

Tesla 47700 Kato Road and 1055 Page Avenue Improvements Project

Attachment 1.3 - Air Quality and GHG Emissions

- A. 47700 Kato and 1055 Page Improvement, Construction
- B. 47700 Kato, Baseline
- C. 47700 Kato, Proposed

47700 Kato and 1055 Page Improvement CONSTRUCTION - Alameda County, Annual

**47700 Kato and 1055 Page Improvement CONSTRUCTION
Alameda County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing/R&D*	29.75	1000sqft	0.68	29,750.00	0

* Manufacturing Use in model modified to fit specifics of the proposed Manufacturing/R&D use proposed.

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5	Operational Year	2021		
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	210	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Emissions Analysis. Operational emissions omitted because they are included in a separate run.

Land Use - Lot acreage left as model defaults to reflect the fact that construction activities do not encompass the entire site

Construction Phase - Construction activities per construction schedule

Off-road Equipment - Model default equipment hours doubled to reflect planned construction double shifts.

Table Name	Column Name	Default Value	New Value
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tblConstructionPhase	NumDays	100.00	82.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	10/5/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	5/13/2020	4/24/2020
tblConstructionPhase	PhaseEndDate	10/12/2020	4/11/2020
tblConstructionPhase	PhaseStartDate	5/19/2020	4/10/2020
tblConstructionPhase	PhaseStartDate	4/30/2020	4/10/2020
tblConstructionPhase	PhaseStartDate	10/6/2020	4/1/2020
tblOffRoadEquipment	UsageHours	6.00	12.00
tblOffRoadEquipment	UsageHours	8.00	16.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	12.00
tblOffRoadEquipment	UsageHours	7.00	14.00
tblOffRoadEquipment	UsageHours	7.00	14.00
tblOffRoadEquipment	UsageHours	1.00	2.00
tblOffRoadEquipment	UsageHours	8.00	16.00
tblOffRoadEquipment	UsageHours	6.00	12.00
tblOffRoadEquipment	UsageHours	7.00	14.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210

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					
2020	0.0955	0.9549	0.8230	1.3600e-003	0.0113	0.0544	0.0657	2.5800e-003	0.0503	0.0529	0.0000	119.8395	119.8395	0.0330	0.0000	120.6648
Maximum	0.0955	0.9549	0.8230	1.3600e-003	0.0113	0.0544	0.0657	2.5800e-003	0.0503	0.0529	0.0000	119.8395	119.8395	0.0330	0.0000	120.6648

Mitigated Construction - Mitigation sections omitted because mitigation not applied

2.2 Overall Operational - Omitted (separate run)

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/10/2020	4/24/2020	7	15	
2	Building Construction	Building Construction	4/10/2020	6/30/2020	7	82	
3	Paving	Paving	4/1/2020	4/11/2020	7	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	12.00	9	0.56
Demolition	Concrete/Industrial Saws	1	16.00	81	0.73
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	12.00	89	0.20
Paving	Pavers	1	14.00	130	0.42
Paving	Rollers	1	14.00	80	0.38
Demolition	Rubber Tired Dozers	1	2.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	16.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	12.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	14.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	38.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	13.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

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					4.0700e-003	0.0000	4.0700e-003	6.2000e-004	0.0000	6.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0130	0.1181	0.1143	1.8000e-004		7.0100e-003	7.0100e-003		6.6900e-003	6.6900e-003	0.0000	15.6113	15.6113	2.9500e-003	0.0000	15.6851
Total	0.0130	0.1181	0.1143	1.8000e-004	4.0700e-003	7.0100e-003	0.0111	6.2000e-004	6.6900e-003	7.3100e-003	0.0000	15.6113	15.6113	2.9500e-003	0.0000	15.6851

