

Appendix L
**Public Review Draft Implementation
Cost Estimates and Assumptions**

Western Placer County HCP/NCCP

Public Review Draft Implementation Cost Estimates and Assumptions

Jul-2017

Subject to Revision

This cost model calculates one-time and on-going annual costs through the 50-year permit term for the Western Placer County HCP / NCCP (the Plan).

The model takes input from a 50-year growth scenario and land conversion analysis for the Plan area (see D_Input Schedules) and from the Plan effects analysis (see A_Plan Input Acquisition, B_Plan Input Restoration, and C_Plan Input Final Reserve). Those sheets are linked to **Reserve Land by Time Period** and **Specific Habitat Restoration**. Other input sheets include E_Input Existing Reserve Credit and F_Input Grazing Urban_Suburban. All other input is internal to this cost model.

The model uses cost factors developed based on analysis from Bender Rosenthal, Inc. (land value analysis), ICF/Jones & Stokes Associates, Richard Harris, TRA Environmental Sciences, Placer County, the Placer Land Trust, and the members of the PCCP Finance Committee. **Cost factor variables are highlighted in the model and can be changed by the user.**

Cost factor variables are found on annotated sheets labeled 2- 10. **Changing the highlighted cells with bold red text will change the cost calculations.**

- Western Placer County HCP/NCCP July 2017** Enter new case here to indicate scenario being analyzed.
- MIG/TRA Plan Tables 2/11/2016** Indicates link to or input from Plan tables
- 12/2014_7/2015_2/2016 Enter date for Plan input
- 10/1/2014 UPDATE 4/2015 Enter date for HEG land conversion scenario here
- 2017 dollars** Enter year for constant dollar values

Legend

- HEG/ICF 2012 - 2017
- HEG/ICF earlier
- Richard Harris
- Placer Land Trust
- Placer County/Placer County Water Agency
- Guesstimate
- Other Plans - East Contra Costa County Habitat Conservancy/ Natomas Basin Conservancy

- plan input
- cost variable
- link to other cell in workbook

Changing these cells will change the cost model output.

Title Page	
Notes to User	model overview; sources and coding for cost factor assumptions
Road Map	list of worksheet tabs and contents
1a Cost Summary	50-year permit term costs by major cost category, by 5 year period and for the complete permit term
1b Cost Summary (rounded)	
1c Cost Summary VALLEY	50-year permit term costs allocated to the Valley subarea, by major cost category, by 5 year period and for the complete permit term
1d Cost Summary Foothills	50-year permit term costs allocated to the Foothills subarea, by major cost category, by 5 year period and for the complete permit term
1e Capital Cost Detail Vly FH	more detailed line item costs; 50-year permit term costs by 5 year period and for the complete permit term
1f Operating Cost Detail Vly FH	more detailed line item costs; 50-year permit term costs by 5 year period and for the complete permit term
Tabs A – N	background source data and information; interim analysis tables
A Plan Input Acquisition	source table from Plan Document / TRA
B Plan Input Restoration	source table from Plan Document / TRA
C Plan Input Final Reserve	source table from Plan Document / TRA
D Input Schedules	source table for alternative development scenarios to apply in cost modelling
E Input Existing Reserve Credit	source Table from Chapter 8, Table 8-1, Jump Start Lands to be Credited toward Plan Land Acquisition Commitments
F Input Grazing Urban_Suburban	source table and analysis for assumptions about reserve land that requires more intensive grazing for invasives and fuel-load management
G Cost escalation factors	CPI factor to generate "current" cost factors for all but land acquisition; land cost adjustment factor
H.1 Credit Valley Reserve	dollar value of credits against Valley reserve assembly costs for mitigation
H.2 Credit Foothills Reserve	dollar value of credits against Foothills reserve assembly costs for mitigation
I.1 ConservationCreditValley	dollar value of credits against Valley reserve assembly costs for conservation
I.2 ConservationCreditFoothills	dollar value of credits against Foothills reserve assembly costs for conservation
J Acquisition Schedule	reserve acquisition acres input by 5-year time period, by natural community, Valley cost share and Foothills cost share
K Reserve Land by Time Period	acres acquired, restored, and under management by 5-year time period and cumulative total, by natural community, Valley cost share and Foothills cost share
L SpecificHabitatRestoration	source input from TRA allocated by 5-year time period with cumulative total changes including natural community detail on "restored from" and "restored to"
M Fee Title vs Easement	reserve acquisition acres input allocated by 5-year time period and by acquisition assumptions
N AcquisitionCostbyPeriodType	land purchase cost by 5-year period, by natural community, Valley cost share and Foothills cost share
2 Establish Reserve	cost to acquire protected lands and lands for restoration, including transaction costs, pre-acquisition surveys, and site improvements
3 RestoreNaturalCommunities	cost of restoration and cost to manage and monitor the restored land, including cost of remedial measures to respond to changed circumstances
3a Community_Restore	detailed assumptions to develop costs for natural community biological monitoring on restored habitat
3b Species_Restore	detailed assumptions to develop costs for species biological monitoring on restored habitat
4 Manage Enhance	cost to manage protected habitat that is not restored, including management oversight, management plans, enhancements, and costs for remedial measures to respond to changed circumstances
4a Agricultural Lease Revenue	estimates of lease revenue on agricultural land owned in fee title by the PCA and leased to farmers
5 Monitoring_Research	costs for natural community and species monitoring on newly protected and pre-permit reserve lands (all but restored lands), costs for YHC staff oversight of monitoring contractors, costs for targeted studies and Science Advisors
5a Community_Protect	detailed assumptions to develop costs for natural community biological monitoring on protected habitat, not including restored acres
5b Species_Protect	detailed assumptions to develop costs for species biological monitoring on protected habitat, not including restored acres
6 Environmental Compliance	costs for reporting and permitting triggerer by restoration projects and some land management activities
7 Plan Administration	costs for administrative staff and overhead including costs for public safety services on reserve lands and state and federal agency staff support
8 Contingency	additional cost allowance for these planning level estimates
9 Post Permit Costs Annual	estimated annual average post permit costs for relevant cost categories
9a Management Post Permit	analysis and assumptions for relevant cost categories
9b Monitoring Post Permit	analysis and assumptions for relevant cost categories
9c Administration Post Permit	analysis and assumptions for relevant cost categories
10a Staffing Plan	detailed FTE assumptions by 5-year period
10b Shared Staff and Overhead	salary, benefit, and overhead assumptions by position for Field and Technical staff, by 5-year period
10c Staff and Overhead per FTE	salary, benefit, and overhead assumptions by position for all staff, by 5-year period

TABLE 1a
Summary of Capital and Total Cumulative Operating Costs through 50-Year Permit Term (2017 dollars)

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											Annual Average	
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50		TOTAL
TOTAL BUDGET													
Establish Reserve System	-	27,766,183	32,613,120	43,029,543	43,029,543	56,057,357	66,985,842	61,326,127	58,730,582	50,421,413	45,726,538	\$485,686,249	\$9,713,725
Restore, Manage & Monitor Natural Communities	-	12,051,285	14,430,675	18,420,335	19,108,436	23,977,490	27,920,711	26,551,168	26,305,356	24,310,940	23,339,507	\$216,415,903	\$4,328,318
Reserve Management and Enhancement	-	4,109,320	4,428,177	6,204,330	6,781,118	8,316,351	10,329,030	10,789,060	12,499,311	12,920,986	13,722,685	\$90,100,369	\$1,802,007
Monitoring, Research, and Scientific Review	-	2,634,575	3,419,983	4,191,180	4,893,023	5,685,988	6,194,800	6,580,197	7,104,752	7,677,429	8,168,281	\$56,550,206	\$1,131,004
Environmental Compliance	-	1,800,137	2,103,847	2,103,503	2,103,171	2,103,860	2,103,127	2,103,189	2,103,171	1,799,428	1,798,977	\$20,122,410	\$402,448
Plan Administration	-	7,841,802	7,772,360	7,955,588	8,052,989	7,635,277	7,786,801	8,025,693	8,172,034	7,843,686	7,931,397	\$79,017,627	\$1,580,353
Contingency Fund	-	1,928,375	2,229,878	2,847,508	2,909,422	3,633,160	4,268,110	4,033,505	3,993,899	3,613,065	3,437,803	\$32,894,725	\$657,894
Total	\$0	\$58,131,677	\$66,998,040	\$84,751,986	\$86,877,701	\$107,409,483	\$125,588,421	\$119,408,941	\$118,909,104	\$108,586,949	\$104,125,188	\$980,787,490	\$19,615,750
CAPITAL BUDGET													
Establish Reserve System	-	26,698,206	31,347,498	41,368,534	41,368,534	53,901,838	64,415,500	58,970,616	56,473,593	48,479,824	43,963,157	\$466,987,299	\$9,339,746
Restore Natural Communities (incl. contingency)	-	9,938,998	11,561,498	14,852,390	14,897,082	19,024,557	22,412,905	20,678,295	19,893,501	17,382,068	15,911,249	\$166,552,543	\$3,331,051
Reserve Management and Enhancement	-	882,595	883,728	1,557,682	1,183,072	1,394,969	2,064,461	1,679,409	2,332,013	1,960,711	2,027,949	\$15,966,588	\$319,332
Monitoring, Research, and Scientific Review	-	49,828	6,917	26,102	18,659	55,246	20,114	26,199	16,180	54,857	15,359	\$289,462	\$5,789
Environmental Compliance	-	775	460	403	316	1,116	382	335	316	578	127	\$4,807	\$96
Plan Administration	-	87,155	13,237	54,187	9,079	71,884	10,037	51,387	8,289	70,051	6,023	\$381,330	\$7,627
Contingency, Land Acquisition and Site Improvement	-	1,334,910	1,567,375	2,068,427	2,068,427	2,695,092	3,220,775	2,948,531	2,823,680	2,423,991	2,198,158	\$23,349,365	\$466,987
Total	\$0	\$38,992,467	\$45,380,714	\$59,927,725	\$59,545,168	\$77,144,702	\$92,144,174	\$84,354,771	\$81,547,572	\$70,372,080	\$64,122,022	\$673,531,395	\$13,470,628
OPERATING BUDGET													
Establish Reserve System	-	1,067,977	1,265,622	1,661,009	1,661,009	2,155,519	2,570,343	2,355,511	2,256,989	1,941,590	1,763,382	\$18,698,950	\$373,979
Restore, Manage & Monitor Natural Communities	-	2,112,288	2,869,177	3,567,945	4,211,355	4,952,933	5,507,806	5,872,873	6,411,855	6,928,872	7,428,257	\$49,863,360	\$997,267
Reserve Management and Enhancement	-	3,226,725	3,544,449	4,646,648	5,598,046	6,921,382	8,264,570	9,109,652	10,167,297	10,960,276	11,694,736	\$74,133,781	\$1,482,676
Monitoring, Research, and Scientific Review	-	2,584,746	3,413,066	4,165,077	4,874,364	5,630,741	6,174,686	6,553,999	7,088,571	7,622,572	8,152,922	\$56,260,744	\$1,125,215
Environmental Compliance	-	1,799,362	2,103,386	2,103,100	2,102,855	2,102,744	2,102,744	2,102,855	2,102,855	1,798,850	1,798,850	\$20,117,602	\$402,352
Plan Administration	-	7,754,647	7,759,123	7,901,401	8,043,910	7,563,393	7,776,763	7,974,306	8,163,745	7,773,635	7,925,375	\$78,636,297	\$1,572,726
Operating Contingency Fund	-	593,465	662,503	779,081	840,995	938,068	1,047,335	1,084,975	1,170,219	1,189,074	1,239,645	\$9,545,360	\$190,907
Total	\$0	\$19,139,210	\$21,617,327	\$24,824,261	\$27,332,533	\$30,264,780	\$33,444,247	\$35,054,170	\$37,361,532	\$38,214,869	\$40,003,166	\$307,256,095	\$6,145,122
Average annual operating cost per acre managed:		\$1,312	\$688	\$471	\$369	\$300	\$253	\$217	\$197	\$179	\$169		

TABLE 9-1
Summary of Capital and Total Cumulative Operating Costs through 50-Year Permit Term (rounded)^a

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS												Annual Average
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL	
TOTAL BUDGET													
Establish Reserve System	-	27,766,000	32,613,000	43,030,000	43,030,000	56,058,000	66,985,000	61,327,000	58,731,000	50,422,000	45,726,000	\$485,688,000	\$9,713,760
Restore, Manage & Monitor Natural Communities	-	12,051,000	14,430,000	18,420,000	19,108,000	23,978,000	27,921,000	26,551,000	26,306,000	24,311,000	23,339,000	\$216,415,000	\$4,328,300
Reserve Management and Enhancement	-	4,110,000	4,428,000	6,205,000	6,781,000	8,316,000	10,329,000	10,789,000	12,499,000	12,921,000	13,723,000	\$90,101,000	\$1,802,020
Monitoring, Research, and Scientific Review	-	2,635,000	3,420,000	4,191,000	4,893,000	5,686,000	6,195,000	6,580,000	7,105,000	7,678,000	8,168,000	\$56,551,000	\$1,131,020
Environmental Compliance	-	1,800,000	2,103,000	2,103,000	2,103,000	2,104,000	2,103,000	2,103,000	2,103,000	1,800,000	1,799,000	\$20,121,000	\$402,420
Plan Administration	-	7,842,000	7,772,000	7,955,000	8,053,000	7,635,000	7,787,000	8,025,000	8,172,000	7,844,000	7,931,000	\$79,016,000	\$1,580,320
Contingency Fund	-	1,928,000	2,230,000	2,847,000	2,909,000	3,633,000	4,268,000	4,034,000	3,994,000	3,613,000	3,438,000	\$32,894,000	\$657,880
Total	\$0	\$58,132,000	\$66,996,000	\$84,751,000	\$86,877,000	\$107,410,000	\$125,588,000	\$119,409,000	\$118,910,000	\$108,589,000	\$104,124,000	\$980,786,000	\$19,615,720
CAPITAL BUDGET													
Establish Reserve System	-	26,698,000	31,347,000	41,369,000	41,369,000	53,902,000	64,415,000	58,971,000	56,474,000	48,480,000	43,963,000	\$466,988,000	\$9,339,760
Restore Natural Communities (incl. contingency)	-	9,939,000	11,561,000	14,852,000	14,897,000	19,025,000	22,413,000	20,678,000	19,894,000	17,382,000	15,911,000	\$166,552,000	\$3,331,040
Reserve Management and Enhancement	-	883,000	884,000	1,558,000	1,183,000	1,395,000	2,064,000	1,679,000	2,332,000	1,961,000	2,028,000	\$15,967,000	\$319,340
Monitoring, Research, and Scientific Review	-	50,000	7,000	26,000	19,000	55,000	20,000	26,000	16,000	55,000	15,000	\$289,000	\$5,780
Environmental Compliance	-	1,000	-	-	-	1,000	-	-	-	1,000	-	\$3,000	\$60
Plan Administration	-	87,000	13,000	54,000	9,000	72,000	10,000	51,000	8,000	70,000	6,000	\$380,000	\$7,600
Contingency, Land Acquisition and Site Improvement	-	1,335,000	1,567,000	2,068,000	2,068,000	2,695,000	3,221,000	2,949,000	2,824,000	2,424,000	2,198,000	\$23,349,000	\$466,980
Total	\$0	\$38,993,000	\$45,379,000	\$59,927,000	\$59,545,000	\$77,145,000	\$92,143,000	\$84,354,000	\$81,548,000	\$70,373,000	\$64,121,000	\$673,528,000	\$13,470,560
OPERATING BUDGET													
Establish Reserve System	-	1,068,000	1,266,000	1,661,000	1,661,000	2,156,000	2,570,000	2,356,000	2,257,000	1,942,000	1,763,000	\$18,700,000	\$374,000
Restore, Manage & Monitor Natural Communities ^b	-	2,112,000	2,869,000	3,568,000	4,211,000	4,953,000	5,508,000	5,873,000	6,412,000	6,929,000	7,428,000	\$49,863,000	\$997,260
Reserve Management and Enhancement	-	3,227,000	3,544,000	4,647,000	5,598,000	6,921,000	8,265,000	9,110,000	10,167,000	10,960,000	11,695,000	\$74,134,000	\$1,482,680
Monitoring, Research, and Scientific Review	-	2,585,000	3,413,000	4,165,000	4,874,000	5,631,000	6,175,000	6,554,000	7,089,000	7,623,000	8,153,000	\$56,262,000	\$1,125,240
Environmental Compliance	-	1,799,000	2,103,000	2,103,000	2,103,000	2,103,000	2,103,000	2,103,000	2,103,000	1,799,000	1,799,000	\$20,118,000	\$402,360
Plan Administration	-	7,755,000	7,759,000	7,901,000	8,044,000	7,563,000	7,777,000	7,974,000	8,164,000	7,774,000	7,925,000	\$78,636,000	\$1,572,720
Operating Contingency Fund	-	593,000	663,000	779,000	841,000	938,000	1,047,000	1,085,000	1,170,000	1,189,000	1,240,000	\$9,545,000	\$190,900
Total	\$0	\$19,139,000	\$21,617,000	\$24,824,000	\$27,332,000	\$30,265,000	\$33,445,000	\$35,055,000	\$37,362,000	\$38,216,000	\$40,003,000	\$307,258,000	\$6,145,160

Notes:

2017 dollars; detail may not add to total due to independent rounding.

^a Does not include plan preparation and post-permit costs. Plan preparation costs are reported in Section 9.3.9 *Plan Preparation Costs* and post-permit costs are reported in Section 9.3.8, *Costs in Perpetuity*.

^b Includes cost of long term management and monitoring on restored lands.

TABLE 1c
VALLEY Capital and Total Cumulative Operating Cost Share through 50-Year Permit Term (2017 dollars)

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
TOTAL BUDGET												
Establish Reserve System	-	17,665,994	22,968,112	33,574,941	33,574,941	46,840,897	57,969,149	52,205,978	49,562,987	41,101,931	36,321,236	\$391,786,166
Restore, Manage & Monitor Natural Communities	-	6,754,157	8,991,622	12,984,045	13,503,589	18,406,609	22,392,118	20,894,962	20,511,121	18,254,384	17,072,691	\$159,765,299
Reserve Management and Enhancement	-	2,380,830	2,986,322	4,611,556	5,256,310	6,754,771	8,626,386	9,192,344	10,690,848	11,169,386	11,882,230	\$73,550,985
Monitoring, Research, and Scientific Review	-	1,478,097	2,031,263	2,671,544	3,208,611	3,891,173	4,411,147	4,771,372	5,204,887	5,633,421	5,984,398	\$39,285,914
Environmental Compliance	-	945,776	1,180,852	1,285,182	1,329,345	1,399,375	1,464,935	1,495,669	1,513,152	1,296,609	1,293,134	\$13,204,028
Plan Administration	-	4,120,012	4,362,489	4,860,642	5,090,031	5,078,577	5,423,902	5,707,417	5,879,471	5,651,903	5,701,216	\$51,875,660
Contingency Fund	-	1,178,879	1,507,736	2,138,947	2,198,194	2,944,518	3,594,467	3,355,628	3,301,759	2,908,607	2,714,711	\$25,843,447
Total	\$0	\$34,523,746	\$44,028,397	\$62,126,857	\$64,161,021	\$85,315,921	\$103,882,104	\$97,623,370	\$96,664,226	\$86,016,241	\$80,969,616	\$755,311,499
CAPITAL BUDGET												
Establish Reserve System	-	16,994,555	22,095,152	32,298,843	32,298,843	45,060,594	55,765,890	50,221,762	47,679,225	39,539,752	34,940,759	\$376,895,374
Restore Natural Communities (incl. contingency)	-	5,498,118	7,131,216	10,422,809	10,454,172	14,582,377	17,985,750	16,239,657	15,446,512	12,902,741	11,423,477	\$122,086,830
Reserve Management and Enhancement	-	531,765	575,406	1,096,918	849,877	1,048,666	1,584,570	1,325,936	1,829,727	1,587,198	1,641,352	\$12,071,415
Monitoring, Research, and Scientific Review	-	26,179	3,883	15,948	11,794	36,747	14,010	18,631	11,641	39,528	11,041	\$189,401
Environmental Compliance	-	407	258	246	200	742	266	238	227	416	91	\$3,093
Plan Administration	-	45,791	7,430	33,107	5,739	47,814	6,991	36,543	5,964	50,477	4,329	\$244,184
Contingency, Land Acquisition and Site Improvement	-	849,728	1,104,758	1,614,942	1,614,942	2,253,030	2,788,294	2,511,088	2,383,961	1,976,988	1,747,038	\$18,844,769
Total	\$0	\$23,946,543	\$30,918,103	\$45,482,813	\$45,235,566	\$63,029,969	\$78,145,773	\$70,353,855	\$67,357,257	\$56,097,099	\$49,768,087	\$530,335,064
OPERATING BUDGET												
Establish Reserve System	-	671,439	872,959	1,276,098	1,276,098	1,780,303	2,203,259	1,984,216	1,883,763	1,562,179	1,380,477	\$14,890,792
Restore, Manage & Monitor Natural Communities	-	1,256,039	1,860,406	2,561,236	3,049,416	3,824,233	4,406,368	4,655,305	5,064,609	5,351,644	5,649,214	\$37,678,469
Reserve Management and Enhancement	-	1,849,065	2,410,916	3,514,639	4,406,433	5,706,105	7,041,816	7,866,409	8,861,122	9,582,188	10,240,878	\$61,479,570
Monitoring, Research, and Scientific Review	-	1,451,918	2,027,381	2,655,596	3,196,818	3,854,426	4,397,137	4,752,741	5,193,245	5,593,893	5,973,358	\$39,096,512
Environmental Compliance	-	945,369	1,180,594	1,284,936	1,329,146	1,398,633	1,464,668	1,495,431	1,512,925	1,296,192	1,293,042	\$13,200,935
Plan Administration	-	4,074,222	4,355,059	4,827,535	5,084,292	5,030,764	5,416,911	5,670,873	5,873,507	5,601,426	5,696,887	\$51,631,477
Operating Contingency Fund	-	329,151	402,979	524,005	583,252	691,488	806,173	844,540	917,798	931,619	967,673	\$6,998,679
Total	\$0	\$10,577,203	\$13,110,294	\$16,644,044	\$18,925,455	\$22,285,952	\$25,736,332	\$27,269,514	\$29,306,969	\$29,919,142	\$31,201,529	\$224,976,435
Average annual operating cost per acre managed:		\$1,380	\$744	\$517	\$405	\$332	\$279	\$237	\$215	\$194	\$184	

TABLE 1d
FOOTHILLS Capital and Total Cumulative Operating Cost Share through 50-Year Permit Term (2017 dollars)

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
TOTAL BUDGET												
Establish Reserve System	-	10,100,189	9,645,009	9,454,602	9,454,602	9,216,460	9,016,693	9,120,150	9,167,595	9,319,482	9,405,302	\$93,900,084
Restore, Manage & Monitor Natural Communities	-	5,297,128	5,439,053	5,436,290	5,604,848	5,570,881	5,528,592	5,656,206	5,794,234	6,056,556	6,266,816	\$56,650,604
Reserve Management and Enhancement	-	1,728,489	1,441,855	1,592,774	1,524,808	1,561,580	1,702,645	1,596,716	1,808,463	1,751,600	1,840,455	\$16,549,384
Monitoring, Research, and Scientific Review	-	1,156,478	1,388,720	1,519,636	1,684,411	1,794,814	1,783,653	1,808,825	1,899,865	2,044,008	2,183,882	\$17,264,292
Environmental Compliance	-	854,361	922,994	818,322	773,825	704,485	638,192	607,521	590,018	502,819	505,843	\$6,918,382
Plan Administration	-	3,721,790	3,409,871	3,094,946	2,962,958	2,556,699	2,362,898	2,318,276	2,292,563	2,191,783	2,230,181	\$27,141,967
Contingency Fund	-	749,496	722,142	708,561	711,227	688,642	673,642	677,878	692,139	704,459	723,092	\$7,051,277
Total	\$0	\$23,607,932	\$22,969,644	\$22,625,129	\$22,716,680	\$22,093,561	\$21,706,316	\$21,785,571	\$22,244,878	\$22,570,707	\$23,155,572	\$225,475,991
CAPITAL BUDGET												
Establish Reserve System	-	9,703,651	9,252,346	9,069,691	9,069,691	8,841,244	8,649,610	8,748,855	8,794,368	8,940,072	9,022,398	\$90,091,925
Restore Natural Communities (incl. contingency)	-	4,440,880	4,430,282	4,429,581	4,442,910	4,442,180	4,427,155	4,438,638	4,446,989	4,479,327	4,487,772	\$44,465,713
Reserve Management and Enhancement	-	350,830	308,321	460,765	333,196	346,303	479,891	353,473	502,287	373,513	386,597	\$3,895,174
Monitoring, Research, and Scientific Review	-	23,649	3,035	10,155	6,865	18,499	6,104	7,568	4,539	15,329	4,319	\$100,061
Environmental Compliance	-	368	202	157	116	374	116	97	89	161	36	\$1,715
Plan Administration	-	41,365	5,807	21,080	3,340	24,071	3,046	14,843	2,326	19,575	1,693	\$137,146
Contingency, Land Acquisition and Site Improvement	-	485,183	462,617	453,485	453,485	442,062	432,480	437,443	439,718	447,004	451,120	\$4,504,596
Total	\$0	\$15,045,925	\$14,462,611	\$14,444,912	\$14,309,602	\$14,114,733	\$13,998,401	\$14,000,916	\$14,190,315	\$14,274,981	\$14,353,935	\$143,196,330
OPERATING BUDGET												
Establish Reserve System	-	396,538	392,663	384,911	384,911	375,216	367,083	371,295	373,227	379,410	382,904	\$3,808,158
Restore, Manage & Monitor Natural Communities	-	856,248	1,008,771	1,006,709	1,161,938	1,128,700	1,101,438	1,217,568	1,347,246	1,577,229	1,779,044	\$12,184,891
Reserve Management and Enhancement	-	1,377,660	1,133,533	1,132,009	1,191,613	1,215,277	1,222,754	1,243,243	1,306,176	1,378,087	1,453,858	\$12,654,210
Monitoring, Research, and Scientific Review	-	1,132,829	1,385,685	1,509,481	1,677,546	1,776,315	1,777,550	1,801,258	1,895,326	2,028,679	2,179,564	\$17,164,232
Environmental Compliance	-	853,994	922,792	818,165	773,709	704,111	638,076	607,424	589,930	502,658	505,808	\$6,916,667
Plan Administration	-	3,680,425	3,404,064	3,073,866	2,959,618	2,532,629	2,359,853	2,303,433	2,290,238	2,172,208	2,228,488	\$27,004,821
Operating Contingency Fund	-	264,313	259,524	255,076	257,743	246,580	241,162	240,435	252,421	257,455	271,972	\$2,546,681
Total	\$0	\$8,562,007	\$8,507,033	\$8,180,217	\$8,407,078	\$7,978,828	\$7,707,916	\$7,784,655	\$8,054,562	\$8,295,727	\$8,801,637	\$82,279,661
Average annual operating cost per acre managed:		\$1,236	\$617	\$399	\$309	\$236	\$192	\$167	\$151	\$139	\$132	

TABLE 1e
Capital Costs through 50-Year Permit Term (2017 dollars)

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											
	Start Up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	CUMULATIVE TOTAL
VALLEY COST SHARE												
Establish Reserve System												
Land acquisition	-	16,133,707	20,975,938	30,662,768	30,662,768	42,778,081	52,941,107	47,677,813	45,264,067	37,536,893	33,170,859	\$357,804,000
Fencing improvements	-	593,688	771,872	1,128,328	1,128,328	1,574,147	1,948,126	1,754,447	1,665,626	1,381,282	1,220,621	\$13,166,464
Other one-time site improvements	-	267,160	347,342	507,748	507,748	708,366	876,657	789,501	749,532	621,577	549,279	\$5,924,909
Contingency	-	849,728	1,104,758	1,614,942	1,614,942	2,253,030	2,788,294	2,511,088	2,383,961	1,976,988	1,747,038	\$18,844,769
Total	-	17,844,282	23,199,910	33,913,785	33,913,785	47,313,624	58,554,184	52,732,850	50,063,186	41,516,739	36,687,797	\$395,740,142
Restore Natural Communities												
Restoration incl. contingency	-	5,378,596	6,992,882	10,222,242	10,222,242	14,261,201	17,649,313	15,894,656	15,089,970	12,513,913	11,058,380	\$119,283,393
Other shared capital/remedial measures	-	119,521	138,334	200,568	231,931	321,176	336,437	345,002	356,542	388,828	365,097	\$2,803,436
Total	-	5,498,118	7,131,216	10,422,809	10,454,172	14,582,377	17,985,750	16,239,657	15,446,512	12,902,741	11,423,477	\$122,086,830
Reserve Management and Enhancement												
Field facilities	-	-	-	373,784	-	-	373,784	-	373,784	-	-	\$1,121,353
Fish barrier removal/modification	-	275,600	275,600	275,600	275,600	275,600	275,600	275,600	275,600	275,600	275,600	\$2,756,000
Water supply	-	41,591	54,074	79,045	120,636	164,351	215,522	243,545	281,037	312,288	329,056	\$1,841,144
Responsive measures	-	188,395	241,850	352,540	441,847	571,968	705,653	788,160	887,664	959,782	1,025,656	\$6,163,516
Other shared capital	-	26,179	3,883	15,948	11,794	36,747	14,010	18,631	11,641	39,528	11,041	\$189,401
Total	-	531,765	575,406	1,096,918	849,877	1,048,666	1,584,570	1,325,936	1,829,727	1,587,198	1,641,352	\$12,071,415
Monitoring and Research												
Other shared capital	-	26,179	3,883	15,948	11,794	36,747	14,010	18,631	11,641	39,528	11,041	\$189,401
Total	-	26,179	3,883	15,948	11,794	36,747	14,010	18,631	11,641	39,528	11,041	\$189,401
Environmental Compliance												
Furniture, equipment, technology	-	407	258	246	200	742	266	238	227	416	91	\$3,093
Total	-	407	258	246	200	742	266	238	227	416	91	\$3,093
Plan Administration												
Furniture, equipment, technology, vehicles	-	45,791	7,430	33,107	5,739	47,814	6,991	36,543	5,964	50,477	4,329	\$244,184
Total	-	45,791	7,430	33,107	5,739	47,814	6,991	36,543	5,964	50,477	4,329	\$244,184
Total Capital Cost Share for Valley	-	\$23,946,543	\$30,918,103	\$45,482,813	\$45,235,566	\$63,029,969	\$78,145,773	\$70,353,855	\$67,357,257	\$56,097,099	\$49,768,087	\$530,335,064

TABLE 1e
Capital Costs through 50-Year Permit Term (2017 dollars)

