

Appendices

Appendix A

Air Quality Emissions Modeling

Mistletoe Elementary School Project - Shasta County, Summer

Mistletoe Elementary School Project

Shasta County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.10	1000sqft	1.00	1,100.00	0
Unrefrigerated Warehouse-No Rail	1.23	1000sqft	1.00	1,225.00	0
Other Asphalt Surfaces	8.50	1000sqft	1.00	8,500.00	0
Parking Lot	8.50	1000sqft	1.00	8,500.00	0
City Park	0.10	Acre	1.00	4,356.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2022
Utility Company	PacifiCorp				
CO2 Intensity (lb/MW hr)	527.9	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Mistletoe Elementary School Project - Shasta County, Summer

Project Characteristics - PacfiCorp is used as a conservative substitute for Redding Electric Utility. GHG Intensity Factors per EPA's Power Profiler

Land Use - Warehouse is used as an equivalent to the student gymnasium. City park is used as an equivalent to the athletic field. General light industry is used as an equivalent to a the O&M building. The project site totals to 5 acres.

Construction Phase - Construction phase lengths adjusted to match information provided by the Applicant.

Off-road Equipment - Equipment specifications adjusted to match information provided by applicant.

Off-road Equipment - Equipment type and hours of use adjusted to match specifications provided by the applicant.

Off-road Equipment - Construction equipment adjusted to match information provided by applicant.

Grading - The project area is five acres

Energy Use -

Construction Off-road Equipment Mitigation - SMM mitigation measures and California Code or Regulation minimum tiers are required.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	18.00	2.00
tblConstructionPhase	NumDays	5.00	1.00
tblGrading	AcresOfGrading	7.50	5.00
tblGrading	AcresOfGrading	0.50	5.00
tblLandUse	LandUseSquareFeet	1,230.00	1,225.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.20	1.00

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tblLandUse	LotAcreage	0.20	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	187.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	1656.39	527.9
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004

2.0 Emissions Summary

Mistletoe Elementary School Project - Shasta County, Summer

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					
2020	0.8940	10.1163	9.2277	0.0143	5.3436	0.5203	5.6792	0.5834	0.4788	0.8922	0.0000	1,397.8656	1,397.8656	0.3960	0.0000	1,407.7663
2021	13.3707	8.0703	9.1026	0.0143	0.1093	0.4376	0.5468	0.0296	0.4026	0.4322	0.0000	1,394.1702	1,394.1702	0.3954	0.0000	1,404.0563
Maximum	13.3707	10.1163	9.2277	0.0143	5.3436	0.5203	5.6792	0.5834	0.4788	0.8922	0.0000	1,397.8656	1,397.8656	0.3960	0.0000	1,407.7663

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					
2020	0.8940	10.1163	9.2277	0.0143	2.4129	0.5203	2.7486	0.2650	0.4788	0.5738	0.0000	1,397.8656	1,397.8656	0.3960	0.0000	1,407.7663
2021	13.3707	8.0703	9.1026	0.0143	0.0730	0.4376	0.5105	0.0207	0.4026	0.4233	0.0000	1,394.1702	1,394.1702	0.3954	0.0000	1,404.0563
Maximum	13.3707	10.1163	9.2277	0.0143	2.4129	0.5203	2.7486	0.2650	0.4788	0.5738	0.0000	1,397.8656	1,397.8656	0.3960	0.0000	1,407.7663

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	54.41	0.00	47.65	53.39	0.00	24.71	0.00	0.00	0.00	0.00	0.00	0.00

Mistletoe Elementary School Project - Shasta County, Summer

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959
Total	0.1093	0.2421	0.3142	1.2300e-003	0.0714	2.0600e-003	0.0734	0.0191	2.0000e-003	0.0211		132.7580	132.7580	7.5100e-003	2.7000e-004	133.0251

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959
Total	0.1093	0.2421	0.3142	1.2300e-003	0.0714	2.0600e-003	0.0734	0.0191	2.0000e-003	0.0211		132.7580	132.7580	7.5100e-003	2.7000e-004	133.0251

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/14/2020	3/16/2020	5	1	
2	Grading	Grading	3/17/2020	3/30/2020	5	10	
3	Building Construction	Building Construction	3/31/2020	2/15/2021	5	230	
4	Paving	Paving	2/16/2021	2/17/2021	5	2	
5	Architectural Coating	Architectural Coating	2/18/2021	2/24/2021	5	5	

Acres of Grading (Site Preparation Phase): 5**Acres of Grading (Grading Phase): 5****Acres of Paving: 2****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,488; Non-Residential Outdoor: 1,163; Striped Parking Area: 1,020 (Architectural Coating – sqft)****OffRoad Equipment**

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	4.00	187	0.41
Grading	Scrapers	1	4.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Graders	3	0.20	187	0.41
Building Construction	Paving Equipment	2	0.10	132	0.36
Building Construction	Tractors/Loaders/Backhoes	6	5.00	97	0.37
Paving	Dumpers/Tenders	1	8.00	16	0.38
Paving	Graders	1	4.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Mistletoe Elementary School Project - Shasta County, Summer

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 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					
Fugitive Dust					5.3025	0.0000	5.3025	0.5726	0.0000	0.5726			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	5.3025	0.3353	5.6378	0.5726	0.3085	0.8811		943.4872	943.4872	0.3051		951.1158

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3.2 Site Preparation - 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	0.0251	0.0156	0.1893	4.5000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		44.5156	44.5156	1.5800e-003		44.5551
Total	0.0251	0.0156	0.1893	4.5000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		44.5156	44.5156	1.5800e-003		44.5551

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					2.3861	0.0000	2.3861	0.2577	0.0000	0.2577			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	2.3861	0.3353	2.7215	0.2577	0.3085	0.5662	0.0000	943.4872	943.4872	0.3051		951.1158

Mistletoe Elementary School Project - Shasta County, Summer

3.2 Site Preparation - 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	0.0251	0.0156	0.1893	4.5000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		44.5156	44.5156	1.5800e-003		44.5551
Total	0.0251	0.0156	0.1893	4.5000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		44.5156	44.5156	1.5800e-003		44.5551

3.3 Grading - 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					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651		1,205.251 2	1,205.251 2	0.3898		1,214.996 2
Total	0.8391	10.0914	5.7764	0.0124	0.5303	0.3969	0.9271	0.0573	0.3651	0.4224		1,205.251 2	1,205.251 2	0.3898		1,214.996 2

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3.3 Grading - 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	0.0402	0.0249	0.3030	7.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		71.2250	71.2250	2.5200e-003		71.2881
Total	0.0402	0.0249	0.3030	7.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		71.2250	71.2250	2.5200e-003		71.2881

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					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962
Total	0.8391	10.0914	5.7764	0.0124	0.2386	0.3969	0.6355	0.0258	0.3651	0.3909	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962

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3.3 Grading - 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	0.0402	0.0249	0.3030	7.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		71.2250	71.2250	2.5200e-003		71.2881
Total	0.0402	0.0249	0.3030	7.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		71.2250	71.2250	2.5200e-003		71.2881

3.4 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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380

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3.4 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	0.0172	0.4823	0.1007	1.1800e-003	0.0271	2.6900e-003	0.0298	7.8100e-003	2.5700e-003	0.0104		122.8853	122.8853	9.3200e-003		123.1182
Worker	0.0503	0.0311	0.3787	8.9000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.4000e-004	0.0223		89.0312	89.0312	3.1500e-003		89.1101
Total	0.0675	0.5134	0.4794	2.0700e-003	0.1093	3.2700e-003	0.1125	0.0296	3.1100e-003	0.0327		211.9166	211.9166	0.0125		212.2283

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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380

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3.4 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	0.0172	0.4823	0.1007	1.1800e-003	0.0194	2.6900e-003	0.0221	5.9100e-003	2.5700e-003	8.4800e-003		122.8853	122.8853	9.3200e-003		123.1182
Worker	0.0503	0.0311	0.3787	8.9000e-004	0.0536	5.8000e-004	0.0542	0.0148	5.4000e-004	0.0153		89.0312	89.0312	3.1500e-003		89.1101
Total	0.0675	0.5134	0.4794	2.0700e-003	0.0730	3.2700e-003	0.0762	0.0207	3.1100e-003	0.0238		211.9166	211.9166	0.0125		212.2283

3.4 Building Construction - 2021**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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553

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3.4 Building Construction - 2021**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	0.0143	0.4406	0.0879	1.1700e-003	0.0271	1.3500e-003	0.0285	7.8100e-003	1.2900e-003	9.1000e-003		121.8621	121.8621	8.9700e-003		122.0863
Worker	0.0463	0.0276	0.3428	8.6000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		85.9452	85.9452	2.7800e-003		86.0147
Total	0.0606	0.4682	0.4306	2.0300e-003	0.1093	1.9200e-003	0.1112	0.0296	1.8100e-003	0.0314		207.8072	207.8072	0.0118		208.1010

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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553

Mistletoe Elementary School Project - Shasta County, Summer

3.4 Building Construction - 2021**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	0.0143	0.4406	0.0879	1.1700e-003	0.0194	1.3500e-003	0.0207	5.9100e-003	1.2900e-003	7.2100e-003		121.8621	121.8621	8.9700e-003		122.0863
Worker	0.0463	0.0276	0.3428	8.6000e-004	0.0536	5.7000e-004	0.0542	0.0148	5.2000e-004	0.0153		85.9452	85.9452	2.7800e-003		86.0147
Total	0.0606	0.4682	0.4306	2.0300e-003	0.0730	1.9200e-003	0.0749	0.0207	1.8100e-003	0.0225		207.8072	207.8072	0.0118		208.1010

3.5 Paving - 2021**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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031

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3.5 Paving - 2021**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	0.0371	0.0221	0.2742	6.9000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		68.7561	68.7561	2.2300e-003		68.8118
Total	0.0371	0.0221	0.2742	6.9000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		68.7561	68.7561	2.2300e-003		68.8118

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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031

Mistletoe Elementary School Project - Shasta County, Summer

3.5 Paving - 2021**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	0.0371	0.0221	0.2742	6.9000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		68.7561	68.7561	2.2300e-003		68.8118
Total	0.0371	0.0221	0.2742	6.9000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		68.7561	68.7561	2.2300e-003		68.8118

3.6 Architectural Coating - 2021**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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Summer

3.6 Architectural Coating - 2021**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	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		17.1890	17.1890	5.6000e-004		17.2030
Total	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		17.1890	17.1890	5.6000e-004		17.2030

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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Summer

3.6 Architectural Coating - 2021**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	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		17.1890	17.1890	5.6000e-004		17.2030
Total	9.2600e-003	5.5100e-003	0.0686	1.7000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		17.1890	17.1890	5.6000e-004		17.2030

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Mistletoe Elementary School Project - Shasta 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					
Mitigated	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959
Unmitigated	0.0338	0.2300	0.3020	1.1600e-003	0.0714	1.1300e-003	0.0725	0.0191	1.0700e-003	0.0202		118.2154	118.2154	7.2200e-003		118.3959

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.19	2.28	1.67	1,493	1,493
General Light Industry	7.67	1.45	0.75	16,906	16,906
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2.07	2.07	2.07	6,033	6,033
Total	9.92	5.79	4.49	24,431	24,431

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
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
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
General Light Industry	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Unrefrigerated Warehouse-No Rail	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
NaturalGas Unmitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Summer

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					
City Park	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
General Light Industry	62.8959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
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
Unrefrigerated Warehouse-No Rail	60.6795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Summer

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					
City Park	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
General Light Industry	0.0628959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
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
Unrefrigerated Warehouse-No Rail	0.0606795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

6.0 Area Detail**6.1 Mitigation Measures Area**

Mistletoe Elementary School Project - Shasta 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					
Mitigated	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Unmitigated	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

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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	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

7.0 Water Detail**7.1 Mitigation Measures Water****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
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Mistletoe Elementary School Project - Shasta County, Summer

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

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

Equipment Type	Number
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11.0 Vegetation

Mistletoe Elementary School Project - Shasta County, Winter

Mistletoe Elementary School Project

Shasta County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.10	1000sqft	1.00	1,100.00	0
Unrefrigerated Warehouse-No Rail	1.23	1000sqft	1.00	1,225.00	0
Other Asphalt Surfaces	8.50	1000sqft	1.00	8,500.00	0
Parking Lot	8.50	1000sqft	1.00	8,500.00	0
City Park	0.10	Acre	1.00	4,356.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2022
Utility Company	PacifiCorp				
CO2 Intensity (lb/MW hr)	527.9	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Mistletoe Elementary School Project - Shasta County, Winter

Project Characteristics - PacfiCorp is used as a conservative substitute for Redding Electric Utility. GHG Intensity Factors per EPA's Power Profiler

Land Use - Warehouse is used as an equivalent to the student gymnasium. City park is used as an equivalent to the athletic field. General light industry is used as an equivalent to a the O&M building. The project site totals to 5 acres.

Construction Phase - Construction phase lengths adjusted to match information provided by the Applicant.

Off-road Equipment - Equipment specifications adjusted to match information provided by applicant.

Off-road Equipment - Equipment type and hours of use adjusted to match specifications provided by the applicant.

Off-road Equipment - Construction equipment adjusted to match information provided by applicant.

Grading - The project area is five acres

Energy Use -

Construction Off-road Equipment Mitigation - SMM mitigation measures and California Code or Regulation minimum tiers are required.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	18.00	2.00
tblConstructionPhase	NumDays	5.00	1.00
tblGrading	AcresOfGrading	7.50	5.00
tblGrading	AcresOfGrading	0.50	5.00
tblLandUse	LandUseSquareFeet	1,230.00	1,225.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.20	1.00

Mistletoe Elementary School Project - Shasta County, Winter

tblLandUse	LotAcreage	0.20	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	187.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	1656.39	527.9
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004

2.0 Emissions Summary

Mistletoe Elementary School Project - Shasta County, Winter

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					
2020	0.8886	10.1211	9.1862	0.0142	5.3436	0.5204	5.6792	0.5834	0.4789	0.8922	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0
2021	13.3696	8.0822	9.0641	0.0141	0.1093	0.4376	0.5469	0.0296	0.4027	0.4322	0.0000	1,378.706 2	1,378.706 2	0.3962	0.0000	1,388.612 0
Maximum	13.3696	10.1211	9.1862	0.0142	5.3436	0.5204	5.6792	0.5834	0.4789	0.8922	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0

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					
2020	0.8886	10.1211	9.1862	0.0142	2.4129	0.5204	2.7486	0.2650	0.4789	0.5738	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0
2021	13.3696	8.0822	9.0641	0.0141	0.0730	0.4376	0.5106	0.0207	0.4027	0.4233	0.0000	1,378.706 2	1,378.706 2	0.3962	0.0000	1,388.612 0
Maximum	13.3696	10.1211	9.1862	0.0142	2.4129	0.5204	2.7486	0.2650	0.4789	0.5738	0.0000	1,381.981 4	1,381.981 4	0.3968	0.0000	1,391.901 0

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	54.41	0.00	47.65	53.39	0.00	24.71	0.00	0.00	0.00	0.00	0.00	0.00

Mistletoe Elementary School Project - Shasta County, Winter

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303
Total	0.1011	0.2490	0.2920	1.1300e-003	0.0714	2.0900e-003	0.0735	0.0191	2.0300e-003	0.0212		122.3810	122.3810	7.9600e-003	2.7000e-004	122.6595

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	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
Mobile	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303
Total	0.1011	0.2490	0.2920	1.1300e-003	0.0714	2.0900e-003	0.0735	0.0191	2.0300e-003	0.0212		122.3810	122.3810	7.9600e-003	2.7000e-004	122.6595

Mistletoe Elementary School Project - Shasta 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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/14/2020	3/16/2020	5	1	
2	Grading	Grading	3/17/2020	3/30/2020	5	10	
3	Building Construction	Building Construction	3/31/2020	2/15/2021	5	230	
4	Paving	Paving	2/16/2021	2/17/2021	5	2	
5	Architectural Coating	Architectural Coating	2/18/2021	2/24/2021	5	5	

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 5

Acres of Paving: 2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,488; Non-Residential Outdoor: 1,163; Striped Parking Area: 1,020 (Architectural Coating – sqft)

OffRoad Equipment

Mistletoe Elementary School Project - Shasta County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	4.00	187	0.41
Grading	Scrapers	1	4.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Graders	3	0.20	187	0.41
Building Construction	Paving Equipment	2	0.10	132	0.36
Building Construction	Tractors/Loaders/Backhoes	6	5.00	97	0.37
Paving	Dumpers/Tenders	1	8.00	16	0.38
Paving	Graders	1	4.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Mistletoe Elementary School Project - Shasta County, Winter

