COUNTY OF MARIN, CALIFORNIA

THE OAKS
Senior Living Community

ADDENDUM TO THE
2005 OAKVIEW MASTER PLAN, USE PERMIT, VESTING TENTATIVE MAP FINAL ENVIRONMENTAL IMPACT REPORT

APPENDICES

MARCH 2018

Douglas Herring & Associates
Environmental, Policy, and Planning Services

Appendix A

CalEEMod Documentation

The Oaks

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	55.00	Space	0.49	19,756.00	0
Other Asphalt Surfaces	156.00	1000sqft	3.58	156,000.00	0
Parking Lot	34.00	Space	0.31	13,600.00	0
Apartments Low Rise	6.00	Dwelling Unit	0.38	3,625.00	6
Congregate Care (Assisted Living)	86.00	Dwelling Unit	7.35	78,353.00	92
Congregate Care (Assisted Living)	40.00	Dwelling Unit	1.87	22,161.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Greenhouse Gas Emission Factors: Guidance for PG&E Customers November 2015

Land Use - Notice and Referral of Planning Application (dated December 22, 2017)

Construction Phase - No demolition

Trips and VMT -

Grading -

Vehicle Trips - Traffic Impact Study, W-Trans, June 5, 2017

Construction Off-road Equipment Mitigation - BAAQMD Enhanced Mitigation Measures

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	20,361.00	5,605.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	70,294.00	78,772.00
tblArchitecturalCoating	ConstArea_Residential_Interior	210,881.00	236,315.00
tblAreaCoating	Area_Parking	20361	5605
tblAreaCoating	Area_Residential_Exterior	70294	78772
tblAreaCoating	Area_Residential_Interior	210881	236315
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	0.00
tblLandUse	BuildingSpaceSquareFeet	22,000.00	19,756.00
tblLandUse	BuildingSpaceSquareFeet	6,000.00	3,625.00
tblLandUse	BuildingSpaceSquareFeet	40,000.00	22,161.00
tblLandUse	BuildingSpaceSquareFeet	86,000.00	78,353.00
tblLandUse	LandUseSquareFeet	22,000.00	19,756.00
tblLandUse	LandUseSquareFeet	6,000.00	3,625.00
tblLandUse	LandUseSquareFeet	40,000.00	22,161.00
tblLandUse	LandUseSquareFeet	86,000.00	78,353.00
tblLandUse	LotAcreage	2.50	1.87
tblLandUse	LotAcreage	5.38	7.35
tblLandUse	Population	17.00	6.00
tblLandUse	Population	114.00	40.00
tblLandUse	Population	246.00	92.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	VendorTripNumber	70.00	45.00
tblTripsAndVMT	WorkerTripNumber	238.00	175.00
tblTripsAndVMT	WorkerTripNumber	48.00	35.00

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					
2019	0.4553	4.0329	3.2611	7.0100e-003	0.4083	0.1958	0.6041	0.1544	0.1831	0.3375	0.0000	631.8599	631.8599	0.1057	0.0000	634.5025
2020	0.9794	1.1290	1.0782	2.3700e-003	0.0700	0.0542	0.1242	0.0189	0.0509	0.0698	0.0000	211.7644	211.7644	0.0325	0.0000	212.5775
Maximum	**0.9794**	**4.0329**	**3.2611**	**7.0100e-003**	**0.4083**	**0.1958**	**0.6041**	**0.1544**	**0.1831**	**0.3375**	**0.0000**	**631.8599**	**631.8599**	**0.1057**	**0.0000**	**634.5025**

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					
2019	0.2036	2.7750	3.3942	7.0100e-003	0.2871	0.0676	0.3547	0.0974	0.0673	0.1647	0.0000	631.8595	631.8595	0.1057	0.0000	634.5021
2020	0.9125	0.9021	1.1452	2.3700e-003	0.0700	0.0228	0.0928	0.0189	0.0227	0.0416	0.0000	211.7643	211.7643	0.0325	0.0000	212.5773
Maximum	**0.9125**	**2.7750**	**3.3942**	**7.0100e-003**	**0.2871**	**0.0676**	**0.3547**	**0.0974**	**0.0673**	**0.1647**	**0.0000**	**631.8595**	**631.8595**	**0.1057**	**0.0000**	**634.5021**

	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	**22.21**	**28.76**	**-4.61**	**0.00**	**25.35**	**63.85**	**38.56**	**32.89**	**61.54**	**49.35**	**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	**1-1-2019**	**3-31-2019**	1.5106	0.8410
2	**4-1-2019**	**6-30-2019**	0.9801	0.7025
3	**7-1-2019**	**9-30-2019**	0.9909	0.7103
4	**10-1-2019**	**12-31-2019**	0.9996	0.7190
5	**1-1-2020**	**3-31-2020**	0.8971	0.6890
6	**4-1-2020**	**6-30-2020**	1.2180	1.1315
		Highest	1.5106	1.1315

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	1.1283	0.0251	1.8042	1.6800e-003		0.1226	0.1226		0.1226	0.1226	11.7621	6.4367	18.1988	0.0205	7.7000e-004	18.9403
Energy	8.6800e-003	0.0742	0.0316	4.7000e-004		6.0000e-003	6.0000e-003		6.0000e-003	6.0000e-003	0.0000	183.5319	183.5319	0.0114	3.5900e-003	184.8883
Mobile	0.1848	0.6124	2.0391	6.6200e-003	0.3583	6.9700e-003	0.3653	0.1017	6.5400e-003	0.1082	0.0000	604.1265	604.1265	0.0210	0.0000	604.6514
Waste						0.0000	0.0000		0.0000	0.0000	23.8981	0.0000	23.8981	1.4123	0.0000	59.2066
Water						0.0000	0.0000		0.0000	0.0000	2.7285	8.6177	11.3462	0.2811	6.8000e-003	20.3988
Total	**1.3218**	**0.7117**	**3.8749**	**8.7700e-003**	**0.3583**	**0.1356**	**0.4939**	**0.1017**	**0.1352**	**0.2368**	**38.3888**	**802.7128**	**841.1015**	**1.7463**	**0.0112**	**888.0854**

2.2 Overall Operational

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	0.5341	0.0203	0.9883	1.1000e-004		6.1400e-003	6.1400e-003		6.1400e-003	6.1400e-003	0.0000	11.9121	11.9121	1.7600e-003	1.9000e-004	12.0124
Energy	6.7700e-003	0.0579	0.0246	3.7000e-004		4.6800e-003	4.6800e-003		4.6800e-003	4.6800e-003	0.0000	159.2908	159.2908	0.0105	3.1400e-003	160.4886
Mobile	0.1848	0.6124	2.0391	6.6200e-003	0.3583	6.9700e-003	0.3653	0.1017	6.5400e-003	0.1082	0.0000	604.1265	604.1265	0.0210	0.0000	604.6514
Waste						0.0000	0.0000		0.0000	0.0000	23.8981	0.0000	23.8981	1.4123	0.0000	59.2066
Water						0.0000	0.0000		0.0000	0.0000	2.1828	7.3934	9.5762	0.2249	5.4500e-003	16.8227
Total	**0.7256**	**0.6905**	**3.0520**	**7.1000e-003**	**0.3583**	**0.0178**	**0.3761**	**0.1017**	**0.0174**	**0.1190**	**26.0809**	**782.7228**	**808.8037**	**1.6705**	**8.7800e-003**	**853.1816**

	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	**45.10**	**2.97**	**21.24**	**19.04**	**0.00**	**86.88**	**23.85**	**0.00**	**87.16**	**49.74**	**32.06**	**2.49**	**3.84**	**4.34**	**21.33**	**3.93**

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	1/1/2019	12/31/2018	5	0	
2	Site Preparation	Site Preparation	1/1/2019	1/14/2019	5	10	
3	Grading	Grading	1/15/2019	2/25/2019	5	30	
4	Building Construction	Building Construction	2/26/2019	4/20/2020	5	300	
5	Paving	Paving	4/21/2020	5/18/2020	5	20	
6	Architectural Coating	Architectural Coating	5/19/2020	6/15/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 4.38

Residential Indoor: 236,315; Residential Outdoor: 78,772; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,605 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	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
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	175.00	45.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	35.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.3 Site Preparation - 2019

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

3.3 Site Preparation - 2019

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	2.4000e-004	2.3700e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	**3.4000e-004**	**2.4000e-004**	**2.3700e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6528**	**0.6528**	**2.0000e-005**	**0.0000**	**0.6532**

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6600e-003	0.0953	0.1148	1.9000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**4.6600e-003**	**0.0953**	**0.1148**	**1.9000e-004**	**0.0407**	**2.3700e-003**	**0.0430**	**0.0223**	**2.3700e-003**	**0.0247**	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

3.3 Site Preparation - 2019

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	3.4000e-004	2.4000e-004	2.3700e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	**3.4000e-004**	**2.4000e-004**	**2.3700e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6528**	**0.6528**	**2.0000e-005**	**0.0000**	**0.6532**

3.4 Grading - 2019

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					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0711	0.8178	0.5007	9.3000e-004		0.0357	0.0357		0.0329	0.0329	0.0000	83.5520	83.5520	0.0264	0.0000	84.2129
Total	**0.0711**	**0.8178**	**0.5007**	**9.3000e-004**	**0.1301**	**0.0357**	**0.1658**	**0.0540**	**0.0329**	**0.0868**	**0.0000**	**83.5520**	**83.5520**	**0.0264**	**0.0000**	**84.2129**

3.4 Grading - 2019

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	1.1300e-003	8.1000e-004	7.8800e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	2.0000e-005	6.4000e-004	0.0000	2.1759	2.1759	6.0000e-005	0.0000	2.1773
Total	**1.1300e-003**	**8.1000e-004**	**7.8800e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**2.0000e-005**	**6.4000e-004**	**0.0000**	**2.1759**	**2.1759**	**6.0000e-005**	**0.0000**	**2.1773**

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					0.0586	0.0000	0.0586	0.0243	0.0000	0.0243	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.4497	0.5508	9.3000e-004		9.7500e-003	9.7500e-003		9.7500e-003	9.7500e-003	0.0000	83.5519	83.5519	0.0264	0.0000	84.2128
Total	**0.0229**	**0.4497**	**0.5508**	**9.3000e-004**	**0.0586**	**9.7500e-003**	**0.0683**	**0.0243**	**9.7500e-003**	**0.0340**	**0.0000**	**83.5519**	**83.5519**	**0.0264**	**0.0000**	**84.2128**