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											
	Start Up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	CUMULATIVE TOTAL
FOOTHILLS COST SHARE												
Establish Reserve System												
Land acquisition	-	8,974,211	8,886,516	8,711,083	8,711,083	8,491,669	8,307,611	8,402,932	8,446,646	8,586,589	8,665,660	\$86,184,000
Fencing improvements	-	272,219	269,559	264,237	264,237	257,582	251,999	254,890	256,216	260,461	262,860	\$2,614,261
Other one-time site improvements	-	97,221	96,271	94,371	94,371	91,994	90,000	91,032	91,506	93,022	93,878	\$933,665
Acquire Credits at Big Gun Conservation Bank	-	360,000	-	-	-	-	-	-	-	-	-	\$360,000
Contingency	-	485,183	462,617	453,485	453,485	442,062	432,480	437,443	439,718	447,004	451,120	\$4,504,596
Total	-	10,188,834	9,714,963	9,523,175	9,523,175	9,283,306	9,082,090	9,186,297	9,234,087	9,387,076	9,473,518	\$94,596,522
Restore Natural Communities												
Restoration incl. contingency	-	4,344,342	4,344,342	4,344,342	4,344,342	4,344,342	4,344,342	4,344,342	4,344,342	4,344,342	4,344,342	\$43,443,416
Other shared capital/remedial measures	-	96,538	85,941	85,239	98,568	97,839	82,813	94,296	102,647	134,986	143,430	\$1,022,298
Total	-	4,440,880	4,430,282	4,429,581	4,442,910	4,442,180	4,427,155	4,438,638	4,446,989	4,479,327	4,487,772	\$44,465,713
Reserve Management and Enhancement												
Field facilities	-	-	-	146,216	-	-	146,216	-	146,216	-	-	\$438,647
Fish barrier removal/modification	-	176,800	176,800	176,800	176,800	176,800	176,800	176,800	176,800	176,800	176,800	\$1,768,000
Water supply	-	16,103	15,892	15,470	31,573	30,833	29,968	46,300	45,666	45,138	61,661	\$338,604
Responsive measures	-	134,277	112,595	112,125	117,958	120,170	120,804	122,805	129,066	136,246	143,817	\$1,249,862
Other shared capital	-	23,649	3,035	10,155	6,865	18,499	6,104	7,568	4,539	15,329	4,319	\$100,061
Total	-	350,830	308,321	460,765	333,196	346,303	479,891	353,473	502,287	373,513	386,597	\$3,895,174
Monitoring and Research												
Other shared capital	-	23,649	3,035	10,155	6,865	18,499	6,104	7,568	4,539	15,329	4,319	\$100,061
Total	-	23,649	3,035	10,155	6,865	18,499	6,104	7,568	4,539	15,329	4,319	\$100,061
Environmental Compliance												
Furniture, equipment, technology	-	368	202	157	116	374	116	97	89	161	36	\$1,715
Total	-	368	202	157	116	374	116	97	89	161	36	\$1,715
Plan Administration												
Furniture, equipment, technology, vehicles	-	41,365	5,807	21,080	3,340	24,071	3,046	14,843	2,326	19,575	1,693	\$137,146
Total	-	41,365	5,807	21,080	3,340	24,071	3,046	14,843	2,326	19,575	1,693	\$137,146
Total Capital Cost Share for Foothills	-	\$15,045,925	\$14,462,611	\$14,444,912	\$14,309,602	\$14,114,733	\$13,998,401	\$14,000,916	\$14,190,315	\$14,274,981	\$14,353,935	\$143,196,330
Total VALLEY AND FOOTHILLS												
Establish Reserve System												
Land acquisition	-	25,107,918	29,862,454	39,373,850	39,373,850	51,269,750	61,248,719	56,080,745	53,710,713	46,123,482	41,836,519	\$443,988,000
Fencing improvements	-	865,907	1,041,431	1,392,565	1,392,565	1,831,729	2,200,125	2,009,337	1,921,842	1,641,743	1,483,480	\$15,780,725
Other one-time site improvements	-	364,381	443,614	602,118	602,118	800,360	966,656	880,533	841,038	714,599	643,158	\$6,858,574
Acquire credits at Big Gun Mitigation Bank	-	360,000	-	-	-	-	-	-	-	-	-	\$360,000
Contingency	-	1,334,910	1,567,375	2,068,427	2,068,427	2,695,092	3,220,775	2,948,531	2,823,680	2,423,991	2,198,158	\$23,349,365
Total	-	28,033,116	32,914,873	43,436,960	43,436,960	56,596,930	67,636,275	61,919,147	59,297,273	50,903,815	46,161,315	\$490,336,664
Restore Natural Communities												
Management/Enhancement capital costs	-	9,938,998	11,561,498	14,852,390	14,897,082	19,024,557	22,412,905	20,678,295	19,893,501	17,382,068	15,911,249	\$166,552,543
Monitoring capital costs	-	49,828	6,917	26,102	18,659	55,246	20,114	26,199	16,180	54,857	15,359	\$289,462
Environmental compliance capital costs	-	775	460	403	316	1,116	382	335	316	578	127	\$4,807
Administration capital costs	-	87,155	13,237	54,187	9,079	71,884	10,037	51,387	8,289	70,051	6,023	\$381,330
Total Plan Capital Costs	-	\$38,992,467	\$45,380,714	\$59,927,725	\$59,545,168	\$77,144,702	\$92,144,174	\$84,354,771	\$81,547,572	\$70,372,080	\$64,122,022	\$673,531,395

TABLE 1f
Operating Costs through 50-Year Permit Term (2017 dollars)

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	CUMULATIVE TOTAL
VALLEY COST SHARE												
Establish Reserve System												
Pre-acquisition planning surveys	-	66,425	86,362	126,244	126,244	176,125	217,968	196,298	186,360	154,546	136,570	\$1,473,142
Due Diligence	-	605,014	786,598	1,149,854	1,149,854	1,604,178	1,985,292	1,787,918	1,697,402	1,407,633	1,243,907	\$13,417,650
Total	-	671,439	872,959	1,276,098	1,276,098	1,780,303	2,203,259	1,984,216	1,883,763	1,562,179	1,380,477	\$14,890,792
Restore, Manage & Monitor Natural Communities												
Field and Technical Staff and overhead	-	700,907	1,024,596	1,340,234	1,514,692	1,851,542	1,971,030	1,814,014	1,820,929	1,763,595	1,725,144	\$15,526,682
Management on restored lands	-	95,808	154,966	239,409	327,047	441,920	586,167	723,892	852,442	962,126	1,057,211	\$5,440,988
Monitoring on restored lands	-	387,410	640,752	935,979	1,207,677	1,530,771	1,849,171	2,117,399	2,391,239	2,625,922	2,866,859	\$16,553,178
Monitoring research	-	71,914	40,092	45,614	-	-	-	-	-	-	-	\$157,621
Total	-	1,256,039	1,860,406	2,561,236	3,049,416	3,824,233	4,406,368	4,655,305	5,064,609	5,351,644	5,649,214	\$37,678,469
Reserve Management and Enhancement												
Field and Technical Staff and overhead	-	739,770	1,133,446	1,448,975	1,703,614	1,996,176	2,097,172	1,998,440	2,047,467	2,080,508	2,107,379	\$17,352,946
Agricultural advisory services	-	303,606	177,408	197,262	205,216	214,860	221,997	224,951	226,996	227,681	228,027	\$2,228,004
Maintenance, utilities, supplies	-	5,316	13,375	64,404	77,486	94,987	159,358	177,209	239,486	253,575	266,245	\$1,351,440
Reserve management plan	-	208,001	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	\$395,201
All other management actions	-	592,373	1,065,887	1,783,198	2,399,317	3,379,283	4,542,489	5,445,008	6,326,372	6,999,625	7,618,427	\$40,151,979
Total	-	1,849,065	2,410,916	3,514,639	4,406,433	5,706,105	7,041,816	7,866,409	8,861,122	9,582,188	10,240,878	\$61,479,570
Monitoring and Research												
Field and Technical Staff and overhead	-	665,689	932,362	1,166,846	1,364,267	1,606,708	1,710,864	1,642,614	1,687,259	1,711,957	1,727,226	\$14,215,792
Monitoring Contractors	-	649,627	985,569	1,369,611	1,750,382	2,161,249	2,595,721	3,017,679	3,412,456	3,788,262	4,152,686	\$23,883,241
Research and Adaptive Management	-	136,602	109,450	119,140	82,169	86,469	90,552	92,449	93,530	93,674	93,446	\$997,479
Total	-	1,451,918	2,027,381	2,655,596	3,196,818	3,854,426	4,397,137	4,752,741	5,193,245	5,593,893	5,973,358	\$39,096,512
Environmental Compliance												
Field and Technical Staff and overhead	-	160,119	341,701	371,777	384,458	404,505	423,603	432,556	437,616	219,233	218,700	\$3,394,269
Permitting and reporting	-	785,249	838,893	913,159	944,688	994,128	1,041,065	1,062,875	1,075,308	1,076,960	1,074,342	\$9,806,667
Total	-	945,369	1,180,594	1,284,936	1,329,146	1,398,633	1,464,668	1,495,431	1,512,925	1,296,192	1,293,042	\$13,200,935
Plan Administration												
Staff	-	3,546,389	3,788,656	4,124,061	4,266,454	4,050,742	4,241,994	4,330,862	4,381,526	3,988,339	3,978,647	\$40,697,671
Administrative Overhead	-	13,670	12,219	12,297	11,829	10,980	11,499	12,152	12,294	11,981	11,952	\$120,872
Other Program Costs	-	514,163	554,184	691,177	806,009	969,042	1,163,418	1,327,860	1,479,688	1,601,106	1,706,288	\$10,812,933
Total	-	4,074,222	4,355,059	4,827,535	5,084,292	5,030,764	5,416,911	5,670,873	5,873,507	5,601,426	5,696,887	\$51,631,477
Operating Contingency	-	329,151	402,979	524,005	583,252	691,488	806,173	844,540	917,798	931,619	967,673	\$6,998,679
Total Operating Cost Share, Valley	\$0	\$10,577,203	\$13,110,294	\$16,644,044	\$18,925,455	\$22,285,952	\$25,736,332	\$27,269,514	\$29,306,969	\$29,919,142	\$31,201,529	\$224,976,435

TABLE 1f
Operating Costs through 50-Year Permit Term (2017 dollars)

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	CUMULATIVE TOTAL
FOOTHILLS COST SHARE												
Establish Reserve System												
Pre-acquisition planning surveys	-	60,005	59,419	58,246	58,246	56,778	55,548	56,185	56,477	57,413	57,942	\$576,258
Due Diligence	-	336,533	333,244	326,666	326,666	318,438	311,535	315,110	316,749	321,997	324,962	\$3,231,900
Total	-	396,538	392,663	384,911	384,911	375,216	367,083	371,295	373,227	379,410	382,904	\$3,808,158
Restore, Manage & Monitor Natural Communities												
Field and Technical Staff and overhead	-	566,129	636,532	569,585	643,728	564,029	485,165	495,808	524,238	612,251	677,732	\$5,775,197
Management on restored lands	-	140,596	163,306	183,010	209,250	232,875	256,947	284,733	313,891	344,614	375,955	\$2,505,177
Monitoring on restored lands	-	91,438	184,025	234,729	308,960	331,796	359,325	437,028	509,117	620,364	725,357	\$3,802,139
Monitoring research	-	58,086	24,908	19,386	-	-	-	-	-	-	-	\$102,379
Total	-	856,248	1,008,771	1,006,709	1,161,938	1,128,700	1,101,438	1,217,568	1,347,246	1,577,229	1,779,044	\$12,184,891
Reserve Management and Enhancement												
Field and Technical Staff and overhead	-	527,266	527,683	460,844	454,806	419,395	359,023	311,382	297,700	295,339	295,496	\$3,948,933
Agricultural advisory services	-	216,394	82,593	62,739	54,786	45,142	38,004	35,050	33,005	32,320	31,974	\$632,007
Maintenance, utilities, supplies	-	3,789	6,227	20,483	20,686	19,957	27,281	27,611	34,821	35,996	37,333	\$234,184
Reserve management plan	-	208,001	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	20,800	\$395,201
All other management actions	-	422,210	496,231	567,143	640,535	709,984	777,646	848,400	919,849	993,632	1,068,255	\$7,443,884
Total	-	1,377,660	1,133,533	1,132,009	1,191,613	1,215,277	1,222,754	1,243,243	1,306,176	1,378,087	1,453,858	\$12,654,210
Monitoring, Research, and Adaptive Mngmt.												
Field and Technical Staff and overhead	-	601,347	728,766	742,973	794,153	808,862	745,330	667,208	657,908	663,889	675,650	\$7,086,087
Monitoring Contractors	-	408,084	571,369	690,648	835,561	923,922	992,771	1,096,498	1,200,948	1,328,463	1,467,360	\$9,515,624
Research and Adaptive Management	-	123,398	85,550	75,860	47,831	43,531	39,448	37,551	36,470	36,326	36,554	\$562,521
Total	-	1,132,829	1,385,685	1,509,481	1,677,546	1,776,315	1,777,550	1,801,258	1,895,326	2,028,679	2,179,564	\$17,164,232
Environmental Compliance												
Field and Technical Staff and overhead	-	144,643	267,085	236,724	223,797	203,639	184,541	175,699	170,638	85,017	85,550	\$1,777,334
Permitting and reporting	-	709,351	655,707	581,441	549,912	500,472	453,535	431,725	419,292	417,640	420,258	\$5,139,333
Total	-	853,994	922,792	818,165	773,709	704,111	638,076	607,424	589,930	502,658	505,808	\$6,916,667
Plan Administration												
Staff	-	3,203,611	2,961,344	2,625,939	2,483,546	2,039,258	1,848,006	1,759,138	1,708,474	1,546,661	1,556,353	\$21,732,329
Administrative Overhead	-	12,348	9,551	7,830	6,886	5,528	5,009	4,936	4,794	4,646	4,675	\$66,203
Other Program Costs	-	464,466	433,169	440,097	469,186	487,843	506,838	539,359	576,970	620,902	667,460	\$5,206,289
Total	-	3,680,425	3,404,064	3,073,866	2,959,618	2,532,629	2,359,853	2,303,433	2,290,238	2,172,208	2,228,488	\$27,004,821
Operating Contingency	-	264,313	259,524	255,076	257,743	246,580	241,162	240,435	252,421	257,455	271,972	\$2,546,681
Total Operating Cost Share, Foothills	\$0	\$8,562,007	\$8,507,033	\$8,180,217	\$8,407,078	\$7,978,828	\$7,707,916	\$7,784,655	\$8,054,562	\$8,295,727	\$8,801,637	\$82,279,661
Average annual cost per acre managed (complete reserve):	\$0	\$1,312	\$688	\$471	\$369	\$300	\$253	\$217	\$197	\$179	\$169	

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 12/2014_7/2015_2/2016

Detail may not add to total due to independent rounding

Links to Reserve land
 by time period sheet.

**A. Plan Acquisition Commitments Cost
 Obligation - by Community and Subarea**

Community	Valley Cost Share	Foothills Cost Share	Total Plan Area
Vernal Pool Complex ¹	17,000	-	17,000
Grassland	3,750	3,400	7,150
Aquatic/Wetland Complex ¹	400	200	600
Riverine/Riparian Complex ¹	1,600	600	2,200
Valley Oak Woodland	90	100	190
Oak Woodland	110	10,000	10,110
Oak Woodland shift for obligation ²	1,000	(1,000)	-
Rice ³	10,000	-	10,000
Field	50	-	50
Total	34,000	13,300	47,300

PCCP data for cost model 20141212b

Valley Cost Share	Foothills Cost Share	Total Plan Area
100%	0%	100%
52%	48%	100%
67%	33%	100%
73%	27%	100%
47%	53%	100%
1%	99%	100%
100%	0%	100%
100%	0%	100%

Source: Table 5-5 Summary of Plan Area Effects and Conservation Strategy Commitments (acres)

1. Land area defined as "complex" includes a mosaic of various delineated wetlands and surrounding upland.
2. Oak woodland community types will be acquired in the Foothills to mitigate impacts in the Valley.
3. Almost 80% of the existing agricultural land in the Plan Area is rice, so the cost model assumes rice acquisition to meet Plan objectives. Only 2,000 acres of land are required to remain in rice production. Some of the other land acquired would be restored to natural communities such as grassland and vernal pool complex (see B Plan Input Restoration). The remainder could be any type of agricultural land providing connectivity within the Reserve System.

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 12/2014_7/2015_2/2016

Links to Reserve land by time period sheet
 and Specific Habitat Restoration

Detail may not add to total due to independent rounding

B.1 Plan Restoration by Community and Subarea

	Valley Reserve Area	Foothills Reserve Area	Total Plan Area
Community			
Vernal Pool Complex ¹	3,000	-	3,000
Grassland	1,000	-	1,000
Aquatic/Wetland Complex ¹	205	205	410
Riverine/Riparian Complex ¹	795	630	1,425
Valley Oak Woodland	222	63	285
Oak Woodland	-	100	100
Total	5,222	998	6,220

Source: Table 5-4 Natural Community Restoration Commitments (acres)

1. Land area defined as "complex" includes a mosaic of various delineated wetlands and surrounding upland.

PCCP data for cost model 20141212b

	Valley Reserve Area	Foothills Reserve Area	Total Plan Area
	100%	0%	100%
	100%	0%	100%
	50%	50%	100%
	56%	44%	100%
	78%	22%	100%
	0%	100%	100%

B.2 Constituent Habitat Restoration by Type and Subarea

Constituent Habitat	Valley Reserve Area	Foothills Reserve Area	Total Plan Area	Percent of total by type
Vernal Pool	326	-	326	36%
Seasonal Wetland in Vernal Pool Complex	330	-	330	37%
Seasonal Swales	244	-	244	27%
Vernal Pool Complex Type Total	900	-	900	100%
Fresh Emergent Marsh	98	98	196	48%
Lacustrine	71.5	71.5	143	35%
Non-Vernal Pool Seasonal Wetland	35.5	35.5	71	17%
Aquatic/Wetland Complex Total	205	205	410	100%
Riverine	98	77	175	12%
Riparian	697	553	1,250	88%
Riverine/Riparian Complex Total	795	630	1,425	100%
All Specific Habitats	1,900	835	2,735	

Source: Table 5-4 Natural Community Restoration Commitments (acres)

PCCP data for cost model 20141212b

	Valley Reserve Area	Foothills Reserve Area	Total Plan Area
	100%	0%	100%
	50%	50%	100%
	56%	44%	100%

B.3 Restoration Activity - Valley Reserve Area

To:	From: Grassland	Rice	Field	Total
Vernal Pool Complex	2,700	250	50	3,000
Grassland	-	1,000	-	1,000
Aquatic/Wetland Complex	123	82	-	205
Riverine/Riparian Complex	475	320	-	795
Valley Oak Woodland	114	108	-	222
Oak Woodland	-	-	-	-
Total	3,412	1,760	50	5,222

PCCP data for cost model 20141212b

	From: Grassland	Rice	Field	Total
	90%	8%	2%	100%
	0%	100%	0%	100%
	60%	40%	0%	100%
	60%	40%	0%	100%
	51.5%	48.5%	0%	100%

B.4 Restoration Activity - Foothills Reserve Area

To:	From: Grassland	Rice	Field	Total
Vernal Pool Complex	-	-	-	-
Grassland	-	-	-	-
Aquatic/Wetland Complex	205	-	-	205
Riverine/Riparian Complex	630	-	-	630
Valley Oak Woodland	63	-	-	63
Oak Woodland	100	-	-	100
Total	998	-	-	998

PCCP data for cost model 20141212b

	From: Grassland	Rice	Field	Total
	100%	0%	0%	100%
	100%	0%	0%	100%
	100%	0%	0%	100%
	100%	0%	0%	100%

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MIG/TRA Plan Tables 2/11/2016

12/2014_7/2015_2/2016

Links to Reserve land
by time period sheet.*Detail may not add to total due to independent rounding***C. Plan Reserve System Cost Obligation - by
Community and Subarea***PCCP data for cost model 20141212b*

Community	Valley Cost		Total Plan
	Share	Share	
Vernal Pool Complex ¹	20,000	-	20,000
Grassland	1,338	2,402	3,740
Aquatic/Wetland Complex ¹	605	405	1,010
Riverine/Riparian Complex ¹	2,395	1,230	3,625
Valley Oak Woodland	312	163	475
Oak Woodland	110	10,100	10,210
Oak Woodland shift for obligation ²	1,000	(1,000)	-
Rice (Objective GGS 1.1)	2,000	-	2,000
Any Agriculture	6,240	-	6,240
Field	-	-	-
Total	34,000	13,300	47,300

Source: Table 5-5 Summary of Plan Area Effects and Conservation Strategy Commitments (acres)

1. Land area defined as "complex" includes a mosaic of various delineated wetlands and surrounding upland.
2. Oak woodland community types will be acquired in the Foothills to mitigate impacts in the Valley.

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10/1/2014 UPDATE 4/2015 HEG Case

Valley schedule varies by period

D. Plan Estimates of Land Requirements through 50-year Permit Term (acres by time period)

	Permit Period (years)											
	Start up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Land Acquisition - Valley												
Evenly per period over 50 years	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	100%
All Community Types, per effects scenario	-	5%	6%	9%	9%	12%	15%	13%	13%	10%	9%	100%
Habitat Restoration - Valley												
Evenly per period over 50 years	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	100%
All Community Types, per effects scenario	-	5%	6%	9%	9%	12%	15%	13%	13%	10%	9%	100%
Land Acquisition - Foothills												
Evenly per period over 50 years	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	100%
Habitat Restoration - Foothills												
Evenly per period over 50 years	-	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	100%

Note: See Appendix M Growth Scenario, especially Figure 8 and associated text for background on land conversion assumptions over time

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E. Jump Start Lands Credit

Jump Start Land to be Counted towards PCA Land Acquisition Commitments by Community Type

County Only (County Open Space Trust Fund)

	Foothills ¹			Total Reserve Credit
	Harvego Bear River Preserve	Hidden Falls Regional Park	Total Foothills	
Natural Communities				
Vernal Pool Complex	-	-	-	-
Grassland	10.38	63.00	73.38	73.38
Aquatic/Wetland Complex	2.00	-	2.00	2.00
Riverine/Riparian Complex	1.00	26.00	27.00	27.00
Oak Woodland	732.20	738.00	1,470.20	1,470.20
Total	745.58	827.00	1,572.58	1,572.58

Other Non-Mitigation Funding Sources - to be counted towards Conservation Commitments

	Foothills ¹			Valley ²		Total Reserve Credit	
	Harvego Bear River Preserve	Hidden Falls Regional Park	Total Foothills	Doty Ravine Preserve	Swainson's Preserve		
Natural Communities							
Vernal Pool Complex	-	-	-	22.30	446.37	468.67	468.67
Grassland	11.60	27.10	38.70	359.00	-	359.00	397.70
Aquatic/Wetland Complex	2.20	-	2.20	-	5.63	5.63	7.83
Riverine/Riparian Complex	1.11	11.10	12.21	0.97	-	0.97	13.18
Oak Woodland	819.00	317.60	1,136.60	23.20	-	23.20	1,159.80
Total	833.91	355.80	1,189.71	405.47	452.00	857.47	2,047.18

1. Acreage is based on land cover type estimates, is proportional to the acreage commitment, and requires field verification unless noted otherwise.

2. Numbers have been field verified.

Source: Placer County (3/2/2017)

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F. Input for Urban/Suburban Grazing Assumption

Some land within the PFG will be incorporated into the reserve to meet the Plan's biological objectives. Much of this land will be open space in stream system corridors that cannot be developed. This land will be subject to management under the plan and will require higher costs for grazing for vegetation management.

To estimate open space that would be grazed

Data on existing specific plans from County GIS Analysis	Total Area	Open Space	Residual	Open Space % of Total	Open Space % of Residual
12 Bridges and Del Webb	6,096.2	1,852.1	4,244.1	30%	44%
Regional University SP	1,156.1	248.5	907.6	21%	27%
Placer Vineyards SP (including SPA)	5,233.8	716.1	4,517.7	14%	16%
Placer Vineyards SP (excluding SPA)	4,261.8	716.1	3,545.7	17%	20%
Riolo Vineyard	506.0	123.8	382.2	24%	32%
	17,253.9	3,656.6	13,597.3	21%	27%

Open Space % of urban/suburban plans **25%** (assume somewhat less than 27% calculated above)

Increment of reserve open space that would be grazed **5,000** cost model factor

Land Conversion Estimate (does not include open space)

Valley - XPU and PFG, for estimating open space **19,545**

PFG Valley and Lincoln
XPU Lincoln, and West Valley

Does not include XPU foothills since this area does not include urban/suburban areas that will be retained as natural open space areas subject to management under the Plan.

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G. Cost Escalation Factors

Consumer Price Index -- All Urban Consumers
 U. S. Department of Labor, Bureau of Labor Statistics

data extracted January 20, 2017
<http://data.bls.gov/cgi-bin/surveymost>

Series Id: CUURA422SA0

Not Seasonally Adjusted

Area: San Francisco-Oakland-San Jose, CA

Item: All items

Base Period: 1982-84=100

Years: 2005 to 2015

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2005		201.2		202.5		201.2		203.0		205.9		203.4	202.7
2006		207.1		208.9		209.1		210.7		211.0		210.4	209.2
2007		213.688		215.842		216.123		216.240		217.949		218.485	216.048
2008		219.612		222.074		225.181		225.411		225.824		218.528	222.767
2009		222.166		223.854		225.692		225.801		226.051		224.239	224.395
2010		226.145		227.697		228.110		227.954		228.107		227.658	227.469
2011		229.981		234.121		233.646		234.608		235.331		234.327	233.390
2012		236.880		238.985		239.806		241.170		242.834		239.533	239.650
2013		242.677		244.675		245.935		246.072		246.617		245.711	245.023
2014		248.615		251.495		253.317		253.354		254.503		252.273	251.985
2015		254.910		257.622		259.117		259.917		261.019		260.289	258.572
2016		262.600		264.565		266.041		267.853		270.306		269.483	266.344

To update all costs other than land acquisition costs:

The costs updated and reviewed with the Finance Committee in the summer/fall of 2013; ongoing adjustments in 2015

Factor to convert 2015 dollars to 12/2016 (called 2017) **1.040** applied to all but land acquisition costs, unless cost factors derived more recently

Land acquisition cost adjustments for two year period 2015 - 2017

Valley

Rice **\$10,250** per acre; mid point of range, ASFMRA 2016

All other land covers **3%** annual average increase based on ASFMRA trends in rangeland values in the market area

Foothills

No adjustment required based on Bender Rosenthal analysis of trends in rural residential property sales, February 22, 2017

H.1_Credit Valley Reserve Acquired with County Open Space Trust Funds (non-mitigation source)
 Value of Open Space Trust Fund Acquisitions Credited to Plan Reserve through 50-Year Permit Term (2017 dollars)

	Acres	Percent of Total Valley Acquisition
existing vernal pool complex habitat	-	0.0%
existing grassland habitat	-	0.0%
acres of existing aquatic/wetland complex habitat	-	0.0%
existing riverine/riparian complex habitat	-	0.0%
existing oak woodland habitat	-	0.0%
Total Existing Reserve Credit - VALLEY	-	0.0%

TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS

	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
TOTAL BUDGET												
Establish Reserve System	-	-	-	-	-	-	-	-	-	-	-	\$0
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency Fund	-	-	-	-	-	-	-	-	-	-	-	\$0
Total	\$0											
CAPITAL BUDGET												
Establish Reserve System	-	-	-	-	-	-	-	-	-	-	-	\$0
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency, Land Acquisition and Site Improvements	-	-	-	-	-	-	-	-	-	-	-	\$0
Total	\$0											
OPERATING BUDGET												
Establish Reserve System	-	-	-	-	-	-	-	-	-	-	-	\$0
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Operating Contingency Fund	-	-	-	-	-	-	-	-	-	-	-	\$0
Total	\$0											

H.2_Credit Foothills Reserve Acquired with County Open Space Trust Funds (non-mitigation source)
Value of Open Space Trust Fund Acquisitions Credited to Plan Reserve through 50-Year Permit Term (2017 dollars)

	Acres	Percent of Total Foothills Acquisition
acres of existing grassland habitat	73.38	2%
acres of existing aquatic/wetland complex habitat	2.00	1%
acres of existing riverine/riparian complex habitat	27.00	5%
acres of existing Oak Woodland habitat	1,470.20	15%
Total Conservation Credit - FOOTHILLS	1,572.58	12%

TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS

	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
TOTAL BUDGET												
Establish Reserve System	-	1,109,600	1,108,715	1,106,945	1,106,945	1,104,731	1,102,873	1,103,835	1,104,276	1,105,688	1,106,486	\$11,060,095
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency Fund	-	54,542	54,507	54,437	54,437	54,349	54,276	54,314	54,331	54,387	54,419	\$543,999
Total	\$0	\$1,164,143	\$1,163,223	\$1,161,382	\$1,161,382	\$1,159,080	\$1,157,149	\$1,158,149	\$1,158,607	\$1,160,076	\$1,160,905	\$11,604,094
CAPITAL BUDGET												
Establish Reserve System	-	1,062,714	1,062,287	1,061,433	1,061,433	1,060,365	1,059,469	1,059,933	1,060,146	1,060,827	1,061,212	\$10,609,822
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency, Land Acquisition and Site Improvement	-	53,136	53,114	53,072	53,072	53,018	52,973	52,997	53,007	53,041	53,061	\$530,491
Total	\$0	\$1,115,850	\$1,115,402	\$1,114,505	\$1,114,505	\$1,113,384	\$1,112,443	\$1,112,930	\$1,113,153	\$1,113,869	\$1,114,273	\$11,140,313
OPERATING BUDGET												
Establish Reserve System	-	46,886	46,428	45,512	45,512	44,365	43,404	43,902	44,130	44,861	45,274	\$450,273
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Operating Contingency Fund	-	1,407	1,393	1,365	1,365	1,331	1,302	1,317	1,324	1,346	1,358	\$13,508
Total	\$0	\$48,293	\$47,821	\$46,877	\$46,877	\$45,696	\$44,706	\$45,219	\$45,454	\$46,207	\$46,632	\$463,781

I.1_Credit Valley Reserve Acquired with State and other non-mitigation sources

Value of Acquisitions Credited to Plan Conservation Commitments through 50-Year Permit Term (2017 dollars)

	Acres	Percent of Total Valley Acquisition
existing vernal pool complex habitat	468.67	2.8%
existing grassland habitat	359.00	9.6%
acres of existing aquatic/wetland complex habitat	5.63	1.4%
existing riverine/riparian complex habitat	0.97	0.1%
existing oak woodland habitat	23.20	21.1%
Total Existing Reserve Conservation Credit - VALLEY	857.47	2.5%

	TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
TOTAL BUDGET												
Establish Reserve System	-	447,769	582,158	851,003	851,003	1,187,247	1,469,308	1,323,232	1,256,242	1,041,785	920,612	\$9,930,359
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency Fund	-	22,050	28,668	41,906	41,906	58,464	72,354	65,161	61,862	51,301	45,334	\$489,007
Total	\$0	\$469,819	\$610,826	\$892,909	\$892,909	\$1,245,711	\$1,541,662	\$1,388,393	\$1,318,104	\$1,093,086	\$965,946	\$10,419,366
CAPITAL BUDGET												
Establish Reserve System	-	430,835	560,143	818,820	818,820	1,142,348	1,413,742	1,273,191	1,208,734	1,002,387	885,796	\$9,554,817
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency, Land Acquisition and Site Improvements	-	21,542	28,007	40,941	40,941	57,117	70,687	63,660	60,437	50,119	44,290	\$477,741
Total	\$0	\$452,377	\$588,150	\$859,761	\$859,761	\$1,199,466	\$1,484,429	\$1,336,850	\$1,269,171	\$1,052,507	\$930,086	\$10,032,558
OPERATING BUDGET												
Establish Reserve System	-	16,934	22,016	32,183	32,183	44,899	55,566	50,041	47,508	39,398	34,815	\$375,541
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Operating Contingency Fund	-	508	660	965	965	1,347	1,667	1,501	1,425	1,182	1,044	\$11,266
Total	\$0	\$17,442	\$22,676	\$33,148	\$33,148	\$46,246	\$57,233	\$51,543	\$48,933	\$40,580	\$35,860	\$386,808

I.2_Credit Foothills Reserve Acquired with State and other non-mitigation funding sources
Value of Acquisitions Credited to Plan Conservation Commitments through 50-Year Permit Term (2017 dollars)

	Acres	Percent of Total Foothills Acquisition
acres of existing grassland habitat	38.70	1%
acres of existing aquatic/wetland complex habitat	2.20	1%
acres of existing riverine/riparian complex habitat	12.21	2%
acres of existing Oak Woodland habitat	1,136.60	11%
Total Existing Reserve Credit - FOOTHILLS	1,189.71	9%

