APPENDIX A

THE CREAMERY PROJECT- CONSTRUCTION NO_X OUTPUT, SEPTEMBER 2013

The Creamery Project

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	98.00	Dwelling Unit	8.30	177,282.00	262

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - This model run is for the purposes of estimation construction-generated emissions of NOx only.

Land Use - 98 single family detached medium density cluster style homes ranging from 1,617 to 2,001 sq ft. Thus, avg size = 1,809 sq ft and total floor

Sequestration -

Construction Phase - A fast-paced (i.e., short) construction schedule is assumed in order to estimate a conservative estimate of the maximum daily

Grading - No export is planned, only the import of approximately 20 CY of asphat for the internal drivelanes. -Phil Rodriguez

Demolition - Warehouse is approx. 240' x 80' = 19,200 sq. ft.

Vehicle Trips - No changes are made using project-specific traffic data because the purpose of this model run is estimate construction-related emissions

Woodstoves - No changes are made because the purpose of this model run is estimate construction-related emissions of NOx.

Energy Use - No changes are made using project-specific info. because the purpose of this model run is estimate construction-related emissions of NOx.

Water And Wastewater - No changes are made using project-specific info. because the purpose of this model run is estimate construction-related

Land Use Change - No changes are made using project-specific traffic data because the purpose of this model run is estimate construction-related

Mobile Land Use Mitigation -

Energy Mitigation - No changes are made using project-specific info because the purpose of this model run is estimate construction-related emissions of

Water Mitigation - No changes are made using project-specific info because the purpose of this model run is estimate construction-related emissions of

Off-road Equipment - Because the ware house is a rather simply structure, it is not anticipated that more than 2 excavators would be needed.

Off-road Equipment - Site preparation will be low-intensity because the site is currently disturbed and has minimal vegetation.

Off-road Equipment - It' unlikely that all this equipment would be operated at the same time.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	130.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	PhaseEndDate	4/4/2014	8/8/2014
tblConstructionPhase	PhaseEndDate	9/5/2014	3/7/2014
tblConstructionPhase	PhaseEndDate	1/3/2014	1/17/2014
tblConstructionPhase	PhaseStartDate	3/8/2014	7/14/2014
tblConstructionPhase	PhaseStartDate	2/8/2014	2/10/2014
tblConstructionPhase	PhaseStartDate	1/18/2014	1/20/2014
tblConstructionPhase	PhaseStartDate	8/9/2014	2/10/2014
tblConstructionPhase	PhaseStartDate	12/21/2013	1/6/2014
tblGrading	AcresOfGrading	7.50	8.30
tblGrading	MaterialImported	0.00	20.00
tblLandUse	LandUseSquareFeet	176,400.00	177,282.00
tblLandUse	LotAcreage	31.82	8.30
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	5.7147	49.2845	37.9062		1.5132	2.4909	4.0040	0.2527	2.3292	2.5819			4,156.3840	0.9784	0.0000	4,176.9298
2014	116.4806	58.7693	39.1166		12.1237	3.7044	14.0324	6.6416	3.4555	8.3976			5,662.9182	1.4130	0.0000	5,692.5910
Total	**122.1952**	**108.0538**	**77.0227**		**13.6369**	**6.1953**	**18.0364**	**6.8943**	**5.7847**	**10.9794**			**9,819.3022**	**2.3914**	**0.0000**	**9,869.5208**

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					
2013	5.7106	49.2416	37.8751		2.5867	2.4887	5.0754	0.5162	2.3271	2.8433			4,153.0627	0.9775	0.0000	4,173.5900
2014	116.4766	58.7167	39.0855		12.1475	3.7010	14.0544	6.6474	3.4524	8.4018			5,658.2643	1.4117	0.0000	5,687.9103
Total	**122.1873**	**107.9583**	**76.9606**		**14.7342**	**6.1897**	**19.1298**	**7.1636**	**5.7795**	**11.2451**			**9,811.3270**	**2.3892**	**0.0000**	**9,861.5003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.5223e-003**	**0.0884**	**0.0807**	**0.0000**	**-8.0470**	**0.0904**	**-6.0621**	**-3.9069**	**0.0904**	**-2.4197**	**0.0000**	**0.0000**	**0.0812**	**0.0899**	**0.0000**	**0.0813**

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	4.6718	0.0982	8.2826			0.0440	0.0440		0.0440	0.0440			14.5581	0.0155	0.0000	14.8841
Energy	0.0931	0.7956	0.3385			0.0643	0.0643		0.0643	0.0643			1,015.5918	0.0195	0.0186	1,021.7725
Mobile	13.5258	10.7299	51.2593		5.3656	0.1432	5.5088	1.4331	0.1314	1.5645			6,645.7937	0.3439		6,653.0158
Total	**18.2906**	**11.6236**	**59.8805**		**5.3656**	**0.2515**	**5.6171**	**1.4331**	**0.2397**	**1.6728**			**7,675.9436**	**0.3789**	**0.0186**	**7,689.6724**

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	4.6718	0.0982	8.2826			0.0440	0.0440		0.0440	0.0440			14.5581	0.0155	0.0000	14.8841
Energy	0.0931	0.7956	0.3385			0.0643	0.0643		0.0643	0.0643			1,015.5918	0.0195	0.0186	1,021.7725
Mobile	13.5258	10.7299	51.2593		5.3656	0.1432	5.5088	1.4331	0.1314	1.5645			6,645.7937	0.3439		6,653.0158
Total	**18.2906**	**11.6236**	**59.8805**		**5.3656**	**0.2515**	**5.6171**	**1.4331**	**0.2397**	**1.6728**			**7,675.9436**	**0.3789**	**0.0186**	**7,689.6724**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/2/2013	12/20/2013	5	15	Demo of limo warehouse
2	Site Preparation	Site Preparation	1/6/2014	1/17/2014	5	10	
3	Grading	Grading	1/20/2014	2/7/2014	5	15	
4	Building Construction	Building Construction	2/10/2014	8/8/2014	5	130	
5	Paving	Paving	2/10/2014	3/7/2014	5	20	
6	Architectural Coating	Architectural Coating	7/14/2014	8/8/2014	5	20	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	2	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	87.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	2.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	35.00	10.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2013

Unmitigated Construction On-Site

Acres of Grading: 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
Category	lb/day										lb/day					
Fugitive Dust					1.3136	0.0000	1.3136	0.1989	0.0000	0.1989			0.0000			0.0000
Off-Road	4.3826	46.7652	33.8571			2.4232	2.4232		2.2670	2.2670			3,620.1200	0.9663		3,640.4114
Total	**4.3826**	**46.7652**	**33.8571**		**1.3136**	**2.4232**	**3.7368**	**0.1989**	**2.2670**	**2.4659**			**3,620.1200**	**0.9663**		**3,640.4114**

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	1.0514	2.4358	3.2327		0.1007	0.0667	0.1674	0.0275	0.0614	0.0889			435.1123	5.2900e-003		435.2233
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
Worker	0.2807	0.0834	0.8164		0.0989	9.0000e-004	0.0998	0.0262	8.2000e-004	0.0271			101.1517	6.8300e-003		101.2951
Total	**1.3320**	**2.5193**	**4.0491**		**0.1995**	**0.0676**	**0.2672**	**0.0538**	**0.0622**	**0.1160**			**536.2639**	**0.0121**		**536.5184**

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					1.3136	0.0000	1.3136	0.1989	0.0000	0.1989			0.0000			0.0000
Off-Road	4.3786	46.7223	33.8261			2.4210	2.4210		2.2649	2.2649			3,616.7988	0.9654		3,637.0716
Total	**4.3786**	**46.7223**	**33.8261**		**1.3136**	**2.4210**	**3.7346**	**0.1989**	**2.2649**	**2.4638**			**3,616.7988**	**0.9654**		**3,637.0716**

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	1.0514	2.4358	3.2327		1.1742	0.0667	1.2410	0.2911	0.0614	0.3524			435.1123	5.2900e-003		435.2233
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
Worker	0.2807	0.0834	0.8164		0.0989	9.0000e-004	0.0998	0.0262	8.2000e-004	0.0271			101.1517	6.8300e-003		101.2951
Total	**1.3320**	**2.5193**	**4.0491**		**1.2731**	**0.0676**	**1.3407**	**0.3173**	**0.0622**	**0.3795**			**536.2639**	**0.0121**		**536.5184**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

Acres of Grading: 8.3

	ROG	NOx	CO	SO2	Fugitive 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					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	3.2817	36.0581	27.0255			1.9068	1.9068		1.7543	1.7543			2,549.8842	0.7535		2,565.7081
Total	**3.2817**	**36.0581**	**27.0255**		**12.0442**	**1.9068**	**13.9510**	**6.6205**	**1.7543**	**8.3747**			**2,549.8842**	**0.7535**		**2,565.7081**

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	0.0265	0.0735	0.0973		3.4700e-003	1.2400e-003	4.7100e-003	9.5000e-004	1.1400e-003	2.0900e-003			14.8834	1.3000e-004		14.8861
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
Worker	0.1952	0.0566	0.5538		0.0761	6.3000e-004	0.0767	0.0202	5.8000e-004	0.0208			75.5398	4.7100e-003		75.6387
Total	**0.2217**	**0.1301**	**0.6510**		**0.0795**	**1.8700e-003**	**0.0814**	**0.0211**	**1.7200e-003**	**0.0228**			**90.4232**	**4.8400e-003**		**90.5248**

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					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	3.2786	36.0250	27.0007			1.9051	1.9051		1.7527	1.7527			2,547.5448	0.7528		2,563.3542
Total	**3.2786**	**36.0250**	**27.0007**		**12.0442**	**1.9051**	**13.9492**	**6.6205**	**1.7527**	**8.3731**			**2,547.5448**	**0.7528**		**2,563.3542**

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	0.0265	0.0735	0.0973		0.0273	1.2400e-003	0.0285	6.7900e-003	1.1400e-003	7.9300e-003			14.8834	1.3000e-004		14.8861
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
Worker	0.1952	0.0566	0.5538		0.0761	6.3000e-004	0.0767	0.0202	5.8000e-004	0.0208			75.5398	4.7100e-003		75.6387
Total	**0.2217**	**0.1301**	**0.6510**		**0.1033**	**1.8700e-003**	**0.1052**	**0.0270**	**1.7200e-003**	**0.0287**			**90.4232**	**4.8400e-003**		**90.5248**

3.4 Grading - 2014

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					6.6089	0.0000	6.6089	3.3736	0.0000	3.3736			0.0000			0.0000
Off-Road	3.4984	37.5671	24.3312			2.0939	2.0939		1.9264	1.9264			2,831.3616	0.8367		2,848.9322
Total	**3.4984**	**37.5671**	**24.3312**		**6.6089**	**2.0939**	**8.7028**	**3.3736**	**1.9264**	**5.3000**			**2,831.3616**	**0.8367**		**2,848.9322**

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
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
Worker	0.2538	0.0736	0.7199		0.0989	8.2000e-004	0.0997	0.0262	7.5000e-004	0.0270			98.2017	6.1200e-003		98.3303
Total	**0.2538**	**0.0736**	**0.7199**		**0.0989**	**8.2000e-004**	**0.0997**	**0.0262**	**7.5000e-004**	**0.0270**			**98.2017**	**6.1200e-003**		**98.3303**

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					6.6089	0.0000	6.6089	3.3736	0.0000	3.3736			0.0000			0.0000
Off-Road	3.4952	37.5326	24.3089			2.0920	2.0920		1.9247	1.9247			2,828.7640	0.8359		2,846.3185
Total	**3.4952**	**37.5326**	**24.3089**		**6.6089**	**2.0920**	**8.7009**	**3.3736**	**1.9247**	**5.2982**			**2,828.7640**	**0.8359**		**2,846.3185**

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
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
Worker	0.2538	0.0736	0.7199		0.0989	8.2000e-004	0.0997	0.0262	7.5000e-004	0.0270			98.2017	6.1200e-003		98.3303
Total	**0.2538**	**0.0736**	**0.7199**		**0.0989**	**8.2000e-004**	**0.0997**	**0.0262**	**7.5000e-004**	**0.0270**			**98.2017**	**6.1200e-003**		**98.3303**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

Acres of Paving: 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
Category	lb/day										lb/day					
Off-Road	3.8680	31.2537	18.9298			2.2280	2.2280		2.0973	2.0973			2,709.1969	0.6889		2,723.6630
Total	**3.8680**	**31.2537**	**18.9298**			**2.2280**	**2.2280**		**2.0973**	**2.0973**			**2,709.1969**	**0.6889**		**2,723.6630**

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
Vendor	0.4169	1.1468	2.4531		0.0587	0.0210	0.0797	0.0167	0.0193	0.0360			212.5318	2.1400e-003		212.5767
Worker	0.6832	0.1982	1.9381		0.2662	2.2100e-003	0.2685	0.0706	2.0100e-003	0.0726			264.3892	0.0165		264.7354
Total	**1.1001**	**1.3450**	**4.3912**		**0.3250**	**0.0232**	**0.3482**	**0.0873**	**0.0213**	**0.1086**			**476.9210**	**0.0186**		**477.3121**

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	3.8644	31.2250	18.9125			2.2259	2.2259		2.0954	2.0954			2,706.7114	0.6882		2,721.1642
Total	**3.8644**	**31.2250**	**18.9125**			**2.2259**	**2.2259**		**2.0954**	**2.0954**			**2,706.7114**	**0.6882**		**2,721.1642**

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
Vendor	0.4169	1.1468	2.4531		0.0587	0.0210	0.0797	0.0167	0.0193	0.0360			212.5318	2.1400e-003		212.5767
Worker	0.6832	0.1982	1.9381		0.2662	2.2100e-003	0.2685	0.0706	2.0100e-003	0.0726			264.3892	0.0165		264.7354
Total	**1.1001**	**1.3450**	**4.3912**		**0.3250**	**0.0232**	**0.3482**	**0.0873**	**0.0213**	**0.1086**			**476.9210**	**0.0186**		**477.3121**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3610	26.0857	14.9649			1.4523	1.4523		1.3361	1.3361			2,363.4906	0.6984		2,378.1578
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3610**	**26.0857**	**14.9649**			**1.4523**	**1.4523**		**1.3361**	**1.3361**			**2,363.4906**	**0.6984**		**2,378.1578**

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
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
Worker	0.2928	0.0849	0.8306		0.1141	9.5000e-004	0.1151	0.0303	8.6000e-004	0.0311			113.3097	7.0600e-003		113.4580
Total	**0.2928**	**0.0849**	**0.8306**		**0.1141**	**9.5000e-004**	**0.1151**	**0.0303**	**8.6000e-004**	**0.0311**			**113.3097**	**7.0600e-003**		**113.4580**

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	2.3588	26.0617	14.9512			1.4510	1.4510		1.3349	1.3349			2,361.3220	0.6978		2,375.9760
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3588**	**26.0617**	**14.9512**			**1.4510**	**1.4510**		**1.3349**	**1.3349**			**2,361.3223**	**0.6978**		**2,375.9760**

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
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
Worker	0.2928	0.0849	0.8306		0.1141	9.5000e-004	0.1151	0.0303	8.6000e-004	0.0311			113.3097	7.0600e-003		113.4580
Total	**0.2928**	**0.0849**	**0.8306**		**0.1141**	**9.5000e-004**	**0.1151**	**0.0303**	**8.6000e-004**	**0.0311**			**113.3097**	**7.0600e-003**		**113.4580**

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

Residential Indoor: 358,996; Residential Outdoor: 119,665; Non-Residential Indoor: 0; Non-Residential Outdoor: 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
Category	lb/day										lb/day					
Archit. Coating	110.9297					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4462	2.7773	1.9216			0.2452	0.2452		0.2452	0.2452			281.4481	0.0401		282.2905
Total	**111.3759**	**2.7773**	**1.9216**			**0.2452**	**0.2452**		**0.2452**	**0.2452**			**281.4481**	**0.0401**		**282.2905**

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
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
Worker	0.1366	0.0396	0.3876		0.0533	4.4000e-004	0.0537	0.0141	4.0000e-004	0.0145			52.8778	3.3000e-003		52.9471
Total	**0.1366**	**0.0396**	**0.3876**		**0.0533**	**4.4000e-004**	**0.0537**	**0.0141**	**4.0000e-004**	**0.0145**			**52.8778**	**3.3000e-003**		**52.9471**

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	110.9297					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4458	2.7748	1.9198			0.2449	0.2449		0.2449	0.2449			281.1898	0.0401		282.0315
Total	**111.3755**	**2.7748**	**1.9198**			**0.2449**	**0.2449**		**0.2449**	**0.2449**			**281.1898**	**0.0401**		**282.0315**

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
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
Worker	0.1366	0.0396	0.3876		0.0533	4.4000e-004	0.0537	0.0141	4.0000e-004	0.0145			52.8778	3.3000e-003		52.9471
Total	**0.1366**	**0.0396**	**0.3876**		**0.0533**	**4.4000e-004**	**0.0537**	**0.0141**	**4.0000e-004**	**0.0145**			**52.8778**	**3.3000e-003**		**52.9471**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	13.5258	10.7299	51.2593		5.3656	0.1432	5.5088	1.4331	0.1314	1.5645			6,645.7937	0.3439		6,653.0158
Unmitigated	13.5258	10.7299	51.2593		5.3656	0.1432	5.5088	1.4331	0.1314	1.5645			6,645.7937	0.3439		6,653.0158

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	937.86	987.84	859.46	2,396,233	2,396,233
Total	937.86	987.84	859.46	2,396,233	2,396,233

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

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	0.0931	0.7956	0.3385			0.0643	0.0643		0.0643	0.0643			1,015.5918	0.0195	0.0186	1,021.7725
NaturalGas Unmitigated	0.0931	0.7956	0.3385			0.0643	0.0643		0.0643	0.0643			1,015.5918	0.0195	0.0186	1,021.7725

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					
Single Family Housing	8632.53	0.0931	0.7956	0.3385			0.0643	0.0643		0.0643	0.0643			1,015.5918	0.0195	0.0186	1,021.7725
Total		**0.0931**	**0.7956**	**0.3385**			**0.0643**	**0.0643**		**0.0643**	**0.0643**			**1,015.5918**	**0.0195**	**0.0186**	**1,021.7725**

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					
Single Family Housing	8.63253	0.0931	0.7956	0.3385			0.0643	0.0643		0.0643	0.0643			1,015.5918	0.0195	0.0186	1,021.7725
Total		**0.0931**	**0.7956**	**0.3385**			**0.0643**	**0.0643**		**0.0643**	**0.0643**			**1,015.5918**	**0.0195**	**0.0186**	**1,021.7725**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.6718	0.0982	8.2826			0.0440	0.0440		0.0440	0.0440			14.5581	0.0155	0.0000	14.8841
Unmitigated	4.6718	0.0982	8.2826			0.0440	0.0440		0.0440	0.0440			14.5581	0.0155	0.0000	14.8841

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	0.6078					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7938					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Landscaping	0.2701	0.0982	8.2826			0.0440	0.0440		0.0440	0.0440			14.5581	0.0155		14.8841
Total	**4.6718**	**0.0982**	**8.2826**			**0.0440**	**0.0440**		**0.0440**	**0.0440**			**14.5581**	**0.0155**	**0.0000**	**14.8841**

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	0.6078					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7938					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Landscaping	0.2701	0.0982	8.2826			0.0440	0.0440		0.0440	0.0440			14.5581	0.0155		14.8841
Total	**4.6718**	**0.0982**	**8.2826**			**0.0440**	**0.0440**		**0.0440**	**0.0440**			**14.5581**	**0.0155**	**0.0000**	**14.8841**

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

10.0 Vegetation

APPENDIX B

THE CREAMERY PROJECT – CAP CONSISTENCY CHECKLIST, SEPTEMBER 2013

Community Development Department
300 Richards Boulevard 3rd Floor Sacramento, CA 95811
Help Line: (916) 264-5011
www.cityofsacramento.org/dsd

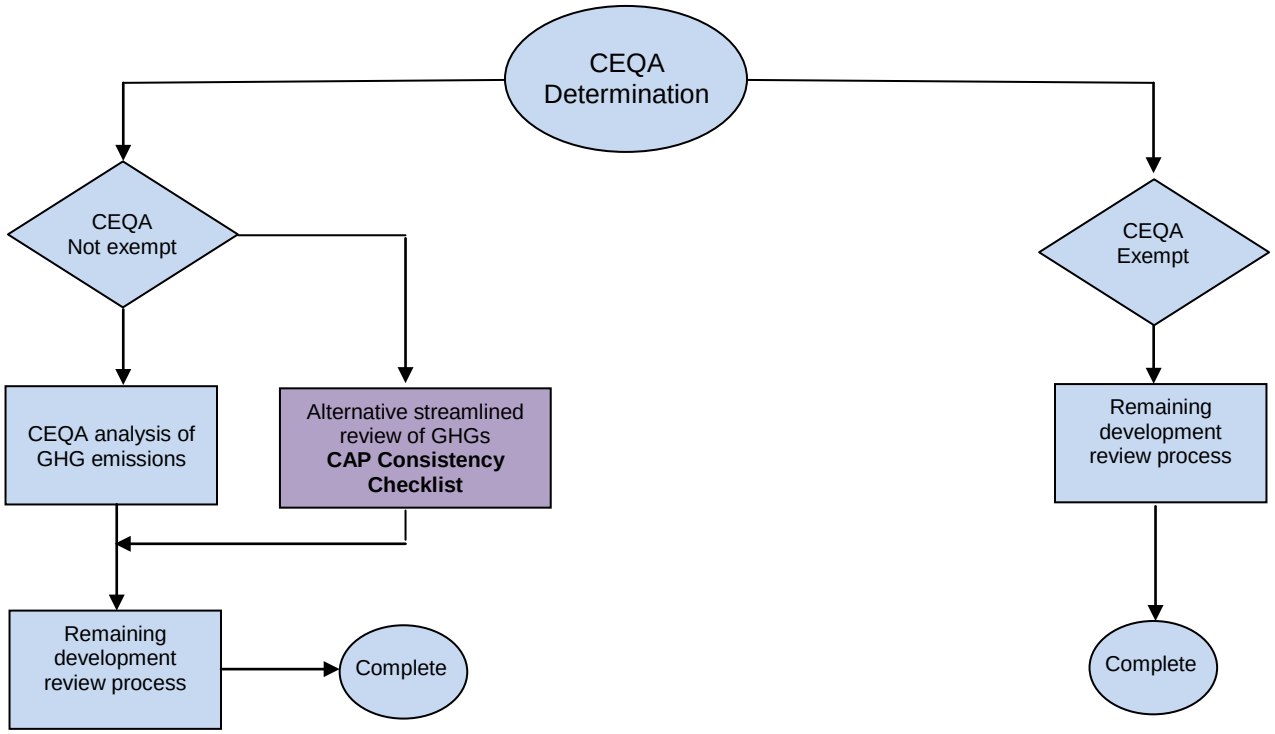
CLIMATE ACTION PLAN – CONSISTENCY REVIEW CHECKLIST

The purpose of the Climate Action Plan Consistency Review Checklist (CAP Consistency Review Checklist) is to provide a streamlined review process for proposed new development projects which are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).

CEQA Guidelines require the analysis of greenhouse gas (GHG) emissions and potential climate change impacts from new development. The Sacramento Climate Action Plan qualifies under section 15183.5 of the CEQA Guidelines as a plan for the reduction of GHG emissions for use in cumulative impact analysis pertaining to development projects. This allows projects that demonstrate consistency with the CAP to be eligible for this streamlining procedure. Projects that demonstrate consistency with the CAP and the Sacramento 2030 General Plan may be able to answer "No additional significant environmental effect" in the City's initial study checklist. Projects that do not demonstrate consistency may, at the City's discretion, prepare a more comprehensive project-specific analysis of GHG emissions consistent with CEQA requirements. (See FAQ about the CAP Consistency Review Checklist for more details.)

The diagram below shows the context for the CAP Consistency Review Checklist within the planning review process framework.

Streamlined Review of GHG Emissions in Development Projects



Community Development Department
300 Richards Boulevard 3rd Floor Sacramento, CA 95811
Help Line: (916) 264-5011
www.cityofsacramento.org/dsd

CLIMATE ACTION PLAN – CONSISTENCY REVIEW CHECKLIST

Application Submittal Requirements

1. The CAP Consistency Review Checklist is required only for proposed new development projects which are subject to CEQA review (non-exempt projects)
2. If required, the CAP Consistency Review Checklist must be submitted in addition to the basic set of requirements set forth in the Universal Application and the Planning Application Submittal Matrix.
3. The applicant shall work with staff to meet the requirements of this checklist. These requirements will be reflected in the conditions of approval and/or mitigation measures.
4. All conditions of approval and mitigation measures from this checklist shall be shown on full-size sheets for building plan check submittals.

Application Information

Project Number: P13-043

Address of Property: 1013 D Street, Sacramento, CA 95814

Was a special consultant retained to complete this checklist? X Yes ☐ No. If yes, complete following

Consultant Name*: Austin Kerr, Sr. Air Quality and Climate Change Specialist

Company: Ascent Environmental, Inc.

Phone: 916.444.7301 E-Mail:

Community Development Department
300 Richards Boulevard 3rd Floor Sacramento, CA 95811
Help Line: (916) 264-5011
www.cityofsacramento.org/dsd

CAP Consistency Checklist Form for Projects that are Not Exempt from CEQA

Checklist Item (Check the appropriate box, and provide explanation for your answer).	Yes	No*
1. Is the proposed project substantially consistent with the City's over-all goals for land use and urban form, allowable floor area ratio (FAR) and/or density standards in the City's 2030 General Plan, as it currently exists?	X	

Please explain how proposed project compares to 2030 General Plan with respect to density standards, FAR, land use and urban form. (See directions for filling out CAP Checklist)

The 8.3-acre project site is currently highly disturbed with some grass, shrubs, and a few trees.

The proposed project would consist of 98 single family detached medium density cluster style homes on the project site. The two-story homes would range in size from 1,617 square feet (sf) to 2,001 sf. A total of 312 parking spaces are proposed (204 on-site parking spaces; 108 off-site guest parking spaces on adjacent public streets). The project would also include 5 landscaped common areas. Structures on the site include utility poles and a warehouse along D and 10th Streets that would be demolished as part of the project.

The project site is designated Community/Neighborhood Commercial and Medium Density Residential in the City's General Plan; the site is zoned as General Commercial (C-2) and Multi-Unit Dwelling (R-3A).

The proposed project is consistent with numerous General Plan policies that support the City's overall goals for livability, smart growth and sustainability, including (but not limited to): LU 1.1.5 (Infill Development), LU 2.1.2 (Protect Established Neighborhoods), LU 2.7.6 (Walkable Blocks), LU 4.1.3 (Walkable Neighborhoods), LU 4.1.4 (Alley Access), Connections to Open Space (LU 4.1.7), LU 4.3.1 (Traditional Neighborhood Protection), LU 4.3.5 (Density Regulations for Mixed-Density Development Projects), M 1.3.1 (Grid Network), M 1.3.4 (Barrier Removal for Accessibility), M 2.1.5 (Continuous Pedestrian Network), M 2.1.8 (Housing and Destination Connections), M 4.2.2 (Pedestrian and Bicycle-Friendly Streets), and M 4.3.1 (Neighborhood Traffic Management). The project is consistent with the City of Sacramento 2030 General Plan and MEIR and would not require an amendment to the site's land use or zoning designations.

Therefore, the proposed project is substantially consistent with the City's overall goals for land use and urban form and density standards in the 2030 General Plan, and is therefore consistent with the assumptions used to estimate GHG emissions and reductions applicable to new development that is approved consistent with the General Plan.

2. Would the project reduce average vehicle miles traveled (VMT) per capita of the proposed residents, employees, and/or visitors to the project by a minimum of 35% compared to the statewide average?	Yes	No*	NA
	X		

Please explain how proposed project meets this requirement. If "not applicable", explain why this was not required. If project does not meet this requirement, see Directions for filling out CAP Consistency Review Checklist for alternatives to meeting checklist requirements.

The proposed project site is shown within the green area on Exhibit 1 in the Checklist Directions ("City of Sacramento Daily VMT/Capita, 2008 Base Year"). The proposed project includes primarily new residences that are of similar character, density and intensity of use as the surrounding neighborhood, as noted above under Question 1. Therefore, VMT/capita for the project would be at least 35 percent less than the statewide average, and would be consistent with CAP Action 1.1.1. No further analysis is required, per the guidance in the Checklist Directions.

*If "No", equivalent or better GHG reduction must be demonstrated as part of the project, and incorporated into conditions of approval.

Note: Requirements from this checklist should be incorporated into the conditions of approval, and shown on the full-size plans submitted for building plan check.

Checklist Item (Check the appropriate box, and provide explanation for your answer).	Yes	NA
3. Would the project incorporate traffic calming measures? *(Examples of traffic calming measures include, but are not limited to: curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers.)*	X	

Please explain how the proposed project meets this requirement (list traffic calming measures). If "not applicable", explain why traffic calming measures were not required.

The proposed project would include a number of traffic calming features that would help to reduce traffic speeds and improve pedestrian safety and walkability. These include: **[NEED CONFIRMATION OF THESE FEATURES FROM CITY AND LOC]**

- Reduce VMT and associated GHG emissions by promoting walkability to neighborhood amenities.
- Provide abundant opportunities for walking and bicycling through the use of the existing short block lengths, sidewalks, and alleys to shorten travel distances.
- Reinforce the pedestrian-friendly nature of roadways and trail systems with tree canopied walkways and inviting architecture and lighting palettes.
- The extension of 10th Street would provide an extension to the existing circulation system and would create a consistent street scene with convenient access for motorists and pedestrians.
- Provide traffic calming and discourage neighborhood cut-through traffic from the larger neighborhood with staggered intersections, stop sign and crosswalks.

Therefore, the proposed project is consistent with CAP Action 2.1.1, which calls for increased use of traffic calming measures within the City to reduce motor vehicle speeds and encourage pedestrian and bicycle trips.

	Yes	NA
4. Would the project incorporate pedestrian facilities and connections to public transportation consistent with the City's Pedestrian Master Plan?	X	

Please explain how the proposed project meets this requirement. If "not applicable", explain why this was not required.

In accordance with the Pedestrian Review Guide found in Appendix A to the City's adopted Pedestrian Master Plan, the pedestrian environment for the proposed project was assessed according to the four criteria listed in the Guide. The proposed project would meet all criteria, and therefore would be considered consistent with CAP Action 2.2.1. Details are summarized for each of the criteria below.

a. Resource Material Requirements: The proposed project does not alter the existing grid-based street pattern and connections that would provide adequate integration with the surrounding downtown neighborhood. All new streets in the Project would be consistent with the City's Design & Procedures Manual, Pedestrian-Friendly Street Standards, and Standard Specifications. The proposed project would be consistent with the applicable policies of the 2030 General Plan related to pedestrian facilities and connections. These include LU 1.1.5 (Infill Development), LU 2.7.6 (Walkable Blocks), LU 4.1.3 (Walkable Neighborhoods), LU 4.1.4 (Alley Access), Connections to Open Space (LU 4.1.7), M 1.3.1 (Grid Network), M 1.3.4 (Barrier Removal for Accessibility), M 2.1.5 (Continuous Pedestrian Network), M 2.1.8 (Housing and Destination Connections), and M 4.2.2 (Pedestrian and Bicycle-Friendly Streets). The proposed project is therefore consistent with this criterion.

b. Determine the Project's Pedestrian "Smart Growth" Score: The Pedestrian Smart Growth Scorecard was completed for the proposed project (attached). The proposed project achieves an overall score of 3, and therefore is considered consistent with this Pedestrian Master Plan criterion.

c. Determine Appropriate Pedestrian Accommodations: The proposed project would provide typical Basic Pedestrian Accommodations consistent with requirements for established residential areas in the City's Pedestrian-Friendly Street Standards. Some Upgraded features may be included, consistent with the traffic

calming improvements described above. The proposed project would be one block west of the Alkali Flat/La Valentina Station on the Blue Light Rail on 12 Street and two blocks north of the 34 bus line on F Street, both operated by Regional Transit. The proposed project is therefore consistent with this criterion.

d. Assess the Need for Additional Pedestrian Considerations: The proposed project would provide necessary on-site pedestrian improvements throughout the project, as described above. These include sidewalks, stop signs, and crosswalks and other traffic calming features. In addition, the extension of 10th Street would improve overall neighborhood pedestrian connectivity, overall walkability and improved access to shopping, parks and other amenities. The proposed project is therefore consistent with this criterion.

*If "No", equivalent or better GHG reduction must be demonstrated as part of the project and incorporated into the conditions of approval.

Note: Requirements from this checklist should be incorporated into the conditions of approval, and shown on the full-size plans submitted for building plan check.

5. Would the project incorporate bicycle facilities consistent with the City's Bikeway Master Plan, and meet or exceed minimum standards for bicycle facilities in the Zoning Code and CALGreen?	**Yes**	**NA**
	X	

Please explain how the proposed project meets this requirement. If "not applicable", explain why this was not required.

The City's new Planning and Development Code goes into effect September 2013 and will supersede the previous Zoning Code. The new Planning & Development code provides new bike parking standards based on appropriate land use-based ratios (e.g., per dwelling unit, per 1,000 sq ft of commercial space, etc.) that are specific to contextual parking districts associated with General Plan land use & urban form designations. The proposed project site is located within a Traditional Parking District, which has no on-site bicycle parking requirements for single-family homes.

Class II bike lanes already exist on E Street between 7th and 35th Streets, on 10th Street between H and D Streets, on 9th Street between D and I Streets. There is a proposed Class II bike lane on D Street between 8th and 17th Streets, according to the Bikeway Master Plan. **[The City and LOC should determine whether the project is required to pay its fair share for development of this proposed bike lane.]**

Therefore, the project would be consistent with the Bikeway Master Plan, per CAP Action 2.3.1.

6. For residential projects of 10 or more units, commercial projects greater than 25,000 square feet, or industrial projects greater than 100,000 square feet, would the project include on-site renewable energy systems (e.g., photovoltaic systems) that would generate at least a minimum of 15% of the project's total energy demand on-site? (CAP Actions: 3.4.1 and 3.4.2)	**Yes**	**No***	**NA**
	X		

Please explain how the proposed project meets this requirement. If "not applicable", explain why this was not required. If project does not meet requirements, see DIRECTIONS FOR FILLING OUT CAP CONSISTENCY REVIEW CHECKLIST re: alternatives to meeting checklist requirements.

The proposed project would consist of 98 single family detached medium density cluster style homes on the project site. The two-story homes would range in size from 1,617 sf to 2,001 sf and consist of two stories. Photovoltaic systems would be included on the rooftops of all the dwelling units, sufficient to provide a minimum of 15% of each unit's total electricity demand. **[NEED CONFIRMATION FROM CITY AND LOC]** Therefore, the proposed project is consistent with CAP Action 3.4.1, which calls for new single-family and multi-family residential projects of ten units or more install photovoltaic systems.

7. Would the project (if constructed on or after January 1, 2014) comply with minimum CALGreen Tier I water efficiency standards?	**Yes**	**NA**
	X	

Please explain how the proposed project meets this requirement. If "not applicable", explain why this was not required.

Specific CALGreen Tier 1 water efficiency measures for residential buildings were assumed to apply to new development in the Climate Action Plan Technical Appendix (page E-29) as follows:

- Residential Buildings: 20% improvement in indoor water efficiency (compared to 2008 Plumbing Code baseline; per CALGreen Mandatory Measures), and kitchens faucets shall have a maximum flow rate of no greater than 1.5 gallons per minute; and outdoor potable water use reduction to a quantity that does not exceed 65% of evapotranspiration rate times the landscape area plus 2 voluntary outdoor water efficiency & conservation measures as listed in the CALGreen Residential Voluntary Measures.

The Proposed Project would comply with the above-referenced CALGreen Tier 1 Water Efficiency Measures as a condition of approval, and would therefore be consistent with CAP Action 5.1.1 **[NEED TO CONFIRM WITH CITY AND LOC]**.

*If "No", equivalent or better GHG reduction must be demonstrated as part and incorporated into the conditions of approval.

Note: Requirements from this checklist should be incorporated into the conditions of approval, and shown on the full-size plans submitted for building plan check.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability and that the facts, statements and information presented are true and correct to the best of my knowledge and belief.

Signature: _____ Date: _____

DIRECTIONS FOR FILLING OUT CAP CONSISTENCY REVIEW CHECKLIST

General Plan Consistency

1. **Is the proposed project substantially consistent with the land use and urban form designation, allowable floor area ratio (FAR) and/or density standards in the City's 2030 General Plan?**

   Consistency with the General Plan land use and urban form designation, FAR and/or density standards is a key determining factor in whether or not the CAP Consistency Review procedure can be used. This is because future growth and development consistent with the General Plan was used to estimate business as usual emission forecasts, as well as emission reductions from actions that would be applicable to new development.

   Refer to the 2030 General Plan, Land Use and Urban Form Designations and Development Standards starting on page 2-29. If a project is not fully consistent with the General Plan, the project still may qualify for consistency with the CAP, but this determination will need to be closely coordinated with the City. The City will determine whether the proposed land uses under consideration could be found consistent with the growth projections and assumptions used to develop the GHG emissions inventory and projections in the CAP.

Sustainable Land Use

2. **Would the project reduce average vehicle miles traveled (VMT) per capita of the proposed residents, employees, and/or visitors to the project by a minimum of 35% compared to the statewide average? (Applicable CAP Action: 1.1.1)**

   The statewide VMT/capita in 2009 was 8,937 VMT/capita/year, which is approximately 24.5 VMT/capita/day[1,2]. A 35% reduction below the 2009 statewide average would be 5,809 VMT/capita/year, or about 15.9 VMT/capita/day.

   Steps to Determine if Proposed Project is Consistent with CAP Action 1.1.1:

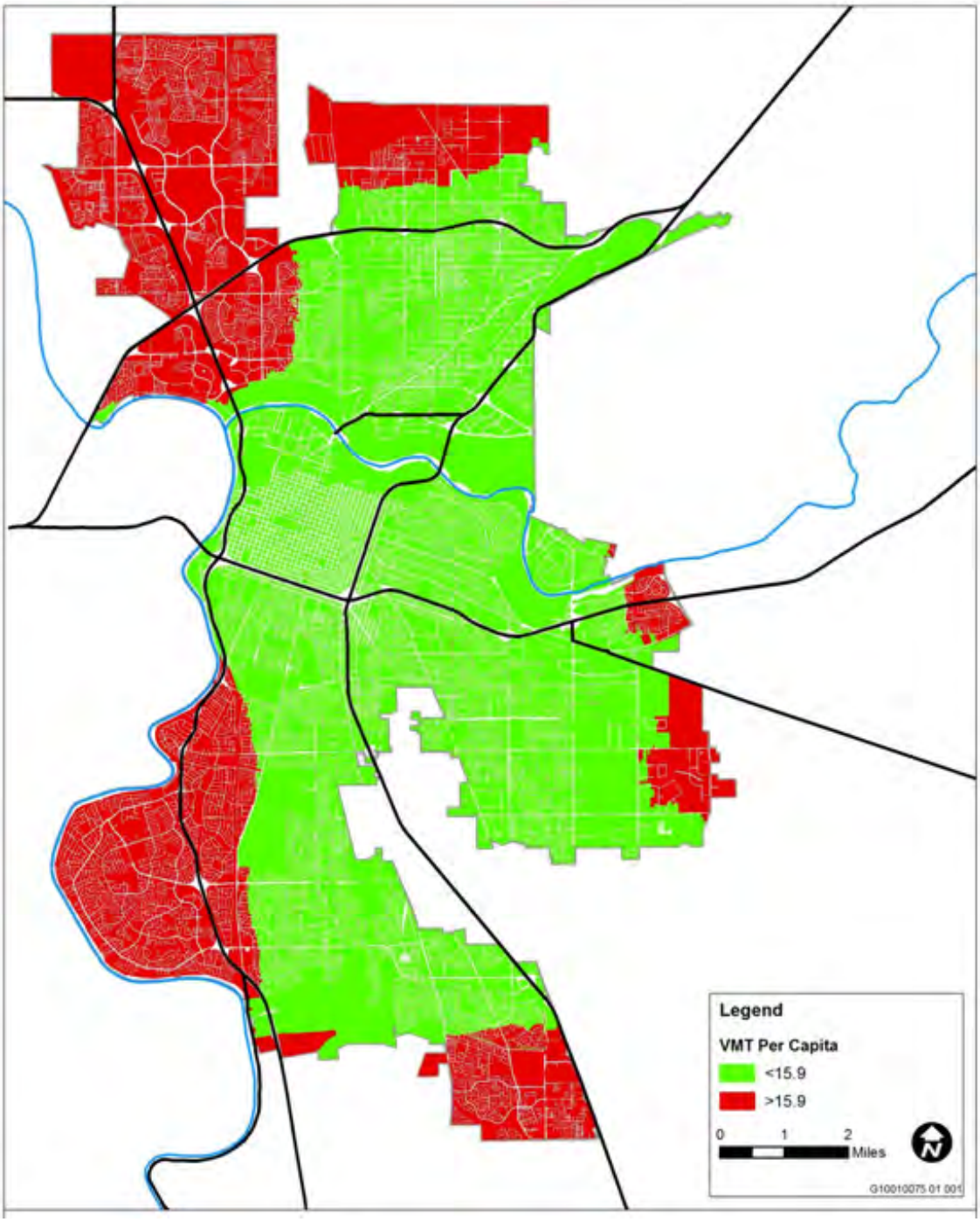
   Step 1: Consult VMT/Capita Screening Map:

   The map below can be used as a quick screening tool to determine whether or not a proposed project is likely to meet the 35% reduction standard based on its geographic location.