Unmitigated Construction Off-Site

Category	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
	tons/yr										MT/yr					
Hauling	1.6000e-004	5.5400e-003	9.7000e-004	2.0000e-005	3.2000e-004	2.0000e-005	3.4000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.4547	1.4547	7.0000e-005	0.0000	1.4565
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.9000e-004	1.9600e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5271	0.5271	1.0000e-005	0.0000	0.5275
Total	4.2000e-004	5.7300e-003	2.9300e-003	3.0000e-005	9.1000e-004	2.0000e-005	9.4000e-004	2.5000e-004	2.0000e-005	2.7000e-004	0.0000	1.9818	1.9818	8.0000e-005	0.0000	1.9840

3.3 Building Construction - 2020

Unmitigated Construction On-Site

Category	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
	tons/yr										MT/yr					
Off-Road	0.0707	0.7259	0.6058	9.3000e-004		0.0428	0.0428		0.0394	0.0394	0.0000	82.0496	82.0496	0.0265	0.0000	82.7130

Total	0.0707	0.7259	0.6058	9.3000e-004		0.0428	0.0428		0.0394	0.0394	0.0000	82.0496	82.0496	0.0265	0.0000	82.7130
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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	7.7000e-004	0.0241	5.1900e-003	6.0000e-005	1.3500e-003	1.1000e-004	1.4600e-003	3.9000e-004	1.1000e-004	5.0000e-004	0.0000	5.4225	5.4225	3.1000e-004	0.0000	5.4303
Worker	1.8400e-003	1.3600e-003	0.0140	4.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1200e-003	3.0000e-005	1.1500e-003	0.0000	3.7462	3.7462	1.0000e-004	0.0000	3.7486
Total	2.6100e-003	0.0255	0.0191	1.0000e-004	5.5600e-003	1.4000e-004	5.7000e-003	1.5100e-003	1.4000e-004	1.6500e-003	0.0000	9.1687	9.1687	4.1000e-004	0.0000	9.1789

3.4 Paving - 2020

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	8.4900e-003	0.0795	0.0782	1.2000e-004		4.3500e-003	4.3500e-003		4.0400e-003	4.0400e-003	0.0000	10.3322	10.3322	3.0100e-003	0.0000	10.4075
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	8.4900e-003	0.0795	0.0782	1.2000e-004		4.3500e-003	4.3500e-003		4.0400e-003	4.0400e-003	0.0000	10.3322	10.3322	3.0100e-003	0.0000	10.4075
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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	3.4000e-004	2.5000e-004	2.5900e-003	1.0000e-005	7.8000e-004	1.0000e-005	7.9000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6958	0.6958	2.0000e-005	0.0000	0.6963
Total	3.4000e-004	2.5000e-004	2.5900e-003	1.0000e-005	7.8000e-004	1.0000e-005	7.9000e-004	2.1000e-004	1.0000e-005	2.1000e-004	0.0000	0.6958	0.6958	2.0000e-005	0.0000	0.6963

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					
Unmitigated	0.0286	0.1944	0.3402	1.2800e-003	0.0984	1.2600e-003	0.0997	0.0265	1.1900e-003	0.0277	0.0000	117.6742	117.6742	4.8400e-003	0.0000	117.7953

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	113.65	44.33	18.45	263,172	263,172
Total	113.65	44.33	18.45	263,172	263,172

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.559358	0.040058	0.190549	0.109335	0.016678	0.005213	0.023344	0.044042	0.002152	0.002669	0.005545	0.000316	0.000739

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	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
	tons/yr										MT/yr					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	21.4237	21.4237	2.9600e-003	6.1000e-004	21.6800
NaturalGas Unmitigated	3.9700e-003	0.0361	0.0303	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.2924	39.2924	7.5000e-004	7.2000e-004	39.5259

5.2 Energy by Land Use - NaturalGas

Unmitigated

	Natural Gas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	736313	3.9700e-003	0.0361	0.0303	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.2924	39.2924	7.5000e-004	7.2000e-004	39.5259
Total		3.9700e-003	0.0361	0.0303	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.2924	39.2924	7.5000e-004	7.2000e-004	39.5259