TOTAL COST PER PERIOD AND CUMULATIVE OVER 50 YEARS

	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
TOTAL BUDGET												
Establish Reserve System	-	839,450	838,781	837,441	837,441	835,766	834,361	835,089	835,422	836,491	837,094	\$8,367,336
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency Fund	-	41,263	41,237	41,183	41,183	41,117	41,061	41,090	41,103	41,146	41,170	\$411,554
Total	\$0	\$880,713	\$880,017	\$878,625	\$878,625	\$876,883	\$875,422	\$876,179	\$876,526	\$877,637	\$878,264	\$8,778,890
CAPITAL BUDGET												
Establish Reserve System	-	803,979	803,656	803,010	803,010	802,202	801,524	801,875	802,036	802,552	802,843	\$8,026,689
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Contingency, Land Acquisition and Site Improvement	-	40,199	40,183	40,151	40,151	40,110	40,076	40,094	40,102	40,128	40,142	\$401,334
Total	\$0	\$844,178	\$843,839	\$843,161	\$843,161	\$842,312	\$841,601	\$841,969	\$842,138	\$842,679	\$842,985	\$8,428,024
OPERATING BUDGET												
Establish Reserve System	-	35,471	35,124	34,431	34,431	33,564	32,836	33,213	33,386	33,939	34,251	\$340,647
Reserve Management/Enhancement	-	-	-	-	-	-	-	-	-	-	-	\$0
Monitoring, Research, and Scientific Review	-	-	-	-	-	-	-	-	-	-	-	\$0
Environmental Compliance	-	-	-	-	-	-	-	-	-	-	-	\$0
Plan Administration	-	-	-	-	-	-	-	-	-	-	-	\$0
Operating Contingency Fund	-	1,064	1,054	1,033	1,033	1,007	985	996	1,002	1,018	1,028	\$10,219
Total	\$0	\$36,535	\$36,178	\$35,464	\$35,464	\$34,571	\$33,821	\$34,209	\$34,387	\$34,957	\$35,279	\$350,866

J_ACQUISITION SCHEDULE BY PERIOD

Period and Community Type	Valley Cost Share	Foothills Cost Share	Plan Total
Start-up			
Acres Acquired by Community Type			
Vernal Pool Complex	-	-	-
Grassland	-	-	-
Aquatic/Wetland Complex	-	-	-
Riverine/Riparian Complex	-	-	-
Valley Oak Woodland	-	-	-
Oak Woodland	-	-	-
Oak Woodland shift for cost share	-	-	-
Rice	-	-	-
Field	-	-	-
Total All Community Types	-	-	-
Years 1 - 5			
Acres Acquired by Community Type			
Vernal Pool Complex	767	-	767
Grassland	169	340	509
Aquatic/Wetland Complex	18	20	38
Riverine/Riparian Complex	72	60	132
Valley Oak Woodland	4	10	14
Oak Woodland	5	1,000	1,005
Oak Woodland shift for cost share	45	(45)	-
Rice	451	-	451
Field	2	-	2
Total All Community Types	1,533	1,385	2,918
Years 6 - 10			
Acres Acquired by Community Type			
Vernal Pool Complex	997	-	997
Grassland	220	340	560
Aquatic/Wetland Complex	23	20	43
Riverine/Riparian Complex	94	60	154
Valley Oak Woodland	5	10	15
Oak Woodland	6	1,000	1,006
Oak Woodland shift for cost share	59	(59)	-
Rice	586	-	586
Field	3	-	3
Total All Community Types	1,993	1,371	3,365
Years 11 - 15			
Acres Acquired by Community Type			
Vernal Pool Complex	1,457	-	1,457
Grassland	321	340	661
Aquatic/Wetland Complex	34	20	54
Riverine/Riparian Complex	137	60	197
Valley Oak Woodland	8	10	18
Oak Woodland	9	1,000	1,009
Oak Woodland shift for cost share	86	(86)	-
Rice	857	-	857
Field	4	-	4
Total All Community Types	2,914	1,344	4,258

J_ACQUISITION SCHEDULE BY PERIOD

Period and Community Type	Valley Cost Share	Foothills Cost Share	Plan Total
Years 16 - 20			
Acres Acquired by Community Type			
Vernal Pool Complex	1,457	-	1,457
Grassland	321	340	661
Aquatic/Wetland Complex	34	20	54
Riverine/Riparian Complex	137	60	197
Valley Oak Woodland	8	10	18
Oak Woodland	9	1,000	1,009
Oak Woodland shift for cost share	86	(86)	-
Rice	857	-	857
Field	4	-	4
Total All Community Types	2,914	1,344	4,258
Years 21 - 25			
Acres Acquired by Community Type			
Vernal Pool Complex	2,032	-	2,032
Grassland	448	340	788
Aquatic/Wetland Complex	48	20	68
Riverine/Riparian Complex	191	60	251
Valley Oak Woodland	11	10	21
Oak Woodland	13	1,000	1,013
Oak Woodland shift for cost share	120	(120)	-
Rice	1,196	-	1,196
Field	6	-	6
Total All Community Types	4,065	1,310	5,375
Years 26 - 30			
Acres Acquired by Community Type			
Vernal Pool Complex	2,515	-	2,515
Grassland	555	340	895
Aquatic/Wetland Complex	59	20	79
Riverine/Riparian Complex	237	60	297
Valley Oak Woodland	13	10	23
Oak Woodland	16	1,000	1,016
Oak Woodland shift for cost share	148	(148)	-
Rice	1,480	-	1,480
Field	7	-	7
Total All Community Types	5,031	1,282	6,313
Years 31 - 35			
Acres Acquired by Community Type			
Vernal Pool Complex	2,265	-	2,265
Grassland	500	340	840
Aquatic/Wetland Complex	53	20	73
Riverine/Riparian Complex	213	60	273
Valley Oak Woodland	12	10	22
Oak Woodland	15	1,000	1,015
Oak Woodland shift for cost share	133	(133)	-
Rice	1,333	-	1,333
Field	7	-	7
Total All Community Types	4,531	1,297	5,827

J_ACQUISITION SCHEDULE BY PERIOD

Period and Community Type	Valley Cost Share	Foothills Cost Share	Plan Total
Years 36 - 40			
Acres Acquired by Community Type			
Vernal Pool Complex	2,151	-	2,151
Grassland	474	340	814
Aquatic/Wetland Complex	51	20	71
Riverine/Riparian Complex	202	60	262
Valley Oak Woodland	11	10	21
Oak Woodland	14	1,000	1,014
Oak Woodland shift for cost share	127	(127)	-
Rice	1,265	-	1,265
Field	6	-	6
Total All Community Types	4,301	1,303	5,605
Years 41 - 45			
Acres Acquired by Community Type			
Vernal Pool Complex	1,783	-	1,783
Grassland	393	340	733
Aquatic/Wetland Complex	42	20	62
Riverine/Riparian Complex	168	60	228
Valley Oak Woodland	9	10	19
Oak Woodland	12	1,000	1,012
Oak Woodland shift for cost share	105	(105)	-
Rice	1,049	-	1,049
Field	5	-	5
Total All Community Types	3,567	1,325	4,892
Years 46 - 50			
Acres Acquired by Community Type			
Vernal Pool Complex	1,576	-	1,576
Grassland	348	340	688
Aquatic/Wetland Complex	37	20	57
Riverine/Riparian Complex	148	60	208
Valley Oak Woodland	8	10	18
Oak Woodland	10	1,000	1,010
Oak Woodland shift for cost share	93	(93)	-
Rice	927	-	927
Field	5	-	5
Total All Community Types	3,152	1,337	4,489
Total All Community Types	34,000	13,300	47,300

K_Reserve System Acres through 50-year Permit Term (acres by time period)

	Permit Period (years)											TOTAL
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
VALLEY COST SHARE												
Land Acquisition												
Vernal Pool Complex	-	767	997	1,457	1,457	2,032	2,515	2,265	2,151	1,783	1,576	17,000
Grassland	-	169	220	321	321	448	555	500	474	393	348	3,750
Aquatic/Wetland Complex	-	18	23	34	34	48	59	53	51	42	37	400
Riverine/Riparian Complex	-	72	94	137	137	191	237	213	202	168	148	1,600
Valley Oak Woodland	-	4	5	8	8	11	13	12	11	9	8	90
Oak Woodland	-	5	6	9	9	13	16	15	14	12	10	110
Oak Woodland shift for cost obligation	-	45	59	86	86	120	148	133	127	105	93	1,000
Rice	-	451	586	857	857	1,196	1,480	1,333	1,265	1,049	927	10,000
Field	-	2	3	4	4	6	7	7	6	5	5	50
Total All Community Types	-	1,533	1,993	2,914	2,914	4,065	5,031	4,531	4,301	3,567	3,152	34,000
Restoration - Natural Community												
Vernal Pool Complex in Grassland	-	122	158	231	231	323	399	360	342	283	250	2,700
Vernal Pool Complex from Rice	-	11	15	21	21	30	37	33	32	26	23	250
Vernal Pool Complex from Field Crops	-	2	3	4	4	6	7	7	6	5	5	50
Grassland from Rice	-	45	59	86	86	120	148	133	127	105	93	1,000
Aquatic/Wetland Complex in Grassland	-	6	7	11	11	15	18	16	16	13	11	123
Aquatic/Wetland Complex from Rice	-	4	5	7	7	10	12	11	10	9	8	82
Riverine/Riparian Complex in Grassland	-	21	28	41	41	57	70	63	60	50	44	475
Riverine/Riparian Complex from Rice	-	14	19	27	27	38	47	43	40	34	30	320
Valley Oak Woodland in Grassland	-	5	7	10	10	14	17	15	14	12	11	114
Valley Oak Woodland from Rice	-	5	6	9	9	13	16	14	14	11	10	108
Total	-	235	306	448	448	624	773	696	661	548	484	5,222
Cumulative total restored acres	-	235	542	989	1,437	2,061	2,834	3,529	4,190	4,738	5,222	5,222
Under Management (cumulative total acres)												
	Start up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
Vernal Pool Complex	-	902	2,074	3,788	5,502	7,893	10,853	13,518	16,048	18,146	20,000	20,000
Grassland	-	60	139	253	368	528	726	904	1,074	1,214	1,338	1,338
Aquatic/Wetland Complex	-	27	63	115	166	239	328	409	485	549	605	605
Riverine/Riparian Complex	-	108	248	454	659	945	1,300	1,619	1,922	2,173	2,395	2,395
Valley Oak Woodland	-	14	32	59	86	123	169	211	250	283	312	312
Oak Woodland	-	50	115	210	305	438	602	750	891	1,007	1,110	1,110
Rice for GGS/Field/Any Other Agriculture	-	372	855	1,561	2,267	3,252	4,471	5,569	6,612	7,476	8,240	8,240
Field	-	-	-	-	-	-	-	-	-	-	-	-
Total All Community Types	-	1,533	3,526	6,440	9,354	13,419	18,449	22,980	27,281	30,848	34,000	34,000

K_Reserve System Acres through 50-year Permit Term (acres by time period)

	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
FOOTHILLS COST SHARE												
Land Acquisition												
Vernal Pool Complex	-	-	-	-	-	-	-	-	-	-	-	-
Grassland	-	340	340	340	340	340	340	340	340	340	340	3,400
Aquatic/Wetland Complex	-	20	20	20	20	20	20	20	20	20	20	200
Riverine/Riparian Complex	-	60	60	60	60	60	60	60	60	60	60	600
Valley Oak Woodland	-	10	10	10	10	10	10	10	10	10	10	100
Oak Woodland	-	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000
Oak Woodland shift for cost obligation	-	(45)	(59)	(86)	(86)	(120)	(148)	(133)	(127)	(105)	(93)	(1,000)
Rice	-	-	-	-	-	-	-	-	-	-	-	-
Field	-	-	-	-	-	-	-	-	-	-	-	-
Total All Community Types	-	1,385	1,371	1,344	1,344	1,310	1,282	1,297	1,303	1,325	1,337	13,300
Restoration - Natural Community												
Vernal Pool Complex	-	-	-	-	-	-	-	-	-	-	-	-
Grassland	-	-	-	-	-	-	-	-	-	-	-	-
Aquatic/Wetland Complex in Grassland	-	21	21	21	21	21	21	21	21	21	21	205
Riverine/Riparian Complex in Grassland	-	63	63	63	63	63	63	63	63	63	63	630
Valley Oak Woodland in Grassland	-	6	6	6	6	6	6	6	6	6	6	63
Oak Woodland in Grassland	-	10	10	10	10	10	10	10	10	10	10	100
Total	-	100	100	100	100	100	100	100	100	100	100	998
Cumulative total restored acres	-	100	200	299	399	499	599	699	798	898	998	998
Under Management (cumulative total acres)	Start up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
Vernal Pool Complex	-	-	-	-	-	-	-	-	-	-	-	-
Grassland	-	240	480	721	961	1,201	1,441	1,681	1,922	2,162	2,402	2,402
Aquatic/Wetland Complex	-	41	81	122	162	203	243	284	324	365	405	405
Riverine/Riparian Complex	-	123	246	369	492	615	738	861	984	1,107	1,230	1,230
Valley Oak Woodland	-	16	33	49	65	82	98	114	130	147	163	163
Oak Woodland	-	965	1,916	2,841	3,765	4,655	5,517	6,394	7,278	8,183	9,100	9,100
Rice	-	-	-	-	-	-	-	-	-	-	-	-
Field	-	-	-	-	-	-	-	-	-	-	-	-
Total All Community Types	-	1,385	2,756	4,101	5,445	6,755	8,037	9,334	10,638	11,963	13,300	13,300

K_Reserve System Acres through 50-year Permit Term (acres by time period)

	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Total VALLEY AND FOOTHILLS												
Land Acquisition												
Vernal Pool Complex	-	767	997	1,457	1,457	2,032	2,515	2,265	2,151	1,783	1,576	17,000
Grassland	-	509	560	661	661	788	895	840	814	733	688	7,150
Aquatic/Wetland Complex	-	38	43	54	54	68	79	73	71	62	57	600
Riverine/Riparian Complex	-	132	154	197	197	251	297	273	262	228	208	2,200
Valley Oak Woodland	-	14	15	18	18	21	23	22	21	19	18	190
Oak Woodland	-	1,005	1,006	1,009	1,009	1,013	1,016	1,015	1,014	1,012	1,010	10,110
Rice	-	451	586	857	857	1,196	1,480	1,333	1,265	1,049	927	10,000
Field	-	2	3	4	4	6	7	7	6	5	5	50
Total All Community Types	-	2,918	3,365	4,258	4,258	5,375	6,313	5,827	5,605	4,892	4,489	47,300
Restoration - Natural Community												
Vernal Pool Complex in Grassland	-	122	158	231	231	323	399	360	342	283	250	2,700
Vernal Pool Complex from Rice	-	11	15	21	21	30	37	33	32	26	23	250
Vernal Pool Complex from Field Crops	-	2	3	4	4	6	7	7	6	5	5	50
Grassland from Rice	-	45	59	86	86	120	148	133	127	105	93	1,000
Aquatic/Wetland Complex in Grassland	-	26	28	31	31	35	39	37	36	33	32	328
Aquatic/Wetland Complex in Rice	-	4	5	7	7	10	12	11	10	9	8	82
Riverine/Riparian Complex in Grassland	-	84	91	104	104	120	133	126	123	113	107	1,105
Riverine/Riparian Complex from Rice	-	14	19	27	27	38	47	43	40	34	30	320
Valley Oak Woodland in Grassland	-	11	13	16	16	20	23	21	21	18	17	177
Valley Oak Woodland from Rice	-	5	6	9	9	13	16	14	14	11	10	108
Oak Woodland in Grassland	-	10	10	10	10	10	10	10	10	10	10	100
Total	-	335	406	547	547	724	872	796	760	648	584	6,220
Cumulative total restored acres	-	335	741	1,289	1,836	2,560	3,432	4,228	4,988	5,636	6,220	6,220
Under Management (cumulative total acres)												
Vernal Pool Complex	-	902	2,074	3,788	5,502	7,893	10,853	13,518	16,048	18,146	20,000	20,000
Grassland	-	301	619	974	1,329	1,729	2,167	2,586	2,995	3,376	3,740	3,740
Aquatic/Wetland Complex	-	68	144	236	328	441	571	692	809	913	1,010	1,010
Riverine/Riparian Complex	-	231	494	823	1,151	1,560	2,038	2,480	2,906	3,280	3,625	3,625
Valley Oak Woodland	-	30	65	108	151	205	267	325	381	430	475	475
Oak Woodland	-	1,015	2,031	3,051	4,070	5,093	6,120	7,144	8,168	9,190	10,210	10,210
Rice for GGS/Field/Any Other Agriculture	-	372	855	1,561	2,267	3,252	4,471	5,569	6,612	7,476	8,240	8,240
Field	-	-	-	-	-	-	-	-	-	-	-	-
Total All Community Types	-	2,918	6,283	10,541	14,799	20,174	26,487	32,314	37,919	42,811	47,300	47,300

Note: See Appendix M Growth Scenario, especially Figure 8 and associated text for background on land conversion assumptions over time

L_Constituent Habitat Restoration Acres through 50-year Permit Term (acres by time period)

	Permit Period (years)											TOTAL
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
VALLEY COST SHARE												
Restoration - Specific Habitat												
Vernal Pool Type	-	41	53	77	77	108	133	120	114	94	83	900
Aquatic/Wetland Type	-	9	12	18	18	25	30	27	26	22	19	205
Riverine/Riparian Type	-	36	47	68	68	95	118	106	101	83	74	795
Total	-	86	111	163	163	227	281	253	240	199	176	1,900
Cumulative total restored acres	-	86	197	360	523	750	1,031	1,284	1,525	1,724	1,900	1,900
FOOTHILLS COST SHARE												
Restoration - Specific Habitat												
Vernal Pool Type	-	-	-	-	-	-	-	-	-	-	-	-
Aquatic/Wetland Type	-	21	21	21	21	21	21	21	21	21	21	205
Riverine/Riparian Type	-	63	63	63	63	63	63	63	63	63	63	630
Total	-	84	835									
Cumulative total restored acres	-	84	167	251	334	418	501	585	668	752	835	835
Total VALLEY AND FOOTHILLS												
Restoration - Specific Habitat												
Vernal Pool Type	-	41	53	77	77	108	133	120	114	94	83	900
Aquatic/Wetland Type	-	30	33	38	38	45	51	48	46	42	40	410
Riverine/Riparian Type	-	99	110	131	131	158	181	169	164	146	137	1,425
Total	-	169	195	246	246	311	365	337	324	283	260	2,735
Cumulative total restored acres of Specific Habitat	-	169	364	610	857	1,167	1,532	1,869	2,193	2,475	2,735	2,735

Note: See Appendix M Growth Scenario, especially Figure 8 and associated text for background on land conversion assumptions over time

M. Fee Title and Easement Land Acquisition (acres by time period)

	Permit Period (years)											TOTAL	
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50		
VALLEY COST SHARE													
Land Acquisition by Fee Title													
Vernal Pool Complex	-	690	897	1,311	1,311	1,829	2,264	2,039	1,936	1,605	1,418	15,300	
Grassland	-	169	220	321	321	448	555	500	474	393	348	3,750	
Aquatic/Wetland Complex	-	16	21	31	31	43	53	48	46	38	33	360	
Riverine/Riparian Complex	-	65	84	123	123	172	213	192	182	151	133	1,440	
Valley Oak Woodland	-	2	3	5	5	6	8	7	7	6	5	54	
Oak Woodland	-	3	4	6	6	8	10	9	8	7	6	66	
Oak Woodland shift for obligation	-	14	18	26	26	36	44	40	38	31	28	300	
Rice	-	180	234	343	343	478	592	533	506	420	371	4,000	
Field	-	2	3	4	4	6	7	7	6	5	5	50	
Total All Community Types	-	1,142	1,484	2,170	2,170	3,027	3,746	3,374	3,203	2,656	2,347	25,320	74%
Land Acquisition by Easement													
Vernal Pool Complex	-	77	100	146	146	203	252	227	215	178	158	1,700	
Grassland	-	-	-	-	-	-	-	-	-	-	-	-	
Aquatic/Wetland Complex	-	2	2	3	3	5	6	5	5	4	4	40	
Riverine/Riparian Complex	-	7	9	14	14	19	24	21	20	17	15	160	
Valley Oak Woodland	-	2	2	3	3	4	5	5	5	4	3	36	
Oak Woodland	-	2	3	4	4	5	7	6	6	5	4	44	-
Oak Woodland shift for obligation	-	32	41	60	60	84	104	93	89	73	65	700	
Rice	-	271	352	514	514	717	888	800	759	629	556	6,000	
Field	-	-	-	-	-	-	-	-	-	-	-	-	
Total All Community Types	-	391	509	744	744	1,038	1,284	1,157	1,098	911	805	8,680	26%
FOOTHILLS COST SHARE													
Land Acquisition by Fee Title													
Vernal Pool Complex	-	-	-	-	-	-	-	-	-	-	-	-	
Grassland	-	102	102	102	102	102	102	102	102	102	102	1,020	
Aquatic/Wetland Complex	-	6	6	6	6	6	6	6	6	6	6	60	
Riverine/Riparian Complex	-	18	18	18	18	18	18	18	18	18	18	180	
Valley Oak Woodland	-	3	3	3	3	3	3	3	3	3	3	30	
Oak Woodland	-	300	300	300	300	300	300	300	300	300	300	3,000	
Oak Woodland shift for obligation	-	(14)	(18)	(26)	(26)	(36)	(44)	(40)	(38)	(31)	(28)	(300)	
Rice	-	-	-	-	-	-	-	-	-	-	-	-	
Field	-	-	-	-	-	-	-	-	-	-	-	-	
Total All Community Types	-	415	411	403	403	393	385	389	391	398	401	3,990	30%
Land Acquisition by Easement													
Vernal Pool Complex	-	-	-	-	-	-	-	-	-	-	-	-	
Grassland	-	238	238	238	238	238	238	238	238	238	238	2,380	
Aquatic/Wetland Complex	-	14	14	14	14	14	14	14	14	14	14	140	
Riverine/Riparian Complex	-	42	42	42	42	42	42	42	42	42	42	420	
Valley Oak Woodland	-	7	7	7	7	7	7	7	7	7	7	70	
Oak Woodland	-	700	700	700	700	700	700	700	700	700	700	7,000	-
Oak Woodland shift for obligation	-	(32)	(41)	(60)	(60)	(84)	(104)	(93)	(89)	(73)	(65)	(700)	
Rice	-	-	-	-	-	-	-	-	-	-	-	-	
Field	-	-	-	-	-	-	-	-	-	-	-	-	
Total All Community Types	-	969	960	941	941	917	897	908	912	928	936	9,310	70%
Fee title acquisitions, cumulative	-	1,557	3,453	6,026	8,599	12,020	16,151	19,913	23,508	26,561	29,310	29,310	62%

**N. LAND ACQUISITION COST BY PERIOD, before pre-acquisition surveys,
transaction costs, site improvements and contingency (2017 dollars)**

Period and Community Type	Valley Cost Share	Foothills Cost Share	Plan Total
Start Up			
Cost of Acres Acquired by CommunityType			
Vernal Pool Complex	-	-	-
Grassland	-	-	-
Aquatic/Wetland Complex	-	-	-
Riverine/Riparian Complex	-	-	-
Valley Oak Woodland	-	-	-
Oak Woodland	-	-	-
Oak Woodland shift for cost share	-	-	-
Rice	-	-	-
Field	-	-	-
Total All Community Types	-	-	-
Years 1 - 5			
Cost of Acres Acquired by CommunityType			
Vernal Pool Complex	9,750,458	-	9,750,458
Grassland	1,352,727	2,203,200	3,555,927
Aquatic/Wetland Complex	229,423	129,600	359,023
Riverine/Riparian Complex	917,690	388,800	1,306,490
Valley Oak Woodland	27,271	64,800	92,071
Oak Woodland	33,331	6,480,000	6,513,331
Oak Woodland shift for cost share	292,189	(292,189)	-
Rice	3,512,582	-	3,512,582
Field	18,036	-	18,036
Total All Community Types	16,133,707	8,974,211	25,107,918
Years 6 - 10			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	12,676,876	-	12,676,876
Grassland	1,758,723	2,203,200	3,961,923
Aquatic/Wetland Complex	298,279	129,600	427,879
Riverine/Riparian Complex	1,193,118	388,800	1,581,918
Valley Oak Woodland	35,456	64,800	100,256
Oak Woodland	43,335	6,480,000	6,523,335
Oak Woodland shift for cost share	379,884	(379,884)	-
Rice	4,566,817	-	4,566,817
Field	23,450	-	23,450
Total All Community Types	20,975,938	8,886,516	29,862,454
Years 11 - 15			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	18,531,142	-	18,531,142
Grassland	2,570,913	2,203,200	4,774,113
Aquatic/Wetland Complex	436,027	129,600	565,627
Riverine/Riparian Complex	1,744,108	388,800	2,132,908
Valley Oak Woodland	51,830	64,800	116,630
Oak Woodland	63,347	6,480,000	6,543,347
Oak Woodland shift for cost share	555,317	(555,317)	-
Rice	6,675,805	-	6,675,805
Field	34,279	-	34,279
Total All Community Types	30,662,768	8,711,083	39,373,850

**N. LAND ACQUISITION COST BY PERIOD, before pre-acquisition surveys,
transaction costs, site improvements and contingency (2017 dollars)**

Period and Community Type	Valley Cost Share	Foothills Cost Share	Plan Total
Years 16 - 20			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	18,531,142	-	18,531,142
Grassland	2,570,913	2,203,200	4,774,113
Aquatic/Wetland Complex	436,027	129,600	565,627
Riverine/Riparian Complex	1,744,108	388,800	2,132,908
Valley Oak Woodland	51,830	64,800	116,630
Oak Woodland	63,347	6,480,000	6,543,347
Oak Woodland shift for cost share	555,317	(555,317)	-
Rice	6,675,805	-	6,675,805
Field	34,279	-	34,279
Total All Community Types	30,662,768	8,711,083	39,373,850
Years 21 - 25			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	25,853,071	-	25,853,071
Grassland	3,586,719	2,203,200	5,789,919
Aquatic/Wetland Complex	608,308	129,600	737,908
Riverine/Riparian Complex	2,433,230	388,800	2,822,030
Valley Oak Woodland	72,308	64,800	137,108
Oak Woodland	88,377	6,480,000	6,568,377
Oak Woodland shift for cost share	774,731	(774,731)	-
Rice	9,313,514	-	9,313,514
Field	47,823	-	47,823
Total All Community Types	42,778,081	8,491,669	51,269,750
Years 26 - 30			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	31,995,129	-	31,995,129
Grassland	4,438,836	2,203,200	6,642,036
Aquatic/Wetland Complex	752,827	129,600	882,427
Riverine/Riparian Complex	3,011,306	388,800	3,400,106
Valley Oak Woodland	89,487	64,800	154,287
Oak Woodland	109,373	6,480,000	6,589,373
Oak Woodland shift for cost share	958,789	(958,789)	-
Rice	11,526,177	-	11,526,177
Field	59,184	-	59,184
Total All Community Types	52,941,107	8,307,611	61,248,719
Years 31 - 35			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	28,814,240	-	28,814,240
Grassland	3,997,536	2,203,200	6,200,736
Aquatic/Wetland Complex	677,982	129,600	807,582
Riverine/Riparian Complex	2,711,928	388,800	3,100,728
Valley Oak Woodland	80,590	64,800	145,390
Oak Woodland	98,499	6,480,000	6,578,499
Oak Woodland shift for cost share	863,468	(863,468)	-
Rice	10,380,269	-	10,380,269
Field	53,300	-	53,300
Total All Community Types	47,677,813	8,402,932	56,080,745

**N. LAND ACQUISITION COST BY PERIOD, before pre-acquisition surveys,
transaction costs, site improvements and contingency (2017 dollars)**

Period and Community Type	Valley Cost Share	Foothills Cost Share	Plan Total
Years 36 - 40			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	27,355,484	-	27,355,484
Grassland	3,795,156	2,203,200	5,998,356
Aquatic/Wetland Complex	643,658	129,600	773,258
Riverine/Riparian Complex	2,574,634	388,800	2,963,434
Valley Oak Woodland	76,510	64,800	141,310
Oak Woodland	93,513	6,480,000	6,573,513
Oak Woodland shift for cost share	819,754	(819,754)	-
Rice	9,854,755	-	9,854,755
Field	50,602	-	50,602
Total All Community Types	45,264,067	8,446,646	53,710,713
Years 41 - 45			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	22,685,542	-	22,685,542
Grassland	3,147,273	2,203,200	5,350,473
Aquatic/Wetland Complex	533,777	129,600	663,377
Riverine/Riparian Complex	2,135,110	388,800	2,523,910
Valley Oak Woodland	63,449	64,800	128,249
Oak Woodland	77,549	6,480,000	6,557,549
Oak Woodland shift for cost share	679,811	(679,811)	-
Rice	8,172,418	-	8,172,418
Field	41,964	-	41,964
Total All Community Types	37,536,893	8,586,589	46,123,482
Years 46 - 50			
Cost of Acres Acquired by Community Type			
Vernal Pool Complex	20,046,915	-	20,046,915
Grassland	2,781,204	2,203,200	4,984,404
Aquatic/Wetland Complex	471,692	129,600	601,292
Riverine/Riparian Complex	1,886,769	388,800	2,275,569
Valley Oak Woodland	56,069	64,800	120,869
Oak Woodland	68,529	6,480,000	6,548,529
Oak Woodland shift for cost share	600,740	(600,740)	-
Rice	7,221,859	-	7,221,859
Field	37,083	-	37,083
Total All Community Types	33,170,859	8,665,660	41,836,519
Total All Community Types	\$357,804,000	\$86,184,000	\$443,988,000
Cumulative Cost by Community Type			
Vernal Pool Complex	216,240,000	-	216,240,000
Grassland	30,000,000	22,032,000	52,032,000
Aquatic/Wetland Complex	5,088,000	1,296,000	6,384,000
Riverine/Riparian Complex	20,352,000	3,888,000	24,240,000
Valley Oak Woodland	604,800	648,000	1,252,800
Oak Woodland (combined)	7,219,200	58,320,000	65,539,200
Rice	77,900,000	-	77,900,000
Field	400,000	-	400,000
Total All Community Types	\$357,804,000	\$86,184,000	\$443,988,000
Percent Distribution by Community Type			
Vernal Pool Complex	60%	0%	49%
Grassland	8%	26%	12%
Aquatic/Wetland Complex	1%	2%	1%
Riverine/Riparian Complex	6%	5%	5%
Valley Oak Woodland	0%	1%	0%
Oak Woodland	2%	68%	15%
Rice	22%	0%	18%
Field	0%	0%	0%
Total All Community Types	100%	100%	100%

Table 2: Establish Reserve System

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Capital budget (before contingency)												
Land Acquisition	-	25,107,918	29,862,454	39,373,850	39,373,850	51,269,750	61,248,719	56,080,745	53,710,713	46,123,482	41,836,519	\$443,988,000
Fencing Improvements	-	865,907	1,041,431	1,392,565	1,392,565	1,831,729	2,200,125	2,009,337	1,921,842	1,641,743	1,483,480	\$15,780,725
Other One-time Site Improvements		364,381	443,614	602,118	602,118	800,360	966,656	880,533	841,038	714,599	643,158	\$6,858,574
Acquire Credits at Big Gun Conservation Bank - Foothills	-	360,000	-	-	-	-	-	-	-	-	-	\$360,000
Capital subtotal	-	\$26,698,206	\$31,347,498	\$41,368,534	\$41,368,534	\$53,901,838	\$64,415,500	\$58,970,616	\$56,473,593	\$48,479,824	\$43,963,157	\$466,987,299
Operating budget (before contingency)												
Pre-acquisition planning surveys	-	126,430	145,780	184,490	184,490	232,903	273,516	252,483	242,838	211,959	194,512	\$2,049,400
Due diligence and transaction costs	-	941,547	1,119,842	1,476,519	1,476,519	1,922,616	2,296,827	2,103,028	2,014,152	1,729,631	1,568,869	\$16,649,550
Operations subtotal	\$0	\$1,067,977	\$1,265,622	\$1,661,009	\$1,661,009	\$2,155,519	\$2,570,343	\$2,355,511	\$2,256,989	\$1,941,590	\$1,763,382	\$18,698,950
TOTAL	\$0	\$27,766,183	\$32,613,120	\$43,029,543	\$43,029,543	\$56,057,357	\$66,985,842	\$61,326,127	\$58,730,582	\$50,421,413	\$45,726,538	\$485,686,249

Acquisition Assumptions

Community Type	VALLEY RESERVE AREA			FOOTHILLS RESERVE AREA		
	Fee Title	Easement		Fee Title	Easement	
Vernal Pool Complex	90%	10%	100%			
Grassland	100%	0%	100%	30%	70%	100%
Aquatic/Wetland Complex	90%	10%	100%	30%	70%	100%
Riverine/Riparian Complex	90%	10%	100%	30%	70%	100%
Valley Oak Woodland	60%	40%	100%	30%	70%	100%
Oak Woodland	60%	40%	100%	30%	70%	100%
Rice	40%	60%	100%			
Field Agriculture, other natural/semi-natural	100%	0%	100%			
Easement Acquisition Cost % of fee title cost per acre		60%			60%	

Land cost factors for the Plan, by subarea and parcel size and generalized land cover

	Per Acre Land Cost (gross acres)	
	Valley	Foothills
Weighted average price assuming some smaller parcels (all types except wetlands and rice in VALLEY)	\$8,000	\$9,000
Percent smaller parcels (40 - 80 acres)	20%	32%
All land covers except wetlands and rice in Valley		
Smaller parcels: 40 - 80 acre parcels	\$8,745	\$11,500
Larger parcels: 100-acre parcels or larger	\$7,685	\$6,600
Wetland community types: vernal pool grasslands, riparian, aquatic/wetland	\$13,250	
Rice	\$10,250	

In Foothills, these community types are included within the parcels and don't represent a separate land cover type transaction.