3.4 Grading - 2019

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	1.1300e-003	8.1000e-004	7.8800e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	2.0000e-005	6.4000e-004	0.0000	2.1759	2.1759	6.0000e-005	0.0000	2.1773
Total	**1.1300e-003**	**8.1000e-004**	**7.8800e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**2.0000e-005**	**6.4000e-004**	**0.0000**	**2.1759**	**2.1759**	**6.0000e-005**	**0.0000**	**2.1773**

3.5 Building Construction - 2019

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	0.2609	2.3292	1.8966	2.9700e-003		0.1425	0.1425		0.1340	0.1340	0.0000	259.7901	259.7901	0.0633	0.0000	261.3723
Total	**0.2609**	**2.3292**	**1.8966**	**2.9700e-003**		**0.1425**	**0.1425**		**0.1340**	**0.1340**	**0.0000**	**259.7901**	**259.7901**	**0.0633**	**0.0000**	**261.3723**

3.5 Building Construction - 2019

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	0.0270	0.6048	0.2351	1.3300e-003	0.0325	4.4400e-003	0.0369	9.4000e-003	4.2500e-003	0.0137	0.0000	128.3529	128.3529	6.8500e-003	0.0000	128.5240
Worker	0.0731	0.0521	0.5082	1.5500e-003	0.1523	1.0700e-003	0.1534	0.0405	9.8000e-004	0.0415	0.0000	140.2519	140.2519	3.6600e-003	0.0000	140.3434
Total	**0.1001**	**0.6570**	**0.7432**	**2.8800e-003**	**0.1848**	**5.5100e-003**	**0.1903**	**0.0499**	**5.2300e-003**	**0.0552**	**0.0000**	**268.6048**	**268.6048**	**0.0105**	**0.0000**	**268.8674**

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	0.0745	1.5720	1.9751	2.9700e-003		0.0499	0.0499		0.0499	0.0499	0.0000	259.7898	259.7898	0.0633	0.0000	261.3720
Total	**0.0745**	**1.5720**	**1.9751**	**2.9700e-003**		**0.0499**	**0.0499**		**0.0499**	**0.0499**	**0.0000**	**259.7898**	**259.7898**	**0.0633**	**0.0000**	**261.3720**

3.5 Building Construction - 2019

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	0.0270	0.6048	0.2351	1.3300e-003	0.0325	4.4400e-003	0.0369	9.4000e-003	4.2500e-003	0.0137	0.0000	128.3529	128.3529	6.8500e-003	0.0000	128.5240
Worker	0.0731	0.0521	0.5082	1.5500e-003	0.1523	1.0700e-003	0.1534	0.0405	9.8000e-004	0.0415	0.0000	140.2519	140.2519	3.6600e-003	0.0000	140.3434
Total	**0.1001**	**0.6570**	**0.7432**	**2.8800e-003**	**0.1848**	**5.5100e-003**	**0.1903**	**0.0499**	**5.2300e-003**	**0.0552**	**0.0000**	**268.6048**	**268.6048**	**0.0105**	**0.0000**	**268.8674**

3.5 Building Construction - 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	0.0837	0.7579	0.6655	1.0600e-003		0.0441	0.0441		0.0415	0.0415	0.0000	91.4859	91.4859	0.0223	0.0000	92.0439
Total	**0.0837**	**0.7579**	**0.6655**	**1.0600e-003**		**0.0441**	**0.0441**		**0.0415**	**0.0415**	**0.0000**	**91.4859**	**91.4859**	**0.0223**	**0.0000**	**92.0439**

3.5 Building Construction - 2020

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	7.7300e-003	0.1960	0.0726	4.7000e-004	0.0116	1.0000e-003	0.0126	3.3600e-003	9.6000e-004	4.3200e-003	0.0000	45.6201	45.6201	2.2900e-003	0.0000	45.6774
Worker	0.0241	0.0165	0.1634	5.4000e-004	0.0545	3.7000e-004	0.0548	0.0145	3.4000e-004	0.0148	0.0000	48.5641	48.5641	1.1500e-003	0.0000	48.5929
Total	**0.0319**	**0.2125**	**0.2360**	**1.0100e-003**	**0.0661**	**1.3700e-003**	**0.0674**	**0.0179**	**1.3000e-003**	**0.0192**	**0.0000**	**94.1842**	**94.1842**	**3.4400e-003**	**0.0000**	**94.2703**

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	0.0266	0.5619	0.7060	1.0600e-003		0.0179	0.0179		0.0179	0.0179	0.0000	91.4858	91.4858	0.0223	0.0000	92.0438
Total	**0.0266**	**0.5619**	**0.7060**	**1.0600e-003**		**0.0179**	**0.0179**		**0.0179**	**0.0179**	**0.0000**	**91.4858**	**91.4858**	**0.0223**	**0.0000**	**92.0438**

3.5 Building Construction - 2020

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	7.7300e-003	0.1960	0.0726	4.7000e-004	0.0116	1.0000e-003	0.0126	3.3600e-003	9.6000e-004	4.3200e-003	0.0000	45.6201	45.6201	2.2900e-003	0.0000	45.6774
Worker	0.0241	0.0165	0.1634	5.4000e-004	0.0545	3.7000e-004	0.0548	0.0145	3.4000e-004	0.0148	0.0000	48.5641	48.5641	1.1500e-003	0.0000	48.5929
Total	**0.0319**	**0.2125**	**0.2360**	**1.0100e-003**	**0.0661**	**1.3700e-003**	**0.0674**	**0.0179**	**1.3000e-003**	**0.0192**	**0.0000**	**94.1842**	**94.1842**	**3.4400e-003**	**0.0000**	**94.2703**

3.6 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	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	5.1000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0187**	**0.1407**	**0.1465**	**2.3000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1902**

3.6 Paving - 2020

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	5.2000e-004	3.6000e-004	3.5500e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0538	1.0538	2.0000e-005	0.0000	1.0545
Total	**5.2000e-004**	**3.6000e-004**	**3.5500e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0538**	**1.0538**	**2.0000e-005**	**0.0000**	**1.0545**

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	5.6100e-003	0.1130	0.1730	2.3000e-004		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	5.1000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0107**	**0.1130**	**0.1730**	**2.3000e-004**		**3.0500e-003**	**3.0500e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1901**

3.6 Paving - 2020

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	5.2000e-004	3.6000e-004	3.5500e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0538	1.0538	2.0000e-005	0.0000	1.0545
Total	**5.2000e-004**	**3.6000e-004**	**3.5500e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0538**	**1.0538**	**2.0000e-005**	**0.0000**	**1.0545**

3.7 Architectural Coating - 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					
Archit. Coating	0.8410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0168	0.0183	3.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.8434**	**0.0168**	**0.0183**	**3.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.1100e-003**	**1.1100e-003**	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

3.7 Architectural Coating - 2020

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	1.2200e-003	8.4000e-004	8.2700e-003	3.0000e-005	2.7600e-003	2.0000e-005	2.7800e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4589	2.4589	6.0000e-005	0.0000	2.4604
Total	**1.2200e-003**	**8.4000e-004**	**8.2700e-003**	**3.0000e-005**	**2.7600e-003**	**2.0000e-005**	**2.7800e-003**	**7.3000e-004**	**2.0000e-005**	**7.5000e-004**	**0.0000**	**2.4589**	**2.4589**	**6.0000e-005**	**0.0000**	**2.4604**

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	0.8410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9000e-004	0.0136	0.0183	3.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.8416**	**0.0136**	**0.0183**	**3.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

3.7 Architectural Coating - 2020

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	1.2200e-003	8.4000e-004	8.2700e-003	3.0000e-005	2.7600e-003	2.0000e-005	2.7800e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4589	2.4589	6.0000e-005	0.0000	2.4604
Total	**1.2200e-003**	**8.4000e-004**	**8.2700e-003**	**3.0000e-005**	**2.7600e-003**	**2.0000e-005**	**2.7800e-003**	**7.3000e-004**	**2.0000e-005**	**7.5000e-004**	**0.0000**	**2.4589**	**2.4589**	**6.0000e-005**	**0.0000**	**2.4604**

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	0.1848	0.6124	2.0391	6.6200e-003	0.3583	6.9700e-003	0.3653	0.1017	6.5400e-003	0.1082	0.0000	604.1265	604.1265	0.0210	0.0000	604.6514
Unmitigated	0.1848	0.6124	2.0391	6.6200e-003	0.3583	6.9700e-003	0.3653	0.1017	6.5400e-003	0.1082	0.0000	604.1265	604.1265	0.0210	0.0000	604.6514

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	39.54	42.96	36.42	91,421	91,421
Congregate Care (Assisted Living)	235.64	189.20	209.84	520,401	520,401
Congregate Care (Assisted Living)	109.60	88.00	97.60	242,047	242,047
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	384.78	320.16	343.86	853,868	853,868

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
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Congregate Care (Assisted	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Congregate Care (Assisted	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Other Asphalt Surfaces	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Parking Lot	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Apartments Low Rise	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Congregate Care (Assisted Living)	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Congregate Care (Assisted Living)	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

The Oaks - Marin County, Annual

	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 Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	92.2499	92.2499	9.2200e-003	1.9100e-003	93.0493
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	97.5830	97.5830	9.7600e-003	2.0200e-003	98.4286
NaturalGas Mitigated	6.7700e-003	0.0579	0.0246	3.7000e-004		4.6800e-003	4.6800e-003		4.6800e-003	4.6800e-003	0.0000	67.0409	67.0409	1.2800e-003	1.2300e-003	67.4393
NaturalGas Unmitigated	8.6800e-003	0.0742	0.0316	4.7000e-004		6.0000e-003	6.0000e-003		6.0000e-003	6.0000e-003	0.0000	85.9490	85.9490	1.6500e-003	1.5800e-003	86.4597

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					
Apartments Low Rise	169235	9.1000e-004	7.8000e-003	3.3200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	9.0311	9.0311	1.7000e-004	1.7000e-004	9.0847
Congregate Care (Assisted Living)	457583	2.4700e-003	0.0211	8.9700e-003	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	24.4184	24.4184	4.7000e-004	4.5000e-004	24.5635
Congregate Care (Assisted Living)	983804	5.3000e-003	0.0453	0.0193	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	52.4995	52.4995	1.0100e-003	9.6000e-004	52.8115
Enclosed Parking with Elevator	0	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
Other Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**8.6800e-003**	**0.0742**	**0.0316**	**4.7000e-004**		**6.0000e-003**	**6.0000e-003**		**6.0000e-003**	**6.0000e-003**	**0.0000**	**85.9490**	**85.9490**	**1.6500e-003**	**1.5800e-003**	**86.4597**