   If the proposed project is located in the green area of the map, it can be assumed to have a VMT/capita/day below 16, and no further action related to VMT is necessary. If the proposed project is located within one of the red areas, or in a white area adjacent to any red parcel, it cannot be assumed to achieve the standard, and further analysis is required to show that the project is below 16 VMT/capita/day. Proceed to Step 2, and estimate the project VMT using one of the computer modeling tools below.

[1] Federal Highway Administration. 2009. Table VM-2 - Highway Statistics 2009. http://www.fhwa.dot.gov/policyinformation/statistics/2009/vm2.cfm.
[2] U.S. Census Bureau, 2005-2009 American Community Survey. http://factfinder.census.gov/servlet/ACSSAFFFacts?_event=Search&_lang=en&_sse=on&geo_id=04000US06&_state=04000US06

Exhibit 1: City of Sacramento Daily VMT/Capita, 2008 Base Year
Source: SACOG, SACSIM Model, 2012.



Step 2: VMT Modeling

Download one of computer modeling tools from the following links and follow the user guide for the tool that you have selected. Select the year 2020 as the year of project operation and compare the modeled VMT/capita/day with the City's standard of 15.9 VMT/capita/day. If the result of the computer modeling supports the project's consistency with the City's VMT/capita standard, then the project is considered to comply with CAP Action 1.1.1. If the project's estimated VMT/capita exceeds the City's standard of 15.9, proceed to Step 3.

California Emission Estimator Model (CalEEMod 2013.2 or most recent version)
CalEEMod is a statewide land use emissions computer model that provides a comprehensive estimate of development project criteria pollutants and GHG emissions associated with both construction and operations from a variety of land use project types.

Sketch 7 VMT Estimation Tool (Version 2.0 or most recent version)
The Sketch 7 model is a web-based, parcel-level, scenario planning tool that allows users to input land uses and project attributes such as demographic data, design, density, quality of public transit, mix of land uses, and other planning-related features. Sketch 7 estimates VMT/capita and other environmental indicators based on region-specific parameters, local land use plans and the SACSIM model. Sketch 7 also accounts for the interaction of the project's proposed land uses with the surrounding land uses.

Step 3: Additional Mitigation and Further Analysis

If the proposed project does not pass Steps 1 and 2, additional mitigation from another category (such as building energy efficiency) can be substituted as long as this GHG reduction does not "double count" GHG reductions already taken by the CAP. In other words, mitigation will be necessary to reduce GHG emissions from the project beyond what is already accounted for in the CAP (to avoid double-counting).

Step 3(a) - Determine the increment of total VMT by which the project exceeds the City's 15.9 VMT/capita/day standard. For example, if the project would result in 18 VMT/capita/day and proposes to accommodate 400 new residents, the increment that the project would exceed the City's standard would be 306,600 VMT, which equals: (18 – 15.9 VMT/capita/day) * 400 residents *365 days/year.
Step 3(b) - Convert VMT into metric tons carbon dioxide equivalent per year (MT CO_2e/year) by use of a vehicle emission factor. The City recommends using an emission factor of 0.000452 MT CO_2e/VMT, which was obtained from the California Air Resources Board's (ARB's) Mobile-Source Emission Factor Model (EMFAC) and was used to develop the City's GHG inventory in its CAP. In the above example, the project would be required to mitigate approximately 139 MT CO_2e/year through additional mitigation.

Additional mitigation may include equivalent or better GHG reduction from individual measures or a combination of:

- Exceeding energy efficiency standards of Title 24, part 6 of the California Building Code (using 2008 T24 standards as a baseline)
- Generation of greater than 15% of the project's energy on-site through installation of solar panels or other on-site renewable energy technology
- Other land use (e.g., additional amenities), transportation, bicycle, or pedestrian improvements that would reduce VMT not already accounted for in Sketch 7 modeling under Step 2.

The applicant should provide documentation (e.g., California Emissions Estimator Model [CalEEMod]) that the combination of mitigation selected would achieve the equivalent GHG emission reduction necessary to close the gap between the proposed project's VMT/capita/day and the City's standard of 15.9 VMT/capita/day. If the project applicant can present equivalent mitigation as defined by this section, the City would consider the project consistent with CAP Action 1.1.1. If the project applicant could not identify sufficient surplus mitigation to reduce equivalent project-generated GHG emissions, the project would not be consistent with CAP Action 1.1.1.

Mobility

3. Would the project incorporate traffic calming measures? (Applicable CAP Action: 2.1.1)

List the traffic calming measures that have been incorporated into the project. These may include, but are not limited to: curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers.

The project proponent and City staff should consult with staff in the Department of Public Works-Transportation Division to verify that traffic calming measures are adequate and in compliance with the City's Street Design Standards.

If the proposed project does not include any roadway or facility improvements, traffic calming measures may not apply. For example, certain infill projects may not result in on-street or transportation facility improvements because sufficient infrastructure already exists

4. Would the project incorporate pedestrian facilities and connections to public transportation consistent with the City's Pedestrian Master Plan? (Applicable CAP Action: 2.2.1)

List the pedestrian facilities and connections to public transportation that have been included in the proposed project on the Checklist. These may include, but are not limited to: sidewalks on both sides of streets, marked crosswalks, count-down signal timers, curb extensions, median islands, transit shelters, street lighting.

The project proponent and City staff should consult with Department of Public Works-Transportation Division staff to verify that pedestrian facilities are consistent with the Pedestrian Master Plan. As in the previous example, if "not applicable", an explanation shall be documented in the Checklist. The "Pedestrian Review Process Guide" (Appendix A to the Master Plan) will be used to determine consistency, as follows:

- For typical infill development projects where existing streets will serve the site (no new streets are proposed): the level of pedestrian improvements necessary to determine Pedestrian Master Plan consistency will be measured according to the "Basic, Upgrade or Premium" categories defined in Appendix A to the Pedestrian Master Plan, which are based on project location, surrounding land uses, proximity to transit, etc. If the proposed project does not include the minimum level of improvements per the assigned category for the project's location, the project will be required as a condition of approval to include appropriate features, per the approval of the Department of Public Works-Transportation Division.

- For new "greenfield" projects and/or larger infill development projects where new streets are proposed as part of the project, the following will apply:
    - "Basic, Upgrade or Premium" levels of improvement will be required based on the proposed project's location and context, where applicable, consistent with the criteria defined in the Master Plan. If the proposed project does not include the minimum level of improvements per the assigned category, the

      project will be required as a condition of approval to include appropriate features, per the approval of the Department of Public Works-Transportation Division.
    - The "Pedestrian Smart Growth Scorecard" (Appendix A to the Master Plan) will be required to be completed for the project, and a minimum score of 3 or better will need to be achieved. If the proposed project cannot achieve the minimum score, changes to the proposed project may be required, and/or the project may be required as a condition of approval to include certain improvements such that the average score will meet 3 or better. (Note: an Excel version of the Pedestrian Smart Growth Scorecard is available, to assist in automating the rating & scoring process)

5. Would the project incorporate bicycle facilities consistent with the City's Bikeway Master Plan, and meet or exceed minimum standards for bicycle facilities in the Zoning Code and CALGreen? (Applicable CAP Action: 2.3.1)

List the bicycle facilities that are incorporated into the proposed project on the Checklist. In addition, list bicycle facilities. These include, but are not limited to: Class I bike trails and Class II bike lanes connecting the project site to an existing bike network and transit stations, bike parking [bike racks, indoor secure bike parking, bike lockers], end-of-trip facilities at non-residential land uses [showers, lockers]).

The project proponent and City staff should consult with staff in the Transportation Division of the Department of Public Works to verify that such facilities are consistent with the Bikeway Master Plan and meet or exceed Zoning Code and CALGreen standards. Generally, the following guidelines will be used:

- If existing on-street and off-street bikeways are already present and determined to be consistent with the Bikeway Master Plan, no additional on-street bikeways will be required. Check the "not applicable" box if appropriate. However, on-site facilities shall still be required to meet or exceed minimum Zoning and CALGreen requirements.
- If not applicable, fully document the reasons why using the Checklist.
- If on-street bicycle facilities are not present or are only partially consistent with the Master Plan, the project will be required as a condition of approval to construct or pay for its fair-share of on-street and/or off-street bikeways described in the Master Plan, in addition to meeting or exceeding minimum on-site facilities.
- In some cases, a combination of new or upgraded on-street and off-street bikeways may be used to determine consistency with the Master Plan, at the discretion of the Department of Public Works-Transportation Division staff.

Energy Efficiency and Renewable Energy

6. **For residential projects of 10 or more units, commercial projects greater than 25,000 square feet, or industrial projects greater than 100,000 square feet, would the project include on-site renewable energy systems (e.g., solar photovoltaic, solar water heating etc.) that would generate at least 15% of the project's total energy demand? (CAP Actions: 3.4.1 and 3.4.2)**

   For projects of the minimum size specified in this measure, a commitment in the project description or in a mitigation measure that the project shall generate a minimum of 15% of the project's energy demand on-site is sufficient to demonstrate consistency with this measure. However, the project conditions of approval or mitigation measures should specify the intended renewable energy technology to be used (e.g. solar photovoltaic, solar water heating, wind, etc.) and estimated size of the systems to meet project demand based on the project description.

   "Total energy demand" refers to the energy (electricity and natural gas) consumed by the built environment (including HVAC systems, water heating systems, and lighting systems) as well as uses that are independent of the construction of buildings, such as office equipment and other plug-ins.

   Applicants may estimate the total energy demand of their projects using California Emissions Estimator Model (CalEEMod 2013.2), the same software used to estimate greenhouse gas emissions. ***For CalEEMod estimates of energy demand to meet this specific requirement, the user should NOT select the "use historical" box, otherwise they will be "double-counting" emissions reductions that have already been counted***. CalEEMod outputs for electricity demand are provided in annual kWh, and natural gas demand is provided in annual kBTU.

   The energy demand estimate by CalEEMod is based on two datasets:
   - The California Commercial End Use Survey (CEUS);
   - The Residential Appliance Saturation Survey (RASS

   CalEEMod takes energy use intensity data (above) and forecasts energy demand based on climate zone, land use subtype (such as "hospital", "arena", or "apartments, mid rise"), building area, and the number of buildings or units. This is an appropriate level of analysis for use at the planning submittal stage, but it may not provide an accurate picture of actual project energy demand because it does not factor project specifics such as building design.

   Therefore, the applicant is advised (but not required) to run a more comprehensive energy simulation once project-specific details are known: basic building design, square-footage, building envelope, lighting design (at least rudimentary), and the mechanical system (at least minimally zoned). Some of the energy simulation programs that are appropriate for this level of analysis include: DOE 2.2, Trace 700, and Energy Pro.

   The U.S. DOE maintains a list of energy simulation programs that are available.
   http://apps1.eere.energy.gov/buildings/tools_directory/subjects.cfm/pagename=subjects/pagename_menu=whole_building_analysis/pagename_submenu=energy_simulation

   The applicant may then work with City staff to revise the estimate and make a final determination regarding the size of the PV system that is required.

Substitutions: Projects may substitute a quantity of energy efficiency for renewable energy, as long as the substituted GHG reduction does not "double count" GHG reductions already taken by the CAP. In other words, substitutions must reduce GHG emissions from the project beyond what is already accounted for in the CAP (to avoid double-counting).

- Additional mitigation may include equivalent or better GHG reduction from individual measures or a combination of:
- Exceeding energy efficiency standards of Title 24, part 6 of the California Building Code by 15% or better using 2008 T24 standards as a baseline. (Please note that due to more rigorous minimum energy efficiency standards, after January 1, 2014, residential projects will need to exceed the new minimum building code standards by 10% and commercial projects will need to exceed the new minimum building code by 5%).

- Other land use (e.g., additional amenities), transportation, bicycle, or pedestrian improvements that would reduce VMT not already accounted for in VMT models under Step 2.

7. Would the project comply with minimum CALGreen Tier I water efficiency standards? (CAP Action: 5.1.1)

The California Green Building Standards Code (CALGreen) includes mandatory green building measures, as well as voluntary measures that local jurisdictions may choose to adopt to achieve higher performance tiers, at either Tier 1 or Tier 2 compliance levels. Sacramento has adopted Tier 1 Water Efficiency Standards to be required on or after January 1, 2014 Currently, in order to meet the Tier 1 Water Efficiency Standards, buildings are required to implement all mandatory water efficiency and conservation measures as well as certain Tier 1 specific measures that exceed minimum mandatory measures (e.g. 30% increase in indoor water efficiency). Specific Tier 1 provisions can be found in the CALGreen Code at http://www.bsc.ca.gov/Home/CALGreen.aspx.

The City recognizes that project construction details are often not known at the environmental review stage, and it may be premature for a project proponent to identify compliance with precise requirements of CALGreen. A condition of approval requiring the project to comply with minimum CALGreen Tier 1 water efficiency and conservation standards is sufficient to demonstrate consistency with this criterion.

Planning approval of your project will include the following condition:
Project must meet CALGreen Tier 1 water efficiency and conservation standards. Copies of the appropriate CalGreen checklist (see FAQ) shall be included on the full-size sheets for building plan check submittals.

Note: Requirements from this checklist should be incorporated into the conditions of approval, and shown on the full-size plans submitted for building plan check.

APPENDIX C

THE CREAMERY PROJECT- SPECIES LISTS, AUGUST 2013

Appendix 1. US Fish and Wildlife Service Endangered and Threatened Species List for the US Geological Service Sacramento West and East Quadrangles

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 130815103218

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
Critical habitat, valley elderberry longhorn beetle (X)
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Vireo bellii pusillus
Least Bell's vireo (E)

Quads Containing Listed, Proposed or Candidate Species:

SACRAMENTO EAST (512C)
SACRAMENTO WEST (513D)

County Lists

Sacramento County

Listed Species

Invertebrates

Apodemia mormo langei
Lange's metalmark butterfly (E)

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
Critical habitat, valley elderberry longhorn beetle (X)
valley elderberry longhorn beetle (T)

Elaphrus viridis
delta green ground beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Vireo bellii pusillus
Least Bell's vireo (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Sylvilagus bachmani riparius
riparian brush rabbit (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Arctostaphylos myrtifolia
Ione manzanita (T)

Calystegia stebbinsii
Stebbins's morning-glory (E)

Castilleja campestris ssp. succulenta
Critical habitat, succulent (=fleshy) owl's-clover (X)
succulent (=fleshy) owl's-clover (T)

Ceanothus roderickii
Pine Hill ceanothus (E)

Cordylanthus mollis ssp. mollis
soft bird's-beak (E)

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Eriogonum apricum var. apricum
Ione buckwheat (E)

Eriogonum apricum var. prostratum
Irish Hill buckwheat (E)

Erysimum capitatum ssp. angustatum
Contra Costa wallflower (E)
Critical Habitat, Contra Costa wallflower (X)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Lasthenia conjugens
Contra Costa goldfields (E)

Neostapfia colusana
Colusa grass (T)

Oenothera deltoides ssp. howellii
Antioch Dunes evening-primrose (E)
Critical habitat, Antioch Dunes evening-primrose (X)

Orcuttia tenuis
Critical habitat, slender Orcutt grass (X)
slender Orcutt grass (T)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Sidalcea keckii
Keck's checker-mallow (=checkerbloom) (E)

Candidate Species

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue,

hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts.

More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be November 13, 2013.

Appendix 2. Species List

ID	SNAME	CNAME	KQUADNAME	KEYCOUNTY	ACCURACY	PRESENCE	OCCRANK	SENSITIVE	SITEDATE	ELMDATE	OWNERMGT	FEDLIST
1	Accipiter cooperii	Cooper's hawk	Sacramento East	SAC	80 meters	Presumed Extant	A	N	20080531	20080531	CITY OF SACRAMENTO	None
2	Accipiter cooperii	Cooper's hawk	Sacramento East	SAC	80 meters	Presumed Extant	C	N	19960717	19960717	SAC COUNTY-PARKS & REC	None
3	Agelaius tricolor	tricolored blackbird	Sacramento West	YOL	1 mile	Possibly Extirpated	X	N	19920625	197XXXX	UNKNOWN	None
4	Ardea herodias	great blue heron	Sacramento East	SAC	80 meters	Presumed Extant	B	N	20080604	20080604	PVT	None
5	Ardea herodias	great blue heron	Rio Linda	SAC	80 meters	Presumed Extant	C	N	20020404	20020404	CITY OF SACRAMENTO	None
6	Astragalus tener var. ferrisiae	Ferris' milk-vetch	Sacramento West	YOL	nonspecific area	Presumed Extant	U	N	19540427	19540427	UNKNOWN	None
7	Athene cunicularia	burrowing owl	Sacramento East	SAC	1 mile	Presumed Extant	U	N	19010508	19010508	UNKNOWN	None
8	Athene cunicularia	burrowing owl	Sacramento East	SAC	nonspecific area	Presumed Extant	U	N	197402XX	197402XX	CSU-SACRAMENTO, UNKNOWN	None
9	Athene cunicularia	burrowing owl	Taylor Monument	SAC	1/5 mile	Possibly Extirpated	X	N	20030505	19910118	PVT	None
10	Athene cunicularia	burrowing owl	Taylor Monument	SAC	nonspecific area	Presumed Extant	C	N	20070602	20070602	UNKNOWN	None
11	Athene cunicularia	burrowing owl	Taylor Monument	SAC	specific area	Presumed Extant	C	N	20070609	20070609	UNKNOWN	None
12	Athene cunicularia	burrowing owl	Sacramento East	SAC	nonspecific area	Presumed Extant	U	N	197402XX	197402XX	UNKNOWN	None
13	Athene cunicularia	burrowing owl	Sacramento East	SAC	1/10 mile	Extirpated	X	N	20001019	197402XX	UNKNOWN	None
14	Athene cunicularia	burrowing owl	Taylor Monument	SAC	specific area	Presumed Extant	C	N	20120817	20120817	PVT	None
15	Athene cunicularia	burrowing owl	Rio Linda	SAC	specific area	Presumed Extant	B	N	20070628	20070628	SAC COUNTY FLOOD CONTROL	None
16	Athene cunicularia	burrowing owl	Rio Linda	SAC	80 meters	Presumed Extant	U	N	20070620	20070620	UNKNOWN	None
17	Athene cunicularia	burrowing owl	Rio Linda	SAC	80 meters	Presumed Extant	C	N	20030725	20030725	UNKNOWN	None
18	Athene cunicularia	burrowing owl	Taylor Monument	SAC	80 meters	Presumed Extant	D	N	20070629	20070629	PVT-ARCO ARENA	None
19	Athene cunicularia	burrowing owl	Sacramento West	YOL	80 meters	Extirpated	X	N	20070104	20070104	PVT	None
20	Athene cunicularia	burrowing owl	Sacramento East	SAC	80 meters	Possibly Extirpated	X	N	2007XXXX	20020628	SAC COUNTY, CITY OF SACRAMENTO	None
21	Branchinecta lynchi	vernal pool fairy shrimp	Rio Linda	SAC	specific area	Presumed Extant	D	N	19950114	19950114	PVT-WESTERN PACIFIC RR	Threatened
22	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	2/5 mile	Presumed Extant	U	N	2012XXXX	2012XXXX	SAC COUNTY, CITY OF SACRAMENTO	None
23	Buteo swainsoni	Swainson's hawk	Taylor Monument	SAC	2/5 mile	Presumed Extant	B	N	19930715	19930715	PVT	None
24	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	2/5 mile	Presumed Extant	B	N	2010XXXX	2010XXXX	SAC COUNTY	None
25	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	nonspecific area	Presumed Extant	U	N	19940811	19940811	UNKNOWN	None
26	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	1/5 mile	Presumed Extant	U	N	1992XXXX	1992XXXX	UNKNOWN	None
27	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	1/5 mile	Presumed Extant	U	N	19940811	19940811	UNKNOWN	None
28	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	specific area	Presumed Extant	B	N	20100329	20100329	PVT-UNION PACIFIC RR	None
29	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	specific area	Presumed Extant	A	N	2007XXXX	2007XXXX	DFG-SACRAMENTO BYPASS WA	None
30	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	nonspecific area	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
31	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	1/10 mile	Presumed Extant	C	N	1992XXXX	1992XXXX	SAC COUNTY	None
32	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	1/10 mile	Presumed Extant	B	N	1993XXXX	1992XXXX	UNKNOWN	None
33	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	1/10 mile	Presumed Extant	U	N	19940811	19940811	UNKNOWN	None
34	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	specific area	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
35	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	specific area	Presumed Extant	B	N	2007XXXX	2007XXXX	UNKNOWN	None
36	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	specific area	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
37	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	specific area	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
38	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	specific area	Presumed Extant	B	N	20040609	20040609	UNKNOWN	None
39	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	80 meters	Presumed Extant	U	N	19940528	19940528	UNKNOWN, CITY OF SACRAMENTO	None
40	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	19930715	19930715	PVT	None
41	Buteo swainsoni	Swainson's hawk	Taylor Monument	SAC	80 meters	Presumed Extant	U	N	20000420	20000420	UNKNOWN	None
42	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	80 meters	Presumed Extant	A	N	19990426	19990426	UNKNOWN	None
43	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	80 meters	Presumed Extant	B	N	20000525	20000525	UNKNOWN	None
44	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	C	N	19990628	19990628	UNKNOWN	None
45	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	80 meters	Presumed Extant	B	N	20050515	20050515	SAC COUNTY-PARKS & REC	None
46	Buteo swainsoni	Swainson's hawk	Sacramento West	SAC	80 meters	Presumed Extant	B	N	20030716	20030716	RECLAMATION DISTRICT 1000	None
47	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	80 meters	Presumed Extant	B	N	20100714	20100714	PVT	None
48	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	80 meters	Presumed Extant	C	N	20120423	20120423	CITY OF SACRAMENTO	None
49	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	80 meters	Presumed Extant	U	N	20070713	20070713	PVT	None
50	Buteo swainsoni	Swainson's hawk	Taylor Monument	SAC	80 meters	Possibly Extirpated	X	N	20030630	20030630	PVT	None
51	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	C	N	20100721	20100721	UNKNOWN	None
52	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	20030716	20030716	UNKNOWN	None
53	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
54	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
55	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
56	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	2007XXXX	2007XXXX	UNKNOWN	None
57	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	20070628	20070628	PORT OF SACRAMENTO	None
58	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	80 meters	Presumed Extant	B	N	20110427	20110427	SAC COUNTY-PARKS & REC	None
59	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	C	N	19990628	19990628	UNKNOWN	None
60	Buteo swainsoni	Swainson's hawk	Sacramento East	SAC	80 meters	Presumed Extant	C	N	20010420	20010420	UNKNOWN	None
61	Buteo swainsoni	Swainson's hawk	Sacramento West	YOL	80 meters	Presumed Extant	U	N	2007XXXX	2007XXXX	DPR, UNKNOWN	None
62	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	Sacramento West	YOL	nonspecific area	Extirpated	X	N	19550801	19550801	UNKNOWN	None
63	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento West	YOL	1/5 mile	Presumed Extant	U	N	19850424	XXXXXXXX	UNKNOWN	Threatened

ID	SNAME	CNAME	KQUADNAME	KEYCOUNTY	ACCURACY	PRESENCE	OCCRANK	SENSITIVE	SITEDATE	ELMDATE	OWNERMGT	FEDLIST
64	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento West	YOL	1/5 mile	Presumed Extant	U	N	19850904	19850904	PVT	Threatened
65	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento West	YOL	1/5 mile	Presumed Extant	U	N	19850904	19850904	PVT	Threatened
66	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento West	YOL	1/5 mile	Presumed Extant	U	N	19850904	19850904	PVT	Threatened
67	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento East	SAC	1/5 mile	Presumed Extant	U	N	19840600	19840600	UNKNOWN	Threatened
68	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento East	SAC	1/5 mile	Presumed Extant	U	N	19840600	19840600	PVT	Threatened
69	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento East	SAC	1/5 mile	Presumed Extant	U	N	198406XX	XXXXXXXX	PVT	Threatened
70	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento East	SAC	1/5 mile	Presumed Extant	U	N	19840600	19840600	UNKNOWN	Threatened
71	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento East	SAC	1/5 mile	Presumed Extant	U	N	198406XX	198406XX	UNKNOWN	Threatened
72	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento East	SAC	specific area	Presumed Extant	U	N	198406XX	198406XX	PVT	Threatened
73	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Sacramento West	YOL	80 meters	Presumed Extant	C	N	20060517	20060517	UNKNOWN	Threatened
74	Elanus leucurus	white-tailed kite	Sacramento East	SAC	nonspecific area	Presumed Extant	U	N	19880503	19880503	UNKNOWN	None
75	Elanus leucurus	white-tailed kite	Sacramento East	SAC	1/10 mile	Presumed Extant	U	N	197402XX	197402XX	UNKNOWN	None
76	Elanus leucurus	white-tailed kite	Rio Linda	SAC	80 meters	Presumed Extant	U	N	20020625	20020625	PVT	None
77	Elanus leucurus	white-tailed kite	Rio Linda	SAC	80 meters	Presumed Extant	A	N	20020625	20020625	PVT-UNION PACIFIC RR, RD 1000	None
78	Elanus leucurus	white-tailed kite	Sacramento East	SAC	80 meters	Presumed Extant	B	N	200908XX	200908XX	SAC COUNTY-PARKS & REC	None
79	Elderberry Savanna	Elderberry Savanna	Sacramento East	SAC	specific area	Presumed Extant	U	N	1987XXXX	1987XXXX	STATE (SAC COUNTY LEASE)	None
80	Elderberry Savanna	Elderberry Savanna	Sacramento East	SAC	specific area	Presumed Extant	U	N	1987XXXX	1987XXXX	STATE (SAC COUNTY LEASE)	None
81	Elderberry Savanna	Elderberry Savanna	Sacramento West	YOL	80 meters	Presumed Extant	C	N	19850904	19850904	PVT	None
82	Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	Sacramento West	YOL	specific area	Presumed Extant	U	N	19850929	19850929	UNKNOWN, PVT	None
83	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Sacramento West	SAC	80 meters	Presumed Extant	D	N	19880804	19880804	CALTRANS	None
84	Lasiurus cinereus	hoary bat	Sacramento West	YOL	1 mile	Presumed Extant	U	N	19910918	19910918	UNKNOWN	None
85	Linderiella occidentalis	California linderiella	Rio Linda	SAC	nonspecific area	Presumed Extant	U	N	2004XXXX	2004XXXX	PVT	None
86	Oncorhynchus tshawytscha	chinook salmon - Sacramento River winter-run ESU	Sacramento West	YOL	80 meters	Presumed Extant	D	N	20040113	20040113	UNKNOWN	Endangered
87	Oncorhynchus tshawytscha	chinook salmon - Central Valley spring-run ESU	Sacramento West	YOL	80 meters	Presumed Extant	D	N	20040525	20040525	UNKNOWN	Threatened
88	Pogonichthys macrolepidotus	Sacramento splittail	Taylor Monument	SAC	specific area	Presumed Extant	B	N	19950226	19950226	PVT, STATE	None
89	Progne subis	purple martin	Sacramento East	SAC	1/10 mile	Presumed Extant	U	N	2003XXXX	2003XXXX	CALTRANS	None
90	Progne subis	purple martin	Sacramento East	SAC	specific area	Presumed Extant	U	N	2003XXXX	2003XXXX	CALTRANS	None
91	Progne subis	purple martin	Sacramento East	SAC	specific area	Presumed Extant	U	N	2003XXXX	2003XXXX	CALTRANS	None
92	Progne subis	purple martin	Sacramento West	SAC	specific area	Presumed Extant	U	N	2003XXXX	2003XXXX	CALTRANS	None
93	Progne subis	purple martin	Sacramento East	SAC	specific area	Presumed Extant	U	N	2003XXXX	2003XXXX	CALTRANS	None
94	Progne subis	purple martin	Sacramento East	SAC	80 meters	Presumed Extant	U	N	2003XXXX	2003XXXX	UNKNOWN	None
95	Progne subis	purple martin	Sacramento East	SAC	80 meters	Presumed Extant	U	N	2003XXXX	2003XXXX	CALTRANS	None
96	Progne subis	purple martin	Sacramento East	SAC	80 meters	Presumed Extant	U	N	2003XXXX	2003XXXX	UNKNOWN	None
97	Progne subis	purple martin	Sacramento East	SAC	80 meters	Presumed Extant	U	N	2003XXXX	2003XXXX	UNKNOWN	None
98	Riparia riparia	bank swallow	Sacramento East	SAC	nonspecific area	Presumed Extant	U	N	19860601	19860601	SAC COUNTY	None
99	Sagittaria sanfordii	Sanford's arrowhead	Sacramento East	SAC	specific area	Presumed Extant	A	N	19930722	19930722	SAC COUNTY-PARKS & REC	None
100	Sagittaria sanfordii	Sanford's arrowhead	Sacramento East	SAC	specific area	Presumed Extant	B	N	20111019	20111019	CITY OF SACRAMENTO, UNKNOWN	None
101	Sagittaria sanfordii	Sanford's arrowhead	Sacramento East	SAC	80 meters	Presumed Extant	C	N	20050710	20050710	SACRAMENTO EXECUTIVE AIRPORT	None
102	Sagittaria sanfordii	Sanford's arrowhead	Sacramento East	SAC	80 meters	Possibly Extirpated	X	N	20050604	1993XXXX	SAC COUNTY-PARKS & REC	None
103	Sagittaria sanfordii	Sanford's arrowhead	Sacramento East	SAC	80 meters	Presumed Extant	C	N	20050702	20050702	CSU-SACRAMENTO	None
104	Sagittaria sanfordii	Sanford's arrowhead	Sacramento East	SAC	80 meters	Possibly Extirpated	X	N	20050604	19931023	SAC COUNTY-PARKS & REC	None
105	Taxidea taxus	American badger	Sacramento East	SAC	1 mile	Presumed Extant	U	N	XXXXXXXX	XXXXXXXX	UNKNOWN	None
106	Thamnophis gigas	giant garter snake	Verona	SUT	nonspecific area	Presumed Extant	U	Y	19990819	19990819		Threatened
107	Thamnophis gigas	giant garter snake	Rio Linda	SAC	80 meters	Presumed Extant	U	Y	19980602	19980602		Threatened
108	Thamnophis gigas	giant garter snake	Rio Linda	SAC	80 meters	Presumed Extant	U	Y	20030516	20030516		Threatened
109	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	80 meters	Presumed Extant	U	Y	19980708	19980708		Threatened
110	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Presumed Extant	U	Y	20060528	20060528		Threatened
111	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Presumed Extant	U	Y	19991004	19991004		Threatened
112	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Presumed Extant	C	Y	20000801	20000801		Threatened
113	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Presumed Extant	C	Y	20070519	20070519		Threatened
114	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Presumed Extant	A	Y	19990617	19990617		Threatened
115	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Possibly Extirpated	X	Y	19980628	19980628		Threatened
116	Thamnophis gigas	giant garter snake	Taylor Monument	SUT	80 meters	Presumed Extant	U	Y	19980430	19980430		Threatened
117	Thamnophis gigas	giant garter snake	Taylor Monument	SUT	80 meters	Presumed Extant	U	Y	19980518	19980518		Threatened
118	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Presumed Extant	U	Y	20030806	20030806		Threatened
119	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	nonspecific area	Presumed Extant	A	Y	20060901	20060901		Threatened
120	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	specific area	Presumed Extant	C	N	20080910	20080910	NATOMAS BASIN CONSERVANCY, PVT	Threatened
121	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	1/5 mile	Possibly Extirpated	X	N	1987XXXX	1987XXXX	UNKNOWN	Threatened
122	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	1/5 mile	Possibly Extirpated	X	N	19860430	19860430	UNKNOWN	Threatened
123	Thamnophis gigas	giant garter snake	Taylor Monument	SAC	1/5 mile	Possibly Extirpated	X	N	19860430	19860430	UNKNOWN	Threatened

ID	SNAME	CALLIST	GRANK	SRANK	RPLANTRANK	LOCATION
1	Accipiter cooperii	None	G5	S3		VICINITY OF 21ST STREET AND H STREET, SACRAMENTO.
2	Accipiter cooperii	None	G5	S3		NATOMAS EAST MAIN DRAINAGE CANAL, SOUTH OF EAST LEVEE ROAD AND 0.2 MILE EAST OF NORTHGATE BLVD, SACRAMENTO
3	Agelaius tricolor	None	G2G3	S2		NEAR PORT OF SACRAMENTO, JUST SOUTH OF THE BUSINESS 80/I-80 JUNCTION, WEST SACRAMENTO
4	Ardea herodias	None	G5	S4		NORTH SIDE OF AMERICA RIVER, JUST EAST OF RIVER MILE 1, SOUTH OF POND, AND EAST OF DISCOVERY PARK, SACRAMENTO
5	Ardea herodias	None	G5	S4		ALONG ROBLA CREEK, JUST EAST OF THE WPRR TRACKS, RIO LINDA
6	Astragalus tener var. ferrisiae	None	G2T1	S1	1B.1	YOLO COUNTY: CAUSEWAY.
7	Athene cunicularia	None	G4	S2		HAGGINWOOD. VICINITY OF ARCADE CREEK, BUSINESS I-80 AND HAGGIN OAKS GOLF COURSE.
8	Athene cunicularia	None	G4	S2		SACRAMENTO STATE COLLEGE (NOW CSUS) & ADJACENT LEVEE AREAS ALONG THE AMERICAN RIVER, SACRAMENTO
9	Athene cunicularia	None	G4	S2		0.9 MI NE OF THE INTERSECTION OF SAN JUAN ROAD AND EL CENTRO ROAD, APPROXIMATELY 4 MI SE OF SACRAMENTO METRO AIRPORT
10	Athene cunicularia	None	G4	S2		ABOUT 0.5 MI STRETCH OF THE NATOMAS EAST DRAINAGE CANAL JUST N OF THE SEWAGE PONDS, EAST SIDE OF OLD NATOMAS AIRPORT
11	Athene cunicularia	None	G4	S2		NATOMAS EAST DRAINAGE CANAL, FROM ABOUT 0.2 MI N TO ABOUT 0.4 MI S OF DEL PASO RD ABOUT 1.4 MI E OF I-5, SACRAMENTO
12	Athene cunicularia	None	G4	S2		VICINITY OF ELVAS & 51ST STREET, SACRAMENTO.
13	Athene cunicularia	None	G4	S2		IMMEDIATELY SW OF THE JUNCTION OF HOWE AVE & FAIR OAKS BLVD, SACRAMENTO.
14	Athene cunicularia	None	G4	S2		W SIDE OF E COMMERCE WAY, ABOUT 0.5 MI SE OF DEL PASO RD AT I-5, JUST W OF ARCO ARENA (POWER BALANCE PAVILION)
15	Athene cunicularia	None	G4	S2		WEST OF E LEVEE RD FROM JUST NORTH OF I-80 TO NE CORNER OF CALTRANS YARD JUST S OF I-80, NATOMAS AREA OF SACRAMENTO
16	Athene cunicularia	None	G4	S2		ADJACENT TO ONRAMP FROM NORTH-BOUND TRUXEL ROAD TO WEST-BOUND I-80, NATOMAS
17	Athene cunicularia	None	G4	S2		WEST BANK OF THE NATOMAS EAST MAIN DRAINAGE CANAL, JUST NORTH OF DEL PASO ROAD, SACRAMENTO
18	Athene cunicularia	None	G4	S2		WITHIN THE PARKING LOT COMPLEX AT ARCO ARENA, SACRAMENTO.
19	Athene cunicularia	None	G4	S2		WEST SACRAMENTO, ABOUT 0.2 MILES SW OF INTERSECTION OF HWY 84 AND HARBOR BLVD
20	Athene cunicularia	None	G4	S2		NORTHWEST CORNER OF SACRAMENTO EXECUTIVE AIRPORT, JUST EAST OF SR 160 (AKA FREEPORT BLVD), SACRAMENTO
21	Branchinecta lynchi	None	G3	S2S3		200 FEET NORTH OF SILVER EAGLE ROAD BRIDGE, ADJ. TO NATOMAS MAIN DRAINAGE CANAL LEVEE ROAD; 1.1 KM SOUTH OF HWY 80
22	Buteo swainsoni	Threatened	G5	S2		SUTTERS LANDING PARK, ON THE SOUTH SIDE OF THE AMERICAN RIVER AT THE NORTH END OF 28TH STREET
23	Buteo swainsoni	Threatened	G5	S2		EAST SIDE OF THE SACRAMENTO RIVER FROM RM65.05 TO RM65.3, AROUND GARDEN HIGHWAY AT RADIO ROAD, SACRAMENTO
24	Buteo swainsoni	Threatened	G5	S2		ALONG THE AMERICAN RIVER AT RM-5, JUST SOUTH OF CAL EXPO.
25	Buteo swainsoni	Threatened	G5	S2		SACRAMENTO RIVER, RM 55.9 - 56.6, BETWEEN LINDEN RD AND VALLEJO WY, ABOUT 1 MI S OF MILLER PARK IN SACRAMENTO
26	Buteo swainsoni	Threatened	G5	S2		0.25 MILES WEST OF EL CENTRO ROAD AND 0.25 MILES SOUTH OF SAN JUAN ROAD, 2 MILES NORTH OF BRYTE
27	Buteo swainsoni	Threatened	G5	S2		SACRAMENTO RIVER, RM-57.6(R), 0.3 MILES WEST OF JEFFERSON BLVD AT 19TH ST, JUST N OF THE BARGE CANAL, WEST SACRAMENTO
28	Buteo swainsoni	Threatened	G5	S2		0.4 MILE NORTH OF I-80, 0.5 MILE NW OF THE I-80/HIGHWAY 50 JUNCTION, WEST SACRAMENTO
29	Buteo swainsoni	Threatened	G5	S2		NORTH & SOUTH SIDES OF THE SACRAMENTO BYPASS WA AT TOE DRAIN, ABOUT 1.5 MI W OF I-80 AT OLD RIVER RD, WEST SACRAMENTO
30	Buteo swainsoni	Threatened	G5	S2		ALONG THE CLARKSBURG BRANCH LINE TRAIL (OLD RR TRACKS) ABOUT 0.2-0.4 MI NNE OF ANTIOCH AVE AT DAVIS RD, WEST SACRAMENTO
31	Buteo swainsoni	Threatened	G5	S2		DISCOVERY PARK, ON THE SACRAMENTO RIVER AT RM-60.5(L), SACRAMENTO.
32	Buteo swainsoni	Threatened	G5	S2		SACRAMENTO RIVER, RM-64.5(L), 0.3 MI S OF SAN JUAN RD ALONG GARDEN HIGHWAY, 2.5 MILES W OF THE I-5/I-80 JUNCTION
33	Buteo swainsoni	Threatened	G5	S2		SACRAMENTO RIVER, RM-54.20(L), ON THE SOUTH EDGE OF CHICORY BEND, 0.3 MILES WEST OF I-5 AT SEAMAS AVE, SACRAMENTO
34	Buteo swainsoni	Threatened	G5	S2		BOTH SIDES OF THE SACRAMENTO RIVER AT RM-54.7, CHICORY BEND, ABOUT 0.25 MILES N OF DAVIS ROAD AT S RIVER ROAD
35	Buteo swainsoni	Threatened	G5	S2		SOUTH SIDE OF THE SACRAMENTO BYPASS, JUST N OF THE CHP ACADEMY, ABOUT 1 MI WNW OF I-80 AT OLD RIVER RD, WEST SACRAMENTO
36	Buteo swainsoni	Threatened	G5	S2		SACRAMENTO RIVER, RM-60.90(R), JUST UPSTREAM FROM DISCOVERY PARK, WEST SACRAMENTO
37	Buteo swainsoni	Threatened	G5	S2		BOTH SIDES OF THE SACRAMENTO RIVER, RM63.3 - 63.5, AROUND THE CO RD 126/OLD RIVER RD JUNCTION, WEST OF SACRAMENTO
38	Buteo swainsoni	Threatened	G5	S2		JUST SOUTHEAST OF THE I-80/WEST EL CAMINO CLOVERLEAF, SACRAMENTO.
39	Buteo swainsoni	Threatened	G5	S2		SACRAMENTO RIVER, ATRM-62.10(L), ALONG GARDEN HWY JUST DOWNSTREAM FROM THE PIONEER BRIDGE (I-80), SACRAMENTO
40	Buteo swainsoni	Threatened	G5	S2		SACRAMENTO RIVER, RM 61.5(R), JUST NORTH OF GOLDEN STATE MIDDLE SCHOOL & RIVERBANK RD, WEST SACRAMENTO
41	Buteo swainsoni	Threatened	G5	S2		NORTH SIDE OF DEL PASO ROAD, 0.6 MILE EAST OF I-5, SACRAMENTO.
42	Buteo swainsoni	Threatened	G5	S2		0.4 MILES UPSTREAM FROM THE I-80 BRIDGE OVER THE SACRAMENTO RIVER, SACRAMENTO.
43	Buteo swainsoni	Threatened	G5	S2		WEST EDGE OF NATOMAS MAIN DRAIN, BETWEEN ORCHARD LANE AND I-5, NW OF SACRAMENTO
44	Buteo swainsoni	Threatened	G5	S2		0.2 MILE SOUTH OF INDUSTRIAL BOULEVARD, ON THE WEST BANK OF THE DEEP WATER CHANNEL TURNING BASIN, WEST SACRAMENTO
45	Buteo swainsoni	Threatened	G5	S2		BETWEEN NATOMAS EAST MAIN DRAIN AND THE LOWER AMERICAN RIVER, 0.7 MILE EAST OF I-5, DISCOVERY PARK, SACRAMENTO
46	Buteo swainsoni	Threatened	G5	S2		WEST SIDE OF NATOMAS EAST MAIN DRAINAGE CANAL, 0.1 MILE NORTH OF THE GARDEN HIGHWAY, SACRAMENTO
47	Buteo swainsoni	Threatened	G5	S2		2402 AMERICAN AVENUE, GARDENLAND, N OF AMERICAN RIVER PARKWAY.
48	Buteo swainsoni	Threatened	G5	S2		FREMONT PARK, AT 15TH AND Q STREETS IN DOWNTOWN SACRAMENTO.
49	Buteo swainsoni	Threatened	G5	S2		CAMP POLLOCK, ON THE NORTH SIDE OF THE AMERICAN RIVER ABOUT 0.25 MILES NW OF THE HWY 160 BRIDGE
50	Buteo swainsoni	Threatened	G5	S2		NORTH SIDE OF SAN JUAN ROAD, JUST EAST OF THE NORTHBOUND I-5 ONRAMP, NORTH NATOMAS AREA OF SACRAMENTO
51	Buteo swainsoni	Threatened	G5	S2		WEST SIDE OF THE SACRAMENTO RIVER JUST SOUTH OF TOWER BRIDGE (CAPITAL MALL) AND 0.2 MILES SE OF RALEY FIELD, WEST SAC
52	Buteo swainsoni	Threatened	G5	S2		W SIDE OF THE SACRAMENTO RIVER (RM55.1), ALONG S RIVER RD ABOUT 0.6 MI S OF LINDEN RD, JUST UPSTREAM FROM CHICORY BEND
53	Buteo swainsoni	Threatened	G5	S2		WEST SIDE SACRAMENTO RIVER, ABOUT 0.2 MI SW OF S RIVER RD AT DAVIS RD & 1.1 MI SE OF JEFFERSON BLVD AT MARSHALL RD
54	Buteo swainsoni	Threatened	G5	S2		WEST SIDE SACRAMENTO RIVER, ABOUT 0.2 MI S OF ANTIOCH AVE AT DAVIS RD & 0.8 MI E OF JEFFERSON BLVD AT TAPLEY RD
55	Buteo swainsoni	Threatened	G5	S2		ALONG THE CLARKSBURG BRANCH LINE TRAIL (OLD RR TRACKS) ABOUT 0.4 MI SSE OF JEFFERSON BLVD AT LINDEN RD, WEST SACRAMENTO
56	Buteo swainsoni	Threatened	G5	S2		JUST EAST OF THE YOLO BYPASS WA, ALONG TOE DRAIN, ABOUT 0.2 MILES NW OF I-80 AT ENTERPRISE BLVD IN WEST SACRAMENTO
57	Buteo swainsoni	Threatened	G5	S2		JUST SW OF THE INTERSECTION OF HARBOR BOULEVARD AND INDUSTRIAL BOULEVARD, WEST SACRAMENTO
58	Buteo swainsoni	Threatened	G5	S2		SOUTH SIDE OF GARDEN HWY ABOUT 0.5 ROAD MILES WEST OF NORTHGATE BLVD, AMERICAN RIVER PARKWAY
59	Buteo swainsoni	Threatened	G5	S2		JUST NW OF THE INTERSECTION OF LAKE WASHINGTON WITH JEFFERSON BOULEVARD, WEST SACRAMENTO
60	Buteo swainsoni	Threatened	G5	S2		ALONG NATOMAS EAST MAIN DRAIN, JUST NORTH OF THE GARDEN HIGHWAY, 0.5 MILE EAST OF TRUXEL, SACRAMENTO
61	Buteo swainsoni	Threatened	G5	S2		WEST BANK OF THE SACRAMENTO RIVER AT RM-60, ABOUT 0.5 MILES NNW OF THE I STREET BRIDGE, SACRAMENTO
62	Cicindela hirticollis abrupta	None	G5TH	SH		SANDY BANKS ALONG THE SACRAMENTO RIVER BETWEEN SACRAMENTO AND WEST SACRAMENTO
63	Desmocerus californicus dimorphus	None	G3T2	S2		SACRAMENTO RIVER MI 62.5 W AT I-80.