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 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					
Fugitive Dust					5.3025	0.0000	5.3025	0.5726	0.0000	0.5726			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	5.3025	0.3353	5.6378	0.5726	0.3085	0.8811		943.4872	943.4872	0.3051		951.1158

Mistletoe Elementary School Project - Shasta County, Winter

3.2 Site Preparation - 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	0.0220	0.0186	0.1592	3.9000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		38.5999	38.5999	1.3600e-003		38.6338
Total	0.0220	0.0186	0.1592	3.9000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		38.5999	38.5999	1.3600e-003		38.6338

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					2.3861	0.0000	2.3861	0.2577	0.0000	0.2577			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	0.6853	8.4307	4.0942	9.7400e-003	2.3861	0.3353	2.7215	0.2577	0.3085	0.5662	0.0000	943.4872	943.4872	0.3051		951.1158

Mistletoe Elementary School Project - Shasta County, Winter

3.2 Site Preparation - 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	0.0220	0.0186	0.1592	3.9000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		38.5999	38.5999	1.3600e-003		38.6338
Total	0.0220	0.0186	0.1592	3.9000e-004	0.0268	2.9000e-004	0.0271	7.3900e-003	2.7000e-004	7.6600e-003		38.5999	38.5999	1.3600e-003		38.6338

3.3 Grading - 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					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651		1,205.2512	1,205.2512	0.3898		1,214.9962
Total	0.8391	10.0914	5.7764	0.0124	0.5303	0.3969	0.9271	0.0573	0.3651	0.4224		1,205.2512	1,205.2512	0.3898		1,214.9962

Mistletoe Elementary School Project - Shasta County, Winter

3.3 Grading - 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	0.0352	0.0297	0.2547	6.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		61.7598	61.7598	2.1700e-003		61.8140
Total	0.0352	0.0297	0.2547	6.2000e-004	0.0657	4.7000e-004	0.0662	0.0174	4.3000e-004	0.0179		61.7598	61.7598	2.1700e-003		61.8140

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					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.8391	10.0914	5.7764	0.0124		0.3969	0.3969		0.3651	0.3651	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962
Total	0.8391	10.0914	5.7764	0.0124	0.2386	0.3969	0.6355	0.0258	0.3651	0.3909	0.0000	1,205.2512	1,205.2512	0.3898		1,214.9962

Mistletoe Elementary School Project - Shasta County, Winter

3.3 Grading - 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	0.0352	0.0297	0.2547	6.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		61.7598	61.7598	2.1700e-003		61.8140
Total	0.0352	0.0297	0.2547	6.2000e-004	0.0429	4.7000e-004	0.0433	0.0118	4.3000e-004	0.0123		61.7598	61.7598	2.1700e-003		61.8140

3.4 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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757		1,185.9490	1,185.9490	0.3836		1,195.5380

Mistletoe Elementary School Project - Shasta County, Winter

3.4 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	0.0180	0.4912	0.1195	1.1400e-003	0.0271	2.7500e-003	0.0299	7.8100e-003	2.6300e-003	0.0104		118.8326	118.8326	0.0105		119.0955
Worker	0.0440	0.0372	0.3184	7.8000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.4000e-004	0.0223		77.1997	77.1997	2.7100e-003		77.2675
Total	0.0621	0.5284	0.4379	1.9200e-003	0.1093	3.3300e-003	0.1126	0.0296	3.1700e-003	0.0328		196.0324	196.0324	0.0132		196.3630

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	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380
Total	0.8265	8.4223	8.7483	0.0122		0.5170	0.5170		0.4757	0.4757	0.0000	1,185.9490	1,185.9490	0.3836		1,195.5380

Mistletoe Elementary School Project - Shasta County, Winter

3.4 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	0.0180	0.4912	0.1195	1.1400e-003	0.0194	2.7500e-003	0.0221	5.9100e-003	2.6300e-003	8.5400e-003		118.8326	118.8326	0.0105		119.0955
Worker	0.0440	0.0372	0.3184	7.8000e-004	0.0536	5.8000e-004	0.0542	0.0148	5.4000e-004	0.0153		77.1997	77.1997	2.7100e-003		77.2675
Total	0.0621	0.5284	0.4379	1.9200e-003	0.0730	3.3300e-003	0.0763	0.0207	3.1700e-003	0.0239		196.0324	196.0324	0.0132		196.3630

3.4 Building Construction - 2021**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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008		1,186.3630	1,186.3630	0.3837		1,195.9553

Mistletoe Elementary School Project - Shasta County, Winter

3.4 Building Construction - 2021**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	0.0151	0.4472	0.1054	1.1300e-003	0.0271	1.4100e-003	0.0285	7.8100e-003	1.3500e-003	9.1500e-003		117.8180	117.8180	0.0102		118.0718
Worker	0.0407	0.0329	0.2868	7.5000e-004	0.0822	5.7000e-004	0.0827	0.0218	5.2000e-004	0.0223		74.5252	74.5252	2.3900e-003		74.5849
Total	0.0557	0.4801	0.3922	1.8800e-003	0.1093	1.9800e-003	0.1112	0.0296	1.8700e-003	0.0315		192.3432	192.3432	0.0125		192.6567

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	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553
Total	0.7411	7.6021	8.6720	0.0123		0.4356	0.4356		0.4008	0.4008	0.0000	1,186.3630	1,186.3630	0.3837		1,195.9553

Mistletoe Elementary School Project - Shasta County, Winter

3.4 Building Construction - 2021**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	0.0151	0.4472	0.1054	1.1300e-003	0.0194	1.4100e-003	0.0208	5.9100e-003	1.3500e-003	7.2600e-003		117.8180	117.8180	0.0102		118.0718
Worker	0.0407	0.0329	0.2868	7.5000e-004	0.0536	5.7000e-004	0.0542	0.0148	5.2000e-004	0.0153		74.5252	74.5252	2.3900e-003		74.5849
Total	0.0557	0.4801	0.3922	1.8800e-003	0.0730	1.9800e-003	0.0750	0.0207	1.8700e-003	0.0226		192.3432	192.3432	0.0125		192.6567

3.5 Paving - 2021**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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988		664.4598	664.4598	0.2017		669.5031

Mistletoe Elementary School Project - Shasta County, Winter

3.5 Paving - 2021**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	0.0325	0.0263	0.2295	6.0000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		59.6201	59.6201	1.9100e-003		59.6679
Total	0.0325	0.0263	0.2295	6.0000e-004	0.0657	4.5000e-004	0.0662	0.0174	4.2000e-004	0.0179		59.6201	59.6201	1.9100e-003		59.6679

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	0.6048	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031
Paving	2.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.2248	5.3148	4.5646	6.9800e-003		0.3232	0.3232		0.2988	0.2988	0.0000	664.4598	664.4598	0.2017		669.5031

Mistletoe Elementary School Project - Shasta County, Winter

3.5 Paving - 2021**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	0.0325	0.0263	0.2295	6.0000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		59.6201	59.6201	1.9100e-003		59.6679
Total	0.0325	0.0263	0.2295	6.0000e-004	0.0429	4.5000e-004	0.0433	0.0118	4.2000e-004	0.0122		59.6201	59.6201	1.9100e-003		59.6679

3.6 Architectural Coating - 2021**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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Winter

3.6 Architectural Coating - 2021**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	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		14.9050	14.9050	4.8000e-004		14.9170
Total	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0164	1.1000e-004	0.0165	4.3600e-003	1.0000e-004	4.4600e-003		14.9050	14.9050	4.8000e-004		14.9170

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	13.1425					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	13.3614	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Mistletoe Elementary School Project - Shasta County, Winter

3.6 Architectural Coating - 2021**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	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		14.9050	14.9050	4.8000e-004		14.9170
Total	8.1300e-003	6.5900e-003	0.0574	1.5000e-004	0.0107	1.1000e-004	0.0108	2.9600e-003	1.0000e-004	3.0600e-003		14.9050	14.9050	4.8000e-004		14.9170

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Mistletoe Elementary School Project - Shasta 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					
Mitigated	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303
Unmitigated	0.0256	0.2369	0.2798	1.0600e-003	0.0714	1.1600e-003	0.0725	0.0191	1.1000e-003	0.0202		107.8385	107.8385	7.6700e-003		108.0303

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.19	2.28	1.67	1,493	1,493
General Light Industry	7.67	1.45	0.75	16,906	16,906
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2.07	2.07	2.07	6,033	6,033
Total	9.92	5.79	4.49	24,431	24,431

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
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
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

Mistletoe Elementary School Project - Shasta County, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
General Light Industry	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Unrefrigerated Warehouse-No Rail	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247
NaturalGas Unmitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Winter

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					
City Park	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
General Light Industry	62.8959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
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
Unrefrigerated Warehouse-No Rail	60.6795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

Mistletoe Elementary School Project - Shasta County, Winter

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					
City Park	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
General Light Industry	0.0628959	6.8000e-004	6.1700e-003	5.1800e-003	4.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004		7.3995	7.3995	1.4000e-004	1.4000e-004	7.4435
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
Unrefrigerated Warehouse-No Rail	0.0606795	6.5000e-004	5.9500e-003	5.0000e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004		7.1388	7.1388	1.4000e-004	1.3000e-004	7.1812
Total		1.3300e-003	0.0121	0.0102	8.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004		14.5383	14.5383	2.8000e-004	2.7000e-004	14.6247

6.0 Area Detail**6.1 Mitigation Measures Area**

Mistletoe Elementary School Project - Shasta 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					
Mitigated	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Unmitigated	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

Mistletoe Elementary School Project - Shasta County, Winter

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	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003
Total	0.0742	2.0000e-005	1.9900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.2500e-003	4.2500e-003	1.0000e-005		4.5300e-003

7.0 Water Detail**7.1 Mitigation Measures Water****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
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Mistletoe Elementary School Project - Shasta County, Winter

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

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

Equipment Type	Number
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11.0 Vegetation

Appendix B

Greenhouse Gas Emissions Modeling

Mistletoe Elementary School Project - Shasta County, Annual

Mistletoe Elementary School Project

Shasta County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.10	1000sqft	1.00	1,100.00	0
Unrefrigerated Warehouse-No Rail	1.23	1000sqft	1.00	1,225.00	0
Other Asphalt Surfaces	8.50	1000sqft	1.00	8,500.00	0
Parking Lot	8.50	1000sqft	1.00	8,500.00	0
City Park	0.10	Acre	1.00	4,356.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	82
Climate Zone	3			Operational Year	2022
Utility Company	PacifiCorp				
CO2 Intensity (lb/MW hr)	527.9	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Mistletoe Elementary School Project - Shasta County, Annual

Project Characteristics - PacfiCorp is used as a conservative substitute for Redding Electric Utility. GHG Intensity Factors per EPA's Power Profiler

Land Use - Warehouse is used as an equivalent to the student gymnasium. City park is used as an equivalent to the athletic field. General light industry is used as an equivalent to a the O&M building. The project site totals to 5 acres.

Construction Phase - Construction phase lengths adjusted to match information provided by the Applicant.

Off-road Equipment - Equipment specifications adjusted to match information provided by applicant.

Off-road Equipment - Equipment type and hours of use adjusted to match specifications provided by the applicant.

Off-road Equipment - Construction equipment adjusted to match information provided by applicant.

Grading - The project area is five acres

Energy Use -

Construction Off-road Equipment Mitigation - SMM mitigation measures and California Code or Regulation minimum tiers are required.

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDays	8.00	10.00
tblConstructionPhase	NumDays	18.00	2.00
tblConstructionPhase	NumDays	5.00	1.00
tblGrading	AcresOfGrading	7.50	5.00
tblGrading	AcresOfGrading	0.50	5.00
tblLandUse	LandUseSquareFeet	1,230.00	1,225.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.03	1.00
tblLandUse	LotAcreage	0.20	1.00

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tblLandUse	LotAcreage	0.20	1.00
tblLandUse	LotAcreage	0.10	1.00
tblOffRoadEquipment	HorsePower	187.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	1656.39	527.9
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004

2.0 Emissions Summary

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2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0924	0.9405	0.9406	1.4800e-003	0.0160	0.0537	0.0696	3.4700e-003	0.0494	0.0529	0.0000	130.7617	130.7617	0.0375	0.0000	131.6991
2021	0.0494	0.1384	0.1543	2.4000e-004	1.7700e-003	7.5600e-003	9.3300e-003	4.8000e-004	6.9800e-003	7.4600e-003	0.0000	21.4138	21.4138	5.9700e-003	0.0000	21.5631
Maximum	0.0924	0.9405	0.9406	1.4800e-003	0.0160	0.0537	0.0696	3.4700e-003	0.0494	0.0529	0.0000	130.7617	130.7617	0.0375	0.0000	131.6991

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					
2020	0.0924	0.9405	0.9406	1.4800e-003	9.5300e-003	0.0537	0.0632	2.2900e-003	0.0494	0.0517	0.0000	130.7616	130.7616	0.0375	0.0000	131.6990
2021	0.0494	0.1384	0.1543	2.4000e-004	1.1900e-003	7.5600e-003	8.7500e-003	3.4000e-004	6.9800e-003	7.3100e-003	0.0000	21.4138	21.4138	5.9700e-003	0.0000	21.5631
Maximum	0.0924	0.9405	0.9406	1.4800e-003	9.5300e-003	0.0537	0.0632	2.2900e-003	0.0494	0.0517	0.0000	130.7616	130.7616	0.0375	0.0000	131.6990

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	39.50	0.00	8.87	33.42	0.00	2.19	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-2-2020	6-1-2020	0.2860	0.2860
2	6-2-2020	9-1-2020	0.3230	0.3230
3	9-2-2020	12-1-2020	0.3197	0.3197
4	12-2-2020	3-1-2021	0.2947	0.2947
		Highest	0.3230	0.3230

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Energy	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	8.1969	8.1969	4.1000e-004	9.0000e-005	8.2333
Mobile	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877
Waste						0.0000	0.0000		0.0000	0.0000	0.5136	0.0000	0.5136	0.0304	0.0000	1.2723
Water						0.0000	0.0000		0.0000	0.0000	0.1709	0.7980	0.9689	0.0176	4.2000e-004	1.5344
Total	0.0173	0.0331	0.0378	1.5000e-004	9.0800e-003	3.2000e-004	9.4100e-003	2.4500e-003	3.1000e-004	2.7600e-003	0.6845	22.3613	23.0458	0.0492	5.1000e-004	24.4282

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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	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Energy	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	8.1969	8.1969	4.1000e-004	9.0000e-005	8.2333
Mobile	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877
Waste						0.0000	0.0000		0.0000	0.0000	0.5136	0.0000	0.5136	0.0304	0.0000	1.2723
Water						0.0000	0.0000		0.0000	0.0000	0.1709	0.7980	0.9689	0.0176	4.2000e-004	1.5344
Total	0.0173	0.0331	0.0378	1.5000e-004	9.0800e-003	3.2000e-004	9.4100e-003	2.4500e-003	3.1000e-004	2.7600e-003	0.6845	22.3613	23.0458	0.0492	5.1000e-004	24.4282

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/14/2020	3/16/2020	5	1	
2	Grading	Grading	3/17/2020	3/30/2020	5	10	
3	Building Construction	Building Construction	3/31/2020	2/15/2021	5	230	
4	Paving	Paving	2/16/2021	2/17/2021	5	2	
5	Architectural Coating	Architectural Coating	2/18/2021	2/24/2021	5	5	

Acres of Grading (Site Preparation Phase): 5

Acres of Grading (Grading Phase): 5

Acres of Paving: 2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,488; Non-Residential Outdoor: 1,163; Striped Parking Area: 1,020 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	4.00	187	0.41
Grading	Scrapers	1	4.00	367	0.48
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Graders	3	0.20	187	0.41
Building Construction	Paving Equipment	2	0.10	132	0.36
Building Construction	Tractors/Loaders/Backhoes	6	5.00	97	0.37
Paving	Dumpers/Tenders	1	8.00	16	0.38
Paving	Graders	1	4.00	97	0.37
Paving	Pavers	1	8.00	130	0.42
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
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	11	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6500e-003	0.0000	2.6500e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-004	4.2200e-003	2.0500e-003	0.0000		1.7000e-004	1.7000e-004		1.5000e-004	1.5000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314
Total	3.4000e-004	4.2200e-003	2.0500e-003	0.0000	2.6500e-003	1.7000e-004	2.8200e-003	2.9000e-004	1.5000e-004	4.4000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314

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3.2 Site Preparation - 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	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181
Total	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181