Assumptions/Notes:

The cost factors for all but rice land reflect analysis of land sales transactions in Placer County valley and foothills areas occurring from 2007 through 2011. The rice land cost factor was derived from California Chapter of the American Society of Farm Managers and Rural Appraisers, *Trends in Agricultural Land and Lease Values*, published annually. The Finance Committee reviewed and commented on all land cost factors in July - August 2013. Cost factors were adjusted in March 2017 based on analysis of trends in agricultural and rural residential land values.

To factors derived from the analysis of land sales transactions, a 25 percent premium is added in the Valley subarea and a 10 percent premium is added in the Foothill subarea to capture the influence of scarcity on habitat land values over time.

Acquisition assumptions by parcel size based on TRA and Placer County parcel size analysis indicating land suitable for mitigation by parcel size.

Due Diligence and other Transaction Costs (% of acquisition cost)

3.75%

Covers appraisals, site assessments, boundary surveys, legal description, title insurance and other due diligence and closing costs. Includes a due diligence premium of 25% for for costs incurred on properties where the transaction is not consumated.

Legal assistance and program staff services are covered in program administration.

Table 2: Establish Reserve System

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

Pre-acquisition Survey and Assessment (contractor cost)

Assumptions:

Covers costs to verify biological resources in the field.

Includes evaluation of infrastructure and other site conditions and evaluation of restoration and enhancement potential.

Land cover type surveys include surveys for federal and state jurisdictional waters at a protocol level.

Covered plant and wildlife surveys include surveys at a protocol level.

Planning surveys for habitat restoration are covered under Restoration Planning and Implementation

2	Staff (wildlife biologist and botanist)			
	Hours for 200 acres			
200	Assumed average parcel size			
10	Total hours per 200 acres for wildlife biologist			
10	Total hours per 200 acres for botanist			
		Hours per Acre	Cost Per Acre	Cost per Acre with Due Diligence Premium
	Land cover type and habitat assessment surveys	0.10	\$17	\$22
	Covered wildlife surveys	0.05	\$9	\$11
	Covered plant surveys	0.05	\$9	\$11
	Total per acre	0.20	\$35	\$43
\$173	Hourly cost for biologist/botanist			
	Cost per acre	\$35		
1.25	Extra land that will not be acquired but is still surveyed and processed for due diligence/planning surveys.			
	Cost per acre with due diligence premium			\$43

Biologist rate assumption

Base cost per hour	\$166	\$ per hour
Direct expenses (meals) per day	\$16	\$ per day
Travel	\$54	\$ per day
assuming	100	miles
and	\$0.535	\$ per mile
Hours per day	10	hours per day
Total cost per hour including travel	\$173	\$ per hour

Assumptions:

Sr. Consultant II billing rate; assumes all work will be conducted from a local office (no per diem needed).

Site Improvements (One-Time)

Covers building demolition and stabilization, road removal and reconstruction, gate repair/replacement, signage, fence repair, and other security measures.

Includes labor and necessary materials, i.e., fencing.

Assumptions:

Percent of acquired land in VALLEY that requires one-time site improvements and maintenance	74%	fee title acres
Percent of acquired land in FOOTHILLS that requires one-time site improvements and maintenance	30%	fee title acres
Fencing improvement cost per gross acre VALLEY	\$520	per gross acre acquired in fee title, from TRA analysis PCCP CS cost factors 20130128 as updated, using PLT fencing cost
Fencing improvement cost per gross acre FOOTHILLS	\$655	per gross acre acquired in fee title, from TRA analysis PCCP CS cost factors 20130128 as updated, using PLT fencing cost
Cost per acre for other one-time site improvements	\$234	per gross acre, based on detail below

Components of site improvement cost (200 acre parcel)

Demolition/stabilization of old facilities	\$2,080	
Road removal and reconstruction	\$36,400	assume dirt ranch roads (PLT bruin ranch)
Gate repair replacement	\$5,200	placer county parks
Signage	\$1,040	placer land trust/placer county parks
Other security	\$2,080	

Purchase Credits at Big Gun Conservation Bank - California Red-Legged Frog Habitat (Foothills Subarea) CM1 CRLF-1

The PCA will purchase credits at the Big Gun Conservation Bank to ensure habitat occupied by the California red-legged frog is protected by the Plan.

The cost per credit includes all required management and monitoring in perpetuity. Compliance monitoring and review of Big Gun annual reports is included as a PCA staff cost.

Assumptions:

Cost per credit	\$90,000	per Westervelt, bank manager (updated January 2017)
	2	number of credits acquired by year 2
	4	number of credits acquired by year 5

Table 3: Restore Natural Communities, including Management and Monitoring on Restored Lands

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Capital budget												
Restoration (including contingency) - VALLEY												
Vernal Pool Complex (vernal pool type wetland)	-	2,378,094	3,091,835	4,519,665	4,519,665	6,305,452	7,803,473	7,027,668	6,671,884	5,532,906	4,889,356	\$52,740,000
Grassland	-	506,200	658,126	962,053	962,053	1,342,174	1,661,042	1,495,905	1,420,173	1,177,730	1,040,745	\$11,226,200
Aquatic/Wetland Complex	-	370,670	481,919	704,473	704,473	982,821	1,216,315	1,095,392	1,039,936	862,405	762,096	\$8,220,500
Riverine/Riparian Complex	-	1,910,661	2,484,110	3,631,289	3,631,289	5,066,066	6,269,639	5,646,325	5,360,473	4,445,369	3,928,314	\$42,373,536
Valley Oak Woodland	-	212,971	276,891	404,761	404,761	564,688	698,844	629,366	597,504	495,502	437,869	\$4,723,158
<i>Subtotal - VALLEY RESTORATION</i>	-	\$5,378,596	\$6,992,882	\$10,222,242	\$10,222,242	\$14,261,201	\$17,649,313	\$15,894,656	\$15,089,970	\$12,513,913	\$11,058,380	\$119,283,393
Restoration (including contingency) - FOOTHILLS												
Vernal Pool Complex (vernal pool type wetland)	-	-	-	-	-	-	-	-	-	-	-	\$0
Grassland	-	-	-	-	-	-	-	-	-	-	-	\$0
Aquatic/Wetland Complex	-	822,050	822,050	822,050	822,050	822,050	822,050	822,050	822,050	822,050	822,050	\$8,220,500
Riverine/Riparian Complex	-	3,357,903	3,357,903	3,357,903	3,357,903	3,357,903	3,357,903	3,357,903	3,357,903	3,357,903	3,357,903	\$33,579,028
Valley Oak Woodland	-	134,036	134,036	134,036	134,036	134,036	134,036	134,036	134,036	134,036	134,036	\$1,340,356
Oak Woodland	-	30,353	30,353	30,353	30,353	30,353	30,353	30,353	30,353	30,353	30,353	\$303,532
<i>Subtotal - FOOTHILLS RESTORATION</i>	\$0	\$4,344,342	\$4,344,342	\$4,344,342	\$4,344,342	\$4,344,342	\$4,344,342	\$4,344,342	\$4,344,342	\$4,344,342	\$4,344,342	\$43,443,416
Shared capital purchases (vehicles, equipment, furniture)	-	49,828	6,917	26,102	18,659	55,246	20,114	26,199	16,180	54,857	15,359	\$289,462
Water supply for grazing - VALLEY Cost Share	-	11,764	15,294	22,357	34,121	46,485	60,958	68,884	79,488	88,327	93,070	\$520,748
Water supply for grazing - FOOTHILLS Cost Share	-	4,124	4,124	4,124	8,247	8,247	8,247	12,371	12,371	12,371	16,494	\$90,720
Responsive measures for changed circumstances	-	150,344	197,940	233,224	269,472	309,037	329,931	331,845	351,150	368,259	383,604	\$2,924,804
Capital subtotal	\$0	\$9,938,998	\$11,561,498	\$14,852,390	\$14,897,082	\$19,024,557	\$22,412,905	\$20,678,295	\$19,893,501	\$17,382,068	\$15,911,249	\$166,552,543
Operating budget												
Field and Technical Oversight (staff)	-	1,245,750	1,620,300	1,843,050	2,065,800	2,288,550	2,288,550	2,105,400	2,105,400	2,105,400	2,105,400	\$19,773,600
Other Shared Operating Overhead	-	21,286	40,828	66,769	92,620	127,020	167,645	204,422	239,767	270,447	297,476	\$1,528,279
Reserve management activities - VALLEY COST SHARE												
General reserve and site management	-	6,122	20,204	39,799	63,069	90,937	127,259	165,440	200,708	232,127	258,958	\$1,204,623
Wetland and pond maintenance and protection	-	3,365	11,104	21,873	34,663	49,979	69,941	90,925	110,309	127,577	142,323	\$662,058
Nonnative animal species control	-	612	2,020	3,980	6,307	9,094	12,726	16,544	20,071	23,213	25,896	\$120,462
Vegetation and fuels management (initial and maintenance)	-	85,709	121,638	173,757	223,008	291,910	376,241	450,983	521,355	579,209	630,034	\$3,453,844
<i>Subtotal - VALLEY RESERVE COST SHARE</i>	\$0	\$95,808	\$154,966	\$239,409	\$327,047	\$441,920	\$586,167	\$723,892	\$852,442	\$962,126	\$1,057,211	\$5,440,988
Reserve management activities - FOOTHILLS COST SHARE												
General reserve and site management	-	2,595	7,784	12,974	18,164	23,353	28,543	33,733	38,922	44,112	49,301	\$259,481
Wetland and pond maintenance and protection	-	2,153	11,767	21,382	30,996	40,611	50,225	59,840	69,454	79,069	88,683	\$454,180
Nonnative animal species control	-	259	778	1,297	1,816	2,335	2,854	3,373	3,892	4,411	4,930	\$25,948
Vegetation and fuels management (initial and maintenance)	-	135,589	142,976	147,357	158,274	166,576	175,325	187,787	201,622	217,022	233,040	\$1,765,568
<i>Subtotal - FOOTHILLS RESERVE COST SHARE</i>	\$0	\$140,596	\$163,306	\$183,010	\$209,250	\$232,875	\$256,947	\$284,733	\$313,891	\$344,614	\$375,955	\$2,505,177
Natural Community Monitoring - VALLEY	-	54,517	159,925	275,289	384,446	510,597	636,130	744,541	854,708	950,583	1,048,373	\$5,619,110
Natural Community Monitoring - FOOTHILLS	-	12,867	45,931	69,038	98,353	110,672	123,611	153,672	181,975	224,572	265,254	\$1,285,945
Species Monitoring - VALLEY	-	332,892	480,827	660,689	823,231	1,020,173	1,213,041	1,372,858	1,536,531	1,675,339	1,818,486	\$10,934,067
Species Monitoring - FOOTHILLS	-	78,570	138,095	165,690	210,607	221,123	235,715	283,356	327,142	395,792	460,103	\$2,516,194
Research	-	130,000	65,000	65,000	-	-	-	-	-	-	-	\$260,000
Operations subtotal	\$0	\$2,112,288	\$2,869,177	\$3,567,945	\$4,211,355	\$4,952,933	\$5,507,806	\$5,872,873	\$6,411,855	\$6,928,872	\$7,428,257	\$49,863,360
TOTAL	\$0	\$12,051,285	\$14,430,675	\$18,420,335	\$19,108,436	\$23,977,490	\$27,920,711	\$26,551,168	\$26,305,356	\$24,310,940	\$23,339,507	\$216,415,903

Restoration allocation to Valley, based on cost	0%	55%	62%	70%	70%	77%	80%	79%	78%	74%	72%	73%
Restoration allocation to Foothills, based on cost	0%	45%	38%	30%	30%	23%	20%	21%	22%	26%	28%	27%

Assumptions: \$0 \$119,521 \$138,334
 Total cost for field and technical oversight staff and associated overhead allocated equally to restoration, reserve management, and monitoring.
 33% Proportion of shared staff and overhead allocated to restoration

PCA staff prepare restoration management plans.
 Restoration planning, design, and implementation accomplished through a combination of contractors with PCA staff oversight and management.

Table 3: Restore Natural Communities, including Management and Monitoring on Restored Lands

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

Habitat Restoration (cost per acre for surveys, planning, design and engineering, construction, monitoring and maintenance)

	Cost per Acre										
	VERNAL POOL TYPE			AQUATIC / WETLAND TYPE			RIVERINE / RIPARIAN		GRASSLAND	OAK WOODLANDS	
	Vernal Pool	Seasonal Wetland in Vernal Pool Complex	Seasonal Swales	Fresh Emergent Marsh	Lacustrine	Non-Vernal Pool Seasonal Wetland	Riverine (same as riparian)	Riparian	Grassland from Rice	Oak Woodland	Valley Oak Woodland
Pre-construction restoration planning surveys	\$141	\$141	\$141	\$141	\$141	\$141		\$141	\$43	\$75	\$75
Plans, specifications, and engineering	\$5,688	\$3,120	\$4,550	\$4,675	\$3,125	\$2,490		\$4,150	\$1,550	\$260	\$1,950
Bid assistance	\$244	\$208	\$195	\$281	\$188	\$166		\$332	\$93	\$10	\$78
Construction activity	\$16,250	\$10,400	\$13,000	\$18,700	\$12,500	\$8,300		\$16,600	\$6,200	\$1,040	\$7,800
Inoculum salvage, transportation, storage, and placement	\$6,800										
Construction biological monitoring	\$139	\$139	\$139	\$139	\$139	\$139		\$139	\$139	\$139	\$139
Construction oversight	\$10,888	\$4,160	\$7,150	\$12,529	\$8,375	\$3,320		\$8,300	\$310	\$52	\$390
Post-construction restoration monitoring & maintenance	\$60,938	\$6,240	\$7,800	\$11,220	\$7,500	\$4,980		\$19,920	\$2,108	\$1,248	\$9,360
Total per acre, before contingency	\$101,086	\$24,407	\$32,974	\$47,684	\$31,967	\$19,535		\$49,581	\$10,443	\$2,824	\$19,791
Restoration contingency	\$7,581	\$1,831	\$2,473	\$3,576	\$2,398	\$1,465		\$3,719	\$783	\$212	\$1,484
Total per acre, including contingency	\$108,667	\$26,238	\$35,448	\$51,260	\$34,364	\$21,001		\$53,300	\$11,226	\$3,035	\$21,275
Weighted average cost per acre, Specific Habitats			\$58,600			\$40,100		\$53,300			
Post-construction monitoring & maintenance, per restored acre monitored (model factor includes discount for land not requiring restoration monitoring)	\$60,938	\$7,800	\$9,750	\$14,025	\$9,375	\$6,225		\$24,900	\$2,635	\$1,560	\$11,700

Assumptions/Notes:

Pre-construction planning surveys include, as needed: site selection, wetland delineation, detailed habitat mapping and species surveys, soil or geomorphological sampling and mapping. Planning surveys for restoration sites are more intensive and site-specific than planning surveys under Reserve Management.

Plan, specification, and engineering work, bid assistance, and restoration oversight will be conducted in the 5-year period in which restoration takes place. The estimate of restoration costs is a planning tool to assess the level of effort required to perform the work. Actual restoration costs will vary from the above estimates because of competitive bidding, negotiations with the client, or fluctuations in market prices.

Construction monitoring includes, as needed: on-site biologist conducting training for construction personnel regarding avoidance and minimization measures, verification during construction of implementation of avoidance/minimization measures, identification and translocation of covered species.

Construction oversight includes managing the overall construction of the restoration project to ensure that plans are constructed as designed. Costs for vernal pool restoration are higher than for other restoration types because restoration specialist and gradesetter are required to be on-site at all times.

Post-construction restoration monitoring and maintenance is a 5 year period of staff monitoring and contractor remediation (10 years for valley grassland/vernal pool restoration) following construction, to ensure successful implementation. Work includes including plant replacement, irrigation maintenance, weed control, erosion control, and repair of any substandard work.

The PCA will minimize the amount of more costly types of vernal pool restoration: steep sites and laser-leveled rice.

The vernal pool construction cost factors represent costs for the typically flat, undulating landscape valley landscape, particularly west of Highway 65.

Riverine type restoration is the same cost as riparian, assuming the activity is planting riparian trees along the water course and no bank-modification or in-stream work.

Some land cover types have high restoration costs simply because a very small area of that land cover type will be restored/created.

Biologist rate per hour	\$173	
Average parcel size for planning surveys and monitoring estimates	200	acres average parcel size
<u>Pre-construction restoration planning surveys:</u>		
Percent of Valley Oak Woodland, Oak Woodland restoration not from Rice	72%	
Hours per acre: Valley Oak Woodland, Oak woodland not from Rice	0.50	100 total hours per parcel for field work and reporting
Percent of Vernal Pool Type, Aquatic/Wetland, Riverine/Riparian restoration not from Rice	87%	
Hours per acre: Vernal Pool Type, Aquatic/Wetland, Riverine/Riparian not from Rice	0.90	180 total hours per parcel for field work and reporting
Hours per acre: Rice to any other habitat type	0.25	50 total hours per parcel for field work and reporting
<u>Plans, specifications, and engineering as percent of total construction costs:</u>		
Vernal Pool, Seasonal Swales	35%	of construction cost
Seasonal Wetlands	30%	of construction cost
All other habitat types	25%	of construction cost
<u>Bid assistance as percent of total construction costs:</u>		
Valley Oak Woodland, Oak Woodland	1.0%	of construction cost
Vernal Pool, Seasonal Swale, Fresh Emergent Marsh, Lacustrine, Grassland	1.5%	of construction cost
Seasonal Wetland, Riverine/Riparian	2.0%	of construction cost
Percent of Vernal Pool restoration from rice:	8%	assume same as overall average for vernal pool type restoration
Cost premium for Vernal Pool restoration from rice	50%	Applies to construction cost; does not apply to other vernal pool type restoration costs
Vernal pool inoculum collection, transportation, storage, and application	\$6,800	assumes collection of 531 cubic yards of material from each acre of impacted pool (4 inches from each basin) and application of 2 inches in each created pool for a total of 262 cy. Assumes a 6 mile distance between impact site and application site, double handling of material, and no charge for storage between collection and application; \$35/cy x 262 cy

Table 3: Restore Natural Communities, including Management and Monitoring on Restored Lands

Valley schedule varies by period

2017 dollars cost variable

Detail may not add to total due to rounding at various stages of the calculations.

Construction biological monitoring: all habitat types:

0.80 160 total hours per parcel for construction monitoring, one month of oversight, 40 hours per week

Construction oversight as percent of total construction costs :

Vernal Pool, Fresh Emergent Marsh, Lacustrine	67%	of construction cost
Seasonal Wetlands	40%	of construction cost
Seasonal Swales	55%	of construction cost
Riverine/Riparian	50%	of construction cost
Grassland, other non wetland	5%	of construction cost

Post-construction restoration monitoring & maintenance annual cost as percent of total construction costs:

Valley Oak Woodland, Oak Woodland, and Riverine/Riparian	30%	of construction cost
Vernal Pool	25%	of construction cost
Seasonal Wetland, Seasonal Swales, other Aquatic/Wetland	15%	of construction cost
Grassland	8.5%	of construction cost
Acreage discount for land not requiring restoration monitoring	20%	For all habitat types, except vernal pool

Years of post-construction monitoring & maintenance following installation of restoration project

Vernal Pool from any land cover	15	extends 10 years beyond 5-year period in which restoration occurs
All other habitat types	5	coincides with 5-year period in which restoration occurs

Restoration contingency as percent of total restoration cost:

7.5% assumed to be higher than standard contingency (revised 9/3/2013)

Reserve Management Activities

Assumptions/Notes:

The cost of reserve management on restored lands is estimated here. See 3_Manage_Enhance for details on cost assumptions.

Restored lands under management by community type Cumulative total by period: Restored to

	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
VALLEY COST SHARE											
Vernal Pool Complex under management	-	135	311	568	825	1,184	1,628	2,028	2,407	2,722	3,000
Grassland under management	-	45	104	189	275	395	543	676	802	907	1,000
Aquatic/Wetland Complex under management	-	9	21	39	56	81	111	139	164	186	205
Riverine/Riparian Complex under management	-	36	82	151	219	314	431	537	638	721	795
Valley Oak Woodland under management	-	10	23	42	61	88	120	150	178	201	222
Total Valley Cost Share Acres	-	235	542	989	1,437	2,061	2,834	3,529	4,190	4,738	5,222
FOOTHILLS COST SHARE											
Aquatic/Wetland Complex under management	-	21	41	62	82	103	123	144	164	185	205
Riverine/Riparian Complex under management	-	63	126	189	252	315	378	441	504	567	630
Valley Oak Woodland under management	-	6	13	19	25	32	38	44	50	57	63
Oak Woodland under management	-	10	20	30	40	50	60	70	80	90	100
Total Foothills Cost Share Acres	-	100	200	299	399	499	599	699	798	898	998
Suitable land used for commercial grazing (fee title only)											
VALLEY COST SHARE (oak woodland, VPC, grassland, and pasture)											
Vernal Pool Complex	-	68	156	284	413	592	814	1,014	1,204	1,361	1,500
Grassland	-	23	52	95	138	197	271	338	401	454	500
Aquatic/Wetland Complex	-	-	-	-	-	-	-	-	-	-	-
Riverine/Riparian Complex	-	18	41	75	109	157	216	269	319	361	398
Valley Oak Woodland	-	5	12	21	31	44	60	75	89	101	111
Total Valley Cost Share	-	113	260	475	690	990	1,361	1,695	2,013	2,276	2,509
FOOTHILLS COST SHARE (oak woodland, VPC, grassland)											
Aquatic/Wetland Complex	-	-	-	-	-	-	-	-	-	-	-
Riverine/Riparian Complex	-	32	63	95	126	158	189	221	252	284	315
Valley Oak Woodland	-	3	6	9	13	16	19	22	25	28	32
Oak Woodland	-	5	10	15	20	25	30	35	40	45	50
Total Foothills Cost Share	-	40	79	119	159	198	238	278	317	357	397

Table 3: Restore Natural Communities, including Management and Monitoring on Restored Lands

Valley schedule varies by period

2017 dollars cost variable

Detail may not add to total due to rounding at various stages of the calculations.

Land Subject to Vegetation and Fuel-load Management (not grazed)	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
VALLEY COST SHARE											
VPC and Grassland, including rice mgnd as grassland	-	90	207	379	550	789	1,085	1,352	1,605	1,815	2,000
Oak Woodland and Riparian Woodland	-	23	53	96	140	201	276	344	408	461	509
Aquatic/Wetland Complex	-	9	21	39	56	81	111	139	164	186	205
FOOTHILLS COST SHARE											
Oak Woodland and Riparian Woodland	-	40	79	119	159	198	238	278	317	357	397
Aquatic/Wetland Complex	-	21	41	62	82	103	123	144	164	185	205

Responsive Measures for Changed Circumstances

Establishes a reserve fund to covers costs associated with management activities on restored lands to respond to changed circumstances as outlined in Chapter 10 Assurances.

Assumptions:

Percentage of annual costs added to cover responsive measures. 10% Applies to operational budget for management of restored reserve lands

Monitoring on Restored Land

Assumptions/Notes:

Costs to implement natural community and species monitoring on restored lands.

Costs to conduct biological monitoring to evaluate the effectiveness of the conservation strategy over time and to conduct targeted studies to inform adaptive management efforts.

PCA staff will conduct long-term landscape level monitoring, including updating GIS/aerials and analyzing status and trends at the landscape level at least every 5 years.

PCA staff will plan, coordinate, and report on the monitoring categories described below.

Contractors will conduct the field monitoring and data analysis.

Monitoring tasks consists of baseline ecological surveys, data analysis and reporting within 3 years of reserve site acquisition, followed by periodic status and trends surveys, data analysis, and reporting for the duration of the permit term.

Pre-construction surveys are assumed to occur prior to restoration projects on the reserve system, and costs are estimated as a component of those restoration costs.

Post-restoration success monitoring is also included in the restoration cost factors above.

Natural community monitoring on restored/created wetlands (Aquatic/Wetland Complex and Riverine/Riparian Complex) will continue in perpetuity.

Monitoring Survey and Reporting Team

Senior Staff	1	@ 8 hours per day
Junior Staff	1	@ 8 hours per day
Senior Staff Billing Rate	\$182	per hour
Junior Staff Billing Rate	\$130	per hour
	\$2,496	monitoring contract cost per day

Natural Community Monitoring (see community restore)

Community Type	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Vernal Pool Complex	\$0	\$26,171	\$81,694	\$137,218	\$192,742	\$248,266	\$303,790	\$359,313	\$414,837	\$470,361	\$525,885	\$2,760,278
Grassland	\$0	\$17,372	\$37,827	\$58,282	\$78,737	\$99,192	\$119,646	\$140,101	\$160,556	\$181,011	\$201,466	\$1,094,189
Aquatic/Wetland Complex	\$0	\$0	\$9,625	\$19,249	\$28,874	\$38,498	\$48,123	\$57,748	\$67,372	\$76,997	\$86,622	\$433,108
Riverine/Riparian Complex	\$0	\$0	\$23,954	\$47,908	\$71,863	\$95,817	\$119,771	\$143,725	\$167,680	\$191,634	\$215,588	\$1,077,940
Valley Oak Woodland	\$0	\$17,881	\$39,567	\$61,252	\$82,937	\$104,623	\$126,308	\$147,994	\$169,679	\$191,364	\$213,050	\$1,154,655
Oak Woodland	\$0	\$5,960	\$13,189	\$20,417	\$27,646	\$34,874	\$42,103	\$49,331	\$56,560	\$63,788	\$71,017	\$384,885
TOTAL	\$0	\$67,385	\$205,856	\$344,327	\$482,799	\$621,270	\$759,741	\$898,212	\$1,036,684	\$1,175,155	\$1,313,626	\$6,905,056

Species Monitoring (see species restore)

Species	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Swainson's Hawk	\$0	\$5,950	\$8,017	\$10,084	\$12,151	\$14,217	\$16,284	\$18,351	\$20,417	\$22,484	\$24,551	\$152,506
California Black Rail	\$0	\$4,101	\$5,489	\$6,877	\$8,264	\$9,652	\$11,040	\$12,428	\$13,815	\$15,203	\$16,591	\$103,460
Western Burrowing Owl	\$0	\$32,199	\$44,179	\$56,160	\$68,141	\$80,122	\$92,103	\$104,084	\$116,065	\$128,045	\$140,026	\$861,124
Tricolored Blackbird	\$0	\$9,690	\$13,793	\$17,896	\$22,000	\$26,103	\$30,207	\$34,310	\$38,414	\$42,517	\$46,621	\$281,550
Giant Garter Snake	\$0	\$39,811	\$125,050	\$210,289	\$295,528	\$380,767	\$466,005	\$551,244	\$636,483	\$721,722	\$806,961	\$4,233,861
Western Pond Turtle	\$0	\$18,875	\$25,562	\$32,248	\$38,935	\$45,622	\$52,309	\$58,996	\$65,683	\$72,369	\$79,056	\$489,655
Foothill Yellow-legged Frog	\$0	\$3,722	\$5,024	\$6,327	\$7,630	\$8,933	\$10,236	\$11,539	\$12,842	\$14,145	\$15,448	\$95,847
California Red-legged Frog	\$0	\$86,986	\$118,061	\$149,137	\$180,212	\$211,287	\$242,363	\$273,438	\$304,513	\$335,589	\$366,664	\$2,268,251
Valley Elderberry Long Horned Beetle	\$0	\$97,524	\$131,031	\$164,537	\$198,044	\$231,550	\$265,057	\$298,563	\$332,069	\$365,576	\$399,082	\$2,483,033
Vernal Pool Invertebrates	\$0	\$87,340	\$108,592	\$129,843	\$151,094	\$172,345	\$193,596	\$214,847	\$236,098	\$257,349	\$278,600	\$1,829,702
Steelhead and Chinook Salmon	\$0	\$25,265	\$34,123	\$42,981	\$51,840	\$60,698	\$69,556	\$78,415	\$87,273	\$96,131	\$104,990	\$651,272
TOTAL	\$0	\$411,463	\$618,921	\$826,380	\$1,033,838	\$1,241,297	\$1,448,755	\$1,656,214	\$1,863,672	\$2,071,131	\$2,278,590	\$13,450,261

Research

Assumptions/Notes:

The PCA will conduct research as needed and as funding permits to reduce levels of uncertainties related to achieving biological goals on restored lands.

Because these studies can be expensive and resource-intensive, a limited budget is proposed. Many studies will be jointly funded by grants. Studies will be implemented on an as-needed basis, when resources permit.

Studies may be conducted in partnership with outside scientists from academic institutions, consulting firms, and non-profit organizations.

Research studies are implemented over the first 15 years of the permit period.