5.2 Energy by Land Use - NaturalGas

Mitigated

	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					
Apartments Low Rise	126243	6.8000e-004	5.8200e-003	2.4800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	6.7368	6.7368	1.3000e-004	1.2000e-004	6.7768
Congregate Care (Assisted Living)	358748	1.9300e-003	0.0165	7.0300e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.1442	19.1442	3.7000e-004	3.5000e-004	19.2579
Congregate Care (Assisted Living)	771308	4.1600e-003	0.0355	0.0151	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003	0.0000	41.1599	41.1599	7.9000e-004	7.5000e-004	41.4045
Enclosed Parking with Elevator	0	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
Other Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**6.7700e-003**	**0.0579**	**0.0246**	**3.8000e-004**		**4.6800e-003**	**4.6800e-003**		**4.6800e-003**	**4.6800e-003**	**0.0000**	**67.0409**	**67.0409**	**1.2900e-003**	**1.2200e-003**	**67.4393**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	27021.4	3.5544	3.6000e-004	7.0000e-005	3.5852
Congregate Care (Assisted Living)	180856	23.7901	2.3800e-003	4.9000e-004	23.9962
Congregate Care (Assisted Living)	388840	51.1487	5.1100e-003	1.0600e-003	51.5919
Enclosed Parking with Elevator	133155	17.5155	1.7500e-003	3.6000e-004	17.6673
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	11968	1.5743	1.6000e-004	3.0000e-005	1.5879
Total		**97.5830**	**9.7600e-003**	**2.0100e-003**	**98.4286**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	25904.8	3.4076	3.4000e-004	7.0000e-005	3.4371
Congregate Care (Assisted Living)	175223	23.0492	2.3000e-003	4.8000e-004	23.2489
Congregate Care (Assisted Living)	376730	49.5557	4.9600e-003	1.0300e-003	49.9852
Enclosed Parking with Elevator	111471	14.6631	1.4700e-003	3.0000e-004	14.7902
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	11968	1.5743	1.6000e-004	3.0000e-005	1.5879
Total		**92.2499**	**9.2300e-003**	**1.9100e-003**	**93.0493**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	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	0.5341	0.0203	0.9883	1.1000e-004		6.1400e-003	6.1400e-003		6.1400e-003	6.1400e-003	0.0000	11.9121	11.9121	1.7600e-003	1.9000e-004	12.0124
Unmitigated	1.1283	0.0251	1.8042	1.6800e-003		0.1226	0.1226		0.1226	0.1226	11.7621	6.4367	18.1988	0.0205	7.7000e-004	18.9403

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	0.0841					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.5953	0.0137	0.8197	1.6300e-003		0.1172	0.1172		0.1172	0.1172	11.7621	4.8313	16.5934	0.0189	7.7000e-004	17.2959
Landscaping	0.0300	0.0114	0.9845	5.0000e-005		5.4200e-003	5.4200e-003		5.4200e-003	5.4200e-003	0.0000	1.6054	1.6054	1.5600e-003	0.0000	1.6445
Total	**1.1283**	**0.0251**	**1.8042**	**1.6800e-003**		**0.1226**	**0.1226**		**0.1226**	**0.1226**	**11.7621**	**6.4367**	**18.1988**	**0.0205**	**7.7000e-004**	**18.9403**

6.2 Area by SubCategory

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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0841					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.0400e-003	8.9000e-003	3.7900e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	10.3067	10.3067	2.0000e-004	1.9000e-004	10.3680
Landscaping	0.0300	0.0114	0.9845	5.0000e-005		5.4200e-003	5.4200e-003		5.4200e-003	5.4200e-003	0.0000	1.6054	1.6054	1.5600e-003	0.0000	1.6445
Total	**0.5341**	**0.0203**	**0.9883**	**1.1000e-004**		**6.1400e-003**	**6.1400e-003**		**6.1400e-003**	**6.1400e-003**	**0.0000**	**11.9121**	**11.9121**	**1.7600e-003**	**1.9000e-004**	**12.0124**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.5762	0.2249	5.4500e-003	16.8227
Unmitigated	11.3462	0.2811	6.8000e-003	20.3988

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.390924 / 0.246452	0.5157	0.0128	3.1000e-004	0.9272
Congregate Care (Assisted Living)	8.20941 / 5.1755	10.8305	0.2683	6.4900e-003	19.4716
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**11.3462**	**0.2811**	**6.8000e-003**	**20.3988**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.312739 / 0.246452	0.4353	0.0102	2.5000e-004	0.7647
Congregate Care (Assisted Living)	6.56753 / 5.1755	9.1409	0.2147	5.2000e-003	16.0580
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**9.5762**	**0.2249**	**5.4500e-003**	**16.8227**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	23.8981	1.4123	0.0000	59.2066
Unmitigated	23.8981	1.4123	0.0000	59.2066

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	2.76	0.5603	0.0331	0.0000	1.3880
Congregate Care (Assisted Living)	114.97	23.3379	1.3792	0.0000	57.8186
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**23.8981**	**1.4123**	**0.0000**	**59.2066**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	2.76	0.5603	0.0331	0.0000	1.3880
Congregate Care (Assisted Living)	114.97	23.3379	1.3792	0.0000	57.8186
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**23.8981**	**1.4123**	**0.0000**	**59.2066**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Oaks

Marin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	55.00	Space	0.49	19,756.00	0
Other Asphalt Surfaces	156.00	1000sqft	3.58	156,000.00	0
Parking Lot	34.00	Space	0.31	13,600.00	0
Apartments Low Rise	6.00	Dwelling Unit	0.38	3,625.00	6
Congregate Care (Assisted Living)	86.00	Dwelling Unit	7.35	78,353.00	92
Congregate Care (Assisted Living)	40.00	Dwelling Unit	1.87	22,161.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Greenhouse Gas Emission Factors: Guidance for PG&E Customers November 2015

Land Use - Notice and Referral of Planning Application (dated December 22, 2017)

Construction Phase - No demolition

Trips and VMT -

Grading -

Vehicle Trips - Traffic Impact Study, W-Trans, June 5, 2017

Construction Off-road Equipment Mitigation - BAAQMD Enhanced Mitigation Measures

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	20,361.00	5,605.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	70,294.00	78,772.00
tblArchitecturalCoating	ConstArea_Residential_Interior	210,881.00	236,315.00
tblAreaCoating	Area_Parking	20361	5605
tblAreaCoating	Area_Residential_Exterior	70294	78772
tblAreaCoating	Area_Residential_Interior	210881	236315
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

The Oaks - Marin County, Summer

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	0.00
tblLandUse	BuildingSpaceSquareFeet	22,000.00	19,756.00
tblLandUse	BuildingSpaceSquareFeet	6,000.00	3,625.00
tblLandUse	BuildingSpaceSquareFeet	40,000.00	22,161.00
tblLandUse	BuildingSpaceSquareFeet	86,000.00	78,353.00
tblLandUse	LandUseSquareFeet	22,000.00	19,756.00
tblLandUse	LandUseSquareFeet	6,000.00	3,625.00
tblLandUse	LandUseSquareFeet	40,000.00	22,161.00
tblLandUse	LandUseSquareFeet	86,000.00	78,353.00
tblLandUse	LotAcreage	2.50	1.87
tblLandUse	LotAcreage	5.38	7.35
tblLandUse	Population	17.00	6.00
tblLandUse	Population	114.00	40.00
tblLandUse	Population	246.00	92.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	VendorTripNumber	70.00	45.00
tblTripsAndVMT	WorkerTripNumber	238.00	175.00
tblTripsAndVMT	WorkerTripNumber	48.00	35.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2019	4.8173	54.5675	33.9429	0.0637	18.2141	2.3914	20.6055	9.9699	2.2001	12.1700	0.0000	6,312.0329	6,312.0329	1.9471	0.0000	6,360.7096
2020	84.4663	24.4358	23.0585	0.0536	1.7420	1.1516	2.8936	0.4689	1.0831	1.5520	0.0000	5,295.6396	5,295.6396	0.7196	0.0000	5,313.6284
Maximum	**84.4663**	**54.5675**	**33.9429**	**0.0637**	**18.2141**	**2.3914**	**20.6055**	**9.9699**	**2.2001**	**12.1700**	**0.0000**	**6,312.0329**	**6,312.0329**	**1.9471**	**0.0000**	**6,360.7096**

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	lb/day										lb/day					
2019	1.6015	30.0255	37.2887	0.0637	8.2777	0.6508	8.7518	4.5080	0.6507	4.9820	0.0000	6,312.0329	6,312.0329	1.9471	0.0000	6,360.7096
2020	84.2835	19.4759	24.0838	0.0536	1.7420	0.4864	2.2283	0.4689	0.4845	0.9534	0.0000	5,295.6396	5,295.6396	0.7196	0.0000	5,313.6284
Maximum	**84.2835**	**30.0255**	**37.2887**	**0.0637**	**8.2777**	**0.6508**	**8.7518**	**4.5080**	**0.6507**	**4.9820**	**0.0000**	**6,312.0329**	**6,312.0329**	**1.9471**	**0.0000**	**6,360.7096**

The Oaks - Marin County, Summer

	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	3.81	37.34	-7.67	0.00	49.79	67.90	53.27	52.32	65.42	56.74	0.00	0.00	0.00	0.00	0.00	0.00

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	lb/day										lb/day					
Area	109.1946	2.4719	151.1248	0.2707		19.9617	19.9617		19.9617	19.9617	2,159.6783	975.7802	3,135.4585	2.9746	0.1527	3,255.3126
Energy	0.0476	0.4067	0.1731	2.6000e-003		0.0329	0.0329		0.0329	0.0329		519.1370	519.1370	9.9500e-003	9.5200e-003	522.2220
Mobile	1.2143	3.3517	12.0591	0.0405	2.1434	0.0401	2.1835	0.6051	0.0376	0.6427		4,079.1511	4,079.1511	0.1349		4,082.5247
Total	**110.4565**	**6.2302**	**163.3569**	**0.3138**	**2.1434**	**20.0347**	**22.1781**	**0.6051**	**20.0322**	**20.6373**	**2,159.6783**	**5,574.0683**	**7,733.7466**	**3.1194**	**0.1622**	**7,860.0592**

