**	**82.4947**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1300e-003	0.0708	0.0113	2.4000e-004	7.7100e-003	2.1000e-004	7.9200e-003	2.0500e-003	2.0000e-004	2.2500e-003	0.0000	22.4570	22.4570	1.2100e-003	0.0000	22.4872
Vendor	0.0135	0.4701	0.0835	1.2600e-003	0.0298	1.2100e-003	0.0310	8.6200e-003	1.1600e-003	9.7700e-003	0.0000	119.2621	119.2621	8.8600e-003	0.0000	119.4837
Worker	0.0108	6.8300e-003	0.0723	2.2000e-004	0.0240	1.6000e-004	0.0241	6.3700e-003	1.5000e-004	6.5200e-003	0.0000	20.0463	20.0463	4.9000e-004	0.0000	20.0585
Total	**0.0264**	**0.5477**	**0.1671**	**1.7200e-003**	**0.0615**	**1.5800e-003**	**0.0631**	**0.0170**	**1.5100e-003**	**0.0185**	**0.0000**	**161.7654**	**161.7654**	**0.0106**	**0.0000**	**162.0294**

3.3 Pipeline and Appurtenant Facilities Construction - 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	0.0314	0.2846	0.3582	6.2000e-004		0.0135	0.0135		0.0131	0.0131	0.0000	53.4605	53.4605	6.7000e-003	0.0000	53.6280
Total	**0.0314**	**0.2846**	**0.3582**	**6.2000e-004**		**0.0135**	**0.0135**		**0.0131**	**0.0131**	**0.0000**	**53.4605**	**53.4605**	**6.7000e-003**	**0.0000**	**53.6280**

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	9.4000e-004	0.0312	6.1100e-003	1.5000e-004	7.2500e-003	5.0000e-005	7.3100e-003	1.8800e-003	5.0000e-005	1.9300e-003	0.0000	14.1158	14.1158	5.4000e-004	0.0000	14.1292
Vendor	6.0800e-003	0.2360	0.0448	8.0000e-004	0.0194	2.3000e-004	0.0196	5.6000e-003	2.2000e-004	5.8300e-003	0.0000	75.6357	75.6357	3.9500e-003	0.0000	75.7346
Worker	6.5300e-003	3.9700e-003	0.0428	1.4000e-004	0.0156	1.0000e-004	0.0157	4.1400e-003	9.0000e-005	4.2400e-003	0.0000	12.5442	12.5442	2.8000e-004	0.0000	12.5513
Total	**0.0136**	**0.2711**	**0.0937**	**1.0900e-003**	**0.0422**	**3.8000e-004**	**0.0426**	**0.0116**	**3.6000e-004**	**0.0120**	**0.0000**	**102.2957**	**102.2957**	**4.7700e-003**	**0.0000**	**102.4151**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0314	0.2846	0.3582	6.2000e-004		0.0135	0.0135		0.0131	0.0131	0.0000	53.4605	53.4605	6.7000e-003	0.0000	53.6279
Total	**0.0314**	**0.2846**	**0.3582**	**6.2000e-004**		**0.0135**	**0.0135**		**0.0131**	**0.0131**	**0.0000**	**53.4605**	**53.4605**	**6.7000e-003**	**0.0000**	**53.6279**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.4000e-004	0.0312	6.1100e-003	1.5000e-004	7.2500e-003	5.0000e-005	7.3100e-003	1.8800e-003	5.0000e-005	1.9300e-003	0.0000	14.1158	14.1158	5.4000e-004	0.0000	14.1292
Vendor	6.0800e-003	0.2360	0.0448	8.0000e-004	0.0194	2.3000e-004	0.0196	5.6000e-003	2.2000e-004	5.8300e-003	0.0000	75.6357	75.6357	3.9500e-003	0.0000	75.7346
Worker	6.5300e-003	3.9700e-003	0.0428	1.4000e-004	0.0156	1.0000e-004	0.0157	4.1400e-003	9.0000e-005	4.2400e-003	0.0000	12.5442	12.5442	2.8000e-004	0.0000	12.5513
Total	**0.0136**	**0.2711**	**0.0937**	**1.0900e-003**	**0.0422**	**3.8000e-004**	**0.0426**	**0.0116**	**3.6000e-004**	**0.0120**	**0.0000**	**102.2957**	**102.2957**	**4.7700e-003**	**0.0000**	**102.4151**

3.4 Paving - 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	4.4300e-003	0.0432	0.0631	1.0000e-004		2.1700e-003	2.1700e-003		1.9900e-003	1.9900e-003	0.0000	8.6454	8.6454	2.8000e-003	0.0000	8.7153

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.4300e-003**	**0.0432**	**0.0631**	**1.0000e-004**		**2.1700e-003**	**2.1700e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**8.6454**	**8.6454**	**2.8000e-003**	**0.0000**	**8.7153**

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	7.0000e-005	2.3700e-003	4.7000e-004	1.0000e-005	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	1.0750	1.0750	4.0000e-005	0.0000	1.0760
Vendor	8.0000e-005	3.0300e-003	5.7000e-004	1.0000e-005	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.9697	0.9697	5.0000e-005	0.0000	0.9710
Worker	2.5000e-004	1.5000e-004	1.6500e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4825	0.4825	1.0000e-005	0.0000	0.4827
Total	**4.0000e-004**	**5.5500e-003**	**2.6900e-003**	**3.0000e-005**	**1.1100e-003**	**0.0000**	**1.1100e-003**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**2.5271**	**2.5271**	**1.0000e-004**	**0.0000**	**2.5297**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4300e-003	0.0432	0.0631	1.0000e-004		2.1700e-003	2.1700e-003		1.9900e-003	1.9900e-003	0.0000	8.6454	8.6454	2.8000e-003	0.0000	8.7153
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.4300e-003**	**0.0432**	**0.0631**	**1.0000e-004**		**2.1700e-003**	**2.1700e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**8.6454**	**8.6454**	**2.8000e-003**	**0.0000**	**8.7153**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.3700e-003	4.7000e-004	1.0000e-005	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	1.0750	1.0750	4.0000e-005	0.0000	1.0760
Vendor	8.0000e-005	3.0300e-003	5.7000e-004	1.0000e-005	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.9697	0.9697	5.0000e-005	0.0000	0.9710
Worker	2.5000e-004	1.5000e-004	1.6500e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4825	0.4825	1.0000e-005	0.0000	0.4827
Total	**4.0000e-004**	**5.5500e-003**	**2.6900e-003**	**3.0000e-005**	**1.1100e-003**	**0.0000**	**1.1100e-003**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**2.5271**	**2.5271**	**1.0000e-004**	**0.0000**	**2.5297**