ID	SNAME	CALLIST	GRANK	SRANK	RPLANTRANK	LOCATION
64	Desmocerus californicus dimorphus	None	G3T2	S2		SACRAMENTO RIVER, OPPOSITE JCT WITH NATOMAS, MAIN DRAINAGE CANAL, RIVER MILE 61.
65	Desmocerus californicus dimorphus	None	G3T2	S2		SACRAMENTO RIVER, OPPOSITE MOUTH OF AMERICAN RIVER, RIVER MI 59.8, W BANK
66	Desmocerus californicus dimorphus	None	G3T2	S2		SACRAMENTO RIVER, OPPOSITE MOUTH OF AMERICAN RIVER, AT RIVER MI 60.3, W BANK.
67	Desmocerus californicus dimorphus	None	G3T2	S2		JUNCTION OF GARDEN HIGHWAY AND NORTHGATE BLVD.
68	Desmocerus californicus dimorphus	None	G3T2	S2		AMERICAN RIVER FLOODPLAIN 22 ACRE PARCEL BETWEEN RAILROAD TRACK OVERPASSES (BTWN I-80 & HWY 160)
69	Desmocerus californicus dimorphus	None	G3T2	S2		BUSHY LAKE, NEAR CAL EXPO.
70	Desmocerus californicus dimorphus	None	G3T2	S2		BETWEEN MILEAGE MARKERS 6 & 7 ON AMERICAN RIVER PARKWAY BIKE TRAIL.
71	Desmocerus californicus dimorphus	None	G3T2	S2		SOUTH BANK AMERICAN RIVER WEST OF GLEN HALL PARK (ACROSS FROM CAL EXPO), RIVER MILE 5
72	Desmocerus californicus dimorphus	None	G3T2	S2		JUST SOUTH OF HIGHWAY 160 AT DEL PASO BLVD, JOHNSON INDUSTRIAL PARK.
73	Desmocerus californicus dimorphus	None	G3T2	S2		0.6 MILE NNE OF THE INTERSECTION OF DAVIS ROAD & HARMON AVENUE, WEST SACRAMENTO
74	Elanus leucurus	None	G5	S3		PARADISE BEACH ON THE AMERICAN RIVER AT THE END OF CARLSON DRIVE, SACRAMENTO.
75	Elanus leucurus	None	G5	S3		NORTH SIDE OF THE AMERICAN RIVER, ABOUT 0.3 MI SE OF HWY 160 OVERPASS OVER THE AMERICAN RIVER
76	Elanus leucurus	None	G5	S3		NE OF THE INTERSECTION OF SOTNIP AND TUNIS, JUST WEST OF NEMDC, DEL PASC
77	Elanus leucurus	None	G5	S3		JUST NE OF WHERE ROBLA CREEK CONVERGES WITH THE NEMDC, BETWEEN NEMDC AND THE WESTERN PACIFIC RAILROAD TRACKS, DEL PASC
78	Elanus leucurus	None	G5	S3		WITHIN THE AMERICAN RIVER PARKWAY, S OF TRIBUTE RD BETWEEN CAPITAL CITY FWY TO THE E & RAILROAD TO THE W, SACRAMENTO
79	Elderberry Savanna	None	G2	S2.1		CAL EXPO, ON AMERICAN RIVER FLOODPLAIN, SOUTH & SOUTHEAST OF BUSHY LAKE.
80	Elderberry Savanna	None	G2	S2.1		CAL EXPO, ON AMERICAN RIVER FLOODPLAIN FROM S.P. RR TRACKS EAST TO JUST BEYOND HWY 80
81	Elderberry Savanna	None	G2	S2.1		WEST BANK OF SACRAMENTO RIVER, OPPOSITE MOUTH OF AMERICAN RIVER. NEXT TO MARINAS, BOATYARDS, LEVEE RD, RIPARIAN FOREST
82	Great Valley Cottonwood Riparian Forest	None	G2	S2.1		YOLO SIDE OF SACRAMENTO RIVER AT BRODERICK FROM RM 59.8 TO RM 62.
83	Hibiscus lasiocarpos var. occidentalis	None	G5T2	S2	1B.2	ON-RAMP TO EASTBOUND I-80 FROM WEST EL CAMINO AVE., NORTH OF SACRAMENTO
84	Lasiurus cinereus	None	G5	S4?		WEST SACRAMENTO.
85	Linderiella occidentalis	None	G3	S2S3		NORTH OF I-80, BETWEEN DRY CREEK ROAD TO THE EAST AND RIO LINDA BLVD TO THE WEST, AT THE TERMINUS OF JESSIE ROAD
86	Oncorhynchus tshawytscha	Endangered	G5	S1		BARGE CANAL AT LOCK (JEFFERSON BLVD), SACRAMENTO DEEP WATER SHIP CHANNEL, WEST SACRAMENTO
87	Oncorhynchus tshawytscha	Threatened	G5	S1		BARGE CANAL AT LOCK (JEFFERSON BLVD), SACRAMENTO DEEP WATER SHIP CHANNEL, WEST SACRAMENTO
88	Pogonichthys macrolepidotus	None	G2	S2		SACRAMENTO RIVER FROM MISSOURI BEND N OF KNIGHTS LANDING TO S OF COURTLAND. ALSO, LOWER 10 MILES OF THE FEATHER RIVER
89	Progne subis	None	G5	S3		EASTBOUND HWY 50 OFFRAMP TO SOUTHBOUND HWY 99 AND NORTHBOUND HWY 99 OFFRAMP TO EASTBOUND HWY 50, SACRAMENTO
90	Progne subis	None	G5	S3		HIGHWAY 50 FROM 34TH STREET TO STOCKTON BOULEVARD, SACRAMENTO
91	Progne subis	None	G5	S3		HWY 50 BETWEEN 18TH AND 20TH STREETS, SACRAMENTO
92	Progne subis	None	G5	S3		I-5 AT I STREET & I STREET BRIDGE RAMP ABOVE THE CALIFORNIA STATE RAILROAD MUSEUM PARKING LOT, SACRAMENTO
93	Progne subis	None	G5	S3		HWY 50 AT REDDING ROAD & UNION PACIFIC & LIGHT RAIL TRACKS, BETWEEN 65TH STREET AND HOWE AVENUE, SACRAMENTO
94	Progne subis	None	G5	S3		SUTTERVILLE ROAD OVER THE UNION PACIFIC RAILYARD, WEST OF HIGHWAY 99, SACRAMENTO
95	Progne subis	None	G5	S3		CAPITAL CITY FREEWAY (BUSINESS I-80), BETWEEN "R" AND "S" STREETS, SACRAMENTO
96	Progne subis	None	G5	S3		EL CAMINO OVERPASS OF UNION PACIFIC AND LIGHT RAIL TRACKS, SACRAMENTO.
97	Progne subis	None	G5	S3		MARCONI AVENUE OVERPASS OF AUBURN BOULEVARD & UNION PACIFIC & SACRAMENTO LIGHT RAIL TRACKS, SACRAMENTO.
98	Riparia riparia	Threatened	G5	S2S3		SOUTH SIDE OF AMERICAN RIVER UPSTREAM FROM CAL EXPO, NEAR BUSINESS 80 BRIDGE.
99	Sagittaria sanfordii	None	G3	S3	1B.2	SLOUGH ALONG NORTH SIDE OF THE AMERICAN RIVER, BETWEEN SOUTHERN PACIFIC RR TRACKS AND THE PUMPING STATION, SACRAMENTO
100	Sagittaria sanfordii	None	G3	S3	1B.2	ARCADE CREEK AND SHALLOW DITCH TO THE SOUTHEAST, JUST EAST OF THE NATOMAS EAST MAIN DRAINAGE CANAL, SACRAMENTO
101	Sagittaria sanfordii	None	G3	S3	1B.2	ROADSIDE DITCH ON EAST SIDE OF FREEPORT BLVD, NW CORNER OF SACRAMENTO EXECUTIVE AIRPORT
102	Sagittaria sanfordii	None	G3	S3	1B.2	AMERICAN RIVER AT THE GUY WEST BRIDGE, CSUS SIDE OF THE RIVER, SACRAMENTO.
103	Sagittaria sanfordii	None	G3	S3	1B.2	SMALL CHANNEL JUST SOUTH OF CSU, SACRAMENTO FOOTBALL FIELD.
104	Sagittaria sanfordii	None	G3	S3	1B.2	DEPRESSION ALONG THE SOUTH SIDE OF THE AMERICAN RIVER, APPROXIMATELY 400M WEST OF HOWE AVE, SACRAMENTO
105	Taxidea taxus	None	G5	S4		POLK; 21ST AVE AT POWER INN RD, SACRAMENTO.
106	Thamnophis gigas	Threatened	G2G3	S2S3		
107	Thamnophis gigas	Threatened	G2G3	S2S3		
108	Thamnophis gigas	Threatened	G2G3	S2S3		
109	Thamnophis gigas	Threatened	G2G3	S2S3		
110	Thamnophis gigas	Threatened	G2G3	S2S3		
111	Thamnophis gigas	Threatened	G2G3	S2S3		
112	Thamnophis gigas	Threatened	G2G3	S2S3		
113	Thamnophis gigas	Threatened	G2G3	S2S3		
114	Thamnophis gigas	Threatened	G2G3	S2S3		
115	Thamnophis gigas	Threatened	G2G3	S2S3		
116	Thamnophis gigas	Threatened	G2G3	S2S3		
117	Thamnophis gigas	Threatened	G2G3	S2S3		
118	Thamnophis gigas	Threatened	G2G3	S2S3		
119	Thamnophis gigas	Threatened	G2G3	S2S3		
120	Thamnophis gigas	Threatened	G2G3	S2S3		VICINITY OF FISHERMANS LAKE & WEST DRAINAGE CANAL, VICINITY OF EL CENTRO RD & DEL PASO RD.
121	Thamnophis gigas	Threatened	G2G3	S2S3		AMERICAN BASIN; DRAINAGE CANAL 0.8 KM ESE OF I-5 JUNCTION WITH DEL PASO ROAD.
122	Thamnophis gigas	Threatened	G2G3	S2S3		SMALL DITCH INTERSECTING EAST DRAINAGE CANAL, 0.3 MI S OF DEL PASO RD, SACRAMENTO.
123	Thamnophis gigas	Threatened	G2G3	S2S3		INTERSECTION OF SMALL E-W CANAL W/ EAST DRAINAGE CANEL, 1.5 MI S DEL PASO RD, SACRAMENTO.

ID	SNAME	LOCDETAILS
1	Accipiter cooperii	2007: NEST TREE WAS ON THE NORTH SIDE OF H STREET, IN THE FIRST TREE WEST OF THE NW CORNER OF 21ST AND H. 2008: NEST TREE WAS DIRECTLY ACROSS FROM 2130 H STREET, EAST OF 21ST & H STREET
2	Accipiter cooperii	
3	Agelaius tricolor	
4	Ardea herodias	MAPPED TO PROVIDED COORDINATES.
5	Ardea herodias	
6	Astragalus tener var. tener	EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB ALONG THE YOLO CAUSEWAY.
7	Athene cunicularia	COLLECTION FROM "HAGGIN'S RANCH, 5 MILES NORTH OF SACRAMENTO". THIS IS NOW THE HAGGINWOOD NEIGHBORHOOD OF SACRAMENTO.
8	Athene cunicularia	LEVEE BURROWS WERE ON THE WEST SIDE OF THE LEVEE ON THE WEST BANK OF THE AMERICAN RIVER
9	Athene cunicularia	JAN 1991: OWLS LOCATED ALONG DRAINAGE DITCH.
10	Athene cunicularia	IN 2007 THE BURROWS ON CONSTUCTION SIDE CLOSED WITH ONE-WAY DOORS. OWLS MOVED TO GROUND SQUIRREL BURROWS ON THE WEST (WET) SIDE OF THE LEVEE WHICH IS THE OPPOSITE SIDE OF THE CANAL; THESE WILL BE MONITORED DURING THE
11	Athene cunicularia	MAPPED TO PROVIDED COORDINATES. JAN & FEB BURROWS CONSISTED OF GROUND SQUIRREL BURROWS ON W SIDE OF CANAL & EAST (OR WET) SIDE OF LEVEE (NON-CONSTRUCTION SIDE). JUNE DETECTIONS WERE ON E SIDE OF THE CANAL
12	Athene cunicularia	CAS RECORD LOCALITY STATED AS "VICINITY OF SACRAMENTO."
13	Athene cunicularia	
14	Athene cunicularia	UNFINISHED HIGH-DENSITY HOUSING DEVELOPMENT SITE JUST WEST OF ARCO ARENA, NEAR THE CORNER OF BENEFIT WAY AND E COMMERCE WAY; INFRASTRUCTURE SET (UNDERGROUND UTILITIES, FOUNDATIONS), BUT NO STRUCTURES YET (2012
15	Athene cunicularia	MAPPED TO PROVIDED COORDINATES. 2006: BURROW WAS IN A FLOOD CONTROL LEVEE, NEAR TOP ON WEST SIDE (SE PART OF FEATURE); OWLS WERE SEEN PERCHED ON CALTRANS YARD FENCE
16	Athene cunicularia	PEA: DESCRIBED AS "THE TRUXEL TO WEST BOUND 80 ON RAMP." WIL: COORDS PROVIDED. MAPPED TO WIL COORDINATES
17	Athene cunicularia	BURROW SITE IS LOCATED NEXT TO A RUSTY MANHOLE COVER, 50-60 FEET NORTH OF DEL PASO ROAD
18	Athene cunicularia	BURROW SITES WERE LOCATED ON A GRASSY KNOLL ADJACENT TO PARKING LOT H, AS WELL AS IN SMALL ISLANDS OF VEGETION WITH THE PARKING LOTS.
19	Athene cunicularia	MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY SOURCE. OCCUPIED BURROW OBSERVED 50FT WEST OF RIVERPOINT COURT AND 200FT EAST OF IKEA COURT
20	Athene cunicularia	MAPPED TO 2002 PROVIDED COORDINATES: 60 FT NORTH OF CB&S HANGER.
21	Branchinecta lynchi	EAST SIDE OF LEVEE ROAD, WEST SIDE OF WESTERN PACIFIC RR TRACKS IN ROW.
22	Buteo swainsoni	MAPPED TO THE VICINITY OF THE PARK.
23	Buteo swainsoni	VICINITY OF TERRITORY #SA046 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE. NEST TREES WERE ALONG RIVER, EXCEPT FOR 1 NEST IN 1992, WHICH WAS IN FIELDS TO THE EAST
24	Buteo swainsoni	1992: SUSPECTED NEST LOCATION MARKED ON MAP ATTACHED TO FIELD SURVEY FORM. REPORTED AS A NEST SITE, TERRITORY #SA054 IN 1992 VERSION OF CDFW SWHA DATABASE (#SA035 IN 1994 VERSION). 2009-2010 NESTS ON N SIDE OF RIVER, PER FIEL
25	Buteo swainsoni	THREE POLYGONS, FROM NORTH: 1) TERRITORY #YO205 (PART)/SA088 AT RM56.6 ON BOTH SIDES OF RIVER. 2) TERRITORY #YO205(PART)/YO204, ABOUT 450M BACK FROM RIVER AT RM56.3R. 3) TERRITORY #YO203, AT RM55.9R
26	Buteo swainsoni	MAPPED TO LOCATION DESCRIPTION FROM 1992 ENGLAND REPORT.
27	Buteo swainsoni	TERRITORY #YO206 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE
28	Buteo swainsoni	VICINITY OF TERRITORIES #YO160 & YO (NO # ASSIGNED) FROM CDFW DATABASE. MAPPED TO PROVIDED COORDINATES, WHICH INCLUDES ESTEP (2008) SITES YO-32 & 78
29	Buteo swainsoni	JUST WEST OF THE CHP ACADEMY AND ADJACENT TO A FLOOD CONTROL FACILITY. 2 POLYGONS, MAPPED TO COORDINATES FROM FIELD SURVEY FORMS, CDFW NEST RECORDS FROM 2000-2004, AND FOR SITES YO-74 (SOUTH) & YO-76 (NORTH) FROM ESTEP
30	Buteo swainsoni	2 SITES REPRESENTED; MAPPED TO COORDINATES GIVEN FOR SITE YO-70 FROM ESTEP'S 2008 REPORT (NORTH SITE) AND FOR CDFW NEST RECORD FROM 2003 (SOUTH SITE)
31	Buteo swainsoni	VICINITY OF TERRITORIES #SA016 (PART - SEE ALSO EO#63S), "SA" (NO # ASSIGNED), AND YO215 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE
32	Buteo swainsoni	TERRITORY #SA096 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE.
33	Buteo swainsoni	TERRITORY #SA009 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE.
34	Buteo swainsoni	2 POLYGONS REPRESENTING 3 NESTS; NORTH SITE APPED TO COORDINATES GIVEN FOR SITE YO-71 (ESTEP 2008). SOUTH SITE MAPPED TO VICINITY OF TERRITORY #SA087 FROM CDFW SWHA DATABASE & SITE YO-57 FROM ESTEP, 2008 (W SIDE RIVER
35	Buteo swainsoni	MAPPED TO COORDINATES PROVIDED ON FIELD SURVEY FORMS, IN CDFW NEST RECORDS FROM 2000-2004, AND FOR SITE YO-75 FROM 2008 ESTEP REPORT
36	Buteo swainsoni	TERRITORIES #SA016 (PART - SEE ALSO EO#287) AND #YO225 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE. MAPPED TO INCLUDE GIVEN RM (60.9 R) AND TO COORDINATES FOR SITE YO-103 FROM ESTEP'S 2008 REPORT
37	Buteo swainsoni	VICINITY OF TERRITORY #SA032 FROM CDFW SWHA DATABASE (AT RM63.6), E SIDE OF RIVER; TERRITORY "SA" (AT RM 63.3), WEST SIDE OF RIVER; MAPPED TO SITE YO-77 FROM ESTEP'S 2008 REPORT
38	Buteo swainsoni	MAPPED TO COORDINATES FROM 2001 FIELD SURVEY FORM AND FROM CDFW NEST RECORDS, 2000-2004
39	Buteo swainsoni	TERRITORY #SA051 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE (FLYOVER DETECTION IN 1985 ATTRIBUTED TO TERRITORY "SA" IN DATABASE)
40	Buteo swainsoni	TERRITORY #YO043 FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE. MAPPED TO PROVIDED MAP AND COORDINATES.
41	Buteo swainsoni	
42	Buteo swainsoni	VICINITY OF TERRITORY "SA" (NO # ASSIGNED, AT RM-68L) FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE. MAPPED TO COORDINATES GIVEN ON FIELD SURVEY FORM FROM 1999
43	Buteo swainsoni	SITE IS LOCATED WEST OF THE BIKE TRAIL, ~70 METERS SW OF THE END OF GATEWAY OAKS BLVD. TERRITORY "SA" (NO # ASSIGNED) FROM CDFW SWAINSON'S HAWK OBSERVATIONS DATABASE
44	Buteo swainsoni	
45	Buteo swainsoni	NEST SITE WAS LOCATED WITHIN A 23-MILE EXPANSE OF RIPARIAN PROTECTED BY THE AMERICAN RIVER PARKWAY. ~15 ACRES OF GRASSLAND FORAISING HABITAT IN THE VICINITY TO BE RESTORED TO RIPARIAN FOREST TO MITIGATE FOR VALLEY ELDERBERR
46	Buteo swainsoni	NEST TREE WAS LOCATED ~500' NORTH OF PUMP STATION 18 AT THE GARDEN HIGHWAY/NATOMAS MAIN DRAINAGE CANAL JUNCTION
47	Buteo swainsoni	MAPPED TO ADDRESS GIVEN ON FIELD SURVEY FORM. NEST TREE IS IN FRONT YARD OF RESIDENCE
48	Buteo swainsoni	MAPPED TO COORDINATES PROVIDED ON FIELD SURVEY FORMS.
49	Buteo swainsoni	MAPPED TO LOCATION MARKED ON GOOGLE EARTH MAP.
50	Buteo swainsoni	
51	Buteo swainsoni	MAPPED TO COORDINATES GIVEN FOR 2007 NEST, SITE YO-59 FROM ESTEP'S 2008 REPORT. 2008 AND 2010 NEST IN SAME LOCATION. NEST TREE WAS 400 FEET SOUTHEAST OF THE INTERSECTION OF BALLPARK DRIVE, 3RD STREET, & SOUTH RIVER ROAD IN W
52	Buteo swainsoni	VICINITY OF TERRITORIES #YO202/SA087; NUMBER OF CONCURRENTLY ACTIVE NESTS UNCLEAR DUE TO MULTIPLE OBSERVERS IN 1990-1991. MAPPED TO COORDINATES GIVEN FOR CDFW NEST RECORD FROM 2008
53	Buteo swainsoni	MAPPED TO COORDINATES GIVEN FOR SITE YO-68 FROM ESTEP'S 2008 REPORT.
54	Buteo swainsoni	MAPPED TO COORDINATES GIVEN FOR SITE YO-69 FROM ESTEP'S 2008 REPORT.
55	Buteo swainsoni	MAPPED TO COORDINATES GIVEN FOR SITE YO-39 FROM ESTEP'S 2008 REPORT.
56	Buteo swainsoni	MAPPED TO COORDINATES PROVIDED FOR SITE YO-31 FROM ESTEP'S 2008 REPORT.
57	Buteo swainsoni	NEST TREE IS LOCATED ADJACENT TO THE ENTRANCE #095K AT THE PORT OF SACRAMENTO. SITE YO-36 FROM ESTEP'S 2008 REPORT.
58	Buteo swainsoni	ALONG RIPARIAN STRIP (STEELHEAD CREEK/NATOMAS EAST MAIN DRAINAGE CANAL) BETWEEN GARDEN HWY AND AMERICAN RIVER PARKWAY BIKE PATH (JEDEDIAH SMITH MEMORIAL TRAIL). MAPPED TO PROVIDED COORDINATES
59	Buteo swainsoni	
60	Buteo swainsoni	
61	Buteo swainsoni	MAPPED TO COORDINATES GIVEN FOR SITE YO-102 FROM ESTEP'S 2008 REPORT
62	Cicindela hirticollis abrupta	EXACT LOCATION UNKNOWN; COLLECTED FROM "SACRAMENTO" (1918, 1950, 1955) AND "SACRAMENTO WEST" (1944). COLLECTION SITES MAY HAVE BEEN NEAR THE CONFLUENCE OF THE SACRAMENTO AND AMERICAN RIVERS
63	Desmocerus californicus dimorphus	

ID	SNAME	LOCDETAILS
64	Desmocerus californicus dimorphus	
65	Desmocerus californicus dimorphus	
66	Desmocerus californicus dimorphus	
67	Desmocerus californicus dimorphus	10 ACRE PARCEL, REFERRED TO AS THE NORTHGATE TRIANGLE.
68	Desmocerus californicus dimorphus	ADULTS OBSERVED ON "STRESSED" ELDERBERRIES IN RIPARIAN VEGETATION ALONG THE AMERICAN RIVER
69	Desmocerus californicus dimorphus	
70	Desmocerus californicus dimorphus	ADULTS OBSERVED BY ARNOLD ON "STRESSED" ELDERBERRIES IN RIPARIAN VEGETATION ALONG THE AMERICAN RIVER
71	Desmocerus californicus dimorphus	
72	Desmocerus californicus dimorphus	SACRAMENTO ZONE - JOHNSON INDUSTRIAL PARK CRITICAL HABITAT.
73	Desmocerus californicus dimorphus	ELDERBERRY BUSH WAS GROWING IMMEDIATELY ADJACENT TO A PERMANENT ACCESS ROAD FOR THE RAILROAD AND SRCSD PIPELINE, BETWEEN THE ACCESS ROAD AND THE RAILROAD TRACKS, AND 20' FROM THE RD-900 CANAL.
74	Elanus leucurus	UNKNOWN WHERE WITHIN THE PARADISE BEACH AREA THE BIRDS WERE NESTING SO THE ENTIRE AREA IS MAPPED
75	Elanus leucurus	NEST LOCATED IN COTTONWOOD.
76	Elanus leucurus	
77	Elanus leucurus	
78	Elanus leucurus	NEST TREE ABOUT 300 FEET SOUTH OF THE PAVED BIKE TRAIL, MAPPED TO PROVIDED COORDINATES AND MAP
79	Elderberry Savanna	BOUNDARY GENERALIZED FROM MANAGEMENT PLAN TO INCLUDE MOST ELDERBERRY BUSHES IN THIS PORTION OF CAL EXPO
80	Elderberry Savanna	BOUNDARY GENERALIZED FROM MANAGEMENT PLAN TO INCLUDE MOST ELDERBERRY BUSHES IN THIS PORTION OF CAL EXPO
81	Elderberry Savanna	SCATTERED ELDERBERRY AND VALLEY OAKS WITHIN THE FLOODPLAIN.
82	Great Valley Cottonwood Riparian Forest	
83	Hibiscus lasiocarpos var. occidentalis	1/2 MILE NORTH OF SWALLOWS NEST GOLF COURSE IN DRAINAGE DITCH NEXT TO THE ON-RAMP
84	Lasiurus cinereus	MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY MANIS, WITH UNCERTAINTY OF 247S.1/11M.
85	Linderiella occidentalis	
86	Oncorhynchus tshawytscha	MAPPED TO PROVIDED COORDINATES AND LOCATION DESCRIPTION.
87	Oncorhynchus tshawytscha	MAPPED TO PROVIDED COORDINATES.
88	Pogonichthys macrolepidotus	IN THE SACRAMENTO RIVER FROM RIVER MILE 38 SOUTH OF COURTLAND TO RIVER MILE 97 NORTH OF KNIGHTS LANDING, AND THE LOWER 10 MILES OF THE FEATHER RIVER
89	Progne subis	BROADWAY SITE.
90	Progne subis	35TH STREET SITE.
91	Progne subis	
92	Progne subis	BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY & STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DR
93	Progne subis	NEW SITE IN 2003; HIGH NUMBER OF SECOND YEAR MALES OBSERVED, WHICH IS CONSISTENT WITH TYPICAL PIONEERING BEHAVIOR OF SECOND YEAR BIRDS
94	Progne subis	
95	Progne subis	
96	Progne subis	SITE FIRST DOCUMENTED IN 2003 BUT ASSUMED TO HAVE BEEN OCCUPIED IN PRIOR YEARS BASED ON THE PRESENCE OF OVER 90% OF PAIRS WITH ASY MALES
97	Progne subis	BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY & STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DR
98	Riparia riparia	
99	Sagittaria sanfordii	NEXT TO AMERICAN RIVER BIKE TRAIL, FROM SPRR TRACKS WEST APPROX. 1 KM (0.7 MI).
100	Sagittaria sanfordii	2 POPULATIONS; ARCADE CRK POPULATION RUNS FROM THE NORWOOD AVE BRIDGE WEST TO THE RAILROAD CROSSING AT THE DRAINAGE CANAL; SECOND POPULATION IN A SHALLOW DITCH LOCATED ON VACANT PARCEL SW OF THE INTERSECTION OF NOI
101	Sagittaria sanfordii	ADJACENT TO AIRPORT PARKING LOT AND ROAD.
102	Sagittaria sanfordii	
103	Sagittaria sanfordii	SOUTH OF STADIUM, BETWEEN ROAD AND PARKING LOT APPROXIMATELY 100' EAST OF CULVERT
104	Sagittaria sanfordii	BETWEEN THE RIVER AND LEVEE, BEHIND AN APARTMENT COMPLEX AND NEAR THE WATER TREATMENT PLANT
105	Taxidea taxus	NMNH STATED LOCATION WAS "POLK, SACRAMENTO COUNTY."
106	Thamnophis gigas	
107	Thamnophis gigas	
108	Thamnophis gigas	
109	Thamnophis gigas	
110	Thamnophis gigas	
111	Thamnophis gigas	
112	Thamnophis gigas	
113	Thamnophis gigas	
114	Thamnophis gigas	
115	Thamnophis gigas	
116	Thamnophis gigas	
117	Thamnophis gigas	
118	Thamnophis gigas	
119	Thamnophis gigas	
120	Thamnophis gigas	1992: SNAKES OBSERVED NEAR A RESIDENCE ON DEL PASO RD IN WEEDS NEXT TO FENCELINE & IN A DITCH. JUNE 1993! SNAKES OBSERVED ON A STEEP BANK ALONG DEL PASO RD.
121	Thamnophis gigas	
122	Thamnophis gigas	
123	Thamnophis gigas	