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	lb/day										lb/day					
Area	3.2765	1.7240	11.6189	0.0108		0.1894	0.1894		0.1894	0.1894	0.0000	2,059.3802	2,059.3802	0.0582	0.0374	2,071.9798
Energy	0.0371	0.3172	0.1350	2.0200e-003		0.0257	0.0257		0.0257	0.0257		404.9311	404.9311	7.7600e-003	7.4200e-003	407.3374
Mobile	1.2143	3.3517	12.0591	0.0405	2.1434	0.0401	2.1835	0.6051	0.0376	0.6427		4,079.1511	4,079.1511	0.1349		4,082.5247
Total	**4.5279**	**5.3928**	**23.8129**	**0.0533**	**2.1434**	**0.2552**	**2.3986**	**0.6051**	**0.2527**	**0.8578**	**0.0000**	**6,543.4624**	**6,543.4624**	**0.2009**	**0.0448**	**6,561.8419**

	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	**95.90**	**13.44**	**85.42**	**83.00**	**0.00**	**98.73**	**89.18**	**0.00**	**98.74**	**95.84**	**100.00**	**-17.39**	**15.39**	**93.56**	**72.37**	**16.52**

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	1/1/2019	12/31/2018	5	0	
2	Site Preparation	Site Preparation	1/1/2019	1/14/2019	5	10	
3	Grading	Grading	1/15/2019	2/25/2019	5	30	
4	Building Construction	Building Construction	2/26/2019	4/20/2020	5	300	
5	Paving	Paving	4/21/2020	5/18/2020	5	20	
6	Architectural Coating	Architectural Coating	5/19/2020	6/15/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 4.38

Residential Indoor: 236,315; Residential Outdoor: 78,772; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,605 (Architectural Coating – sqft)

OffRoad Equipment

The Oaks - Marin County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	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
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	175.00	45.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	35.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.3 Site Preparation - 2019

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

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	lb/day										lb/day					
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
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
Worker	0.0705	0.0426	0.5095	1.5500e-003	0.1479	9.9000e-004	0.1489	0.0392	9.1000e-004	0.0401		154.8121	154.8121	3.9900e-003		154.9118
Total	**0.0705**	**0.0426**	**0.5095**	**1.5500e-003**	**0.1479**	**9.9000e-004**	**0.1489**	**0.0392**	**9.1000e-004**	**0.0401**		**154.8121**	**154.8121**	**3.9900e-003**		**154.9118**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.9312	19.0656	22.9600	0.0380		0.4731	0.4731		0.4731	0.4731	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**0.9312**	**19.0656**	**22.9600**	**0.0380**	**8.1298**	**0.4731**	**8.6029**	**4.4688**	**0.4731**	**4.9419**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

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	lb/day										lb/day					
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
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
Worker	0.0705	0.0426	0.5095	1.5500e-003	0.1479	9.9000e-004	0.1489	0.0392	9.1000e-004	0.0401		154.8121	154.8121	3.9900e-003		154.9118
Total	**0.0705**	**0.0426**	**0.5095**	**1.5500e-003**	**0.1479**	**9.9000e-004**	**0.1489**	**0.0392**	**9.1000e-004**	**0.0401**		**154.8121**	**154.8121**	**3.9900e-003**		**154.9118**

3.4 Grading - 2019

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.4 Grading - 2019

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	lb/day										lb/day					
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
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
Worker	0.0784	0.0473	0.5661	1.7300e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		172.0134	172.0134	4.4300e-003		172.1242
Total	**0.0784**	**0.0473**	**0.5661**	**1.7300e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**172.0134**	**172.0134**	**4.4300e-003**		**172.1242**

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	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		0.6497	0.6497		0.6497	0.6497	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.9030**	**0.6497**	**4.5527**	**1.6184**	**0.6497**	**2.2681**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.4 Grading - 2019

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	lb/day										lb/day					
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
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
Worker	0.0784	0.0473	0.5661	1.7300e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		172.0134	172.0134	4.4300e-003		172.1242
Total	**0.0784**	**0.0473**	**0.5661**	**1.7300e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**172.0134**	**172.0134**	**4.4300e-003**		**172.1242**

3.5 Building Construction - 2019

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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

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	lb/day										lb/day					
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
Vendor	0.2392	5.3772	2.0149	0.0122	0.3044	0.0399	0.3443	0.0876	0.0382	0.1258		1,291.6350	1,291.6350	0.0666		1,293.2997
Worker	0.6858	0.4143	4.9533	0.0151	1.4376	9.6400e-003	1.4472	0.3813	8.8900e-003	0.3902		1,505.1174	1,505.1174	0.0388		1,506.0870
Total	**0.9251**	**5.7915**	**6.9682**	**0.0273**	**1.7420**	**0.0496**	**1.7915**	**0.4689**	**0.0471**	**0.5160**		**2,796.7524**	**2,796.7524**	**0.1054**		**2,799.3867**

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	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.4518	0.4518		0.4518	0.4518	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.4518**	**0.4518**		**0.4518**	**0.4518**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

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	lb/day										lb/day					
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
Vendor	0.2392	5.3772	2.0149	0.0122	0.3044	0.0399	0.3443	0.0876	0.0382	0.1258		1,291.6350	1,291.6350	0.0666		1,293.2997
Worker	0.6858	0.4143	4.9533	0.0151	1.4376	9.6400e-003	1.4472	0.3813	8.8900e-003	0.3902		1,505.1174	1,505.1174	0.0388		1,506.0870
Total	**0.9251**	**5.7915**	**6.9682**	**0.0273**	**1.7420**	**0.0496**	**1.7915**	**0.4689**	**0.0471**	**0.5160**		**2,796.7524**	**2,796.7524**	**0.1054**		**2,799.3867**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

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	lb/day										lb/day					
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
Vendor	0.1914	4.8823	1.7385	0.0121	0.3044	0.0251	0.3295	0.0876	0.0241	0.1117		1,284.5777	1,284.5777	0.0625		1,286.1390
Worker	0.6328	0.3675	4.4715	0.0146	1.4376	9.4300e-003	1.4470	0.3813	8.7000e-003	0.3900		1,457.9988	1,457.9988	0.0342		1,458.8549
Total	**0.8241**	**5.2498**	**6.2100**	**0.0267**	**1.7420**	**0.0346**	**1.7766**	**0.4689**	**0.0328**	**0.5017**		**2,742.5765**	**2,742.5765**	**0.0967**		**2,744.9939**

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	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.4518	0.4518		0.4518	0.4518	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.4518**	**0.4518**		**0.4518**	**0.4518**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

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	lb/day										lb/day					
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
Vendor	0.1914	4.8823	1.7385	0.0121	0.3044	0.0251	0.3295	0.0876	0.0241	0.1117		1,284.5777	1,284.5777	0.0625		1,286.1390
Worker	0.6328	0.3675	4.4715	0.0146	1.4376	9.4300e-003	1.4470	0.3813	8.7000e-003	0.3900		1,457.9988	1,457.9988	0.0342		1,458.8549
Total	**0.8241**	**5.2498**	**6.2100**	**0.0267**	**1.7420**	**0.0346**	**1.7766**	**0.4689**	**0.0328**	**0.5017**		**2,742.5765**	**2,742.5765**	**0.0967**		**2,744.9939**

3.6 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	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8661**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.6 Paving - 2020

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	lb/day										lb/day					
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
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
Worker	0.0542	0.0315	0.3833	1.2500e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		124.9713	124.9713	2.9400e-003		125.0447
Total	**0.0542**	**0.0315**	**0.3833**	**1.2500e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**124.9713**	**124.9713**	**2.9400e-003**		**125.0447**

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	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.3047	0.3047		0.3047	0.3047	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0705**	**11.2952**	**17.2957**	**0.0228**		**0.3047**	**0.3047**		**0.3047**	**0.3047**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.6 Paving - 2020

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	lb/day										lb/day					
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
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
Worker	0.0542	0.0315	0.3833	1.2500e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		124.9713	124.9713	2.9400e-003		125.0447
Total	**0.0542**	**0.0315**	**0.3833**	**1.2500e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**124.9713**	**124.9713**	**2.9400e-003**		**125.0447**

3.7 Architectural Coating - 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	lb/day										lb/day					
Archit. Coating	84.0976					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**84.3397**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

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	lb/day										lb/day					
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
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
Worker	0.1266	0.0735	0.8943	2.9200e-003	0.2875	1.8900e-003	0.2894	0.0763	1.7400e-003	0.0780		291.5998	291.5998	6.8500e-003		291.7710
Total	**0.1266**	**0.0735**	**0.8943**	**2.9200e-003**	**0.2875**	**1.8900e-003**	**0.2894**	**0.0763**	**1.7400e-003**	**0.0780**		**291.5998**	**291.5998**	**6.8500e-003**		**291.7710**

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	lb/day										lb/day					
Archit. Coating	84.0976					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0475	0.0475		0.0475	0.0475	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**84.1570**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0475**	**0.0475**		**0.0475**	**0.0475**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

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	lb/day										lb/day					
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
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
Worker	0.1266	0.0735	0.8943	2.9200e-003	0.2875	1.8900e-003	0.2894	0.0763	1.7400e-003	0.0780		291.5998	291.5998	6.8500e-003		291.7710
Total	**0.1266**	**0.0735**	**0.8943**	**2.9200e-003**	**0.2875**	**1.8900e-003**	**0.2894**	**0.0763**	**1.7400e-003**	**0.0780**		**291.5998**	**291.5998**	**6.8500e-003**		**291.7710**

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	lb/day										lb/day					
Mitigated	1.2143	3.3517	12.0591	0.0405	2.1434	0.0401	2.1835	0.6051	0.0376	0.6427		4,079.1511	4,079.1511	0.1349		4,082.5247
Unmitigated	1.2143	3.3517	12.0591	0.0405	2.1434	0.0401	2.1835	0.6051	0.0376	0.6427		4,079.1511	4,079.1511	0.1349		4,082.5247

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	39.54	42.96	36.42	91,421	91,421
Congregate Care (Assisted Living)	235.64	189.20	209.84	520,401	520,401
Congregate Care (Assisted Living)	109.60	88.00	97.60	242,047	242,047
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	384.78	320.16	343.86	853,868	853,868