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					1.1900e-003	0.0000	1.1900e-003	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-004	4.2200e-003	2.0500e-003	0.0000		1.7000e-004	1.7000e-004		1.5000e-004	1.5000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314
Total	3.4000e-004	4.2200e-003	2.0500e-003	0.0000	1.1900e-003	1.7000e-004	1.3600e-003	1.3000e-004	1.5000e-004	2.8000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314

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3.2 Site Preparation - 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	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181
Total	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181

3.3 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6500e-003	0.0000	2.6500e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-003	0.0505	0.0289	6.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111
Total	4.2000e-003	0.0505	0.0289	6.0000e-005	2.6500e-003	1.9800e-003	4.6300e-003	2.9000e-004	1.8300e-003	2.1200e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111

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3.3 Grading - 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	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897
Total	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897

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					1.1900e-003	0.0000	1.1900e-003	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-003	0.0505	0.0289	6.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111
Total	4.2000e-003	0.0505	0.0289	6.0000e-005	1.1900e-003	1.9800e-003	3.1700e-003	1.3000e-004	1.8300e-003	1.9600e-003	0.0000	5.4669	5.4669	1.7700e-003	0.0000	5.5111

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3.3 Grading - 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	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897
Total	1.7000e-004	1.3000e-004	1.2700e-003	0.0000	2.0000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2895	0.2895	1.0000e-005	0.0000	0.2897

3.4 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	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5116	106.5116	0.0345	0.0000	107.3728
Total	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5116	106.5116	0.0345	0.0000	107.3728

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3.4 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	1.7300e-003	0.0486	0.0108	1.1000e-004	2.5800e-003	2.7000e-004	2.8400e-003	7.5000e-004	2.6000e-004	1.0000e-003	0.0000	10.8836	10.8836	8.8000e-004	0.0000	10.9056
Worker	4.1200e-003	3.3000e-003	0.0314	8.0000e-005	7.7400e-003	6.0000e-005	7.7900e-003	2.0600e-003	5.0000e-005	2.1100e-003	0.0000	7.1641	7.1641	2.5000e-004	0.0000	7.1703
Total	5.8500e-003	0.0519	0.0422	1.9000e-004	0.0103	3.3000e-004	0.0106	2.8100e-003	3.1000e-004	3.1100e-003	0.0000	18.0477	18.0477	1.1300e-003	0.0000	18.0759

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	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5115	106.5115	0.0345	0.0000	107.3727
Total	0.0818	0.8338	0.8661	1.2100e-003		0.0512	0.0512		0.0471	0.0471	0.0000	106.5115	106.5115	0.0345	0.0000	107.3727

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3.4 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	1.7300e-003	0.0486	0.0108	1.1000e-004	1.8500e-003	2.7000e-004	2.1200e-003	5.7000e-004	2.6000e-004	8.3000e-004	0.0000	10.8836	10.8836	8.8000e-004	0.0000	10.9056
Worker	4.1200e-003	3.3000e-003	0.0314	8.0000e-005	5.0700e-003	6.0000e-005	5.1300e-003	1.4000e-003	5.0000e-005	1.4600e-003	0.0000	7.1641	7.1641	2.5000e-004	0.0000	7.1703
Total	5.8500e-003	0.0519	0.0422	1.9000e-004	6.9200e-003	3.3000e-004	7.2500e-003	1.9700e-003	3.1000e-004	2.2900e-003	0.0000	18.0477	18.0477	1.1300e-003	0.0000	18.0759

3.4 Building Construction - 2021**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	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592
Total	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592

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3.4 Building Construction - 2021**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	2.3000e-004	7.1600e-003	1.5300e-003	2.0000e-005	4.2000e-004	2.0000e-005	4.4000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.7442	1.7442	1.4000e-004	0.0000	1.7476
Worker	6.1000e-004	4.7000e-004	4.5800e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.1177	1.1177	4.0000e-005	0.0000	1.1186
Total	8.4000e-004	7.6300e-003	6.1100e-003	3.0000e-005	1.6700e-003	3.0000e-005	1.7000e-003	4.5000e-004	3.0000e-005	4.8000e-004	0.0000	2.8619	2.8619	1.8000e-004	0.0000	2.8662

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	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592
Total	0.0119	0.1216	0.1388	2.0000e-004		6.9700e-003	6.9700e-003		6.4100e-003	6.4100e-003	0.0000	17.2200	17.2200	5.5700e-003	0.0000	17.3592

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3.4 Building Construction - 2021**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	2.3000e-004	7.1600e-003	1.5300e-003	2.0000e-005	3.0000e-004	2.0000e-005	3.2000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	1.7442	1.7442	1.4000e-004	0.0000	1.7476
Worker	6.1000e-004	4.7000e-004	4.5800e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	1.1177	1.1177	4.0000e-005	0.0000	1.1186
Total	8.4000e-004	7.6300e-003	6.1100e-003	3.0000e-005	1.1200e-003	3.0000e-005	1.1500e-003	3.2000e-004	3.0000e-005	3.5000e-004	0.0000	2.8619	2.8619	1.8000e-004	0.0000	2.8662

3.5 Paving - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0000e-004	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.2200e-003	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074

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3.5 Paving - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559
Total	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.0000e-004	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.2200e-003	5.3100e-003	4.5600e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.0000e-004	3.0000e-004	0.0000	0.6028	0.6028	1.8000e-004	0.0000	0.6074

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3.5 Paving - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559
Total	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0559	0.0559	0.0000	0.0000	0.0559

3.6 Architectural Coating - 2021**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	0.0329					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	0.0334	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394

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3.6 Architectural Coating - 2021**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	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350
Total	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350

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	0.0329					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	0.0334	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394

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3.6 Architectural Coating - 2021**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	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350
Total	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0349	0.0349	0.0000	0.0000	0.0350

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	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	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877
Unmitigated	3.4900e-003	0.0308	0.0358	1.4000e-004	9.0800e-003	1.5000e-004	9.2400e-003	2.4500e-003	1.4000e-004	2.5900e-003	0.0000	13.3661	13.3661	8.7000e-004	0.0000	13.3877

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.19	2.28	1.67	1,493	1,493
General Light Industry	7.67	1.45	0.75	16,906	16,906
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2.07	2.07	2.07	6,033	6,033
Total	9.92	5.79	4.49	24,431	24,431

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
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
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
General Light Industry	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Other Asphalt Surfaces	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Parking Lot	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375
Unrefrigerated Warehouse-No Rail	0.523272	0.032530	0.181768	0.106196	0.031705	0.006508	0.012974	0.094129	0.001340	0.001253	0.005657	0.001294	0.001375

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.7899	5.7899	3.6000e-004	4.0000e-005	5.8120
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.7899	5.7899	3.6000e-004	4.0000e-005	5.8120
NaturalGas Mitigated	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	5.0000e-005	4.0000e-005	2.4213
NaturalGas Unmitigated	2.4000e-004	2.2100e-003	1.8600e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	5.0000e-005	4.0000e-005	2.4213

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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					
City Park	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
General Light Industry	22957	1.2000e-004	1.1300e-003	9.5000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2251	1.2251	2.0000e-005	2.0000e-005	1.2324
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
Unrefrigerated Warehouse-No Rail	22148	1.2000e-004	1.0900e-003	9.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1819	1.1819	2.0000e-005	2.0000e-005	1.1889
Total		2.4000e-004	2.2200e-003	1.8600e-003	2.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	4.0000e-005	4.0000e-005	2.4213

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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					
City Park	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
General Light Industry	22957	1.2000e-004	1.1300e-003	9.5000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2251	1.2251	2.0000e-005	2.0000e-005	1.2324
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
Unrefrigerated Warehouse-No Rail	22148	1.2000e-004	1.0900e-003	9.1000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1819	1.1819	2.0000e-005	2.0000e-005	1.1889
Total		2.4000e-004	2.2200e-003	1.8600e-003	2.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4070	2.4070	4.0000e-005	4.0000e-005	2.4213

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	9702	2.3232	1.5000e-004	2.0000e-005	2.3320
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	2975	0.7124	4.0000e-005	1.0000e-005	0.7151
Unrefrigerated Warehouse-No Rail	11502.8	2.7544	1.7000e-004	2.0000e-005	2.7649
Total		5.7899	3.6000e-004	5.0000e-005	5.8120

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5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	9702	2.3232	1.5000e-004	2.0000e-005	2.3320
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	2975	0.7124	4.0000e-005	1.0000e-005	0.7151
Unrefrigerated Warehouse-No Rail	11502.8	2.7544	1.7000e-004	2.0000e-005	2.7649
Total		5.7899	3.6000e-004	5.0000e-005	5.8120

6.0 Area Detail**6.1 Mitigation Measures Area**

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	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	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Unmitigated	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Total	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004

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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	3.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004
Total	0.0135	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.7000e-004

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.9689	0.0176	4.2000e-004	1.5344
Unmitigated	0.9689	0.0176	4.2000e-004	1.5344

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.119148	0.0999	1.0000e-005	0.0000	0.1002
General Light Industry	0.254375 / 0	0.4103	8.3100e-003	2.0000e-004	0.6771
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
Unrefrigerated Warehouse-No Rail	0.284438 / 0	0.4588	9.2900e-003	2.2000e-004	0.7571
Total		0.9689	0.0176	4.2000e-004	1.5344

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.119148	0.0999	1.0000e-005	0.0000	0.1002
General Light Industry	0.254375 / 0	0.4103	8.3100e-003	2.0000e-004	0.6771
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
Unrefrigerated Warehouse-No Rail	0.284438 / 0	0.4588	9.2900e-003	2.2000e-004	0.7571
Total		0.9689	0.0176	4.2000e-004	1.5344

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Mistletoe Elementary School Project - Shasta County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.5136	0.0304	0.0000	1.2723
Unmitigated	0.5136	0.0304	0.0000	1.2723

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
General Light Industry	1.36	0.2761	0.0163	0.0000	0.6840
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.16	0.2355	0.0139	0.0000	0.5834
Total		0.5136	0.0304	0.0000	1.2724

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8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.01	2.0300e-003	1.2000e-004	0.0000	5.0300e-003
General Light Industry	1.36	0.2761	0.0163	0.0000	0.6840
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1.16	0.2355	0.0139	0.0000	0.5834
Total		0.5136	0.0304	0.0000	1.2724

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
----------------	--------	----------------	-----------------	---------------	-----------

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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix C

Biological Resources Assessment

Biological Resources Assessment

Mistletoe School Site Expansion Project

Shasta County, California

Prepared For:
Enterprise Elementary School District

February 21, 2020



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Attachment B – U.S. Fish and Wildlife Service IPaC Trust Resource Report for the Project Area
Attachment C – California Native Plant Society 9-quad Search for the Enterprise, California Quad
Attachment D – Representative Site Photos

LIST OF ACRONYMS AND ABBREVIATIONS

BCC	Bird of Conservation Concern
BRA	Biological resources assessment
CCH	Consortium of California Herbaria
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank

LIST OF ACRONYMS AND ABBREVIATIONS

CWA	Clean Water Act
DPS	Distinct Population Segments
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FR	Federal Register
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MSL	Mean sea level
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
OHWM	Ordinary high-water mark
Project	Mistletoe School Site Expansion
SSC	Species of special concern
TNW	Traditional Navigable Waters
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WRCC	Western Regional Climate Center

1.0 INTRODUCTION

At the request of the Enterprise Elementary School District, ECORP Consulting, Inc. conducted a biological resources assessment (BRA) for the Mistletoe School Site Expansion Project (Project) located in Shasta County, California. The purpose of the BRA was to collect information on the biological resources present within the Project site such as potential Waters of the U.S./State or habitat for sensitive plant and animals sufficient to support the California Environmental Quality Act (CEQA).

1.1 Project Location

The ±5.15-acre Project site is located north of Del Monte Street, east of Churn Creek Road, and south of Mistletoe Lane, with a tributary to Churn Creek to the east, and is located within the City of Redding in Shasta County, California. The Project site corresponds to a portion of section 5, Township 31 North, Range 4 West (Mount Diablo Base and Meridian) of the "Enterprise, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1969) (Figure 1. *Project Location and Vicinity*). The approximate center of the Project site is located at latitude 40.576298° (NAD83) and longitude -122.349434° (NAD83). The Project site is located within the Clear Creek-Sacramento River watershed (Hydrologic Unit Code #18020154) Watershed (Natural Resources Conservation Service [NRCS], et al. 2019).

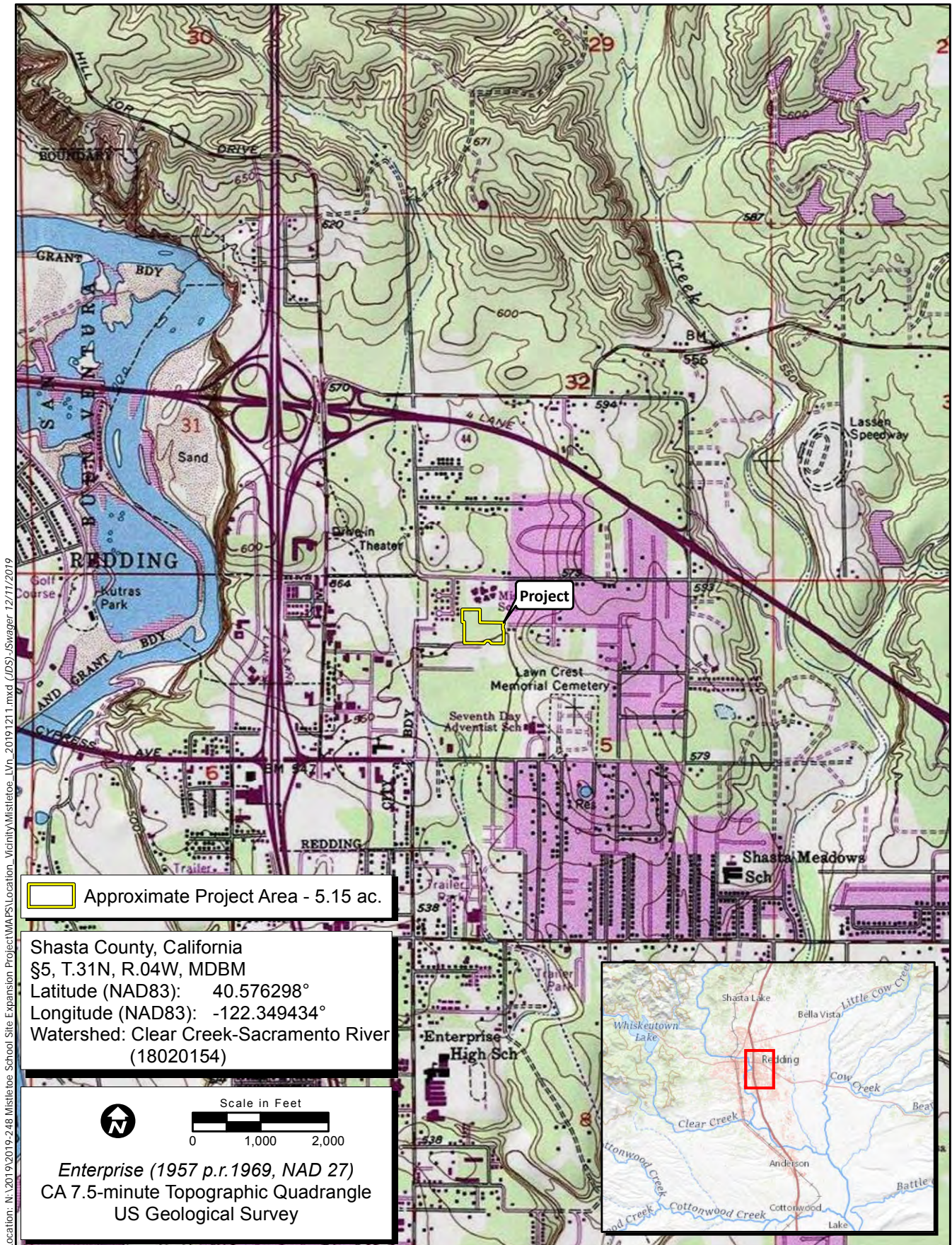
1.2 Biological Setting

The Project site is located in the transition zone between the northern Sacramento Valley and the Cascade foothills within a developed urban setting. Elevation ranges between 555 to 560 feet above mean sea level (MSL). Single-family homes are located to the east and northwest, commercial and light industrial are located to the west and south, and vacant land is located to the southeast.