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	224910	21.4237	2.9600e-003	6.1000e-004	21.6800
Total		21.4237	2.9600e-003	6.1000e-004	21.6800

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.1317	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.7000e-004
Unmitigated	0.1317	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.7000e-004

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0155					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.7000e-004
Total	0.1317	0.0000	2.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.3000e-004	5.3000e-004	0.0000	0.0000	5.7000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	5.7286	0.2247	5.3900e-003	12.9527

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	6.87969 / 0	5.7286	0.2247	5.3900e-003	12.9527
Total		5.7286	0.2247	5.3900e-003	12.9527

8.0 Waste Detail

8.1 Mitigation Measures Waste

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	7.4883	0.4426	0.0000	18.5520

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	36.89	7.4883	0.4426	0.0000	18.5520

Total		7.4883	0.4426	0.0000	18.5520
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9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

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

Equipment Type	Number
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11.0 Vegetation

47700 Kato Project BASELINE - Alameda County, Annual

47700 Kato BASELINE
Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	126.31	1000sqft	9.30	126,310.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5	Operational Year	2017		
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	210	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Per pge.com, latest independently verified CO2 emissions rate (2017) was 210 pounds of CO2 per megawatt hour.

Energy Use - Energy Use per historic data. Electricity includes 1055 Page because on same meter (nets out with baseline). Natural gas not changing from baseline. Because based on projections for entire meter, all energy included in Title-24 columns.

Land Use - Lot acreage from plans

Vehicle Trips - Trip rates adjusted to match traffic report for R&D/Manufacturing type use proposed. Sat/Sun rates model standard reduction for weekend rates.

Table Name	Column Name	Default Value	New Value
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tblEnergyUse	LightingElect	3.70	0.00
tblEnergyUse	NT24E	3.36	0.00
tblEnergyUse	NT24NG	6.90	0.00
tblEnergyUse	T24E	1.59	155.65
tblEnergyUse	T24NG	20.06	19.23
tblLandUse	LotAcreage	2.90	9.30
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblVehicleTrips	ST_TR	1.49	2.80
tblVehicleTrips	SU_TR	0.62	1.16
tblVehicleTrips	WD_TR	3.82	7.17

2.0 Emissions Summary

2.1 Overall Construction - Construction sections omitted for existing building

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	0.5748	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Energy	0.0131	0.1191	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	2,002.3335	2,002.3335	0.2611	0.0559	2,025.5139
Mobile	0.2485	1.6618	2.9578	0.0104	0.7844	0.0126	0.7971	0.2109	0.0119	0.2228	0.0000	958.5973	958.5973	0.0408	0.0000	959.6173
Waste						0.0000	0.0000		0.0000	0.0000	39.2808	0.0000	39.2808	2.3214	0.0000	97.3165
Water						0.0000	0.0000		0.0000	0.0000	11.4493	18.6010	30.0503	1.1785	0.0283	67.9464

Total	0.8364	1.7809	3.0590	0.0111	0.7844	0.0217	0.8061	0.2109	0.0210	0.2319	50.7301	2,979.5340	3,030.2641	3.8019	0.0842	3,150.3964
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Mitigated 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	0.5748	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Energy	0.0131	0.1191	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	2,002.3335	2,002.3335	0.2611	0.0559	2,025.5139
Mobile	0.2485	1.6618	2.9578	0.0104	0.7844	0.0126	0.7971	0.2109	0.0119	0.2228	0.0000	958.5973	958.5973	0.0408	0.0000	959.6173
Waste						0.0000	0.0000		0.0000	0.0000	39.2808	0.0000	39.2808	2.3214	0.0000	97.3165
Water						0.0000	0.0000		0.0000	0.0000	11.4493	18.6010	30.0503	1.1785	0.0283	67.9464
Total	0.8364	1.7809	3.0590	0.0111	0.7844	0.0217	0.8061	0.2109	0.0210	0.2319	50.7301	2,979.5340	3,030.2641	3.8019	0.0842	3,150.3964