Estimated total cost for research studies for restored lands/species \$260,000

Table 3a: Restoration cost detail for community types

Data source: Table 5-4 Natural Community Restoration Commitments (acres)

ADJUSTMENT FACTORS 50% 50% 33%

Natural Community and Constituent Habitat	Restoration with All Effects	Assumptions	Average Parcel Size (acres)	Total Parcels Restored/ Surveyed	Number of parcels restored every 5 year period	Start Up Time ¹ (Days)	Invasive Species/ Community Function/Post-Restoration Success Monitoring (included in restoration cost factor)				Grazing (Annual)	Data Synthesis, Analysis, and Annual Reporting	Days per Parcel			
							Year 1 (Days)	Year 2 (Days)	Year 3 (Days)	Every Five Years (Days)			Days per Parcel (per survey year)	Year 1 (Grazing /Reporting Only)	Year 2 (Grazing /Reporting Only)	Year 3 (Grazing /Reporting Only)
Vernal Pool Complex	3,000	8% wetted acre density. Grazing management: One day early, one day late in the season. Surveys done every year. Intensive survey to map locations of invasive species in the first three years and then survey the whole property every five years thereafter. One survey day per 100 acres. Hydrologic function of restored pools will be monitored at the same time of branchiopod monitoring. One day to survey location of ground squirrel colonies and density of ground; survey the entire are the first year and then 50% of the site the following two years. Survey the entire site for ground squirrels every five years thereafter.	200	15	1.5	3	3.0	2.5	2.5	3.0	2.0	0.3	2.3	2.3	2.3	14.8
<i>All Vernal Pool Type Wetlands</i>	900															
<i>Minimum as Delineated Vernal Pool</i>	326															
Grassland	1,000	Intensive survey to map locations of invasive species, monitor restoration progress, and vegetation community composition and density in the first three years and then survey the whole property every five years thereafter. Four survey days per 200 acres for restoration success/invasive species monitoring. Grazing management: One day early, one day late in the season. Surveys done every year. One day to survey location of ground squirrel colonies and density of ground; survey the entire are the first year and then 50% of the site the following two years. Survey the entire site for ground squirrels every five years thereafter.	200	5	0.5	1.5	5.0	4.5	4.5	3.0	2.0	3	4.6	4.6	4.6	16.4
Aquatic/Wetland Complex		Intensive survey to map locations of invasive species in the first three years and then survey the whole property every five years thereafter. One survey day per 50 acres for invasive species monitoring. Two additional days per year for hydroperiod, vegetation percent cover, water quality, etc. monitoring associated with 1-2-3 assessment approach.	50	8	0.8	1	3	3	3	3	-	1	-	-	-	4.8
<i>All Aquatic/ Wetland</i>	410															
<i>Minimum as Fresh Emergent Marsh</i>	196															
Riverine/Riparian Complex		14 days per 200 acres to survey the health of restored trees and to track invasive species infestations. Three additional days per year for monitoring of water quality, sediment quality, % runs, riffles, pools, percent canopy cover, etc. (possible to inform targeted studies/restoration siting).	200	7	0.7	2.5	17	17	17	8.5	-	4	-	-	-	13.7
<i>All Riverine/ Riparian</i>	1,425															
<i>Minimum as Riparian Woodland</i>	1,250															
Valley Oak Woodland	285	4 days per 50 acres to survey the health of restored trees and to track invasive species infestations. Grazing management: One day early, one day late in the season. Surveys done every year. One survey per 50 acres.	50	6	0.6	1	4	4	4	2	2	2	4.0	4.0	4.0	14.5
Oak Woodland	100	4 days per 50 acres to survey the health of restored trees and to track invasive species infestations. Grazing management: One day early, one day late in the season. Surveys done every year. One survey per 200 acres.	50	2	0.2	1	4	4	4	2	2	2	4.0	4.0	4.0	14.5

1. Start up time includes time for survey methods design, GIS data acquisition and translation, site-specific history/research, data collection methods (datasheet, in-field GIS, etc.), database design and creation, coordinating access permission and with partner organizations, etc. Startup time presented here is assumed to be needed in the first year. Half this time is then needed for every five year survey.

Table 3b: Restoration cost detail for species

Data source: Table 5-6 Covered Species Protection and Restoration Commitments (acres)

ADJUSTMENT FACTORS 50% 50% 33%

Species / Habitat Type	Habitat Restored	Natural Community and Constituent Habitat	Average Site Size (acres)	Number of Sites (TOTAL)	Sites Added per 5-year period	Start Up Time ¹ (Days)	Invasive Species/ Community Function/Post-Restoration Success Monitoring					Data Synthesis, Analysis, and Annual Reporting	Days per Site, per year					
							Year 1 (Days)	Year 2 (Days)	Year 3 (Days)	Year 4 (Days)*	Year 5 (Days)*		Every Five Years (Days)	Days per Site (per survey year)	Year 1	Year 2	Year 3	Every Five Years Thereafter
Swainson's Hawk																		
	Nesting Habitat	720	One nesting survey a year during optimal breeding time, assume four hours per site and four sites per day (assuming two people are at different sites). Average site size is 200 acres. Survey every year for three years, then every five years thereafter.	200	4	0.4	0.5	0.5	0.5	0.5		0.5	1	2.3	1.8	1.8	2.1	
	Foraging	3,920	One hawk/TCBB nesting survey per year, four hours per 200 acres.; assume covered in community level monitoring.	200	-	-	0.5	0.5	0.5	0.5		0.5	1.0	2.0	1.5	1.5	1.7	
California Black Rail																		
	Year-round Habitat	175	Three survey days per site, two weeks apart.	150	1	0.1	0.5	3	3	3		3	2	5.8	5.3	5.3	5.6	
Western Burrowing Owl																		
	Overwintering Habitat	4,126	Two site surveys per day. All sites visited the first year then 50% of the sites in each of the following years; and then all sites surveyed every five years.	300	20	2.0	0.5	0.50	0.25	0.25		0.50	1.7	2.7	1.9	1.9	2.4	
Tricolored Blackbird																		
	Nesting Habitat	87	Two survey days per site, two weeks apart.	25	3	0.3	1	2	2	2		3	2	5.0	4.0	4.0	5.5	
	Foraging Habitat	4,000	Survey described under hawk; assume covered in community level monitoring.															
Giant Garter Snake																		
	Aquatic Habitat	529	Trapping surveys to detect presence; assume 2 trap lines per site, 8 active trap days per line and two days for deployment and retrieval, 2 trap lines surveyed per day. One year of trapping at each site; 50% in the second year, and 50% in the third year and then every five years thereafter.	100	5	0.5	2	10	5	5		64	3	15.3	8.3	8.3	68.3	
	Upland Habitat	449	Surveys for snakes described above.															
Western Pond Turtle																		
	Aquatic Habitat	1,850	Walking surveys at known/likely basking locations.Two sites surveyed per day.	100	19	1.9	0.5	0.5	0.5	0.5		0.5	1	1.7	1.2	1.2	1.4	
	Upland Habitat	1,930	Surveys for turtle described above.															
Foothill Yellow-legged Frog																		
	Year-round Habitat	83	Adult, sub-adult, and egg mass walking surveys. One site per day.	25	3	0.3	0.5	0.5	0.5	0.5		0.5	1.0	2.0	1.5	1.5	1.7	
California Red-legged Frog																		
	Aquatic Habitat	1,241	Visual daytime surveys and night surveys for eye shining and calling. So two days per site.	25	50	5.0	1	1	1	1		1	1.0	3.0	2.0	2.0	2.5	
	Upland Habitat	160	Surveys on aquatic habitat only.															
Valley Elderberry Longhorn Beetle																		
	Year-round Habitat	1,553	Assume triple the effort of surveys on restored lands than on protected lands to allow for stem counts and increased density of shrubs on restoration site. Representative/rotating sample to assess health of shrub; survey for signs of beetle. Survey all shrubs the first three years. Every five years thereafter, randomly sampled subset of 50%.	100	16	1.6	1.5	5	5	5		5	3	9.1	7.6	7.6	8.4	
Vernal Pool Invertebrates																		
	Wetland Habitat	900	8% wetted acre density. For branchiopods, four surveys per season, each survey will take 2 days; survey everything the entirety of the site each year for three years and then a subset representing 50% every five years thereafter.	100	9	0.9	3	8	8	8	8	8	4	4	15.0	12.0	12.0	9.5
	Vernal Pool Complex	3,000	Assume this is primarily grassland habitat. Surveys for aquatic habitat described above.															
Steelhead and Chinook Salmon																		
	Spawning and juvenile rearing		Habitat quality monitoring described in natural community tab. Redd surveys, carcass, and juvenile density baseline monitoring will be performed on protected and pre-restoration lands. All post-restoration/post-enhancement monitoring is described in "targeted studied" columns. Assume: Three days per year for spawning/redd surveys; three days a year for snorkel/electrofishing surveys.	200		0.7	1.5	3	3	3	-	-	3	1	5.8	4.3	4.3	5.1

*Added survey years four and five for vernal pool crustaceans per protocol described in Chapter 7.

Table 4: Reserve Management and Enhancement

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											TOTAL
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
Capital budget												
Shared capital purchases (vehicles, equipment, furniture)	-	49,828	6,917	26,102	18,659	55,246	20,114	26,199	16,180	54,857	15,359	\$289,462
Field facilities	-	-	-	520,000	-	-	520,000	-	520,000	-	-	\$1,560,000
Fish Barrier Removal/Modification - VALLEY	-	275,600	275,600	275,600	275,600	275,600	275,600	275,600	275,600	275,600	275,600	\$2,756,000
Fish Barrier Removal/Modification - Foothills	-	176,800	176,800	176,800	176,800	176,800	176,800	176,800	176,800	176,800	176,800	\$1,768,000
Water supply for grazing - VALLEY Cost Share	-	41,591	54,074	79,045	120,636	164,351	215,522	243,545	281,037	312,288	329,056	\$1,841,144
Water supply for grazing - Foothills Cost Share	-	16,103	15,892	15,470	31,573	30,833	29,968	46,300	45,666	45,138	61,661	\$338,604
Responsive measures for changed circumstances	-	322,672	354,445	464,665	559,805	692,138	826,457	910,965	1,016,730	1,096,028	1,169,474	\$7,413,378
Capital subtotal	\$0	\$882,595	\$883,728	\$1,557,682	\$1,183,072	\$1,394,969	\$2,064,461	\$1,679,409	\$2,332,013	\$1,960,711	\$2,027,949	\$15,966,588
Operating budget												
Field and Technical Oversight (staff)	-	1,245,750	1,620,300	1,843,050	2,065,800	2,288,550	2,288,550	2,105,400	2,105,400	2,105,400	2,105,400	\$19,773,600
Other shared operating overhead	-	21,286	40,828	66,769	92,620	127,020	167,645	204,422	239,767	270,447	297,476	\$1,528,279
Agricultural advisory services	-	520,000	260,001	260,001	260,001	260,001	260,001	260,001	260,001	260,001	260,001	\$2,860,011
Field facilities maintenance and utilities	-	-	-	52,000	52,000	52,000	104,001	104,001	156,001	156,001	156,001	\$832,004
Management equipment/tools	-	9,104	19,602	32,887	46,172	62,943	82,639	100,820	118,307	133,570	147,577	\$753,621
Reserve management plans	-	416,001	41,600	41,600	41,600	41,600	41,600	41,600	41,600	41,600	41,600	\$790,403
Reserve management and enhancement activities - VALLEY COST SHARE												
Reserve enhancement activities, except in-channel	-	110,303	144,393	211,901	213,772	298,474	370,568	337,815	324,223	274,157	246,598	\$2,532,207
In-channel enhancement activities	-	185,896	241,690	353,304	353,304	492,899	610,000	549,355	521,543	432,509	382,203	\$4,122,703
General reserve and site management	-	23,562	77,759	153,174	242,736	349,992	489,784	636,731	772,467	893,393	996,657	\$4,636,254
Wetland and pond maintenance and protection	-	5,909	19,500	38,412	60,871	87,768	122,824	159,674	193,713	224,037	249,933	\$1,162,639
Nonnative animal species control	-	2,356	7,776	15,317	24,274	34,999	48,978	63,673	77,247	89,339	99,666	\$463,625
Water supply for rice (share of water cost assigned to PCA)	-	12,400	40,922	80,610	127,743	184,188	257,756	335,089	406,522	470,161	524,506	\$2,439,898
Vegetation and fuels management (initial and maintenance)	-	251,946	533,849	930,480	1,376,617	1,930,962	2,642,579	3,362,670	4,030,657	4,616,028	5,118,864	\$24,794,652
Subtotal - VALLEY RESERVE COST SHARE	\$0	\$592,373	\$1,065,887	\$1,783,198	\$2,399,317	\$3,379,283	\$4,542,489	\$5,445,008	\$6,326,372	\$6,999,625	\$7,618,427	\$40,151,979
Reserve management and enhancement activities - FOOTHILLS COST SHARE												
Reserve enhancement activities, except in-channel	-	95,253	110,094	124,513	138,933	152,824	166,271	179,949	193,731	207,851	222,161	\$1,591,579
In-channel enhancement activities	-	211,730	211,730	211,730	211,730	211,730	211,730	211,730	211,730	211,730	211,730	\$2,117,297
General reserve and site management	-	8,208	24,517	40,510	56,291	71,809	86,841	101,766	116,858	132,172	147,749	\$786,719
Wetland and pond maintenance and protection	-	630	3,444	6,258	9,072	11,886	14,700	17,514	20,328	23,142	25,956	\$132,931
Nonnative animal species control	-	821	2,452	4,051	5,629	7,181	8,684	10,177	11,686	13,217	14,775	\$78,672
Vegetation and fuels management (initial and maintenance)	-	105,570	143,994	180,081	218,880	254,555	289,420	327,265	365,516	405,521	445,885	\$2,736,686
Subtotal - FOOTHILLS RESERVE COST SHARE	\$0	\$422,210	\$496,231	\$567,143	\$640,535	\$709,984	\$777,646	\$848,400	\$919,849	\$993,632	\$1,068,255	\$7,443,884
Operations subtotal	\$0	\$3,226,725	\$3,544,449	\$4,646,648	\$5,598,046	\$6,921,382	\$8,264,570	\$9,109,652	\$10,167,297	\$10,960,276	\$11,694,736	\$74,133,781
TOTAL	\$0	\$4,109,320	\$4,428,177	\$6,204,330	\$6,781,118	\$8,316,351	\$10,329,030	\$10,789,060	\$12,499,311	\$12,920,986	\$13,722,685	\$90,100,369
<i>Reserve allocation to Valley, based on cost</i>	0%	58%	68%	76%	79%	83%	85%	87%	87%	88%	88%	84%
<i>Reserve allocation to Foothills, based on cost</i>	0%	42%	32%	24%	21%	17%	15%	13%	13%	12%	12%	16%

Table 4: Reserve Management and Enhancement

Valley schedule varies by period
2017 dollars

cost variable

Field facilities (capital cost)	\$520,000	Note: Field facilities contain an area for equipment storage, a manager's office, a shared office, a locker room, and restrooms.
	15,000	cost assumes donated portable building with cost representing transportation, utilities, installation, permitting etc.
Field facilities maintenance and utilities	\$10,400	Reserve acres per field facility; some field facility space would also be provided in existing buildings (barns, sheds) on lands added to reserve
Management equipment and materials	\$3,120	annual cost per facility, Placer County Parks and Recreation
Annual cost per 1,000 acres for on-going site maintenance (CM2 L-3, CM2 AW-2, CM2 BLRA-2)	\$10,400	cost per 1,000 acres per period for hand tools, landscaping equipment (Placer Land Trust information)
Annual cost per 1,000 acres for nonnative animal species control (CM2 AW-4, CM2 RAR-5, CM2 OW-2, CM2 TRBL-3)	\$1,040	fencing, gates, signage, water supply maintenance, trash and debris removal (Placer Land Trust and Placer County)
Annual cost to control Red Sesbania in creeks (CM2 RAR-1)	\$62,000	cost to control feral pigs, wild turkeys, beavers, bullfrogs, invasive fish (costs of traps, tags, etc.)
Wetland and pond maintenance and protection (CM2 AW-1, CM2 AW-2, CM2 AW-7, CM2 AW-8)	10%	annual contract cost, allocate to Valley and Foothills proportional to Riparian acres
	\$1,040	of Aquatic and Wetland acres require wetland and pond maintenance and protection
	2%	cost per acre per year for clearing debris in wetlands and ponds
Pond dredging, annual cost per acre (CM2 AW-3)	\$2,080	of Aquatic and Wetland acres are ponds
Water points for grazing (capital cost initial and replacement)	\$5,200	assumes each pond dredged once every 5 years
Gross acres per water point	50	average cost per water point, Placer County (L Clark memo 1/25/2013, based on input from Roger Ingram)
Replacement period (years)	15	Placer County (L Clark memo 1/25/2013, based on input from Roger Ingram)
Water rate per acre foot, PCWA Zone 5	\$21.77	TRA PCCP CS cost factors 20130128
Water requirement for rice production	4.5	Rate Schedule for 2017, dated 2/3/2017
PCWA loss factor charged to Zone 5 customers	1.1625	acre-feet per acre per year, based on U.S.D.A Census of Agriculture, California, 2012
Annual cost per acre for water for rice production	\$110	contractual loss factor of 16.25% represents need to deliver more than requested to account for losses along the way
Percent of annual water cost paid by PCA	50%	rounded (includes loss factor premium)
Proportion of fee title rice managed as grassland	11%	working assumption based on Natomas Basin Conservancy experience with rice farmers; rice farmer pays the balance
Proportion of suitable land utilized for commercial grazing	50%	Placer County placeholder was 50%; now function of restoration requirements and GGS management
Proportion of Field Ag. in Valley that is irrigated pasture	0%	Roger Ingram in L Clark memorandum, updated 7/10/2013; same for VALLEY and FOOTHILLS; applies to grassland and woodland
Cost per acre per year to graze urban/suburban grassland	\$260	L Clark memorandum, updated 7/10/2013 (Note as of June 2015 all Field Ag used for restoration land base)
Cost per acre per year to graze urban/suburban grassland	\$104	applies to 20% of the acres, cost for small isolated properties where transportation is a significant cost factor
Weighted average cost per acre per year for urban/suburban grazing	\$135	applies to 80% of the acres, mid-range of Lee Hazeltine's operation in Lincoln/Rocklin area

Cost per parcel	Perimeter buffer	Cost per	TRA PCCP CS cost factors 20130128, based on R. Harris January 2013 White Paper; adjusted 9/2013 based on Finance
acre	% of Parcel	treated acre	Committee comments, reduced perimeter buffer % by assuming 50 ft buffer per parcel

Vegetation and Fuel-load Management for land not grazed

Vegetation and Fuel-Load Management (initial cost, one time)			
Grassland including Vernal Pool Complex	\$15	7%	\$208
Woodland, including Riparian/Riverine Complex (parcel perimeter)	\$94	5%	\$1,872
Parcel level treatment, cost per treated acre	\$1,872		
Woodland, including riparian woodland (rest of parcel)	20%	percent of parcel treated (R. Harris, January 2013 White Paper "...if 20 - 30% of an area is treated, there will be positive impacts beyond the area of treatment alone.")	
Aquatic/Wetland Complex (parcel treatment)	25%	percent of parcel treated	

Vegetation and Fuel-Load Management (maintenance cost per period)

Grassland including Vernal Pool Complex	\$36	7%	\$104
Woodland, including Riparian/Riverine Complex	\$52	5%	\$1,040
Parcel level treatment, cost per treated acre	\$1,040		
Woodland, including riparian woodland (rest of parcel)	20%	percent of parcel treated	
Aquatic/Wetland Complex (parcel treatment)	25%	percent of parcel treated	
Interval between treatments, Grassland	1	year	
Interval between treatments, Woodland and Aquatic/Wetland Complex	5	year	

Assumptions/Notes:

Fuel-load management cost applies to parcel perimeters and parcel area as estimated above

	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Cumulative total acres managed	-	2,918	6,283	10,541	14,799	20,174	26,487	32,314	37,919	42,811	47,300
Total field facilities	-	-	-	1.00	1.00	1.00	2.00	2.00	3.00	3.00	3.00
New field facilities	-	-	-	1.00	-	-	1.00	-	1.00	-	-

Note: in early years, existing buildings on land acquired for reserve could be used for field facilities.

Table 4: Reserve Management and Enhancement

Valley schedule varies by period											
2017 dollars											
cost variable											
Only Fee Title acres are under management											
Cumulative total by period: Start with fee title lands from fee title_easement sheet, subtract restored from (restored to counted in restoration tab)											
VALLEY COST SHARE	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Vernal Pool Complex under management	-	690	1,587	2,898	4,209	6,038	8,302	10,341	12,276	13,882	15,300
Grassland under management	-	15	35	64	93	133	183	228	271	307	338
Aquatic/Wetland Complex under management	-	16	37	68	99	142	195	243	289	327	360
Riverine/Riparian Complex under management	-	65	149	273	396	568	781	973	1,155	1,307	1,440
Valley Oak Woodland under management	-	2	6	10	15	21	29	36	43	49	54
Oak Woodland under management	-	17	38	69	101	144	199	247	294	332	366
Rice under management	-	101	232	424	616	884	1,215	1,514	1,797	2,032	2,240
Field Agriculture under management	-	-	-	-	-	-	-	-	-	-	-
Total Valley Cost Share Acres	-	906	2,084	3,807	5,529	7,932	10,906	13,584	16,126	18,235	20,098
Rice managed as grassland	-	11	25	45	66	95	130	162	193	218	240
Rice managed for giant garter snake	-	90	207	379	550	789	1,085	1,352	1,605	1,815	2,000
FOOTHILLS COST SHARE	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Vernal Pool Complex under management	-	-	-	-	-	-	-	-	-	-	-
Grassland under management	-	2	4	7	9	11	13	15	18	20	22
Aquatic/Wetland Complex under management	-	6	12	18	24	30	36	42	48	54	60
Riverine/Riparian Complex under management	-	18	36	54	72	90	108	126	144	162	180
Valley Oak Woodland under management	-	3	6	9	12	15	18	21	24	27	30
Oak Woodland under management	-	286	569	843	1,117	1,382	1,637	1,897	2,159	2,428	2,700
Rice under management	-	-	-	-	-	-	-	-	-	-	-
Field Agriculture under management	-	-	-	-	-	-	-	-	-	-	-
Total Foothills Cost Share Acres	-	316	627	931	1,234	1,528	1,812	2,102	2,393	2,691	2,992
Suitable land used for commercial grazing (fee title only)											23,090
VALLEY COST SHARE (oak woodland, VPC, grassland, and pasture)	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Vernal Pool Complex	-	345	793	1,449	2,105	3,019	4,151	5,170	6,138	6,941	7,650
Grassland	-	8	18	32	46	67	92	114	136	153	169
Aquatic/Wetland Complex	-	-	-	-	-	-	-	-	-	-	-
Riverine/Riparian Complex	-	32	75	136	198	284	391	487	578	653	720
Valley Oak Woodland	-	1	3	5	7	11	15	18	22	24	27
Oak Woodland	-	8	19	35	50	72	99	124	147	166	183
Rice managed as Grassland	-	5	12	23	33	47	65	81	96	109	120
Irrigated Pasture in Field Agriculture	-	-	-	-	-	-	-	-	-	-	-
Total Valley Cost Share	-	400	920	1,680	2,440	3,500	4,813	5,994	7,116	8,047	8,869
FOOTHILLS COST SHARE (oak woodland, VPC, grassland)	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Vernal Pool Complex	-	-	-	-	-	-	-	-	-	-	-
Grassland	-	1	2	3	4	6	7	8	9	10	11
Aquatic/Wetland Complex	-	-	-	-	-	-	-	-	-	-	-
Riverine/Riparian Complex	-	9	18	27	36	45	54	63	72	81	90
Valley Oak Woodland	-	2	3	5	6	8	9	11	12	14	15
Oak Woodland	-	143	284	422	559	691	819	949	1,080	1,214	1,350
Irrigated Pasture in Agriculture or other Natural/Semi-natural	-	-	-	-	-	-	-	-	-	-	-
Total Foothills Cost Share	-	155	308	456	605	749	888	1,030	1,172	1,318	1,466
Urban/suburban grassland grazed	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Grassland in natural open space areas retained in PFG VALLEY	-	225	519	947	1,376	1,973	2,713	3,379	4,012	4,536	5,000
Land Subject to Vegetation and Fuel-load Management (not grazed)	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
VALLEY COST SHARE	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
VPC and Grassland, including rice mngd as grassland that is not grazed	-	358	823	1,504	2,184	3,133	4,308	5,366	6,370	7,203	7,939
Oak Woodland and Riparian Woodland	-	42	96	176	256	367	505	629	746	844	930
Aquatic/Wetland Complex	-	16	37	68	99	142	195	243	289	327	360
FOOTHILLS COST SHARE	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
VPC, Grassland, and pasture	-	1	2	3	4	6	7	8	9	10	11
Oak Woodland and Riparian Woodland	-	154	305	453	601	743	882	1,022	1,164	1,308	1,455
Aquatic/Wetland Complex	-	6	12	18	24	30	36	42	48	54	60

Responsive Measures for Changed Circumstances

Establishes a reserve fund to covers costs associated with management activities on restored lands to respond to changed circumstances as outlined in Chapter 10 *Assurances*.

Assumptions:

Percentage of annual costs added to cover responsive measures. 10% Applies to operational budget for management of reserve lands

Table 4a: Reserve Management - Grazing and Rice Lease Revenue

Valley schedule varies by period
 2017 dollars cost variable
 Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Revenue from grazing and rice leases												
VALLEY SHARE												
Grazing Lease Revenue DO NOT ASSUME FOR FUNDING PLAN	-	18,628	63,892	126,658	202,060	291,450	408,379	532,488	646,945	749,331	836,596	\$3,876,426
Rice Lease Revenue - ASSUMED IN FUNDING PLAN	-	40,582	133,925	263,814	418,069	602,798	843,565	1,096,656	1,330,437	1,538,710	1,716,564	\$7,985,120
<i>Subtotal Valley Lease Revenue</i>	-	\$59,209	\$197,818	\$390,472	\$620,129	\$894,248	\$1,251,944	\$1,629,144	\$1,977,381	\$2,288,040	\$2,553,160	\$11,861,546
FOOTHILLS SHARE												
Grazing Lease Revenue DO NOT ASSUME FOR FUNDING PLAN	-	5,770	17,233	28,470	39,555	50,451	61,000	71,471	82,063	92,813	103,752	\$552,578
<i>Subtotal Foothills Lease Revenue</i>	-	\$5,770	\$17,233	\$28,470	\$39,555	\$50,451	\$61,000	\$71,471	\$82,063	\$92,813	\$103,752	\$552,578
TOTAL PLAN AREA	-	\$64,979	\$215,051	\$418,942	\$659,684	\$944,700	\$1,312,943	\$1,700,615	\$2,059,444	\$2,380,853	\$2,656,912	\$12,414,125

Assumptions:

Revenue from grazing and rice leases is estimated. Grazing lease revenue is not shown as a revenue source in the funding plan, but rice lease revenue is.

The model for costs and revenues associated with rice land managed for the giant garter snake is that of the Natomas Basin Conservancy, which has a 20-year track record acquiring rice land and leasing it to rice farmers who pay land rent and all costs of rice production including about 50% of water costs.

GRAZING LEASE REVENUE	
Proportion of suitable land utilized for commercial grazing	50% Roger Ingram in L Clark memorandum, updated 7/10/2013; same for VALLEY and FOOTHILLS; applies to grassland and woodland
Proportion of fee title rice managed as grassland	11% Placer County placeholder was 50%; now function of restoration requirements and GGS management
Grazing lease revenue (annual per acre grazed)	Revenue per acre L. Clark memorandum, updated 7/10/2013, based on input from Roger Ingram and Cork McIsaac of Ag Industries; averages from TRA worksheet PCCP cost factors TRA 20130128
Vernal Pool Complex	\$19.20 weighted average across medium, low, and high density VP
Grassland	\$15.60
Irrigated pasture, Foothills only	\$156.00
Woodland	\$14.90 weighted average across three canopy classes

	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
Suitable land used for commercial grazing (fee title only)												
VALLEY COST SHARE												
Vernal Pool Complex	-	345	793	1,449	2,105	3,019	4,151	5,170	6,138	6,941	7,650	
Grassland	-	8	18	32	46	67	92	114	136	153	169	
Riverine/Riparian Complex	-	32	75	136	198	284	391	487	578	653	720	
Valley Oak Woodland	-	1	3	5	7	11	15	18	22	24	27	
Oak Woodland	-	8	19	35	50	72	99	124	147	166	183	
Rice managed as Grassland	-	5	12	23	33	47	65	81	96	109	120	
Irrigated Pasture in Field Agricultural	-	-	-	-	-	-	-	-	-	-	-	
Total Valley	-	400	920	1,680	2,440	3,500	4,813	5,994	7,116	8,047	8,869	
FOOTHILLS COST SHARE												
Vernal Pool Complex	-	-	-	-	-	-	-	-	-	-	-	
Grassland	-	1	2	3	4	6	7	8	9	10	11	
Riverine/Riparian Complex	-	9	18	27	36	45	54	63	72	81	90	
Valley Oak Woodland	-	2	3	5	6	8	9	11	12	14	15	
Oak Woodland	-	143	284	422	559	691	819	949	1,080	1,214	1,350	
Irrigated Pasture in Field Agricultural	-	-	-	-	-	-	-	-	-	-	-	
Total Foothills	-	155	308	456	605	749	888	1,030	1,172	1,318	1,466	

RICE LEASE REVENUE	
Proportion of fee title rice managed as grassland	11% Placer County placeholder was 50%; now function of restoration requirements and GGS management
Rice managed for Giant Garter Snake	2,000 Plan Objective GGS-1.1
Proportion of suitable land contributing lease revenue	90%
Rice lease revenue (annual per acre)	\$200 Placer County Agriculture Department, January 2017. No rice ground renting for under \$200 per acre; realistic range is \$250 - 300 per acre, with range depending on availability and price of water. Lower rents result in long-term committed farmers who take better care of the land; less turnover. Lower range of \$200 per acre reflects likely lower yields on land PCA will acquire in fee title.

	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
Suitable land farmed for rice (fee title only)												
Rice under management (fee title)	-	101	232	424	616	884	1,215	1,514	1,797	2,032	2,240	
Subtract: Rice managed as Grassland	-	11	25	45	66	95	130	162	193	218	240	
Subtract: Rice managed for giant garter snake	-	90	207	379	550	789	1,085	1,352	1,605	1,815	2,000	
Net rice under management with rice lease generating revenue	-	-	-	-	-	-	-	-	-	-	-	

Table 5: Monitoring, Research, and Scientific Review

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Capital budget												
Shared capital purchases (vehicles, equipment, furniture)	-	49,828	6,917	26,102	18,659	55,246	20,114	26,199	16,180	54,857	15,359	\$289,462
Capital subtotal	\$0	\$49,828	\$6,917	\$26,102	\$18,659	\$55,246	\$20,114	\$26,199	\$16,180	\$54,857	\$15,359	\$289,462
Operating budget												
Field and Technical Oversight - PCA staff	-	1,245,750	1,620,300	1,843,050	2,065,800	2,288,550	2,288,550	2,105,400	2,105,400	2,105,400	2,105,400	\$19,773,600
Other shared operating overhead	-	21,286	40,828	66,769	92,620	127,020	167,645	204,422	239,767	270,447	297,476	\$1,528,279
Natural Community Monitoring - VALLEY	-	438,212	701,739	975,782	1,259,412	1,537,640	1,823,564	2,118,197	2,393,457	2,666,009	2,935,744	\$16,849,755
Natural Community Monitoring - Foothills	-	161,654	242,141	316,204	403,044	468,830	531,012	606,849	675,602	751,157	829,528	\$4,986,022
Species Monitoring - VALLEY	-	334,462	455,786	580,243	699,598	826,653	955,639	1,079,781	1,204,383	1,325,965	1,446,148	\$8,908,658
Species Monitoring - Foothills	-	123,381	157,272	188,029	223,889	252,048	278,277	309,350	339,962	373,595	408,626	\$2,654,430
Research	-	130,000	65,000	65,000	-	-	-	-	-	-	-	\$260,000
Science Advisors	-	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	\$1,300,000
Operations subtotal	\$0	\$2,584,746	\$3,413,066	\$4,165,077	\$4,874,364	\$5,630,741	\$6,174,686	\$6,553,999	\$7,088,571	\$7,622,572	\$8,152,922	\$56,260,744
TOTAL	\$0	\$2,634,575	\$3,419,983	\$4,191,180	\$4,893,023	\$5,685,988	\$6,194,800	\$6,580,197	\$7,104,752	\$7,677,429	\$8,168,281	\$56,550,206

Assumptions:

Total cost for field and technical oversight staff and associated overhead allocated equally to restoration, reserve management, and monitoring.

33% Proportion of shared staff and overhead allocated to monitoring

Monitoring Program

Assumptions/Notes:

Costs to conduct biological monitoring to evaluate the effectiveness of the conservation strategy over time and to conduct targeted studies to inform adaptive management efforts.

PCA staff will conduct long-term landscape level monitoring, including updating GIS/aerials and analyzing status and trends at the landscape level at least every 5 years.

PCA staff will plan, coordinate, and report on the monitoring categories described below.