ID	SNAME	ECOLOGICAL
1	Accipiter cooperii	2007: NEST TREE WAS A LARGE ELM (NEST LOCATED ~3/4 OF THE WAY UP THE TREE) ON A BUSY STREET CORNER; 2008: NEST TREE IS A LARGE MAGNOLIA
2	Accipiter cooperii	NEST TREE IS A VALLEY OAK; NEST IS 1/3 OF THE WAY DOWN FROM THE CANOPY TOP. HABITAT CONSISTS OF VALLEY OAK/COTTONWOOD RIPARIAN, INCLUDING AN UNDERSTORY OF GRAPES, WILLOWS, BUTTONWILLOW, AND BLACKBERRY; SURROUNDED BY
3	Agelaius tricolor	NESTING IN MUSTARD AND THISTLE.
4	Ardea herodias	HABITAT DESCRIBED AS DISCONTINUOUS PORTIONS OF RIPARIAN HABITAT ALONG RIVER CONTAINING POPULUS FREMONTII, SALIX EXIGUA, S. GOODDINGII, S. LUCIDA LASIANDRA, CEPHALANTHUS OCCIDENTALIS, & SAMBUCUS MEXICANA. INLAND SITE WITH
5	Ardea herodias	NEST TREE IS AN ISOLATED VALLEY OAK AND SNAG, SURROUNDED BY A MANAGED FLOODPLAIN WITH CATTLE GRAZING; LIGHT INDUSTRIAL TO THE SOUTH AND NEMDC TO THE WEST
6	Astragalus tener var. tenerius	
7	Athene cunicularia	
8	Athene cunicularia	OF THE 16 BURROWS OBSERVED IN THE AREA IN 1974, 2 BURROWS WERE DESTROYED & 1 BURROW ABANDONED DURING CONSTRUCTION OF PARKING LOT, 1 FEMALE DIED; 1 OWL KILLED BY MOTORCYCLISTS WHO DELIBERATELY DESTROYED A BURROW WI
9	Athene cunicularia	OWLS ARE USING GROUND SQUIRREL BURROWS SURROUNDED BY NON-NATIVE GRASSLAND TO THE EAST AND (IN 1991) FALLOW AGRICULTURAL FIELDS TO THE WEST
10	Athene cunicularia	THE 2006 BURROW SITE IS LOCATED ON BANK FILL, ON ~30% SLOPE; DOMINANT PLANTS INCLUDE HORDEUM MURINUM SSP LEPORINUM, GERANIUM DISSECTUM, AVENA FATUA, AND VULPIA MYUROS. SOILS ARE NON-NATIVE, AS EVIDENCE OF PAST DISTURE
11	Athene cunicularia	MAN-MADE LEVEES ALONG A CANAL, WITH HOUSES AND BUSINESSES IMMEDIATELY ADJACENT TO THE CANAL ON BOTH SIDES. THE AREA IS REGULARLY USED BY FISHERMEN, JOGGERS AND PEOPLE WALKING THEIR DOGS
12	Athene cunicularia	OF THE 16 BURROWS OBSERVED IN THE AREA IN 1974, 2 BURROWS WERE DESTROYED & 1 BURROW ABANDONED DURING CONSTRUCTION OF PARKING LOT, 1 FEMALE DIED; 1 OWL KILLED BY MOTORCYCLISTS WHO DELIBERATELY DESTROYED A BURROW WI
13	Athene cunicularia	THE SITE IS NOW COMPLETELY DEVELOPED WITH OFFICE BUILDINGS, LANDSCAPING AND MANICURED LAWNS. THERE IS NO REMAINING HABITAT FOR BURROWING OWLS
14	Athene cunicularia	TILLED EARTH WITH WEEDS. MAN-MADE HOLES FOR UTILITY CABLES USED AS BURROWS. SEVERAL JACKRABBITS BUT NO GROUND SQUIRRELS OBSERVED. SURROUNDING FIELDS APPEARED DISCED; OWLS MAY EVENTUALLY BE EXTIRPATED HERE (2012). FUTUF
15	Athene cunicularia	2006: HABITAT SURROUNDING BURROW SITE CONSISTS OF ANNUAL GRASSLAND.
16	Athene cunicularia	ADJACENT TO HEAVILY USED HIGHWAY ONRAMP.
17	Athene cunicularia	HABITAT CONSISTS OF A MANMADE LEVEE FOR THE DRAINAGE CANAL; SURROUNDED BY ENCROACHING DEVELOPMENT
18	Athene cunicularia	HABITAT CONSISTS OF A GRASSY KNOLL CONTAINING BURROWS CONSTRUCTED BY GROUND SQUIRRELS THAT ARE BEING USED BY BUOWS FOR NESTING
19	Athene cunicularia	BURROW LOCATED ON NORTH FACE OF A DIRT SPOILS PILE. VEGETATION SURROUNDING BURROW IS PRIMARILY DISKED RUDERAL LAND.
20	Athene cunicularia	HABITAT CONSISTS OF FIELD WITH AVENA FATUA, LOLIUM MULTIFLORUM AND YELLOW STAR THISTLE. FREQUENTLY MOWED FIELD. SUBSTRATE: SAN JOAQUIN SILT LOAM, 0% SLOPE. SURROUNDING LAND CONSISTS OF AN AIRPORT
21	Brandtinectia lynchi	LONG POOL (14 FEET WIDE AND 275 FEET LONG; DEPTH=0.15M) IN TIRE RUTS FROM VEHICLES; TEMP=16.5 DEGREES CELSIUS, VERY TURBID WATER; INUNDATED AREA DEVOID OF VEGETATION; SOIL IS SANDY CLAY LOAM; SITE HAS 0% SLOPE AND A FLAT ASPE
22	Buteo swainsoni	NESTS WERE IN COTTONWOODS IN RIPARIAN STRIP; ADJACENT GRASSLAND OVER CAPPED LANDFILL USED FOR FORAGING
23	Buteo swainsoni	RIVERSIDE NESTS MOSTLY IN COTTONWOODS (USED OAK IN 1990) IN DENSE RIPARIAN STRIP; NEAR RESIDENCES. SURROUNDED BY AGRICULTURE (SUGAR BEETS, WHEAT, TOMATOES IN 1990). EAST NEST IN 1992 WAS IN A GROUP OF OAKS SURROUNDED BY A
24	Buteo swainsoni	1992: SUSPECTED NEST IN RIPARIAN VEGETATION WITH GRASS FIELDS.
25	Buteo swainsoni	1) NESTS IN LONE OAKS. 2) NEST IN SMALL OAK ABOUT 1200' BACK FROM RIVER, SURROUNDED BY FALLOW FIELDS. 3) NEST IN MEDIUM-SIZED WALNUT TREE; SURROUNDED BY FALLOW FIELDS, ROW CROPS, & WHEAT FIELDS. AERIALS SHOW DEVELOPMENT C
26	Buteo swainsoni	NEST TREE WAS A COTTONWOOD, LOCATED ALONG A SMALL DRAINAGE CANAL.
27	Buteo swainsoni	1990 NEST TREE WAS A MEDIUM-SIZED COTTONWOOD; SURROUNDING FORAGING HABITAT CONSISTED OF FALLOW FIELDS AND ROW CROPS, THOUGH THE IMMEDIATE AREA APPEARS TO BE INDUSTRIAL
28	Buteo swainsoni	MULTIPLE NEST SITES, PRIMARILY IN LARGE COTTONWOODS (& 1 VALLEY OAK IN 2003); WITHIN WELL-DEVELOPED RIPARIAN HABITAT AROUND THE CANALS & RAILROAD TRACKS. ADJACENT TO YOLO BYPASS FLOOD-CONTROL FACILITY, URBAN DEVELOPMENT
29	Buteo swainsoni	NEST TREES WERE LARGE COTTONWOODS SURROUNDING HABITAT CONSISTS OF A WELL-DEVELOPED WETLAND CORRIDOR, ADJACENT TO A FLOOD CONTROL FACILITY, AND FURTHER SURROUNDED BY AGRICULTURE AND NON-NATIVE GRASSLAND.
30	Buteo swainsoni	2003 NEST WAS IN A 65' COTTONWOOD SURROUNDED BY CROPLAND WITH RESIDENTIAL LAND USE TO THE SOUTHWEST. 2007 SUSPECTED NEST WITHIN TREE ROW; NEST LOCATION NEVER CONFIRMED. SURROUNDED BY ALFALFA AND IRRIGATED CROPLAND.
31	Buteo swainsoni	NEST TREES WERE COTTONWOODS. 1991 NEST IN A MEDIUM-SIZED COTTONWOOD, 40 FEET FROM THE RIVER; SURROUNDING FORAGING HABITAT CONSISTED OF GRASSY, WEEDY FIELDS (NO CROPS).
32	Buteo swainsoni	1990/1991 NEST TREE WAS A TALL COTTONWOOD 20' FROM THE RIVER'S EDGE. IN RIPARIAN HABITAT SURROUNDED BY AGRICULTURAL FIELDS (BEETS/CORN/ORCHARDS IN 1990, CORN/FALLOW IN 1991.
33	Buteo swainsoni	NEST TREES WERE COTTONWOODS IN DENSE COTTONWOOD-DOMINATED RIPARIAN STRIP ALONG RIVERBANK. NEAREST FORAGING HABITAT CONSISTED OF WHEAT FIELDS AND FALLOW FIELDS ON THE WEST SIDE OF THE RIVER.
34	Buteo swainsoni	NEST TREES USED IN 2007 WERE RIPARIAN COTTONWOODS WITH NEARBY ALFALFA/IRRIGATED CROPS.
35	Buteo swainsoni	NESTS WERE IN LARGE COTTONWOODS ON THE INSIDE LEVEE SLOPE OF THE SACRAMENTO BYPASS; SURROUNDED BY UNDISTURBED GRASSLAND/SEASONAL WETLAND IN THE BYPASS, DIP FACILITY TO THE SOUTH, AND AGRICULTURE TO THE NORTH.
36	Buteo swainsoni	1986 NEST WAS IN RIPARIAN COTTONWOOD, SURROUNDED BY AGRICULTURE AND DEVELOPED LAND. 2007 NEST IN COTTONWOOD SURROUNDED BY IRRIGATED CROPS AND RICE. AERIAL PHOTOS SHOW CONTINUED RESIDENTIAL DEVELOPMENT SINCE 199
37	Buteo swainsoni	1983, 1991 NESTS IN COTTONWOODS, SURROUNDED BY TOMATO FIELDS IN '91. E SIDE: NESTS IN COTTONWOODS; SURROUNDED BY FALLOW/RUDERAL TO THE SW, ROW CROPS TO NW & E (2000). W SIDE: 2007 NEST IN ROADSIDE VALLEY OAK SURROUNDED
38	Buteo swainsoni	2000/2001 NEST TREE WAS A COTTONWOOD NEAR THE REMAINS OF AN OLD HOMESTEAD. 2004 NEST TREE WAS A (DEAD) VALLEY OAK; SURROUNDED BY COMMERCIAL/HIGHWAY TO THE NW AND RESIDENTIAL TO THE NE, SE, AND SW.
39	Buteo swainsoni	IN 1985 SURROUNDING HABITAT WAS RIPARIAN, AGRICULTURE, AND ORCHARDS. AERIAL PHOTOS SHOW THAT SINCE 1998, RESIDENTIAL DEVELOPMENT HAS ELIMINATED ADJACENT FORAGING HABITAT EAST OF I-80.
40	Buteo swainsoni	NEST TREE IS A MEDIUM-SIZED COTTONWOOD, LOCATED 30 FEET FROM THE RIVER; SURROUNDING FORAGING HABITAT CONSISTED OF GRASSY/WEEDY FIELDS.
41	Buteo swainsoni	NEST TREE IS A WILLOW, WITH THE NEST ABOUT 30-FEET HIGH.
42	Buteo swainsoni	HABITAT CONSISTED OF A RIPARIAN CORRIDOR ALONG THE SACRAMENTO RIVER (1999).
43	Buteo swainsoni	1994 NEST TREE WAS A WILLOW GROWING ON THE EAST EDGE OF THE MAIN DRAIN. 2000 NEST TREE WAS A BLACK WALNUT; NEST WAS OVERGROWN BY GRAPEVINES AND WAS BARELY VISIBLE.
44	Buteo swainsoni	NEST TREE UNKNOWN; SURROUNDING FORAGING HABITAT CONSISTS OF A SMALL PLOT OF NON-NATIVE GRASSLAND ADJACENT TO INDUSTRIAL CENTERS.
45	Buteo swainsoni	NEST TREE WAS A FREMONT COTTONWOOD WITHIN A LARGE STAND OF COTTONWOODS NEAR THE LOWER AMERICAN RIVER (RIGHT BANK).
46	Buteo swainsoni	NEST TREE WAS A LARGE SYCAMORE, ADJACENT TO A TREE CLUMP; SURROUNDED BY RIPARIAN SYCAMORES AND OAKS.
47	Buteo swainsoni	NEST WAS AT THE TOP OF A COTTONWOOD TREE ADJACENT TO A BUSY, NOISY STREET.
48	Buteo swainsoni	2006-2012 NEST IN 60' REDWOOD (GIANT SEQUOIA). NEST TREE IN CITY PARK 1 SQUARE BLOCK IN SIZE, PLANTED WITH NATIVE & NON-NATIVE TREES, SURROUNDING HABITAT URBAN, WITH HIGH DENSITY OF NON-NATIVE TREES. SOME FORAGING HABITAT W
49	Buteo swainsoni	NEST TREE WAS A TALL COTTONWOOD UNDER POWERLINE TOWERS.
50	Buteo swainsoni	NEST TREE IS A COTTONWOOD, LOCATED WITHIN AN AGRICULTURAL WINDBREAK OF COTTONWOODS AND SNAGS.
51	Buteo swainsoni	NEST IN RIPARIAN COTTONWOOD IN URBAN SURROUNDINGS; DISTURBANCE FROM TRANSIENT CAMPSITES UNDER NEST, BASEBALL EVENT PARKING. UNKNOWN WHERE THESE BIRDS MIGHT FORAGE; IT SEEMS THE NEAREST FORAGING HABITAT IS OVER 3 MI
52	Buteo swainsoni	1990 & 1991 NEST TREE WAS A TALL COTTONWOOD; SURROUNDING FORAGING HABITAT CONSISTED OF ROW CROPS.
53	Buteo swainsoni	NEST IN LONE VALLEY OAK SURROUNDED BY ALFALFA AND IRRIGATED CROPLAND.
54	Buteo swainsoni	NEST IN LONE VALLEY OAK SURROUNDED BY ALFALFA AND IRRIGATED CROPLAND.
55	Buteo swainsoni	NEST IN WILLOW IN CHANNELIZED RIPARIAN HABITAT, SURROUNDED BY URBAN LAND USE, WITH NEARBY ALFALFA AND IRRIGATED CROPLAND.
56	Buteo swainsoni	NEST IN WILLOW IN CHANNELIZED RIPARIAN HABITAT.
57	Buteo swainsoni	NEST TREE IS A PINE; SURROUNDED BY AN ACTIVE INDUSTRIAL PORT AND DEEP WATER CHANNEL. BIRDS LIKELY FORAGE IN THE YOLO BYPASS.
58	Buteo swainsoni	NEST IN COTTONWOOD OVER WATER. HABITAT DESCRIBED AS COTTONWOOD RIPARIAN, RIVERINE, GRASSLAND, HIGHWAY, RESIDENTIAL. OTHER BIRDS DETECTED NEARBY INCLUDED NORTHERN HARRIER, WHITE-TAILED KITE, AMERICAN KESTREL, GREAT EGR
59	Buteo swainsoni	NEST TREE IS A LARGE OAK; SURROUNDING FORAGING HABITAT CONSISTS OF NON-NATIVE GRASSLAND.
60	Buteo swainsoni	NEST TREE WAS A COTTONWOOD, LOCATED WITHIN RIPARIAN ALONG THE NATOMAS EAST MAIN DRAIN; SURROUNDED BY AN URBAN AREA ADJACENT TO THE GARDEN HIGHWAY TO THE NORTH AND A RECREATIONAL AREA ALONG THE JEDIDIAH SMITH BIKE
61	Buteo swainsoni	2007 NEST IN RIPARIAN COTTONWOOD.
62	Cicindela hirticollis abrupta	LITTLE SUITABLE HABITAT REMAINS, AND THE POTENTIAL HABITAT THAT REMAINS, SANDY BEACHES NEAR DISCOVERY PARK, ARE HIGHLY IMPACTED BY RECREATION.
63	Desmocerus californicus dimorphus	HABITAT IS A NEARLY-PURE ELDERBERRY STAND LOCATED ALONG THE RAILROAD TRACKS. WITH A HIGH DENSITY (50%) OF EXIT HOLES.

ID	SNAME	ECOLOGICAL
64	Desmocerus californicus dimorphus	HABITAT CONSISTS OF ELDERBERRY AND SAVANNAH/ELDERBERRY TREES IN A COTTONWOOD RIPARIAN WOODLAND
65	Desmocerus californicus dimorphus	HABITAT CONSISTS OF ELDERBERRY SAVANNAH AND ELDERBERRY TREES IN A COTTONWOOD RIPARIAN WOODLAND
66	Desmocerus californicus dimorphus	HABITAT CONSISTS OF ELDERBERRY SAVANNAH AND ELDERBERRY TREES IN A COTTONWOOD RIPARIAN WOODLAND
67	Desmocerus californicus dimorphus	MOST BEETLES FOUND ON "STRESSED" ELDERBERRIES
68	Desmocerus californicus dimorphus	
69	Desmocerus californicus dimorphus	LARVAE ARE ELDERBERRY STEM BORERS AND ADULTS FEED ON ELDERBERRY FOLIAGE
70	Desmocerus californicus dimorphus	
71	Desmocerus californicus dimorphus	HABITAT IS A NARROW RIPARIAN BAND.
72	Desmocerus californicus dimorphus	LARVAE ARE BORERS; ADULTS FEED ON FOLIAGE.
73	Desmocerus californicus dimorphus	HABITAT CONSISTS OF A SINGLE ELDERBERRY BUSH GROWING WITH WILLOWS AND HIMILAYAN BLACKBERRY.
74	Elanus leucurus	
75	Elanus leucurus	RIPARIAN HABITAT MAINLY OF FREMONT COTTONWOOD AND WILLOW (SALIX SPP.) THICKCETS WHICH LINE RIVER BANKS.
76	Elanus leucurus	NEST TREE IS AN ORNAMENTAL TREE ON A VACANT LOT ; SURROUNDED BY RESIDENTIAL TO THE NORTH, NEMDC TO THE EAST, AND VACANT LAND TO THE SOUTH AND WEST
77	Elanus leucurus	NEST TREE IS A VALLEY OAK SURROUNDED BY OPEN, NON-NATIVE GRASSLAND HABITAT
78	Elanus leucurus	NEST WAS IN A DECIDUOUS OAK TREE AND WELL CONCEALED WHILE THE TREE HAD FOLIAGE. THE SITE WAS LOCATED IN AN OPEN GRASSLAND AREA (CNDDB ELDERBERRY SAVANNA OCC #2). ABOUT 17 ACRES N OF PAVED TRAIL IS BEING RESTORED WITH NAT
79	Elderberry Savanna	SAMBUCUS MEXICANA, CENTAUREA SOLSTITIALIS, ELYMUS TRITICOIDES, BROMUS DIANDRUS, FOENICULUM VULGARE.
80	Elderberry Savanna	SAMBUCUS MEXICANA, CENTAUREA SOLSTITIALIS, ELYMUS TRITICOIDES, BROMUS DIANDRUS, FOENICULUM VULGARE.
81	Elderberry Savanna	DOMINANTS ARE SAMBUCUS SP., AND QUERCUS LOBATA. NEIGHBORING COMMUNITIES ARE GREAT VALLEY COTTONWOOD RIPARIAN FOREST, ANNUAL GRASSLAND/RUDERAL FORBS
82	Great Valley Cottonwood Riparian Forest	MOSTLY MATURE FOREST OF POPULUS FREMONTII, FRAXINUS LATIFOLIA, SALIX SPP & QUERCUS LOBATA IN STRIP RANGING FROM <100 FT TO >200 FT WIDE. PARTS HIGHLY DISTURBED, OTHERS FAIRLY INTACT
83	Hibiscus lasiocarpos var. occidentalis	DRY DRAINAGE DITCH WITH MANY WEEDY TAXA. ECHINOCHLOA CRUS-GALLII, SORGHUM HALAPENSE, PICRIS ECHIOIDES, CONVOLVULUS ARVENSIS, AND RUMEX CRISPUS. HELIOTROPIUM CURASSAVICUM AND SILYBUM MARIANUM NEARBY
84	Lasiurus cinereus	
85	Linderiella occidentalis	
86	Oncorhynchus tshawytscha	MAN MADE CHANNEL FOR CARGO SHIPS. LOCKS NO LONGER IN USE. RIVER BANKS VARY FROM RIPRAP TO VERTICAL CEMENT WALLS
87	Oncorhynchus tshawytscha	MAN MADE CHANNEL FOR CARGO SHIPS. LOCKS NO LONGER IN USE. RIVER BANKS VARY FROM RIPRAP TO VERTICAL CEMENT WALLS
88	Pogonichthys macrolepidotus	MODERATE CURRENT & SANDY BOTTOM. RIVERBANKS VARIABLE, WATER TEMP AVERAGES LOW 60'S F. MOST FISH TAKEN FROM THE END OF DECEMBER TO THE END OF MAY
89	Progne subis	BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY & STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DR
90	Progne subis	BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY & STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DR
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92	Progne subis	
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97	Progne subis	NEW BREEDING LOCATION IN 2003; HIGH NUMBER OF SECOND YEAR MALES OBSERVED, WHICH IS CONSISTENT WITH TYPICAL PIONEERING BEHAVIOR OF SECOND YEAR BIRDS
98	Riparia riparia	42 BURROWS WITHIN A 200 FT SECTION OF BANK, ABOUT 25 BURROWS WERE WITHIN A 30 FT SECTION. THE SITE WAS RIPRAPPED BEFORE WINTER OF 198?
99	Sagittaria sanfordii	SLOUGHS WITH MUDDY SHORES, ASSOCIATES INCLUDE PASPALUM, SETARIA, SALIX, AND TYPHA, MOSTLY GROWING OFFSHORE IN APPROX. 6" OF WATER WITH NO SURROUNDING VEGETATION
100	Sagittaria sanfordii	NW POLYGON: SHALLOW EDGES OF CREEK, ASSOCIATED WITH LUDWIGIA SP., SCIRPUS SP., AND TYPHA SP. SE POLYGON: WITHIN A SHALLOW DITCH, NO OTHER PLANTS OBSERVED IN DITCH
101	Sagittaria sanfordii	FRESHWATER MARSH. ALISMA PLANTAGO-AQUATICUM COMMON.
102	Sagittaria sanfordii	
103	Sagittaria sanfordii	GRASSY DRAINAGE CHANNEL DOMINATED BY ECHINOCHLOA CRUS-GALLI WITH CYPERUS AND POLYGONUM.
104	Sagittaria sanfordii	GROWING IN A LOW, PERENNIAL WET, DEPRESSION. LUDWIGIA PEPLOIDES IS MAJOR ASSOCIATE.
105	Taxidea taxus	
106	Thamnophis gigas	DRAINAGE CANAL
107	Thamnophis gigas	DRAINAGE CANAL
108	Thamnophis gigas	
109	Thamnophis gigas	DRAINAGE CANALS
110	Thamnophis gigas	1986: CANALS 10 FT WIDE WITH STEEP BANKS. BANKS SUPPORT CATTAILS, TULES, BLACKBERRIES & GRASSES
111	Thamnophis gigas	DRAINAGE CANAL
112	Thamnophis gigas	HABITAT CONSISTS OF AGRICULTURAL/ROADSIDE DRAINS ; DRAINS HAVE GRASSY BANKS AND TULE/CATTAIL STANDS ALONG THE WATER MARGIN. SURROUNDING LAND USE IS RICE/WHEAT AGRICULTURE
113	Thamnophis gigas	INTERSECTION OF 2 ELEVATED IRRIG CANALS, W/8+ FT LEVEES. LEVEE BANKS SUPPORT LUSH STANDS OF MILK THISTLE, MUSTARD, BLACKBERRY; CANAL BANKS LINED W/TULES & CATTAILS ALONG POWERLINE RD. E-W LEG OF CANAL IS 10-15 FT WIDE, FLUME,
114	Thamnophis gigas	1986: E-W CANAL WITH STEEP CUT BANKS LINED WITH TULE & CATTAIL. PARALLELS N SIDE OF ABANDONED ROADWAY N OF ELKHORN BLVD. SMALLER DITCH BETWEEN 2 PAVED RDS SUPPORTS THICK STAND OF TULE/CATTAIL. GOOD HABITAT ALL YEAR
115	Thamnophis gigas	SMALL ROADSIDE DRAINAGE DITCH PARALLELING N EDGE OF ROAD. IN 1986, STEEP BANKS WITH GRASSES & CATTAIL/TULE AT WATER MARGIN. NORTH BANK IS AN ELEVATED BERM WITH SOME WILLOW & BLACKBERRY. 2009 AERIAL PHOTOS SHOW THIS ARE
116	Thamnophis gigas	
117	Thamnophis gigas	
118	Thamnophis gigas	DRAINAGE CANALS
119	Thamnophis gigas	1986: INTERSECTION OF SEVERAL DRAINAGE & IRRIGATION CANALS & DITCHES. GOOD VARIETY OF HABITATS FORMS WIDE E-W DISPERSAL CORRIDOR LINKING TWO N-S CANALS. GOOD YEAR-ROUND HABITATS FOR RESIDENT SNAKES
120	Thamnophis gigas	FISHERMAN'S LAKE IS A WIDE, SHALLOW PONDED PORTION OF WEST DRAINAGE CANAL, WHICH SUPPORTS TULE/CATTAIL MARSH & RIPARIAN WOODLAND OF COTTONWOOD, WILLOW, POISON OAK & BLACKBERRY. ADJACENT AGRICULTURE IS RICE
121	Thamnophis gigas	2009 AERIAL PHOTOS SHOW THAT THIS AREA HAS BEEN DEVELOPED
122	Thamnophis gigas	1986: SMALL (10-15 FT WIDE) E-W DITCH WITH THICKETS OF WILLOW, COTTONWOOD, BLACKBERRY & TULE/CATTAIL MARGINS. LARGER (30 FT WIDE) EAST DRAINAGE CANAL HAS 4 FT STEEP VERT LEVEES WHICH HAVE BEEN CLEARED OF VEG EXCEPT RIGHT AT
123	Thamnophis gigas	1986: 30 FT WIDE SLOW-MOVING E DRAINAGE CANAL W/STEEP BANKS & CATTAIL/TULE AT WATER EDGE; BLACKBERRIES, MILK THISTLE, MUSTARD, STAR THISTLE ON BANKS. SMALLER DITCH IS SIMILAR W/A FEW COTTONWOODS & WILLOWS WHICH SURVIVE

ID	SNAME	THREAT
1	Accipiter cooperii	THREATENED BY TREE TRIMMING AND NEST TREE REMOVAL DUE TO DUTCH ELM DISEASE
2	Accipiter cooperii	MAIN THREAT IS HUMAN DISTURBANCE FROM TRANSIENTS/HOMELESS PEOPLE THAT USE THE AREA
3	Agelaius tricolor	
4	Ardea herodias	THREATENED BY GRAVEL MINING, AND POSSIBLE LAND CONVERSION.
5	Ardea herodias	
6	Astragalus tener var. ferrisiae	
7	Athene cunicularia	
8	Athene cunicularia	THREATENED BY CONSTRUCTION AND MOTORCYCLISTS.
9	Athene cunicularia	FALLOW FIELDS TO THE WEST HAVE BEEN DEVELOPED (RESIDENTIAL DEVELOPMENT
10	Athene cunicularia	THREATENED BY HUMAN DISTURBANCE, NON-NATIVE PREDATORS, PESTICIDES, WATER POLLUTION, & CONSTRUCTION BY SRCSD (2007)
11	Athene cunicularia	BURROW FOUND CRUSHED BY SOMEONE'S FOOT IN FEB 2007. BURROWS CLOSED FOR SRCSD UPPER NW INTERCEPTOR PROJECT IN 2007
12	Athene cunicularia	THREATENED BY CONSTRUCTION AND MOTORCYCLISTS.
13	Athene cunicularia	1974: THREATENED BY CONSTRUCTION AND MOTORCYCLISTS.
14	Athene cunicularia	DEVELOPMENT WILL EVENTUALLY BE COMPLETED AND THE BURROWING OWLS WILL BE EVICTED. POSSIBLY THREATENED BY DOMESTIC PETS
15	Athene cunicularia	PROXIMITY TO ROADS (POTENTIAL FOR VEHICLE COLLISIONS).
16	Athene cunicularia	VEHICLE COLLISIONS.
17	Athene cunicularia	THREATENED BY ONGOING DEVELOPMENT.
18	Athene cunicularia	
19	Athene cunicularia	THE RIVERPOINT MARKETPLACE DEVELOPMENT.
20	Athene cunicularia	PROPOSED FOR DEVELOPMENT IN 2002. SIDEWALK PROJECT LEAD TO BURROW CLOSURES, AND OWLS HAD NOT RETURNED AS OF 2007
21	Branchinecta lynchi	MAINTENANCE ROAD FRO WESTERN PACIFIC RR, AREA IMPACTED BY SACRAMENTO AREA FLOOD CONTROL AGENCY.
22	Buteo swainsoni	SOLAR POWER PLANT PROPOSED FOR OLD LANDFILL SITE WOULD ELIMINATE FORAGING HABITAT (2011).
23	Buteo swainsoni	MAIN THREAT IS HUMAN DISTURBANCE; POTENTIAL THREAT FROM THE SACRAMENTO URBAN AREA LEVEE RECONSTRUCTION PROJECT (1990)
24	Buteo swainsoni	
25	Buteo swainsoni	POSSIBLE AGRICULTURAL THREAT: WHEAT FIELDS WERE SPRAYED & HARVESTED DURING BREEDING SEASON (1990). DEVELOPMENT
26	Buteo swainsoni	
27	Buteo swainsoni	THREATENED BY THE HIGH DEGREE OF DISTURBANCE AT THIS SITE (1990)
28	Buteo swainsoni	
29	Buteo swainsoni	2000 SURVEYOR NOTED POTENTIAL THREAT FROM LEVEE MAINTENANCE AND UPGRADES
30	Buteo swainsoni	
31	Buteo swainsoni	POSSIBLE THREAT FROM DISTURBANCE ACROSS THE RIVER FROM MAJOR LAND DEVELOPMENT/CONSTRUCTION.
32	Buteo swainsoni	BOATING AND CROP-DUSTING DISTURBANCE, POTENTIAL THREAT FROM THE SACRAMENTO URBAN LEVEE RECONSTRUCTION PROJECT (1990)
33	Buteo swainsoni	DEVELOPMENT IS ENCROACHING ON FORAGING HABITAT ACROSS THE RIVER FROM SITE.
34	Buteo swainsoni	DEVELOPMENT IS REDUCING SURROUNDING FORAGING HABITAT.
35	Buteo swainsoni	2000-2001 SURVEYORS CITED POTENTIAL THREATS FROM CHP FACILITY OPERATIONS, FISHERMEN, FLOOD CONTROL PERSONNEL/PROJECTS
36	Buteo swainsoni	DEVELOPMENT IS REDUCING NEARBY FORAGING HABITAT.
37	Buteo swainsoni	2000 SURVEYORS NOTED THREAT FROM ENCROACHMENT BY RESIDENTIAL DEVELOPMENT ALONG RIVERBANK
38	Buteo swainsoni	THREATENED BY URBAN DEVELOPMENT; SITE WILL LIKELY BE LOST TO DEVELOPMENT (2001; TREES EXTANT IN 2012 AERIALS)
39	Buteo swainsoni	REDUCTION OF FORAGING HABITAT DUE TO DEVELOPMENT.
40	Buteo swainsoni	
41	Buteo swainsoni	
42	Buteo swainsoni	THREATENED BY URBAN DEVELOPMENT (1999).
43	Buteo swainsoni	
44	Buteo swainsoni	THREATENED BY COMMERCIAL AND RESIDENTIAL DEVELOPMENT.
45	Buteo swainsoni	THREATENED BY LONG-TERM LOSS OF LARGE NEST TREES (FIRE, SENESCENCE, & BANK EROSION) & LACK OF NATURAL TREE REGENERATION
46	Buteo swainsoni	
47	Buteo swainsoni	POSSIBLE THREAT OF TREE TRIMMING OR REMOVAL.
48	Buteo swainsoni	NO APPARENT THREATS, BUT TREE TRIMMING DURING NESTING SEASON WOULD POSE A THREAT (2012)
49	Buteo swainsoni	
50	Buteo swainsoni	THREATENED BY DEVELOPMENT; NEST TREE SCHEDULED FOR REMOVAL TO PROVIDE FOR CONSTRUCTION OF EAST COMMERCE WAY
51	Buteo swainsoni	PLANNED PEDESTRIAN TRAIL AND SCHEDULED DEVELOPMENT WOULD REDUCE IMMEDIATE MARGINAL FORAGING HABITAT (2010).
52	Buteo swainsoni	1991 SURVEYORS NOTED VARIOUS DISTURBANCES (TREE CLEARING ACTIVITIES, MARINA OPERATIONS). DEVLOPMENT
53	Buteo swainsoni	
54	Buteo swainsoni	
55	Buteo swainsoni	DEVELOPMENT IS DECREASING ADJACENT FORAGING HABITAT ACCORDING TO 1993-2002 AERIAL PHOTOS.
56	Buteo swainsoni	
57	Buteo swainsoni	
58	Buteo swainsoni	POTENTIALLY THREATENED BY HUMAN DISTURBANCE ASSOCIATED WITH BIKE PATH, PARK, AND RECREATION
59	Buteo swainsoni	THREATENED BY COMMERCIAL AND RESIDENTIAL DEVELOPMENT.
60	Buteo swainsoni	POSSIBLE THREAT FROM HUMAN USE OF THE NEARBY RECREATIONAL AREA
61	Buteo swainsoni	
62	Cicindela hirticollis abrupta	
63	Desmocerus californicus dimorphus	

ID	SNAME	THREAT
64	Desmocerus californicus dimorphus	THREAT OF DEVELOPMENT.
65	Desmocerus californicus dimorphus	THREAT OF DEVELOPMENT INTO THE LIGHTHOUSE MARINA PROJECT.
66	Desmocerus californicus dimorphus	THREAT OF DEVELOPMENT INTO LIGHTHOUSE MARINA PROJECT.
67	Desmocerus californicus dimorphus	
68	Desmocerus californicus dimorphus	
69	Desmocerus californicus dimorphus	
70	Desmocerus californicus dimorphus	
71	Desmocerus californicus dimorphus	
72	Desmocerus californicus dimorphus	
73	Desmocerus californicus dimorphus	THREATENED BY HERBICIDE SPRAYING BY THE RAILROAD COMPANY & PROPOSED DEVELOPMENT ON THE EAST SIDE OF THE RD-900 CANAL
74	Elanus leucurus	
75	Elanus leucurus	
76	Elanus leucurus	
77	Elanus leucurus	
78	Elanus leucurus	DISTURBANCES INCLUDE FREEWAY. NO THREATS.
79	Elderberry Savanna	
80	Elderberry Savanna	
81	Elderberry Savanna	
82	Great Valley Cottonwood Riparian Forest	THREATENED BY MARINA/DEVEL.
83	Hibiscus lasiocarpos var. occidentalis	DITCH MAINTENANCE & ROW MOWING ARE THREATS. CALTRANS MAINTENANCE UNITS ADVISED OF THIS SITE
84	Lasiurus cinereus	
85	Linderiella occidentalis	
86	Oncorhynchus tshawytscha	THREATENED BY MIGRATION BARRIERS (BOAT LOCKS) AND JEFFERSON ST BRIDGE CONSTRUCTION.
87	Oncorhynchus tshawytscha	THREATENED BY MIGRATION BARRIERS AND JEFFERSON ST BRIDGE CONSTRUCTION.
88	Pogonichthys macrolepidotus	
89	Progne subis	
90	Progne subis	
91	Progne subis	
92	Progne subis	
93	Progne subis	
94	Progne subis	
95	Progne subis	
96	Progne subis	
97	Progne subis	
98	Riparia riparia	THREATENED BY DESTRUCTION OF SUITABLE HABITAT BY INSTALLATION OF RIPRAP.
99	Sagittaria sanfordii	
100	Sagittaria sanfordii	DISTURBED BY 2011 BRIDGE REPLACEMENT. THREATENED BY NON-NATIVE PLANTS, POSSIBLE DITCH MAINTENANCE, OR DEVELOPMENT
101	Sagittaria sanfordii	DITCH CLEARING/MAINTENANCE AND PESTICIDE RUNOFF FROM ADJACENT LAWN ARE POTENTIAL THREATS.
102	Sagittaria sanfordii	LEVEE MAINTENANCE.
103	Sagittaria sanfordii	SITE IS SUBJECTED TO OCCASIONAL MOWING AND POSSIBLE HERBICIDE APPLICATION.
104	Sagittaria sanfordii	SITE IS ADJACENT TO AMERICAN RIVER BIKE TRAIL & MAY BE SUBJECT TO TRAMPLING.
105	Taxidea taxus	
106	Thamnophis gigas	
107	Thamnophis gigas	
108	Thamnophis gigas	
109	Thamnophis gigas	
110	Thamnophis gigas	1986: ADJACENT AG, URBANIZATION, FLOODING, POLLUTION, FLOOD CONTROL, WETLAND RECLAMATION, PEST CONTROL
111	Thamnophis gigas	
112	Thamnophis gigas	MAIN THREAT IS HABITAT DESTRUCTION OF CANALS, THEIR BANKS, AND SUPPORTING BERMS AND LEVEES. ALSO ROAD TRAFFIC
113	Thamnophis gigas	FLOOD CONTROL/WETLAND RECLAMATION; VEHICLES; URBANIZATION; FLOODING; INTRODUCED PREDATORS; PEST CONTROL; POLLUTION
114	Thamnophis gigas	FLOOD CONTROL/WETLAND RECLAMATION; URBANIZATION; FLOODING; INTRODUCED PREDATORS; PEST CONTROL; POLLUTION
115	Thamnophis gigas	1998: AG; DEVELOPMENT; FLOOD CONTROL/WETLAND RECLAMATION; FLOODING; INTRODUCED PREDATOR; PEST CONTROL; POLLUTION
116	Thamnophis gigas	
117	Thamnophis gigas	
118	Thamnophis gigas	
119	Thamnophis gigas	FLOOD CONTROL/WETLAND RECLAMATION; URBANIZATION; FLOODING; INTRODUCED PREDATORS; PEST CONTROL; POLLUTION
120	Thamnophis gigas	AGRICULTURE; FLOOD CONTROL/WETLAND RECLAMATION; URBANIZATION; FLOODING; INTRODUCED PREDATOR; PEST CONTROL; POLLUTION
121	Thamnophis gigas	
122	Thamnophis gigas	1986: ENCROACHING DEVELOPMENT TO THE EAST; FLOOD CONTROL; INTRODUCED PREDATOR; PEST CONTROL; POLLUTION
123	Thamnophis gigas	AGRICULTURE; DEVELOPMENT; FLOOD CONTROL/WETLAND RECLAMATION; INTRODUCED PREDATOR; PEST CONTROL; POLLUTION

ID	SNAME	GENERAL
1	Accipiter cooperii	2007: PAIR NESTING IN AREA FOR LAST SEVERAL YRS. PAIR NESTED SUCCESSFULLY IN 2006, FLEDGING 2. FEMALE WAS OBS ADDING TO A WELL-DEVELOPED NEST ON 2 MAR 2007. 2008: NEST 1ST OBS ON 8 APR DURING COURTSHIP. PAIR OBS WITH 3 CHICKS O
2	Accipiter cooperii	1 ADULT AND 3 YOUNG NEAR FLEDGING ("BRANCHERS") OBSERVED ON 17 JULY 1996
3	Agelaius tricolor	OBSERVED BY DE HAVEN BETWEEN 1969 AND 1974. SITE CHECKED BY SCHNEIDER AND BARTLETT IN 1992; NO BIRDS OBSERVED
4	Ardea herodias	FIVE NESTS (4 IN 1 TREE) WERE OBSERVED IN COTTONWOOD TREES WITH A TOTAL AT LEAST 4 JUVENILES PRESENT ON 4 JUN 2008
5	Ardea herodias	2 NESTS OBSERVED IN APR 2001. 3 OCCUPIED NESTS OBSERVED ON 4 APR 2002
6	Astragalus tener var. tenellus	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1954 COLLECTION BY PETERS. NEEDS FIELDWORK
7	Athene cunicularia	MVZ EGG SET #893 COLLECTED 8 MAY 1901 BY R. H. ELLIOTT
8	Athene cunicularia	NESTED ALONG THE LEVEE IN LATE 1960'S & EARLY 1970'S. 13 NESTING COLONIES OBSERVED IN GROUND BURROWS ON THE UNIVERSITY IN 1974
9	Athene cunicularia	18 JAN 1991: A MINIMUM OF 8 ADULT OWLS OBSERVED OCCUPYING BURROW SITES; OTHER BURROWS WERE PRESENT THAT ALSO APPEARED ACTIVE. OWLS NOT OBSERVED ON 5 MAY 2002
10	Athene cunicularia	2 ADULTS OBSERVED AT 1 NESTING BURROW ON 27 APR 2006. 4 OBSERVED AT 4 SITES (1 AT EACH) IN JAN AND FEB 2007. 1 ADULT AT ONE SITE & A PAIR WITH 6 JUVENILES AT ANOTHER SITE ON 2 JUN 2007
11	Athene cunicularia	3 BUOW AT 3 BURROWS IN N FEATURE IN JAN 2007; OWL LATER FOUND DEAD AT 1 SITE & BURROW COLLAPSED AT ANOTHER. 1 BUOW AT 1 BURROW IN CENTER FEATURE IN FEB 2007. 1 PAIR IN N FEATURE & 1 PAIR WITH 1 JUVENILE IN S FEATURE IN JUN 20
12	Athene cunicularia	CAS EGG SPECIMEN #210880 COLLECTED BY F. G. COOMES ON 27 APR 1907. 2 BURROWS OBSERVED IN AREA DURING 1974 NEST SURVEY
13	Athene cunicularia	SEVERAL COLONIES OBSERVED IN GROUND BURROWS IN VICINITY DURING 1974; 2 BURROWS DESTROYED & 1 BURROW ABANDONED DURING CONSTRUCTION OF PARKING LOT. 1 FEMALE DIED; 1 OWL KILLED BY MOTORCYCLIST; 1 BURROW FOUND AT THIS L
14	Athene cunicularia	ABOUT 12 OBSERVED IN OR NEAR BURROWS & GIVING WARNING CALLS JUL 2012. 4 ADULTS & 7 RECENTLY FLEDGED JUVENILES (ABOUT 3 FAMILY GROUPS) WERE OBSERVED BY BURROWS WITH FEATHERS & WHITEWASH; OLDER OWLS EXHIBITED SENTINEL B
15	Athene cunicularia	2 OWLS & A BURROW OBSERVED AT SOUTH END OF FEATURE ON 1 JUL 2006; 1 OWL WAS LIGHT & TAWNY-LOOKING. 2 ADULTS WITH 2 JUVENILES OBS AT NORTH END OF FEATURE ON 9 JUN 2007. 4 JUVENILES OBS IN CENTER OF FEATURE ON 28 JUN 200
16	Athene cunicularia	PEARCE WAS NOTIFIED IN MAY 2007 THAT A FAMILY OF BURROWING OWLS HAD RETURNED TO NEST AT THIS LOCATION "FOR THE FOURTH YEAR." 1 ADULT WAS OBS AT THIS BURROW DURING THE STATEWIDE SURVEY ON 20 JUN 200
17	Athene cunicularia	8 INDIVIDUALS (ADULTS AND JUVENILES) OBSERVED AT THIS SITE ON 25 JUL 2003.
18	Athene cunicularia	20 INDIVIDUALS (UNABLE TO DISTINGUISH JUVENILES FROM ADULTS) OBSERVED ON 2 JUN 2007; 4 JUVENILES AND ~16 ADULTS OBSERVED ON 29 JUN 2007
19	Athene cunicularia	1 ADULT OBS JAN 2007. PRIOR TO START OF CONSTRUCTION, EXCLUSION DEVICES WERE INSTALLED IN ACTIVE BRUROW & 18 ADJACENT BURROWS. SITE WAS MONITORED 3 TIMES/WK FOR 3 WKS FOR TOTAL OF 120HRS. NO EVIDENCE OF OWLS AFTER 4 WKS
20	Athene cunicularia	5 BREEDING ADULTS OBS ON 28 JUN 2002. 4 OWLS OBS FROM HERE TO SEND OF SW-NE RUNWAY ON 26 OCT 2004. NONE DETECTED SINCE 2006 DESPITE HIGH SEARCH EFFORT. AS OF 2007 REPORT: BURROWS CLOSED DURING SIDEWALK PROJECT & HAVEN'T
21	Branchinecta lynchi	2 SITES IN SAME POOL WERE SAMPLED: IN SOUTHERN SITE FEW (<50) ADULTS WERE OBSERVED, & A VOUCHER SPECIMEN WAS COLLECTED & DEPOSITED IN CAS. IN NORTHERN SITE MANY (>50) ADULTS WERE OBSERVED, & 3 VOUCHER SPECIMENS COLLECTED
22	Buteo swainsoni	PAIR OBSERVED COPULATING IN LARGE SNAG, 2005. NESTING PAIR DOCUMENTED FROM 2008-2011; FLEDGED CHICKS IN 3 OUT OF 4 YEARS. PREVIOUS YEARS' NEST OCCUPIED BY GREAT HORNED OWLS IN 2011 & POSS. 2012, THOUGH SWHA PAIR OBS ON TEF
23	Buteo swainsoni	NESTING ADULT OBSERVED IN 1984. NEST WITH 1 YOUNG IN 1986. NEST WITH 2 YOUNG IN 1989. 1 FLEDGED IN 1990. ACTIVE NEST BUT NO YOUNG IN 1991. RIVERSIDE NEST WITH 1 YOUNG, EAST NEST FLEDGED 1 IN 1992. NEST WITH 2 YOUNG IN 199
24	Buteo swainsoni	SWAINSON'S HAWK PAIR OBSERVED FORAGING, RETURNING TO SUSPECTED NEST LOCATION ON SEVERAL OCCASIONS IN JUL 1992; NEST NOT FOUND/NOT DOCUMENTED. NEST-BUILDING OBSERVED IN 2009 AND 2010; SUCCESS UNKNOWN.
25	Buteo swainsoni	1) ACTIVE NESTS PRODUCED 1 YOUNG IN 1990 & 1991. NEST ABANDONED BY END OF APR IN 1993. 1 FLEDGED IN 1994. 2) NON-BREEDING PAIR ACTIVE AT NEST IN 1991. PAIR PRODUCED 2 YOUNG IN 1993. 2 FLEDGED IN 1994. 3) 1 FLEDGED IN199
26	Buteo swainsoni	1 YOUNG FLEDGED IN 1992.
27	Buteo swainsoni	TWO ADULTS FLEDGED ONE YOUNG IN 1990. NO NEST OR HAWKS SEEN IN 1993. 1 FLEDGED IN 1994
28	Buteo swainsoni	1 SWHA SOARING NEAR NEST, 1988. NEST WITH 2 YOUNG, 1994. NEST WITH PAIR & 3 YOUNG, 1999. NEST WITH PAIR & 3 YOUNG (BANDED), 2001. 3-4 NESTS EACH WITH 1 YOUNG (AT LEAST 1 FLEDGED), 2003. 2 ACTIVE NESTS, 2007. PAIR BUILDING NEST, 201
29	Buteo swainsoni	N POLYGON: NEST W/PAIR & 2 YOUNG(Y) OBSERVED 4 JUN 1999. PAIR & 3Y (BANDED) OBS 22 JUN 2001. NEST W/2Y OBS, 2007. S POLYGON: NESTING PAIR OBS 4 JUN 1999; NEST FAILED. PAIR & 2Y OBS 20 JUN 2000; 2Y, FEATHERED, OBS 30 JUN. NEST W/1Y OI
30	Buteo swainsoni	NEST WITH 1 DOWNY YOUNG OBSERVED ON 3 JUN 2003. NESTING OR TERRITORIAL BEHAVIORS OBSERVED IN 2007, BUT NEST ITSELF WAS NOT LOCATED AND NESTING OUTCOME NOT CONFIRMED
31	Buteo swainsoni	1 FLEDGED IN 1974. NEST WITH 2 YOUNG OBSERVED ON 19 JUN 1981. SOARING SWHA OBS 1983. POSSIBLE NEST 1985. 1-2 PAIRS NESTED IN 1990; 2 YOUNG CONFIRMED FLEDGED. 1 FLEDGED IN 1991. NEST WITH PAIR & 1 YOUNG OBS IN 199
32	Buteo swainsoni	2 ADULTS OBSERVED NESTING IN 1990; NO YOUNG FLEDGED. PAIR FLEDGED 2 YOUNG IN 1991. NEST WITH 2 YOUNG OBSERVED IN 1992. NO SWAINSON'S HAWKS OBSERVED IN 199
33	Buteo swainsoni	ACTIVE NEST SITE, 1979-91 (EXCEPT POSSIBLY IN 1980). 2 FLEDGED IN 1979. 2 FLEDGED IN 1981. 1 FLEDGED IN 1984. 1 FLEDGED IN 1988. 2 YOUNG PRODUCED IN 1993. 2 FLEDGED IN 199
34	Buteo swainsoni	NORTH: ACTIVE NEST OBSERVED DURING 2007 SURVEY, OUTCOME UNKNOWN. SOUTH: 2 ADULTS AND 2 JUVENILES OBSERVED AT NEST IN 1993. ACTIVE NEST OBSERVED DURING 2007 SURVEY, OUTCOME UNKNOWN
35	Buteo swainsoni	NESTING PAIR OBSERVED 4 JUN 1999; NEST FAILED. NEST W/2 YOUNG(Y) OBS 30 JUN 2000. NEST W/PAIR & 3Y (BANDED) OBS 22 JUN 2001. NEST W/1Y OBS 26 JUN 2002. SWHA ON NEST OBS 14 MAY. NO ACTIVITY JUN-JUL 2003. NEST W/2Y OBS DURING 2007
36	Buteo swainsoni	NEST WITH 1 ADULT AND 1 YOUNG OBSERVED IN 1986. 2 ADULTS AND 2 JUVENILES OBSERVED AT NEST SITE ON 15 JUL 1993. NEST WITH 1 YOUNG OBSERVED DURING 2007 SURVEY; FLEDGING RESULTS UNKNOWN
37	Buteo swainsoni	NESTING PAIR OBSERVED IN 1983. 0 OBSERVED, 1984. 2 SOARING, 1985. ACTIVE NEST, 1987. NEST FAILED, 1991. 0 OBSERVED 1992-1993. 2 PARTIALLY-FEATHERED CHICKS IN NEST, 30 JUN 2000. NEST WITH 1 YOUNG OBSERVED IN 200
38	Buteo swainsoni	2 FORAGING SWHA OBSERVED IN 1993. 2 ADULTS & 1 JUVENILE OBS AT NEST 25 JUN 2000; FEMALE WAS TRAPPED & PTT TAGGED. 2 ADULTS & 1 JUVENILE (YOUNG BANDED) OBS AT NEST ON 23 JUN 2001. 2 PARTIALLY FEATHERED YOUNG OBS IN THE NEST O
39	Buteo swainsoni	1 SWHA OBSERVED NEAR THE I-80 BRIDGE IN 1985. NEST WITH PAIR & 2 YOUNG OBSERVED IN 1992. 2 ADULTS AND 1 JUVENILE OBSERVED AT THE NEST SITE IN 1993. ACTIVE NEST FAILED BEFORE HATCHING IN MAY 199
40	Buteo swainsoni	1 HAWK OBSERVED SOARING & PERCHING ON SNAG, NO NEST FOUND 1983. NEST SITE DISCOVERED IN 1984, ACTIVE EVERY YEAR (EXCEPT 1988 &1989). FROM 1984-1991, 1-2 YOUNG FLEDGED EVERY YEAR EXCEPT 1991. ACTIVITY UNKNOWN 1992. 1+ YOUNG
41	Buteo swainsoni	2 ADULTS OBSERVED IN COURTSHIP AND AT THE NEST TREE WITH A NEST THAT APPEARED TO BE 2/3 COMPLETED
42	Buteo swainsoni	NESTING PAIR OBSERVED ON 10 JUN 1987. 2 ADULTS OBSERVED NESTING ON 26 APR 1999; OUTCOME UNKNOWN
43	Buteo swainsoni	ACTIVE NEST, WITH 2 JUVENILES AND 2 ADULTS ATTENDING, OBSERVED ON 3 JUN 1994. NEST IN A NEW NEST TREE WITH AN INCUBATING ADULT AND AN ATTENDING ADULT OBSERVED, 25 MAY 200
44	Buteo swainsoni	2 ADULTS AND 1 JUVENILE OBSERVED AT THE NEST SITE ON 28 JUN 1999
45	Buteo swainsoni	NEST WITH 2 ADULTS OBSERVED ON 15 MAY 2005.
46	Buteo swainsoni	NEST WITH 1 JUVENILE OBSERVED ON 16 JUL 2003.
47	Buteo swainsoni	ACTIVE NEST IN 2009, SUCCESS UNKNOWN. ACTIVE NEST MONITORED IN 2010; 2 CHICKS OBSERVED ON THE NEST, TRYING THEIR WINGS ON 14 JUL 2010; FLEDGING SUCCESS UNKNOWN
48	Buteo swainsoni	NESTING IN 2006, SUCCESS UNKNOWN. 1 FLEDGED IN 2007. NEST FAILED IN 2008. NESTING PAIR OBS APR 2009, SUCCESS UNKNOWN. AD FLYING WITH NEST MATERIAL IN VICINITY IN 2010. 1 FLEDGED IN 2011. NEST-BUILDING OBS APR 2012, SUCCESS UNKNO
49	Buteo swainsoni	ACTIVE NEST MONITORED IN 2007; FLEDGED 2 YOUNG.
50	Buteo swainsoni	2 ADULTS AND 2 JUVENILES OBSERVED ON 30 JUN 2008
51	Buteo swainsoni	NEST WITH 1 YOUNG OBSERVED DURING 2007 SURVEY; FLEDGING SUCCESS UNKNOWN. SIZEABLE CHICK WITH DARK BODY & WHITISH FACE IN AN OBVIOUS NEST OBSERVED IN 2008. NESTING PAIR MONITORED IN 2010; FLEDGED 2 YOUNG
52	Buteo swainsoni	1-2 ACTIVE NESTS FLEDGED 1-3 YOUNG IN 1990. 1 OR 2 NESTS ACTIVE 1991; NO YOUNG OBSERVED. NESTING PAIR, BUT NO YOUNG SEEN IN 1992. NO HAWKS OR NEST SEEN IN 1993. NEST WITH 1 FULLY-FEATHERED YOUNG BEING FED BY ADULT OBSERVED ON
53	Buteo swainsoni	ACTIVE NEST WAS OBSERVED DURING 2007 SURVEY; NESTING OUTCOME WAS NOT CONFIRMED.
54	Buteo swainsoni	NEST WITH 2 YOUNG OBSERVED DURING 2007 SURVEY.
55	Buteo swainsoni	NEST WITH 1 YOUNG OBSERVED DURING 2007 SURVEY.
56	Buteo swainsoni	NEST WITH 2 YOUNG OBSERVED DURING 2007 SURVEY.
57	Buteo swainsoni	ADULTS OBSERVED NEST-BUILDING IN MAR 2007, MATING AND INCUBATING EGGS IN APR 2007; 2 YOUNG OBSERVED DAILY AFTER HATCHING (HATCH DATE AROUND MAY 25) THROUGH 28 JUN 2007.
58	Buteo swainsoni	2 ADULTS DETECTED NESTING ON 27 APR 2011 AND THE FOLLOWING BEHAVIORS WERE DOCUMENTED: PERCHING ON NEST, FOOD SHARING, NEST BUILDING, CALLING, PERCHING NEAR NEST, SOARING, CHASING. UNKNOWN IF OBSERVATIONS MADE ON MU
59	Buteo swainsoni	2 ADULTS AND 2 JUVENILES OBSERVED AT THE NEST SITE ON 28 JUN 1999
60	Buteo swainsoni	ON 20 APR 2001, THE MALE WAS OBSERVED PERCHED IN A COTTONWOOD, 100 FEET EAST OF THE NEST TREE; FEMALE WAS OBSERVED SITTING ON THE NEST
61	Buteo swainsoni	NEST WITH ONE YOUNG OBSERVED DURING 2007 SURVEY.
62	Cicindela hirticollis abrupta	SACRAMENTO IS THE TYPE LOCALITY. COLLECTED 27 MAY 1918, 5 JUL 1944, 1950, AND 1 AUG 1955. NONE FOUND DURING ANNUAL SURVEYS FROM 2001-200
63	Desmocerus californicus dimorphus	NO BEETLES OBSERVED; SITE VISITED TOO LATE IN THE DAY