3.5 Architectural Coating - 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					
Archit. Coating	1.7400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2800e-003	8.6900e-003	0.0121	2.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.7022	1.7022	1.0000e-004	0.0000	1.7047
Total	**3.0200e-003**	**8.6900e-003**	**0.0121**	**2.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.7022**	**1.7022**	**1.0000e-004**	**0.0000**	**1.7047**

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	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	3.0000e-005	2.0000e-005	1.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0483	0.0483	0.0000	0.0000	0.0483
Total	**3.0000e-005**	**2.0000e-005**	**1.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0483**	**0.0483**	**0.0000**	**0.0000**	**0.0483**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.7400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2800e-003	8.6900e-003	0.0121	2.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.7022	1.7022	1.0000e-004	0.0000	1.7047
Total	**3.0200e-003**	**8.6900e-003**	**0.0121**	**2.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.7022**	**1.7022**	**1.0000e-004**	**0.0000**	**1.7047**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0483	0.0483	0.0000	0.0000	0.0483
Total	**3.0000e-005**	**2.0000e-005**	**1.6000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0483**	**0.0483**	**0.0000**	**0.0000**	**0.0483**

City of Merced Wastewater Collection System Master Plan EIR-WWTRF 4-5 Mgd

San Joaquin Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	22.50	980,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Air Quality Memorandum for assumptions

Land Use - See Air Quality Memorandum for assumptions.

Construction Phase - See Air Quality Memorandum for assumptions- default vaules used for the start/end dates, but total number of days is consistent with AQ Memo

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Trips and VMT - See Air Quality Memorandum for assumptions.

Grading - See Air Quality Memorandum for assumptions.

Architectural Coating - Assumes 4-5 Mgd increase at WWTRF would require 1-2 small new structures.

Vehicle Trips - operational trips for WWTRF calculated in separate model

Energy Use -

Water And Wastewater - operational imapcts for WWTRF assumed in separate model

Solid Waste - operational impacts at WWTRF assumed in separate model

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	490,050.00	1,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	1,470,150.00	1,000.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	0.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	370.00	264.00
tblConstructionPhase	NumDays	35.00	90.00
tblConstructionPhase	NumDays	20.00	60.00
tblEnergyUse	LightingElect	2.70	2.78
tblEnergyUse	T24E	1.96	2.05
tblEnergyUse	T24NG	17.03	17.11
tblGrading	AcresOfGrading	135.00	22.50
tblLandUse	LandUseSquareFeet	1,000.00	980,100.00
tblLandUse	LotAcreage	0.02	22.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00

tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblSolidWaste	LandfillCaptureGasFlare	94.00	0.00
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblSolidWaste	SolidWasteGenerationRate	1.24	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	0.00	500.00
tblTripsAndVMT	HaulingTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	161.00	60.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	25.00	15.00
tblTripsAndVMT	WorkerTripNumber	412.00	50.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	82.00	5.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	ST_TR	1.32	0.00

tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	2,117.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	231,250.00	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					
2022	0.1150	1.3852	1.0109	3.4200e-003	0.3617	0.0386	0.4003	0.1720	0.0366	0.2086	0.0000	311.1279	311.1279	0.0386	0.0000	312.0916
2023	0.0718	0.7429	0.7660	2.1600e-003	0.0458	0.0245	0.0703	0.0126	0.0235	0.0361	0.0000	195.2126	195.2126	0.0219	0.0000	195.7608
Maximum	**0.1150**	**1.3852**	**1.0109**	**3.4200e-003**	**0.3617**	**0.0386**	**0.4003**	**0.1720**	**0.0366**	**0.2086**	**0.0000**	**311.1279**	**311.1279**	**0.0386**	**0.0000**	**312.0916**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1150	1.3852	1.0109	3.4200e-003	0.3617	0.0386	0.4003	0.1720	0.0366	0.2086	0.0000	311.1277	311.1277	0.0386	0.0000	312.0914

2023	0.0718	0.7429	0.7660	2.1600e-003	0.0458	0.0245	0.0703	0.0126	0.0235	0.0361	0.0000	195.2125	195.2125	0.0219	0.0000	195.7607
Maximum	**0.1150**	**1.3852**	**1.0109**	**3.4200e-003**	**0.3617**	**0.0386**	**0.4003**	**0.1720**	**0.0366**	**0.2086**	**0.0000**	**311.1277**	**311.1277**	**0.0386**	**0.0000**	**312.0914**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2022**	**3-31-2022**	0.3155	0.3155
2	**4-1-2022**	**6-30-2022**	0.3694	0.3694
3	**7-1-2022**	**9-30-2022**	0.4070	0.4070
4	**10-1-2022**	**12-31-2022**	0.4095	0.4095
5	**1-1-2023**	**3-31-2023**	0.3347	0.3347
6	**4-1-2023**	**6-30-2023**	0.2740	0.2740
7	**7-1-2023**	**9-30-2023**	0.1662	0.1662
		Highest	0.4095	0.4095

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Grading	1/1/2022	5/6/2022	5	90	
2	Facility Construction	Building Construction	5/7/2022	5/11/2023	5	264	
3	Paving	Paving	5/12/2023	8/3/2023	5	60	
4	Architectural Coating	Architectural Coating	8/4/2023	10/26/2023	5	60	