Contractors will conduct the field monitoring and data analysis.

Monitoring tasks consists of baseline ecological surveys, data analysis and reporting within 3 years of reserve site acquisition, followed by periodic status and trends surveys, data analysis, and reporting for the duration of the permit t

Natural community and species monitoring on restored lands is included in 2_RestoreNaturalCommunities.

Compliance (implementation monitoring) will be conducted by PCA staff and is accounted for in the program administration cost category.

Pre-construction surveys are assumed to occur prior to construction of covered activities on the reserve system, and costs are estimated as a component of those restoration and management costs.

Construction monitoring is assumed to occur periodically during construction of covered activities and conservation measures, and costs are estimated as a component of those restoration and management costs.

Monitoring Survey and Reporting Team

Senior Staff	1	@ 8 hours per day
Junior Staff	1	@ 8 hours per day
Senior Staff Billing Rate	\$182	per hour
Junior Staff Billing Rate	\$130	per hour
	\$2,496	monitoring contract cost per day

Table 5: Monitoring, Research, and Scientific Review

Valley schedule varies by period

2017 dollars cost variable

Detail may not add to total due to rounding at various stages of the calculations.

Natural Community Monitoring (see community protect)

Community Type	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Vernal Pool Complex	\$0	\$376,698	\$616,415	\$856,132	\$1,095,849	\$1,335,566	\$1,575,283	\$1,815,000	\$2,054,717	\$2,294,434	\$2,534,151	\$14,554,247
Grassland	\$0	\$61,013	\$113,673	\$166,334	\$218,995	\$271,656	\$324,317	\$376,978	\$429,639	\$482,299	\$534,960	\$2,979,864
Aquatic/Wetland Complex	\$0	\$38,818	\$44,269	\$49,721	\$55,172	\$60,623	\$66,074	\$71,526	\$76,977	\$82,428	\$87,880	\$633,488
Riverine/Riparian Complex	\$0	\$43,765	\$51,261	\$58,756	\$66,252	\$73,747	\$81,243	\$88,738	\$96,234	\$103,729	\$111,225	\$774,949
Valley Oak Woodland	\$0	\$22,364	\$18,271	\$18,271	\$40,635	\$36,542	\$36,542	\$58,906	\$54,812	\$54,812	\$54,812	\$395,967
Oak Woodland	\$0	\$57,209	\$99,990	\$142,772	\$185,554	\$228,335	\$271,117	\$313,898	\$356,680	\$399,462	\$442,243	\$2,497,260
Rice /Any Other Agriculture (compliance monitoring only)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL	\$0	\$599,867	\$943,880	\$1,291,986	\$1,662,456	\$2,006,469	\$2,354,576	\$2,725,046	\$3,069,059	\$3,417,166	\$3,765,272	\$21,835,776

Species Monitoring (see species protect)

Species	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Swainson's Hawk	\$0	\$7,443	\$10,049	\$12,655	\$15,261	\$17,866	\$20,472	\$23,078	\$25,684	\$28,290	\$30,896	\$191,694
California Black Rail	\$0	\$7,708	\$10,319	\$12,929	\$15,540	\$18,151	\$20,762	\$23,373	\$25,983	\$28,594	\$31,205	\$194,564
Western Burrowing Owl	\$0	\$63,596	\$88,351	\$113,107	\$137,862	\$162,618	\$187,373	\$212,129	\$236,884	\$261,639	\$286,395	\$1,749,954
Tricolored Blackbird	\$0	\$19,149	\$27,571	\$35,992	\$44,414	\$52,836	\$61,257	\$69,679	\$78,100	\$86,522	\$94,943	\$570,464
Giant Garter Snake	\$0	\$111,472	\$143,970	\$176,468	\$208,966	\$241,464	\$273,962	\$306,460	\$338,958	\$371,457	\$403,955	\$2,577,133
Western Pond Turtle	\$0	\$27,816	\$37,670	\$47,524	\$57,378	\$67,233	\$77,087	\$86,941	\$96,795	\$106,650	\$116,504	\$721,597
Foothill Yellow-legged Frog	\$0	\$2,980	\$4,036	\$5,092	\$6,148	\$7,203	\$8,259	\$9,315	\$10,371	\$11,427	\$12,483	\$77,314
California Red-legged Frog	\$0	\$105,347	\$142,417	\$179,488	\$216,559	\$253,630	\$290,701	\$327,771	\$364,842	\$401,913	\$438,984	\$2,721,652
Valley Elderberry Long Horned Beetle	\$0	\$45,754	\$60,049	\$74,344	\$88,638	\$102,933	\$117,228	\$131,522	\$145,817	\$160,112	\$174,406	\$1,100,804
Vernal Pool Invertebrates	\$0	\$26,877	\$35,004	\$43,131	\$51,258	\$59,385	\$67,512	\$75,639	\$83,766	\$91,893	\$100,020	\$634,486
Steelhead and Chinook Salmon	\$0	\$39,702	\$53,622	\$67,542	\$81,462	\$95,383	\$109,303	\$123,223	\$137,143	\$151,064	\$164,984	\$1,023,427
TOTAL	\$0	\$457,844	\$613,058	\$768,273	\$923,487	\$1,078,702	\$1,233,916	\$1,389,131	\$1,544,345	\$1,699,560	\$1,854,774	\$11,563,089

Research

Assumptions/Notes:

The PCA will conduct research as needed and as funding permits to reduce levels of uncertainties related to achieving biological goals and objectives and to refine conceptual models.

Because these studies can be expensive and resource-intensive, a limited budget is proposed. Many studies will be jointly funded by grants. Studies will be implemented on an as-needed basis, when resources permit.

Studies may be conducted in partnership with outside scientists from academic institutions, consulting firms, and non-profit organizations.

Research studies are implemented over the first 15 years of the permit period.

Estimated total cost for targeted studies for protected lands/species \$260,000

Adaptive Management/Scientific Review

Assumptions/Notes:

Resource management and science advisors will periodically evaluate the effectiveness of existing and proposed management actions and make recommendations to the PCA.

Average annual cost for science advisors \$26,000

Number of members 10

Stipend per member per year \$2,600

Table 5a: Monitoring cost detail for community types

Data source: Table 5-5. Summary of Plan Area Effects and Conservation Strategy Commitments (acres)

		ADJUSTMENT FACTORS										33%					
		50% 50% 25% for Oak Woodlands															
Natural Community		Invasive Species / Community Function Monitoring										Grazing (Annual)	Data Synthesis, Analysis, and Annual Reporting	Days per Parcel, per year			
Constituent Habitat	Total Protection Commitment	Assumptions	Average Parcel Size (acres)	Total Parcels Acquired/ Surveyed	Number of parcels acquired every 5 year period	Start Up Time ¹	Year 1 (Days)	Year 2 (Days)	Year 3 (Days)	Every Five Years (Days)	Days per Site (per survey year)	Year 1	Year 2	Year 3	Every Five Years Thereafter		
Vernal Pool Complex	17,000	15% wetted acre density. Grazing management: One day early, one day late in the season, 200 acres per day. Surveys done every year. Intensive survey to map locations of invasive species in the first year, and then 50% each year for the next two years. And then survey the whole property every five years thereafter. One survey day per 100 acres for invasive species surveying. Three days to survey location of ground squirrel colonies and density of burrows; survey the entire area the first year and then 50% of the site the following two years. Survey the entire site for ground squirrels every five years thereafter. Two additional days a year for 1-2-3 Approach to wetland assessment.	600	28	2.8	2	11.0	6.5	6.5	11.0	6.0	3.3	22.3	15.8	15.8	34.3	
<i>Vernal Pool Type Wetlands</i>	790																
<i>Minimum Delineated as Vernal Pool</i>	250																
Grassland	2,740	Grazing management: One day early, one day late in the season; 200 acres per day. Surveys done every year. Intensive survey to map locations of invasive species in the first year, and then 50% each year for the next two years. And then survey the whole property every five years thereafter. One survey day per 100 acres for invasive species monitoring. One day to survey location of ground squirrel colonies and density of ground; survey the entire area the first year and then 50% of the site the following two years. Survey the entire site for ground squirrels every five years thereafter.	200	14	1.4	1.5	3.0	1.5	1.5	3.0	2.0	1.3	7.8	4.82	4.82	15.07	
Aquatic/Wetland Complex	600	Intensive survey to map locations of invasive species in the first year, and then 50% each year for the next two years. And then survey the whole property every five years thereafter. One survey day per 50 acres for invasive species monitoring. Two additional days per year for hydroperiod, vegetation percent cover, water quality, etc. monitoring associated with 1-2-3 assessment approach.	50	12	1.2	1	3	2.5	2.5	3.0	-	1.3	5.3	3.8	3.8	1.8	
<i>Minimum as Fresh Emergent Marsh</i>	256																
Riverine/Riparian Complex	2,200	Intensive survey to map locations of invasive species in the first year, and then 50% each year for the next two years. And then survey the whole property every five years thereafter. One day per 50 acres for invasive species surveying. Three additional days per year for monitoring of water quality, sediment quality, % runs, riffles, pools, percent canopy cover, etc. (possible to inform targeted studies/restoration siting).	200	11	1.1	1.5	3.5	2.5	2.5	3.5	-	2.0	7.0	4.5	4.5	2.7	
<i>Minimum as Riparian Woodland</i>	1,410																
Valley Oak Woodland	190	Grazing management: One day early, one day late in the season; 200 acres per day. Surveys done every year. Intensive survey to map locations of invasive species in the first year, and then 50% each year for the next two years. And then survey the whole property every five years thereafter. One survey day per 100 acres for invasive species monitoring.	100	2	na	1	0.5	0.25	0.25	0.5	1.0	1.3	3.8	2.57	2.57	7.32	
Oak Woodland	10,110	Grazing management: One day early, one day late in the season; 250 acres per day. Surveys done every year. Intensive survey to map locations of invasive species in the first year, and then 50% each year for the next two years. And then survey the whole property every five years thereafter. One survey day per 100 acres for invasive species monitoring.	500	20	2.0	2	1.25	0.63	0.63	1.25	1.0	1.3	5.6	2.95	2.95	8.57	
Rice	2,000	Crop type confirmation done at the time of species-specific surveys. Crop type/rotation tracked through compliance monitoring. No additional surveys needed. Included in program administration cost.	300	27	2.7	-	-	-	-	-	-	1.0	-	-	-	-	
Any Agriculture	6,240																

1. Start up time includes time for survey methods design, GIS data acquisition and translation, site-specific history/research, data collection methods (datasheet, in-field GIS, etc.), database design and creation, coordinating access permission and with partner organizations, etc. Startup time presented here is assumed to be needed in the first year. Half this time is then needed for every five year survey.

Table 5b: Monitoring cost detail for species

Data source: Table 5-6 Covered Species' Protection and Restoration Commitments (acres)

ADJUSTMENT FACTORS 50% 50% 33%

Species / Habitat Type (1)	Habitat Protected	Natural Community and Constituent Habitat	Average Site Size (acres)	Number of Sites (TOTAL)	Sites added per 5 year period	Start Up Time ¹ (Days)	Invasive Species/ Community Function Monitoring						Data Synthesis, Analysis, and Annual Reporting	Days per Site, per year				
							Year 1 (Days)	Year 2 (Days)	Year 3 (Days)	Year 4* (Days)	Year 5* (Days)	Every Five Years (Days)		Days per Site (per survey year)	Year 1	Year 2	Year 3	Every Five Years Thereafter
Swainson's Hawk																		
	Nesting Habitat	1,268	One nesting survey a year during optimal breeding time, assume four hours per site and four sites per day (assuming two people are at different sites). Average site size is 200 acres. Survey every year for three years, then every five years thereafter.	200	6	1	0.5	0.5	0.5	0.5	-	-	0.5	1.0	2.0	1.5	1.49	1.7
	Foraging	17,003	Surveys described under TCBB. Assume monitored at community level.															
California Black Rail																		
	Year-round Habitat	256	Three survey days per site, two weeks apart.	150	2	0.2	0.5	3.0	3.0	3.0	-	-	3.0	2.0	5.5	5.0	4.98	5.2
Western Burrowing Owl																		
	Overwintering Habitat	17,129	Two site surveys per day. All sites visited the first year then 50% of the sites in each of the following years; and then all sites surveyed every five years.	300	57	5.7	0.5	0.5	0.3	0.3	-	-	0.5	1.0	2.0	1.2	1.24	1.7
Tricolored Blackbird																		
	Nesting Habitat	187	Two survey days per site, two weeks apart.	25	7	0.7	1.0	2	2	2	-	-	3.0	1.3	4.3	3.3	3.32	4.8
	Foraging Habitat	18,138	One nesting survey per site, four hours. Assume monitored at community level.	200	-	-	0.5	0.5	0.5	0.5	-	-	0.5	1.3	2.3	1.8	1.82	2.1
Giant Garter Snake																		
	Aquatic Habitat	2,702	Trapping surveys to detect presence; assume 2 trap lines per site, 8 active trap days per line and two days for deployment and retrieval, 2 trap lines surveyed per day. One year of trapping at each site; 50% in the second year, and 50% in the third year and then every five years thereafter.	200	14	1.4	2.0	10.0	5.0	5.0	-	-	5.0	3.3	15.3	8.3	8.30	9.3
	Upland Habitat	1,763	Surveys for snakes described above.															
Western Pond Turtle																		
	Aquatic Habitat	2,800	Walking surveys at known/likely basking locations. Two sites surveyed per day.	100	28	2.8	0.5	0.5	0.5	0.5	-	-	0.5	0.7	1.7	1.2	1.16	1.4
	Upland Habitat	3,859	Surveys for turtle described above.															
Foothill Yellow-legged Frog																		
	Year-round Habitat	83	Adult, sub-adult, and egg mass walking surveys. One site per day.	25	3	0.3	0.5	0.5	0.5	0.5	-	-	0.5	0.7	1.7	1.2	1.16	1.4
California Red-legged Frog																		
	Aquatic Habitat	1,168	Visual daytime surveys and night surveys for eye shining and calling. So two days per site.	25	47	4.7	1.0	2	2	2	-	-	2	0.7	3.7	2.7	2.66	3.2
	Upland Habitat	12,484	Surveys on aquatic habitat only.															
Valley Elderberry Longhorn Beetle																		
	Year-round Habitat	2,313	Representative/rotating sample to assess health of shrub; survey for signs of beetle. Survey all shrubs the first year. And then 50% of the shrubs for the next two years. Every five years thereafter, randomly sampled subset. Assume a 25-acre site has 25 shrubs. Half hour per shrub for survey, mostly walking time from shrub to shrub.	100	23	2.3	1.0	2	1	1	-	-	1	1.0	4.0	2.0	1.99	2.5
Vernal Pool Invertebrates																		
	Wetland Habitat	790	Two branchiopod surveys per 100-acre site, each requiring 2 days (4 days total); all pools sampled the first year, 50% second year and 50% third year and then a subset sampled every five years thereafter.	100	8	0.8	1.5	4.0	2.0	2.0	2.0	2.0	2.0	1.3	6.8	3.3	3.32	4.1
	Vernal Pool Complex	17,000	Assume this is primarily grassland habitat. Surveys for aquatic habitat described above.															
Steelhead and Chinook salmon																		
	Spawning and juvenile rearing		Habitat quality monitoring described in natural community tab. Redd surveys, carcass, and juvenile density baseline monitoring will be performed on protected and pre-restoration lands. All post-restoration/post-enhancement monitoring is described is "targeted studied" columns. Assume: Three days per year for spawning/redd surveys; three days a year for snorkel/electrofishing surveys.	200		1.1	1.5	3	3	3	-	-	3	1.3	5.8	4.3	4.32	5.1

*Added survey years four and five for vernal pool crustaceans per protocol described in Chapter 7.

Table 6: Environmental Compliance - Permitting

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											TOTAL
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
Capital budget												
Office furniture	-	611	186	149	80	888	155	99	80	451	-	\$2,699
Other equipment and technology	-	164	274	254	236	228	228	236	236	127	127	\$2,108
Capital subtotal	\$0	\$775	\$460	\$403	\$316	\$1,116	\$382	\$335	\$316	\$578	\$127	\$4,807
Operating budget												
Staff salaries and benefits	-	302,500	605,000	605,000	605,000	605,000	605,000	605,000	605,000	302,500	302,500	\$5,142,500
Office space	-	-	-	-	-	-	-	-	-	-	-	\$0
Office equipment, technology, maintenanc	-	2,262	3,786	3,500	3,255	3,144	3,144	3,255	3,255	1,750	1,750	\$29,102
Other reporting and permit fees	-	1,494,600	1,494,600	1,494,600	1,494,600	1,494,600	1,494,600	1,494,600	1,494,600	1,494,600	1,494,600	\$14,946,000
Operations subtotal	-	\$1,799,362	\$2,103,386	\$2,103,100	\$2,102,855	\$2,102,744	\$2,102,744	\$2,102,855	\$2,102,855	\$1,798,850	\$1,798,850	\$20,117,602
TOTAL	\$0	\$1,800,137	\$2,103,847	\$2,103,503	\$2,103,171	\$2,103,860	\$2,103,127	\$2,103,189	\$2,103,171	\$1,799,428	\$1,798,977	\$20,122,410

12%

Assumptions/Notes:

Environmental compliance costs include costs to prepare notifications and reports as well as all necessary application and permitting fees.

Compliance costs are triggered by restoration projects and some projects related to land management.

PCA staff would be responsible for some environmental compliance costs, including managing the permitting process.

PCA staff will conduct cultural resource and archeological surveys and prepare NHPA Section 106 cultural resource reports.

PCA staff will prepare CEQA Categorical Exemptions, NEPA Categorical Exclusions, and Mitigated Negative Declarations.

<i>Program staff</i>	<i>Annual Salary, Benefit Cost & OH per FTE</i>	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Historian/Archeologist/Compliance staff	\$121,000	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5
annual cost		\$0	\$60,500	\$121,000	\$121,000	\$121,000	\$121,000	\$121,000	\$121,000	\$121,000	\$60,500	\$60,500
cost per period		\$0	\$302,500	\$605,000	\$605,000	\$605,000	\$605,000	\$605,000	\$605,000	\$605,000	\$302,500	\$302,500

Office overhead allocation

<i>Environmental Compliance Staff</i>	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Office space cost	-	-	-	-	-	-	-	-	-	-	-
Office furniture per employee - capital	-	611	186	149	80	888	155	99	80	451	-
Office furniture and equipment per employee - operating	-	-	-	-	-	-	-	-	-	-	-
Other equipment, technology - capital	-	164	274	254	236	228	228	236	236	127	127
Other equipment, technology, supplies - operating	-	452	757	700	651	629	629	651	651	350	350
Subtotal Environmental Compliance Overhead (annual cost)	\$0	\$1,227	\$1,218	\$1,103	\$967	\$1,744	\$1,011	\$986	\$967	\$928	\$477
Subtotal Environmental Overhead (period cost)	\$0	\$6,137	\$6,088	\$5,515	\$4,834	\$8,722	\$5,056	\$4,928	\$4,834	\$4,640	\$2,384

Other costs are estimated on a per-project basis. For the purposes of this cost estimate, projects assumed to occur throughout the permit period; 10 percent in each 5-year period.

	Projects over permit term	Projects per period	Percent of projects by size/complexity
Small/Simple	90	9	60%
Medium/More complex	30	3	20%
Large/Most complex	30	3	20%
Total over permit term	150	15	100%

Cost per project to prepare permit notifications and reports by project size/complexity

	USACE Pre-Construction Notification, CWA 401 Water Quality Certification, and CDFG Streambed Alteration	Other, Including NEPA/CEQA	NHPA	Total
Small/Simple	\$10,400	\$36,000	\$10,400	\$56,800
Medium/More complex	\$26,000	\$68,000	\$10,400	\$104,400
Large/Most complex	\$57,000	\$156,000	\$10,400	\$223,400

Assumptions/Notes:

Activities qualify for authorization under one of the following US Army Corps of Engineers Nationwide Permits:

NWP 27: Aquatic Habitat Restoration, Establishment, and Enhancement Activities

NWP 14: Linear Transportation Project (bridges and culverts for road crossings)

NWP 12: Utility Line activities (pipelines, transmission towers, and associated structures)

The cost of conducting wetland delineations is not included under CWA 404/401 compliance. Those costs are included in land acquisition and restoration costs.

Table 7: Plan Administration

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											TOTAL
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
Capital budget												
Office furniture	-	35,131	5,351	4,296	2,300	23,305	4,058	2,597	2,100	21,429	-	\$100,567
Other equipment and technology	-	9,424	7,886	7,291	6,779	5,980	5,980	6,189	6,189	6,023	6,023	\$67,763
Vehicles purchased	-	42,600	-	42,600	-	42,600	-	42,600	-	42,600	-	\$213,000
Capital subtotal	\$0	\$87,155	\$13,237	\$54,187	\$9,079	\$71,884	\$10,037	\$51,387	\$8,289	\$70,051	\$6,023	\$381,330
Operating budget												
Staff salaries and benefits	-	6,750,000	6,750,000	6,750,000	6,750,000	6,090,000	6,090,000	6,090,000	6,090,000	5,535,000	5,535,000	\$62,430,000
Office space	-	-	-	-	-	-	-	-	-	-	-	\$0
Office equipment, technology, maintenance & supplies	-	26,018	21,770	20,127	18,715	16,508	16,508	17,087	17,087	16,627	16,627	\$187,075
Vehicles fuel and maintenance	-	-	-	-	-	-	-	-	-	-	-	\$0
Travel	-	-	-	-	-	-	-	-	-	-	-	\$0
Legal and financial assistance, annual audit	-	-	-	-	-	-	-	-	-	-	-	\$0
Insurance	-	-	-	-	-	-	-	-	-	-	-	\$0
Public safety	-	98,629	212,353	356,274	500,195	681,884	895,255	1,092,219	1,281,658	1,447,008	1,598,748	\$8,164,223
State and Federal agency staff support	-	880,000	775,000	775,000	775,000	775,000	775,000	775,000	775,000	775,000	775,000	\$7,855,000
Operations subtotal	-	\$7,754,647	\$7,759,123	\$7,901,401	\$8,043,910	\$7,563,393	\$7,776,763	\$7,974,306	\$8,163,745	\$7,773,635	\$7,925,375	\$78,636,297
TOTAL	\$0	\$7,841,802	\$7,772,360	\$7,955,588	\$8,052,989	\$7,635,277	\$7,786,801	\$8,025,693	\$8,172,034	\$7,843,686	\$7,931,397	\$79,017,627

Office overhead allocation

<i>Administrative</i>	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Office space cost	-	-	-	-	-	-	-	-	-	-	-
Office furniture per employee - capital	-	7,026	1,070	859	460	4,661	812	519	420	4,286	-
Office furniture and equipment per employee - operating	-	-	-	-	-	-	-	-	-	-	-
Other equipment, technology - capital	-	1,885	1,577	1,458	1,356	1,196	1,196	1,238	1,238	1,205	1,205
Other equipment, technology, supplies - operating	-	5,204	4,354	4,025	3,743	3,302	3,302	3,417	3,417	3,325	3,325
Subtotal Administrative Overhead (annual cost)	\$0	\$14,115	\$7,001	\$6,343	\$5,559	\$9,158	\$5,309	\$5,175	\$5,075	\$8,816	\$4,530
Subtotal Administrative Overhead (period cost)	\$0	\$70,574	\$35,007	\$31,714	\$27,794	\$45,792	\$26,545	\$25,874	\$25,377	\$44,078	\$22,649

Salary and Benefits for Employees (FTE)

<i>Administrative staff</i>	Annual Salary, Benefit Cost & OH per FTE	\$55,500										
		Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Executive Director	\$346,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
IT- Database / GIS Management	\$222,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Budget Analyst	\$233,000	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Acquisition Specialist	\$264,000	-	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
Grant Specialist/Conservation Planner	\$222,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5
Public Outreach / Advocacy	\$222,000	-	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Admin – Secretary	\$124,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total FTE		0.00	5.75	5.75	5.75	5.75	5.25	5.25	5.25	5.25	4.75	4.75
Total annual cost		\$ -	\$ 1,350,000	\$ 1,350,000	\$ 1,350,000	\$ 1,350,000	\$ 1,218,000	\$ 1,218,000	\$ 1,218,000	\$ 1,218,000	\$ 1,107,000	\$ 1,107,000
Total period cost		\$ -	\$ 6,750,000	\$ 6,750,000	\$ 6,750,000	\$ 6,750,000	\$ 6,090,000	\$ 6,090,000	\$ 6,090,000	\$ 6,090,000	\$ 5,535,000	\$ 5,535,000

Vehicles for Plan Administration

FOR CAPITAL BUDGET	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Passenger vehicle - purchased per period	-	2	-	2	-	2	-	2	-	2	-
Passenger vehicle - retired per period	-	-	-	2	-	2	-	2	-	2	-
Passenger vehicle - total per year per period	-	2	2	2	2	2	2	2	2	2	2
Acquisition cost, per period	\$0	\$42,600	\$0								
Maintenance and fuel, per year	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance and fuel, per period	\$0	\$0	\$0								

Assumptions:

Vehicle insurance included in program administration insurance cost factor.

Vehicle cost includes vehicles and fuel, insurance, and maintenance cost per year per vehicle

\$21,300	Vehicles (Administrative)
\$0.00	Fuel, cost included in County overhead cost factor
8,000	Miles per year-vehicles and utility trucks (40 miles/day at 200 days travel within the 260 working days/year)
\$0	maintenance, per passenger vehicle, included in County overhead cost factor

Table 7: Plan Administration

Valley schedule varies by period
2017 dollars **cost variable**

Detail may not add to total due to rounding at various stages of the calculations.

Travel - Costs included in County overhead cost factor

	Miles or Days	Cost per Year
Administrative staff (vehicle/mileage allowance)	-	\$0
Days of overnight travel - Executive Director	-	\$0
Total annual cost		\$0

Assumptions:

\$0.535	cost per mile
\$183	per diem, 2016/17
3	per diem multiplier for executive director to cover additional costs such as air fare

Legal and Financial Analysis Assistance, Annual Financial Audit, per Govt Code

	Period	Period										
		0	1	2	3	4	5	6	7	8	9	10
	Cost per hour/period/year	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50
Legal Assistance (hours per year)	\$360	0	0	0	0	0	0	0	0	0	0	0
Legal Assistance cost per period		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Financial analysis assistance, per period	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Annual financial audit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total cost per period		\$0										

Assumptions:

These costs are included in the County overhead cost factor.

Cost of outside legal counsel or cost of in-house counsel included in county overhead cost factor.

Legal assistance includes cost of legal services required under program administration and land acquisition cost categories.

Financial analyst's review will occur periodically over the course of the plan, at a minimum once every 5 years.

The financial analysis assistance category covers the periodic assistance of a financial analyst to review the program's cost/revenue balance and ensure that charges are adjusted in line with changing land costs and ensure compliance with state requirements on collection of development impact fees.

An annual financial audit of the PCA financial statements by an independent auditor is required by Government Code.

Program Insurance - Costs included in County overhead cost factor

	Cost per year
Directors and officers	\$0
General liability, including automobile insurance	\$0
Professional liability	\$0
Total annual cost	\$0

In-Lieu Funding for Law Enforcement and Fire Fighting

	Cost per acre per year
Total annual cost per acre	\$6.76

Assumptions:

Law enforcement per reserve acre	\$4.16
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Fire fighting funding per reserve acre	\$2.60
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Based on Contra Costa Water District in lieu payments for law enforcement and fire fighting on 20,000 acres of land managed.

State and Federal Agency Staff Support

	Cost per year
Total annual cost, years 1 - 3	\$190,000
Total annual cost, years 4 - 50	\$155,000

Assumptions:

The PCA will fund staff positions at state and federal agencies to assist with implementation.

Annual cost to support CDFW staff position, years 1-3	\$115,000	Annual cost for 0.5 FTE Senior Environmental Scientist Specialist, includes overhead and benefits
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Annual cost to support CDFW staff position, years 4 - 50	\$80,000	Annual cost for 0.5 FTE Environmental Scientist Specialist, including overhead and benefits
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Annual cost to support ACOE staff position	\$75,000
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Table 8: Contingency Fund (not including restoration construction contingency)

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)											
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL
Land acquisition capital budget	\$0	\$26,698,206	\$31,347,498	\$41,368,534	\$41,368,534	\$53,901,838	\$64,415,500	\$58,970,616	\$56,473,593	\$48,479,824	\$43,963,157	\$466,987,299
Land acquisition contingency	\$0	\$1,334,910	\$1,567,375	\$2,068,427	\$2,068,427	\$2,695,092	\$3,220,775	\$2,948,531	\$2,823,680	\$2,423,991	\$2,198,158	\$23,349,365
Restoration capital budget (incl contingenc	\$0	\$9,938,998	\$11,561,498	\$14,852,390	\$14,897,082	\$19,024,557	\$22,412,905	\$20,678,295	\$19,893,501	\$17,382,068	\$15,911,249	\$166,552,543
All other program budget items	\$0	\$19,782,159	\$22,083,441	\$25,969,362	\$28,033,163	\$31,268,942	\$34,911,156	\$36,165,822	\$39,007,301	\$39,635,806	\$41,321,507	\$318,178,657
General operating contingency	\$0	\$593,465	\$662,503	\$779,081	\$840,995	\$938,068	\$1,047,335	\$1,084,975	\$1,170,219	\$1,189,074	\$1,239,645	\$9,545,360
Total contingency, except restoration	\$0	\$1,928,375	\$2,229,878	\$2,847,508	\$2,909,422	\$3,633,160	\$4,268,110	\$4,033,505	\$3,993,899	\$3,613,065	\$3,437,803	\$32,894,725

Assumptions/Notes

Land acquisition contingency 5% percent of acquisition capital costs (land and site improvements) needed for acquisition contingency fund

Operating budget contingency 3% percent of total program budget, exclusive of acquisition capital budget and restoration budget, needed for contingency fund

TABLE 9-3
Post-Permit Implementation Budget (2017 dollars)

Cost Category	Annual Costs	Assumptions
TOTAL BUDGET		
Establish Reserve System	\$0	
Restore, Manage & Monitor Natural Communities	\$0	
Reserve Management/Enhancement	\$1,942,973	
Monitoring, Research, and Scientific Review	\$611,809	
Environmental Compliance	\$0	
Plan Administration	\$732,438	
Contingency Fund	\$0	
Total	\$3,287,220	
CAPITAL BUDGET		
Establish Reserve System	\$0	Acquisition complete during permit term
Restore Natural Communities	\$0	Restoration projects constructed during permit term ^a
Reserve Management/Enhancement	\$74,170	Replacement period doubled
Monitoring, Research, and Scientific Review	\$6,809	Replacement period doubled
Environmental Compliance	\$0	
Plan Administration	\$2,941	
Contingency, Land Acquisition and Site Improvement	\$0	Not required, post permit
Total	\$83,920	
OPERATING BUDGET		
Establish Reserve System	\$0	Acquisition complete during permit term
Restore, Manage & Monitor Natural Communities	\$0	Restoration complete during permit term
Reserve Management/Enhancement	\$1,868,802	Reduced staffing; Reserve planning at 50% of annual cost in year 50; 75% of permit-term management assumed; see Cost Model for detail
Monitoring, Research, and Scientific Review	\$605,000	One-third of long-term monitoring contractor cost in year 50; no change to long-term monitoring on restored wetlands; other obligations reduced
Environmental Compliance	\$0	Not required, post permit
Plan Administration	\$729,498	Reduced staffing plus 100% of per employee cost
Operating Contingency Fund	\$0	Not required, post permit
Total	\$3,203,300	
Average annual cost per reserve acre:	\$69	
Percent of average annual cost years 45 -50:	16%	

Notes:

^a. Funds for remediation of restoration projects (construction completed by year 40) would be available after the permit term, if needed.