ID	SNAME	GENERAL
64	Desmocerus californicus dimorphus	YELLOW WARBLER AND SWAINSON'S HAWK ALSO OBSERVED AT THE SITE
65	Desmocerus californicus dimorphus	EXIT HOLES FOUND.
66	Desmocerus californicus dimorphus	EXIT HOLES FOUND.
67	Desmocerus californicus dimorphus	ADULTS OBSERVED BY ARNOLD.
68	Desmocerus californicus dimorphus	NORTH SACRAMENTO LAND COMPANY PROPERTY.
69	Desmocerus californicus dimorphus	COLLECTIONS KNOWN FROM THIS AREA. NO ADULTS OR FRESH EXIT HOLES OBSERVED IN 1984
70	Desmocerus californicus dimorphus	
71	Desmocerus californicus dimorphus	OBSERVED ON A STEM OF A LARGE (1.0-1.5 CM DIAMETER) ELDERBERRY SHRUB. FEMALE SPECIMEN HELD FOR TWO DAYS; IT ATE ELDERBERRY LEAVES, LAID 10 EGGS, THEN WAS RELEASED AT CAPTURE SITE. ADULTS WERE ALSO OBSERVED BY ARNOLD IN 199
72	Desmocerus californicus dimorphus	ADULTS OBSERVED BY ARNOLD IN 1984.
73	Desmocerus californicus dimorphus	ON 17 MAY 2006, A MALE AND FEMALE PAIR OBSERVED MATING ON LEAVES LOCATED AT THE 3'6" HEIGHT; A SECOND FEMALE WAS OBSERVED EATING LEAVES ~1.5 FROM THE MATING PAIR, AND SHE WAS LATER SEEN LAYING EGG
74	Elanus leucurus	1 PAIR OBSERVED NESTING FROM 30 APR TO 3 MAY 1988
75	Elanus leucurus	2 YOUNG FLEDGED.
76	Elanus leucurus	NEST BUILDING OBSERVED ON 25 JUN 2002; SITE REVISITED SEVERAL TIMES, BUT NO EVIDENCE OF NESTLINGS OR FLEDGLINGS OBSERVED, SO NEST PRESUMED TO HAVE FAILED
77	Elanus leucurus	NESTING OBSERVED ON 25 JUN 2002; NESTING SUCCESSFUL WITH 2 YOUNG FLEDGED
78	Elanus leucurus	2 ADULTS OBSERVED CONDUCTING AN INCUBATION EXCHANGE, & AN ADULT OBSERVED BRINGING FOOD TO NEST DURING THE BREEDING SEASON, 2009. IN AUGUST, A JUVENILE, PRESUMED FROM NEST, WAS OBS IN AREA. NEST CONFIRMED IN FALL WHEN
79	Elderberry Savanna	LEASED FROM STATE BY SACRAMENTO COUNTY PARKS & REC DEPT. MANAGEMENT PLAN EMPHASIZES PRESERVATION & RESTORATION. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS TH
80	Elderberry Savanna	LEASED BY SACRAMENTO COUNTY PARKS & RECREATION DEPT. MANAGEMENT PLAN EMPHASIZES PRESERVATION & RESTORATION. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PR
81	Elderberry Savanna	VALLEY ELDERBERRY LONGHORN BEETLE FOUND HERE. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.
82	Great Valley Cottonwood Riparian Forest	RARE VALLEY ELDERBERRY LONGHORN BEETLE & SWAINSONS HAWK PRESENT. SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES
83	Hibiscus lasiocarpos var. occidentalis	2 PLANTS OBSERVED BY MARTZ IN 1988. VERY DISTURBED SITE LACKING FRESHWATER SLOUGH/MARSH HABITAT AND ASSOCIATED SPECIES. INTACT SLOUGH HABITAT ON NORTH SIDE OF I-80 IN THIS AREA SHOULD BE SURVEYED.
84	Lasiurus cinereus	1 FEMALE SPECIMEN (MVZ #182480) COLLECTED BY WILLIAM E. RAINEY ON 18 SEP 1991
85	Underiella occidentalis	UNKNOWN NUMBER OF CYSTS FOUND IN DRY-SEASON SAMPLING IN BASINS SW3 AND SW4.
86	Oncorhynchus tshawytscha	A TOTAL OF 36 ADULTS AND 11 JUVENILES (SMOLT SIZE) WERE CAPTURED ON THE FOLLOWING DATES: 9, 10, 11, 15, 17 & 18 DEC 2003; 12 & 13 JAN 2004
87	Oncorhynchus tshawytscha	A TOTAL OF 1 ADULT AND 26 JUVENILES (SMOLT SIZE) WERE CAPTURED ON THE FOLLOWING DATES: 14 JAN, 3 & 24 FEB, 21 MAR, AND 25 MAY 2004
88	Pogonichthys macrolepidotus	INFORMATION TAKEN FROM A SACRAMENTO RIVER ANGLER SURVEY CONDUCTED BETWEEN 1993 & 1995. FISH WERE TAKEN BY HOOK & LINE MOSTLY FROM SHORE. MOST OF THE SPLITTAIL CAUGHT WERE TAKEN INCIDENTALLY & WERE NOT THE SPECIES TA
89	Progne subis	ESTIMATED 14 ADULTS IN 1992; ESTIMATED 10 ADULTS IN 1993, ESTIMATED 4 ADULTS IN 1994, ESTIMATED 3 ADULTS IN 1995, ESTIMATED 8 ADULTS IN 2002. SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 7 PAIRS OBSERVED NESTI
90	Progne subis	ESTIMATED 30 ADULTS IN 1992, EST. 34 ADULTS IN 1993, EST. 36 ADULTS IN 1994, EST. 41 ADULTS IN 1995, EST. 34 ADULTS IN 1996. SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 19 PAIRS OBSERVED NESTIN
91	Progne subis	38 PAIRS ESTIMATED IN 1992, 48 PAIRS ESTIMATED IN 1993, 39 PAIRS ESTIMATED IN 1994, 40 PAIRS ESIMATED IN 1995, 14 PAIRS ESTIMATED IN 2002. SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 21 PAIRS OBSERVED NESTING
92	Progne subis	29 PAIRS ESTIMATED IN 1992, 25 PAIRS ESTIMATED IN 1994, 21 PAIRS ESTIMATED IN 1995, 37 PAIRS ESTIMATED IN 2002. SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 29 PAIRS OBSERVED NESTING
93	Progne subis	SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 3 PAIRS OBSERVED NESTING
94	Progne subis	SITE WAS SURVEYED IN 1992, BUT NO MARTINS FOUND. 4 ADULTS ESTIMATED IN 2002. SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 6 PAIRS OBSERVED NESTING
95	Progne subis	SITE WAS SURVEYED IN 1992, BUT NO MARTINS WERE FOUND. 14 ADULTS ESTIMATED IN 2002. SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 14 PAIRS OBSERVED NESTING
96	Progne subis	SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 15 PAIRS OBSERVED NESTING
97	Progne subis	SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUG 2003; 1 PAIR OBSERVED NESTING
98	Riparia riparia	42 BURROWS WITH 30 BIRDS VISIBLE FROM THE BUSINESS 80 BRIDGE.
99	Sagittaria sanfordii	50+ COLONIES OBSERVED IN SEVERAL DISCONTINUOUS SLOUGHS. SITE IS WITHIN THE AMERICAN RIVER PARKWAY COUNTY PARK. COUNTY SHOULD BE MADE AWARE OF THE PLANT'S PRESENCE
100	Sagittaria sanfordii	2000+ PLANTS OBSERVED IN NORTHWEST POLYGON AND 3000+ PLANTS OBSERVED IN SOUTHEAST POLYGON IN 2011. PLANTS LOCATED UNDER NORWOOD AVE BRIDGE WERE TRANSPLANTED ~375 FEET DOWNSTREAM DUE TO BRIDGE REPLACEMEN
101	Sagittaria sanfordii	APPROXIMATELY 40 PLANTS OBSERVED IN 2005.
102	Sagittaria sanfordii	ONLY SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL; ECOLOGICAL AND THREAT INFO NEEDED. SITE IS WITHIN THE LOWER AMERICAN RIVER PARKWAY COUNTY PARK. HUDDLESTON VISITED SITE IN 2005 AND DID NOT OBSERVE PLANTS
103	Sagittaria sanfordii	SMALL APPROXIMATELY 1 SQ FT COLONY. COMPETITION WITH GRASSES ETC. MAY BE IMPACTING POPULATION. MORE THAN 100 PLANTS SEEN IN 2005; POPULATION APPEARS TO HAVE EXPANDED IN THIS AREA
104	Sagittaria sanfordii	1 COLONY OBSERVED IN 1992. SITE IS WITHIN THE AMERICAN RIVER PARKWAY. HUDDLESTON DID NOT OBSERVE PLANTS IN 2005. DENSE SHRUB GROWTH PRESENT THROUGHOUT THE AREA. MAY BE EXTIRPATED
105	Taxidea taxus	MALE SPECIMEN (USNM #228486) COLLECTED BY W. L. PORKMAN, DATE UNKNOWN.
106	Thamnophis gigas	
107	Thamnophis gigas	
108	Thamnophis gigas	
109	Thamnophis gigas	
110	Thamnophis gigas	
111	Thamnophis gigas	
112	Thamnophis gigas	
113	Thamnophis gigas	
114	Thamnophis gigas	
115	Thamnophis gigas	
116	Thamnophis gigas	
117	Thamnophis gigas	
118	Thamnophis gigas	
119	Thamnophis gigas	
120	Thamnophis gigas	OBSERVED IN 1976, 1 JUVENILE OBSERVED IN 1985, 1 SNAKE OBS IN 1987, 2 OBS IN JUN 1992, SNAKES OBS IN JUN 1993, UNKNOWN # OBS IN 1995, 1 FEMALE CAPTURED ON 24 JUL 2004, 8 OBS IN 2005, 11 OBS IN 2006, 5 OBS IN 2007, 23 OBS MAY-SEP 200
121	Thamnophis gigas	SNAKE OBSERVED AT SITE DURING THE 1986-87 STUDY.
122	Thamnophis gigas	1 ADULT & 1 JUV OBSERVED 30 APR 1985. 2009 AERIAL PHOTOS SHOW THAT THIS AREA HAS BEEN COMPLETELY DEVELOPED
123	Thamnophis gigas	ONE JUVENILE OBSERVED 30 APR 1985. 2009 AERIAL PHOTOS SHOW THAT THIS AREA HAS BEEN COMPLETELY DEVELOPED

APPENDIX 3

PROJECT SITE MAP

APPENDIX D

HISTORIC RESOURCES AND THE MIXED USE PROJECT AT THE FORMER CRYSTAL CREAMERY SITE- DRAFT REPORT, HISTORIC ENVIRONMENTAL CONSULTANTS, JULY 2007

Historic Environment Consultants

Historic Resources and the Mixed Use Project at the Former Crystal Creamery Site Draft Report

July 2007

5420 Home Court Carmichael, CA 95608 (916) 488-1680
Fax (916) 359-8700 e-mail: historic@surewest.net

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INTRODUCTION

The purpose of this report is to identify cultural resources associated with the proposed project and evaluate the potential effects of the project and alternatives upon those resources. The evaluation is based upon site review, historic research of the site including historic maps, the Sacramento City Historic Architectural Survey of Non-Residential Structures, the Sacramento Register, the City Ordinance establishing the Preservation Commission and outlining its responsibilities regarding designated historic resources, the Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties, and the National Register of Historic Places.

PROJECT LOCATION AND DESCRIPTION

The proposed Project Area includes the site of the former Crystal Creamery, a notable long-time Sacramento business located in the Alkali Flat neighborhood. This includes the area from the alley between B and C Streets to E Street between 10th and 11th Streets, the south half of the block between C and D, 9th to 10th Streets, and the block of 10th to 11th Street, D to E Street with the exclusion of parcels 002-0113-017, 002-0113-018. The block of 10th Street to 11th, from the alley between B and C Street to D Street is occupied by Crystal Creamery facility buildings, structures and machines. The 10-11, D-E Street block contains five structures: two one-story garage buildings, a vehicle maintenance and repair building, a market on the corner of 10th and E Streets, and an adjacent residential building. The market and adjacent residential building are not a part of the Project.

The proposed Project will remove existing structures with the exception of the building on the southeast corner of the block of 10th to 11th Street between C and D Streets, and the former garage building located at 406 (414) D Street, to allow new mixed use development on the site.

SUMMARY AND RECOMMENDATIONS

None of the buildings located in the Project area are listed in the National Register of Historic Places, the California Register of Historical Resources, or the Sacramento Register.

However, the Alkali Flat neighborhood is the oldest remaining residential area in Sacramento and there are two Historic Districts listed in the National Register of Historic Places, the California Register of Historical Resources, and the Sacramento Register in the immediate vicinity of the Project area.

Recommendations

1. Development on the portions of the Project site that face the Alkali Flat North Historic District along 11th Street should be compatible with the nearby District image in terms of scale and articulation. Character-defining features of the Historic District should be acknowledged such as yards or gardens, streets, street furnishings, open spaces, building

design and building materials, and their character not diminished by the design of the new construction directly across the street. The settings of the Alkali Flat North Historic District and the nearby Alkali Flat Central Historic District should be respected by visual additions to their vicinity.

2. Development design diagonally opposite the northeast and northwest portions of the Alkali Flat Central Historic District should acknowledge the scale and character of the District along E Street from 9th to 10th Street and 10th Street to the alley, and the northwest portion of the block of 11th to 12th Street and the alley between E and F Streets. The essentially intact block along E Street from 9th to 10th Street is an important streetscape and contributes to the Historic District as does houses on the southeast corner of 11th and E Streets. The new construction diagonal to these blockfaces should acknowledge the importance of its setting in its design, in terms of scale and character, and avoid diminishing character-defining features of the District.

3. There are three historic properties on the former Crystal Creamery site:
   - the Wells Fargo Express Co. former stable
   - the former Globe Mills grain warehouse
   - the Shrout Garage building at 406 11th Street

While none of these three properties on the former Crystal Creamery production sites appear eligible for official listing, the retention of the Wells Fargo Express Co. building and its incorporation into the project is recommended in order to support the existing scale and character of this historically significant neighborhood.

REGULATORY CONTEXT

Federal

The National Historic Preservation Act of 1966 established the National Register of Historic Places as the official national listing of important historic and prehistoric resources worthy of preservation. The National Register includes districts, sites, buildings, structures, and objects with local, regional, State, or national significance. The definition of historic property includes "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register." (Advisory Council on Historic Preservation, 1986.) A historic property must meet specific criteria to be considered eligible for listing on the National Register of Historic Places.

The significance of an historic resource is determined by comparing it to the following National Register of Historic Places evaluation criteria:
The quality of significance in American history, architecture, archaeology, engineering, and culture is present in district, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association;

(a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

b) That are associated with the lives of persons significant in our past; or

(c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) That have yielded, or may be likely to yield, information important in prehistory or history (35 CFR 60.4).

State

The State Historic Resources Commission and Office of Historic Preservation (OHP), within the Department of Parks and Recreation, administers the State's historic preservation programs. The OHP oversees State agency compliance with State preservation statutes and programs, administers federal preservation programs in California, and administers State programs such as the California Register of Historical Resources. The California Register is a guide to identifying the State's historical resources and establishes a list of those properties that are to be protected from substantial adverse change (Public Resources Code Section 5024.1).

Sacramento City Historic Preservation Regulatory Background

Pursuant to Title 17 of the City Code, the City has established a preservation program to protect and maintain the character of architecturally, historically, and culturally significant structures and sites within the City of Sacramento. New development is directed toward achieving compatible new construction that enhances existing historic values rather than diminishing them. The values of identified preservation areas and significant historic buildings are to be protected as significant resources for the general welfare of the public.

City of Sacramento Preservation Element

The City of Sacramento adopted a Preservation Element in their General Plan in April 2000. The overarching goal of the Preservation Element is:

"To retain and celebrate Sacramento's heritage and recognize its importance to the City's unique character, identity, economy, and quality of life."

The Element is further divided into six major goal and policy sections, each with a single goal and many policy statements to achieve the stated goal. Applicable goals and policies are as follows:

Goal A: To establish and maintain a comprehensive citywide preservation program. Applicable policies under this goal include:

A.1 The City shall promote the recognition, preservation, and enhancement of historic and cultural resources throughout the City.

A.2 The City shall promote the preservation, restoration, enhancement, and recognition of historic and cultural resources. Historic and cultural resources include not only sites and

structures, but also features such as infrastructure (e.g. bridges, canals, roads, and trails), signs, landscaping and trees, open space areas, lighting and hardscape (e.g., sidewalks, paving) that are important to the overall context.

Goal B: To protect and preserve important historic and cultural resources that serve as significant, visible reminders of the City's social and architectural history.
Applicable policies under this goal include:

B.2 The City shall review new development, alterations, and rehabilitation/remodels in design review areas, preservation areas, and other areas of historic resources for compatibility with the surrounding historic context.

B.6 The City shall promote the conservation of historic neighborhoods to encourage preservation of structures and other features. In these areas, the City shall encourage the maintenance or re-conversion of parkway strips to landscaping, maintenance and replication of historic sidewalk patterns, use of historic street lamps and street signs, and maintenance or restoration of historic park features.

Goal E: To identify and protect archaeological resources which enrich our understanding of the early Sacramento area (Goal E).
The applicable policy under this goal includes:

E.3 The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting the North Central Information Center of the California Historical Resources Information System, requiring a site evaluation as may be indicated and attempting to mitigate any adverse impacts according to the recommendations of a qualified archaeologist.

Sacramento Preservation Ordinance:

In June of 2001, the City Council adopted a new Sacramento Historic Preservation ordinance that revised the former ordinance, expanded its jurisdiction and changed a number of its provisions, following the adoption of a Historic Preservation Element.

SETTING

The project site is located in the City of Sacramento, the largest city in the Central Valley of California. This Valley lies between the California Coastal Range and the Sierra Nevada Mountains, running north and south, and is characterized by large alluvial plains and low rolling hills. Drainages supported by the Sacramento River merge with the San Joaquin River system at the Delta and then flow into the San Pablo portion of the San Francisco Bay. The plains are dominated by annually emerging wetlands and grasslands, with California Interior Live Oaks and Blue Oaks scattered on the low-lying hills. The project site is approximately one mile southeast of the confluence of the Sacramento and American Rivers.

HISTORIC OVERVIEW: SACRAMENTO

Sacramento began with the settlement established by John Sutter near the banks of the American River in 1839. This was the first permanent settlement in the area, and Sutter built his fort, constructed a flour mill, developed an irrigation system for his pastures, erected a distillery, and organized extensive hunting and trapping expeditions. When gold was discovered at Sutter's sawmill in Coloma in 1848, the news created an international Gold Rush to Sacramento and the foothill areas to the north and east. Very quickly, Sacramento was transformed from its beginnings as a fort and agricultural settlement, to a busy new city.

At that time, the American River entered the Sacramento near the current Water Filtration Plant and I-5. The flow of the river deposited a sand bar just below the mouth of the river, significantly raising the bed of the river and diminishing its depth. Ocean-going ships coming up the Sacramento River could get no closer to the Gold fields and were forced to unload their cargo and passengers along Front Street on Sutter's embarcadero. This area became the critical point of entry to Sacramento and Gold Rush sites.

The first growth took place along the Sacramento River, (presently the site of Old Sacramento) encouraged by the coming and going of river traffic that tied the new city to the bay area and the sea. The Old City area of Sacramento was laid out in 1848 at the request of John Sutter Jr., and extended from the Sacramento River east to the current Alhambra Boulevard, and from the railroad levee on the north of downtown to just south of the X Street (Highway 50 freeway) on the south.

The City expanded to the east, with J Street becoming a major path to and from the gold fields. At 12th Street, the path split, with one road continuing along J Street toward Hangtown [Placerville] and Coloma, and the other road branching toward Auburn and Marysville. Thus J Street became the principal path to the gold fields for wagon trains, suppliers and gold seekers, as well as the principal route back from the mines, a conduit bringing millions of dollars worth of gold down J Street into Sacramento over time. As a result, the block faces on J and nearby K streets became occupied with buildings first, before much other construction had taken place. By 1854, the City extended down J Street to 12th Street. In 1855, the Sacramento Valley Railroad, California's first railroad, was constructed and connected Front Street in Sacramento with the city of Folsom.

While some small dwellings and hotels sprang up alongside businesses in the early city commercial core, one of the earliest Sacramento residential areas grew up just north of the 'downtown'. Later known as Alkali Flat, the neighborhood became home to several important early California figures including judges, governors, and prominent businessmen such as Peter Burnett, J. Neely Johnson, and Charles Crocker. A number of large handsome homes were constructed there during the 1850s and 1860s.

However, the Central Pacific Railroad (later to become the Southern Pacific Railroad) acquired land immediately adjacent to the budding residential area. This land was to

become the home of the new transcontinental railroad. With the construction of the locomotive works, car shops, and foundries, the noise of the now industrial site began to diminish the area's residential attraction.

The completion of the transcontinental railroad in 1869 and the location of the Central Pacific railroad shops on the north side of the business district, brought a great deal of commercial activity and growth to Sacramento. Sacramento's largest employer in the late nineteenth and early twentieth centuries was the Southern Pacific (SP) Railroad, originally the Central Pacific Railroad. The rail yards, located near the former Sutter's Lake just south of the original American River bed, grew to be the largest such working rail yard west of the Mississippi, and manufactured rail cars, locomotives, and everything that went into the cars, including wheels, trucks, upholstery, steam boilers, table service silver plating, engine blocks, steam boilers, etc. The yards contained giant forges, stamp mills, blacksmith shops, a lumber mill, electrical and brake shops, paint shops, hospital, parts facility and was essentially a city unto itself. The SP shops even had their own police and fire departments.

Since the Gold Rush, agriculture has been a key component of the evolution of the Sacramento Valley and California. The enormous influx of immigrants to the California gold fields in 1849 generated a large market for supplies to feed them. Before that time, there were no towns with stable food sources, virtually no farms, no railroad transportation, and few roads for wagons to supply the hoards of people that descended upon the gold fields. Some observed potential profit from providing supplies and others, discouraged after the 'easy' gold was gone, turned to ranching and farming to survive. The Sacramento Valley proved a very rich resource for that activity and wheat and grain soon became as important products as gold had been. The northern wheat fields supplied countries around the world for many years. However, by the end of the 19th Century cheaper foreign grains were being imported and wheat and grains became unprofitable. California farmers responded by turning to the production of fruits, nuts, and vegetables.

The development of the railroads and the agricultural production it supported, played a key role in the growth of the State. Refrigerated rail cars were developed to vastly expand the market for fresh fruits and vegetables. Railroads delivered agricultural products, and canneries were established to accommodate produce that wasn't shipped fresh. Soon Valley products were traveling around the world. Canneries and irrigation remade the face of the valley between 1890 and 1910. Two of the largest canneries in the world were said to have been in Sacramento at the height of the industry.

After the turn of the century, an atmosphere of prosperity and energy seemed to engulf the nation. The promise of a new century, economic health, a certain maturation of "frontier towns" into stable established settlements with some history of prosperity, and a national self-awareness generated a surge of interest in enhancing cities and towns both physically and functionally. Construction boomed, particularly of civic buildings, parks, monuments, and other public facilities. For example, the Sacramento City Hall, Memorial Auditorium, Elks Building, California State Life Building (926 J Street), Masonic Hall, Capitol National Bank, Bank of D.O. Mills, Federal Building/Post Office, and Central Library were all constructed between 1912 and early 1932.

With the advent of the 1920s and 1930s, the commerce along J Street began to evolve into department stores, clothing, jewelry, and shoe stores. Through the 1940s, residences and rooming houses disappeared from L Street and were replaced with garages, automotive aftermarket sales, and various retail activities. A number of national retail businesses opened branches downtown along K Street including Kress', Grant's, Woolworth's, and Sears. Employment opportunities and services opportunities attracted residents, and the construction of hotels and apartment buildings mixed in with retail businesses and professional offices.

One of the most significant factors leading to the growth of Sacramento in the Capitol Area was the building of the State Capitol between L and N Street east of 10th Street, and the ensuing addition of other government buildings in the area. This led to another major effect on the Capitol Area - the growth of the state government itself. By the mid 1910s the state government needed additional office space. In 1913 the City of Sacramento voted to spend $700,000 to purchase property for an expanded Capitol area. The next year the State approved a $300,000,000 bond measure for construction of the new property. Subsequently, the Jesse Unruh Building (formerly known as Office Building 1) and the Library and Courts Building were built in the 1920s. During the mid 1930s, two more office buildings were added across N Street from the Capitol; the Public Works Building and the Department of Motor Vehicles (DMV) Building.

During World War II, building construction slowed dramatically, with building materials conserved for the war effort. Due to the "flight to the suburbs" that occurred after the war, efforts to retain downtown customers by modernizing buildings was not enough. The area became less inviting to shoppers and dwellers, and the downtown area began to decline.

This decline continued and in the 1960s and early 1970s many fine residences were turned into boarding houses and others were demolished so small apartment building of offices could be constructed. However, in the early 1970s the loss of the Alhambra Theater and the publishing of the book Vanishing Victorians began to galvanize a growing preservation community. A preservation ordinance was passed in 1975 and new state laws prohibiting the practice of "red lining" certain areas of a community were also passed.

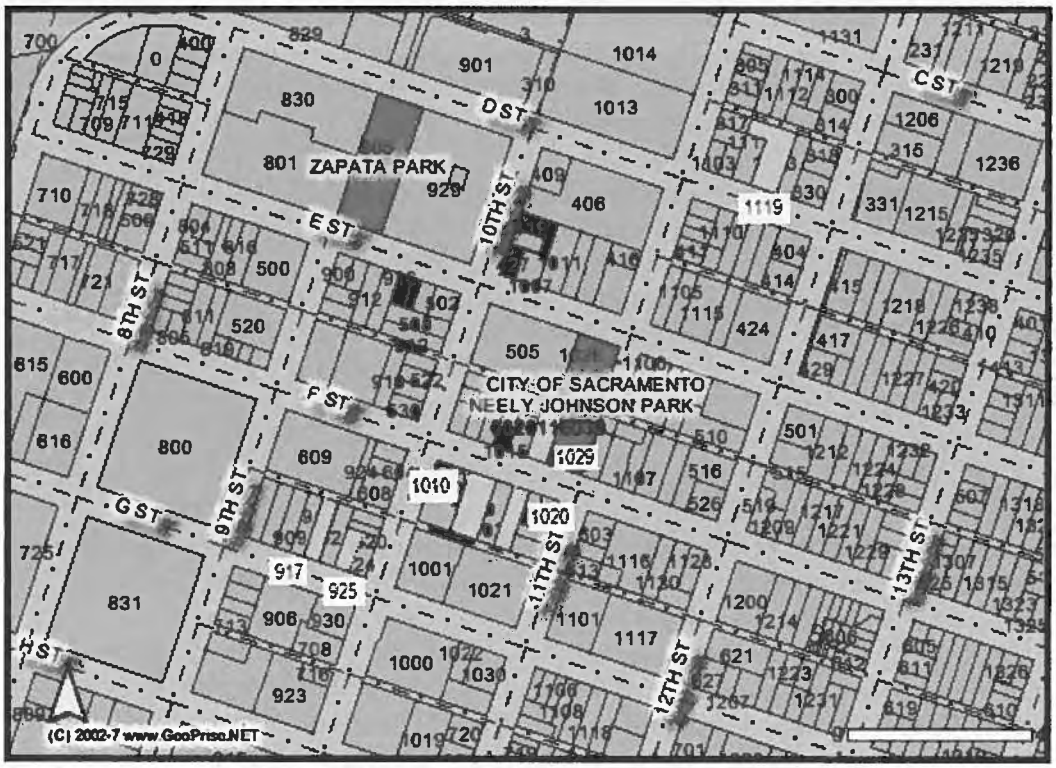
Since that time, major efforts on the part of the City of Sacramento and Sacramento Housing and Redevelopment Agency resulted in the creation of an attractive new Downtown Plaza shopping area, a panoply of regenerative activities including night markets, weekly farmer's markets, and a renewed interest in downtown lifestyles, activities, and residential growth. Current programs focus on this goal, and many buildings downtown have been rehabilitated or renovated and returned to a useful contemporary life, taking a positive role in the regeneration of this critical "heart of the city."

HISTORIC OVERVIEW: ALKALI FLAT

While some small dwellings and hotels sprang up alongside businesses in the early city core, one of the earliest residential areas was a nearby neighborhood that became known as Alkali Flat, due to the white powder on the soil caused by repeated flooding. At that time, Alkali Flat became home to several important early California figures including judges, governors, and prominent businessmen such as Peter Burnett, J. Neely Johnson, Albert Van Voorhies and Charles Crocker. A number of large handsome homes were constructed there during the 1850s and 1860s.

The value of the neighborhood was its proximity to the seats of city, state and county governments and the Central Pacific (later Southern Pacific) railroad shops. The impetus for growth in the neighborhood paralleled the growth of Sacramento in general. After the great fire of 1852, that consumed most of Sacramento, a good many homes and businesses turned to brick construction. The oldest remaining buildings in Alkali flat are predominantly brick residences:

1029 F – J Neely Johnson house built in 1853
1010 F – Hubbard-Upson house, built by the Bailey brothers, ca 1856
1119 D – Maria Hastings house, 1860
917 G – Anthony Egl house, 1863
1020 F – George Boehme house, 1865
925 G – A.A. Van Voorhies house, built by brickmason Charles Cate, 1869



This map shows the location of the oldest brick buildings in Alkali Flat.

Three historic districts in the Alkali Flat neighborhood have been listed in the National Register of Historic Places, the California Register of Historical Resources, and the Sacramento Register: Alkali Flat Central, Alkali Flat West and Alkali Flat North. These areas are some of the oldest remaining neighborhoods in Sacramento's Old City grid. They have been recognized as Historic Districts because they have a high concentration of late 19th century and early 20th century housing that still convey a feeling of a former time and place.

When land sales first began in early Sacramento, some speculators bought up whole block, half-blocks and groups of several parcels. When settlement began, large houses were built on expanded lots with extensive gardens. Many important people lived in Alkali Flat. For example, 1029 F was the home of J. Neely Johnson a former Governor of the State of California who sold his house in to Judge David S. Terry of the California Supreme Court. Terry was later killed in a famous duel with David Broderick. H.C. Kirk owned the house for many years starting in 1870 and his business would eventually become the Kirk-Geary Company, one of the most successful pharmaceutical distribution companies in California.

The house at 1010 F was built in about 1856 by the Bailey Brothers who were successful jewelers and bankers. It was James Bailey who introduced Theodore Judah to the "Big Four", founders of the Central Pacific Railroad and served as one of the first board members of the railroad. Isaac Miller Hubbard, a prominent merchant, was its next owner.

A well known Sacramento lawyer, politician and business person, Henry Hare Hartley built his home nearby at 1107 F Street in 1865. Many of the prominent people who lived in Alkali flat did so to be close to their places of business.

From the late 1860s onward the neighborhood began to change. As Sacramento's business and residential districts began to grow to the east there became a demand for more developable land for small homes and apartments. Part of this pressure came from the presence of the Southern Pacific Railroad Shops just to the west and north of Alkali Flat. The people who held skilled manufacturing jobs in the shops were well paid and able to build houses for their families. The mere presence of the railroad and the shipping activity created jobs.

With the availability of the railroad, farmers were now able to sell their crops to distant cities. California Agriculture began to transition from low profit wheat to higher profit fruits and nuts, which could not be grown in the colder climates of the mid-west and east. Around the turn of the century the fruit and nut farmers began to form cooperatives, such as the California Fresh Fruit Exchange (Blue Anchor), Pioneer Fruit Exchange and Pacific Fruit Exchange. These organizations were able to negotiate better freight rates for the farmers and expand their markets in the mid-west and east. Agriculture flourished and the profits from began to pour into Sacramento's banks and insurance companies. Ranchers like Solomon Runyon started investing in real estate development, such as Oak Park and helped establish the trolley line that connected it to the rest of the city. He also

helped fund and found a shipping company known as the California Transportation Company—which would later become famous as the builder of the Delta King and Delta Queen.

These new and developing business enterprises created jobs for executives, administrators, salesmen and clerks. Sacramento's white collar community began to grow and the demand for places for them to live expanded. They began to move into Boulevard Park and New Era neighborhoods. Some of the people who had built on multi-parcel plots in Alkali Flat began to sell off some of their undeveloped land. Cottages began to appear alongside the early mansions. Some of the foremen and other officials of the railroad were able to build or buy large houses.

Around the perimeter of the district commercial and industrial buildings began to appear, such as: 1013 D Crystal Cream & Butter; Steven H. Farley's Grocery at 12th & F; Anton Wagner's grocery at 1003 E, Burnett Miller's Planing Mill at 11th & C; and Globe Mills at 12th & C.

As more residents moved into the neighborhood and as more businesses appeared nearby, traffic and noise increased. The SP shops probably created the biggest share of the noise and discouraged to some degree the construction of new larger homes.