Acres of Grading (Site Preparation Phase): 22.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,000; Non-Residential Outdoor: 1,000; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	3	2.00	158	0.38
Site Preparation	Graders	1	2.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	2.00	247	0.40
Site Preparation	Scrapers	2	1.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	3	2.00	97	0.37
Facility Construction	Cranes	1	1.00	231	0.29
Facility Construction	Forklifts	2	1.00	89	0.20
Facility Construction	Generator Sets	1	8.00	84	0.74
Facility Construction	Tractors/Loaders/Backhoes	2	2.00	97	0.37
Facility Construction	Welders	1	1.00	46	0.45
Paving	Pavers	1	4.00	130	0.42
Paving	Paving Equipment	4	4.00	132	0.36
Paving	Rollers	2	4.00	80	0.38
Architectural Coating	Air Compressors	4	4.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	10	15.00	5.00	20.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Facility Construction	8	50.00	60.00	500.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	10.00	5.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	4	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

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					0.2829	0.0000	0.2829	0.1503	0.0000	0.1503	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0357	0.3752	0.3168	6.2000e-004		0.0165	0.0165		0.0151	0.0151	0.0000	54.5233	54.5233	0.0176	0.0000	54.9642
Total	**0.0357**	**0.3752**	**0.3168**	**6.2000e-004**	**0.2829**	**0.0165**	**0.2994**	**0.1503**	**0.0151**	**0.1654**	**0.0000**	**54.5233**	**54.5233**	**0.0176**	**0.0000**	**54.9642**

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	7.0000e-005	2.3400e-003	3.7000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7411	0.7411	4.0000e-005	0.0000	0.7421
Vendor	6.7000e-004	0.0235	4.1700e-003	6.0000e-005	1.4900e-003	6.0000e-005	1.5500e-003	4.3000e-004	6.0000e-005	4.9000e-004	0.0000	5.9631	5.9631	4.4000e-004	0.0000	5.9742
Worker	2.4300e-003	1.5400e-003	0.0163	5.0000e-005	5.4000e-003	4.0000e-005	5.4300e-003	1.4300e-003	3.0000e-005	1.4700e-003	0.0000	4.5104	4.5104	1.1000e-004	0.0000	4.5132
Total	**3.1700e-003**	**0.0274**	**0.0208**	**1.2000e-004**	**7.0600e-003**	**1.1000e-004**	**7.1600e-003**	**1.9100e-003**	**1.0000e-004**	**2.0100e-003**	**0.0000**	**11.2146**	**11.2146**	**5.9000e-004**	**0.0000**	**11.2294**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					0.2829	0.0000	0.2829	0.1503	0.0000	0.1503	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0357	0.3752	0.3168	6.2000e-004		0.0165	0.0165		0.0151	0.0151	0.0000	54.5233	54.5233	0.0176	0.0000	54.9641
Total	**0.0357**	**0.3752**	**0.3168**	**6.2000e-004**	**0.2829**	**0.0165**	**0.2994**	**0.1503**	**0.0151**	**0.1654**	**0.0000**	**54.5233**	**54.5233**	**0.0176**	**0.0000**	**54.9641**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.3400e-003	3.7000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7411	0.7411	4.0000e-005	0.0000	0.7421
Vendor	6.7000e-004	0.0235	4.1700e-003	6.0000e-005	1.4900e-003	6.0000e-005	1.5500e-003	4.3000e-004	6.0000e-005	4.9000e-004	0.0000	5.9631	5.9631	4.4000e-004	0.0000	5.9742
Worker	2.4300e-003	1.5400e-003	0.0163	5.0000e-005	5.4000e-003	4.0000e-005	5.4300e-003	1.4300e-003	3.0000e-005	1.4700e-003	0.0000	4.5104	4.5104	1.1000e-004	0.0000	4.5132
Total	**3.1700e-003**	**0.0274**	**0.0208**	**1.2000e-004**	**7.0600e-003**	**1.1000e-004**	**7.1600e-003**	**1.9100e-003**	**1.0000e-004**	**2.0100e-003**	**0.0000**	**11.2146**	**11.2146**	**5.9000e-004**	**0.0000**	**11.2294**

3.3 Facility Construction - 2022

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	0.0444	0.4025	0.4702	8.1000e-004		0.0203	0.0203		0.0198	0.0198	0.0000	69.8970	69.8970	8.9400e-003	0.0000	70.1206
Total	**0.0444**	**0.4025**	**0.4702**	**8.1000e-004**		**0.0203**	**0.0203**		**0.0198**	**0.0198**	**0.0000**	**69.8970**	**69.8970**	**8.9400e-003**	**0.0000**	**70.1206**

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	1.1300e-003	0.0376	5.9900e-003	1.3000e-004	3.9000e-003	1.1000e-004	4.0100e-003	1.0400e-003	1.1000e-004	1.1500e-003	0.0000	11.9303	11.9303	6.4000e-004	0.0000	11.9463
Vendor	0.0153	0.5327	0.0946	1.4200e-003	0.0338	1.3700e-003	0.0352	9.7700e-003	1.3100e-003	0.0111	0.0000	135.1637	135.1637	0.0100	0.0000	135.4148
Worker	0.0153	9.6800e-003	0.1024	3.1000e-004	0.0340	2.3000e-004	0.0342	9.0300e-003	2.1000e-004	9.2400e-003	0.0000	28.3989	28.3989	6.9000e-004	0.0000	28.4163
Total	**0.0317**	**0.5800**	**0.2031**	**1.8600e-003**	**0.0717**	**1.7100e-003**	**0.0734**	**0.0198**	**1.6300e-003**	**0.0215**	**0.0000**	**175.4929**	**175.4929**	**0.0114**	**0.0000**	**175.7774**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0444	0.4025	0.4702	8.1000e-004		0.0203	0.0203		0.0198	0.0198	0.0000	69.8969	69.8969	8.9400e-003	0.0000	70.1205
Total	**0.0444**	**0.4025**	**0.4702**	**8.1000e-004**		**0.0203**	**0.0203**		**0.0198**	**0.0198**	**0.0000**	**69.8969**	**69.8969**	**8.9400e-003**	**0.0000**	**70.1205**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	1.1300e-003	0.0376	5.9900e-003	1.3000e-004	3.9000e-003	1.1000e-004	4.0100e-003	1.0400e-003	1.1000e-004	1.1500e-003	0.0000	11.9303	11.9303	6.4000e-004	0.0000	11.9463
Vendor	0.0153	0.5327	0.0946	1.4200e-003	0.0338	1.3700e-003	0.0352	9.7700e-003	1.3100e-003	0.0111	0.0000	135.1637	135.1637	0.0100	0.0000	135.4148
Worker	0.0153	9.6800e-003	0.1024	3.1000e-004	0.0340	2.3000e-004	0.0342	9.0300e-003	2.1000e-004	9.2400e-003	0.0000	28.3989	28.3989	6.9000e-004	0.0000	28.4163
Total	**0.0317**	**0.5800**	**0.2031**	**1.8600e-003**	**0.0717**	**1.7100e-003**	**0.0734**	**0.0198**	**1.6300e-003**	**0.0215**	**0.0000**	**175.4929**	**175.4929**	**0.0114**	**0.0000**	**175.7774**