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
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Congregate Care (Assisted	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Congregate Care (Assisted	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Other Asphalt Surfaces	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Parking Lot	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Apartments Low Rise	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Congregate Care (Assisted Living)	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Congregate Care (Assisted Living)	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

The Oaks - Marin County, Summer

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0371	0.3172	0.1350	2.0200e-003		0.0257	0.0257		0.0257	0.0257		404.9311	404.9311	7.7600e-003	7.4200e-003	407.3374
NaturalGas Unmitigated	0.0476	0.4067	0.1731	2.6000e-003		0.0329	0.0329		0.0329	0.0329		519.1370	519.1370	9.9500e-003	9.5200e-003	522.2220

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	lb/day										lb/day					
Apartments Low Rise	463.659	5.0000e-003	0.0427	0.0182	2.7000e-004		3.4500e-003	3.4500e-003		3.4500e-003	3.4500e-003		54.5481	54.5481	1.0500e-003	1.0000e-003	54.8723
Congregate Care (Assisted Living)	1253.65	0.0135	0.1155	0.0492	7.4000e-004		9.3400e-003	9.3400e-003		9.3400e-003	9.3400e-003		147.4885	147.4885	2.8300e-003	2.7000e-003	148.3650
Congregate Care (Assisted Living)	2695.35	0.0291	0.2484	0.1057	1.5900e-003		0.0201	0.0201		0.0201	0.0201		317.1004	317.1004	6.0800e-003	5.8100e-003	318.9847
Enclosed Parking with Elevator	0	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
Other Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0476**	**0.4067**	**0.1730**	**2.6000e-003**		**0.0329**	**0.0329**		**0.0329**	**0.0329**		**519.1370**	**519.1370**	**9.9600e-003**	**9.5100e-003**	**522.2220**

5.2 Energy by Land Use - NaturalGas

Mitigated

	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	lb/day										lb/day					
Apartments Low Rise	0.34587	3.7300e-003	0.0319	0.0136	2.0000e-004		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003		40.6907	40.6907	7.8000e-004	7.5000e-004	40.9325
Congregate Care (Assisted Living)	0.982871	0.0106	0.0906	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003		115.6319	115.6319	2.2200e-003	2.1200e-003	116.3190
Congregate Care (Assisted Living)	2.11317	0.0228	0.1947	0.0829	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.6085	248.6085	4.7600e-003	4.5600e-003	250.0859
Enclosed Parking with Elevator	0	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
Other Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0371**	**0.3172**	**0.1350**	**2.0200e-003**		**0.0257**	**0.0257**		**0.0257**	**0.0257**		**404.9311**	**404.9311**	**7.7600e-003**	**7.4300e-003**	**407.3374**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	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	lb/day										lb/day					
Mitigated	3.2765	1.7240	11.6189	0.0108		0.1894	0.1894		0.1894	0.1894	0.0000	2,059.3802	2,059.3802	0.0582	0.0374	2,071.9798
Unmitigated	109.1946	2.4719	151.1248	0.2707		19.9617	19.9617		19.9617	19.9617	2,159.6783	975.7802	3,135.4585	2.9746	0.1527	3,255.3126

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	lb/day										lb/day					
Architectural Coating	0.4608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2956					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	106.1051	2.3457	140.1858	0.2701		19.9014	19.9014		19.9014	19.9014	2,159.6783	956.1177	3,115.7960	2.9554	0.1527	3,235.1714
Landscaping	0.3330	0.1262	10.9389	5.8000e-004		0.0603	0.0603		0.0603	0.0603		19.6625	19.6625	0.0191		20.1412
Total	**109.1946**	**2.4719**	**151.1248**	**0.2707**		**19.9617**	**19.9617**		**19.9617**	**19.9617**	**2,159.6783**	**975.7802**	**3,135.4585**	**2.9745**	**0.1527**	**3,255.3126**

6.2 Area by SubCategory

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
SubCategory	lb/day										lb/day					
Architectural Coating	0.4608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2956					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1870	1.5978	0.6799	0.0102		0.1292	0.1292		0.1292	0.1292	0.0000	2,039.7177	2,039.7177	0.0391	0.0374	2,051.8387
Landscaping	0.3330	0.1262	10.9389	5.8000e-004		0.0603	0.0603		0.0603	0.0603		19.6625	19.6625	0.0191		20.1412
Total	**3.2764**	**1.7240**	**11.6189**	**0.0108**		**0.1894**	**0.1894**		**0.1894**	**0.1894**	**0.0000**	**2,059.3802**	**2,059.3802**	**0.0582**	**0.0374**	**2,071.9798**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Oaks

Marin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	55.00	Space	0.49	19,756.00	0
Other Asphalt Surfaces	156.00	1000sqft	3.58	156,000.00	0
Parking Lot	34.00	Space	0.31	13,600.00	0
Apartments Low Rise	6.00	Dwelling Unit	0.38	3,625.00	6
Congregate Care (Assisted Living)	86.00	Dwelling Unit	7.35	78,353.00	92
Congregate Care (Assisted Living)	40.00	Dwelling Unit	1.87	22,161.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Greenhouse Gas Emission Factors: Guidance for PG&E Customers November 2015

Land Use - Notice and Referral of Planning Application (dated December 22, 2017)

Construction Phase - No demolition

Trips and VMT -

Grading -

Vehicle Trips - Traffic Impact Study, W-Trans, June 5, 2017

Construction Off-road Equipment Mitigation - BAAQMD Enhanced Mitigation Measures

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	20,361.00	5,605.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	70,294.00	78,772.00
tblArchitecturalCoating	ConstArea_Residential_Interior	210,881.00	236,315.00
tblAreaCoating	Area_Parking	20361	5605
tblAreaCoating	Area_Residential_Exterior	70294	78772
tblAreaCoating	Area_Residential_Interior	210881	236315
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	0.00
tblLandUse	BuildingSpaceSquareFeet	22,000.00	19,756.00
tblLandUse	BuildingSpaceSquareFeet	6,000.00	3,625.00
tblLandUse	BuildingSpaceSquareFeet	40,000.00	22,161.00
tblLandUse	BuildingSpaceSquareFeet	86,000.00	78,353.00
tblLandUse	LandUseSquareFeet	22,000.00	19,756.00
tblLandUse	LandUseSquareFeet	6,000.00	3,625.00
tblLandUse	LandUseSquareFeet	40,000.00	22,161.00
tblLandUse	LandUseSquareFeet	86,000.00	78,353.00
tblLandUse	LotAcreage	2.50	1.87
tblLandUse	LotAcreage	5.38	7.35
tblLandUse	Population	17.00	6.00
tblLandUse	Population	114.00	40.00
tblLandUse	Population	246.00	92.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	VendorTripNumber	70.00	45.00
tblTripsAndVMT	WorkerTripNumber	238.00	175.00
tblTripsAndVMT	WorkerTripNumber	48.00	35.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2019	4.8234	54.5787	33.9183	0.0636	18.2141	2.3914	20.6055	9.9699	2.2001	12.1700	0.0000	6,299.1287	6,299.1287	1.9468	0.0000	6,347.7996
2020	84.4762	24.5997	23.0443	0.0523	1.7420	1.1521	2.8941	0.4689	1.0836	1.5525	0.0000	5,158.9141	5,158.9141	0.7207	0.0000	5,176.9326
Maximum	**84.4762**	**54.5787**	**33.9183**	**0.0636**	**18.2141**	**2.3914**	**20.6055**	**9.9699**	**2.2001**	**12.1700**	**0.0000**	**6,299.1287**	**6,299.1287**	**1.9468**	**0.0000**	**6,347.7996**

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	lb/day										lb/day					
2019	1.6655	30.0367	37.2641	0.0636	8.2777	0.6508	8.7518	4.5080	0.6507	4.9820	0.0000	6,299.1287	6,299.1287	1.9468	0.0000	6,347.7996
2020	84.2935	19.6398	24.0696	0.0523	1.7420	0.4869	2.2288	0.4689	0.4850	0.9539	0.0000	5,158.9141	5,158.9141	0.7207	0.0000	5,176.9326
Maximum	**84.2935**	**30.0367**	**37.2641**	**0.0636**	**8.2777**	**0.6508**	**8.7518**	**4.5080**	**0.6507**	**4.9820**	**0.0000**	**6,299.1287**	**6,299.1287**	**1.9468**	**0.0000**	**6,347.7996**

The Oaks - Marin County, Winter

	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	3.74	37.26	-7.67	0.00	49.79	67.89	53.27	52.32	65.41	56.74	0.00	0.00	0.00	0.00	0.00	0.00

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	lb/day										lb/day					
Area	109.1946	2.4719	151.1248	0.2707		19.9617	19.9617		19.9617	19.9617	2,159.6783	975.7802	3,135.4585	2.9746	0.1527	3,255.3126
Energy	0.0476	0.4067	0.1731	2.6000e-003		0.0329	0.0329		0.0329	0.0329		519.1370	519.1370	9.9500e-003	9.5200e-003	522.2220
Mobile	1.0643	3.6239	12.2826	0.0380	2.1434	0.0403	2.1837	0.6051	0.0378	0.6428		3,818.2632	3,818.2632	0.1358		3,821.6577
Total	**110.3065**	**6.5025**	**163.5804**	**0.3112**	**2.1434**	**20.0348**	**22.1783**	**0.6051**	**20.0323**	**20.6374**	**2,159.6783**	**5,313.1803**	**7,472.8587**	**3.1203**	**0.1622**	**7,599.1923**

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	lb/day										lb/day					
Area	3.2765	1.7240	11.6189	0.0108		0.1894	0.1894		0.1894	0.1894	0.0000	2,059.3802	2,059.3802	0.0582	0.0374	2,071.9798
Energy	0.0371	0.3172	0.1350	2.0200e-003		0.0257	0.0257		0.0257	0.0257		404.9311	404.9311	7.7600e-003	7.4200e-003	407.3374
Mobile	1.0643	3.6239	12.2826	0.0380	2.1434	0.0403	2.1837	0.6051	0.0378	0.6428		3,818.2632	3,818.2632	0.1358		3,821.6577
Total	**4.3779**	**5.6651**	**24.0364**	**0.0508**	**2.1434**	**0.2554**	**2.3988**	**0.6051**	**0.2529**	**0.8579**	**0.0000**	**6,282.5744**	**6,282.5744**	**0.2018**	**0.0448**	**6,300.9749**