Table 9a: Post-Permit Reserve Management and Enhancement on protected and restored lands

2017 dollars cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Post-Permit: Annual	Annual Average Cost Years 46 - 50
Capital budget		
Shared capital purchases (vehicles, equipment, furniture)	6,809	3,072
Field facilities	17,333	-
Fish Barrier Removal/Modification - VALLEY	-	55,120
Fish Barrier Removal/Modification - Foothills	-	35,360
Water supply for grazing - VALLEY	42,213	84,425
Water supply for grazing - Foothills	7,816	15,631
Remedial measures	-	310,616
Capital subtotal	\$74,170	\$504,224
Operating budget		
Field and Technical Oversight (staff)	249,000	421,080
Other shared operating overhead	88,890	59,495
Agricultural advisory services	-	52,000
Field facilities maintenance and utilities	23,400	31,200
Management equipment/tools	22,137	29,515
Reserve management plans	4,160	8,320
Reserve management activities - VALLEY		
Reserve enhancement activities, except in-channel	-	49,320
In-channel enhancement activities	-	76,441
General reserve and site management	188,342	251,123
Wetland and pond maintenance and protection	58,838	78,451
Nonnative animal species control	18,834	25,112
Water supply for rice (cost of water assigned to PCA)	104,901	104,901
Vegetation and fuels management (initial and maintenance)	862,335	1,149,780
Vegetation and fuels management contingency	86,233	na
<i>Subtotal - VALLEY RESERVE MANAGEMENT</i>	<i>\$1,319,484</i>	<i>\$1,735,128</i>
Reserve management activities - Foothills		
Reserve enhancement activities, except in-channel	-	44,432
In-channel enhancement activities	-	42,346
General reserve and site management	29,558	39,410
Wetland and pond maintenance and protection	17,196	22,928
Nonnative animal species control	2,956	3,941
Vegetation and fuels management (initial and maintenance)	101,839	135,785
Vegetation and fuels management contingency	10,184	na
<i>Subtotal - Foothills RESERVE MANAGEMENT</i>	<i>\$161,732</i>	<i>\$288,842</i>
Operations subtotal	\$1,868,802	\$2,625,580
TOTAL	\$1,942,973	\$3,129,804
<i>Reserve management allocation to Valley, based on cost</i>	<i>89%</i>	
<i>Reserve management allocation to Foothills, based on cost</i>	<i>11%</i>	

Assumptions:

Total cost for field and technical oversight staff and associated overhead allocated equally to management and monitoring, post-permit term
 In addition to oversight of management and monitoring contractors, these staff monitor conservation easements and manage/monitor activities on PCA land leased for grazing.

50%	Proportion of shared staff and overhead allocated to reserve management, post permit term
\$17,333	assume twice as long before replacement; i.e., every 30 years instead of every 15 years
0%	Percentage of annual costs for remedial measures, fish barrier removal, and other enhancements that continue post permit term
50%	Percentage of annual capital costs for water supply for grazing that continue post-permit term
0%	Percentage of annual costs for agricultural advisory services that continue post-permit term
50%	Percentage of annual costs for reserve planning that continue post-permit term
100%	Percentage of annual costs for water supply for rice production that continue post-permit term
75%	Percentage of annual costs for all other reserve management activities that continue post-permit term
10%	Post-permit contingency to cover potential incentive payments to ensure on-going grazing for vegetation management

Table 9b: Post-Permit Monitoring, Research, and Scientific Review on protected and restored lands

2017 dollars cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Post-Permit: Annual	Annual Average Cost Years 46 - 50
Capital budget		
Shared capital purchases (vehicles, equipment, furniture)	6,809	3,072
Capital subtotal	\$6,809	\$3,072
Operating budget		
Field and Technical Oversight - staff	249,000	421,080
Other shared operating overhead	88,890	59,495
Natural Community Monitoring - VALLEY Protected Lands	-	587,149
Natural Community Monitoring - Foothills Protected Lands	-	165,906
Natural Community Monitoring - Restored Wetlands	60,442	60,442
Natural Community Monitoring - All Other Restored Lands	-	202,283
Species Monitoring - VALLEY Protected Lands	72,307	289,230
Species Monitoring - Foothills Protected Lands	20,431	81,725
Species Monitoring - VALLEY Restored Lands	90,924	363,697
Species Monitoring - Foothills Restored Lands	23,005	92,021
Targeted Studies	\$0	-
Science Advisors	\$0	26,000
Operations subtotal	\$605,000	\$2,323,027
TOTAL	\$611,809	\$2,326,099

Aquatic Wetland Complex and Riverine/Riparian Complex

Assumptions:

Total cost for field and technical oversight staff and associated overhead allocated equally to management and monitoring, post-permit

50%	Proportion of shared staff and overhead allocated to monitoring
100%	percentage of natural community monitoring cost on restored wetlands that continues post-permit
0%	percentage of other natural community monitoring cost that continues post-permit
25%	percentage of species monitoring cost that continues post-permit

Table 9c: Post-Permit Plan Administration

2017 dollars cost variable
 Detail may not add to total due to rounding at various stages of the calculations.
Vehicles for Plan Administration

FOR CAPITAL BUDGET	Post Permit: Annual
Passenger vehicle - purchased every 10 years	1
Acquisition cost, annualized	\$2,132
Maintenance and fuel, per year	\$0

Assumptions:

Vehicle insurance included in program administration insurance cost factor.
 Vehicle cost includes vehicles and utility trucks and fuel, insurance, and maintenance cost per year per vehicle

\$21,320	Vehicles (Administrative)
\$0.000	Fuel, cost included in County overhead cost factor
8,000	Miles per year-vehicles and utility trucks (40 miles/day at 200 days travel within the 260 working days/year)
\$0	maintenance, per passenger vehicle, included in County overhead cost factor

Travel - Costs included in County overhead cost factor

	Miles or Days	Cost per Year
Administrative staff (vehicle/mileage allowance)	-	\$0
Days of overnight travel - Executive Director	-	\$0
Total annual cost		\$0

Assumptions:

\$0.535	cost per mile	50% Post-permit adjustment: percentage of annual costs in year 50 that continue in perpetuity
\$175	per diem	
3	per diem multiplier for executive director to cover additional costs such as air fare	

Insurance - Costs included in County overhead cost factor

	Cost per year
Directors and officers	\$0
General liability, including automobile insurance	\$0
Professional liability	\$0
Total annual cost	\$0

100%	Post-permit adjustment for auto, general liability, and professional liability insurance: percentage of annual costs in year 50 that continue in perpetuity
0%	Post-permit adjustment for directors' and officers' insurance: percentage of annual costs in year 50 that continue in perpetuity

In-Lieu Funding for Law Enforcement and Fire Fighting

	Cost per acre per year
Total annual cost per acre	\$6.76
Reserve Acres Managed at permit term	47,300

100%	Post-permit adjustment: percentage of annual costs in year 50 that continue in perpetuity
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Assumptions:

Law enforcement per reserve acres \$4.16
 Fire fighting funding per reserve acres \$2.60
 Based on CCWD in lieu payments for law enforcement and fire fighting on 20,000 acres of land managed.

State and Federal Agency Staff Support

	Cost per year
Total annual cost, years 1 - 3	\$119,601
Total annual cost, years 4 - 50	\$65,000

0%	Post-permit adjustment: percentage of annual costs in year 50 that continue in perpetuity
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Assumptions:

The PCA will fund staff positions at state and federal agencies to assist with implementation

Annual cost to support CDFW staff position, years 1-3	\$119,601
Annual cost to support CDFW staff position, years 4 - 50	\$65,000
Annual cost to support ACOE staff position	\$78,000

Table 10a: Staffing Plan

Valley schedule varies by period

2017 dollars

cost variable

Full-Time Equivalent (FTE) Staffing	Permit Period (years)											POST PERMIT
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	
<i>Plan Administration</i>												
Executive Director (Deputy Director Planning)	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
IT- Database / GIS Management (GIS Analyst II)	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
Budget Analyst (Senior ASO)	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-
Acquisition Specialist (Property Manager)	-	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	-
Conservation Planner/Grant Specialist (Senior Planner)	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	-
Public Outreach / Advocacy	-	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-
Admin – Secretary (Admin Secretary)	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.50
Total Plan Administration Staff (FTE)	0.0	5.75	5.75	5.75	5.75	5.25	5.25	5.25	5.25	4.75	4.75	1.50
<i>Field and Technical</i>												
Senior Scientist	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Reserve/Project Manager (Project Manager)	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Wetland Biologist (Senior Planner)	-	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	-
Technical Staff (Senior Technician)	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
Reserve Maintenance Staff (Parks & Grounds Worker)	-	1.0	2.0	3.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Total Field and Technical Staff (FTE)	-	4.0	5.5	6.5	7.5	8.5	8.5	8.0	8.0	8.0	8.0	3.0
<i>Environmental Compliance</i>												
Historian/Archeologist/Compliance Planner (Museum Curator)	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	-
Total Environmental Compliance Staff (FTE)	0.0	0.5	1.0	0.5	0.5	0.0						
GRAND TOTAL STAFF (FTE)	-	10.25	12.25	13.25	14.25	14.75	14.75	14.25	14.25	13.25	13.25	4.50

Assumptions/Notes:

Field and Technical staff costs are allocated equally across three categories: restoration, reserve management, and monitoring.

Historian/Archeologist/Compliance Planner staff allocated to the Environmental Compliance category.

All other staff allocated to Plan administration.

Table 10b: Shared Field and Technical Staff and Overhead

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

	Permit Period (years)												POST PERMIT: Annual
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	TOTAL	
Capital budget													
Office furniture	-	24,439	5,118	4,857	3,000	37,731	6,569	3,958	3,200	36,091	-	\$124,963	498
Other equipment and technology	-	6,556	7,543	8,242	8,842	9,681	9,681	9,432	9,432	10,143	10,143	\$89,695	1,120
Vehicles purchased	-	120,000	8,300	66,000	44,700	120,000	44,700	66,000	36,400	120,000	36,400	\$662,500	12,000
Capital subtotal	\$0	\$150,995	\$20,961	\$79,098	\$56,542	\$167,413	\$60,951	\$79,389	\$49,032	\$166,234	\$46,543	\$877,159	\$13,618
Operating budget													
Staff salaries and benefits	-	3,775,000	4,910,000	5,585,000	6,260,000	6,935,000	6,935,000	6,380,000	6,380,000	6,380,000	6,380,000	\$59,920,000	498,000
Office space	-	-	-	-	-	-	-	-	-	-	-	\$0	-
Office equipment, technology, maintenance & suppli	-	18,100	20,824	22,752	24,411	26,727	26,727	26,038	26,038	28,003	28,003	\$247,623	3,092
Vehicles fuel and maintenance	-	-	-	-	-	-	-	-	-	-	-	\$0	-
Leased vehicles and equipment	-	46,404	102,898	179,578	256,257	358,183	481,286	593,422	700,528	791,532	873,438	\$4,383,525	174,688
Travel	-	-	-	-	-	-	-	-	-	-	-	\$0	-
Operations subtotal	\$0	\$3,839,503	\$5,033,722	\$5,787,330	\$6,540,668	\$7,319,910	\$7,443,014	\$6,999,460	\$7,106,566	\$7,199,535	\$7,281,441	\$64,551,148	\$675,780
TOTAL	\$0	\$3,990,498	\$5,054,683	\$5,866,428	\$6,597,210	\$7,487,323	\$7,503,965	\$7,078,849	\$7,155,597	\$7,365,769	\$7,327,984	\$65,428,307	

Salary and Benefits for Full Time Equivalent (FTE) Staffing

Field and Technical	Annual Salary, Benefit Cost & OH per FTE	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	POST PERMIT: Annual
Senior Scientist	\$272,000	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Reserve/Project Manager	\$184,000	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Wetland Biologist	\$222,000	-	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	-
Technical Staff	\$170,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
Reserve Maintenance Staff	\$135,000	-	1.0	2.0	3.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0
Total staff (FTE)		0.0	4.0	5.5	6.5	7.5	8.5	8.5	8.0	8.0	8.0	8.0	3.0
Total annual cost		\$ -	\$ 755,000	\$ 982,000	\$ 1,117,000	\$ 1,252,000	\$ 1,387,000	\$ 1,387,000	\$ 1,276,000	\$ 1,276,000	\$ 1,276,000	\$ 1,276,000	\$ 498,000
Total period cost		\$ -	\$ 3,775,000	\$ 4,910,000	\$ 5,585,000	\$ 6,260,000	\$ 6,935,000	\$ 6,935,000	\$ 6,380,000	\$ 6,380,000	\$ 6,380,000	\$ 6,380,000	

Office overhead allocation

Field and Technical	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50	POST PERMIT: Annual
Office space cost	-	-	-	-	-	-	-	-	-	-	-	-
Office furniture per employee - capital	-	4,888	1,024	971	600	7,546	1,314	792	640	7,218	-	498
Office furniture and equipment per employee - operating	-	-	-	-	-	-	-	-	-	-	-	-
Other equipment, technology - capital	-	1,311	1,509	1,648	1,768	1,936	1,936	1,886	1,886	2,029	2,029	1,120
Other equipment, technology, supplies - operating	-	3,620	4,165	4,550	4,882	5,345	5,345	5,208	5,208	5,601	5,601	3,092
Subtotal Field & Technical Overhead (annual cost)	\$0	\$9,819	\$6,697	\$7,170	\$7,251	\$14,828	\$8,596	\$7,885	\$7,734	\$14,847	\$7,629	\$4,710
Subtotal Field & Technical Overhead (period cost)	\$0	\$49,095	\$33,485	\$35,851	\$36,253	\$74,140	\$42,978	\$39,427	\$38,669	\$74,237	\$38,146	

Travel - Costs included in County overhead cost factor

	Miles or Days	Cost per Year
Days of overnight travel - Senior Scientist	-	\$0
Days of overnight travel - Reserve Manager	-	\$0
Assumptions:	50%	

Post-permit adjustment: percentage of annual costs in year 50 that continue in perpetuity

\$183 per diem

Table 10b: Shared Field and Technical Staff and Overhead

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations.

FOR CAPITAL BUDGET	Permit Period (years)												Post Permit, per 10 year period
	Start Up	1 - 5	6 - 10	11 -15	16 - 20	21 -25	26 - 30	31 -35	36 - 40	41 - 45	46 - 50		
Passenger vehicle - purchased per period	-	1	-	1	-	1	-	1	-	1	-	1	1
Passenger vehicle - retired per period	-	-	-	1	-	1	-	1	-	1	-	1	-
Passenger vehicle - total per year per period	-	1	1	1	1	1	1	1	1	1	1	1	1
4WD pick up truck - purchased per period	-	1	-	1	1	1	1	1	1	1	1	1	1
4WD pick up truck - retired per period	-	-	-	1	-	1	-	1	-	1	-	1	-
4WD pick up truck - total per year per period	-	1	1	1	2	2	2	2	2	2	2	2	2
ATVS and trailers - purchased per period	-	1	1	1	1	1	1	1	1	-	1	-	1
ATVS and trailers - retired per period	-	-	-	1	1	1	1	1	1	1	-	-	-
ATVS and trailers - total per year per period	-	1	2	2	2	2	2	2	2	1	1	1	1
Portable generator - purchased per period	-	1	-	-	-	1	-	-	-	-	1	-	1
Portable generator - retired per period	-	-	-	-	-	1	-	-	-	-	1	-	-
Portable generator - total per year per period	-	1	1	1	1	1	1	1	1	1	1	1	1
Acquisition cost, per period	\$0	\$120,000	\$8,300	\$66,000	\$44,700	\$120,000	\$44,700	\$66,000	\$36,400	\$120,000	\$36,400	\$12,000	\$12,000
Maintenance and fuel, per year	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance and fuel, per period	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Leased vehicles and equipment annual cost	\$0	\$9,281	\$20,580	\$35,916	\$51,251	\$71,637	\$96,257	\$118,684	\$140,106	\$158,306	\$174,688	\$174,688	\$174,688
Leased vehicles and equipment per period cost	\$0	\$46,404	\$102,898	\$179,578	\$256,257	\$358,183	\$481,286	\$593,422	\$700,528	\$791,532	\$873,438	\$873,438	\$873,438

Assumptions:

Vehicle insurance included in plan administration insurance cost factor.

Vehicle cost includes vehicles and fuel, insurance, and maintenance cost per year per vehicle

Cost of 4WD truck includes vehicle, fire pumper, chain saw, sprayer, and small tool set.

\$21,300	Passenger vehicles (Field & Technical)
\$36,400	4 WD Pickup Truck
\$8,300	ATVs and trailers
\$54,000	Portable generator
\$0.00	Fuel, included in County overhead cost factor
8,000	Miles per year-vehicles and utility trucks (40 miles/day at 200 days travel within the 260 working days/year)
4,000	Miles per year - ATVs (20 miles/day at 200 days travel within the 260 working days/year)
\$0	annual maintenance, per passenger vehicle, included in County overhead cost factor
\$0	annual maintenance, per 4WD pickup, included in County overhead cost factor
\$0	annual maintenance, per ATV/trailer, included in County overhead cost factor

Leased vehicles and equipment, used on land held in fee title for active management	Average days of use per 1,000 acres per year	Rental Cost per Day	Rental Cost per Year per 1,000 ac.
Tractor	8	\$260	\$2,080
Small Tractor	8	\$160	\$1,280
Dump Truck	5	\$310	\$1,550
Fire Truck	5	\$210	\$1,050
			\$5,960

100% Post-permit adjustment: percentage of cost that continues beyond permit term

Shared staff allocations	Permit Term	Post Permit
Restoration	33%	0%
Management	33%	50%
Monitoring	33%	50%

Table 10c: Overhead Costs Allocated per Staffing Plan (Full-Time Equivalent)

Valley schedule varies by period

2017 dollars

cost variable

Detail may not add to total due to rounding at various stages of the calculations

	Permit Period (years)												POST PERMIT: Annual
	Start Up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50		
<i>Office overhead allocation</i>													
<i>Administrative</i>													
Office space cost	-	-	-	-	-	-	-	-	-	-	-	-	-
Office furniture per employee - capital	-	7,026	1,070	859	460	4,661	812	519	420	4,286	-	-	249
Office furniture and equipment per employee - operating	-	-	-	-	-	-	-	-	-	-	-	-	-
Other equipment, technology - capital	-	1,885	1,577	1,458	1,356	1,196	1,196	1,238	1,238	1,205	1,205	-	560
Other equipment, technology, supplies - operating	-	5,204	4,354	4,025	3,743	3,302	3,302	3,417	3,417	3,325	3,325	-	1,546
Subtotal Administrative Overhead (annual cost)	\$0	\$14,115	\$7,001	\$6,343	\$5,559	\$9,158	\$5,309	\$5,175	\$5,075	\$8,816	\$4,530	\$2,355	
Subtotal Administrative Overhead (period cost)	\$0	\$70,574	\$35,007	\$31,714	\$27,794	\$45,792	\$26,545	\$25,874	\$25,377	\$44,078	\$22,649		
<i>Field and Technical</i>													
Office space cost	-	-	-	-	-	-	-	-	-	-	-	-	-
Office furniture per employee - capital	-	4,888	1,024	971	600	7,546	1,314	792	640	7,218	-	-	498
Office furniture and equipment per employee - operating	-	-	-	-	-	-	-	-	-	-	-	-	-
Other equipment, technology - capital	-	1,311	1,509	1,648	1,768	1,936	1,936	1,886	1,886	2,029	2,029	-	1,120
Other equipment, technology, supplies - operating	-	3,620	4,165	4,550	4,882	5,345	5,345	5,208	5,208	5,601	5,601	-	3,092
Subtotal Field & Technical Overhead (annual cost)	\$ -	\$ 9,819	\$ 6,697	\$ 7,170	\$ 7,251	\$ 14,828	\$ 8,596	\$ 7,885	\$ 7,734	\$ 14,847	\$ 7,629	\$ 4,710	
Subtotal Field & Technical Overhead (period cost)	\$0	\$49,095	\$33,485	\$35,851	\$36,253	\$74,140	\$42,978	\$39,427	\$38,669	\$74,237	\$38,146		
<i>Environmental Compliance</i>													
Office space cost	-	-	-	-	-	-	-	-	-	-	-	-	-
Office furniture per employee - capital	-	611	186	149	80	888	155	99	80	451	-	-	-
Office furniture and equipment per employee - operating	-	-	-	-	-	-	-	-	-	-	-	-	-
Other equipment, technology - capital	-	164	274	254	236	228	228	236	236	127	127	-	-
Other equipment, technology, supplies - operating	-	452	757	700	651	629	629	651	651	350	350	-	-
Subtotal Environmental Compliance Overhead (annual cost)	\$ -	\$ 1,227	\$ 1,218	\$ 1,103	\$ 967	\$ 1,744	\$ 1,011	\$ 986	\$ 967	\$ 928	\$ 477	\$ -	
Subtotal Environmental Compliance Overhead (period cost)	\$0	\$6,137	\$6,088	\$5,515	\$4,834	\$8,722	\$5,056	\$4,928	\$4,834	\$4,640	\$2,384		

Assumptions/Notes:

Field and technical staff and overhead allocated equally to reserve management, restoration, and monitoring (1/3 to each cost category). See Shared Staff and Overhead

Salary and Benefits per Full-Time Equivalent (FTE) Staff

	Annual Salary, Benefit and OH Cost per FTE	Permit Period (years)												POST PERMIT: Annual
		Start Up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50		
<i>Plan Administration</i>														
Executive Director (Deputy Director Planning)	\$333,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
IT- Database / GIS Management (GIS Analyst II)	\$213,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	
Budget Analyst (Senior ASO)	\$224,000	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	
Acquisition Specialist (Property Manager)	\$254,000	-	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	-	
Conservation Planner/Grant Specialist (Senior Planner)	\$213,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	-	
Public Outreach / Advocacy	\$213,000	-	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-	
Admin – Secretary (Admin Secretary)	\$119,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	
Total staff (FTE)		0.00	5.75	5.75	5.75	5.75	5.25	5.25	5.25	5.25	4.75	4.75	1.50	
Total annual cost		\$0	\$1,297,250	\$1,297,250	\$1,297,250	\$1,297,250	\$1,170,250	\$1,170,250	\$1,170,250	\$1,170,250	\$1,063,750	\$1,063,750	\$392,500	
Total period cost		\$0	\$6,486,250	\$6,486,250	\$6,486,250	\$6,486,250	\$5,851,250	\$5,851,250	\$5,851,250	\$5,851,250	\$5,318,750	\$5,318,750		
<i>Field and Technical</i>														
Senior Scientist	\$262,000	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Reserve/Project Manager (Project Manager)	\$177,000	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	
Wetland Biologist (Senior Planner)	\$213,000	-	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	-	
Technical Staff (Senior Technician)	\$163,000	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	
Reserve Maintenance Staff (Parks & Grounds Worker)	\$130,000	-	1.0	2.0	3.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	
Total staff (FTE)		-	4.0	5.5	6.5	7.5	8.5	8.5	8.0	8.0	8.0	8.0	3.0	
Total annual cost		\$0	\$725,500	\$944,000	\$1,074,000	\$1,204,000	\$1,334,000	\$1,334,000	\$1,227,500	\$1,227,500	\$1,227,500	\$1,227,500	\$479,500	
Total period cost		\$0	\$3,627,500	\$4,720,000	\$5,370,000	\$6,020,000	\$6,670,000	\$6,670,000	\$6,137,500	\$6,137,500	\$6,137,500	\$6,137,500		
<i>Environmental Compliance</i>														
Historian/Archeologist/Compliance staff (Museum Curator)	\$121,000	-	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	-	
Total staff (FTE)		0.0	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.0	
Total annual cost		\$0	\$60,500	\$121,000	\$121,000	\$121,000	\$121,000	\$121,000	\$121,000	\$121,000	\$60,500	\$60,500	\$0	
Total period cost		\$0	\$302,500	\$605,000	\$605,000	\$605,000	\$605,000	\$605,000	\$605,000	\$605,000	\$302,500	\$302,500		

Assumption:

FTE compensation includes benefits at 35% of total compensation, per BLS Employer Costs for Employee Compensation, 2004 - 2012 (state and local government)

Office Space

	Cost psf/month	Start Up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	POST PERMIT: Annual	Post Permit Adjustment
Lease space (square feet)	\$0.00	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	-	0%
Total annual cost	\$0.00	\$0												
Total period cost		\$0												

Assumptions:

Covers office space for Plan Administration, Field and Technical, and Environmental Compliance staff. Included in Annual Salary, Benefit and Overhead Cost per FTE.

Table 10c: Overhead Costs Allocated per Staffing Plan (Full-Time Equivalent)

Valley schedule varies by period

2017 dollars cost variable

Detail may not add to total due to rounding at various stages of the calculations Permit Period (years)

FOR CAPITAL BUDGET

Office Furniture and Equipment by Employee

	Cost per unit	Start Up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	POST PERMIT: Annual	Post Permit Adjustment
Total FTEs		0.0	10.3	12.3	13.3	14.3	14.8	14.8	14.3	14.3	13.3	13.3	4.5	
Common office furniture (replace every 20 years/40 yrs post perm)	\$4,200	\$0	\$4,200	\$0	\$4,200	\$0	\$4,200	\$0	\$4,200	\$0	\$4,200	\$0	\$105	assume twice as long before replacement
Cubicle workstation (replace every 20 yrs/40 yrs post perm)	\$5,700	\$0	\$58,425	\$11,400	\$5,700	\$5,700	\$61,275	\$11,400	\$2,850	\$5,700	\$55,575	\$0	\$641	
Office supplies (replace every year)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	100%
Computers (replace every 3 years)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	100%
Cell phones (replace every 2 years)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	100%
Cell phone service per year	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	100%
Total period cost		\$0	\$62,625	\$11,400	\$9,900	\$5,700	\$65,475	\$11,400	\$7,050	\$5,700	\$59,775	\$0	\$746	

Assumptions:
Office furniture for Plan Administration, Field and Technical, and Environmental Compliance staff. Allocate proportional to FTE. Cost for Equipment and supplies included in Annual Salary, Benefit, and Overhead Cost per FTE.

Office Equipment and Technology - Capital

	Cost per unit	Replacement period (years)	Cost per period
Color printer/copier/scanner (2 per period)	\$0	5	\$0
Fax machine (2 per period)	\$0	5	\$0
Digital cameras (4 per period)	\$0	3	\$0
Portable radios (2 per period)	\$0	5	\$0
Gimbal mounted HD camera (2 per period)	\$1,200	5	\$2,400
GIS/CAD database server	\$5,200	5	\$5,200
Tablet PC	\$0	3	\$0
Plotter	\$14,600	8	\$9,200
GPS units (2 per period)	\$0	5	\$0
Total cost per period			\$16,800

50% Post-permit adjustment: percentage of cost that continues beyond permit term

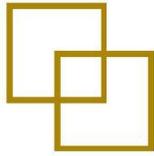
Unless otherwise noted, costs are included in Salary, Benefit, and Overhead Cost Factor per FTE \$3,360

Technology Equipment/Services, Supplies and Maintenance - Operating

	Cost per unit	Replacement period (years)	Cost per period
Office telephone system (annual lease)	\$0		\$ -
GIS/CAD software	\$18,700	5	\$18,700
Database and other software	\$0	3	\$0
Annual budget for public outreach materials	\$5,200	1	\$26,000
Publications, subscriptions, memberships, annual	\$0		\$ -
Cost per period			\$ 44,700
Maintenance for office equipment and technology (10% total cost)			\$1,680
Total cost per period			\$46,380

50% Post-permit adjustment: percentage of cost that continues beyond permit term

Assumptions:
Unless otherwise noted, costs are included in Salary, Benefit, and Overhead Cost Factor per FTE. \$9,276



**BENDER
ROSENTHAL, INC.**

COMMERCIAL VALUATION AND RIGHT OF WAY SERVICES

4400 Auburn Boulevard, Suite 102
Sacramento, CA 95841
main: 916.978.4900 • fax: 916.978.4904
www.benderrosenthal.com

February 22, 2017

Sally E. Nielsen
Hausrath Economics Group
1212 Broadway Suite 1500
Oakland, California 94612

Re: Land Value Trends
Placer County Conservation Plan (PCCP)

Dear Ms. Nielsen:

At your request, we have researched land value trends for various property types (notably, agricultural and rural residential) within the Placer County Conservation Plan (PCCP). Note this analysis/discussion excludes properties designated for near-term development.

Our research for agricultural land use trends primarily focused on information contained within the *Trends in Agricultural Land and Lease Values* publication(s) prepared by the California Chapter of the American Society of Farm Managers and Rural Appraisers. We researched the most recent 5 and 10 years of data from these publications, and the publications utilize data obtained from the preceding year. For example, the 2016 edition utilizes data from the 2015 calendar year. Note that the publications generally combine the market area of Western Placer County with other similar market areas such as South Sutter, Solano and Yolo Counties, and the data presented is comprised from these combined market regions. However, the data is still considered highly representative of agricultural land value trends within the PCCP.

Our research for rural residential land use trends primarily focused on information provided by the Sacramento Metro Listing Service (MLS).

The results of our research are presented on the following pages. The predominant property types within the PCCP are discussed within each section that follows.

EXECUTIVE SUMMARY

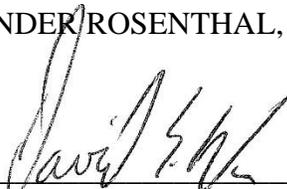
The following bullet points summarize our major findings for land value trends in Placer County in recent years:

- Rice crop land, irrigated field crop land and vegetable crop land have all experienced substantial price appreciation over the past 5 years, with the highest rates of appreciation observed for vegetable crop land. Nonetheless, appreciation figures over the last 10 years, while healthy, are lower than those observed over the last 5 years. Historical 10-year price appreciation for these property types in Placer County have ranged from about 4% to 10% per year, on a compound basis. (See Attachment A)
- Walnut crop land has increased substantially over the past 5 years in Placer County, at about 23% on an annual compound basis. Over the past 10 years, however, the rate of appreciation has been about 9% on an annual compound basis. A sharp decline in walnut prices was observed in last 2015/early 2016, which will likely moderate price gains in the supporting land market. (See Attachment B)
- Vineyard land prices have increased at an average of 4% to 5% on an annual compound basis over the past 5 and 10 years, respectively, with less fluctuation observed relative to other agricultural land types. (See Attachment B)
- Rangeland values have increased substantially over the past 5 years, at about 25% per year (compounded), but to a lesser degree of 3% per year over the past 10 years. (See Attachment C)
- Rural residential land prices have moderately increased at about 4% per year since 2012, in line with historical averages for the region. (See Attachment F)

In summary, many agricultural property types have experienced rapid appreciation over the past 5 years, but this is a trend that is at risk to continue in the intermediate to longer terms, given the tendency to revert back to historical mean appreciation levels. Over the last 10 years, agricultural land prices have typically trended upward about 3% to 10% per year. Rural residential land prices have trended upward within this general range as well, at 4% per year. Moderate levels of appreciation within these general ranges are expected over the long term for both property types in the PCCP area.

Sincerely,

BENDER ROSENTHAL, INC.