3.3 Facility Construction - 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	0.0227	0.2058	0.2590	4.5000e-004		9.7700e-003	9.7700e-003		9.4900e-003	9.4900e-003	0.0000	38.6561	38.6561	4.8400e-003	0.0000	38.7771
Total	**0.0227**	**0.2058**	**0.2590**	**4.5000e-004**		**9.7700e-003**	**9.7700e-003**		**9.4900e-003**	**9.4900e-003**	**0.0000**	**38.6561**	**38.6561**	**4.8400e-003**	**0.0000**	**38.7771**

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	4.3000e-004	0.0141	2.7600e-003	7.0000e-005	3.5900e-003	2.0000e-005	3.6100e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	6.3792	6.3792	2.4000e-004	0.0000	6.3853
Vendor	5.8700e-003	0.2275	0.0432	7.7000e-004	0.0187	2.3000e-004	0.0189	5.4000e-003	2.2000e-004	5.6200e-003	0.0000	72.9206	72.9206	3.8100e-003	0.0000	73.0159
Worker	7.8700e-003	4.7900e-003	0.0516	1.7000e-004	0.0188	1.2000e-004	0.0189	4.9900e-003	1.1000e-004	5.1100e-003	0.0000	15.1173	15.1173	3.4000e-004	0.0000	15.1259

Total	**0.0142**	**0.2464**	**0.0976**	**1.0100e-003**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0113**	**3.5000e-004**	**0.0117**	**0.0000**	**94.4172**	**94.4172**	**4.3900e-003**	**0.0000**	**94.5271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0227	0.2058	0.2590	4.5000e-004		9.7700e-003	9.7700e-003		9.4900e-003	9.4900e-003	0.0000	38.6560	38.6560	4.8400e-003	0.0000	38.7771
Total	**0.0227**	**0.2058**	**0.2590**	**4.5000e-004**		**9.7700e-003**	**9.7700e-003**		**9.4900e-003**	**9.4900e-003**	**0.0000**	**38.6560**	**38.6560**	**4.8400e-003**	**0.0000**	**38.7771**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.3000e-004	0.0141	2.7600e-003	7.0000e-005	3.5900e-003	2.0000e-005	3.6100e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	6.3792	6.3792	2.4000e-004	0.0000	6.3853
Vendor	5.8700e-003	0.2275	0.0432	7.7000e-004	0.0187	2.3000e-004	0.0189	5.4000e-003	2.2000e-004	5.6200e-003	0.0000	72.9206	72.9206	3.8100e-003	0.0000	73.0159
Worker	7.8700e-003	4.7900e-003	0.0516	1.7000e-004	0.0188	1.2000e-004	0.0189	4.9900e-003	1.1000e-004	5.1100e-003	0.0000	15.1173	15.1173	3.4000e-004	0.0000	15.1259
Total	**0.0142**	**0.2464**	**0.0976**	**1.0100e-003**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0113**	**3.5000e-004**	**0.0117**	**0.0000**	**94.4172**	**94.4172**	**4.3900e-003**	**0.0000**	**94.5271**

3.4 Paving - 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	0.0177	0.1727	0.2522	3.9000e-004		8.6600e-003	8.6600e-003		7.9700e-003	7.9700e-003	0.0000	34.5814	34.5814	0.0112	0.0000	34.8611
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1727**	**0.2522**	**3.9000e-004**		**8.6600e-003**	**8.6600e-003**		**7.9700e-003**	**7.9700e-003**	**0.0000**	**34.5814**	**34.5814**	**0.0112**	**0.0000**	**34.8611**

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-005	7.9000e-004	1.6000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3583	0.3583	1.0000e-005	0.0000	0.3587
Vendor	3.1000e-004	0.0121	2.3000e-003	4.0000e-005	9.9000e-004	1.0000e-005	1.0100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	3.8788	3.8788	2.0000e-004	0.0000	3.8838
Worker	1.0000e-003	6.1000e-004	6.5900e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9299	1.9299	4.0000e-005	0.0000	1.9310
Total	**1.3300e-003**	**0.0135**	**9.0500e-003**	**6.0000e-005**	**3.4800e-003**	**3.0000e-005**	**3.5100e-003**	**9.5000e-004**	**2.0000e-005**	**9.7000e-004**	**0.0000**	**6.1670**	**6.1670**	**2.5000e-004**	**0.0000**	**6.1735**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.0177	0.1727	0.2522	3.9000e-004		8.6600e-003	8.6600e-003		7.9700e-003	7.9700e-003	0.0000	34.5814	34.5814	0.0112	0.0000	34.8610
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1727**	**0.2522**	**3.9000e-004**		**8.6600e-003**	**8.6600e-003**		**7.9700e-003**	**7.9700e-003**	**0.0000**	**34.5814**	**34.5814**	**0.0112**	**0.0000**	**34.8610**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	7.9000e-004	1.6000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3583	0.3583	1.0000e-005	0.0000	0.3587
Vendor	3.1000e-004	0.0121	2.3000e-003	4.0000e-005	9.9000e-004	1.0000e-005	1.0100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	3.8788	3.8788	2.0000e-004	0.0000	3.8838
Worker	1.0000e-003	6.1000e-004	6.5900e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9299	1.9299	4.0000e-005	0.0000	1.9310
Total	**1.3300e-003**	**0.0135**	**9.0500e-003**	**6.0000e-005**	**3.4800e-003**	**3.0000e-005**	**3.5100e-003**	**9.5000e-004**	**2.0000e-005**	**9.7000e-004**	**0.0000**	**6.1670**	**6.1670**	**2.5000e-004**	**0.0000**	**6.1735**