The Project site is located in the Cascade Ranges region, Cascade Range Foothills subregion of the California Floristic Province (Baldwin et al. 2012). This subregion is characterized by a semi-arid climate, which is comprised of hot and dry summer months and cold and moderately wet winter months. The annual precipitation for Redding is 40.41 inches (with the wettest period during November-March), and average daily temperatures range from 46.9°F in December to 84.1°F in July (Western Regional Climate Center [WRCC] 2020).

1.3 Purpose

The purpose of this BRA is to support CEQA by assessing the potential for occurrence of special-status plant and animal species, or their habitat, and sensitive habitats such as Waters of the U.S./State within the Project site. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols, and the conclusions presented in this report are based upon a literature review, database queries, and limited site reconnaissance.



Map Date: 12/11/2019
 Sources: ESRI, USGS

Figure 1. Project Location and Vicinity

2019-248 Mistletoe School Site Expansion Project

This report describes potential Waters of the U.S., including wetlands, identified within the Project site that may be regulated by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). The information presented in this report is intended to support CEQA and general planning purposes, and therefore does not meet the USACE Sacramento District's Minimum Standards for Acceptance of Aquatic Resources Delineations (USACE 2016).

For the purposes of this assessment, species that are federally or state-protected are considered special-status species. Special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;
- are identified as a species of special concern by the California Department of Fish and Wildlife (CDFW);
- are birds identified as birds of conservation concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2);
- are plants considered by the CNPS to be data deficient for which more information is needed (CRPR 3), or plants of limited distribution-a watch list (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. While other species (e.g., CRPR 3 or 4 species, California Natural Diversity Database- [CNDDB]-tracked species) are sometimes found in database searches or within the literature, these were not included within this analysis.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Clean Water Act

The USACE regulates discharge of dredged or fill material into Waters of the U.S. under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S.,

including, but not limited to, the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines (33 Code of Federal Regulations [CFR] § 328.2(f)). In addition, Section 401 of the CWA (33 U.S. Code [USC] 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetlands over 0.5 acre of impact may require an individual permit. Projects that only minimally affect wetlands, less than 0.5 acre of impact, may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board.

Pursuant to the U.S. Environmental Protection Agency (USEPA) and USACE memorandum regarding CWA jurisdiction, issued following the U.S. Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (herein referred to as *Rapanos*), the agencies will assert jurisdiction over the following waters: "Traditional Navigable Waters" (TNW), all wetlands adjacent to TNW, nonnavigable tributaries of TNW that are "relatively permanent" waters (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally), and wetlands that directly abut such tributaries (USEPA and USACE 2007).

Waters requiring a significant nexus determination by the USACE and USEPA to establish jurisdiction include nonnavigable tributaries that are not relatively permanent, wetlands adjacent to nonnavigable tributaries that are not relatively permanent, and wetlands adjacent to but do not directly abut a relatively permanent non-navigable tributary (USEPA and USACE 2007). The jurisdictional determination is a fact-based evaluation to establish whether a water has a significant nexus with TNW. The significant nexus analysis will assess the flow characteristics and functions of the nonnavigable tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNW (USEPA and USACE 2007).

Waters of the United States

Waters of the U.S., including wetlands, are regulated by the USACE under Section 404 of the CWA. Descriptions of Waters of the U.S. are provided below.

Wetlands

Wetlands are "those areas that are inundated or saturated by surface or ground-water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (51 Federal Register [FR] 41250, November 13, 1986, as amended at 58 FR 45036, August 25, 1993). Wetlands can be perennial or intermittent, and isolated or adjacent to other waters.

Other Waters

Other waters are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses (51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993). The limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the ordinary high-water mark (OHWM). The OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (51 FR 41250, November 13, 1986, as amended at 58 FR 45036, August 25, 1993). The bank-to-bank extent of the channel that contains the water flow during a normal rainfall year generally serves as a good first approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

2.1.2 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service. Section 9 of the ESA prohibits the taking of endangered wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.2 State or Local Regulations

2.2.1 *California Endangered Species Act*

The California ESA generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called “candidates” by the State). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

2.2.2 *Fully Protected Species*

The State of California first began to designate species as “fully protected” prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any State agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

2.2.3 *Native Plant Protection Act*

The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to “preserve, protect and enhance rare and endangered plants in this State.” The NPPA is administered by CDFW. The Fish and Wildlife Commission has the authority to designate native plants as “endangered” or “rare” and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code § 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.4 *California Environmental Quality Act Significance Criteria*

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or State HCP.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires individuals or agencies to provide a Notification of Lake or Streambed Alteration to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” CDFW reviews the proposed actions and, if necessary, proposed measures to protect affected fish and wildlife resources. The final proposal mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

2.2.6 California Fish and Game Code

As stated before, the State of California has provided for the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.2.7 City of Redding Tree Management Ordinance

The City of Redding Code (18.45) regulates the removal of any tree, regardless of species, that exceeds six inches diameter at breast height on a property within the City limits. However, there is an exemption for "Removal of trees on property owned by the federal government, the state of California, the county of Shasta, or any school or special district" (Redding 2006). As such, this Project is likely exempt from mitigation for the removal of trees within the Project site.

3.0 METHODS

Field data to support this BRA were gathered during a field visit conducted by ECORP biologists Eric Stitt on December 16, 2019 and Keith Kwan on February 12, 2020. During these field visits, the biologists walked meandering transects through the Project site. Prior to preparing the report, the CDFW's CNDDDB (CDFW 2020; Attachment A), USFWS species lists (USFWS 2019; Attachment B) and CNPS Electronic Inventory (CNPS 2020; Attachment C) were queried to determine the special-status species documented in the Enterprise California quadrangle and the adjacent nine quadrangles that encompass the Project site. Additional data regarding the potential occurrence of special-status species were gathered from various online websites and databases such as Calflora. Soil types were determined using the U.S. Department of Agriculture NRCS Web Soil Survey (NRCS 2019).

Biological resource information reported in this BRA includes:

- potential Waters of the U.S.,
- plant and animal species directly observed,
- characterization of habitats present onsite,
- animal signs (e.g., scat, tracks) observed,
- active bird nests,
- burrows and any other special habitat features, and
- representative site photographs

3.1 Special-Status Species

Based on species occurrence information from the CNDDDB, the literature review, and observations in the field, a list of special-status plant and animal species that have the potential to occur within the Project site was generated. Only special-status species as defined in Section 3.1 were included in this analysis. Each of these species' potential to occur onsite was assessed based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Project site boundary based on documented occurrences within the CNDDDB or other literature.

- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Project site boundary.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur in the vicinity based on CNDDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur in the vicinity based on CNDDDB records and other documentation.

4.0 RESULTS

4.1 Site Characteristics, Land Use, Vegetation Communities

The Project site consists of a manicured lawn within the existing elementary school grounds to the north, a ruderal grassland on a graded building pad, and a riparian corridor. The lawn in the elementary school was visually assessed and appeared to consist of a monoculture of horticultural grass. The ruderal grassland is found on a graded building pad; and consists of predominantly nonnative plants, including wild oats (*Avena fatua*), yellow star-thistle (*Centaurea solstitialis*), small flowered fiddleneck (*Amsinckia menziesii*), and English plantain (*Plantago lanceolata*). Scattered trees found in the ruderal grassland included interior live oak (*Quercus wislizeni*), blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), and grey pine (*Pinus sabiniana*). The riparian corridor contains a dense understory of Himalayan blackberry (*Rubus armeniacus*), with hairy vetch (*Vicia villosa*), broad-leaf cattail (*Typha latifolia*), and tall flatsedge (*Cyperus eragrostis*), and a semi-open overstory of arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix exigua*), Fremont's cottonwood (*Populus fremontii*), and oak trees (*Quercus* spp.). Representative site photos are shown in Attachment D.

Based on a review of imagery from Google Earth, the Project site appears to have had trees and other vegetation removed between 2005 and 2006 and the eastern half of the graded area appears to have been mowed around 2010 (Google Earth 2020).

Aquatic resources found onsite include an intermittent drainage/marsh complex along the eastern boundary. These are discussed in further detail below.

4.2 Soils

According to the *Web Soil Survey* (NRCS 2019), four soil units, or types, have been mapped onsite (Figure 2. *Natural Resources Conservation Service Soil Types*). These are: (CfA) Churn gravelly loam, deep, 0 to 3 percent slopes, (RbA) Red Bluff loam, 0 to 3 percent slopes, MLRA 17, moist, (RcA) Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes, (RcB) Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes. All four soils types are listed as having hydric components (NRCS 2020).

4.3 Potential Aquatic Resources

A total of 0.565 acre of potential Waters of the U.S. was mapped during this preliminary aquatic resources assessment (Table 1 and Figure 3. *Preliminary Aquatic Resources Assessment*). These include the intermittent drainage and adjacent marsh.

Table 1. Preliminary Aquatic Resources Assessment	
Type	Acreage ¹
Aquatic Resources	
Wetlands	
Marsh	0.497
Other Waters	
Intermittent Drainage	0.068
Total:	0.565

¹Acreage totals are approximate and represent a calculated estimation based on a reconnaissance site visit.

4.3.1 Marsh

A marsh occurs near the eastern boundary of the Project site, east of the intermittent drainage (Figure 3). The marsh is vegetated with broad-leaf cattail, tall flatsedge, and bulrush (*Schoenoplectus* sp.), with dense Himalayan blackberry.

4.3.2 Intermittent Drainage

An intermittent drainage occurs near the eastern boundary of the Project site (Figure 3). It flows from north to south and eventually leads into Churn Creek. The portion of the drainage that is within the Project site boundary is unvegetated in patches with some emergent vegetation consisting of primrose (*Ludwigia* sp.). An OHWM mark was observed within the intermittent drainage (e.g., debris, vegetation indicators). This drainage appears to have been channelized, possibly when the building pad was constructed onsite.

4.4 Evaluation of Special-Status Species

Tabulated results for all species evaluated for the Project are presented in Table 2. Species descriptions are provided in the following sections for each of the five species that were considered (1) to be present, (2) have potential to occur, or (3) have low potential to occur (according to the definitions provided in Section 3.1). Species that were considered to be absent (Table 2) from the Project Site due to lack of suitable habitat, or because the known distribution of the species does not include the Project Site vicinity, are not discussed further in this document.

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Map Features

- Approximate Project Area - 5.15 ac.
- Aquatic Resources Assessment 0.565 ac. ^{1 *}
- Intermittent Drainage - 0.068 ac.
- Marsh/Riparian Woodland - 0.497 ac.

¹ The information depicted on this graphic represents a preliminary wetland assessment. The assessment was not conducted in accordance with the Corps of Engineers Wetland Delineation Manual and South Pacific Division Regulatory Program Minimum Standards. The project boundaries, wetland boundaries, and acreage values are approximate.
^{*} The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these

Sources: ESRI, Shasta County (2018)

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Plants						
Shasta maidenhair fern (<i>Adiantum shastense</i>)	-	-	4.3	Sometimes carbonate soils within lower montane coniferous forest (1,082'–5,036').	April–August	Absent; no habitat on the site.
Henderson's bent grass (<i>Agrostis hendersonii</i>)	–	–	3.2	Vernal pools and mesic areas in valley and foothill grasslands (230'–1,001').	April–June	Absent; no habitat on the site.
Sanborn's onion (<i>Allium sanbornii</i> var. <i>sanbornii</i>)	–	–	4.2	Chaparral, cismontane woodland, and lower montane coniferous forests, usually with gravelly, serpentinite soils (853'–4,954').	May–September	Absent; no habitat on the site.
Slender silver moss (<i>Anomobryum julaceum</i>)	–	–	4.2	Damp rock and soil on outcrops, usually on road cuts in broadleaf upland forest, lower montane coniferous forest, North Coast coniferous forest (328'–3,281').	Any Season	Absent; no habitat on the site.
Shasta County arnica (<i>Arnica venosa</i>)	-	-	4.2	Often in disturbed areas and roadcuts within cismontane woodland and lower montane coniferous forest (1,099'–4,888').	May–July	Absent; outside of known elevation range.
Depauperate milk-vetch (<i>Astragalus pauperculus</i>)	-	-	4.3	Vernally mesic and volcanic within chaparral, cismontane woodland, and valley and foothill grassland (197'–3,986').	March–June	Absent; no habitat on the site.
Big-scale balsamroot (<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>)	–	–	1B.2	Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentinite soils (148'–5,102').	March–June	Absent; no habitat on the site.
Watershield (<i>Brasenia schreberi</i>)	–	–	2B.3	Freshwater marshes and swamps (98'–7,218').	June–September	Low Potential; marginal habitat and nearest known occurrence more than 8 miles away.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Sulphur Creek brodiaea (<i>Brodiaea matsonii</i>)	-	-	1B.1	Rocky, metamorphic amphibolite schist within cismontane woodland (streambanks) and meadows and seeps (640'–722').	May–June	Absent; no habitat on the site.
Thread-leaved beakseed (<i>Bulbostylis capillaris</i>)	–	–	4.2	Lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest (1,296'–6,808').	June–August	Absent; no habitat on the site and outside of known range.
Pink creamsacs (<i>Castilleja rubicundula</i> var. <i>rubicundula</i>)	–	–	1B.2	Serpentine substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (66'–2,986').	April–June	Absent; no habitat on the site.
Northern clarkia (<i>Clarkia borealis</i> ssp. <i>borealis</i>)	-	-	1B.3	Often roadcuts within chaparral, cismontane woodland, and lower montane coniferous forest (1,312'–5,135').	June–September	Absent; no habitat on the site.
Silky cryptantha (<i>Cryptantha crinita</i>)	-	-	1B.2	Gravelly streambeds within cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grassland (200'–3,986').	April–May	Low Potential; marginal habitat onsite and nearest known occurrence more than 2 miles away.
Red-stemmed Cryptantha (<i>Cryptantha rostellata</i>)	-	-	4.2	Often gravelly, volcanic openings and often roadsides within cismontane woodland and valley and foothill grassland (131'–2,645').	April–June	Absent; no habitat on the site.
Mountain lady's-slipper (<i>Cypripedium montanum</i>)	–	–	4.2	Broadleaf upland forest, cismontane woodland, lower montane coniferous forest, and North Coast coniferous forest (607'–7,300').	March–August	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Shasta fawn lily (<i>Erythronium shastense</i>)	-	-	1B.2	Usually carbonate soils, rocky, north-facing or shaded, and can form clumps due to bulb offsets, within cismontane woodland and lower montane coniferous forest (1,148'–3,346').	(February) March–April	Absent; no habitat on the site.
Boggs Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	–	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (33'–7,792').	April–August	Absent; no habitat on the site.
Red Bluff dwarf rush (<i>Juncus leiospermus</i> var. <i>leiospermus</i>)	–	–	1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools (115'–4,101').	March–June	Absent; no habitat on the site.
Dubious pea (<i>Lathyrus sulphureus</i> var. <i>argillaceus</i>)	–	–	3	Cismontane woodland, lower montane coniferous forest and upper montane coniferous forest (492'–3,051').	April–May	Absent; no habitat on the site.
Legenere (<i>Legenere limosa</i>)	–	–	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005a) (3'–2,887').	April–June	Absent; no habitat on the site.
Bellinger's meadowfoam (<i>Limnanthes floccosa</i> ssp. <i>bellingiana</i>)	-	-	1B.2	Mesic within cismontane woodland and meadows and seeps (951'–3,609').	April–June	Absent; no habitat on the site.
Woolly meadowfoam (<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>)	–	–	4.2	Vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and vernal pools (197'–4,380').	March–May	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Baker's navarretia <i>(Navarretia leucocephala ssp. bakeri)</i>	-	-	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (16'-5,709').	April-July	Absent; no habitat on the site.
Shasta snow-wreath <i>(Neviusia cliftonii)</i>	-	-	1B.2	Often streamsides, sometimes carbonate, volcanic, or metavolcanics within cismontane woodland, lower montane coniferous forest, and riparian woodland (984'-1936').	April-June	Absent; outside of known elevation range.
Slender Orcutt grass <i>(Orcuttia tenuis)</i>	FT	CE	1B.1	Vernal pools, often gravelly (115'-5,774').	May-September	Absent; no habitat on the site.
Ahart's paronychia <i>(Paronychia ahartii)</i>	-	-	1B.1	Cismontane woodland, valley and foothill grassland, and vernal pools (98'-1,673').	February-June	Absent; no habitat on the site.
Sanford's arrowhead <i>(Sagittaria sanfordii)</i>	-	-	1B.2	Shallow marshes and freshwater swamps (0'-2,133').	May-October	Low Potential; marginal habitat onsite and nearest known occurrence more than 6 miles away.
Redding checkerbloom <i>(Sidalcea celata)</i>	-	-	3	Sometimes serpentinite within cismontane woodland (443'-5,003').	April-August	Absent; no habitat on the site.
Slender false lupine <i>(Thermopsis gracilis)</i>	-	-	4.3	Sometimes roadside within chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, and North Coast coniferous forest (328'-5,643').	March - July	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Maverick clover (<i>Trifolium piorkowskii</i>)	-	-	1B.2	Volcanic clay, openings, and often streambanks within chaparral, cismontane woodland, lower montane coniferous forest, mesic areas of valley and foothill grassland, and vernal pools (Consortium of California Herbaria [CCH 2020] (525'–2,231')).	April–May	Absent; no habitat on the site.
Shasta huckleberry (<i>Vaccinium shastense</i> ssp. <i>shastense</i>)	-	-	1B.3	Acidic, mesic, often in streambanks, sometimes seeps, rocky outcrops, roadsides, and disturbed areas in chaparral, cismontane woodland, lower montane coniferous forest, riparian forest, and subalpine coniferous forest (1,066'–4,003').	December–May (June–September)	Absent; outside of known elevation range.
Oval-leaved viburnum (<i>Viburnum ellipticum</i>)	–	–	2B.3	Chaparral, cismontane woodland, and lower montane coniferous forest communities (705'–4,593').	May–June	Absent; no habitat on the site.
Invertebrates						
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	-	-	Elderberry shrubs.	Any season	Absent; no habitat on the site.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	-	-	Vernal pools/wetlands.	November–April	Absent; no habitat on the site.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	-	-	Vernal pools/wetlands.	November–April	Absent; no habitat on the site.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE	-	-	Vernal pools/wetlands.	November–April	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Fish						
Delta smelt <i>(Hypomesus transpacificus)</i>	FT	CE	-	Sacramento-San Joaquin Delta.	N/A	Absent; no habitat on the site.
Chinook salmon (Central Valley spring-run Evolutionarily Significant Unit] ESU)) <i>(Oncorhynchus tshawytscha)</i>	FT	CT	-	Undammed rivers, streams, creeks.	N/A	Absent; no habitat on the site.
Chinook salmon (Sacramento River winter-run ESU) <i>(Oncorhynchus tshawytscha)</i>	FE	CE	-	Undammed rivers, streams, creeks.	N/A	Absent; no habitat on the site.
Pacific Lamprey <i>Entosphenus tridentatus)</i>	FC		SSC	Drainages including rivers and creeks of the central valley, usually with connectivity to the ocean.	N/A	Absent; no habitat on the site.
Steelhead (CA Central Valley Distinct Population Segments [DPS]) <i>(Oncorhynchus mykiss)</i>	FT	-	-	Undammed rivers, streams, creeks.	N/A	Absent; no habitat on the site.
Amphibians						
Shasta salamander <i>(Hydromantes shastae)</i>		CT		Occurs in mixed Douglas fir forest. Usually found on cliff faces, cavern walls, and rock cracks. Eggs are lain in limestone shelters and young hatch out fully developed.		Absent; no habitat on the site.
California red-legged frog <i>(Rana draytonii)</i>	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1- November 1	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Foothill yellow-legged frog (<i>Rana boylei</i>)	-	CC	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	May - October	Absent; no habitat on the site.
Western spadefoot (<i>Spea hammondi</i>)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Absent; no habitat on the site.
Reptiles						
Northwestern pond turtle (<i>Actinemys marmorata</i>)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Absent; no habitat on the site.
Birds						
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Fd	CE	CFP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Absent; no habitat on the site.
Northern spotted owl (<i>Strix occidentalis caurina</i>)	FT	CC	SSC	Found from Marin County through coastal ranges north to British Columbia; breeds in old growth mature forest. They use forests with greater complexity and structure.	March-June	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Bank swallow (<i>Riparia riparia</i>)	-	CT	-	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.	May-July	Absent; no habitat on the site.
Purple martin (<i>Progne subis</i>)	-	-	SSC	In California, breeds along coast range, Cascade-northern Sierra Nevada region and isolated population in Sacramento. Nesting habitat includes montane forests, Pacific lowlands with dead snags; the isolated Sacramento population nests in weep holes under elevated highways/bridges. Winters in South America.	May-August	Absent; no habitat on the site.
Tricolored blackbird (<i>Agelaius tricolor</i>)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Absent; no habitat on the site.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			
Mammals						
Fisher-West Coast DPS <i>(Pekania pennanti)</i>	FPT	CT	SSC	Northern coniferous and mixed forests of Canada and northern United States.	Any season	Absent; no habitat on the site.
Pallid Bat <i>(Antrozous pallidus)</i>			SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (Western Bat Working Group [WBWG] 2020).	April– September	Low Potential; marginal habitat onsite and nearest known occurrence more than 8 miles away.
Spotted bat <i>(Euderma maculatum)</i>	-	-	SSC	Roost in cracks, crevices, and caves, usually high in fractured rock cliffs. Found in desert, sub-alpine meadows, desert-scrub, pinyon-juniper woodland, ponderosa pine, mixed conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pastures (WBWG 2020).	April- September	Absent; no habitat on the site.
Townsend's big-eared bat <i>(Corynorhinus townsendii)</i>	-	-	SSC	Caves, mines, buildings, rock crevices, trees.	April- September	Absent; no habitat on the site.
Western red bat <i>(Lasiurus blossevillii)</i>	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (WBWG 2020).	April- September	Low Potential; marginal habitat onsite and nearest known occurrence more than 8 miles away.