	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	**96.03**	**12.88**	**85.31**	**83.69**	**0.00**	**98.73**	**89.18**	**0.00**	**98.74**	**95.84**	**100.00**	**-18.25**	**15.93**	**93.53**	**72.37**	**17.08**

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	1/1/2019	12/31/2018	5	0	
2	Site Preparation	Site Preparation	1/1/2019	1/14/2019	5	10	
3	Grading	Grading	1/15/2019	2/25/2019	5	30	
4	Building Construction	Building Construction	2/26/2019	4/20/2020	5	300	
5	Paving	Paving	4/21/2020	5/18/2020	5	20	
6	Architectural Coating	Architectural Coating	5/19/2020	6/15/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 4.38

Residential Indoor: 236,315; Residential Outdoor: 78,772; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,605 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	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
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	175.00	45.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	35.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.3 Site Preparation - 2019

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

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	lb/day										lb/day					
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
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
Worker	0.0760	0.0527	0.4874	1.4400e-003	0.1479	9.9000e-004	0.1489	0.0392	9.1000e-004	0.0401		143.1983	143.1983	3.7800e-003		143.2928
Total	**0.0760**	**0.0527**	**0.4874**	**1.4400e-003**	**0.1479**	**9.9000e-004**	**0.1489**	**0.0392**	**9.1000e-004**	**0.0401**		**143.1983**	**143.1983**	**3.7800e-003**		**143.2928**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	0.9312	19.0656	22.9600	0.0380		0.4731	0.4731		0.4731	0.4731	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**0.9312**	**19.0656**	**22.9600**	**0.0380**	**8.1298**	**0.4731**	**8.6029**	**4.4688**	**0.4731**	**4.9419**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

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	lb/day										lb/day					
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
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
Worker	0.0760	0.0527	0.4874	1.4400e-003	0.1479	9.9000e-004	0.1489	0.0392	9.1000e-004	0.0401		143.1983	143.1983	3.7800e-003		143.2928
Total	**0.0760**	**0.0527**	**0.4874**	**1.4400e-003**	**0.1479**	**9.9000e-004**	**0.1489**	**0.0392**	**9.1000e-004**	**0.0401**		**143.1983**	**143.1983**	**3.7800e-003**		**143.2928**

3.4 Grading - 2019

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.4 Grading - 2019

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	lb/day										lb/day					
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
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
Worker	0.0844	0.0585	0.5415	1.6000e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		159.1093	159.1093	4.2000e-003		159.2142
Total	**0.0844**	**0.0585**	**0.5415**	**1.6000e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**159.1093**	**159.1093**	**4.2000e-003**		**159.2142**

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	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		0.6497	0.6497		0.6497	0.6497	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.9030**	**0.6497**	**4.5527**	**1.6184**	**0.6497**	**2.2681**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

3.4 Grading - 2019

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	lb/day										lb/day					
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
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
Worker	0.0844	0.0585	0.5415	1.6000e-003	0.1643	1.1000e-003	0.1654	0.0436	1.0200e-003	0.0446		159.1093	159.1093	4.2000e-003		159.2142
Total	**0.0844**	**0.0585**	**0.5415**	**1.6000e-003**	**0.1643**	**1.1000e-003**	**0.1654**	**0.0436**	**1.0200e-003**	**0.0446**		**159.1093**	**159.1093**	**4.2000e-003**		**159.2142**

3.5 Building Construction - 2019

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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

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	lb/day										lb/day					
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
Vendor	0.2527	5.4779	2.2462	0.0119	0.3044	0.0406	0.3450	0.0876	0.0389	0.1265		1,264.9208	1,264.9208	0.0702		1,266.6746
Worker	0.7389	0.5119	4.7381	0.0140	1.4376	9.6400e-003	1.4472	0.3813	8.8900e-003	0.3902		1,392.2059	1,392.2059	0.0367		1,393.1245
Total	**0.9916**	**5.9897**	**6.9843**	**0.0259**	**1.7420**	**0.0503**	**1.7922**	**0.4689**	**0.0478**	**0.5167**		**2,657.1267**	**2,657.1267**	**0.1069**		**2,659.7991**

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	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.4518	0.4518		0.4518	0.4518	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.4518**	**0.4518**		**0.4518**	**0.4518**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

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	lb/day										lb/day					
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
Vendor	0.2527	5.4779	2.2462	0.0119	0.3044	0.0406	0.3450	0.0876	0.0389	0.1265		1,264.9208	1,264.9208	0.0702		1,266.6746
Worker	0.7389	0.5119	4.7381	0.0140	1.4376	9.6400e-003	1.4472	0.3813	8.8900e-003	0.3902		1,392.2059	1,392.2059	0.0367		1,393.1245
Total	**0.9916**	**5.9897**	**6.9843**	**0.0259**	**1.7420**	**0.0503**	**1.7922**	**0.4689**	**0.0478**	**0.5167**		**2,657.1267**	**2,657.1267**	**0.1069**		**2,659.7991**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

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	lb/day										lb/day					
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
Vendor	0.2025	4.9598	1.9396	0.0118	0.3044	0.0257	0.3300	0.0876	0.0245	0.1122		1,257.2777	1,257.2777	0.0656		1,258.9184
Worker	0.6823	0.4539	4.2562	0.0135	1.4376	9.4300e-003	1.4470	0.3813	8.7000e-003	0.3900		1,348.5733	1,348.5733	0.0323		1,349.3797
Total	**0.8848**	**5.4137**	**6.1958**	**0.0254**	**1.7420**	**0.0351**	**1.7771**	**0.4689**	**0.0332**	**0.5022**		**2,605.8511**	**2,605.8511**	**0.0979**		**2,608.2981**

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	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.4518	0.4518		0.4518	0.4518	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.4518**	**0.4518**		**0.4518**	**0.4518**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

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	lb/day										lb/day					
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
Vendor	0.2025	4.9598	1.9396	0.0118	0.3044	0.0257	0.3300	0.0876	0.0245	0.1122		1,257.2777	1,257.2777	0.0656		1,258.9184
Worker	0.6823	0.4539	4.2562	0.0135	1.4376	9.4300e-003	1.4470	0.3813	8.7000e-003	0.3900		1,348.5733	1,348.5733	0.0323		1,349.3797
Total	**0.8848**	**5.4137**	**6.1958**	**0.0254**	**1.7420**	**0.0351**	**1.7771**	**0.4689**	**0.0332**	**0.5022**		**2,605.8511**	**2,605.8511**	**0.0979**		**2,608.2981**

3.6 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	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8661**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.6 Paving - 2020

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	lb/day										lb/day					
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
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
Worker	0.0585	0.0389	0.3648	1.1600e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		115.5920	115.5920	2.7600e-003		115.6611
Total	**0.0585**	**0.0389**	**0.3648**	**1.1600e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**115.5920**	**115.5920**	**2.7600e-003**		**115.6611**

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	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.3047	0.3047		0.3047	0.3047	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0705**	**11.2952**	**17.2957**	**0.0228**		**0.3047**	**0.3047**		**0.3047**	**0.3047**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.6 Paving - 2020

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	lb/day										lb/day					
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
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
Worker	0.0585	0.0389	0.3648	1.1600e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		115.5920	115.5920	2.7600e-003		115.6611
Total	**0.0585**	**0.0389**	**0.3648**	**1.1600e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**115.5920**	**115.5920**	**2.7600e-003**		**115.6611**

3.7 Architectural Coating - 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	lb/day										lb/day					
Archit. Coating	84.0976					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**84.3397**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

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	lb/day										lb/day					
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
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
Worker	0.1365	0.0908	0.8512	2.7100e-003	0.2875	1.8900e-003	0.2894	0.0763	1.7400e-003	0.0780		269.7147	269.7147	6.4500e-003		269.8759
Total	**0.1365**	**0.0908**	**0.8512**	**2.7100e-003**	**0.2875**	**1.8900e-003**	**0.2894**	**0.0763**	**1.7400e-003**	**0.0780**		**269.7147**	**269.7147**	**6.4500e-003**		**269.8759**

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	lb/day										lb/day					
Archit. Coating	84.0976					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0475	0.0475		0.0475	0.0475	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**84.1570**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0475**	**0.0475**		**0.0475**	**0.0475**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

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	lb/day										lb/day					
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
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
Worker	0.1365	0.0908	0.8512	2.7100e-003	0.2875	1.8900e-003	0.2894	0.0763	1.7400e-003	0.0780		269.7147	269.7147	6.4500e-003		269.8759
Total	**0.1365**	**0.0908**	**0.8512**	**2.7100e-003**	**0.2875**	**1.8900e-003**	**0.2894**	**0.0763**	**1.7400e-003**	**0.0780**		**269.7147**	**269.7147**	**6.4500e-003**		**269.8759**

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	lb/day										lb/day					
Mitigated	1.0643	3.6239	12.2826	0.0380	2.1434	0.0403	2.1837	0.6051	0.0378	0.6428		3,818.2632	3,818.2632	0.1358		3,821.6577
Unmitigated	1.0643	3.6239	12.2826	0.0380	2.1434	0.0403	2.1837	0.6051	0.0378	0.6428		3,818.2632	3,818.2632	0.1358		3,821.6577

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	39.54	42.96	36.42	91,421	91,421
Congregate Care (Assisted Living)	235.64	189.20	209.84	520,401	520,401
Congregate Care (Assisted Living)	109.60	88.00	97.60	242,047	242,047
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	384.78	320.16	343.86	853,868	853,868

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
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Congregate Care (Assisted	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Congregate Care (Assisted	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Other Asphalt Surfaces	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Parking Lot	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Apartments Low Rise	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Congregate Care (Assisted Living)	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758
Congregate Care (Assisted Living)	0.589733	0.041719	0.200019	0.112200	0.017267	0.005142	0.010289	0.010866	0.002023	0.003460	0.005838	0.000685	0.000758

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install Energy Efficient Appliances

The Oaks - Marin County, Winter

	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	lb/day										lb/day					
NaturalGas Mitigated	0.0371	0.3172	0.1350	2.0200e-003		0.0257	0.0257		0.0257	0.0257		404.9311	404.9311	7.7600e-003	7.4200e-003	407.3374
NaturalGas Unmitigated	0.0476	0.4067	0.1731	2.6000e-003		0.0329	0.0329		0.0329	0.0329		519.1370	519.1370	9.9500e-003	9.5200e-003	522.2220