3.5 Architectural Coating - 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					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0153	0.1042	0.1449	2.4000e-004		5.6700e-003	5.6700e-003		5.6700e-003	5.6700e-003	0.0000	20.4260	20.4260	1.2200e-003	0.0000	20.4566
Total	**0.0153**	**0.1042**	**0.1449**	**2.4000e-004**		**5.6700e-003**	**5.6700e-003**		**5.6700e-003**	**5.6700e-003**	**0.0000**	**20.4260**	**20.4260**	**1.2200e-003**	**0.0000**	**20.4566**

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	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	5.0000e-004	3.1000e-004	3.2900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9649	0.9649	2.0000e-005	0.0000	0.9655
Total	**5.0000e-004**	**3.1000e-004**	**3.2900e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9649**	**0.9649**	**2.0000e-005**	**0.0000**	**0.9655**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0153	0.1042	0.1449	2.4000e-004		5.6700e-003	5.6700e-003		5.6700e-003	5.6700e-003	0.0000	20.4260	20.4260	1.2200e-003	0.0000	20.4566
Total	**0.0153**	**0.1042**	**0.1449**	**2.4000e-004**		**5.6700e-003**	**5.6700e-003**		**5.6700e-003**	**5.6700e-003**	**0.0000**	**20.4260**	**20.4260**	**1.2200e-003**	**0.0000**	**20.4566**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.1000e-004	3.2900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9649	0.9649	2.0000e-005	0.0000	0.9655
Total	**5.0000e-004**	**3.1000e-004**	**3.2900e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9649**	**0.9649**	**2.0000e-005**	**0.0000**	**0.9655**

City of Merced Wastewater Collection System Master Plan EIR-WWTRF 4-5 Mgd

San Joaquin Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.02	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Air Quality Memorandum for assumptions

Land Use - See Air Quality Memorandum for assumptions.

Construction Phase - See Air Quality Memorandum for assumptions- default vaules used for the start/end dates, but total number of days is consistent with AQ Memo.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Off-road Equipment - See Air Quality Memorandum for assumptions.

Trips and VMT - See Air Quality Memorandum for assumptions.

Grading - See Air Quality Memorandum for assumptions.

Architectural Coating - Assumes 4-5 Mgd increase at WWTRF would require 1-2 small new structures.

Vehicle Trips - See AQ memoradum for assumptions

Consumer Products - only mobile emissions modeled

Area Coating - only mobile modeled

Landscape Equipment - only mobile modeled

Energy Use - Only mobile modeled

Water And Wastewater - only mobile modeled

Solid Waste - only mobile modeled

Fleet Mix - See AQ Memo for Assumptions

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - Emergency Generators and Fire Pumps EF - Tier 4

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	500.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	1,500.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	0.00
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	5.00	365.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblEnergyUse	LightingElect	2.70	0.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24NG	3.84	0.00
tblEnergyUse	T24E	1.96	0.00
tblEnergyUse	T24NG	17.03	0.00
tblFleetMix	HHD	0.11	1.00
tblFleetMix	LDA	0.52	0.00
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	4.6110e-003	0.00
tblFleetMix	MCY	5.0750e-003	0.00
tblFleetMix	MDV	0.11	0.00

tblFleetMix	MH	6.5400e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.7790e-003	0.00
tblFleetMix	SBUS	9.2500e-004	0.00
tblFleetMix	UBUS	1.4580e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblSolidWaste	SolidWasteGenerationRate	1.24	0.00
tblStationaryGeneratorsPumpsEF	NOX_EF	2.85	2.20
tblStationaryGeneratorsPumpsEF	PM10_EF	0.15	0.02
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	100.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CC_TL	7.30	20.00
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	1.70
tblVehicleTrips	SU_TR	0.68	1.70
tblVehicleTrips	WD_TR	6.97	1.70
tblWater	IndoorWaterUseRate	231,250.00	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	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
Energy	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
Mobile	1.4600e-003	0.0478	9.38E-03	2.3000e-004	5.2900e-003	8.0000e-005	5.3700e-003	1.4500e-003	8.0000e-005	1.5300e-003	0.0000	21.8866	21.8866	8.6000e-004	0.0000	21.9081
Stationary	0.0492	0.1062	0.1255	2.4000e-004		7.2000e-004	7.2000e-004		7.2400e-003	7.2400e-003	0.0000	22.8478	22.8478	3.2000e-003	0.0000	22.9279
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0546**	**0.1540**	**0.1349**	**4.7000e-004**	**5.2900e-003**	**8.0000e-004**	**6.0900e-003**	**1.4500e-003**	**7.3200e-003**	**8.7700e-003**	**0.0000**	**44.7345**	**44.7345**	**4.0600e-003**	**0.0000**	**44.8361**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4600e-003	0.0478	9.3800e-003	2.3000e-004	5.2900e-003	8.0000e-005	5.3700e-003	1.4500e-003	8.0000e-005	1.5300e-003	0.0000	21.8866	21.8866	8.6000e-004	0.0000	21.9081
Unmitigated	1.4600e-003	0.0478	9.3800e-003	2.3000e-004	5.2900e-003	8.0000e-005	5.3700e-003	1.4500e-003	8.0000e-005	1.5300e-003	0.0000	21.8866	21.8866	8.6000e-004	0.0000	21.9081

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.70	1.70	1.70	12,376	12,376
Total	1.70	1.70	1.70	12,376	12,376

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	20.00	7.30	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	24	100	600	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 750 HP)	0.0492	0.1062	0.1255	2.4000e-004		7.2000e-004	7.2000e-004		7.2400e-003	7.2400e-003	0.0000	22.8478	22.8478	3.2000e-003	0.0000	22.9279
Total	**0.0492**	**0.1062**	**0.1255**	**2.4000e-004**		**7.2000e-004**	**7.2000e-004**		**7.2400e-003**	**7.2400e-003**	**0.0000**	**22.8478**	**22.8478**	**3.2000e-003**	**0.0000**	**22.9279**