Developments were taking place in transportation in the 1890s with the advent of the electric trolley-car system. Workers and business people no longer had to live so close to where they worked. This trend was further accelerated by the introduction of the automobile--which had its biggest impact between 1905 and the beginning of the First World War.

As transportation, traffic, crowding and noise began to change the neighborhood, some of the wealthy and prominent residents began to slowly move out. By the early 20th Century Alkali Flat had become primarily a workingman's district.

DESCRIPTION OF PROPOSED PROJECT SITE

The proposed Project site includes the area delineated by 10th to 11th Streets from the alley between B and C Streets to D Street, the south half of the block of 9th to 10th Streets C to D Streets, and the block of 10th to 11th Streets D to E Streets with the exception of the market and adjacent building on the southwest corner of that block.

10th to 11th, from the alley between B and C Streets to D Street

The first two blocks contain the principal operating buildings of the former Crystal Creamery company. The site is occupied by a complex of one and two story industrial buildings, warehouses, offices, and related open or covered work space. The buildings are variously constructed of concrete block, brick, steel and concrete and contain varied equipment utilized in the manufacture of milk products,

The south elevation of the Creamery is comprised of different buildings and work spaces connected along D Street to present a unified façade. The alley between C and D Streets separates the southernmost building (along D Street) from the building or structures behind it facing the alley.

The D Street façade of the Crystal complex.

The brick building on the corner of 11th and D Streets contained the ice cream making function. The building is surfaced with plaster on the D Street elevation, but the 11th Street elevation is painted brick and reveals the location of former windows with arched headers, now closed with brick. Some decorative details parallel to and beneath the cornice along the 11th Street remains. The building originally housed the stables on the ground floor and living quarters for the teamsters of the Wells Fargo delivery business on the second floor. This building was apparently constructed for Wells Fargo company use between 1895 and 1915.

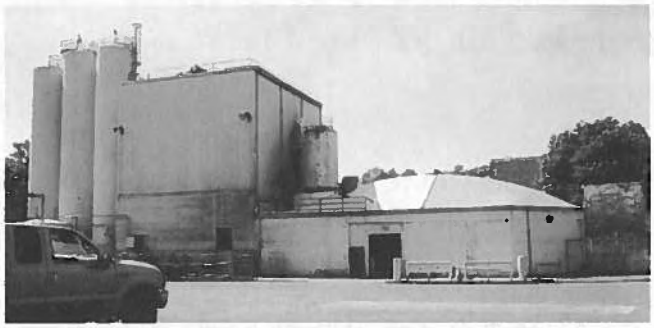
The brick arch of an original window can be seen directly above this window. Also notice the corbelling of the brick in the cornice.

The open but covered truck loading area for the Creamery was located just west of the Wells Fargo building. This location once housed the Well Fargo Express Co. wagons next to its brick stable.

The next adjacent activity west of the truck loading area was the milk bottling

area which contained some rectangular glass block windows on the façade. The building in back of this area contained Quality Control functions and three milk silos along the continuation of C Street.

The offices for the company occupied the second floor space adjacent to the milk bottling area, and across the alley to the north was butter production with the milk dryer structure adjacent to the silos on the C Street continuation. The main entrance to the office portion of the complex along D Street contained glass panels flanking the entrance and was topped with a short mansard roof section along the cornice.



The silos are on the left, next to the milk drying unit and the bow truss building houses the cold storage unit.

Adjacent and west of the milk bottling area, was the cottage cheese production area which extended to the 10th Street driveway. Rectangular glass block windows lit the interior. The bow truss cold storage building was in back of this area and adjacent to the milk dryer. A driveway separates the building complex with its various functions on the east side of the drive, from the long, gabled, one story cinder block warehouse on the west.

An open work area at the rear (north) of the production building complex and opposite the end of C Street, separates it from the long Milk Case storage structure. This structure is open along the south elevation beneath a horizontal canopy and a long bank of windows.

This building was used for milk case storage.

There is a wood frame, corrugated metal-clad warehouse at the rear (north) of the Project property along the alley between B and C Streets, 10th to 11th Streets. It was originally a grain storage building used by the former Globe Mills across 11th Street to the east. It predates other buildings on the Creamery site, except for the Wells Fargo stable, which was built before 1915. The utilitarian structure is a common type of standard storage building of its era and is not architecturally unique or distinctive. It has also experienced some modifications.

With the exception of the wood frame warehouse and the brick former Wells Fargo

stable, all of the buildings that functioned in the manufacturing of milk products on the Creamery site were constructed in the 1970s or later. These buildings are less than 50 years of age and are not outstanding examples of their type and style. They have been variously remodeled and modified to meet the needs of the Crystal Creamery business production. Much of the machinery that functioned during the operation of the Creamery has been removed, obscuring the original uses of most of the remaining spaces, and limiting their interpretation.

South half of the block of 9th- 10th, C - D Streets

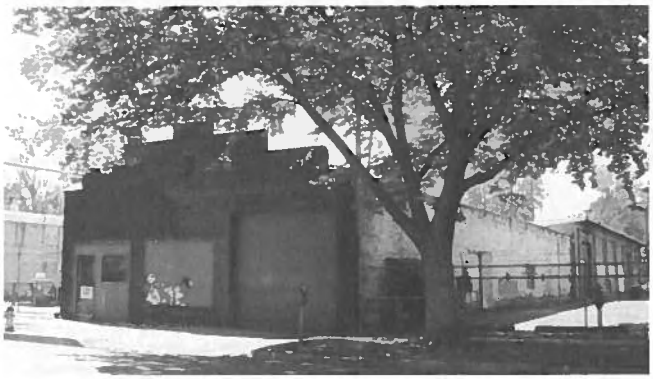
A long gabled cinder block warehouse occupies the south half of the block. The building is less than 50 years old.

10th-11th, D - E Streets

The block of 10th to 11th Streets, D to E Streets, also formerly owned and used by Crystal Creamery, is part of the proposed Project with the exception of the market and adjacent building on the southwest corner of the block (10th and E Streets). This site contains three buildings: a one story vehicle maintenance building, a brick one story garage building, and a one-story concrete block garage building.

The Vehicle Maintenance & Repair facility is located across D Street from the dairy production plant.

The vehicle maintenance building is constructed of concrete block and contains large truck doors and metal sash window banks. It was apparently built in the late 1950s or early 1960s after a fire destroyed the maintenance facility in the Creamery complex in 1955.



Earl Shrout's garage was built in 1926.

A one story brick garage building at 406 11th Street stands directly east of the vehicle maintenance building. The façade contains a stepped parapet, a large fixed window flanked by a large truck door opening and a smaller filled-in truck door opening containing a window and standard door. The building was constructed in 1926.

Another one story garage building of concrete block stands to the south of the brick garage at 424 11th Street. The façade contains a stepped parapet, a truck door, a window and standard door. The building appears to have been built in the 1970s.

The excluded market on the corner of 10th and E Streets and adjacent residence are the only other structures remaining on that block.

James and Anna Dunphy built this market in about 1912 and ran the store for 33 years. There has been a grocery store on this corner continuously since 1870.

At right is a view of the window detail on the market building.

This map of the project site shows the relative location of the processing areas in Crystal Creamery and the location of some of the historic resources nearby.

HISTORY OF PROPERTIES ASSOCIATED WITH PROJECT SITE

Crystal Creamery/Cream & Butter Company

Crystal Cream & Butter Company was founder by George Knox and his wife Caroline in 1901. They were churning butter and cranking out ice cream in the rear of the Hensler Grocery in the 700 block of K Street. In 1904 the operation was moved to its own storefront at 1320-22 J Street, the site of today's Convention Center. The creamery continued to grow and eventually moved to a 40' x 80' brick building on its present site at 1013 D Street in 1912.

Crystal Creamery was located in this building at 1320 J Street in 1908. It is now the site of the Convention Center.

Photo courtesy of SAMCC

George Knox experienced health problems and Caroline sold Crystal Cream & Butter to Carl and Gerda Hansen in 1921. At the time the company had ten employees and two trucks. Crystal eventually grew to become California's largest on-site milk processor, one of Sacramento's largest employers.

In 1926 Crystal became one of the first dairies to put milk in glass bottles. In 1930 Crystal's fluid milk sales surpassed its butter for the first time and in 1931 the company introduced its ice cream brand. Other dairy products soon followed. Vernon Hansen, the son of Carl and Gerda graduated summa cum laude from Stanford University in 1928 with a degree in economics and in 1932 became the general manager of Crystal Cream & Butter. In 1938 Vernon is joined by his brother Gerald--also a Stanford graduate with a degree in economics.

In 1935 the company chose Holdener Construction Company to expand and modernize its production facilities. Holdener Construction would handle all future construction for Crystal. Cottage cheese was added to the product line-up in 1938. The following year Crystal introduced milk contained in waxed cardboard containers.

Vernon Hansen, Ewing Kelley, and David R. McKinley form the Central Valleys Broadcasting Company and in 1945 KCRA Radio began broadcasting. Vernon Hansen and Ewing Kelley bought out McKinley and Vernon Hansen sold a third of his 50% interest to his brothers. Vernon was elected vice president of the California Dairy Institute in 1948.

In the early 1950s Crystal Cream & Butter introduced two new products, "Slim" non-fat milk and sour cream and the Hansens received a license for KCRA television. By 1952 the facility occupied about two thirds of the half-block bound by 10th, 11th , D Street and the alley. They also occupied about a third of the adjacent half block to the north. They also had a large brick garage (100' X 50') nearby on the west. Carl Hansen retired in the mid-1950s and in 1955 the company had a severe fire that destroyed its vehicle maintenance facility and a warehouse on the half-block to the north. Some 240 firemen fought the blaze and $70,000 in property and $120,000 in inventory. Following the fire Crystal began buying up property on the block across D Street to the south and including Earl Shrout's garage at 414 11th Street. The Company wanted to relocate its vehicle maintenance activities further away from its dairy production facility. By 1955 Crystal's sales top $10,000,000.

In the latter 1950s Carl Hansen died and Vernon became president of Crystal Cream & Butter. The company bought the Home Milk Company in Sacramento and 50% of the El Rancho Milk Company in Chico. In the early 1960s Crystal bought the other half of the El Ranch Milk Company, the Inderkum Dairy in Sacramento and the Cloverleaf Farms Dairy in Stockton. Milk, which used to be picked up at dairies in 10-gallon drums by pick-up trucks was now picked up in 3,000 gallon tanker trucks. In 1964, in the memory of Carl F. Hansen, the Hansen family donates 184 acres of land along Dry Creek to the City of Sacramento for a park. At his time Crystal began bottling milk in plastic gallon containers. The Company also moved into the popsicle business when it bought the business of Vita Freeze Frozen Confections.

By 1967 Crystal's sales surpassed $20 million with the company acquires Milkiway Dairy in Yuba City, Milk Stop Dairy in Lodi, and Challenge Dairy's home delivery routes in Northern California. In 1969 Crystal expanded its D Street plant, commencing production of yogurt, adding two additional bottling machines, and building a larger refrigerated storage warehouse. In 1974 the Company sold its home delivery routes to sub-distributors and by 1975 Crystal's sales topped $25,000,000.

In 1982 there was another expansion and plant modernization - a new milk case receiving dock and refrigerated storage boxes were built. In 1985 Crystal purchased McColl's Dairy of Redding. McColl's added $20 million per year to Crystal's sales. By 1987 Crystal introduced its ice cream Feature Flavor program rotating five new flavors every two months into the standard list of ice cream flavors. This program increases Crystal's annual flavor offering to over 50 flavors and dramatically increased sales. In the late 1980s low-fat dairy products became increasingly popular. Crystal introduced Light & Less Ice Cream, Light Sour Cream and Non-Fat Cottage Cheese.

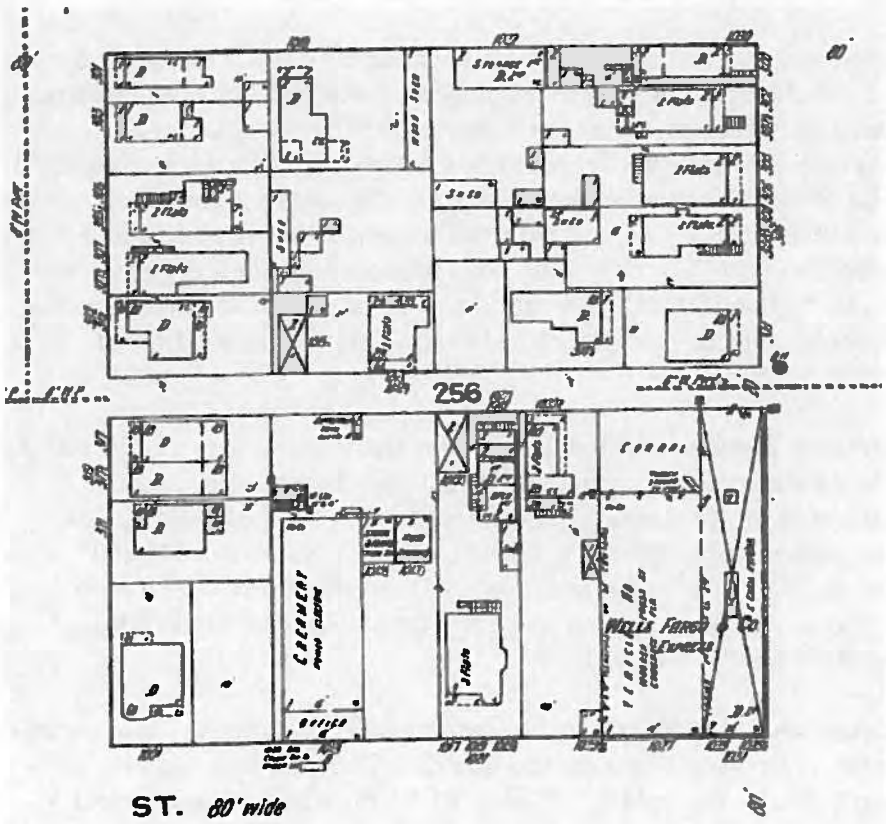
In the early 1990s the Hansens and Hayes Johnson founded the Crystal Mountain Spring Water Company. Crystal purchased 36 acres of property and a small milk facility from Safeway Inc., located on Belvedere Avenue in Sacramento. The milk plant was demolished to make way for the new milk production facility. The plant was completed in 1996 and was one of the most state-of-the-art plants in the country. Production was consolidated, fluid milk production was moved from both the D Street plant and McColls plant to the Belvedere location. The new technology increased the shelf life of Crystal milk by over 40%. In the late 1990s Crystal introduces 16 oz. single serve milk in clear plastic bottles. Crystal introduces flavors such as Double Dark Chocolate, Lowfat Strawberry, Mocha, and Vanilla.

In 2001 Crystal Cream & Butter celebrated its 100-year anniversary. At a festive activity in Cesar Chavez Park the company served up a ten foot long banana split for those in attendance. The company received resolutions of appreciation for its many years of contributing to the community by both the City and County. Crystals sales in 2001 were about $160 million. At one point the Crystal plant on D Street churned out 10 million pounds of butter, produced as much milk as 100 dairy farms, made millions of frozen treats and millions of pounds of cottage cheese.

In 2005 Crystal posted sales of $182 million. In January 2007 the company sold the eight acres at 1013 D Street to Anthony Giannoni and Meridian Development. In May of 2007 Crystal Cream & Butter was sold to HP Hood LLC of Chelsea, Massachusetts.

Wells Fargo Express Stable: 1029-31 D Street

Some time after the 1895 Sanborn Map Book was published, but before the 1915 book, Wells Fargo Express established a stable complex on the northwest corner of 11th & D Streets. The complex was more likely to have been established before 1905 while horse and wagons were still the most popular form of transportation. Between 1905 and the start of World War I was the time when the automobile gradually replaced horse-based transportation. The complex at 11th & D was composed of two brick buildings. The building on the east was two-story and was about 20 feet wide and extended approximately to the alley about 160 feet. The ground floor had a concrete floor and was used to house the horses. The second story was a dwelling unit for the teamsters. The single-story building adjacent to the west was about 30 feet wide and extended back about 100 feet. It was used to store the wagons and harnesses. The area behind this building was a corral.



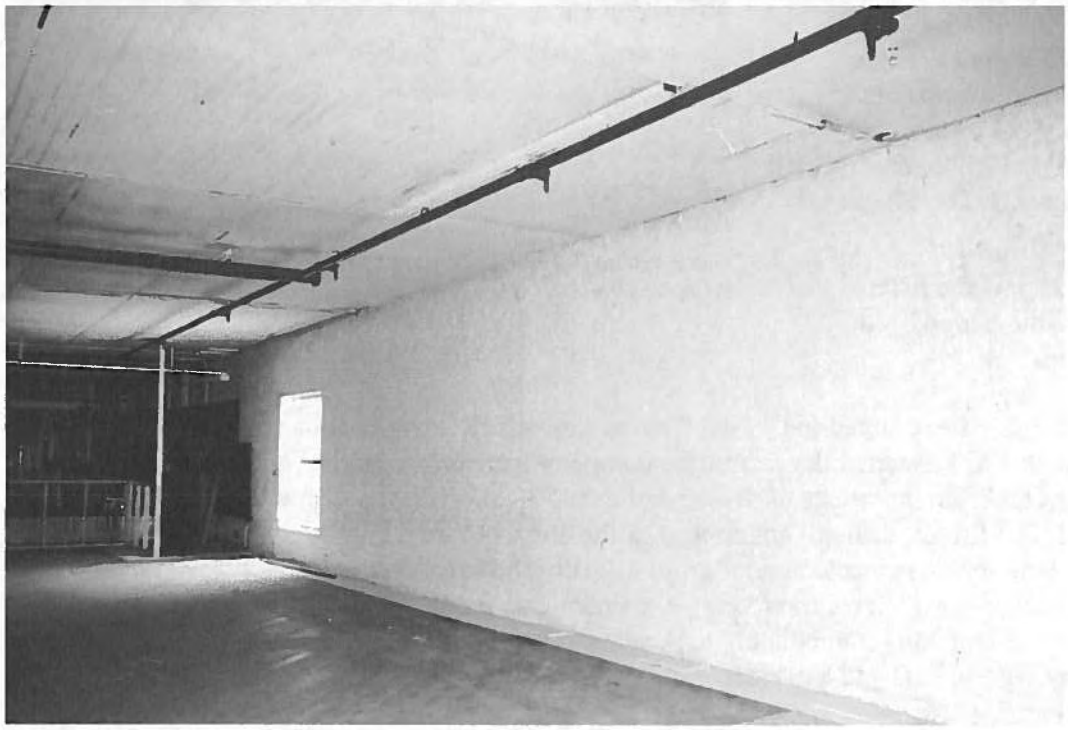
This is a drawing of the Wells Fargo buildings at 11th & D Streets as depicted in the 1915 Sanborn Fire Insurance Map Book. The buildings are in the lower right corner. The 'X' drawn across the building on the right indicates it is a stable. The inscription on the lower right portion of the drawing is "D 2nd" which means there is a dwelling on the second floor. The square and rectangle in the middle of the building have a 2 inscribed in them and this indicates lightwells that Illuminate both floors. In the back wall is a double hash mark which indicates windows on the second floor. Where the coral meets the stable building there is a pair of short parallel lines that are cross hatched and this indicates a pipe fire-escape. The Vehicle Ho(use) is single story. The words underneath indicate that the building had a concrete floor and a wood truss roof. The number 11 just inside the front wall indicates that the building is 11 feet high.

Although the period of 1905-15 saw the replacement of the horse, the automobile did completely eliminated horse and wagon. A 1923 picture, taken just before the opening of the Public Market Building, shows horse drawn wagons making deliveries. The Wells Fargo complex was listed in City Directory Street Guides as Stables until 1932 when the listing was changed to Garage at the 1029 D Street address. The adjacent two story building at

Horse drawn wagons were making deliveries to the Public Market Building when it opened in 1923. One is just outside the corner entrance and the other is at the extreme left.

1031 D was listed as vacant. This is the point where the two buildings that originally were part of the Wells Fargo stables were split apart. From 1938-52 the two story stable building was occupied by Sacanni Beer Distributing Co. The 1936-40 Thomas Brothers Block Book lists the owner of both buildings as the American Railway Express Company.

The 1952 Sanborn Map showed the two-story building being used as a "Beer Depot". The single-story structure was in use as a "Garage" by a railway express company. The 1952 City Directory lists the tenant of these two buildings as Crystal Creamery which probably took over occupation in mid to late 1952.



This interior of the second floor space in the old Wells Fargo stable shows one of the bricked-in arched windows in the center of the photo. You can also see remnants of the original wood floors and ceilings.

Globe Mills Grain Warehouse

The wood frame, corrugated metal-clad warehouse at the rear (north) of the Project property along the alley between B and C Streets, 10th to 11th Streets was originally a grain storage building used by the former Globe Mills across 11th Street to the east. It appears to date before 1915. The utilitarian structure is a common type of standard storage building of its era and is not architecturally unique or distinctive. It has also experienced some modifications.

Earl Shrout s Garage 406 (414) 11th Street

Earl Shrout had a successful auto repair business housed at 910 D Street. In 1926 he built the brick garage building at 414 11th Street (Now listed by the Assessor's Office as 406 11th). Shrout could not outrun the Great Depression and in 1931 the tenant was the Merchants Freight Forwarding & Distribution Company. They only lasted three years and from 1934-36 the building was vacant.

This is the Interior of Earl Shrout's garage. The office is at the right.

From 1938 to 1943 the Langendorf United Bakeries, the bakers of Langendorf Bread, were the tenants. From 1945-49 F. H. Bailey Auto Repair was the occupant with an associated business of V.G. Hunter auto trimmer. The 1952 Sanborn listed an Auto-Body & Top Shop as the occupants. From 1952-55 City Directories show the listed business as the Union Taxi Corporation.

In 1955 a terrible fire erupted in Crystal Creameries vehicle maintenance and warehouse facility which was located at the rear of the company's creamery facility at 1013 D Street. First the gas tanks on the trucks exploded and then 50-gallon drums of fuel began exploding. The fire department got control of the blaze before it could ignite a 7,000 gallon gas tank that was located under ground. After the fire Crystal must have realized how dangerous it was to have their vehicle maintenance facility so close to their dairy operation. The company immediately took steps to buy up the block across the street bounded by 10th, 11th, D and E Streets.

In 1956 414 was listed in directories as *Vacant*. In 1957 there was no listing for 414 and it can be assumed that was the year that Crystal took control and began using it as their garage. Most even numbered buildings on the block were also listed as Vacant in 1957.

Caron's garage replaced a former gas station in the early 1970s.

At some point, probably the 1960s, Crystal needed to expand its maintenance facility and added the concrete block building which adjoins the brick garage at the rear. One cannot help notice that the new building was placed along the alley on the block—as far as it could be placed away from the company's Creamery operation.

Mention should also be made of the Concrete Block building across the alley to the south of Shrout's garage (424 11th Street). There was a gas station at 11th & E for many years. It was vacant in 1970 and in 1973 it was demolished and replaced by the concrete block building that is currently on the site. It housed Caron's Auto Repair. By 1977 it was a warehouse for Crystal Cream & Butter.

HISTORIC RESOURCES ON PROJECT SITE

Almost all of the Creamery complex buildings were constructed in 1970 or after (Mike Newell, 2007). The only 3 buildings on the proposed Project site that are 50 years or older are the Wells Fargo stable building on D Street, the former Globe Mills grain warehouse at the north edge of the Creamery, and Shrout's garage at 406 (414) 11th Street.

Former Wells Fargo Co. stable building
The Wells Fargo Co. stable building is historic and its history provides an interesting insight to the community's past. However, the front of the building has been covered with plaster and the original arched windows along 11th Street have been filled in and painted over. Modifications to the original building have limited its eligibility for listing in the National Register of Historic Places, the California Register of Historical Resources, or the Sacramento Register.

Former Globe Mills grain warehouse
The wood frame warehouse is over 50 years old and a standard example of relatively inexpensive utilitarian and industrial buildings of the first half of the 20th century. It was constructed before 1915 when Globe Mills was expanding. While an example of its era and use, it has been altered over time and lacks architectural distinction. The building does not appear eligible for listing in the National Register of Historic Places, the California Register of Historical Resources, or the Sacramento Register.

Former Shrout s garage
The former garage building was built in 1926. The brick construction and the stepped parapet of the façade reflect a standard design statement of the era for modest one story commercial buildings. Its form is a 'classic' type of construction for small businesses at that time. The openings in the building facade have been modified substantially however, and its eligibility to the National Register of Historic Places, the California Register of Historical Resources, or the Sacramento Register has been compromised.

Recommendation
While none of the three historic properties appear eligible for official listing, the retention of the Wells Fargo Co. building and its incorporation into the project is recommended in order to support the existing scale and character of the area.

PROPERTIES ADJACENT TO PROJECT SITE BUT NOT INCLUDED IN PROJECT

Dunphy s Market

The market building on the northeast corner of 10th & E Street stands on a site that has been in use as a market since 1870, some 137 years. Anton Wagner was a partner in the Eberhard & Wagner harness and saddle shop at 170 K Street (608 K Street after renumbering took place in 1880).

In 1866 Wagner moved to a location at 10th & E Streets. In 1870 he quit the harness and saddle business and opened a market at that location. There was an ad for this new business in the 1870 City Directory (p. 283). The 1895 Sanborn Map showed a two-story wood frame building on the corner with a store on the ground floor (1001 E Street) with a dwelling unit on the second floor. A two-story wood frame storage structure filling the space between the store and a two-story wood frame dwelling to east at 1003 E Street. Anton Wagner probably retired and in 1876 his son Jacob Wagner became the proprietor of the store.

By 1882 to 1904 the market was being operated by Riley & Judge. John Riley became the sole proprietor in from 1905-1911. In 1912 the store changed hands and Thielen & Dunphy took over the property. It was probably around this time (1912-1915), after the change of ownership, that the current building was constructed. The building matches the architectural themes and methods of construction with this time period. The current building was depicted in the 1915 Sanborn Map Book. From 1926-1945 John and Anna Dunphy were the sole proprietors of the market. In 1929 David Joslyn took a picture of the building and it had Dunphy's name painted on the front widow. From 1946-1965 the market became Matt's Market, named after its owner Mathew Wachowicz. From 1966-1981 the market was listed as the True Value Market. The market has had various proprietors over time and is still in use as a market at the present time. The market has been substantially altered and does not appear to be eligible for historic listing.

Apartment building

A small apartment building stands adjacent to the market. The two story wood frame building has been highly altered and is not eligible for any historic listing.

The apartment building at 1005 E Street.

SIGNIFICANT HISTORIC RESOURCES IN THE VICINITY OF THE PROPOSED PROJECT.

There are two National Register of Historic Places Historic Districts in the immediate vicinity of the Proposed Project: Alkali Flat North and Alkali Flat Central Districts.

Alkali Flat North:
The western boundary of Alkali Flat North District faces the east side of the project site from 315 to 415 11th Street.

Alkali Flat Central:
Two different corners of the District face the Project site. The eastern portion of the Alkali Flat Central District is diagonally opposite the southeast corner of the Project site. The western portion of the Alkali Flat Central District is diagonally opposite the southwest corner of the Project site block but faces two properties that are excluded from the Project. The block face opposite the Project site along E Street from 10th to 11th Street is not in the Alkali Flat Central District.

RECOMMENDATIONS:

1. Development on the portions of the Project site that face the Alkali Flat North Historic District along 11th Street should be compatible with the nearby District image in terms of scale and articulation. Character-defining features of the Historic District should be identified such as yards or gardens, streets, street furnishings, open spaces, building design and building materials, and their character not diminished by the design of the new construction directly across the street. The settings of the Alkali Flat North Historic District and the nearby Alkali Flat Central Historic District should be respected by visual additions to their vicinity.

2. Development design diagonally opposite the east and west portions of the Alkali Flat Central Historic District should acknowledge the scale and character of the District along E Street from 9th to 10th Street and 10th Street to the alley, and the northwest portion of the block of 11th to 12th Street and the alley between E and F Streets. The essentially intact block along E Street from 9th to 10th Street is an important streetscape and contributes to the Historic District. The new construction diagonal to this blockface on the northeast should the importance of its setting in its design, in terms of scale and character, and avoid diminishing character-defining features of the District.

3. There are three historic properties on the former Crystal Creamery production sites:
   the Wells Fargo Express Co. former stable
   the former Globe Mills grain warehouse
   the Shrout Garage building at 406 11th Street

While none of these three properties on the former Crystal Creamery production sites appear eligible for official listing, the retention of the Wells Fargo Express Co. building and its incorporation into the project is recommended in order to support the existing scale and character of this historically significant neighborhood.

A Few of the Houses in Alkali Flat

511 11th Street

The home of P. Sullivan at 1100 E Street. He was a foreman for the SP Shops.

1110 E Street

Maria Hastings house at 1123 D is on the National Register of Historic Places.

515 11th Street

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Appendix A

Landmarks and Contributors

Crystal Creamery Project

Landmarks/Contributors to Historic Districts

Globe Mills 1129-31 C

1103 D NR, CR
1107 D NR, CR, Landmark
1119-23 D NR, CR, Landmark
1120 D NR, CR, Landmark, Landmark
1129 D NR, CR, Landmark

900 E NR, CR
906 E NR, CR
912 E NR, CR, Landmark
916 E NR, CR, Landmark
918 E NR, CR
922 E NR, CR
1001 E , Landmark
1100 E NR, CR, Landmark
1104-06 E NR, CR, Landmark
1110 E NR, CR

500 – NR, CR
502 10th La Rose Apts – CR, Landmark
504 – NR, CR

508 10th, 512 NR, CR, Landmark
512-14 10th, NR, CR, Landmark
516 10th , Landmark
519 10th, NR, CR
520 10th, NR, CR
521 10th, NR, CR
524 10th NR, CR
530 10th NR, CR – Calvin Crocker House, Landmark

315 11th, NR, CR
401 11th, NR, CR
405 11th NR, CR, Landmark
409 11th NR, CR, Landmark
411 11th NR, CR, Landmark
415 11th NR, CR, Landmark
511 11th NR, CR, Landmark
515 11th NR, CR
51711th NR, CR, Landmark

Appendix B

Timelines of Some Buildings

Timelines of Some Buildings

1003 E Street - Market

1863-1866 Anton Wagner, Eberhard & Wagner, harness & saddles, 170 K Street

1866 – Anton Wagner, saddletree maker, 10th & E

1870 - Anton Wagner Groceries, 10th & E ad on page 283 of City Directory

1876-1881 Jacob Wagner, ne corner 10th & E

1882-1904 Riley & Judge

1905 – 1911 John Riley, Pacific Cash Store

1912-1921 Thielen & Dunphy – current building probably built by Thielen & Dunphy in 1912.

1915 – Current building shown in Sanborn.

1926 –1945 Jas. L. Dunphy (Anna), Grocer

1929 – Photograph taken by David Joslyn

1946 – 1965 Matt's Market

1966-1981 True Value Market

404 (414) 11th Street - Garage

1926-1930 – Earl F. Shrout Auto repair

1931-1933 – Merchants Freight Forwarding & Distribution Co.

1934-1936 – Vacant

1938-1943 – Langendorf United Bakeries

1945-1949 – F.H. Bailey Auto Repair, V.G. Hunter auto trimmer

1952 – Sanborn shows an Auto-Body & Top Shop

1952-1955 – Union Taxi Corp.

1955 – Fire destroys Crystal auto repair facility

1956 – 414 is Vacant

1957 – no listing for 414. Most even numbered buildings on the block are vacant. Crystal had probably already purchased and occupied 414 and was probably in the process of demolishing the former dwellings on the block.

416 11th This single family wood frame dwelling was finally acquired in 1977 by Crystal and it has since been demolished.

424 11th There was a corner gas station at 11th & E for many years. In 1970 it was vacant and in 1973 it was demolished and replaced by the concrete block building that is currently on the site. It housed Caron's Auto Repair. By 1977 it was a warehouse for Crystal Cream & Butter.

Wells Fargo Stables

The stable buildings were not present in the 1895 Sanborn Map book, but they did appear in the 1915 book. Since the period 1905-1915 was the period when the automobile began to replace the horse based transportation it is probable that the stable facility was built between 1895 and 1905. However, the stables were listed in the City Directory street guide as *Stables* until 1931. In 1932 the listing was changed to *Garage* at the address 1029.

In 1932 the address 1029 was still the Railway Express Agency Garage, however, the 1031 building was listed as Vacant. This is the point at which the two buildings of the former Wells Fargo complex were split apart. In 1938 the two-story stable building was occupied by Sacanni Beer Distribution Co. Sacanni remained there until around 1950 when the two buildings were occupied by Crystal.

APPENDIX E

ENVIRONMENTAL NOISE ASSESSMENT, OLD CRYSTAL CREAMERY SITE, J.C. BRENNAN & ASSOCIATES, JULY 19, 2013

Environmental Noise Assessment

Old Crystal Creamery Site

Sacramento, California

Job # 2013-147

Prepared For:

Lewis Operating Corporation

9216 Kiefer Blvd.
Sacramento, CA 95826

Attn: Phil Rodriguez

Prepared By:

j.c. brennan & associates, Inc.

Jim Brennan
President
Member, Institute of Noise Control Engineering

July 19, 2013

j.c. brennan & associates
consultants in acoustics

P.O. Box 6748 - 1287 High Street - Auburn, California 95603 -p: (530) 823-0960 -f: (530) 823-0961

INTRODUCTION

This section describes the existing noise environment in the area of the "Old Crystal Creamery site, and the potential of the Proposed Project to significantly increase noise levels due to project construction and increased traffic, and the potential of the Proposed Project to expose new noise sensitive uses to excessive noise levels. The relevant noise standards are contained within the Noise Element of the City of Sacramento General Plan and in the California State Building Code, Title 24, Chapters 2-35. These standards were used to evaluate the need for noise mitigation measures.

The Proposed Project site is not located within the over-flight zone for any airports, or within any noise contours for an airport. Therefore, development of the project would not expose people to excessive airport noise levels, and this issue is not discussed.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective: one person's music is another's headache.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, 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.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

TABLE 1
TYPICAL NOSE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. October 1998.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- 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 human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING CONDITIONS

Sources of ambient noise in the project vicinity include industrial, and transportation noise sources. The primary sources of noise in the project vicinity include roadway traffic, Union Pacific Railroad (UPRR) train operations, and industrial activities at the Burnett & Sons Millwork and Lumber Company to the east.

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to ambient noise levels than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries and hospitals. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, the primary noise sensitive land uses include single family residences in the neighborhoods to the south of the project. These land uses could potentially experience noise impacts associated with project construction and/or increased traffic from the project.

EXISTING AMBIENT DAYTIME NOISE LEVELS

To generally quantify existing ambient noise levels in the project vicinity, continuous (24-hour) and short-term ambient noise measurements were conducted at various locations around the project site. The ambient noise measurement locations are shown on Figure 1.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

The sound level meters were programmed to record the maximum and average noise level at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. Table 2 shows the summary of the noise measurement data. Figure 2 graphically shows the results of the continuous measurement results.

TABLE 2
SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA
CREAMERY D-STREET PROJECT – CITY OF SACRAMENTO, CALIFORNIA

Site	Date	Notes	Measured Noise Levels, dB						
				Daytime (7am-10pm)			Nighttime (10pm-7am)		
			L_{dn}	L_{eq}	L_{max}	L_{50}	L_{eq}	L_{max}	L_{50}
A	June 11-12, 2013	On-site 65 feet from RR track centerline	67.3	59.1	77.5	51	61.2	77.3	48
1	June 11, 2013	D Street Traffic	NA	55.7	68.0	55	@ 11:10 a.m.		
2	June 11, 2013	11th /D Street Traffic	NA	54.5	66.1	52	@ 12:30 p.m.		
3	June 11, 2013	11th/ E Street Traffic	NA	55.8	65.9	55	@1:10 p.m.		

Source: j.c. brennan & associates, Inc., 2013

Figure 1

Crystal Creamery Site - Sacramento, California

Project Site and Noise Measurement Locations

△ : Short Term Noise Measurement Locations

□ : Continuous & Railroad Noise Measurement Location

○ : Dust Collector Noise Measurement Locations

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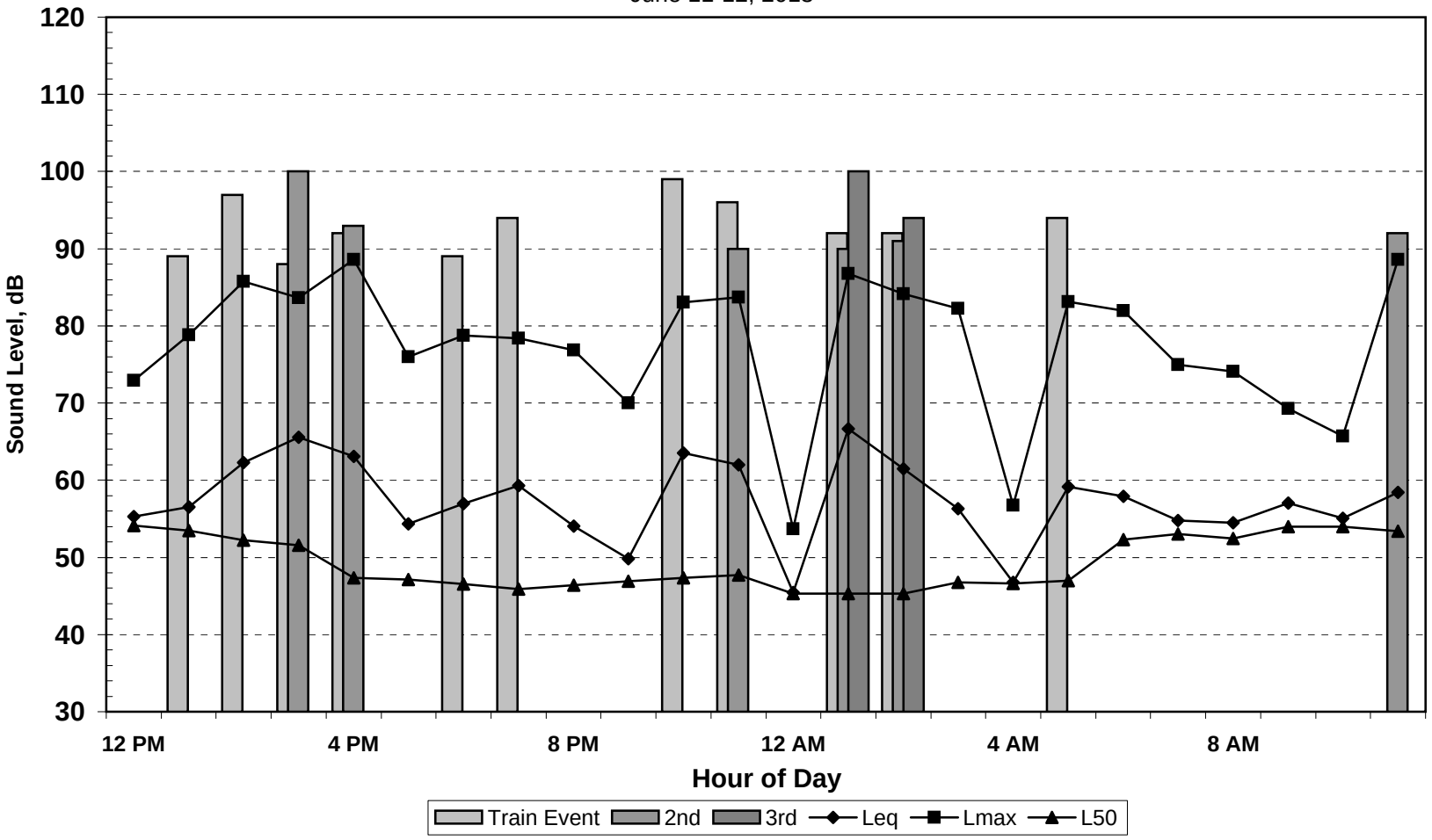
Figure 2
24hr Continuous Monitoring - Site A
Old Crystal Creamery Site
June 11-12, 2013



Ldn : 67 dB

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Existing Roadway Noise Levels

To predict existing noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions.

Traffic volumes used for this analysis were from the previous analysis conducted in 2007. The traffic volumes for existing conditions were obtained from Kimmerly Horn Transportation Engineers in the form of peak hour intersection movements. The p.m. peak hour traffic volumes were compiled into segment volumes and converted into daily traffic volumes using a factor of 10. Truck usage and vehicle speeds on the local area roadways were estimated from field observations.

Table 3 shows the existing traffic noise levels in terms of L_{dn} at a reference distance of 75 feet from the centerlines of the existing project-area roadways identified in the traffic study (existing conditions). This table also shows the distances to existing traffic noise contours. A complete listing of the FHWA Model input data is contained in Appendix B.