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	lb/day										lb/day					
Apartments Low Rise	463.659	5.0000e-003	0.0427	0.0182	2.7000e-004		3.4500e-003	3.4500e-003		3.4500e-003	3.4500e-003		54.5481	54.5481	1.0500e-003	1.0000e-003	54.8723
Congregate Care (Assisted Living)	1253.65	0.0135	0.1155	0.0492	7.4000e-004		9.3400e-003	9.3400e-003		9.3400e-003	9.3400e-003		147.4885	147.4885	2.8300e-003	2.7000e-003	148.3650
Congregate Care (Assisted Living)	2695.35	0.0291	0.2484	0.1057	1.5900e-003		0.0201	0.0201		0.0201	0.0201		317.1004	317.1004	6.0800e-003	5.8100e-003	318.9847
Enclosed Parking with Elevator	0	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
Other Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0476**	**0.4067**	**0.1730**	**2.6000e-003**		**0.0329**	**0.0329**		**0.0329**	**0.0329**		**519.1370**	**519.1370**	**9.9600e-003**	**9.5100e-003**	**522.2220**

5.2 Energy by Land Use - NaturalGas

Mitigated

	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	lb/day										lb/day					
Apartments Low Rise	0.34587	3.7300e-003	0.0319	0.0136	2.0000e-004		2.5800e-003	2.5800e-003		2.5800e-003	2.5800e-003		40.6907	40.6907	7.8000e-004	7.5000e-004	40.9325
Congregate Care (Assisted Living)	2.11317	0.0228	0.1947	0.0829	1.2400e-003		0.0158	0.0158		0.0158	0.0158		248.6085	248.6085	4.7600e-003	4.5600e-003	250.0859
Congregate Care (Assisted Living)	0.982871	0.0106	0.0906	0.0385	5.8000e-004		7.3200e-003	7.3200e-003		7.3200e-003	7.3200e-003		115.6319	115.6319	2.2200e-003	2.1200e-003	116.3190
Enclosed Parking with Elevator	0	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
Other Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0371**	**0.3172**	**0.1350**	**2.0200e-003**		**0.0257**	**0.0257**		**0.0257**	**0.0257**		**404.9311**	**404.9311**	**7.7600e-003**	**7.4300e-003**	**407.3374**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	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	lb/day										lb/day					
Mitigated	3.2765	1.7240	11.6189	0.0108		0.1894	0.1894		0.1894	0.1894	0.0000	2,059.3802	2,059.3802	0.0582	0.0374	2,071.9798
Unmitigated	109.1946	2.4719	151.1248	0.2707		19.9617	19.9617		19.9617	19.9617	2,159.6783	975.7802	3,135.4585	2.9746	0.1527	3,255.3126

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	lb/day										lb/day					
Architectural Coating	0.4608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2956					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	106.1051	2.3457	140.1858	0.2701		19.9014	19.9014		19.9014	19.9014	2,159.6783	956.1177	3,115.7960	2.9554	0.1527	3,235.1714
Landscaping	0.3330	0.1262	10.9389	5.8000e-004		0.0603	0.0603		0.0603	0.0603		19.6625	19.6625	0.0191		20.1412
Total	**109.1946**	**2.4719**	**151.1248**	**0.2707**		**19.9617**	**19.9617**		**19.9617**	**19.9617**	**2,159.6783**	**975.7802**	**3,135.4585**	**2.9745**	**0.1527**	**3,255.3126**

6.2 Area by SubCategory

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
SubCategory	lb/day										lb/day					
Architectural Coating	0.4608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2956					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1870	1.5978	0.6799	0.0102		0.1292	0.1292		0.1292	0.1292	0.0000	2,039.7177	2,039.7177	0.0391	0.0374	2,051.8387
Landscaping	0.3330	0.1262	10.9389	5.8000e-004		0.0603	0.0603		0.0603	0.0603		19.6625	19.6625	0.0191		20.1412
Total	**3.2764**	**1.7240**	**11.6189**	**0.0108**		**0.1894**	**0.1894**		**0.1894**	**0.1894**	**0.0000**	**2,059.3802**	**2,059.3802**	**0.0582**	**0.0374**	**2,071.9798**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bridge Construction

Emission Factors (gram/mile or gram/hr for idle)

	ROG	CO	NOX	CO2	PM10	PM25
Worker	0.08	1.68	0.34	269	0.03	0.03
T6 Moving	0.31	0.78	5.90	1,228	0.13	0.12
T6 Idle	0.00	0.03	0.28	22.0	0.00	0.00

Emissions (pounds per day)

	ROG	CO	NOX	PM10	PM25
Worker	0.02	0.46	0.09	0.01	0.01
T6 Moving	0.10	0.26	1.95	0.04	0.04
T6 Idle	0.00	0.00	0.00	0.00	0.00
T6 Total	0.10	0.26	1.95	0.04	0.04
Grand Total	**0.12**	**0.72**	**2.05**	**0.05**	**0.05**

Emsisions (tons per year)

	ROG	CO	NOX	CO2	PM10	PM25
Worker	0.00	0.01	0.00	1.11	0.00	0.00
T6 Moving	0.00	0.00	0.00	1.02	0.00	0.00
T6 Idle	0.00	0.00	0.00	0.00	0.00	0.00
T6 Total	0.00	0.00	0.00	1.02	0.00	0.00
Grand Total	**0.00**	**0.01**	**0.01**	**2.13**	**0.00**	**0.00**

1.93 metric tons

Worker Trips

12.5	miles per day
6.26	miles per one way trip
10	employees
5	days per week
30	days per year

Haul Trucks

30	miles round trip per day
5	round trips per day
5	days per year
10	minutes idle

Bridge Construction

	# of Equipment	Usage Factor	HP	Load Factor	Emission Factor (gram/hp-hour) ROG	CO	NOX	CO2	SO2	PM10	PM2.5	CH4
Air Compressors	2	0.39	78	0.48	0.74	3.80	4.79	568	0.01	0.40	0.40	0.07
Cement and Mortar Mixers	2	0.14	9	0.56	0.66	3.47	4.15	568	0.01	0.17	0.17	0.06
Cranes	2	0.60	208	0.43	0.44	1.33	3.82	568	0.01	0.13	0.13	0.04
Rubber Tired Loaders	2	0.46	87	0.54	0.75	3.92	4.66	568	0.01	0.37	0.37	0.07
Signal Boards	2	0.36	6	0.82	0.66	3.47	4.14	568	0.01	0.16	0.16	0.06

Emissions (pounds/day) ROG	CO	NOX	SO2	PM10	PM2.5
0.58	2.95	3.72	0.00	0.31	0.31
0.03	0.13	0.16	0.00	0.01	0.01
1.26	3.80	10.9	0.01	0.37	0.37
0.85	4.48	5.33	0.00	0.43	0.43
0.06	0.33	0.39	0.00	0.02	0.02
2.78	11.7	20.5	0.02	1.13	1.13

Emissions (tons/year) ROG	CO	NOX	CO2	SO2	PM10	PM2.5
0.01	0.04	0.06	6.62	0.00	0.00	0.00
0.00	0.00	0.00	0.33	0.00	0.00	0.00
0.02	0.06	0.16	24.3	0.00	0.01	0.01
0.01	0.07	0.08	9.75	0.00	0.01	0.01
0.00	0.00	0.01	0.80	0.00	0.00	0.00
0.04	0.18	0.31	41.8	0.00	0.02	0.02
			38.0		metric tons	

Appendix B

Fundamentals of Noise and Vibration Analysis

Appendix B

Fundamentals of Environmental Noise and Regulatory Context for Noise Assessments

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table N-1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA)*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table N-2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night—because excessive noise interferes with the ability to sleep—24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level (CNEL)* is a measure of the cumulative noise exposure in a community, with a 5-dB penalty added to evening hours (7:00 pm – 10:00 pm) and a 10-dB addition to nocturnal hours (10:00 pm – 7:00 am) noise levels. The *Day/Night Average Sound Level (L_{dn} or DNL)* is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Effects of Noise

Sleep and Speech Interference. The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn}. Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed; those facing major roadways and freeways typically need special glass windows.

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA L_{dn}. At a L_{dn} of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a L_{dn} of 60-70 dBA. Between a Ldn of 70-80 dBA, each additional decibel increases the percentage of the population highly annoyed by about 3 percent. People appear to respond more adversely to aircraft noise. When the L_{dn} is 60 dBA, approximately 30-35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

Table N-1. Definitions of Acoustical Terms Used in this Report

Acoustical Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Harris, *Handbook of Acoustical Measurements and Noise Control,* 1998.

Table N-2. Typical Noise Levels In The Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: California Department of Transportation, *Technical Noise Supplement* (TeNS), September 2013.

Regulatory Background

The State of California and Marin County have established regulatory criteria that are applicable in this assessment. The State CEQA Guidelines, Appendix G, are used to assess the potential significance of impacts pursuant to local Countywide Plan policies, County Code standards, or the applicable standards of other agencies. A summary of the applicable regulatory criteria is provided below.

State CEQA Guidelines. CEQA contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. Under CEQA, noise impacts would be considered significant if the project would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies;

b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

e) For a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, if the project would expose people residing or working in the project area to excessive noise levels; or

f) For a project within the vicinity of a private airstrip, if the project would expose people residing or working in the project area to excessive noise levels.

Pursuant to recent court decisions, the impacts of site constraints such as exposure of the proposed Project to excessive levels of noise identified in Checklist Questions (a) and (f) are not included in the evaluation of noise impacts presented in this Addendum, except insofar as they relate to a conflict with County policy or ordinance. These items are discussed in a separate section addressing Noise and Land Use Compatibility for consistency with the policies set forth in the *Marin Countywide Plan*.

CEQA does not define what noise level increase would be considered substantial. Typically, an increase in the Ldn noise level resulting from the project at noise sensitive land uses of 3 dBA or greater would be considered a significant impact when projected noise levels would exceed those considered acceptable for the affected land use. An increase of 5 dBA Ldn or greater would be considered a significant impact when projected noise levels would remain within those considered acceptable for the affected land use.

2016 California Building Code, Title 24, Part 2. The current version of the California Building Code (CBC) requires interior noise levels attributable to exterior environmental noise sources to be limited to a level not exceeding 45 dBA L_{dn}/CNEL in any habitable room.