Table 2. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential to Occur On-Site
	ESA	CESA/ NPPA	Other			

Status Codes NOTE:

FESA	Federal Endangered Species Act					
CESA	California Endangered Species Act					
FE	FESA listed, Endangered.					
FPT	Formally Proposed for FESA listing as Threatened.					
FT	FESA listed, Threatened.					
FC	Candidate for FESA listing as Threatened or Endangered.					
Fd	Formally Delisted (delisted species are monitored for 5 years).					
BCC	USFWS Bird of Conservation Concern (USFWS 2002).					
CT	CESA- or NPPA-listed, Threatened.					
CC	Candidate for CESA listing as Endangered or Threatened.					
CE	CESA or NPPA listed, Endangered.					
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).					
SSC	CDFW Species of Special Concern (CDFW, updated August 2019).					
1B	CRPR/Rare or Endangered in California and elsewhere.					
2B	Plants rare, threatened, or endangered in California but more common elsewhere.					
3	CRPR/Plants About Which More Information is Needed – A Review List.					
4	CRPR/Plants of Limited Distribution – A Watch List.					
0.1	Threat Rank/Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)					
0.2	Threat Rank/Moderately threatened in California (20-80 percent occurrences threatened / moderate degree and immediacy of threat)					
0.3	Threat Rank/Not very threatened in California (<20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)					

4.4.1 Special-Status Plants

No special-status plants were found during the field assessment. A number of special-status plants have been documented in the CNDDDB to occur in the vicinity of the Project site, and vegetation communities onsite represent potentially suitable habitat for a number of other regionally occurring special-status plants (Table 2). Based on current site conditions, the potentially occurring special-status plants onsite include watershield (*Brasenia schreberi*), silky cryptantha (*Cryptantha crinita*), and Sanford's arrowhead (*Sagittaria sanfordii*).

Watershield

Watershield is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.3 species (CNPS 2020). This species is an herbaceous rhizomatous perennial that occurs usually in freshwater marshes and swamps (CNPS 2020). Watershield blooms from June through September and is known to occur from 98 to 7,218 feet above MSL (CNPS 2020). The current range for Watershield in California includes Butte, Calaveras, El Dorado, Fresno, Kern, Lake, Lassen, Mendocino, Merced, Nevada, Plumas, Sacramento, Shasta, Sierra, Siskiyou, San Joaquin, Sutter, Tehama, Tulare, and Tuolumne counties. It's presence in Butte and Kern counties is uncertain (CNPS 2020).

There is one CNDDDB-documented occurrence of watershield more than eight miles from the Project site (CDFW 2020). The intermittent drainage within the Project site provides marginally suitable habitat for this species. Watershield has low potential to occur onsite.

Silky Cryptantha

Silky cryptantha is not listed as pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species (CNPS 2020). This species is an annual herb that occurs in gravelly streambeds within cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grasslands (CNPS 2020). Silky cryptantha blooms between April and May and is known to occur at elevations ranging from 200 to 3,986 feet above MSL (CNPS 2020). The current range of this species includes Glenn, Shasta, and Tehama counties (CNPS 2020).

There are three CNDDDB-documented occurrences of silky cryptantha more than two miles from the Project site (CDFW 2020). The intermittent drainage within the Project Site provide suitable habitat for this species. silky cryptantha has potential to occur onsite.

Sanford's Arrowhead

Sanford's arrowhead is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is a perennial rhizomatous herb that occurs in shallow, freshwater marshes and swamps (CNPS 2020). Sanford's arrowhead blooms from May through October, and is known to occur at elevations ranging from sea level to 2,133 feet above MSL (CNPS 2020). Sanford's arrowhead is endemic to California; the current range of this species includes Butte, Del Norte, El Dorado, Fresno, Merced, Mariposa, Marin, Napa, Orange, Placer, Sacramento, San Bernardino, San Joaquin, Shasta, Solano, Tehama, Tulare, Ventura, and Yuba counties (CNPS 2020).

There is one CNDDDB-documented occurrence of Sanford's arrowhead more than six miles from the Project site (CDFW 2020). The intermittent drainage within the Project site provides marginally suitable habitat for this species. Sanford's arrowhead has low potential to occur onsite.

4.4.2 Special-Status Animals

No special-status animals were found during the field assessment. A number of special-status animals have been documented in the CNDDDB within five miles of the Project site (CDFW 2020). The habitats and vegetation communities found onsite represent potentially suitable habitat for several special-status animal species (Table 2). The Project site supports marginal roosting habitat for pallid bat (*Antrozous pallidus*) and western red bat (*Lasiurus blossevillei*). Detailed descriptions of these species are provided below.

Pallid Bat

Pallid bats are not listed pursuant to either the California or federal ESAs; however, it is designated as an SSC by CDFW. Their range extends from British Columbia to central Mexico (Harvey et al. 2011). Pallid bat has a strong association with arid regions with rocky outcrops near water (Harvey et al. 2011). Roosting

usually occurs in rock crevices and buildings, but is also found in tree cavities, caves, mines, and piles of rocks (Harvey et al. 2011). Pallid bat roosts in small colonies of 20 or more individuals (Harvey et al. 2011). This species will give birth to one to two offspring in May or June (Harvey et al. 2011).

There is one CNDDDB-documented occurrence of pallid bat more than eight miles from the Project site (CDFW 2020). The trees within the Project Site along the riparian corridor provide marginally suitable habitat for this species. Pallid bat has low potential to occur onsite.

Western Red Bat

The western red bat is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This species is broadly distributed, its range extending from southern British Columbia in Canada through Argentina and Chile in South America, and including much of the western U.S. This solitary species day roosts primarily in the foliage of trees or shrubs in edge habitats bordering streams or open fields, in orchards, and occasionally urban areas. They may be associated with intact riparian habitat, especially with willows, cottonwoods, and sycamores. This species may occasionally utilize caves for roosting as well. They feed on a variety of insects, and generally begin to forage one to two hours after sunset. This species is considered highly migratory; however, the timing of migration and the summer ranges of males and females may be different. Winter behavior of this species is poorly understood (WBWG 2020).

There is one CNDDDB-documented occurrence of western red bat more than nine miles from Project site (CDFW 2020). The trees within the Project Site along the riparian corridor provide marginally suitable habitat for this species. Western red bat has low potential to occur onsite.

4.4.3 Special-Status Birds

Migratory Bird Treaty Act Birds

While not considered special status as previously defined in this BRA, many birds are provided protection under the MBTA, including common species such as house finch (*Haemorrhous mexicanus*), northern mockingbird (*Mimus polyglottos*), and American robin (*Turdus migratorius*) have potential to nest and forage onsite.

4.5 Wildlife Movement/Corridors

The Project site is an infill project located within a predominantly developed portion of the City of Redding. There is a riparian corridor along the eastern edge of the Project Site with vacant land to the southeast. The riparian corridor likely provides habitat for local wildlife, particularly birds. However, it probably does not represent a significant wildlife movement corridor, due to the developed nature and absence of habitat in the surrounding lands.

5.0 RECOMMENDATIONS

5.1 Aquatic Resources/Potential Waters of the U.S.

A total of 0.565 acre of potential Waters of the U.S. has been provisionally mapped within the Project site. This includes a marsh and an intermittent drainage. The following mitigation measures are recommended to minimize potential impacts to Waters of the U.S.:

- Prepare an aquatic resources delineation according to USACE standards.
- If any direct impacts to jurisdictional features are proposed, a permit authorization to fill wetlands under the Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no net loss of wetland function and values. An application for a Section 404 Permit for the Project will be prepared and submitted to USACE, and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. within the Project Area is proposed at a 1:1 ratio for direct impacts, however final mitigation requirements will be developed in consultation with USACE.
- A Water Quality Certification or waiver pursuant to Section 401 of the CWA must be obtained for Section 404 permit actions.
- If the aquatic resources are determined to be non-USACE jurisdictional, a Waste Discharge Requirement under the California Porter-Cologne Water Quality Control Act may be required for discharge into Waters of the State.

5.2 California Department of Fish and Wildlife 1602 Streambed Alteration Agreement

If the Project plans to impact the intermittent drainage or riparian vegetation, then a 1602 streambed alteration notification will need to be prepared. The Project applicant will then need to ensure that a CDFW 1602 Streambed Alteration Agreement has been obtained prior to the approval of grading and improvement plans and before any groundbreaking activity associated with the Project site. The construction contractor will then need to adhere to all conditions outlined in the Streambed Alteration Agreement.

5.3 Special-Status Plants

Due to the disturbed nature of most of the Project site, the potential for occurrence of special-status plants is significantly reduced. The intermittent drainage and marsh represent marginally suitable habitat for watershield, silky cryptantha, and Sanford's arrowhead.

In order to minimize potential impacts to special-status plants the following measures are recommended:

- If no impacts are proposed for the intermittent drainage and marsh, a plant survey may not be necessary.

- If there are proposed impacts for the intermittent drainage and marsh, perform focused plant surveys according to USFWS, CDFW, and CNPS protocol. Surveys will be timed according to the blooming period for target species and known reference populations, if available, and/or local herbaria will be visited prior to surveys to confirm the appropriate phenological state of the target species. The USFWS generally considers plant survey results valid for approximately three years.
- If special-status plant species are found, avoidance zones may be established around plants to clearly demarcate areas for avoidance. Avoidance measures and buffer distances may vary between species and the specific avoidance zone distance will be determined in coordination with appropriate resource agencies (CDFW and USFWS).
- If special-status plant species are found within the Project site and avoidance of the species is not possible, additional measures such as seed collection and/or translocation may be developed in consultation with the appropriate agencies.
- If no special-status plants are found, no further measures pertaining to special-status plants are necessary.

5.4 Special-Status Invertebrates

There are no special-status invertebrate species present at the Project site.

5.5 Special-Status Fish

There are no special-status fish species present at the Project site.

5.6 Special-Status Amphibians

There are no special-status amphibian species present at the Project site.

5.7 Special-Status Reptiles

There are no special-status reptiles at the Project site.

5.8 Special-Status and Migratory Bird Treaty Act Birds

The Project site does not provide foraging or nesting habitat for special-status bird species. However, it does provide nesting habitat for several common birds protected under the MBTA and California Fish and Game Code.

The impacts to nesting special-status and MBTA-protected birds could be considered significant. As such, to ensure that there are no impacts to protected special-status birds, including their eggs and active nests, the following mitigation measures are recommended:

- Conduct a pre-construction nesting bird survey of all suitable habitat on the Project site within 14 days of the commencement of construction during the nesting season (February 1 - August 31). Surveys should be conducted within 300 feet of the Project site for nesting raptors, and 100 feet

of the Project site for nesting songbirds. If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a biologist in consultation with CDFW or the CEQA lead agency. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures are necessary. Pre-construction nesting surveys are not required for construction activity outside the nesting season. Impacts to foraging/wintering habitat of non-listed birds protected under the MBTA are typically considered less than significant.

5.9 Special-Status Mammals

The Project site provides marginal roosting habitat for pallid bat and western red bat. To ensure that there are no impacts to these species, the following mitigation measures are recommended:

5.9.1 *Pallid and Western Red Bats*

- Prior to any disturbances to the trees, a qualified biologist will conduct a preconstruction survey within seven days of tree disturbance activities to determine the presence of roosting bats.
- If roosting bats are found within the trees, a qualified biologist shall determine what types of roosts are present. If non-maternity and non-hibernaculum day or night roosts are present, a qualified biologist will use safe eviction methods to remove bats unless direct impacts to these roosts can be avoided. If a winter hibernaculum or maternity roost is present, impacts to the resource (e.g., tree) will not occur until the bats have vacated or are safely evicted using methods acceptable to CDFW.
- If no roosting bats are found during the preconstruction survey, no further measures are recommended.