Year	New Project Component	lbs/day				
		ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
2022	Northern Trunk Sewer	1.55	14.96	17.52	2.23	1.15
	Southern Trunk Sewer	0.79	7.17	9.83	2.25	1.17
	WWTRF 4 to 5 Mgal/d	0.87	7.66	10.49	3.03	1.58
	Total	**3.21**	**29.79**	**37.84**	**7.51**	**3.90**
	SJVAPCD Screening Thresholds	**-**	**100**	**100**	**100**	**100**
	Individually Exceed Threshold	**No**	**No**	**No**	**No**	**No**
	Exceed Threshold when Combined	**No**	**No**	**Yes**	**No**	**No**
2023	Northern Trunk Sewer	1.37	14.47	15.65	1.44	0.71
	Southern Trunk Sewer	0.70	7.02	8.12	0.79	0.37
	WWTRF 4 to 5 Mgal/d	0.67	7.13	6.91	0.02	0.65
	Total	**2.74**	**28.61**	**30.68**	**2.26**	**1.73**
	SJVAPCD Screening Thresholds	**-**	**100**	**100**	**100**	**100**
	Individually Exceed Threshold	**No**	**No**	**No**	**No**	**No**
	Exceed Threshold when Combined	**-**	**Yes**	**Yes**	**No**	**No**
2024	Northern Trunk Sewer	0.96	10.58	9.78	1.00	0.48
	Southern Trunk Sewer	0.00	0.00	0.00	0.00	0.00
	WWTRF 4 to 5 Mgal/d	0.00	0.00	0.00	0.00	0.00
	Total	**0.96**	**10.58**	**9.78**	**1.00**	**0.48**
	SJVAPCD Screening Thresholds	**-**	**100**	**100**	**100**	**100**
	Individually Exceed Threshold	**No**	**No**	**No**	**No**	**No**
	Exceed Threshold when Combined	**No**	**No**	**No**	**No**	**No**

Fuel Consumption Summary

Source Category	Fuel Consumption (gal) Diesel	Gasoline
Offroad Equipment	112,198	0
Heavy Duty Trucks	7,616	0
Vendor Trucks	36,532	0
Worker Vehicles	0	69,855
Total Fuel Consumption	**156,347**	**69,855**

Merced County Fuel Consumption (2018) [1]

Source	Fuel Type	Gallons (Retail)	Percent of Project Compared to County
Off-Road/HHDT/MHDT	Diesel	39,000,000	0.401%
LDT2	Gasoline	132,000,000	0.053%

Notes:

1. California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2018
https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html
https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/2010-2018_A15_Results_ada.xlsx
Accessed June 2020.

Off-Road Equipment

Fuel Consumption: Equipment ≤ 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.408
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0574
Total HP-HR <100	842,487
Total Diesel Fuel (gal)	**48,352**

Fuel Consumption: Equipment > 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.367
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0516
Total HP-HR >100	172,953
Total Diesel Fuel (gal)	**8,929**

Total diesel gallons (off-road equipment): 57,281

Construction Phase	Equipment	# of Equipment	Hours/Day	HP	Load	Days	Total HP-HR
Site Prep/Grading	Rubber Tired Dozer	1	4	247	0.4	60	23,712
Site Prep/Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	60	34,454
Site Prep/Grading	Dump Truck	1	4	402	0.38	60	36,662
Site Prep/Grading	Excavators	2	8	158	0.38	60	57,638
Pipeline and Facility Construction	Crane	1	1	231	0.29	500	33,495
Pipeline and Facility Construction	Forklifts	1	5	89	0.2	500	44,500
Pipeline and Facility Construction	Generator Sets	2	8	84	0.74	500	497,280
Pipeline and Facility Construction	Tractors/Loaders/Backhoes	3	4	97	0.37	500	215,340
Pipeline and Facility Construction	Welders	1	3	46	0.45	500	31,050
Paving	Pavers	2	7	130	0.42	15	11,466
Paving	Paving Equipment	2	7	132	0.36	15	9,979
Paving	Rollers	2	7	80	0.38	15	6,384
Architectural Coating	Air Compressors	3	4	78	0.48	30	13,478
						Total >100HP	172,953
						Total <100HP	842,487

Notes:

1. CARB, 2017 Off-road Diesel Emission Factors

Construction Phase	Equipment	# of Equipment	Hours/Day	HP	Load	Days	Total HP-HR

https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx

Off-Road Equipment

Fuel Consumption: Equipment ≤ 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.408
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0574
Total HP-HR <100	484,309
Total Diesel Fuel (gal)	**27,795**

Fuel Consumption: Equipment > 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.367
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0516
Total HP-HR >100	70,913
Total Diesel Fuel (gal)	**3,661**

Total diesel gallons (off-road equipment): 31,456

Construction Phase	Equipment	# of Equipment	Hours/Day	HP	Load	Days	Total HP-HR
Site Prep/Grading	Rubber Tired Dozer	1	4	247	0.4	60	23,712
Site Prep/Grading	Tractors/Loaders/Backhoes	2	4	97	0.37	60	17,227
Site Prep/Grading	Excavators	2	4	158	0.38	60	28,819
Pipeline and Facility Construction	Forklifts	1	4	89	0.2	330	23,496
Pipeline and Facility Construction	Generator Sets	2	8	84	0.74	330	328,205
Pipeline and Facility Construction	Tractors/Loaders/Backhoes	2	4	97	0.37	330	94,750
Pipeline and Facility Construction	Welders	1	2	46	0.45	330	13,662
Paving	Pavers	2	6	130	0.42	15	9,828
Paving	Paving Equipment	2	6	132	0.36	15	8,554
Paving	Rollers	2	6	80	0.38	15	5,472
Architectural Coating	Air Compressors	2	4	78	0.48	5	1,498
						Total >100HP	70,913
						Total <100HP	484,309

Notes:
1. CARB, 2017 Off-road Diesel Emission Factors
https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx

Off-Road Equipment

Fuel Consumption: Equipment ≤ 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.408
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0574
Total HP-HR <100	253,960
Total Diesel Fuel (gal)	**14,575**

Fuel Consumption: Equipment > 100HP	Value
Brake Specific Fuel Consumption Factor (lb/hp-hr)[1]	0.367
Fuel Density (lb/gal)[1]	7.11
Consumption Factor (gal/hp-hr)	0.0516
Total HP-HR >100	172,124
Total Diesel Fuel (gal)	**8,886**

Total diesel gallons (off-road equipment): 23,461

Construction Phase	Equipment	# of Equipment	Hours/Day	HP	Load	Days	Total HP-HR
Site Prep/Grading	Rubber Tired Dozer	1	2	247	0.4	90	17,784
Site Prep/Grading	Tractors/Loaders/Backhoes	3	2	97	0.37	90	19,381
Site Prep/Grading	Scrapers	2	1	367	0.48	90	31,709
Site Prep/Grading	Excavators	3	2	158	0.38	90	32,422
Site Prep/Grading	Graders	1	2	187	0.41	90	13,801
Pipeline and Facility Construction	Cranes	1	1	231	0.29	264	17,685
Pipeline and Facility Construction	Forklifts	2	1	89	0.2	264	9,398
Pipeline and Facility Construction	Generator Sets	1	8	84	0.74	264	131,282
Pipeline and Facility Construction	Tractors/Loaders/Backhoes	2	2	97	0.37	264	37,900
Pipeline and Facility Construction	Welders	1	1	46	0.45	264	5,465
Paving	Pavers	1	4	130	0.42	60	13,104
Paving	Paving Equipment	4	4	132	0.36	60	45,619
Paving	Rollers	2	4	80	0.38	60	14,592
Architectural Coating	Air Compressors	4	4	78	0.48	60	35,942
						Total >100HP	172,124
						Total <100HP	253,960

Notes:
1. CARB, 2017 Off-road Diesel Emission Factors
https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx

HHDT Trucks

Onroad Travel Consumption	Value
EMFAC2017 Diesel Fuel Consumption Factor (gal/mi):[1]	0.1380
Total VMT (mi):	22,194
Total diesel gallons	**3,062**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.8400
Total Idle-Hours per Year:	46
Total diesel gallons	**14**

Total diesel gallons: 3,076

Construction Activity	Total Workdays	# of Truck Trips/day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	60	1.33	20	HHDT	1,596	7
Facilities Construction	330	3.03	20	HHDT	19,998	83
Paving	15	2	20	HHDT	600	3
Architectural Coating	5	0	20	HHDT	0	0
				Total VMT:	**22,194**	
				Total Idle-Hours:		**46**

1. CARB, EMFAC2017 (Merced County; HHDT; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

HHDT Trucks

Onroad Travel Consumption	Value
EMFAC2017 Diesel Fuel Consumption Factor (gal/mi):[1]	0.1380
Total VMT (mi):	22,194
Total diesel gallons	**3,062**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.8400
Total Idle-Hours per Year:	46
Total diesel gallons	**14**

Total diesel gallons: 3,076

Construction Activity	Total Workdays	# of Truck Trips/day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	60	1.33	20	HHDT	1,596	7
Facilities Construction	330	3.03	20	HHDT	19,998	83
Paving	15	2	20	HHDT	600	3
Architectural Coating	5	0	20	HHDT	0	0
				Total VMT:	**22,194**	
				Total Idle-Hours:		**46**

1. CARB, EMFAC2017 (Merced County; HHDT; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

HHDT Trucks

Onroad Travel Consumption	Value
EMFAC2017 Diesel Fuel Consumption Factor (gal/mi):[1]	0.1380
Total VMT (mi):	10,567
Total diesel gallons	**1,458**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.8400
Total Idle-Hours per Year:	22
Total diesel gallons	**7**

Total diesel gallons: 1,465

Construction Activity	Total Workdays	# of Truck Trips/day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	90	0.22	20	HHDT	396	2
Facilities Construction	264	1.89	20	HHDT	9,979	42
Paving	60	0.16	20	HHDT	192	1
Architectural Coating	60	0	20	HHDT	0	0
				Total VMT:	**10,567**	
				Total Idle-Hours:		**22**

1. CARB, EMFAC2017 (Merced County; HHDT; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

LDT2 Vehicles

Onroad Travel Consumption	Value
EMFAC2017 Gas Fuel Consumption Factor (gal/mi):[1]	0.1725
Total VMT (mi):	118,422
Total gasoline gallons	**20,427**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.3900
Total Idle-Hours per Year:	457
Total gasoline gallons	**64**

Total gasoline gallons: 20,491

Construction Activity	Total Workdays	# of Trips per day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	60	15	10.8	LDT2	9,720	75
Facilities Construction	330	30	10.8	LDT2	106,920	825
Paving	15	10	10.8	LDT2	1,620	13
Architectural Coating	5	3	10.8	LDT2	162	1
				Total VMT:	**118,422**	
				Total Idle-Hours:		**457**

1. CARB, EMFAC2017 (Merced County; LDT2; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

LDT2 Vehicles

Onroad Travel Consumption	Value
EMFAC2017 Gasoline Fuel Consumption Factor (gal/mi):[1]	0.1725
Total VMT (mi):	118,422
Total gasoline gallons	**20,427**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.3900
Total Idle-Hours per Year:	457
Total gasoline gallons	**64**

Total gasoline gallons: 20,491

Construction Activity	Total Workdays	# of trips per day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	60	15	10.8	LDT2	9,720	75
Facilities Construction	330	30	10.8	LDT2	106,920	825
Paving	15	10	10.8	LDT2	1,620	13
Architectural Coating	5	3	10.8	LDT2	162	1
				Total VMT:	**118,422**	
				Total Idle-Hours:		**457**

1. CARB, EMFAC2017 (Merced County; LDT2; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

LDT2 Vehicles

Onroad Travel Consumption	Value
EMFAC2017 Diesel Fuel Consumption Factor (gal/mi):[1]	0.1725
Total VMT (mi):	166,860
Total diesel gallons	**28,782**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.3900
Total Idle-Hours per Year:	644
Total diesel gallons	**90**