TABLE 3
EXISTING NOISE LEVELS AND DISTANCES TO CONTOURS
CREAMERY/D STREET PROJECT – CITY OF SACRAMENTO, CALIFORNIA

Roadway	Segment	L_{dn} @ 100 Feet (dB)	Distance to Contours (feet)		
			70 dB	65 dB	60 dB
C St.	11th St. to 12th St.	43	2	3	7
C St.	12th St. to 13th St.	51	5	11	23
D St.	8th St. to 10th St.	51	5	11	24
D St.	11th St. to 12th St.	53	7	15	32
D St.	12th St. to 13th St.	53	7	15	33
E St.	10th St. to 11th St.	54	8	17	37
E St.	11th St. to 12th St.	54	8	18	38
E St.	12th St. to 13th St.	56	11	24	52
10th St.	E St. to F St.	51	6	12	26
10th St.	D St. to E St.	49	4	8	18
11th St.	D St. to E St.	42	1	3	7
12th St.	E St. to F St.	63	35	74	160
12th St.	C St. to North B St.	64	40	86	185
16th St.	North of C St.	68	75	161	346

Notes: Distances to traffic noise contours are measured in feet from the centerlines of the roadways.

Source: FHWA-RD-77-108 with inputs from Kimmerly Horn, and j.c. brennan & associates, Inc. 2007.

Existing Railroad Noise Levels

UPRR Freight Line:

The Union Pacific Railroad (UPRR) line is located adjacent to the northwest corner of the project site. The existing UPRR railroad operation noise levels were calculated utilizing sound exposure level (SEL) measurements for train operations at the project site collected on June 11-12, 2013. The measurement location is shown on Figure 1, and is labeled "Site A".

A typical UPRR train generated a mean sound exposure level (SEL) of 96 dB at a distance of approximately 60 feet. A total of 19 trains were observed during the 24-hour period on June 11-12, 2013. It should be noted that during several site visits, trains were observed to not use warning horns in the vicinity of the project site. Figure 2 also shows the number and distribution of trains during the 24-hour period, and the associated sound exposure levels.

In order to predict the Ldn noise level associated with the UPRR trains, the following formula is used.

$$Ldn = Mean\ SEL + 10*\log (Neq) - 49.4$$

Neq is defined as the number of daytime (7 am to 10 pm) train events and 10 times the number of nighttime (10 pm to 7 am) train events. 49.4 is 10 times the log of the number of seconds in a day.

Based upon the measurement data, and the identified railroad operations, the approximate number of daytime and nighttime train operations was obtained. The track was found to carry approximately 17 daytime (7 a.m. – 10 p.m.) trains and 7 nighttime (10 p.m. – 7 a.m.) trains per day.

Based upon the equation above and the stated operational data, the existing railroad noise exposure was calculated to be 66.9 dB Ldn at a distance of 60 feet from the railroad track centerline. Based upon this level, the distance to the railroad noise contours are shown in Table 4.

TABLE 4
PREDICTED UPRR RAIL NOISE CONTOURS
CREAMERY/D STREET PROJECT – CITY OF SACRAMENTO, CALIFORNIA

Ldn at 60 feet	*Distance to Railroad Noise Contours, Ldn		
	60 dB	65 dB	70 feet
66.9 dB	173 feet	80 feet	37 feet

Source: j.c. brennan & associates, Inc. 2013.

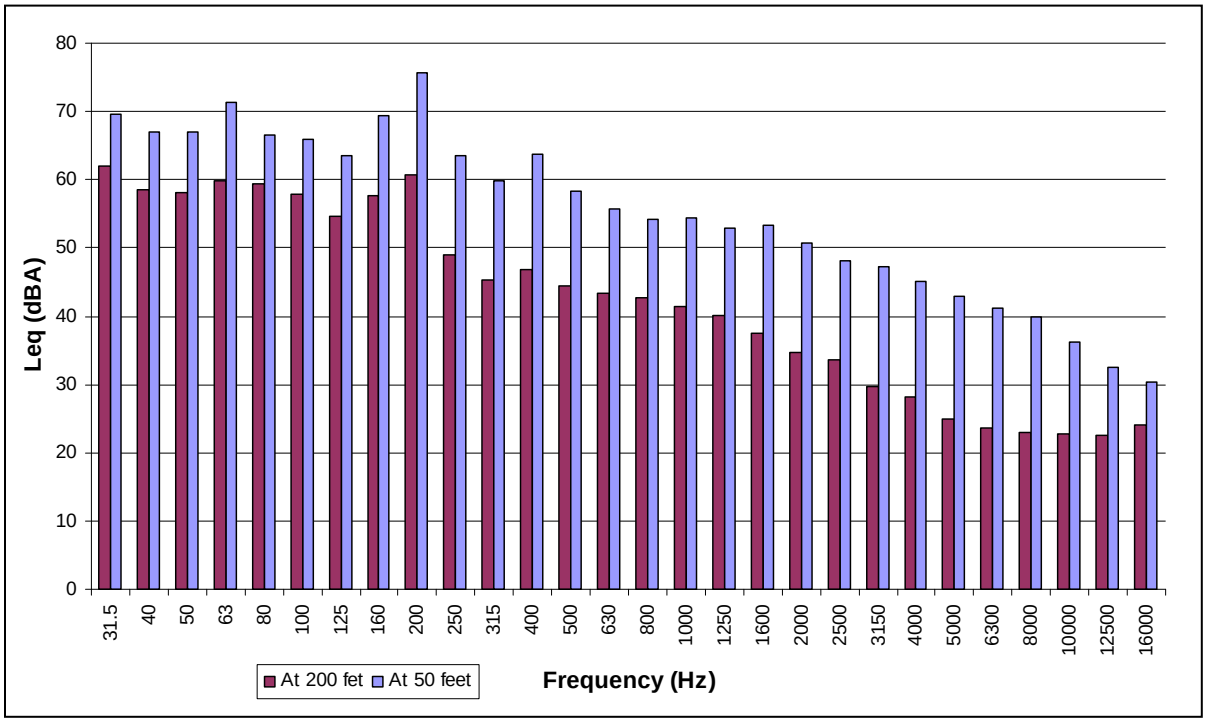
*Distances to noise contours are measured in feet from the centerline of the railroad tracks.

Existing Burnett & Sons Millwork and Lumber Company Noise Levels

The existing Burnett & Sons Millwork and Lumber Company is located along the northeast corner of the project site. The primary noise source is associated with the millwork operations, and is confined to the sawdust collector. The sawdust collector can be considered a large cyclone vacuum system which is located adjacent to the northeast corner of the project site. Noise level measurements indicate that the dust collector produces overall noise levels on the project site ranging from 68 dBA at a distance of 50 feet to 54 dBA at a distance of 200 feet from the dust collector. The distance to the 50 dBA noise contour is 315 feet from the dust collector. Figure 1 shows the location of the Burnett & Sons dust collector.

In addition, a 1/3 octave band frequency analysis of the dust collector was also conducted. The analysis was conducted using a Larson Davis Laboratories (LDL) Model 824 precision integrating sound level meter which is equipped with ANSI Type 1 1/3 octave band filters. Figure 3 shows the results of the frequency analysis of the dust collector.

Figure 3
Burnett & Sons Dust Collector – 1/3 Octave Band Analysis



REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

STATE

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept close, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

LOCAL

The City of Sacramento 2030 General Plan Noise Element establishes the following goals and policies for noise that would apply to the proposed project:

Goal EC 3.1:

Noise Reduction. Minimize noise impacts on human activity to ensure the health and safety of the community.

Policies

EC 3.1.1 **Exterior Noise Standards.** The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table EC 1 (Table 5 of this report), to the extent feasible. *(RDR)*

EC 3.1.2 **Exterior Incremental Noise Standards.** The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC 2 (Table 6 of this report), to the extent feasible. (RDR)

EC 3.1.3 **Interior Noise Standards.** The City shall require new development to include noise mitigation to assure acceptable interior noise levels appropriate to the land use type: 45 dBA Ldn for residential, transient lodgings, hospitals, nursing homes and other uses where people normally sleep; and 45 dBA Leq (peak hour) for office buildings and similar uses. *(RDR)*

EC 3.1.4 **Interior Noise Review for Multiple, Loud Short-Term Events.** In cases where new development is proposed in areas subject to frequent, high-noise events (such as aircraft over-flights, or train and truck pass-bys), the City shall evaluate noise impacts on any sensitive receptors from such events when considering whether to approve the development proposal, taking into account potential for sleep disturbance, undue annoyance, and interruption in conversation, to ensure that the proposed development is compatible within the context of its surroundings.

Based upon review of Table 5 (EC 1 of the General Plan Health and Safety Element), single family residential uses would be subject to an exterior noise level standard of 60 dB Ldn. This project may be considered to be an Urban Residential Infill project. If the City applies and Urban Residential Infill standard, the proposed project would be subject to an exterior noise level standard of 70 dB Ldn. Residential units would be required to comply with an interior noise level standard of 45 dB Ldn, as outlined in Policy EC 3.1.3 and required by Title 24.

Table 5 (EC-1: City of Sacramento General Plan Noise Element)

Table EC 1 Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	*Highest Level of Noise Exposure That Is Regarded as "Normally Acceptable" (L_{dn} or CNEL)*
Residential—Low Density Single Family, Duplex, Mobile Homes	60 dBA[d,e]
Residential—Multi-family	65 dBA
Urban Residential Infill[f] and Mixed-Use Projects[g]	70 dBA
Transient Lodging—Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings—Business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

SOURCE: Governor's Office of Planning and Research, *State of California General Plan Guidelines 2003*, October 2003.

a. As defined in the *Guidelines*, "Normally Acceptable" means that the "specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements."

b. L_{dn} or Day Night Average Level is an average 24-hour noise measurement that factors in day and night noise levels.

c. CNEL or Community Noise Equivalent Level measurements are a weighted average of sound levels gathered throughout a 24-hour period.

d. dBA or A-weighted decibel scale is a measurement of noise levels.

e. The exterior noise standard for the residential area west of McClellan Airport known as McClellan Heights/Parker Homes is 65 dBA.

f. With land use designations of Central Business District, Urban Neighborhood (Low, Medium, or High) Urban Center (Low or High), Urban Corridor (Low or High).

g. All mixed-use projects located anywhere in the City of Sacramento.

TABLE 6 (EC-2: CITY OF SACRAMENTO GENERAL PLAN NOISE ELEMENT)

Table EC 2 Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)

Residences and buildings where people normally sleep[a]		*Institutional land uses with primarily daytime and evening uses*[b]	
Existing L_{dn}	*Allowable Noise Increment*	*Existing Peak Hour L_{eq}*	*Allowable Noise Increment*
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

SOURCE: Federal Transit Administration, *Transit Noise Impact and Vibration Assessment*, May 2006

a. This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

b. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

CITY OF SACRAMENTO NOISE CONTROL ORDINANCE

The City of Sacramento Noise Control Ordinance, found in the Sacramento Municipal Code Title 8 – Health and Safety, Chapter 8.68, sets limits for exterior noise levels on designated residential property. The ordinance states that noise shall not exceed 55 dBA during any cumulative 30-minute period in any hour during the day (7:00 a.m. to 10:00 p.m.), and 50 dBA during any cumulative 30-minute period in any hour during the night (10:00 p.m. to 7:00 a.m.). The ordinance sets somewhat higher noise limits for noise of shorter duration; however, noise shall never exceed 75 dBA in the day and 70 dBA at night. Additionally, the ordinance allows the standard to be increased to encompass existing ambient noise levels.

Construction activities are conditionally exempt from the Noise Ordinance. Construction activities are exempt from the noise standard from 7:00 a.m. to 6:00 p.m. Monday through Saturday, and from 9:00 a.m. to 6:00 p.m. on Sunday. Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of 7:00 a.m. to 6:00 p.m. Monday through Saturday, and from 9:00 a.m. to 6:00 p.m. on Sunday are exempt from the noise control ordinance, provided that the operation of an internal combustion engine is equipped with suitable exhaust and intake silencers which are in good working order.

Vibration Standards

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation

of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities. The City of Sacramento does not contain specific policies pertaining to vibration levels. However, vibration levels associated with construction activities and UPRR railroad operations are discussed in this report.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 7, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second. Table 7 indicates that the threshold for damage to structures ranges from 2 to 6 in/sec. One-half this minimum threshold or 1 in/sec p.p.v. is considered a safe criterion that would protect against architectural or structural damage. The general threshold at which human annoyance could occur is notes as 0.1 in/sec p.p.v.

Table 7
Effects of Vibration on People and Buildings

Peak Particle Velocity inches/second	Peak Particle Velocity mm/second	Human Reaction	Effect on Buildings
0-.006	0.15	Imperceptible by people	Vibrations unlikely to cause damage of any type
.006-.02	0.5	Range of Threshold of perception	Vibrations unlikely to cause damage of any type
.08	2.0	Vibrations clearly perceptible	Recommended upper level of which ruins and ancient monuments should be subjected
0.1	2.54	Level at which continuous vibrations begin to annoy people	Virtually no risk of architectural damage to normal buildings
0.2	5.0	Vibrations annoying to people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
1.0	25.4		Architectural Damage
2.0	50.4		Structural Damage to Residential Buildings
6.0	151.0		Structural Damage to Commercial Buildings

Source: Survey of Earth-borne Vibrations due to Highway Construction and Highway Traffic, Caltrans 1976.

IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

Traffic Noise Impact Assessment Methodology

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at a representative distance for both existing and future, project and no-project conditions for the Proposed Project. Noise impacts are identified at existing noise-sensitive areas if the noise level increases which result from the project or alternative exceed the City's significance threshold.

To describe existing and projected noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference emissions noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

The p.m. peak hour traffic volumes were compiled into segment volumes and converted into daily traffic volumes using a factor of 10. Truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for baseline and future conditions which would result from the project are provided in terms of L_{dn} at a standard distance of 100 feet from the centerlines of the project-area roadways.

TABLE 8
PREDICTED BASELINE AND BASELINE PLUS PROJECT TRAFFIC NOISE LEVELS
CREAMERY D-STREET PROJECT – CITY OF SACRAMENTO, CALIFORNIA

			Traffic Noise Levels (Ldn dBA)			Distance to contours (feet) Baseline Zoning			Distance to Contours (feet) Baseline Plus Project		
Roadway	Segment	Distance	Baseline	Baseline Plus Project	Change	70 Ldn	65 Ldn	60 Ldn	70 Ldn	65 Ldn	60 Ldn
C St.	11th St. to 12th St.	100	44	48	4	2	4	9	4	8	17
C St.	12th St. to 13th St.	100	51	51	0	5	11	24	6	12	26
D St.	8th St. to 10th St.	100	51	53	2	5	11	24	7	15	33
D St.	11th St. to 12th St.	100	53	53	0	7	15	32	7	16	34
D St.	12th St. to 13th St.	100	53	53	0	7	15	33	7	15	33
E St.	10th St. to 11th St.	100	54	54	0	8	18	38	8	18	39
E St.	11th St. to 12th St.	100	54	54	0	8	18	38	9	19	40
E St.	12th St. to 13th St.	100	56	56	0	11	24	52	12	25	55
10th St.	E St. to F St.	100	51	53	2	6	12	27	7	16	34
10th St.	D St. to E St.	100	49	52	3	4	8	18	6	14	30
11th St.	D St. to E St.	100	42	45	3	1	3	6	2	4	10
12th St.	E St. to F St.	100	63	63	0	35	75	161	35	75	162
12th St.	C St. to North B St.	100	64	64	0	38	82	176	41	88	190
16th St.	North of C St.	100	68	68	0	75	161	346	75	162	349

Notes: Distances to traffic noise contours are measured in feet from the centerlines of the roadways.

Source: FHWA-RD-77-108 with inputs from KD Anderson Associates, and j.c. brennan & associates, Inc. 2007.

TABLE 9
PREDICTED FUTURE 2030 AND FUTURE 2030 PLUS PROJECT TRAFFIC NOISE LEVELS
CREAMERY D-STREET PROJECT – CITY OF SACRAMENTO, CALIFORNIA

			Traffic Noise Levels (Ldn dBA)			Distance to contours (feet) Future 2030			Distance to Contours (feet) Future 2030 Plus Project		
Roadway	Segment	Distance	Future 2030	Future 2030 Plus Project	Change	70 Ldn	65 Ldn	60 Ldn	70 Ldn	65 Ldn	60 Ldn
C St.	11th St. to 12th St.	100	44	45	1	2	4	8	2	5	10
C St.	12th St. to 13th St.	100	53	54	1	8	17	36	8	17	37
D St.	8th St. to 10th St.	100	54	54	0	9	18	40	8	18	39
D St.	11th St. to 12th St.	100	54	54	0	8	18	39	8	18	39
D St.	12th St. to 13th St.	100	54	54	0	9	19	40	9	19	41
E St.	10th St. to 11th St.	100	54	54	0	9	19	41	9	20	42
E St.	11th St. to 12th St.	100	55	55	0	10	21	44	10	21	45
E St.	12th St. to 13th St.	100	57	57	0	13	29	62	14	30	64
10th St.	E St. to F St.	100	48	49	1	4	8	17	4	9	20
10th St.	D St. to E St.	100	51	51	0	6	12	27	6	12	27
11th St.	D St. to E St.	100	49	50	1	4	8	18	4	10	21
12th St.	E St. to F St.	100	65	66	1	44	94	202	52	112	242
12th St.	C St. to North B St.	100	68	68	0	69	150	322	70	151	324
16th St.	North of C St.	100	68	68	0	75	162	348	75	162	349

Notes: Distances to traffic noise contours are measured in feet from the centerlines of the roadways.

Source: FHWA-RD-77-108 with inputs from KD Anderson Associates, and j.c. brennan & associates, Inc. 2007.

Exterior Railroad Noise Impact Methodology

UPRR noise impacts are assessed based upon noise measurements of train operations conducted on the site, and standard modeling of attenuation of noise levels.

Interior Railroad Noise Impact Methodology

Interior noise levels from railroad operations will be determined based upon a typical exterior to interior noise level reduction of 25 dBA, based upon a typical façade construction, and from calculations of interior noise levels.

Railroad Vibration Impact Methodology

UPRR vibration impacts are assessed based upon vibration measurements of UPRR train operations conducted on the site, and file data on vibration effects on buildings.

Construction Noise Impact Methodology

Construction noise was analyzed using data compiled by the US Environmental Protection Agency that lists typical noise levels at 50 feet for construction equipment and various construction activities.

Noise would also be generated during the construction phase by increased truck traffic on area roadways and on-site grading. A significant project-generated noise source would include truck traffic associated with transport of heavy materials and equipment to and from construction sites and the movement of heavy construction equipment on the project site, especially during site grading. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Construction Vibration Impact Methodology

The types of construction vibration impact include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 10 shows the typical vibration levels produced by construction equipment.

TABLE 10
VIBRATION LEVELS FOR VARYING CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity @ 25 feet	Approximate Velocity Level @ 25 feet
Large Bulldozer	0.089 (inches/second)	87 (VdB)
Loaded Trucks	0.076 (inches/second)	86 (VdB)
Small Bulldozer	0.003 (inches/second)	58 (VdB)
Auger/drill Rigs	0.089 (inches/second)	87 (VdB)
Jackhammer	0.035 (inches/second)	79 (VdB)
Vibratory Hammer	0.070 (inches/second)	85 (VdB)
Vibratory Compactor/roller	0.210 (inches/second)	94 (VdB)

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006

Burnett & Sons Dust Collector Noise Impact Methodology

The primary noise source associated with the Burnett & Sons Lumber Yard and Mill Works is the dust collector. The analysis of dust collector noise levels on the project site will utilize noise measurement data collected for the dust collector and standard modeling techniques used for determining attenuation over distance.

STANDARDS OF SIGNIFICANCE

CEQA guidelines state that implementation of the project would result in significant noise impacts if the project would result in either of the following:

a. Exposure of persons to or generation of noise levels in excess of standards established in the City of Sacramento General Plan Noise Element or the City of Sacramento Noise Control Ordinance.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. The City of Sacramento defines a substantial increase in noise levels based upon Table 6 of this report.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. A substantial increase in noise levels is defined as being 4 or 5 dB if the resulting total noise level would exceed that considered “normally acceptable” for a given land use category. Increases of 6 dB or greater are considered a significant adverse impact due to the potential for adverse community response.

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

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

The project's impacts in relation to Sacramento's adopted noise standards, item "a", permanent ambient noise levels, item "c," and temporary ambient noise levels, item "d," are discussed in further detail below. The project site is not located within the vicinity of a public or private airport, therefore, items “e” and “f” would not apply.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 1 Construction noise at sensitive receptors

Construction of the Proposed Project would temporarily increase noise levels during construction. This would be a ***potentially significant*** impact.

Noise from construction activities would add to the noise environment in the immediate project vicinity. Activities involved in typical construction would generate maximum noise levels, as indicated in Table 11, ranging from 80 to 89 dB at a distance of 50 feet.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

TABLE 11
NOISE LEVELS OF TYPICAL CONSTRUCTION EQUIPMENT

Equipment Type	Typical Equipment Level (dBA)- 50 ft from Source
Air Compressor	81
Backhoe	85
Concrete Pump	82
Concrete Breaker	82
Truck Crane	88
Dozer	87
Generator	78
Loader	84
Paver	88
Pneumatic Tools	85
Water Pump	76
Power Hand Saw	78
Shovel	82
Trucks	88

Source: Bolt, Beranek and Newman, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, U.S. EPA, 1971.

The City of Sacramento noise ordinance exempts construction activities from the specified noise ordinance standards during the hours of 7:00 a.m. to 6:00 p.m. Monday through Saturday and from 9:00 a.m. to 6:00 p.m. on Sunday. Generally, if a construction project adheres to the construction times identified in the noise ordinance, construction noise is exempted. Although the City of Sacramento Municipal Code exempts construction activities from the noise standards specified in the Municipal Code, construction activities, such as the use of jackhammers and tractors, could expose occupants of nearby buildings to high levels of noise during the day. Therefore, construction noise would be a short term significant impact.

Mitigation Measures

The following mitigation measures are required for the Proposed Project to minimize construction noise impacts.

MM1a Construction activities shall comply with the City of Sacramento Noise Ordinance.

MM1b Locate fixed construction equipment such as compressors and generators as far as possible from sensitive receptors. Shroud or shield all impact tools, and muffle or shield all intakes and exhaust ports on power construction equipment.

Significance after Mitigation

Less than significant

Impact 2 Construction vibration at sensitive receptors

Construction of the Proposed Project could result in temporarily vibration levels during construction. This would be a ***potentially significant*** impact.

The primary construction activities associated with the project would occur when the infrastructure such as buildings and utilities are constructed. Some construction could occur during occupancy of existing and future residential units, however, it is expected that they would occur at considerable distances from existing occupied residences and would be removed from future on-site uses. Comparing Table 7 which contains the criteria for acceptable vibration levels to Table 10, which shows potential vibration impacts, it is not expected that vibration impacts would occur which would cause any structural damage. **This impact is considered to be less than significant.**

Mitigation for Impact 2

None required

Impact 3 The Proposed Project could expose existing receptors to significant increases in traffic noise levels

Traffic generated by the Proposed Project could generate traffic noise increases exceeding City of Sacramento standard of significance shown in Table 6. Tables 8 and 9 discussed in the methodology section showed the predicted increases in traffic noise levels on the local roadway network for baseline and cumulative conditions

which would result from the Proposed Project. The Tables also provide the day/night average (L_{dn}) at a standard distance of 100 feet from the centerlines of the project-area roadways. Appendix B provides the complete inputs and results of the FHWA traffic noise prediction model.

Based upon the analysis, the project does not result in an increase in overall traffic noise levels which exceeds the criteria contained in Table 6 (Table EC 2 of the Noise Element). Therefore, there would not be an exceedance of the City of Sacramento exterior noise level criteria. This is a ***less than significant*** impact.

Mitigation for Impact 3

None required

Impact 4 ***The Proposed Project could expose new noise-sensitive receptors to excessive exterior traffic noise levels.***

The Proposed Project could expose new noise sensitive uses to exterior noise levels in excess of the City of Sacramento transportation noise level standards. This would be ***a potentially significant*** impact.

The City of Sacramento General Plan Noise Element specifies an acceptable exterior noise level of 60 dB Ldn for exterior areas of residential uses, including common use areas. Outdoor areas for the residential portions of the project would include backyards. To determine the future traffic noise levels on the project site, j.c. brennan & associates, Inc. used the predicted cumulative traffic data provided by Kimmerly Horn Transportation Consultants. Table 12 provides the predicted exterior traffic noise levels for the noise-sensitive uses associated with the proposed project. Appendix B provides the inputs and results of the traffic noise prediction model.

Based upon the Table 12 data, the proposed residential uses are not predicted to be exposed to exterior noise levels exceeding the City of Sacramento 60 dB Ldn exterior noise level standard for the adjacent roadway noise sources. Therefore, no additional noise reduction measures would be required for exterior traffic noise.

Mitigation for Impact 4

None Required

TABLE 12
PREDICTED EXTERIOR TRAFFIC NOISE LEVELS – CREAMERY / D STREET PROJECT – CITY OF SACRAMENTO, CALIFORNIA

Roadway	Location(s)	Exterior Noise Level, L_{dn}	Normally Acceptable Exterior Noise Levels, L_{dn}
11th Street	Building Facades	54 dBA	60 dBA
10th Street	Building Facades	55 dBA	60 dBA
D Street	Building Facades	59 dBA	65 dBA
E Street	Building Facades	59 dBA	60 dBA
Notes: A complete listing of FHWA Model inputs and results is provided in Appendix B.			

Impact 5 ***The Proposed Project could expose new noise-sensitive receptors to excessive exterior railroad noise levels.***

The Proposed Project could expose new noise sensitive uses to exterior noise levels in excess of the City of Sacramento transportation noise level standards. This would be ***a potentially significant*** impact.

To determine the future UPRR operations noise levels on the project site, j.c. brennan & associates, Inc. used the railroad noise measurement data collected on the project site. The summary of the noise levels and distances to contours are shown in Table 4, previously discussed in this report. The distance to the 60 dB Ldn railroad noise contour is 173 feet from the railroad track centerline. The nearest residential façade which faces the railroad track and has an outdoor activity area such as a patio or balcony is approximately 75 feet from the railroad track centerline. Therefore, the residential uses would be exposed to exterior noise levels of approximately 65 dB Ldn.

Based upon the project design, the first row of residences in the northwest corner of the site, which is most affected by railroad noise, have outdoor activity areas located on the south sides of the homes, and receive some shielding of railroad noise. However, there is a portion of the site which will require mitigation to reduce railroad noise to within 60 dB Ldn.

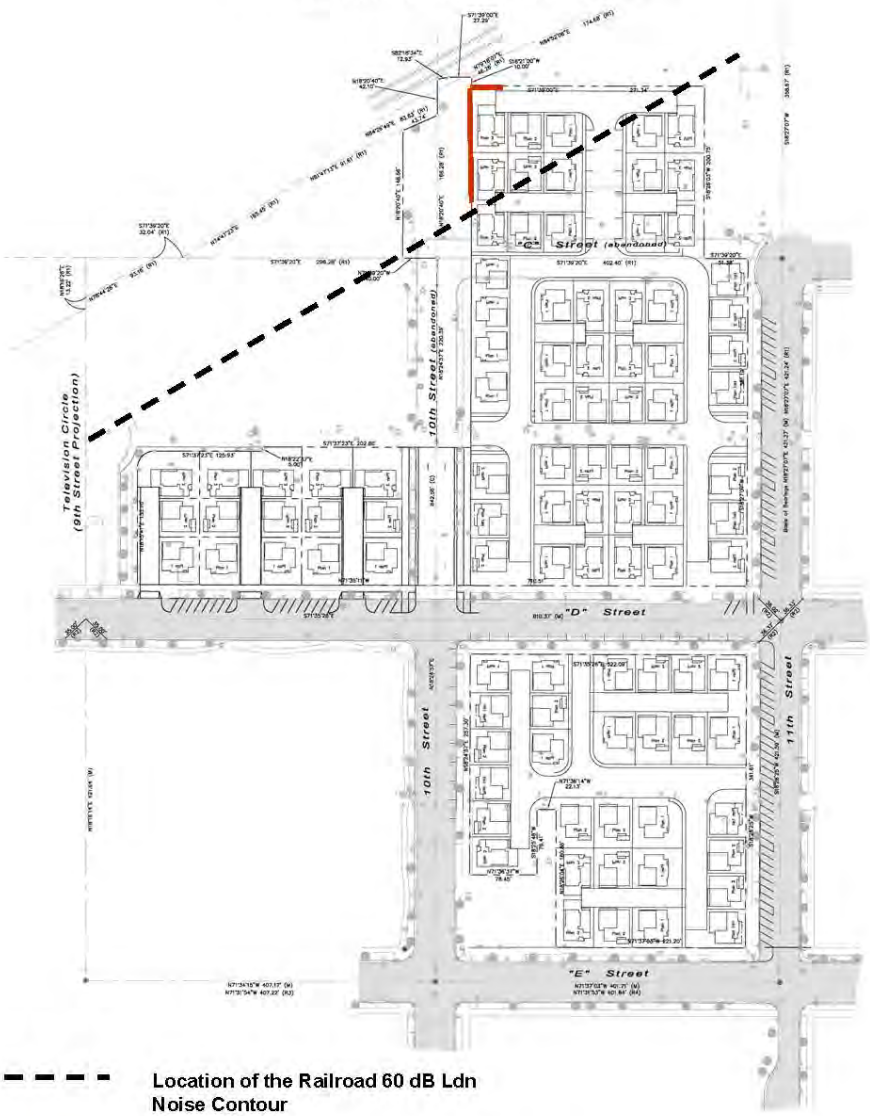
Mitigation for Impact 5

The following mitigation measures are required to reduce exterior railroad noise levels to 60 dB Ldn:

MM 2a: A barrier 9-feet in height is required to be constructed as shown on Figure 4. The barrier should be constructed of masonry block or concrete.

Figure 4

Location of the 60 dB Ldn Railroad Noise Contour
& Proposed 9-foot Tall Noise Barrier



Location of the Railroad 60 dB Ldn Noise Contour

Location of the 9-foot tall Railroad Noise Barrier

j.c. brennan & associates
consultants in acoustics

Impact 6 ***The Proposed Project could expose new residential receptors to excessive interior railroad noise levels.***

The Proposed Project could expose new residential uses to interior railroad noise levels in excess of the City of Sacramento interior noise level standard of 45 dBA in all habitable rooms. This would be ***a potentially significant*** impact.

The City of Sacramento General Plan Noise Element specifies an acceptable interior noise level of 45 dB Ldn in habitable rooms of residential uses exposed to railroad noise.

The predicted exterior railroad noise levels at the nearest buildings are predicted to be approximately 65 dB Ldn. Second floor units will generally experience noise levels of approximately 3 dB higher due to lack of ground absorption. Therefore, some second floor facades could experience exterior noise levels of 68 dB Ldn.

To judge the potential for achieving an interior noise level of 45 dB Ldn, it is necessary to determine the noise reduction provided by the building facade. This may be calculated by assuming a generalized A-weighted noise frequency spectrum for railroad noise. The composite transmission loss and resulting noise level in the receiving room is first determined. After correcting for room absorption, the overall noise level in the room is calculated. This analysis was conducted for second floor rooms which face the railroad tracks. Table 13 shows the calculated interior railroad noise levels. Appendix D shows the calculation sheets. Based upon Table 13, no mitigation is required.

Table 13
Old Crystal Creamery Calculated Interior Traffic Noise Levels

	Exterior Railroad Noise Levels			Interior Railroad Noise Levels	
Room	Parallel Wall Exterior	Perpendicular Wall Exterior	Cumulative Exterior	No Mitigation	Mitigation
Living Room	68 dB Ldn	68 dB Ldn	71 dB Ldn	42dB Ldn	None Required
Bedroom	68 dB Ldn	68 dB Ldn	71 dB Ldn	43 dB Ldn	None Required
Appendix B shows the results of the Interior Calculation Model. Source: j.c. brennan & associates, Inc. - 2013					

Consistent with Policy EC 3.1.4, an analysis has been prepared to evaluate the frequent, high-noise events from train passbys. The analysis takes into account the potential for sleep disturbance.

The extent to which environmental noise disturbs human sleep patterns varies greatly from individual to individual as well as from one time to another for any particular individual. Whether an individual is aroused by a noise depends upon the individual's sleep state and sleep habits, the loudness or suddenness of the noise, the information value of the noise (a child crying, for example), and other factors.

Early studies of the effects of noise on sleep disturbance produced varying results. A major

factor in these differences, though, is whether the study evaluated people sleeping in a laboratory or in their own homes. Generally laboratory studies have shown considerably more sleep disturbance than is evident in field studies. More recent studies, all conducted in the field, have produced relatively consistent results. These studies have included:

- A 1990 British Study;
- A 1992 U.S. Air Force study on residents near Castle Air Force Base and Los Angeles International Airport; and
- A 1995 study comparing the effects of the closure of Stapleton International Airport with the opening of Denver International Airport.

In 1997, the Federal Interagency Committee on Aviation Noise (FICAN) sought to put the subject to rest with publication of a recommended new dose-response curve predicting awakening. This curve was calculated using data from the above three studies, among others. The 1997 FICAN curve represents the upper limit of the observed field data and should be interpreted as predicting the maximum percent of the exposed population expected to be behaviorally awakened.

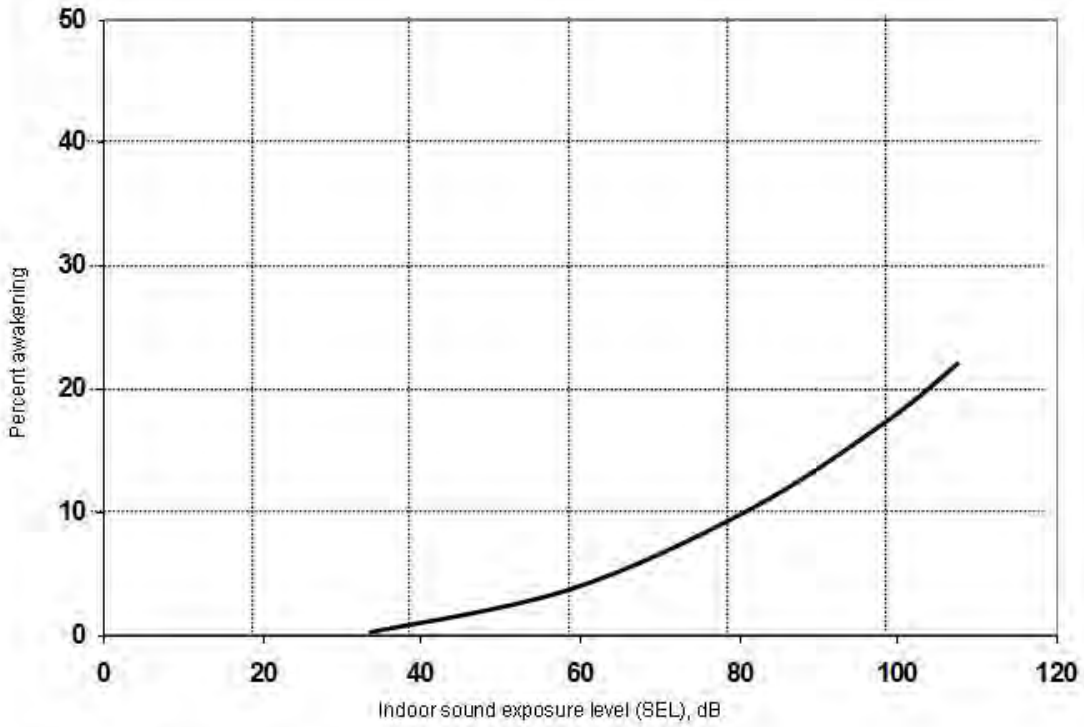
For the purposes of evaluating the potential for sleep disturbance due to interior noise from helicopter operations, Figure 5 is used, and is based upon the FICAN curve.

Assuming that the typical exterior SEL associated with train passbys is approximately 96 dB, the interior SEL would be approximately 71 dB, while assuming an exterior to interior noise level reduction of 25 dB. Based upon Figure 5, it is expected that between 6% and 8% of the population would experience a potential sleep disturbance. Although there are no criteria for evaluating an acceptable level of sleep disturbance, this represents a small percentage.

Mitigation for Impact 6

None required

Figure 5
Sleep Disturbance Dose-Response Relationship



Source: Federal Interagency Committee on Airport Noise (1997)

j.c. brennan & associates
consultants in acoustics

Impact 7 ***The Proposed Project could expose new uses to excessive railroad vibration levels.***

The Proposed Project could expose new uses to vibration levels in excess of generally accepted criteria. This would be ***a potentially significant*** impact.

Based upon Table 6, vibration levels of 0.1 inches per second in Peak Particle Velocity (PPV) is the threshold where people become annoyed, but there is below the threshold of any structural damage. To determine the existing vibration levels on the project site due to train passbys, j.c. brennan & associates, Inc. conducted vibration measurements at the project boundary closest to the railroad tracks on February 8, 2008. The measurements were conducted using a Larson Davis HVM100 vibration meter, equipped with a PCB Shear Model 353B51 accelerometer. The results of the measurements indicated that the PPV vibration levels on the ground ranged between 0.047 and 0.066 (inches/second). Therefore, the new uses are not expected to be exposed to structural vibration which would be in excess of normally acceptable criteria for vibration levels. It can be expected that some air-borne vibration due to low frequency noise associated with train operations will occur, and be noticeable. However, it will not be significant.

Mitigation for Impact 7

None Required

Impact 8 ***The Proposed Project could expose new noise-sensitive receptors to excessive exterior noise levels from the Burnett & Sons Lumber Yard and Mill Works Dust Collector.***

The Proposed Project could expose new noise sensitive uses to exterior noise levels in excess of the City of Sacramento non-transportation noise level standards. This would be ***a potentially significant*** impact.

The City of Sacramento Noise Ordinance specifies an acceptable exterior noise level of 55 dB L_{50} and 75 dB L_{max} for daytime (7 am to 10 pm) noise generated by stationary uses. The standard is applied at residential property lines. Based upon noise measurements conducted of the Burnett & Sons dust collector, the predicted noise levels at the project property line (40 feet from the dust collector) is 70 dB L50.

Based upon the predicted noise levels associated with the Burnett & Sons dust collector 70 dB L50, at the project site, the dust collector noise levels would need to be reduced by 15 dB.