	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
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

3.0 Construction Detail - Omitted for existing building

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile - Mitigation sections deleted for existing building

	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					

Unmitigated	0.2485	1.6618	2.9578	0.0104	0.7844	0.0126	0.7971	0.2109	0.0119	0.2228	0.0000	958.5973	958.5973	0.0408	0.0000	959.6173
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4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	905.64	353.67	146.52	2,097,210	2,097,210
Total	905.64	353.67	146.52	2,097,210	2,097,210

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

Category	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
	tons/yr										MT/yr					

Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,872.7159	1,872.7159	0.2586	0.0535	1,895.1261
NaturalGas Unmitigated	0.0131	0.1191	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.6176	129.6176	2.4800e-003	2.3800e-003	130.3878

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	2.42894e+006	0.0131	0.1191	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.6176	129.6176	2.4800e-003	2.3800e-003	130.3878
Total		0.0131	0.1191	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.6176	129.6176	2.4800e-003	2.3800e-003	130.3878

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	1.96602e+007	1,872.7159	0.2586	0.0535	1,895.1261
Total		1,872.7159	0.2586	0.0535	1,895.1261

6.0 Area Detail

6.1 Mitigation Measures Area

	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					
Unmitigated	0.5748	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0814					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4933					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Total	0.5748	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Unmitigated	30.0503	1.1785	0.0283	67.9464
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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	36.0889 / 0	30.0503	1.1785	0.0283	67.9464
Total		30.0503	1.1785	0.0283	67.9464

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	39.2808	2.3214	0.0000	97.3165

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	193.51	39.2808	2.3214	0.0000	97.3165
Total		39.2808	2.3214	0.0000	97.3165

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

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

Equipment Type	Number
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11.0 Vegetation

47700 Kato Proposed - Alameda County, Annual

**47700 Kato Proposed
Alameda County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	156.06	1000sqft	9.30	156,057.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	5	Operational Year	2020		
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	210	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Per pge.com, latest independently verified CO2 emissions rate (2017) was 210 pounds of CO2 per megawatt hour.

Energy Use - Energy Use per projections. Electricity includes 1055 Page because on same meter (nets out with baseline). Natural gas not changing from baseline. Because based on projections for entire meter, all energy included in Title-24 columns.

Land Use - Lot acreage from plans

Vehicle Trips - Trip rates adjusted to match traffic report for R&D/Manufacturing type use proposed. Sat/Sun rates reflect 200 (42.55% of) employees on site on those days.

Table Name	Column Name	Default Value	New Value
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tblEnergyUse	LightingElect	3.70	0.00
tblEnergyUse	NT24E	3.36	0.00
tblEnergyUse	NT24NG	6.90	0.00
tblEnergyUse	T24E	1.59	594.60
tblEnergyUse	T24NG	20.06	15.56
tblLandUse	LotAcreage	3.58	9.30
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblVehicleTrips	ST_TR	1.49	2.36
tblVehicleTrips	SU_TR	0.62	2.36
tblVehicleTrips	WD_TR	3.82	5.54

2.0 Emissions Summary

2.1 Overall Construction - Construction Sections Omitted for Operational Analysis

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	0.6910	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7900e-003	2.7900e-003	1.0000e-005	0.0000	2.9800e-003
Energy	0.0131	0.1190	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	8,968.3782	8,968.3782	1.2231	0.2549	9,074.9192
Mobile	0.2500	1.6721	2.9760	0.0105	0.7893	0.0127	0.8020	0.2122	0.0120	0.2242	0.0000	964.5007	964.5007	0.0411	0.0000	965.5270
Waste						0.0000	0.0000		0.0000	0.0000	39.2808	0.0000	39.2808	2.3214	0.0000	97.3165
Water						0.0000	0.0000		0.0000	0.0000	11.4493	18.6010	30.0503	1.1785	0.0283	67.9464