Total diesel gallons: 28,873

Construction Activity	Total Workdays	# of trips per day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	90	15	10.8	LDT2	14,580	113
Facilities Construction	264	50	10.8	LDT2	142,560	1,100
Paving	60	10	10.8	LDT2	6,480	50
Architectural Coating	60	5	10.8	LDT2	3,240	25
				Total VMT:	**166,860**	
				Total Idle-Hours:		**644**

1. CARB, EMFAC2017 (Merced County; LDT2; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

MHDT Vehciles

Onroad Travel Consumption	Value
EMFAC2017 Diesel Fuel Consumption Factor (gal/mi):[1]	0.1047
Total VMT (mi):	111,143
Total diesel gallons	**11,632**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.8400
Total Idle-Hours per Year:	634
Total diesel gallons	**192**

Total diesel gallons: 11,824

Construction Activity	Total Workdays	# of Trips per day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	60	5	7.3	LDT2	2,190	25
Facilities Construction	330	45	7.3	LDT2	108,405	1,238
Paving	15	5	7.3	LDT2	548	6
Architectural Coating	5	0	7.3	LDT2	0	0
				Total VMT:	**111,143**	
				Total Idle-Hours:		**634**

1. CARB, EMFAC2017 (Merced County; MHD; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

MHDT Vehciles

Onroad Travel Consumption	Value
EMFAC2017 Diesel Fuel Consumption Factor (gal/mi):[1]	0.1047
Total VMT (mi):	111,143
Total diesel gallons	**11,632**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.8400
Total Idle-Hours per Year:	634
Total diesel gallons	**192**

Total diesel gallons: 11,824

Construction Activity	Total Workdays	# of Trips per day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	60	5	7.3	LDT2	2,190	25
Facilities Construction	330	45	7.3	LDT2	108,405	1,238
Paving	15	5	7.3	LDT2	548	6
Architectural Coating	5	0	7.3	LDT2	0	0
				Total VMT:	**111,143**	
				Total Idle-Hours:		**634**

1. CARB, EMFAC2017 (Merced County; MHD; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

MHDT Vehciles

Onroad Travel Consumption	Value
EMFAC2017 Diesel Fuel Consumption Factor (gal/mi):[1]	0.1047
Total VMT (mi):	121,107
Total diesel gallons	**12,675**
Idling Consumption	**Value**
Idling Fuel Consumption Factor (gal/hr):[2]	0.8400
Total Idle-Hours per Year:	691
Total diesel gallons	**209**

Total diesel gallons: 12,884

Construction Activity	Total Workdays	# of Trips per day	Trip Length (miles)	EMFAC Vehicle Category	VMT	Idle Hours
Site Prep/Grading	90	5	7.3	LDT2	3,285	38
Facilities Construction	264	60	7.3	LDT2	115,632	1,320
Paving	60	5	7.3	LDT2	2,190	25
Architectural Coating	60	0	7.3	LDT2	0	0
				Total VMT:	**121,107**	
				Total Idle-Hours:		**691**

1. CARB, EMFAC2017 (Merced County; MHD; Annual; CY 2020; Aggregate MY; Aggregate Speed,DSL)
2. Department of Energy, Fact #861, 2015 Idle Fuel Consumption for Selected Gasoline and Diesel Vehicles, February 23, 2015. https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

Region	Merced County
Vehicle Category	HHDT
Model Year	Aggregated
Speed	Aggregated
Calendar Year	2024
Fuel	DSL

Sum of VMT	Sum of Fuel Consumption
1544194.723	213.0420097

HHDT Fuel Consumption Factor

VMT (mi/day)	Fuel Consumption (1000 gal/day)	Fuel Consumption Rate (gal/mi)	Fuel Economy (mi/gal)
1544194.723	213.0420097	0.137963177	7.248310908

Region	Merced County
Vehicle Category	LDT2
Model Year	Aggregated
Speed	Aggregated
Calendar Year	2024
Fuel	Gas

Sum of VMT	Sum of Fuel Consumption
1235069.461	213.0420097

HHDT Fuel Consumption Factor

VMT (mi/day)	Fuel Consumption (1000 gal/day)	Fuel Consumption Rate (gal/mi)	Fuel Economy (mi/gal)
1235069.461	213.0420097	0.17249395	5.797304778

Merced WCSMP

Region	Merced County
Vehicle Category	LDT2
Model Year	Aggregated
Speed	Aggregated
Calendar Year	2024
Fuel	Gas

Sum of VMT	Sum of Fuel Consumption
174794.3172	18.29415124

HHDT Fuel Consumption Factor

VMT (mi/day)	Fuel Consumption (1000 gal/day)	Fuel Consumption Rate (gal/mi)	Fuel Economy (mi/gal)
174794.3172	18.29415124	0.104661018	9.554655742

Idling Fuel Consumption Factors

Column1	Column2	Column3	Column4	Column5
VEHICLE TYPE	FUEL TYPE	ENGINE SIZE (LITER)	GROSS VEHICLE WEIGHT (GVW) (LBS)	IDLING FUEL USE (GAL/HR WITH NO LOAD)
Compact Sedan	Gas	2	-	0.16
Large Sedan	Gas	4.6	-	0.39
Compact Sedan	Diesel	2	-	0.17
Medium Heavy Truck	Gas	7-May	19,700-26,000	0.84
Delivery Truck	Diesel	-	19,500	0.84
Tow Truck	Diesel	-	26,000	0.59
Medium Heavy Truck	Diesel	10-Jun	23,000-33,000	0.44
Transit Bus	Diesel	-	30,000	0.97
Combination Truck	Diesel	-	32,000	0.49
Bucket Truck	Diesel	-	37,000	0.9
Tractor-Semitrailer	Diesel	-	80,000	0.64

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: MERCED
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Fuel Consumption
MERCED	2024	HHDT	Aggregatec	Aggregatec	DSL	213.042
MERCED	2024	LDT2	Aggregatec	Aggregatec	GAS	49.42937
MERCED	2024	MHDT	Aggregatec	Aggregatec	DSL	18.29415