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LIST OF ATTACHMENTS

Attachment A – California Natural Diversity Database 9-quad List for the Enterprise, California Quad

Attachment B – U.S. Fish and Wildlife Service IPaC Trust Resource Report for the Project Area

Attachment C – California Native Plant Society 9-quad Search for the Enterprise, California Quad

Attachment D – Representative Site Photos

ATTACHMENT A

California Natural Diversity Database 9-quad List for the Enterprise, California Quad



Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (Shasta Dam (4012264) OR Project City (4012263) OR Bella Vista (4012262) OR Redding (4012254) OR Palo Cedro (4012252) OR Enterprise (4012253) OR Olinda (4012244) OR Cottonwood (4012243) OR Balls Ferry (4012242))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAD09030	<i>Hydromantes shastae</i> Shasta salamander	None	Threatened	G1G2	S3	
AAABF02020	<i>Spea hammondi</i> western spadefoot	None	None	G3	S3	SSC
AAABH01050	<i>Rana boylei</i> foothill yellow-legged frog	None	Candidate Threatened	G3	S3	SSC
ABNGA04040	<i>Ardea alba</i> great egret	None	None	G5	S4	
ABNKC01010	<i>Pandion haliaetus</i> osprey	None	None	G5	S4	WL
ABNKC10010	<i>Haliaeetus leucocephalus</i> bald eagle	Delisted	Endangered	G5	S3	FP
ABPAU01010	<i>Progne subis</i> purple martin	None	None	G5	S3	SSC
ABPAU08010	<i>Riparia riparia</i> bank swallow	None	Threatened	G5	S2	
ABPBXB0020	<i>Agelaius tricolor</i> tricolored blackbird	None	Threatened	G2G3	S1S2	SSC
AFBAA02100	<i>Entosphenus tridentatus</i> Pacific lamprey	None	None	G4	S4	SSC
AFCHA0205A	<i>Oncorhynchus tshawytscha</i> pop. 6 chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	G5	S1	
AFCHA0205B	<i>Oncorhynchus tshawytscha</i> pop. 7 chinook salmon - Sacramento River winter-run ESU	Endangered	Endangered	G5	S1	
AFCHA0209K	<i>Oncorhynchus mykiss irideus</i> pop. 11 steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	
AMACC01020	<i>Myotis yumanensis</i> Yuma myotis	None	None	G5	S4	
AMACC02010	<i>Lasionycteris noctivagans</i> silver-haired bat	None	None	G5	S3S4	
AMACC05030	<i>Lasiurus cinereus</i> hoary bat	None	None	G5	S4	
AMACC05060	<i>Lasiurus blossevillei</i> western red bat	None	None	G5	S3	SSC
AMACC07010	<i>Euderma maculatum</i> spotted bat	None	None	G4	S3	SSC
AMACC08010	<i>Corynorhinus townsendii</i> Townsend's big-eared bat	None	None	G3G4	S2	SSC



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMACC10010	<i>Antrozous pallidus</i> pallid bat	None	None	G5	S3	SSC
AMAFJ01010	<i>Erethizon dorsatum</i> North American porcupine	None	None	G5	S3	
AMAJF01021	<i>Pekania pennanti</i> fisher - West Coast DPS	None	Threatened	G5T2T3Q	S2S3	SSC
ARAAD02030	<i>Emys marmorata</i> western pond turtle	None	None	G3G4	S3	SSC
CTT61410CA	<i>Great Valley Cottonwood Riparian Forest</i> Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT61420CA	<i>Great Valley Mixed Riparian Forest</i> Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
CTT61430CA	<i>Great Valley Valley Oak Riparian Forest</i> Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
CTT63410CA	<i>Great Valley Willow Scrub</i> Great Valley Willow Scrub	None	None	G3	S3.2	
ICBRA03030	<i>Branchinecta lynchi</i> vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	<i>Linderiella occidentalis</i> California linderiella	None	None	G2G3	S2S3	
ICBRA10010	<i>Lepidurus packardii</i> vernal pool tadpole shrimp	Endangered	None	G4	S3S4	
IICOL48011	<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	Threatened	None	G3T2	S2	
IICOL49010	<i>Anthicus sacramento</i> Sacramento anthicid beetle	None	None	G1	S1	
IICOL49020	<i>Anthicus antiochensis</i> Antioch Dunes anthicid beetle	None	None	G1	S1	
IMBIV27020	<i>Margaritifera falcata</i> western pearlshell	None	None	G4G5	S1S2	
IMGASA2030	<i>Trilobopsis roperi</i> Shasta chaparral	None	None	G1	S1	
IMGASA2040	<i>Trilobopsis tehamana</i> Tehama chaparral	None	None	G1	S1	
IMGASA4070	<i>Vespericola shasta</i> Shasta hesperian	None	None	G1	S1	
IMGASC2280	<i>Helminthoglypta hertleini</i> Oregon shoulderband	None	None	G1	S1S2	
IMGASC7092	<i>Monadenia troglodytes wintu</i> Wintu sideband	None	None	G1G2T1T2	S1S2	
IMGASG3110	<i>Fluminicola seminalis</i> nugget pebblesnail	None	None	G2	S1S2	



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IMGASL7030	<i>Lanx patelloides</i> kneecap lanx	None	None	G2	S2	
PDAST11061	<i>Balsamorhiza macrolepis</i> big-scale balsamroot	None	None	G2	S2	1B.2
PDBOR0A0Q0	<i>Cryptantha crinita</i> silky cryptantha	None	None	G2	S2	1B.2
PDCAB01010	<i>Brasenia schreberi</i> watershield	None	None	G5	S3	2B.3
PDCAM0C010	<i>Legenere limosa</i> legenere	None	None	G2	S2	1B.1
PDCAR0L0V0	<i>Paronychia ahartii</i> Ahart's paronychia	None	None	G3	S3	1B.1
PDCPR07080	<i>Viburnum ellipticum</i> oval-leaved viburnum	None	None	G4G5	S3?	2B.3
PDERI181Z1	<i>Vaccinium shastense ssp. shastense</i> Shasta huckleberry	None	None	G4T3	S3	1B.3
PDFAB25101	<i>Lathyrus sulphureus var. argillaceus</i> dubious pea	None	None	G5T1T2Q	S1S2	3
PDFAB40410	<i>Trifolium piorkowskii</i> maverick clover	None	None	G2	S2	1B.2
PDLIM02041	<i>Limnanthes floccosa ssp. bellingeriana</i> Bellinger's meadowfoam	None	None	G4T2T3	S1	1B.2
PDLIM02043	<i>Limnanthes floccosa ssp. floccosa</i> woolly meadowfoam	None	None	G4T4	S3	4.2
PDONA05062	<i>Clarkia borealis ssp. borealis</i> northern clarkia	None	None	G3T3	S3	1B.3
PDPLM0C0E1	<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	None	None	G4T2	S2	1B.1
PDROS14020	<i>Nevisia cliftonii</i> Shasta snow-wreath	None	None	G2	S2	1B.2
PDSCR0D482	<i>Castilleja rubicundula var. rubicundula</i> pink creamsacs	None	None	G5T2	S2	1B.2
PDSCR0R060	<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	None	Endangered	G2	S2	1B.2
PMALI040Q0	<i>Sagittaria sanfordii</i> Sanford's arrowhead	None	None	G3	S3	1B.2
PMJUN011L2	<i>Juncus leiospermus var. leiospermus</i> Red Bluff dwarf rush	None	None	G2T2	S2	1B.1
PMLIL0C0H0	<i>Brodiaea matsonii</i> Sulphur Creek brodiaea	None	None	G1	S1	1B.1
PMPOA040K0	<i>Agrostis hendersonii</i> Henderson's bent grass	None	None	G2Q	S2	3.2



Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMPOA4G050	<i>Orcuttia tenuis</i> slender Orcutt grass	Threatened	Endangered	G2	S2	1B.1

Record Count: 62

U.S. Fish and Wildlife Service IPaC Trust Resource Report for the Project Area

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Shasta County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
------	--------

Northern Spotted Owl *Strix occidentalis caurina*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/1123>

Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2891>

Fishes

NAME

STATUS

Delta Smelt *Hypomesus transpacificus*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/321>

Insects

NAME

STATUS

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/7850>

Crustaceans

NAME

STATUS

Conservancy Fairy Shrimp *Branchinecta conservatio*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/8246>

Vernal Pool Fairy Shrimp *Branchinecta lynchi*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/498>

Vernal Pool Tadpole Shrimp *Lepidurus packardii*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2246>

Flowering Plants

NAME

STATUS

Slender Orcutt Grass *Orcuttia tenuis*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/1063>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

[below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Jan 1 to Aug 31

Black Swift *Cypseloides niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8878>

Breeds Jun 15 to Sep 10

California Thrasher *Toxostoma redivivum*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Jul 31

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Dec 31

Common Yellowthroat <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird <i>Selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Song Sparrow <i>Melospiza melodia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee <i>Pipilo maculatus clementae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10

Willet *Tringa semipalmata*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

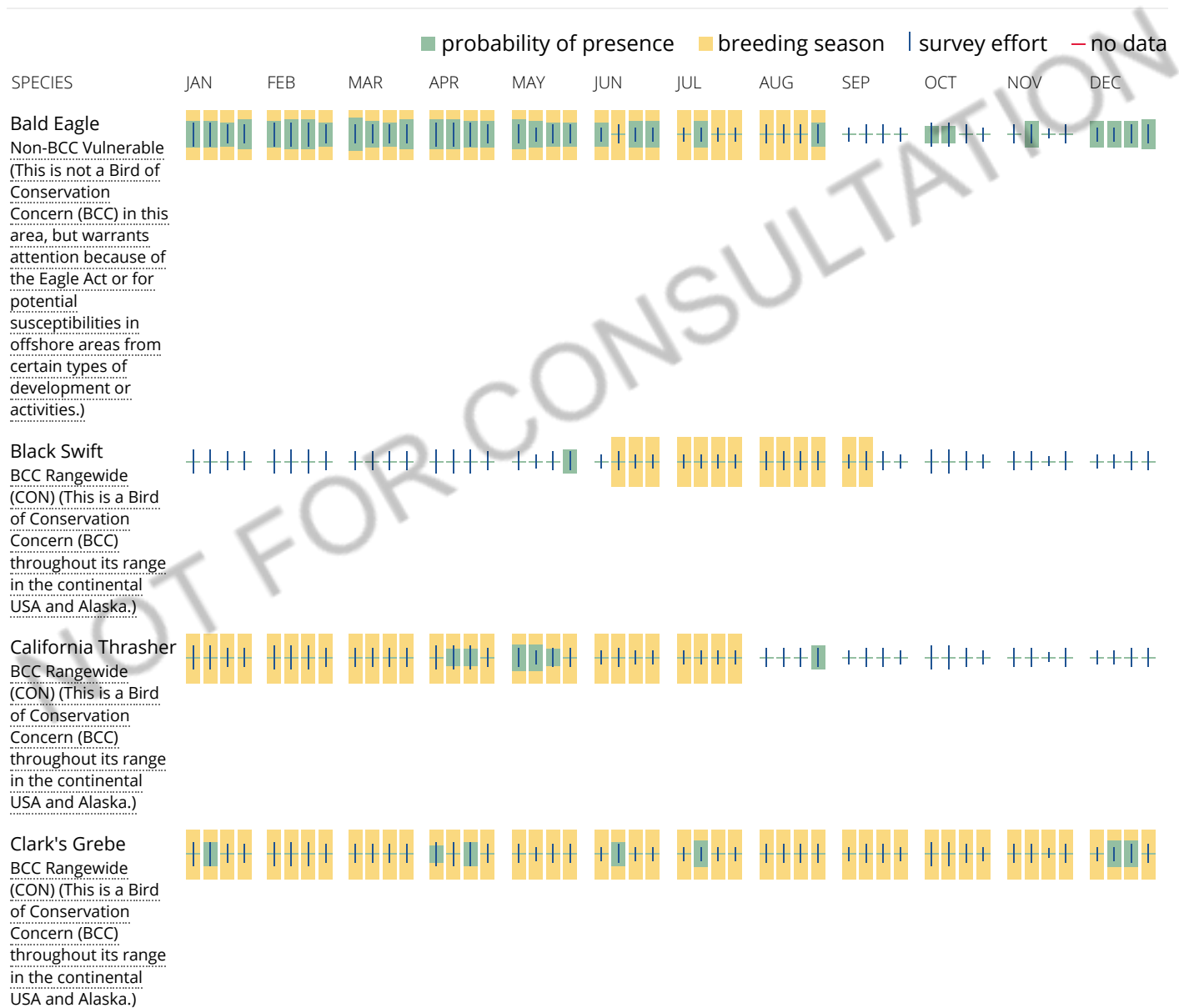
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

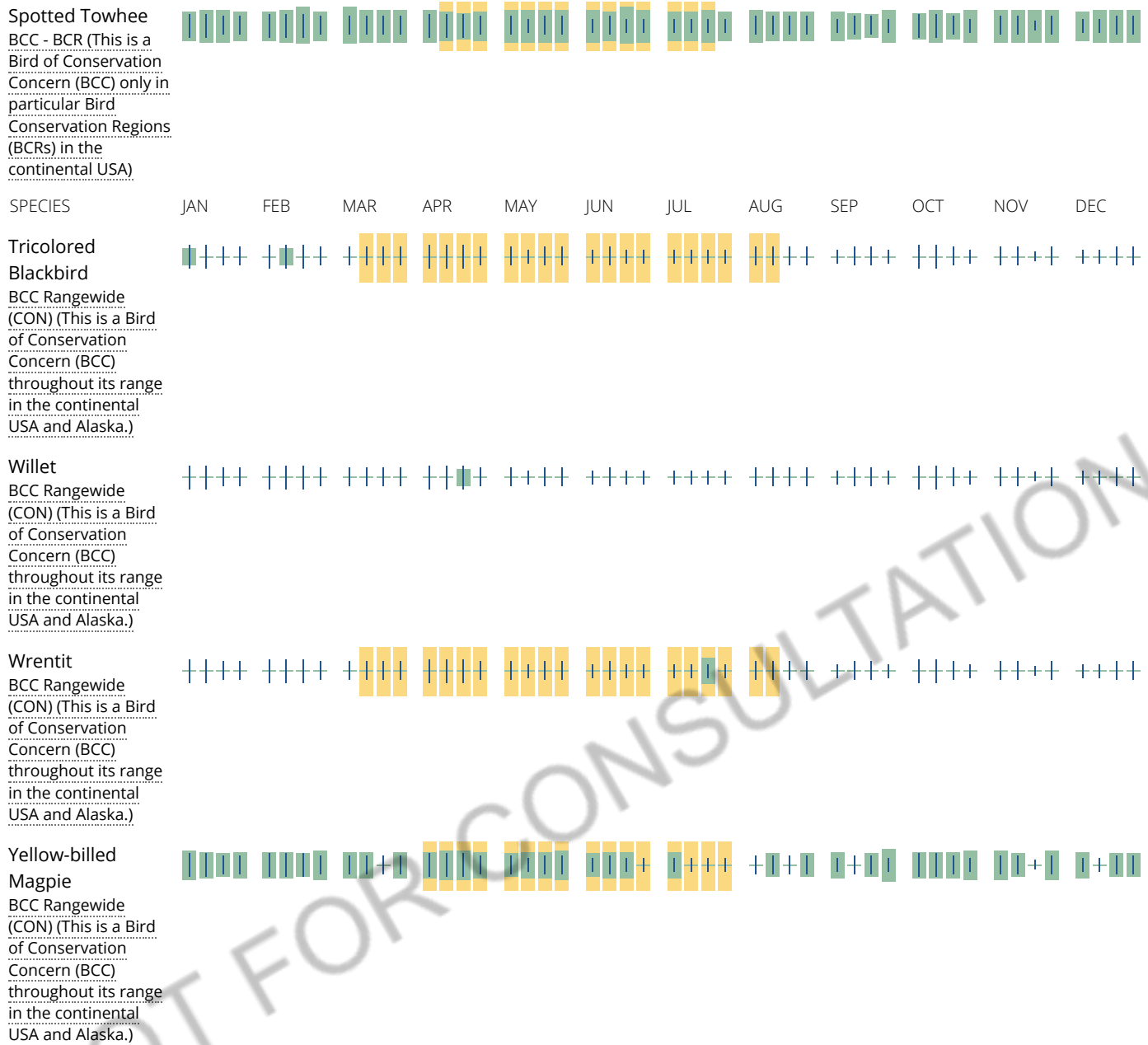
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.







Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project

intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

ATTACHMENT C

California Native Plant Society 9-quad Search for the Enterprise, California Quad



*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

31 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quads 4012264, 4012263, 4012262, 4012254, 4012253, 4012252, 4012244 4012243 and 4012242;

[Modify Search Criteria](#)
[Export to Excel](#)
[Modify Columns](#)
[Modify Sort](#)
[Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Adiantum shastense	Shasta maidenhair fern	Pteridaceae	perennial herb	Apr-Aug	4.3	S3	G3
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	3.2	S2	G2Q
Allium sanbornii var. sanbornii	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	4.2	S3S4	G4T3T4
Anomobryum julaceum	slender silver moss	Bryaceae	moss		4.2	S2	G5?
Arnica venosa	Shasta County arnica	Asteraceae	perennial rhizomatous herb	May-Jul(Sep)	4.2	S3	G3
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3	S3	G5
Brodiaea matsonii	Sulphur Creek brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	1B.1	S1	G1
Bulbostylis capillaris	thread-leaved beakseed	Cyperaceae	annual herb	Jun-Aug	4.2	S3	G5
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	1B.2	S2	G5T2
Clarkia borealis ssp. borealis	northern clarkia	Onagraceae	annual herb	Jun-Sep	1B.3	S3	G3T3
Cryptantha crinita	silky cryptantha	Boraginaceae	annual herb	Apr-May	1B.2	S2	G2
Cryptantha rostellata	red-stemmed cryptantha	Boraginaceae	annual herb	Apr-Jun	4.2	S3	G4
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Erythronium shastense	Shasta fawn lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Apr	1B.2	S2	G2

<u>Gratiola heterosepala</u>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
<u>Juncus leiostermus var. leiostermus</u>	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	1B.1	S2	G2T2
<u>Lathyrus sulphureus var. argillaceus</u>	dubious pea	Fabaceae	perennial herb	Apr-May	3	S1S2	G5T1T2Q
<u>Legenere limosa</u>	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
<u>Limnanthes floccosa ssp. bellingeriana</u>	Bellinger's meadowfoam	Limnanthaceae	annual herb	Apr-Jun	1B.2	S1	G4T2T3
<u>Limnanthes floccosa ssp. floccosa</u>	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	4.2	S3	G4T4
<u>Navarretia leucocephala ssp. bakeri</u>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
<u>Neviusia cliftonii</u>	Shasta snow-wreath	Rosaceae	perennial deciduous shrub	Apr-Jun	1B.2	S2	G2
<u>Orcuttia tenuis</u>	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
<u>Paronychia ahartii</u>	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	1B.1	S3	G3
<u>Sagittaria sanfordii</u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
<u>Sidalcea celata</u>	Redding checkerbloom	Malvaceae	perennial herb	Apr-Aug	3	S2S3	G2G3
<u>Thermopsis gracilis</u>	slender false lupine	Fabaceae	perennial rhizomatous herb	Mar-Jul	4.3	S4	G4
<u>Vaccinium shastense ssp. shastense</u>	Shasta huckleberry	Ericaceae	perennial deciduous shrub	Dec-May(Jun-Sep)	1B.3	S3	G4T3
<u>Viburnum ellipticum</u>	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	2B.3	S3?	G4G5

Suggested Citation

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Questions and Comments

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ATTACHMENT D

Representative Site Photos



Photo 1. Intermittent drainage, looking south.
Photo taken December 16, 2019.



Photo 2. Grassland, looking northeast.
Photo taken December 16, 2019.



Photo 3. Seasonal wetland, looking west.
Photo taken December 16, 2019.



Photo 4. Riparian corridor, looking northeast.
Photo taken December 16, 2019.



Appendix D

Noise Assessment

January 2020

Enterprise Elementary School District (EESD)
1155 Mistletoe Lane
Redding, CA 96002

RE: *Mistletoe Elementary School Project – Noise Memorandum*

PROJECT DESCRIPTION

The Project proposes the construction of a gymnasium, an athletic field, vehicle parking areas, and drive isle as additions to the Mistletoe Elementary School in Redding, California. Additionally, the Project proposes to construct an operations and maintenance (O&M) building and bus parking area for school district operations. The Project would occur on three parcels totaling approximately five acres adjacent to Del Monte Street in the City of Redding. The Project is anticipated to be constructed over a two-year period.

During operation, the components of the proposed Projects will be utilized for typical school operation. Of the approximately five-acre site, one acre is on the existing Mistletoe Elementary School site. This area is proposed to be used for the new gymnasium and related parking lot. The school gymnasium would be used for school-related sports practice and events before and after school hours. The athletic field would be utilized in intervals of one hour or less, five times per day for physical education classes and two times per day for recess, during school hours. Outside of school hours, the soccer field would be used daily for two hours of practice or games, with an anticipated attendance of 25 individuals. The new drive isle would be constructed between the existing Mistletoe Elementary School driveway and Del Monte Street (which are currently not connected). This new drive isle would allow for better site circulation during drop-off and pick-up times for the school students. The O&M building is the location where maintenance is proposed to be performed on school vehicles, including trucks, vans, trailers, and mowers. This building would also be a multi-purpose storage area for cold food, tools and materials, and files which need to be stored long-term. This building is also the “home base” for bus drivers and school maintenance workers.

The proposed Project would not increase student capacity at the school.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE EXISTING

Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (Federal Transit Administration 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Under the dB scale, three sources of equal loudness together would produce an increase of 5 dB.

Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB (dBA) for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2008), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction of 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend length-wise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the line of sight between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA “weighting” added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban

residential or residential-commercial areas (60 to 75 dBA), or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA noise levels, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest sensitive noise receptors to the Project site are residences located approximately 30 feet west of the development site, specifically where the new drive isle would be located.

Existing Ambient Noise Environment

Redding is impacted by various noise sources. It is subject to typical urban noise such as noise generated by traffic, heavy machinery, and day-to-day outdoor activities. Mobile sources of noise, especially cars and trucks, are the most common source of noise in the community. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout Redding that generate stationary source noise. The Benton Airpark is located approximately three miles east of the Project site. The Project site is located outside of the boundaries of the Benton Airpark land use plan and is thereby beyond the noise contours generated by airport operations. Furthermore, the Project site is located more than two miles from any other airport.

REGULATORY FRAMEWORK

City of Redding General Plan Noise Element

The City of Redding Noise Element of the General Plan establishes goals and policies addressing major noise sources within the community. The following provides the applicable goals, policies and criteria for evaluating the feasibility and potential noise impact associated with the proposed Project:

Goal N2: Protect Residents from Exposure to Excessive Transportation-Related Noise.

- **Policy N2B:** Prevent development of new projects which contain noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation sources with exceed the levels specified in [Table 1], unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in the Table.

Table 1. Maximum Allowable Noise Exposure for Transportation Noise Sources			
Land Use	Outdoor Activity Areas ¹ L _{dn} /CNEL, dB	Interior Spaces	
		L _{dn} /CNEL, dB	L _{eq} , dB ²
Residential	60 ³	45	--
Transit Lodging	60 ³	45	--
Hospitals, Nursing Homes	60 ^{3,4}	45	--
Theaters, Auditoriums, Music Hall	--	--	35
Churches, Meeting Halls	60 ³	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

Source: City of Redding General Plan

Notes: ¹The exterior noise level standards shall be applied to the outside activity area of the receiving land use. Outdoor activity areas are normally located near or adjacent to the main structure and often occupied by porches, patios, balconies, etc.

²As determined for a typical worst-case hour during periods of use.

³Where it is not possible to reduce noise in outdoor activity areas to 60 dBA L_{dn}/CNEL or less, using a practical application of the best available noise reduction measures, higher exterior noise levels may be allowed provided that practical exterior noise level reduction measures have been implemented and that interior noise levels are in compliance with this Table.

⁴In the case of hotel/motel facilities or other transient lodging, outdoor activity areas, such as pool areas, may not be included in the project design. In these cases, only interior noise-level criterion will apply.

- **Policy N2C:** Mitigate noise created by new transportation noise sources consistent with the levels specified in [Table 1] in outdoor-activity areas and interior spaces of existing noise sensitive land uses.
- **Policy N2E:** Require acoustical analysis for noise sensitive land uses proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in [Table 1 above] or the performance standards of [Table 2 below] to determine mitigation for inclusion in the project design.

Table 2. Noise Level Performance Standards for New Projects Affected by or Including Nontransportation Noise Sources		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L _{eq} , dB	55	45

Source: City of Redding General Plan

Notes: Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply for residential units established in conjunction with industrial or commercial uses. The City can impose noise level standards which are more restrictive than those specified above based upon determination of existing low ambient noise levels.

Industrial, light industrial, commercial, and public service facilities which have the potential for producing objectionable noise levels at nearby noise sensitive uses are dispersed throughout the City. Fixed noise sources which are typically of concern include, but are not limited to, the following: HVAC systems, generators, air compressors, outdoor speakers, fans and blowers (this list only includes equipment applicable for the proposed Project).

- **Policy N2G:** enforce existing applicable sections of the California Vehicle Code related to vehicle or equipment mufflers and modified exhaust systems.

Goal N3:

- **Policy N3A:** Prohibit the development of noise sensitive uses where the noise level due to nontransportation sources will exceed the noise level standards of [Table 2] as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in [Table 2].
- **Policy N3B:** Mitigate noise created by new proposed nontransportation sources consistent with the noise level standards of [Table 2] as measured immediately within the property line of lands designated for noise sensitive land uses. Noise level standards for non-noise sensitive uses will generally be 10 dB higher before mitigation is required.
- **Policy N3C:** Require acoustical analysis of new nonresidential land uses and the expansion of existing nonresidential land uses if likely to produce noise levels exceeding the performance standards of [Table 2] within the property line of existing or planned noise sensitive uses.

City of Redding Municipal Code

The Redding Municipal Code, Section 18.40.100, Noise Standards specifies additional noise regulations pertaining to the allowable exterior noise levels based upon the time of day and land use category. The City's Noise Ordinance was established in order to control unnecessary, excessive and annoying noise while protecting the public health, safety and welfare. These noise standards are presented in Table 3 below.

Table 3. Exterior Noise Standards		
Receiving Land Use Category	Time Period	Noise Level (Hourly L_{eq} dB)
Residential	10:00 p.m.- 7:00 a.m.	45
	7:00 a.m. to 10: 00 p.m.	55
Office/Commercial	10:00 p.m.- 7:00 a.m.	55
	7:00 a.m. to 10: 00 p.m.	65
Industrial	10:00 p.m.- 7:00 a.m.	N/A ¹
	7:00 a.m. to 10: 00 p.m.	N/A ¹

Source: City of Redding Municipal Code.

Notes: ¹Industrial Noise shall be measured at the property line of any nonresidential district.

Additionally, Section 18.40.100 prohibits the operation of any tools or equipment used in construction, alteration or demolition work in or within five hundred feet of a residential district such that the sound creates a noise disturbance across a property line during the following times:

- May 15th through September 15th: Between the weekday hours of 7:00 p.m. and 6:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.
- September 16th through May 14th: Between the weekday hours of 7:00 p.m. and 7:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.

NOISE IMPACT ANALYSIS

This analysis employs noise prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the Federal Highway Administration's Roadway Construction Model (2008). In order to estimate the worst-case noise levels that may occur at the nearest noise-sensitive receptors, onsite operational noise levels have been calculated with the SoundPLAN 3D noise model (which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources and the geometry and reflective properties of the local terrain, buildings, and barriers) as well as reference measurements taken by ECORP Consulting and other noise analysis.

Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

Would the Project result in a generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Project Construction

Construction noise associated with the proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., building construction, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

Table 4 indicates the anticipated noise levels of construction equipment. The average noise levels presented in Table 4 are based on the quantity, type, and acoustical use factor for each type of equipment that is anticipated to be used.

Table 4. Typical Construction Equipment Noise Levels		
Type of Equipment	Maximum Noise (Lmax) at 50 Feet (dBA)	Maximum 8-Hour Noise (Leq) at 50 Feet (dBA)
Crane	80.6	72.6
Dozer	81.7	77.7
Excavator	80.7	76.7
Generator	80.6	77.6
Grader	85.0	81.0
Other Equipment (greater than 5 horsepower)	85.0	82.0
Paver	77.2	74.2
Roller	80.0	73.0
Tractor	84.0	80.0
Dump Truck	76.5	72.5
Concrete Pump Truck	81.4	74.4
Welder	74.0	70.0
Crane	80.6	72.6
Dozer	81.7	77.7

Source: FHWA, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2008.

As previously stated, the nearest noise-sensitive land uses consist of residences approximately 30 feet west of the Project site. The noise levels from construction equipment at 50 feet range from 70.0 dBA to 81.0 dBA. The noise levels from construction operations decrease at a rate of approximately 6.0 dB per doubling of distance. Thus, the noise levels at the nearest residences, approximately 30 feet away, would range from 74.4 to 88.4 dBA.

The City of Redding restricts the time that construction can take place but does not promulgate numeric thresholds pertaining to the noise associated with construction. Specifically, Section 18.40.100 of the City's Municipal Code prohibits the operation of any tools or equipment used in construction, alteration or demolition work in or within five hundred feet of a residential district such that the sound creates a noise disturbance across a property line during the following times:

- May 15th through September 15th: Between the weekday hours of 7:00 p.m. and 6:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.
- September 16th through May 14th: Between the weekday hours of 7:00 p.m. and 7:00 a.m. and weekends and holidays between 8:00 p.m. and 9:00 a.m.

It is typical to regulate construction noise in this manner since construction noise is temporary, short-term, intermittent in nature, and would cease on completion of the construction. Furthermore, the City of Redding is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Additionally, construction would occur through the Project site and would not be concentrated at one point. Therefore, noise generated during construction activities, as long as conducted within the permitted hours, would not exceed City noise standards.

Project Operations-Onsite Noise Sources

As previously stated, noise sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging,

libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest noise-sensitive land uses are residences located 30 feet west of the Project site.

The main onsite operational noise associated with the Project would be events occurring on the Project site such as students gathering, recesses, physical education classes, sporting events and parking lot activity/circulation. The O&M building would produce some shop related noise, but these events would be less frequent and intermittent in nature. Per information supplied by the school district, the athletic field would be utilized in intervals of one hour or less, five times per day for physical education classes and two times per day for recess during school hours. The soccer field would be used daily for two hours of practice or games with an anticipated attendance of 25 individuals. The school gymnasium is anticipated to be used for school-related sports practice and events before and after school hours and the O&M building is the location where maintenance would be performed on school vehicles, including trucks, vans, trailers, and mowers. All noise producing school related activities will take place between 7:00 a.m. and 10:00 p.m. with little to no noise producing activities taking place between 10:00 p.m. and 7:00 a.m. Table 5 summarizes operational onsite noise sources.

Table 5. Summary of Onsite Stationary Sources		
Stationary Sources	Noise Level (dBA L_{eq}) at the Source	Estimated Time of Use
Parking Lot Activities	61.1 dBA	7:00 a.m. – 10:00 p.m.
Playground & Sports Field	66.0 dBA	7:00 a.m. – 10:00 p.m.
Operations and Maintenance Building	82.2 dBA	7:00 a.m. – 10:00 p.m.

Table 6 shows the predicted noise propagation associated with full operations of the proposed Project, as predicted by SoundPLAN 3D noise model. This includes four residences adjacent to the Project site. Additionally, a noise contour graphic (Figure 1) has been prepared to depict the predicted noise levels in the vicinity on a worst-case scenario basis.