The applicant can employ a company which constructs enclosures and installs silencers for equipment such as the dust collectors. The enclosures would be required to reduce the exterior noise levels from the dust collectors by approximately 15 dBA to ensure that the exterior noise level criteria at all uses comply with the City of Sacramento criteria.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Crystal Creamery Site
Description: Exisitng
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	C St.	11th St. to 12th St.	360	87		13	2	1	25	100	
2	C St.	12th St. to 13th St.	2,180	87		13	2	1	25	100	
3	D St.	8th St. to 10th St.	1,550	87		13	2	1	30	100	
4	D St.	11th St. to 12th St.	2,490	87		13	2	1	30	100	
5	D St.	12th St. to 13th St.	2,550	87		13	2	1	30	100	
6	E St.	10th St. to 11th St.	3,020	87		13	2	1	30	100	
7	E St.	11th St. to 12th St.	3,130	87		13	2	1	30	100	
8	E St.	12th St. to 13th St.	5,110	87		13	2	1	30	100	
9	10th St.	E St. to F St.	2,580	87		13	2	1	25	100	
10	10th St.	D St. to E St.	1,440	87		13	2	1	25	100	
11	11th St.	D St. to E St.	340	87		13	2	1	25	100	
12	12th St.	E St. to F St.	15,600	87		13	2	1	40	100	
13	12th St.	C St. to North B St.	19,340	87		13	2	1	40	100	
14	16th St.	North of C St.	49,520	87		13	2	1	40	100	

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Crystal Creamery Site
Description: Exisitng
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	C St.	11th St. to 12th St.	39.3	34.1	38.7	43
2	C St.	12th St. to 13th St.	47.2	41.9	46.5	51
3	D St.	8th St. to 10th St.	48.0	41.7	45.8	51
4	D St.	11th St. to 12th St.	50.0	43.7	47.9	53
5	D St.	12th St. to 13th St.	50.1	43.8	48.0	53
6	E St.	10th St. to 11th St.	50.9	44.6	48.7	54
7	E St.	11th St. to 12th St.	51.0	44.7	48.8	54
8	E St.	12th St. to 13th St.	53.1	46.9	51.0	56
9	10th St.	E St. to F St.	47.9	42.7	47.3	51
10	10th St.	D St. to E St.	45.4	40.1	44.7	49
11	11th St.	D St. to E St.	39.1	33.9	38.5	42
12	12th St.	E St. to F St.	61.6	53.7	55.5	63
13	12th St.	C St. to North B St.	62.5	54.6	56.4	64
14	16th St.	North of C St.	66.6	58.7	60.5	68

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: Crystal Creamery Site
Description: Exisitng
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	-------- Distances to Traffic Noise Contours -------- 75	70	65	60	55
1	C St.	11th St. to 12th St.	1	2	3	7	15
2	C St.	12th St. to 13th St.	2	5	11	23	50
3	D St.	8th St. to 10th St.	2	5	11	24	51
4	D St.	11th St. to 12th St.	3	7	15	32	70
5	D St.	12th St. to 13th St.	3	7	15	33	71
6	E St.	10th St. to 11th St.	4	8	17	37	80
7	E St.	11th St. to 12th St.	4	8	18	38	82
8	E St.	12th St. to 13th St.	5	11	24	52	113
9	10th St.	E St. to F St.	3	6	12	26	56
10	10th St.	D St. to E St.	2	4	8	18	38
11	11th St.	D St. to E St.	1	1	3	7	15
12	12th St.	E St. to F St.	16	35	74	160	345
13	12th St.	C St. to North B St.	18	40	86	185	398
14	16th St.	North of C St.	35	75	161	346	745

Appendix B-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Crystal Creamery Site
Description: Exisitng + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	C St.	11th St. to 12th St.	1,240	87		13	2	1	25	100	
2	C St.	12th St. to 13th St.	2,490	87		13	2	1	25	100	
3	D St.	8th St. to 10th St.	2,530	87		13	2	1	30	100	
4	D St.	11th St. to 12th St.	2,670	87		13	2	1	30	100	
5	D St.	12th St. to 13th St.	2,550	87		13	2	1	30	100	
6	E St.	10th St. to 11th St.	3,220	87		13	2	1	30	100	
7	E St.	11th St. to 12th St.	3,460	87		13	2	1	30	100	
8	E St.	12th St. to 13th St.	5,440	87		13	2	1	30	100	
9	10th St.	E St. to F St.	3,700	87		13	2	1	25	100	
10	10th St.	D St. to E St.	3,110	87		13	2	1	25	100	
11	11th St.	D St. to E St.	640	87		13	2	1	25	100	
12	12th St.	E St. to F St.	15,780	87		13	2	1	40	100	
13	12th St.	C St. to North B St.	21,540	87		13	2	1	40	100	
14	16th St.	North of C St.	50,060	87		13	2	1	40	100	

Appendix B-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Crystal Creamery Site
Description: Exisitng + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	C St.	11th St. to 12th St.	44.7	39.5	44.1	48
2	C St.	12th St. to 13th St.	47.7	42.5	47.1	51
3	D St.	8th St. to 10th St.	50.1	43.8	47.9	53
4	D St.	11th St. to 12th St.	50.3	44.0	48.2	53
5	D St.	12th St. to 13th St.	50.1	43.8	48.0	53
6	E St.	10th St. to 11th St.	51.1	44.9	49.0	54
7	E St.	11th St. to 12th St.	51.5	45.2	49.3	54
8	E St.	12th St. to 13th St.	53.4	47.1	51.2	56
9	10th St.	E St. to F St.	49.5	44.2	48.8	53
10	10th St.	D St. to E St.	48.7	43.5	48.1	52
11	11th St.	D St. to E St.	41.8	36.6	41.2	45
12	12th St.	E St. to F St.	61.6	53.7	55.5	63
13	12th St.	C St. to North B St.	63.0	55.1	56.9	64
14	16th St.	North of C St.	66.7	58.7	60.5	68

Appendix B-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: Crystal Creamery Site
Description: Exisitng + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	-------- Distances to Traffic Noise Contours -------- 75	70	65	60	55
1	C St.	11th St. to 12th St.	2	3	7	16	35
2	C St.	12th St. to 13th St.	3	5	12	26	55
3	D St.	8th St. to 10th St.	3	7	15	33	71
4	D St.	11th St. to 12th St.	3	7	16	34	73
5	D St.	12th St. to 13th St.	3	7	15	33	71
6	E St.	10th St. to 11th St.	4	8	18	39	83
7	E St.	11th St. to 12th St.	4	9	19	40	87
8	E St.	12th St. to 13th St.	5	12	25	55	118
9	10th St.	E St. to F St.	3	7	15	33	72
10	10th St.	D St. to E St.	3	6	14	30	64
11	11th St.	D St. to E St.	1	2	5	10	22
12	12th St.	E St. to F St.	16	35	75	161	348
13	12th St.	C St. to North B St.	20	43	92	199	428
14	16th St.	North of C St.	35	75	162	349	751

Appendix B-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Crystal Creamery Site
Description: Baseline
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	C St.	11th St. to 12th St.	480	87		13	2	1	25	100	
2	C St.	12th St. to 13th St.	2,310	87		13	2	1	25	100	
3	D St.	8th St. to 10th St.	1,550	87		13	2	1	30	100	
4	D St.	11th St. to 12th St.	2,490	87		13	2	1	30	100	
5	D St.	12th St. to 13th St.	2,550	87		13	2	1	30	100	
6	E St.	10th St. to 11th St.	3,130	87		13	2	1	30	100	
7	E St.	11th St. to 12th St.	3,130	87		13	2	1	30	100	
8	E St.	12th St. to 13th St.	5,110	87		13	2	1	30	100	
9	10th St.	E St. to F St.	2,690	87		13	2	1	25	100	
10	10th St.	D St. to E St.	1,440	87		13	2	1	25	100	
11	11th St.	D St. to E St.	280	87		13	2	1	25	100	
12	12th St.	E St. to F St.	15,650	87		13	2	1	40	100	
13	12th St.	C St. to North B St.	17,920	87		13	2	1	40	100	
14	16th St.	North of C St.	49,590	87		13	2	1	40	100	

Appendix B-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Crystal Creamery Site
Description: Baseline
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	C St.	11th St. to 12th St.	40.6	35.4	40.0	44
2	C St.	12th St. to 13th St.	47.4	42.2	46.8	51
3	D St.	8th St. to 10th St.	48.0	41.7	45.8	51
4	D St.	11th St. to 12th St.	50.0	43.7	47.9	53
5	D St.	12th St. to 13th St.	50.1	43.8	48.0	53
6	E St.	10th St. to 11th St.	51.0	44.7	48.8	54
7	E St.	11th St. to 12th St.	51.0	44.7	48.8	54
8	E St.	12th St. to 13th St.	53.1	46.9	51.0	56
9	10th St.	E St. to F St.	48.1	42.8	47.5	51
10	10th St.	D St. to E St.	45.4	40.1	44.7	49
11	11th St.	D St. to E St.	38.3	33.0	37.6	42
12	12th St.	E St. to F St.	61.6	53.7	55.5	63
13	12th St.	C St. to North B St.	62.2	54.3	56.1	64
14	16th St.	North of C St.	66.6	58.7	60.5	68

Appendix B-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: Crystal Creamery Site
Description: Baseline
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	-------- Distances to Traffic Noise Contours -------- 75	70	65	60	55
1	C St.	11th St. to 12th St.	1	2	4	9	18
2	C St.	12th St. to 13th St.	2	5	11	24	52
3	D St.	8th St. to 10th St.	2	5	11	24	51
4	D St.	11th St. to 12th St.	3	7	15	32	70
5	D St.	12th St. to 13th St.	3	7	15	33	71
6	E St.	10th St. to 11th St.	4	8	18	38	82
7	E St.	11th St. to 12th St.	4	8	18	38	82
8	E St.	12th St. to 13th St.	5	11	24	52	113
9	10th St.	E St. to F St.	3	6	12	27	58
10	10th St.	D St. to E St.	2	4	8	18	38
11	11th St.	D St. to E St.	1	1	3	6	13
12	12th St.	E St. to F St.	16	35	75	161	346
13	12th St.	C St. to North B St.	18	38	82	176	379
14	16th St.	North of C St.	35	75	161	346	746

Appendix B-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Crystal Creamery Site
Description: Baseline + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	C St.	11th St. to 12th St.	1,360	87		13	2	1	25	100	
2	C St.	12th St. to 13th St.	2,620	87		13	2	1	25	100	
3	D St.	8th St. to 10th St.	2,530	87		13	2	1	30	100	
4	D St.	11th St. to 12th St.	2,670	87		13	2	1	30	100	
5	D St.	12th St. to 13th St.	2,550	87		13	2	1	30	100	
6	E St.	10th St. to 11th St.	3,330	87		13	2	1	30	100	
7	E St.	11th St. to 12th St.	3,460	87		13	2	1	30	100	
8	E St.	12th St. to 13th St.	5,440	87		13	2	1	30	100	
9	10th St.	E St. to F St.	3,810	87		13	2	1	25	100	
10	10th St.	D St. to E St.	3,110	87		13	2	1	25	100	
11	11th St.	D St. to E St.	580	87		13	2	1	25	100	
12	12th St.	E St. to F St.	15,830	87		13	2	1	40	100	
13	12th St.	C St. to North B St.	20,120	87		13	2	1	40	100	
14	16th St.	North of C St.	50,130	87		13	2	1	40	100	

Appendix B-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Crystal Creamery Site
Description: Baseline + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	C St.	11th St. to 12th St.	45.1	39.9	44.5	48
2	C St.	12th St. to 13th St.	48.0	42.7	47.3	51
3	D St.	8th St. to 10th St.	50.1	43.8	47.9	53
4	D St.	11th St. to 12th St.	50.3	44.0	48.2	53
5	D St.	12th St. to 13th St.	50.1	43.8	48.0	53
6	E St.	10th St. to 11th St.	51.3	45.0	49.1	54
7	E St.	11th St. to 12th St.	51.5	45.2	49.3	54
8	E St.	12th St. to 13th St.	53.4	47.1	51.2	56
9	10th St.	E St. to F St.	49.6	44.4	49.0	53
10	10th St.	D St. to E St.	48.7	43.5	48.1	52
11	11th St.	D St. to E St.	41.4	36.2	40.8	45
12	12th St.	E St. to F St.	61.7	53.7	55.5	63
13	12th St.	C St. to North B St.	62.7	54.8	56.6	64
14	16th St.	North of C St.	66.7	58.7	60.5	68

Appendix B-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: Crystal Creamery Site
Description: Baseline + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

			-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	C St.	11th St. to 12th St.	2	4	8	17	37
2	C St.	12th St. to 13th St.	3	6	12	26	57
3	D St.	8th St. to 10th St.	3	7	15	33	71
4	D St.	11th St. to 12th St.	3	7	16	34	73
5	D St.	12th St. to 13th St.	3	7	15	33	71
6	E St.	10th St. to 11th St.	4	8	18	39	85
7	E St.	11th St. to 12th St.	4	9	19	40	87
8	E St.	12th St. to 13th St.	5	12	25	55	118
9	10th St.	E St. to F St.	3	7	16	34	73
10	10th St.	D St. to E St.	3	6	14	30	64
11	11th St.	D St. to E St.	1	2	4	10	21
12	12th St.	E St. to F St.	16	35	75	162	349
13	12th St.	C St. to North B St.	19	41	88	190	409
14	16th St.	North of C St.	35	75	162	349	752

Appendix B-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Crystal Creamery Site
Description: Cumulative 2030
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	C St.	11th St. to 12th St.	470	87		13	2	1	25	100	
2	C St.	12th St. to 13th St.	4,210	87		13	2	1	25	100	
3	D St.	8th St. to 10th St.	3,360	87		13	2	1	30	100	
4	D St.	11th St. to 12th St.	3,230	87		13	2	1	30	100	
5	D St.	12th St. to 13th St.	3,460	87		13	2	1	30	100	
6	E St.	10th St. to 11th St.	3,590	87		13	2	1	30	100	
7	E St.	11th St. to 12th St.	3,970	87		13	2	1	30	100	
8	E St.	12th St. to 13th St.	6,510	87		13	2	1	30	100	
9	10th St.	E St. to F St.	1,310	87		13	2	1	25	100	
10	10th St.	D St. to E St.	2,660	87		13	2	1	25	100	
11	11th St.	D St. to E St.	1,420	87		13	2	1	25	100	
12	12th St.	E St. to F St.	22,090	87		13	2	1	40	100	
13	12th St.	C St. to North B St.	44,490	87		13	2	1	40	100	
14	16th St.	North of C St.	49,970	87		13	2	1	40	100	

Appendix B-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: Crystal Creamery Site
Description: Cumulative 2030
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	C St.	11th St. to 12th St.	40.5	35.3	39.9	44
2	C St.	12th St. to 13th St.	50.0	44.8	49.4	53
3	D St.	8th St. to 10th St.	51.3	45.0	49.2	54
4	D St.	11th St. to 12th St.	51.2	44.9	49.0	54
5	D St.	12th St. to 13th St.	51.5	45.2	49.3	54
6	E St.	10th St. to 11th St.	51.6	45.3	49.4	54
7	E St.	11th St. to 12th St.	52.1	45.8	49.9	55
8	E St.	12th St. to 13th St.	54.2	47.9	52.0	57
9	10th St.	E St. to F St.	45.0	39.7	44.3	48
10	10th St.	D St. to E St.	48.0	42.8	47.4	51
11	11th St.	D St. to E St.	45.3	40.1	44.7	49
12	12th St.	E St. to F St.	63.1	55.2	57.0	65
13	12th St.	C St. to North B St.	66.1	58.2	60.0	68
14	16th St.	North of C St.	66.6	58.7	60.5	68

Appendix B-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: Crystal Creamery Site
Description: Cumulative 2030
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	-------- Distances to Traffic Noise Contours -------- 75	70	65	60	55
1	C St.	11th St. to 12th St.	1	2	4	8	18
2	C St.	12th St. to 13th St.	4	8	17	36	78
3	D St.	8th St. to 10th St.	4	9	18	40	85
4	D St.	11th St. to 12th St.	4	8	18	39	83
5	D St.	12th St. to 13th St.	4	9	19	40	87
6	E St.	10th St. to 11th St.	4	9	19	41	89
7	E St.	11th St. to 12th St.	4	10	21	44	96
8	E St.	12th St. to 13th St.	6	13	29	62	133
9	10th St.	E St. to F St.	2	4	8	17	36
10	10th St.	D St. to E St.	3	6	12	27	57
11	11th St.	D St. to E St.	2	4	8	18	38
12	12th St.	E St. to F St.	20	44	94	202	435
13	12th St.	C St. to North B St.	32	69	150	322	694
14	16th St.	North of C St.	35	75	162	348	750

Appendix B-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: Crystal Creamery Site
Description: Cumulative 2030 + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	C St.	11th St. to 12th St.	640	87		13	2	1	25	100	
2	C St.	12th St. to 13th St.	4,380	87		13	2	1	25	100	
3	D St.	8th St. to 10th St.	3,230	87		13	2	1	30	100	
4	D St.	11th St. to 12th St.	3,320	87		13	2	1	30	100	
5	D St.	12th St. to 13th St.	3,580	87		13	2	1	30	100	
6	E St.	10th St. to 11th St.	3,680	87		13	2	1	30	100	
7	E St.	11th St. to 12th St.	4,120	87		13	2	1	30	100	
8	E St.	12th St. to 13th St.	6,870	87		13	2	1	30	100	
9	10th St.	E St. to F St.	1,720	87		13	2	1	25	100	
10	10th St.	D St. to E St.	2,650	87		13	2	1	25	100	
11	11th St.	D St. to E St.	1,820	87		13	2	1	25	100	
12	12th St.	E St. to F St.	28,950	87		13	2	1	40	100	
13	12th St.	C St. to North B St.	44,950	87		13	2	1	40	100	
14	16th St.	North of C St.	50,180	87		13	2	1	40	100	

Appendix B-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: Crystal Creamery Site
Description: Cumulative 2030 + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	C St.	11th St. to 12th St.	41.8	36.6	41.2	45
2	C St.	12th St. to 13th St.	50.2	45.0	49.6	54
3	D St.	8th St. to 10th St.	51.2	44.9	49.0	54
4	D St.	11th St. to 12th St.	51.3	45.0	49.1	54
5	D St.	12th St. to 13th St.	51.6	45.3	49.4	54
6	E St.	10th St. to 11th St.	51.7	45.4	49.6	54
7	E St.	11th St. to 12th St.	52.2	45.9	50.0	55
8	E St.	12th St. to 13th St.	54.4	48.1	52.3	57
9	10th St.	E St. to F St.	46.1	40.9	45.5	49
10	10th St.	D St. to E St.	48.0	42.8	47.4	51
11	11th St.	D St. to E St.	46.4	41.1	45.8	50
12	12th St.	E St. to F St.	64.3	56.3	58.2	66
13	12th St.	C St. to North B St.	66.2	58.3	60.1	68
14	16th St.	North of C St.	66.7	58.7	60.5	68

Appendix B-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: Crystal Creamery Site
Description: Cumulative 2030 + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	-------- Distances to Traffic Noise Contours -------- 75	70	65	60	55
1	C St.	11th St. to 12th St.	1	2	5	10	22
2	C St.	12th St. to 13th St.	4	8	17	37	80
3	D St.	8th St. to 10th St.	4	8	18	39	83
4	D St.	11th St. to 12th St.	4	8	18	39	85
5	D St.	12th St. to 13th St.	4	9	19	41	89
6	E St.	10th St. to 11th St.	4	9	20	42	91
7	E St.	11th St. to 12th St.	5	10	21	45	98
8	E St.	12th St. to 13th St.	6	14	30	64	138
9	10th St.	E St. to F St.	2	4	9	20	43
10	10th St.	D St. to E St.	3	6	12	27	57
11	11th St.	D St. to E St.	2	4	10	21	45
12	12th St.	E St. to F St.	24	52	112	242	521
13	12th St.	C St. to North B St.	32	70	151	324	699
14	16th St.	North of C St.	35	75	162	349	752

Appendix F

Recent LUST Site Closure Correspondence-October 24, 2013 and December 17, 2013

Environmental Management Department
Val F. Siebal, Director

County of Sacramento

Divisions
Environmental Compliance
Environmental Health

October 24, 2013

Mr. Mike Newell
CC&B Holdings, Inc.
550 Howe Avenue, Suite 110
Sacramento, CA 95825

Dear Mr. Newell:

SUBJECT: LOCAL OVERSIGHT PROGRAM (LOP) SITE NO. D515; RO0001213
CRYSTAL CREAMERY
1013 D ST, SACRAMENTO, CA

On October 11, 2013, the subject site was considered for closure at a meeting of our office's Site Assessment and Mitigation Section.

The site was not recommended for closure. Staff recommended the site be reconsidered for closure after:

- Re-evaluating the site against the groundwater-specific criteria. The site appears to best fit groundwater scenario 2. However, the consultant needs to provide an opinion on plume length, and provide a basis for that opinion. Plan-view iso-concentration maps should be provided as part of the re-evaluation. If sufficient data do not exist to provide a reasonable interpretation of the plume size, then additional data may need to be collected.
- Conducting a site reconnaissance to identify wells not in the DWR records. The radius of the site reconnaissance should be based on the distance to supply wells required by the groundwater-specific criteria (e.g., scenario 2).
- Providing cross-section maps.
- Re-evaluating the site against low-threat vapor-intrusion criteria. The data themselves indicate that the site meets the direct measurement criteria; however, there are no clear arguments made in the report as to how one of the three options for meeting the vapor-intrusion criteria are met.
- Re-evaluating the site against the low-threat direct-contact/outdoor air criteria. Controlling exposure through the use of institutional or engineering controls is likely to be difficult because the proposed future land use is residential. Therefore, one of the other two options should be chosen: (1) demonstrating that the soil concentrations are below the table criteria or (2) conducting a site specific risk assessment. If sufficient data do not exist to complete one of those two options, then additional data collection may be necessary.
- Providing a statement that the onsite well has been destroyed.

By **January 31, 2014**, you are directed to submit either a revised closure request or a workplan proposing the additional work necessary to demonstrate attainment of remedial goals. The workplan should be consistent with Central Valley Regional Water Quality Control Board (CVRWQCB), April 16, 2004, *Appendix A - Reports, Tri-Regional Board Staff Recommendation for Preliminary Investigations and Evaluation of Underground Tank Sites*.

This decision is subject to appeal to the State Water Resources Control Board (SWRCB), pursuant to H&SC Section 25296.40(a)(1), (Thompson-Richter Underground Storage Tank Reform Act - Senate Bill 562). Please contact the SWRCB Underground Storage Tank Program at (916) 341-5752 or visit the website at http://www.swrcb.ca.gov/water_issues/programs/ust/cleanup/petitions.shtml for information regarding the appeals process.

Please contact me at (916) 875-8474 if you wish to discuss this further.

Sincerely,

Charley W. Langer
Environmental Specialist III
Site Assessment and Mitigation

CWL:se

c: Vera Fischer – CVRWQCB
Matthew Taylor – Wallace-Kuhl

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Revised Report of Findings - Amendment
Additional Subsurface Soil, Soil Vapor,
and Groundwater Investigation

1013 D STREET

Sacramento, California
WKA No. 7528.10
Originally Submitted April 16, 2013
Revised November 14, 2013
Amended December 17, 2013

Prepared for:
Mr. Mike Newell
CC&B Holdings, Inc.
550 Howe Avenue, Suite 110
Sacramento, CA 95825

Prepared By:
Wallace-Kuhl & Associates
3050 Industrial Boulevard
West Sacramento, California 95691

Wallace Kuhl & Associates

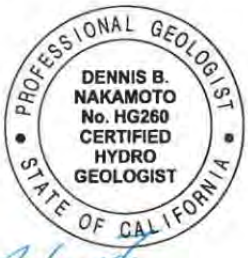
Corporate Office
3050 Industrial Boulevard
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

Stockton Office
3422 West Hammer Lane, Suite D
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

Revised Report of Findings - Amendment
Additional Subsurface Soil, Soil Vapor, and Groundwater Investigation
1013 D STREET
Sacramento, California
WKA No. 7528.10
Originally Submitted April 16, 2013
Revised November 14, 2013
Amended December 17, 2013

Wallace-Kuhl & Associates prepared this amendment to the Revised Report of Findings for *Additional Subsurface Soil, Soil Vapor, and Groundwater Investigation,* submitted for the former Crystal Cream and Butter Company facility located at 1013 D Street in Sacramento, on behalf of CC&B Holdings, Inc. for California. The report was prepared in a manner consistent with the level of care and skill ordinarily exercised by professional geologists and environmental scientists. This report was prepared under the supervision of a California Professional Geologist.

WALLACE-KUHL & ASSOCIATES



Dennis B. Nakamoto, PG, CEG, CHG
Senior Hydrogeologist

Revised Report of Findings - Amendment
Additional Subsurface Soil, Soil Vapor, and Groundwater Investigation
1013 D STREET
Sacramento, California
WKA No. 7528.10
Originally Submitted April 16, 2013
Revised November 14, 2013
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Revised Report of Findings - Amendment
Additional Subsurface Soil, Soil Vapor, and Groundwater Investigation
1013 D STREET
Sacramento, California
WKA No. 7528.10
Originally Submitted April 16, 2013
Revised November 14, 2013
Amended December 17, 2013

1.0 INTRODUCTION

Wallace-Kuhl & Associates prepared this amendment to the Revised *Report of Findings – Additional Subsurface Soil, Soil Vapor, and Groundwater Investigation* to address comments posed by the Sacramento County Environmental Management Division (SCEMD) and Central Valley Regional Water Quality Control Board (RWQCB) (collectively referred to as the Committee members) during the November 22, 2013, meeting at the SCEMD offices. This amendment addresses the Committee members' comments that WKA:

1. Provide additional information with regard to the closure scenario for groundwater-specific criteria as given in the Low-Threat Underground Storage Tank Case Closure Policy (Low-Threat Closure Policy). Specifically, the Committee members wished to see the shallow groundwater plume delineated using chemical isoconcentration maps and suggested WKA evaluate closing the Site using groundwater-specific criteria scenario number 4.
2. Provide additional discussion of groundwater and soil impacts near monitoring wells DS-MW1, DS-MW2 and DS-MW3, which are near the former locations of Tanks A, B and C.
3. Provide additional discussion of dermal contact with impacted soils above 10 feet below ground surface.
4. Provide additional discussion of Freon 11 detections in soil vapor monitoring points.

The remainder of this document presents WKA's response to each above-listed comment.

Figure and Table Revisions

WKA prepared figures and tables that are either new or revised in response to Committee members' comments. WKA revised Figures 6 through 13 to include the locations for each of the tank excavation sites. WKA constructed three new figures. Figure 15 illustrates the Total Petroleum Hydrocarbons (TPH) as diesel (TPHd) groundwater plume boundaries, Figure 16 illustrates the TPH as motor oil (TPHmo) groundwater plume boundaries and Figure 17

illustrates the shallow groundwater piezometric surface, five months after the City of Sacramento stopped the leak in the potable water pipeline. WKA corrected Tables 2 and 10 to remove typographic errors. WKA revised Table 15 to add information regarding the maximum chemical concentrations detected in soil vapor samples. The following sections discuss these figures and tables. Except where noted in this document as having been added or revised, the figures, tables, and appendices included with the full report should be referred to in support of this document.

New Figures	
Figure 15	TPHd Plume Delineation Map
Figure 16	TPHmo Plume Delineation Map
Figure 17	Potentiometric Surface Map - November 25, 2013
Revised Figures	
Figure 6	Potentiometric Surface Map (July 30, 2012)
Figure 7	Potentiometric Surface Map (February 20, 2013)
Figure 8	TPHd Isoconcentration Map – May 2005
Figure 9	TPHmo Isoconcentration Map – May 2005
Figure 10	TPHd Isoconcentration Map – July 2012
Figure 11	TPHmo Isoconcentration Map – July 2012
Figure 12	TPHd Isoconcentration Map – February 2013
Figure 13	TPHmo Isoconcentration Map – February 2013
New Tables	
Table 16	Tank D, E, and F - Soil Analytical Results for TPH and VOCs
Table 17	Tank D, E, and F - Soil Analytical Results for PNAs and PCBs
Revised Tables	
Table 2	Summary of Laboratory Results, UST Removal Soil Samples
Table 9	Summary of Groundwater Elevation, Flow Direction and Gradient Data
Table 10	Summary of Analytical Results of Groundwater Samples Collected From Monitoring Wells
Table 15	Soil Concentration Thresholds for Direct Contact and Outdoor Exposure

2.0 GROUNDWATER-SPECIFC CLOSURE CRITERIA

WKA submits this document in support of requesting closure of this site under scenario 4 of the Low-Threat Closure Policy. Considerations for achieving closure under scenario 4 are listed below.

a) *The contaminant plume that exceeds water quality objectives is less than 1,000 feet in length.*

b) *There is no free product.*

c) *The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.*

d) *The dissolved concentration of benzene is less than 1,000 micrograms per liter (µg/l), and the dissolved concentration of MTBE is less than 1,000 µg/l.*

The following section discusses each criterion.

Point a) The contaminant plume that exceeds water quality objectives is less than 1,000 feet in length

The limits of the groundwater plume of petroleum hydrocarbons migrating in shallow groundwater were modeled using historical groundwater detections associated with leaking underground storage tanks and a groundwater flow gradient observed during an additional round of depth-to-groundwater measurements completed on November 25, 2013. The November 2013 depth-to-groundwater measurements represent shallow aquifer conditions five months after the City of Sacramento stopped a potable water leak estimated at 720 gallons per day discharged into the shallow aquifer. The shallow groundwater contour map constructed from the November 2013 data (Figure 17) revealed a southerly shallow groundwater flow direction beneath the entire site.

Table 10 presents the historic groundwater detections. Table 10 shows that chemical detections have been limited to TPHd and TPHmo, except for a single detection of total xylenes at monitoring well DS-MW4 during April 2005. Total xylenes were not detected in any groundwater sample collected since April 2005. Detections of TPHd and TPHmo occurred at the northern monitoring wells, labeled DS-MW1, DS-MW2, DS-MW3 and DS-MW4, and the central monitoring well, labeled DS-MW5. Table 13 shows maximum and minimum concentrations for each monitoring well. Isocontour maps for TPHd and TPHmo constructed

from February 2013 groundwater analytical results are presented on Figures 12 and 13, respectively. Detections of TPHd and TPHmo are present in the northern area, near Tanks A, B, and C and in the central area near Tank E.

Field activities conducted during June 2013 revealed that a City of Sacramento potable water distribution pipe buried beneath the site was leaking approximately 720 gallons of water during each 24-hour period. The City of Sacramento completed repairs that stopped the leak and stopping of the leak was confirmed by the absence of water draining into a utility vault located within the eastern portion of the site. WKA collected a set of depth to groundwater measurements on November 25, 2013, for use in modeling flow in the shallow aquifer after the potable water leak had stopped. The depth-to-groundwater measurements revealed that the shallow groundwater surface had fallen below the bottom of monitoring wells DS-MW1, DS-MW2 and DS-MW3, which were measured at 16.25, 17.51, and 17.67 feet below the top of casing, respectively. The bottom of casing measurements were used to calculate the bottom of casing elevation for monitoring wells DS-MW1, DS-MW2, and DS-MW3 at 8.20, 6.71, and 6.74 feet above mean sea level (msl), respectively. The shallow groundwater surface elevation in the remaining monitoring wells ranged from 5.11 to 5.91 feet msl. The shallow groundwater surface in monitoring wells whose screen remained within the saturated portion of the shallow aquifer showed groundwater levels had decreased between 4.06 and 5.50 feet since the February 2013 sampling event that occurred when potable water was still leaking into the shallow aquifer. For monitoring wells DS-MW1, DS-MW2 and DS-MW3, groundwater levels decreased by at least 2.05 to 3.68 feet based on the calculated bottom of casing elevation at each well. Lastly, the potentiometric shallow groundwater map using the November 25, 2013, depth to water measurements showed the groundwater elevation was highest at DS-MW4. Data previously collected had shown the highest groundwater elevation at DS-MW5.

Figure 17 presents the shallow groundwater potentiometric surface map constructed from the November 25, 2013, data. WKA used Figure 17 to calculate a groundwater flow gradient of 0.0012 towards the south using the point of highest groundwater elevation (DS-MW4) to the lowest (ES-MW3R). The calculated groundwater gradient and November 2013 shallow groundwater elevations allowed projecting groundwater elevations in the upgradient direction to the locations occupied by monitoring wells DS-MW1, DS-MW2 and DS-MW3. The projected shallow groundwater elevations revealed that the bottom of each of the three monitoring wells was one to two feet above the shallow groundwater surface. The projected groundwater surface elevation allows the conclusion that shallow groundwater near monitoring wells DS-MW1, DS-MW2 and DS-MW3 decreased between three and six feet since the potable water

leak was stopped. These values are consistent with the measured decrease in the shallow groundwater level between four and five and one-half feet since the City of Sacramento stopped the potable water leak.

The shallow groundwater potentiometric surface maps constructed from the previous two groundwater sampling events (July 30, 2012, and February 20, 2013) showed groundwater flow being influenced by radially outward flow centered in the vicinity of monitoring well DS-MW5. This radially outward flow feature was then contoured to show groundwater flowing to the north near monitoring wells (DS-MW1, DS-MW2 and DS-MW4) and to the south near monitoring wells (ES-MW1, ES-MW2 and ES-MW3). WKA concludes that the radially outward flow represents flow from the leaking potable water utility that is aligned with the D Street Alley. i.e. roughly west-southwest to east-northeast near monitoring well DS-MW5.

Comparison of the shallow groundwater potentiometric surface while the potable water pipeline was leaking to the surface after stopping the leak confirms that the prevalent shallow groundwater flow beneath the site is in the southerly direction. This conclusion is consistent with the southerly shallow groundwater flow modeled from environmental studies at the former Southern Transportation Company Sacramento Locomotive Works Yard, located immediately north of the site. WKA confirmed shallow groundwater flow beneath the site is in the southerly direction and concluded the northerly groundwater flow direction that was modeled when the potable water leak was active to have been a localized feature. WKA further concludes that the prevalent southerly shallow groundwater flow beneath the site would have resulted in all shallow groundwater near the northern site boundary to flow in a southerly direction. The following section presents details of the leaking potable water line.

Investigation of the Leaking Water Line

WKA investigated an underground utility vault during June 2013 in support of developing an estimated cost to abandon the vault. The vault is located south of the D Street Alley as shown on Figure 15. WKA measured the vault bottom approximately 16 feet bgs. The vault was covered by a lid measuring approximately 4 feet on each side. Water filled the vault to within four feet bgs. A review of building permit site plans available through the City of Sacramento Records Library indicated that the vault was part of the Crystal Cream and Butter water treatment system. When the plant was in operation, process water entered the system through a series of collection points/drains and was conveyed to the vault through underground piping.

This water was pumped to a series of treatment tanks on the north side of the plant before being released under permit into the City's combined storm water and sewer collection system.

The water contained in the vault was tested and a temporary discharge permit was arranged with the Sacramento Department of Utilities to allow discharge of the vault water into a nearby storm drain. The discharge permit was granted on June 5, 2013, and the vault was emptied of water on June 14, 2013, using a four-inch diameter submersible pump. Approximately 1,740 gallons of water were pumped from the vault. During the pumping, WKA observed approximately 0.5 gallons per minute (gpm) of water was continuing to enter the vault from a horizontal pipe that entered the vault at 7.5 feet bgs.

By June 18, 2013, the vault had refilled with water to a level of eight feet bgs. Further investigation of nearby utility access points in the area and consultation with City of Sacramento Utilities revealed that a leaking water line was oriented along the D Street Alley. A leaking valve was located within an access manhole as noted on Figures 6, 7 and 17. WKA believes that water line contributed water to the vault and the shallow aquifer. City personnel repaired the leak on June 19, 2013, and the vault was re-emptied on June 28, 2013. Measurement on November 25, 2013, determined that water was present at approximately 11 feet bgs, which is likely due to infiltration of rainwater. WKA observed there was no water flowing into the vault on November 25, 2013.

Plume Delineation

WKA has modeled the boundaries of the TPHd and TPHmo using Figure 15 and Figure 16. The plumes were modeled using the groundwater gradient derived from the November 2013 groundwater elevations and the February 2013 TPHd and TPHmo detections within the monitoring well network. Based on the post tank excavation soil samples (presented in Table 2), WKA believes that the sources of these plumes are releases at the Tank A and Tank E former locations. Modeling revealed two comingled TPHd and TPHmo groundwater plumes and one TPHd groundwater plume. These plumes are listed below.

1. A comingled TPHd and TPHmo plume originating from the former Tank A location.
2. A comingled TPHd and TPHmo plume that surrounds monitoring well DS-MW1.
3. A TPHd plume originating from the former Tank E location.

Where plume boundaries could not be delineated by groundwater sample results, the plume width was modeled as extending 0.5 times the downgradient length of the plume. The downgradient length of the plumes at Tank A were calculated as 120 feet based on the distance between Tank A and the nearest non-detect water sample to the south at monitoring well DS-MW4R. Based on this calculation, the plume extends 60 feet north, east, and west of the Tank A site, for a total plume length of 180 feet in the direction of groundwater flow.

The radially outward flow conditions formerly affecting the vicinity of monitoring well DS-MW1 are concluded to have divided the comingled plume originating from the Tank A source, as shown on Figure 15. The divided plume centered on monitoring well DS-MW2 was modeled using the same approach regarding neighboring datum.

For the Tank E plume, the downgradient length of the plume was calculated as 400 feet based on the distance between Tank E and the nearest non-detect water sample to the south at monitoring well ES-MW1R. Based on a downgradient plume length of 400 feet, the plume was extended 200 feet to the north, west and east of Tank E. The total plume length for Tank E is approximately 600 feet.

The addition of the length of both plumes is 780 feet (180 feet for Tank A plus 600 feet for Tank E). The plume length is less than the required 1,000 feet as given in Scenario 4, point A of the closure criteria.

Point b) There is no free product.

Free product has not been encountered during groundwater monitoring.

Point c) The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.

As described in *Section 3.5 - Sensitive Receptor Survey* of the full report, WKA completed a Department of Water Resources well log search and the closest domestic well was located approximately 1,300 feet to the northeast of the site at 12th and B Street. The nearest surface water bodies are the Sacramento River, located approximately 4,000 feet west of the site, and the American River, located approximately 4,500 feet north of the site.

Point d) The dissolved concentration of benzene is less than 1,000 µg/l, and the dissolved concentration of MTBE is less than 1,000 µg/l.

Benzene and MTBE concentrations have been below laboratory reporting limits at each monitoring well for each sampling event. Refer to Table 10 for historical sample results taken at on site groundwater monitoring wells.

Plume Stability

The general groundwater requirements of Low-Threat Closure Policy also state that

> *...the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed below. A plume that is "stable or decreasing" is a contaminant mass that has expanded to its maximum extent: the distance from the release where attenuation exceeds migration.*

WKA finds that the plume is stable or decreasing given the following information:

- The release occurred well over a decade ago;
- Detections of TPH diesel and motor oil are significantly reduced from initial detections as shown at Table 10; and
- Impacted groundwater has not migrated to the southern monitoring wells, as supported by data from 2007 to 2013 for monitoring wells ES-MW1R through ES-MW3R.

Summary

The Site meets the general groundwater-specific criteria of being a decreasing or stable plume, as well as the criteria listed in scenario 4, points A through D.

3.0 NORTHWEST AREA (VICINITY OF TANKS A, B, AND C)

Committee members expressed concern about the northern area in vicinity of Tanks A, B, and C due to the TPHd and TPHmo detections in groundwater, in light of a northerly groundwater flow that had been illustrated by previous data. Contouring of data collected after stopping the

720-gallon per day potable water leak showed groundwater was flowing in a southerly direction. The southerly flow direction being consistent with groundwater flow directions calculated for studies at the former Southern Pacific Transportation Company Sacramento Locomotive Works Yard is concluded to demonstrate the comingled TPHd and TPHmo groundwater plume is not migrating onto the neighboring property (Refer to Figure 15 and Figure 16).

4.0 DERMAL CONTACT FOR SOILS ABOVE 10 FEET

Refer to Table 15, which includes maximum concentrations encountered at the site. Maximum values for the zero- to five-foot bgs interval are derived from pre-excavation samples taken at Tank A and one sample taken at four feet bgs beneath the Tank L fuel dispenser. Maximum values for the 5-to 10-foot interval include soil sampling data from the installation of geoprobe boring GP4 (sample GP4-8.5), and post excavation samples from Tanks E, G, H, and M. The thresholds for residential land use and utility worker exposure as presented in the Low Threat Closure Criteria are also presented on Table 15.

Where data is available, concentrations of benzene, ethylbenzene, and naphthalene did not exceed the thresholds presented on Table 15. Results for polynuclear aromatic hydrocarbons (PAHs) were not available for the zero- to five-foot bgs interval, and available for the five- to ten-foot bgs interval for only soil samples taken during the installation of geoprobe boring GP4 (sample GP4-8.5) and for over excavation samples at Tank E. PAH concentrations for sample GP4-8.5 were below the laboratory reporting limit. Two PAHs, anthracene, and fluoranthene, exceeded the utility worker threshold at one over excavation sample for Tank E. As noted previously, soils to the south of the former tank location were left in place due to the presence of underground utilities beneath D Street. Refer to Tables 16 and 17 for data from Tank E.

The excavation dimensions as shown on Table 1 show that a significant volume of soil was excavated from each tank site and, with the exception of tanks A and E, significant concentrations of the analyzed constituents did not remain in soil. A general Soil Management Plan will be developed for the site that will describe procedures to be followed in the case that impacted soils are encountered during site grading and construction. The procedures will include guidance on soil sampling and, if necessary, excavation of impacted soils. In particular, soil conditions at the former tank sites A and E will be discussed with respect to protecting worker safety.

5.0 FREON 11

Freon 11 was not the leak check gas employed when WKA collected soil vapor samples; thus, its presence in soil vapor samples is not an indication of ambient air intrusion into the sample. Freon 11 is not a component of petroleum hydrocarbons and its presences in soil vapor is not related to releases from the underground storage tanks formerly occupying the site. Freon 11 is an early refrigerant that was commonly used in low pressure refrigeration systems.

Freon 11 was detected in seven of nine soil vapor samples at concentrations ranging from 11 to 1,100 µg/m^3. The highest concentrations were detected in soil vapor probes in the north area, near monitoring wells DS-MW1 through DS-MW3, and the central area near monitoring well DS-MW5. Freon 11 concentrations within the southern area were substantially lower, ranging from below the laboratory detection limit to a high of 11 µg/m^3.

Freon 11 is not currently listed as having a screening level with either the California Human Health Screening Level (CHHSLs) or the Environmental Screening Levels (ESLs). The exposure levels for Freon 11 established by NIOSH and ACGIH denote a ceiling limit of 1,000 parts per million (ppm), an 8-hour TWA of 1,000 ppm, and an IDLH of 2,000 ppm.

Soil vapor samples containing Freon 11 were collected using probes set to five feet bgs, which is consistent with DTSC soil vapor sampling guidance. WKA selected a soil vapor attenuation factor of 0.1 to model the threat posed by chemical in soil vapor at five feet bgs to indoor air. This attenuation factor would render the highest Freon 11 concentration detected in soil vapor (1,100 µg/m$^{3)}$) attenuated to 110 µg/m^3, which is less than the previously stated thresholds. WKA concludes the presence of Freon 11 does not pose a threat to human health using a residential exposure pathway.

6.0 CONCLUSIONS

WKA has provided the above information in response to the requests for clarification or further information made by the Committee members during the November 22, 2013, meeting. WKA hopes that the information meets the requirements for closing this site under the Low Threat Closure Criteria. Please do not hesitate to contact our office with any questions, comments, or concerns.

7.0 LIMITATIONS

The statements and conclusions in this report are based upon the scope of work described above and on observations made on the dates of our fieldwork. The work was performed using a degree of skill consistent with that of competent environmental consulting firms performing similar work in the area. No recommendation is made as to the suitability of the property for any purpose. The results of our investigation do not preclude the possibility that materials currently, or in the future, defined as hazardous are present on the property. This report is applicable only to the investigated property and should not be used for any other property. No warranty is expressed or implied.

NEW FIGURES