Total	0.9541	1.7911	3.0774	0.0112	0.7893	0.0218	0.8110	0.2122	0.0211	0.2332	50.7301	9,951.4827	10,002.2128	4.7641	0.2832	10,205.7120
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Mitigated Operational - Mitigation Options Presented in Analysis and Not Included in Modeling

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					
Unmitigated	0.2500	1.6721	2.9760	0.0105	0.7893	0.0127	0.8020	0.2122	0.0120	0.2242	0.0000	964.5007	964.5007	0.0411	0.0000	965.5270

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	864.56	368.29	368.29	2,110,126	2,110,126
Total	864.56	368.29	368.29	2,110,126	2,110,126

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	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					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8,838.7977	8,838.7977	1.2206	0.2525	8,944.5687
NaturalGas Unmitigated	0.0131	0.1190	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.5805	129.5805	2.4800e-003	2.3800e-003	130.3505

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	2.42825e+006	0.0131	0.1190	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.5805	129.5805	2.4800e-003	2.3800e-003	130.3505
Total		0.0131	0.1190	0.1000	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.5805	129.5805	2.4800e-003	2.3800e-003	130.3505

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Manufacturing	9.27915e+007	8,838.7977	1.2206	0.2525	8,944.5687
Total		8,838.7977	1.2206	0.2525	8,944.5687

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.6910	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7900e-003	2.7900e-003	1.0000e-005	0.0000	2.9800e-003
Unmitigated	0.6910	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7900e-003	2.7900e-003	1.0000e-005	0.0000	2.9800e-003

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0814					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	0.6095					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7900e-003	2.7900e-003	1.0000e-005	0.0000	2.9800e-003
Total	0.6910	1.0000e-005	1.4400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7900e-003	2.7900e-003	1.0000e-005	0.0000	2.9800e-003

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	30.0503	1.1785	0.0283	67.9464
Unmitigated	30.0503	1.1785	0.0283	67.9464

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	36.0889 / 0	30.0503	1.1785	0.0283	67.9464
Total		30.0503	1.1785	0.0283	67.9464

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	39.2808	2.3214	0.0000	97.3165
Unmitigated	39.2808	2.3214	0.0000	97.3165

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	193.51	39.2808	2.3214	0.0000	97.3165
Total		39.2808	2.3214	0.0000	97.3165

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

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

Equipment Type	Number
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11.0 Vegetation

CEQA Summary - Existing & Proposed Project Emissions Summary Sheet (Page 1 of 1)

Stage	Unit Description	Requested Emission Limits (lb/day)									
		PM/PM10/PM2.5	NiO	Mn	Co	HF	IPA	NO _x	SO ₂	CO	VOC
Current Permitted Emissions	Emergency Diesel Generator	0.04						0.57		0.040	0.050
	Boiler #1	0.26						2.63	0.010	0.45	0.21
	Boiler #2	0.21						2.15	0.010	0.36	0.17
	Boiler #3	0.03						0.31		0.050	0.030
	General Solvent Cleaning						3.34				3.56
	Total	0.54	0.00	0.00	0.00	0.00	3.34	5.66	0.020	0.90	4.02
Proposed Project Emissions	Cathode Mixing	3.24	2.79E-04	1.44E-03	1.05E-05						
	Anode Mixing	0.48									
	Cell Assembly E-Fill					0.58					9.47
	Page Pilot Equipment	0.25	8.93E-04	4.61E-03	3.37E-05						
	General Solvent Cleaning						9.87				9.87
	Total	3.97	0.0012	0.0061	4.43E-05	0.58	9.87	0.00	0.00	0.00	19.33
Net Emission Increase (Proposed - Current)		3.43	0.0012	0.0061	4.43E-05	0.58	6.53	0.00	0.00	0.00	15.31