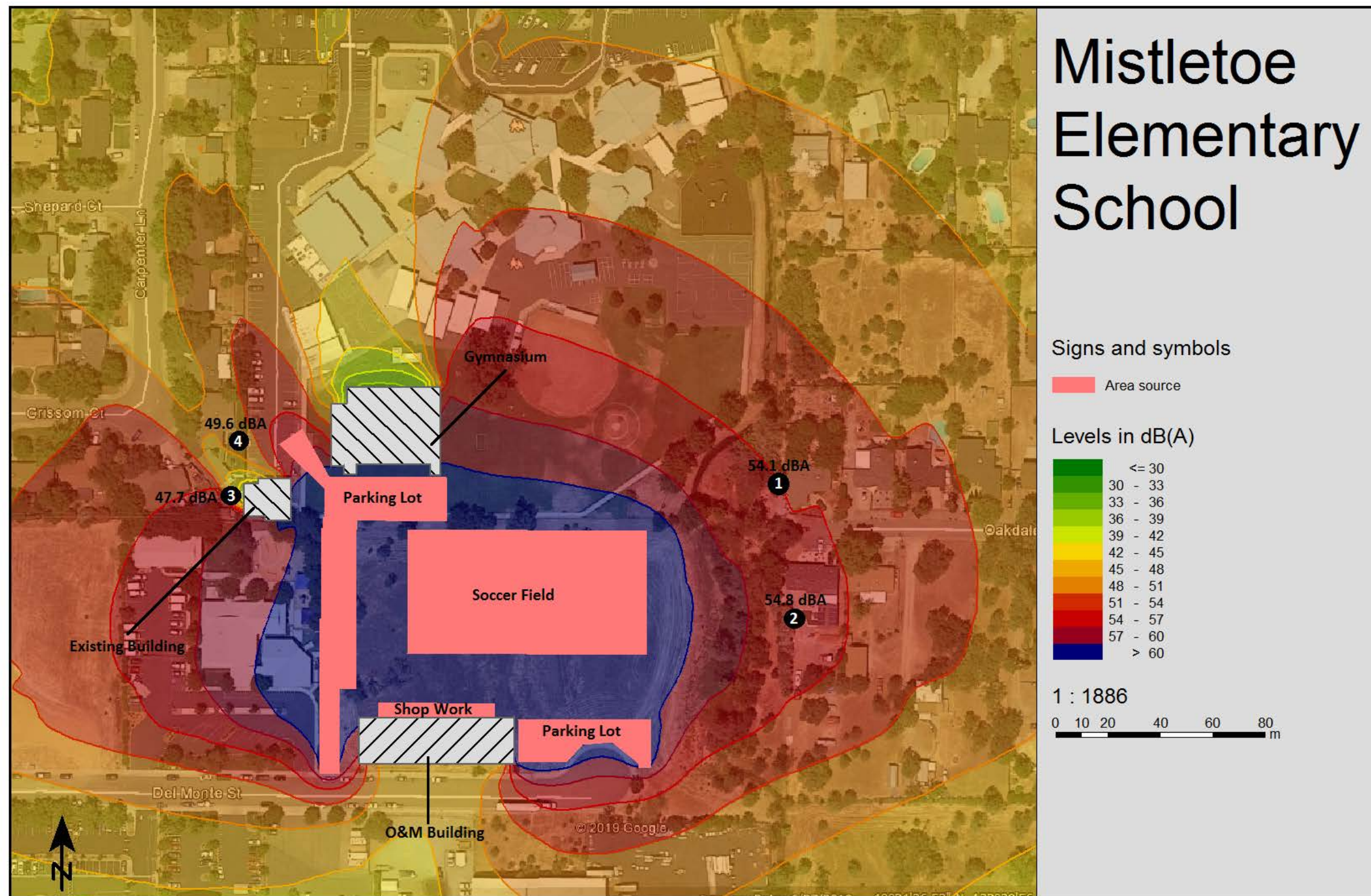
Table 6. Modeled Operational Exterior Noise Levels			
Site Location	Location	Modeled Operational Noise Attributable to Project (L _{eq} dBA)	City Standard?
1	Residence east of Project site	54.1 dBA	55 dBA
2	Residence east of Project site and adjacent to the proposed soccer field	54.8 dBA	55 dBA
3	Residence west of Project site and adjacent to proposed parking lot	47.7 dBA	55 dBA
4	Residence west of Project site and adjacent to proposed driveway	49.6 dBA	55 dBA

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Attachment A for noise modeling assumptions and results.

As shown in Table 6, Project noise levels would reach between 47.7 dBA and 54.8 dBA at the nearby residences, during Project operations between 7:00 a.m. - 10:00 p.m. These numbers fall below the City's single-family residence noise standards presented in the General Plan for nontransportation noise sources and the standards contained in the City's Municipal Code. Additionally, as previously stated the interior-to-exterior noise reduction attributable to newer structures is generally 30 dBA or more. Thus, the modeled exterior Project noise of 54.8 dBA, for example, would equate to as low as 24.8 dBA within the interior of the residence. Furthermore, Project noise modeling represents a worst-case scenario in which all potential Project noise sources are being generated at full intensity at the same moment. It is very unlikely that noise levels on the Project site would reach that of those predicted in Table 6.

Project Operations-Offsite Traffic Noise

According to Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013a), doubling of traffic on a roadway is necessary in order to result in an increase of 3 dBA (a barely perceptible increase as previously described). The Project is proposing the expansion of the existing Mistletoe Elementary School with the construction of a gymnasium, O&M building, an athletic field, parking area and a new drive isle. The Project would not increase student capacity or instigate additional school functions; therefore, it would not result in an increase in traffic. The Project would not result in additional traffic on any of the vicinity roadways, and thus the Project would not be contributing to increased traffic noise.



Map Date: 1/16/2019
Photo (or Base) Source: SoundPLAN

Figure 1. Noise Contour Graphic

Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Project Construction

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with short-term, construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction as such equipment is not generally necessary for single story construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 7.

Table 7. Vibration Source Amplitudes for Construction Equipment	
Equipment Type	Peak Particle Velocity at 20 Feet (inches per second)
Large Bulldozer	0.124
Caisson Drilling	0.124
Loaded Trucks	0.106
Rock Breaker	0.115
Jackhammer	0.049
Small Bulldozer/Tractor	0.004

Source: FTA 2018; Caltrans 2013b

The City does not regulate vibration associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans's (2013b) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

It is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to the nearest structure. The nearest structures of concern to the construction site are located approximately 20 feet away, adjacent to where the new drive isle and parking are proposed to be located. Based on the vibration levels presented in Table 7, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.124 inches per second peak particle velocity at 20 feet. Thus, structures located at 20 feet would not be negatively affected.

Project Operations

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels.

For a project located within the vicinity of a private airstrip or 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, would the project expose people residing or working in the project area to excessive noise levels?

The Project site is located approximately three miles east of the Benton Airpark and is located outside of any airport land use plan. Since the site is outside any land use plan boundaries it is beyond the noise contours generated by airport operations. The proposed Project will not expose people working or visiting the Project area to excess airport noise levels.

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ATTACHMENT A

SoundPLAN Output File

SoundPLAN				
Output Source Information				
Number	Reciever Name		Floor	Daytime Level at Receiver
1	Residence east of Project site		Ground Floor	54.1 dBA
2	Residence east of Project site and adjacent to the proposed soccer field		Ground Floor	54.8 dBA
3	Residence west of Project site and adjacent to proposed parking lot		Ground Floor	47.7 dBA
4	Residence west of Project site and adjacent to proposed driveway		Ground Floor	49.6 dBA
Number	Noise Source Information		Citation	Level at Source
1	Parking Lot Activities		ECORP Reference Noise Measurements at a Safeway Grocery Store Parking Lot on November 11, 2019	61.1 dBA
2	Play Grounds & Sports Fields		Edward L. Pack Associates, Inc., Noise Assessment Study for the Rocketship School, October 23, 2015.	66.0 dBA
4	Shop/ Warehouse Activity		CalFIRE Altaville Forest Fire Station Auto Shop Replacement Project Initial Study/Mitigated Negative Declaration. 2014	82.2 dBA

Appendix E

Energy Consumption Assessment

**Proposed Project
Total Construction-Related Operational
Gasoline Usage**

Action	Carbon Dioxide Equivalents (CO ₂ e) in Metric Tons	Conversion of Metric Tons to Kilograms	Construction Equipment Emission Factor ¹	Total Gallons of Fuel Consumed
Project Construction	153	153000	10.15	15,074
	Per CalEEMod Output Files.	Per Climate Registry Equation 13e	Per Climate Registry Equation 13e	

Total Gallons Consumed During Project Construction: 15,074

Notes:

¹Fuel used by all construction equipment, including vehicle hauling trucks, assumed to be diesel.

Sources:

Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1*. January 2016.
<http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf>

ECORP Consulting. 2019. Air Quality & Greenhouse Gas Impact Analysis for Mistletoe Elementary School Project

Total Gallons During Project Operations

Area	Sub-Area	Cal. Year	Season	Veh_tech	EMFAC AC2007 Category	Fuel_GAS	Fuel_DSL	Daily Total	ANNUAL TOTAL
Sub-Areas	Shasta County	2022	Annual	All Vehicles	All Vehicles	7.7	0	7.7	2810.5

Sources:

California Air Resource Board. 2017. EMFAC2014 Mobile Emissions Model.

Appendix F

Phase 1 Environmental Site Assessment

DTSC determination letter



Jared Blumenfeld
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D.
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

December 19, 2019

Mr. Ronald Cushman
Maintenance and Operations Director
Enterprise Elementary School District
1155 Mistletoe Lane
Redding, California 96002

PHASE I ENVIRONMENTAL SITE ASSESSMENT –
PRELIMINARY ENVIRONMENTAL ASSESSMENT REQUIRED DETERMINATION,
ENTERPRISE ELEMENTARY SCHOOL DISTRICT, MISTLETOE ELEMENTARY
SCHOOL EXPANSION, 1186 AND 1220 DEL MONTE STREET, REDDING,
SHASTA COUNTY (PROJECT CODE 104813)

Dear Mr. Cushman:

The Department of Toxic Substances Control (DTSC) reviewed the *Phase I Environmental Site Assessment* (Phase I – Sharrah Dunlap Sawyer, Inc., July 12, 2019) received on December 3, 2019. The Phase I describes current and historical land use with the intent of identifying recognized environmental conditions (RECs) that may impact the expansion parcels adjoining the existing Mistletoe Elementary School and located at 1186 and 1220 Del Monte Street, Redding, Shasta County, California (Site).

According to the Phase I, the 4.4-acre expansion Site is further defined by the Shasta County Assessor's Office as Assessor's Parcel Numbers 067-120-038 (1.5-acre parcel) and 067-120-040 (2.9-acre parcel). The Enterprise Elementary School District (District) plans to use the expansion property for development as an Operations and Maintenance facility and to create additional sports fields. No increase in the number of classrooms or student attendance is anticipated as a result of the expansion.

Based on historical aerial photographs, the Site is reported to have been vacant fallow land since at least 1943. DTSC was unable to confirm since the only aerial photographs which were provided were from 1998 through 2016. Based on topographic maps provided for the period of 1901 through 2012, no structures appear to be present on the Site. Currently, both parcels are vacant and have no existing structures. Vegetation on the Site consists largely of grasses throughout the westernmost parcel and on a majority

of the easternmost parcel along the top of bank. Scattered pine and oak trees of varying sizes and degrees can be found on the Site. Circa August 2010, an unspecified volume of imported fill material from an unidentified borrow source area was brought on to the Site as part of grading activities for future development as well as for construction of a 30-foot overland release ditch to the west of the existing Little Churn Creek.

The Site is bordered to the north by Mistletoe Elementary School followed by Mistletoe Lane and residential subdivisions; to the east by Little Churn Creek followed by residential lots and Penn Drive; to the south by Del Monte Street followed by commercial properties; and, to the west by Shasta Head Start followed by a vacant fallow parcel, commercial properties and Churn Creek Road.

The Phase I did not identify RECs, controlled RECs, or historical RECs for the Site. *De minimis* environmental conditions were also not noted for the Site. However; the Phase I also identified data gaps, including fill material.

Based on the information provided in the Phase I, DTSC has determined that it will neither approve nor disapprove the Phase I; however, DTSC has determined that the Phase I contains sufficient information to determine that a Preliminary Environmental Assessment (PEA) is required for the Site. DTSC has identified environmental conditions of concern from unknown fill material source, naturally occurring material, and potential off-Site sources which may potentially have impacted the Site. The purpose of the PEA would be to determine whether a release or threatened release of hazardous substances or naturally occurring hazardous material may pose a threat to public health or the environment.

The PEA should address, but may not be limited to, the following potential environmental concerns:

- Fill material from an unknown source area. DTSC recommends that these environmental concerns be investigated, and possibly mitigated, in accordance with DTSC's *Information Advisory – Clean Imported Fill Material, dated October 2001*
- Based on review of geologic maps for the area surrounding the Site, it appears that geologic formations that may contain naturally occurring asbestos (NOA) exist within a 10-mile radius of the Site. Located within 5-miles upslope from the Site are mapped metavolcanic rock formations that are identified to include greenstone and diabase. Literature notes that asbestos can occur in metavolcanic rocks such as metabasalts (greenstone) and metagabbros (diabase) which have been sheared and silicified. As such, it is the opinion of DTSC that Site soils and fill material be analyzed for asbestos from NOA. Pursuant to DTSC's *Interim Guidance – Naturally Occurring Asbestos at School Sites, Revised September 24, 2004*, further environmental investigation should be considered and conducted to determine whether a naturally occurring hazardous

material (i.e., NOA) is present, based on reasonably available information about the properties and the areas in their vicinity.

- Potential environmental impacts associated with the off-site source areas should be further clarified and evaluated, as appropriate, including:
 - Provide further clarification (“detailed description”) of potential source areas identified in the Environmental Data Resources, Inc. findings, including the listing of the Iron Mountain Mine superfund site within 0.5 to 1-mile (4314 feet) west of the Site.
 - Education Code, section 17210, subdivision (g) provides the definition of a Phase I. The Education Code requires that a Phase I be prepared in accordance with American Society for Testing and Materials (ASTM) Standard E1527 and any regulations promulgated by DTSC. DTSC has expanded the definition to identify and evaluate all sources for the potential release and/or the presence of hazardous material on proposed school sites (California Code of Regulation, section 69104, subsection (d)), including items not previously identified or addressed in the Phase I, such as:
 1. Agricultural use
 2. Debris or stockpiles
 3. Fill material
 4. Electrical transformers, oil-filled electrical equipment, or hydraulic systems
 5. Government use or ownership
 6. Grading activities
 7. Hydrogen sulfide
 8. Illegal drug manufacturing
 9. Lead-based paint application
 10. Metals and metalloids
 11. Methane
 12. Mines
 13. Naturally-occurring asbestos
 14. Naturally-occurring hazardous materials
 15. Petroleum deposits or use
 16. Radon
 17. Railroad use or easements
 18. Residential use
 19. Surface drainage pathways
 20. Termiticide application
 21. Utility easements
 22. Munitions and explosives of concern

Pursuant to the Education Code section 17213.1, subdivision (a), DTSC acceptance of the Phase I does not constitute a determination that "all appropriate inquiry" has been conducted within the meaning of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. section 9601(35)(B)). DTSC review of the Phase I was conducted solely to identify RECs and/or potential environmental conditions at this Site in accordance with the requirements of ASTM E1527 and the Education Code to determine whether further investigation is necessary prior to DTSC approval of this Site for future school use.

Pursuant to Education Code section 17213.1, subdivision (a)(4)(B), if the District elects to pursue Site acquisition or construction, the District shall enter into an Environmental Oversight Agreement (EOA) with DTSC to oversee the preparation of the PEA. A copy of the Environmental Oversight Program application for the EOA is available on the DTSC School Site Evaluation Web page at <https://dtsc.ca.gov/evaluating-cleaning-up-school-sites/>.

Please forward the completed application, signed by an authorized District representative, to:

Ms. Tamara Purvis
Agreement Coordinator
Northern California Schools
Site Mitigation and Restoration Program
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826
Tamara.Purvis@dtsc.ca.gov
(916) 255-3857

Ms. Purvis will oversee the preparation of an agreement, which will then be forwarded for review and signature. Subsequently, the project manager will contact the District to schedule a scoping meeting. For additional information regarding the PEA process or entering into an agreement, please contact me, José Salcedo, Northern California Schools Unit Chief, at (916) 255-3732 or Jose.Salcedo@dtsc.ca.gov.

For all documents submitted to DTSC, please submit two hard (paper) copies and one electronic copy in Adobe Portable Document Format with a maximum file size of 100 megabytes. All submittals should include applicable signatures and certification stamps, as appropriate.

Mr. Ronald Cushman
December 19, 2019
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If you have any questions regarding the project, please contact the DTSC Project Manager, Mr. José Luevano at (916) 255-3577 or via electronic mail at Jose.Luevano@dtsc.ca.gov. Alternatively, you may contact me at (916) 255-3732 or via electronic mail at Jose.Salcedo@dtsc.ca.gov.

Sincerely,



José Salcedo, PE, Chief
Northern California Schools Unit
Site Mitigation and Restoration Program

cc: (via email)

Mr. Fred Yeager
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FYeager@cde.ca.gov

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