Marin Countywide Plan. Section 3.10, Noise, of the Built Environment Element of the *Marin Countywide Plan* describes issues related to noise and provides a goal, policies, and programs regarding protection from excessive noise. The *Marin Countywide Plan* also identifies policies and programs that the County

shall implement during the environmental review of projects in order to minimize noise throughout the community. Policies presented in the *Marin Countywide Plan* applicable to this Project include the following:

Policy NO-1.1: Limit Noise from New Development. Direct the siting, design, and insulation of new development to ensure that acceptable noise levels are not exceeded.

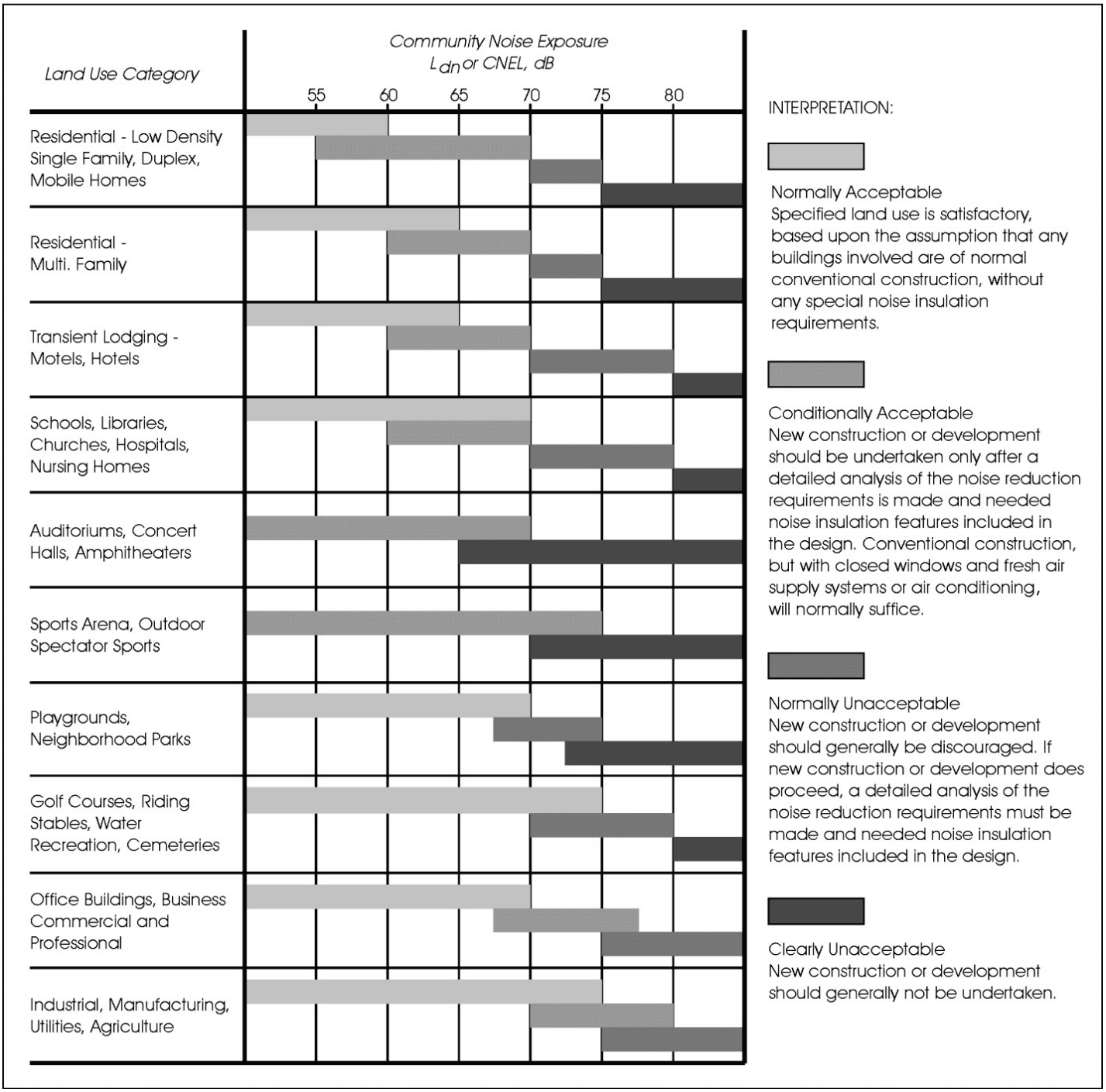
Policy NO-1.2: Minimize Transportation Noise. Ensure that transportation activities do not generate noise beyond acceptable levels, including in open space, wilderness, wildlife habitat, and wetland areas.

Policy NO-1.3: Regulate Noise Generating Activities. Require measures to minimize noise exposure to neighboring properties, open space, and wildlife habitat from construction-related activities, yard maintenance equipment, and other noise sources, such as amplified music.

Policy NO-1.4: Limit Sound Walls Along Highway 101. Promote best available noise reduction technologies and alternative to sound walls to mitigate noise along Highway 101.

Implementing Program NO-1.a: Enforce Allowable Noise Levels. Through CEQA and County discretionary review, require new development to comply with allowable noise levels. The Acceptable Noise Levels in Figure 3-41 [shown below as Figure N-1] shall be used as a guide for determining the appropriate type of new development in relation to its ambient noise environment.

The Benchmarks for Allowable Noise Exposure from Stationary Noise Sources in *Marin Countywide Plan* Figure 3-43 [shown below as Table N-3] shall be used as a guide for establishing allowable noise levels produced by stationary noise sources. These standards shall apply to new residential projects and other noise-sensitive land uses proposed near stationary noise sources. The standards shall also apply to new stationary noise-generating development proposed near existing residential or other noise-sensitive land uses.



Source: California Office of Planning and Research, 1998 General Plan Guidelines.

Figure N-1

Acceptable Noise Levels

Source: Marin Countywide Plan

Table N-3. Benchmarks for Allowable Noise Exposure from Stationary Noise Sources

Noise Parameter	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65
Maximum Level, dB (Impulsive Noise)	65	60

Notes: L_{eq} ("Equivalent Sound Pressure Level") is the constant sound energy that would produce the same noise level as actual sources that are fluctuating during the specified time period (one hour).

Guidelines for use of Figure 3-43 [Table N-3]:

1. The measurements are made at the property line of the receiving land use. The effectiveness of noise mitigation measures should be determined by applying the standards on the receptor side of noise barriers or other property line noise mitigation measures.
2. The nighttime standards apply only when the receiving land use operates or is occupied during nighttime hours.
3. Sound-level measurements to determine maximum level noise shall be made with "slow" meter response.
4. Sound-level measurements for impulsive noise sources shall be made with "fast" meter response. Impulsive noises are defined as those that have sharp, loud peaks in decibel levels but that quickly disappear. Examples include a dog's bark, a hammer's bang, and noise with speech or music content.
5. The allowable noise level standard shall be raised to the ambient noise level in areas where the ambient level already exceeds the standards shown in this table. For example, if the neighborhood already experiences daytime hourly noise levels of 60 dBA as an ambient condition, the noise level standard shall be raised to 60 dBA.
6. The allowable noise level shall be reduced 5 dB if the ambient hourly Leq is at least 10 dB lower than the noise-level standard shown in this table. For example, if the neighborhood experiences daytime hourly noise levels of 40 dBA as an ambient condition, the noise level standard shall be lowered to 45 dBA.

Implementing Program NO-1.b: Comply with Acceptable Noise Levels. Require discretionary permits for residential and other noise sensitive land uses proposed near noise sources that may exceed acceptable noise levels and/or benchmarks to provide acoustical analyses and, if necessary, to commit measures to comply with the applicable standards set out in Program NO-1.a.

Implementing Program NO-1.c: Require Project-Specific Noise Mitigation. Require all development to mitigate its noise impacts where the project would:

- Raise the L_{dn} by more than 5 dBA;
- Raise the L_{dn} by more than 3 dBA and exceed the Normally Acceptable standard; or
- Raise the L_{dn} by more than 3 dBA and the Normally Acceptable standard is already exceeded.

Implementing Program NO-1.d: Set Additional Limits for Housing. Amend the Development Code to require the following maximum noise levels for all new residential units:

- Exterior - 60 dBA L_{dn}
- Interior - 45 dBA L_{dn}

Implementing Program NO-1.i: Regulate Noise Sources. Sections 6.70.030(5) and 6.70.040 of the Marin County Code in order to establish allowable hours of operation for construction-related activities. As a condition of permit approval for projects generating significant construction noise impacts during the construction phase, construction management for any project shall develop a construction noise reduction plan and designate a disturbance coordinator at the construction site to implement the provisions of the plan.

Marin County Code. The County's Code provides noise provisions for construction hours. The portions of the Code that are relevant for this Project are as follows:

6.70.030 (5) Construction Activities and Related Noise.

a) Hours for construction activities and other work undertaken in connection with building, plumbing, electrical, and other permits issued by the Community Development Agency shall be limited to the following:
    - Monday through Friday: 7 a.m. to 6 p.m.
    - Saturday: 9 a.m. to 5 p.m.
    - Prohibited on Sundays and Holidays (New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day).

b) Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the Community Development Agency from 8 a.m. to 5 p.m. Monday through Friday only.

c) Special exceptions to these limitations may occur for:
    - Emergency work as defined in M.C.C 22.130.030, provided written notice is given to the Community Development Director within 48 hours of commencing work.
    - Construction projects of City, County, state, other public agency, or other public utility.
    - When written permission of the Community Development Director has been obtained, for showing of sufficient cause.
    - Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties.
    - Modifications required by the review authority as a discretionary permit condition of approval.

Fundamentals of Ground-borne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the

vibration wave. In this report, a PPV descriptor with units of millimeters per second (mm/sec) or inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints. Table N-4 displays the reactions of people and the effects on buildings that continuous vibration levels produce.

Table N-4. Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Source: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, September 2013.

The annoyance levels shown in Table N-4 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction-related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting

and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Damage caused by vibration can be classified as cosmetic or structural. Cosmetic damage includes minor cracking of building elements (exterior pavement, room surfaces, etc.). Structural damage includes threatening the integrity of the building. Damage resulting from construction-related vibration is typically classified as cosmetic damage. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.