David B. Wraa, MAI, ARA, AI-GRS
California Certified General
Real Estate Appraiser
Certificate No. AG023713



Justin E. Kobilis, MAI
California Certified General
Real Estate Appraiser
Certificate No. AG044370

ATTACHMENT A:

IRRIGATED FIELD CROP / VEGETABLE CROP / RICE LAND VALUE TRENDS

Land value trends for irrigated field crop, vegetable crop and rice land over the last five years in Western Placer County and nearby similar market areas are summarized as follows, per information contained within the *Trends in Agricultural Land and Lease Values* publication(s) prepared by the California Chapter of the American Society of Farm Managers and Rural Appraisers:

2011 (2010 data)

- Rice
 - Stable values
 - Strong world-wide prices
 - Demand fairly strong

2012 (2011 Data)

- Irrigated Field Crops
 - Steady to increasing movement
 - Land near urban areas – decreased

2013 (2012 Data)

- Irrigated Field Crops/Rice
 - Stable to increasing values
 - Strong demand
 - Strong commodity prices

2014 (2013 Data)

- Irrigated Field Crops
 - Stable to increasing values
 - Strong demand
 - Strong commodity prices

2015 (2014 Data)

- Irrigated Field Crops
 - Increasing values
 - Strong demand
 - Strong commodity prices
 - Moving towards permanent plantings

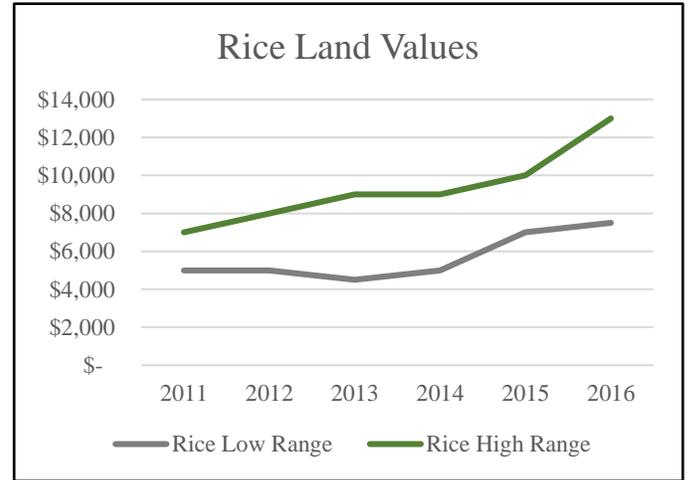
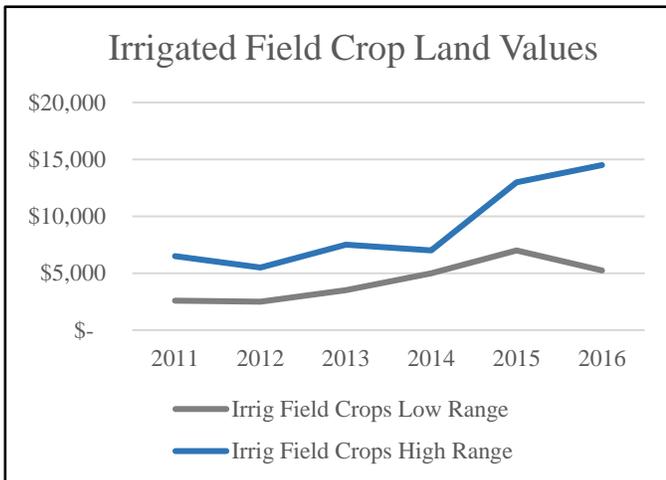
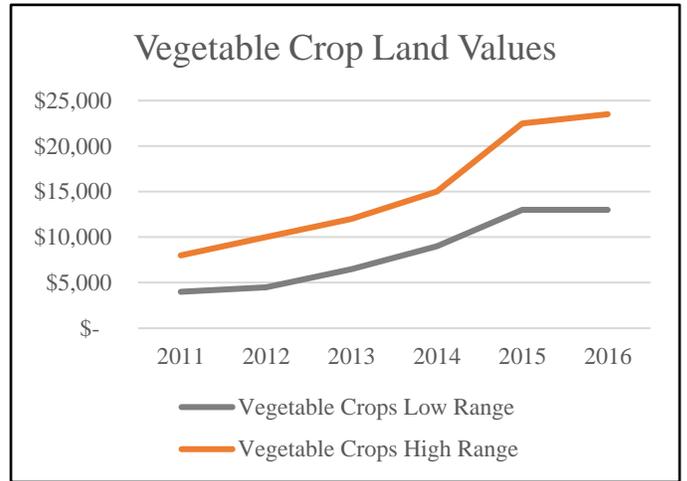
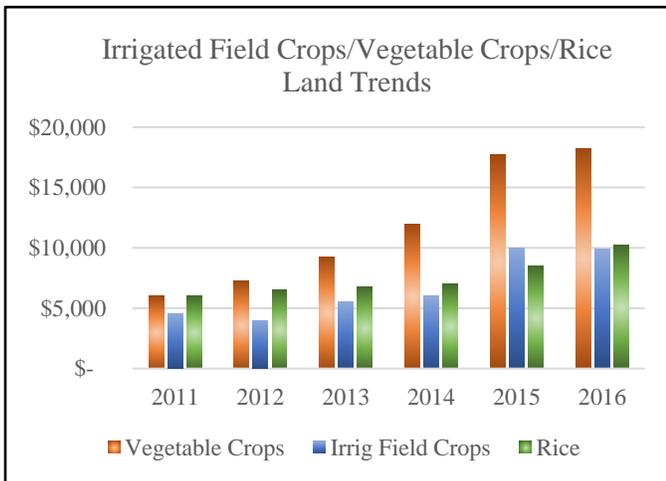
2016 (2015 Data)

- Rice
 - Limited sales
 - Stable values
 - Demand strong (for properties suitable to permanent plantings)
 - Price loss coverage (PLC) program popular among farmers due to drought conditions
- Irrigated Cropland
 - Strong demand (for properties suitable to permanent plantings)
 - Stable values
 - Limited supply
 - Stable to increasing value trend

ATTACHMENT A:

IRRIGATED FIELD CROP / VEGETABLE CROP / RICE LAND VALUE TRENDS
(CONT.)

MEDIAN PRICE PER ACRE						
Year	Rice	% Change	Irrig Field Crops	% Change	Vegetable Crops	% Change
2011	\$6,000	-	\$4,550	-	\$6,000	-
2012	\$6,500	8.33%	\$4,000	-12.09%	\$7,250	20.83%
2013	\$6,750	3.85%	\$5,500	37.50%	\$9,250	27.59%
2014	\$7,000	3.70%	\$6,000	9.09%	\$12,000	29.73%
2015	\$8,500	21.43%	\$10,000	66.67%	\$17,750	47.92%
2016	\$10,250	20.59%	\$9,875	-1.25%	\$18,250	2.82%



ATTACHMENT A:

IRRIGATED FIELD CROP / VEGETABLE CROP / RICE LAND VALUE TRENDS
(CONT.)

As shown by the data on the preceding page, rice land values in the market area increased each year from 2011 into 2016, with substantial increases from 2014 into 2015 and from 2015 into 2016. The most recent median sale price of \$10,250 per acre is the highest figure observed in the data set. The difference in rice land value from \$6,000 per acre in 2011 to \$10,250 per acre in 2016 implies an increase of 71% over the five-year period, or about 14% per year on a straight-line basis. The compound rate of price appreciation is estimated at 11% per year over the last five years.

Irrigated field crop pricing has shown more of a fluctuating pattern, with a decline from 2011 into 2012, followed by increases over the next three years into 2015, and a stable/flat pattern from 2015 into 2016. The most recent median sale price of \$9,875 per acre is the second highest figure in the data set, slightly lower than the 2015 figure of \$10,000 per acre. The difference in irrigated field crop pricing from \$4,550 per acre in 2011 to \$9,875 per acre observed in 2016 implies an increase of 117% over a five-year period, or about 23% per year. The compound rate of price appreciation is estimated at 17% per year over the last five years.

Finally, vegetable crop pricing increased substantially each year from 2011 into 2015, with the largest increase in pricing observed from 2014 into 2015. Pricing has been generally stable/flat over the past year (2015 into 2016). The most recent median sale price of \$18,250 per acre is the highest figure in the data set. The difference in vegetable crop pricing from \$6,000 per acre in 2011 to \$18,250 per acre in 2016 implies an increase of 204% over a five-year period, or about 41% per year. The compound rate of price appreciation is estimated at 25% per year over the last five years.

As shown, price growth has been fairly robust for irrigated field crop, vegetable crop and rice land over the last five years, and has coincided with the general increase in the underlying commodity prices. Nonetheless, the recent substantial increases in land pricing are at risk to continue over the longer term (10+ years), as price trends tend to revert to their historical mean levels. For example, in 2006, median sale prices for land of rice crop, irrigated field crop and vegetable crop were \$4,000, \$6,800 and \$8,000 per acre, respectively. Trending these figures to the 2016 figures implies annual straight-line appreciation rates of 16% for rice crop land, 5% for irrigated field crop land and 13% for vegetable crop land. The implied annual compound rates of growth are 10%, 4% and 9%, respectively. As such, while price appreciation has been fairly robust over the last five years, there is a high likelihood of moderation of this trend in the intermediate to longer terms (5 to 10 years and beyond).

ATTACHMENT B:

WALNUT / ALMOND / VINEYARD LAND VALUE TRENDS

Land value trends for walnut, almond and vineyard land over the last five years in Western Placer County and nearby similar market areas are summarized as follows, per information contained within the *Trends in Agricultural Land and Lease Values* publication(s) prepared by the California Chapter of the American Society of Farm Managers and Rural Appraisers:

2011 (2010 data)

- Walnuts
 - Stable demand
 - Very few sales
 - Stable value
- Almonds
 - Few sales
 - Stable value

2012 (2011 Data)

- Walnuts and Almonds
 - Strong market
 - Values increasing
- Vineyards
 - Few sales
 - Values stable to increasing

2013 (2012 Data)

- Walnuts / Almonds / Vineyards
 - Good demand
 - High commodity prices
 - Limited sales

2014 (2013 Data)

- Walnuts / Almonds / Vineyards
 - Good demand
 - Good commodity prices
 - Few sales

2015 (2014 Data)

- Walnuts / Almonds / Vineyards
 - Good demand
 - High nut prices
 - Few sales

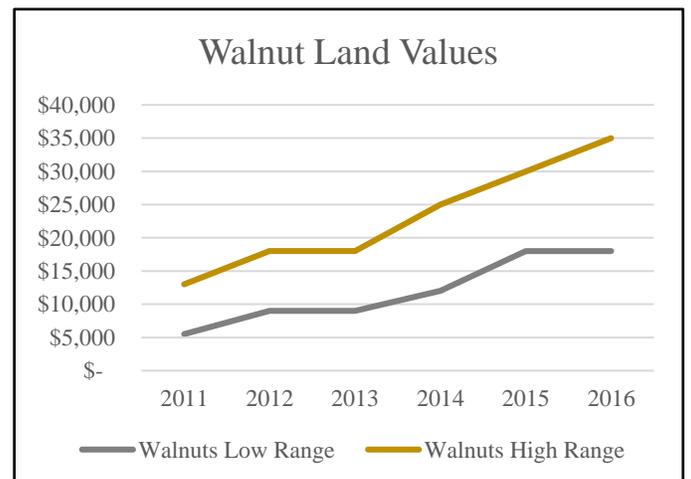
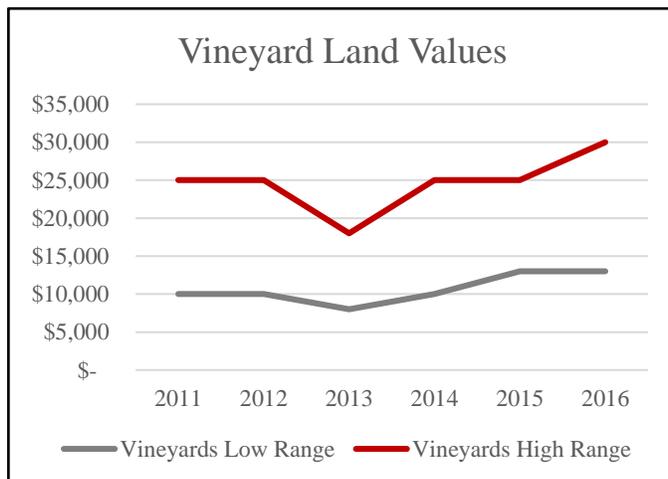
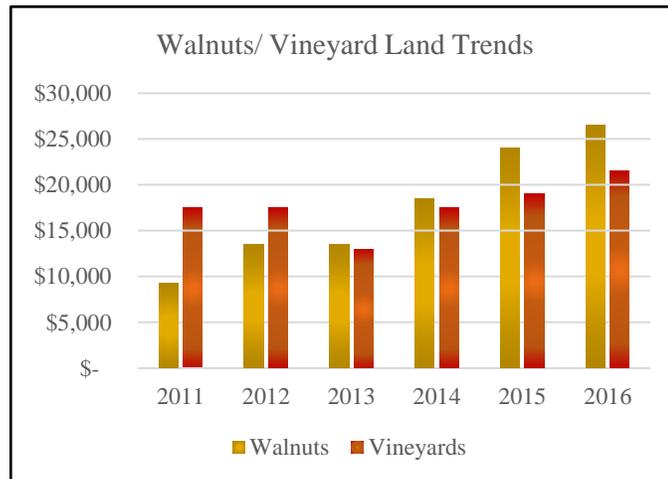
2016 (2015 Data)

- Walnuts
 - Active market
 - High commodity prices
 - Minimal supply
 - Good demand
- Almonds
 - Strong demand
 - Limited supply
- Vineyard
 - Good demand

ATTACHMENT B:

WALNUT / ALMOND / VINEYARD LAND VALUE TRENDS (CONT.)

MEDIAN PRICE PER ACRE				
Year	Walnuts	% Change	Vineyards	% Change
2011	\$ 9,250	-	\$ 17,500	-
2012	\$ 13,500	45.95%	\$ 17,500	0.00%
2013	\$ 13,500	0.00%	\$ 13,000	-25.71%
2014	\$ 18,500	37.04%	\$ 17,500	34.62%
2015	\$ 24,000	29.73%	\$ 19,000	8.57%
2016	\$ 26,500	10.42%	\$ 21,500	13.16%



ATTACHMENT B:

WALNUT / ALMOND / VINEYARD LAND VALUE TRENDS (CONT.)

As shown by the data on the preceding page, walnut land values in the market area increased in 4 out of 5 years from 2011 to 2016, with substantial increases from 2011 into 2012, 2013 into 2014 and 2014 into 2015. The most recent median sale price of \$26,500 per acre is the highest figure observed in the data set. The difference in walnut land value from \$9,250 per acre in 2011 to \$26,500 per acre in 2016 implies an increase of 186% over the five-year period, or about 37% per year on a straight-line basis. The compound rate of price appreciation is estimated at 23% per year over the last five years.

Strong walnut prices over the past five years have boosted revenues for California walnut growers. However, they also triggered a spike in new plantings, leading to a record 2015 harvest and a sharp decline in prices. Market participants are generally expecting prices to remain more subdued throughout the next few years. The majority of growers will still be profitable, but not as profitable as in previous years.

The reader should note that in 2006, walnut land was transferring at a median sale price of \$11,000 per acre in the market area. As such, from 2006 to 2016 (10 years), the annual rate of price appreciation on a straight-line basis is estimated at 14%. The compound rate of price appreciation is estimated at 9%. These figures are lower than those observed over the last five years, but still show a fairly healthy market for walnut land over a longer time period.

Vineyard land prices have generally been in an increasing pattern over the last few years, following a decline from 2012 into 2013. The most recent median sale price of \$21,500 per acre is the highest figure in the data set. The difference in vineyard land value from \$17,500 per acre in 2011 to \$21,500 per acre in 2016 implies an increase of 23% over the last five years, or about 5% per year on a straight-line basis. The compound rate of price appreciation is estimated at 4%.

The reader will note that in 2006, vineyard land was transferring at a median sale price of \$13,250 per acre. As such, from 2006 to 2016 (10 years), the annual rate of price appreciation on a straight-line basis is estimated at 6%. The compound rate of price appreciation is estimated at 5%. Both figures are relatively similar to those observed over the last five years.

Note that almond prices are not tracked by the publication given the relatively smaller number of properties devoted to this use within the market area.

ATTACHMENT C:

RANGELAND VALUE TRENDS

Land value trends for rangeland over the last five years in Western Placer County and nearby similar market areas are summarized as follows, per information contained within the *Trends in Agricultural Land and Lease Values* publication(s) prepared by the California Chapter of the American Society of Farm Managers and Rural Appraisers:

2011 (2010 data)

- Winter Range
 - Stable to soft demand
 - Slow market
- Valleys and Ranches
 - Few sales
 - Lowering prices

2012 (2011 Data)

- Rangeland
 - Value decreasing

2013 (2012 Data)

- Winter Range / Dry Pasture
 - Steady demand

2014 (2013 Data)

- Winter Range / Dry Pasture
 - Steady demand
 - Limited sales
 - Value increasing (for land suitable to permanent plantings)

2015 (2014 Data)

- Winter Range / Dry Pasture
 - Values of land suitable for trees have increased (\$7,000 to \$10,000 per acre)
 - Demand for rangeland remains strong
 - High cattle prices
 - Dwindling supply

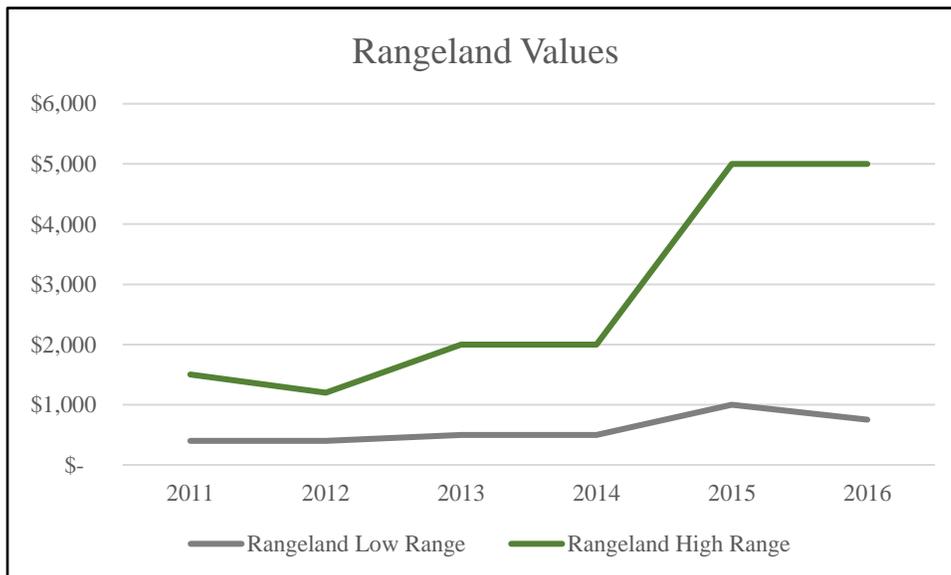
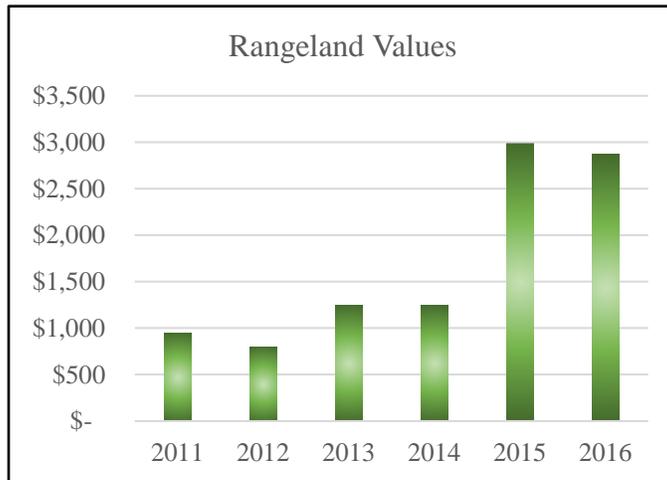
2016 (2015 Data)

- Winter Range / Dry Pasture
 - Cattle commodity market is strong
 - High replacement costs and feed costs
 - Demand still strong
 - Values stable

ATTACHMENT C:

RANGELAND VALUE TRENDS (CONT.)

MEDIAN RANGELAND PRICE PER ACRE		
Year	Rangeland	% Change
2011	\$ 950	
2012	\$ 800	-15.79%
2013	\$ 1,250	56.25%
2014	\$ 1,250	0.00%
2015	\$ 3,000	140.00%
2016	\$ 2,875	-4.17%



ATTACHMENT C:

RANGELAND VALUE TRENDS (CONT.)

As shown by the data on the preceding page, rangeland values in the market area have fluctuated over the past five years, although the overall trend has been an increasing pattern. The most recent median sale price of \$2,875 per acre is the second highest figure observed in the data set (slightly lower than the \$3,000 per acre figure observed in 2015). The difference in rangeland value from \$950 per acre in 2011 to \$2,875 per acre in 2016 implies an increase of 203% over the five-year period, or about 41% per year on a straight-line basis. The compound rate of price increases is estimated at 25% per year over the last five years.

Going back further in time to 2006, the median sale price of rangeland in the market area was about \$2,200 per acre. Thus, the implied appreciation rate on a straight-line basis over the last 10 years is 3% per year. On a compound rate basis, the implied figure is also 3% per year. As such, the 10-year rates of return on rangeland are substantially less than those observed over the last five years, and appreciation rates observed in recent years are unlikely to continue over the long term.

ATTACHMENT D:

ADDITIONAL LAND VALUES

The Agricultural Society of Farm Managers and Rural Appraisers (ASFMRA) journal also tracks peaches, prunes, and olives within the region. However, the data for these three markets are sporadic throughout the past five years, and the ASFMRA journal does not present land values per acre for these land types. Additionally, the journal only discusses the three types twice throughout the past five years, in 2011 and in 2016.

The information presented below is from the ASFMRA 2011 and 2016 journal:

2011 (2010 data)

- Prunes
 - Limited sales
 - Demand soft to average
 - Costs increasing
 - Commodity prices favorable
- Peaches
 - Stable supply
 - Stable demand (if property is contracted with Cannery)
- Olives
 - Stable market
 - Few sales
 - Strong demand
 - Good commodity prices
 - Assumed stable demand

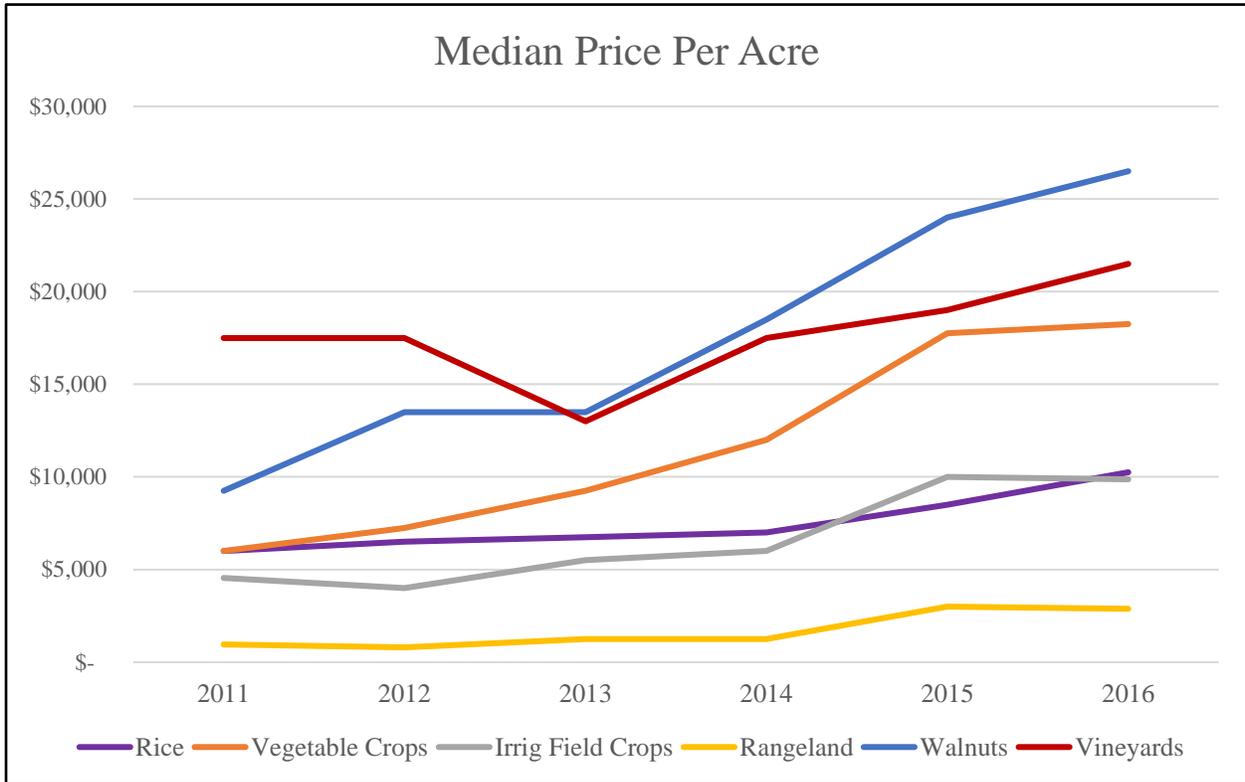
2016 (2015 Data)

- Prunes
 - Strong commodity prices
 - Low inventory
 - Overall market overshadowed by other nut tree markets
- Peaches
 - Demand has rebounded
 - Limited sales
 - Values increasing
- Olives
 - Stable to increasing market
 - Stable commodity prices
 - Stable to increasing values

ATTACHMENT E:

SUMMARY AND CONCLUSION – AGRICULTURAL LAND TRENDS

The chart below shows the value trends for the various agricultural land types within the Western Placer area, which is combined with South Sutter, Solano and Yolo Counties in the Land Trends journal:

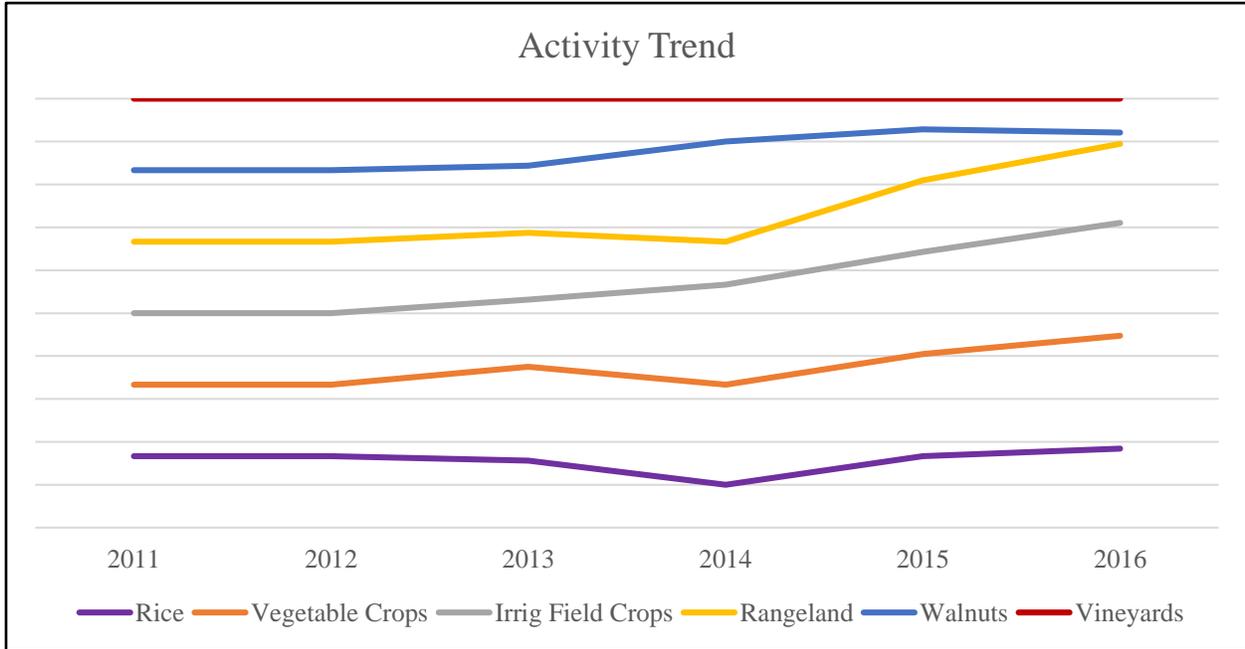


As can be seen from the chart, all property types have experienced a general increase in price per acre over the past five years, with various types experiencing more dramatic fluctuations during the time period.

The next chart tracks the activity trend of each agricultural land market. The data presented is shown as qualitative data versus quantitative data, and tracks trends such as “moderate activity,” “stable activity,” or “strong activity,” with “very slow” being the lowest activity rate, and “strong” being the highest rate.

ATTACHMENT E:

SUMMARY AND CONCLUSION – AGRICULTURAL LAND TRENDS (CONT.)



As can be seen from the activity trend chart, the activity in most of the agricultural land markets has been increasing throughout the past five years, with the exception of vineyards, which has been fairly flat.

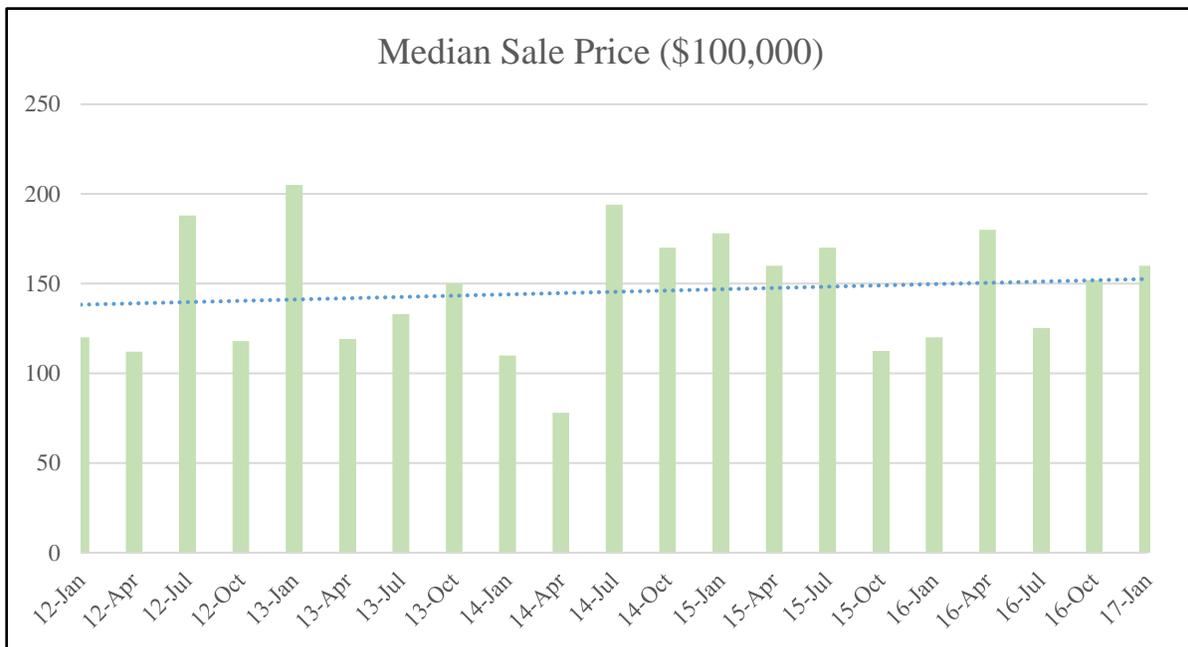
Overall, the agricultural land markets have experienced stable to increasing demand and increasing land values. More dramatic land price appreciation for most property types has been observed over the last five years relative to the last 10 years. Property values are expected to be stable to increasing going forward, but at a more modest pace than appreciation rate trends observed in more recent years.

ATTACHMENT F:

RURAL RESIDENTIAL LAND VALUE TRENDS

In this section of the document, we will discuss land value trends for rural residential properties in Placer County. While the area studied is larger than the PCCP area specifically, the County data is, overall, considered to represent trends within the PCCP, since the data generally excludes sales of urban/suburban residential lots/land located within the various municipalities of the region.

The following graphics shows median sale prices for rural residential land in Placer County over the last five years, according to information provided by the Sacramento Metro Listing Service (MLS):



MEDIAN SALE PRICE (IN \$100,000)						
Year	2012	2013	2014	2015	2016	2012-2016 % change
Price	119	141.5	140	165	138.5	16%

As the charts above show, the median sale price, although somewhat cyclical in nature, has gradually increased from the 2012 low within the last five years. When the quarterly numbers are combined, the highest price points are observed in 2015, with a median sale price of \$165,000. However, prices fell in 2016 to \$138,500. Overall, the 2016 yearly median is still 16% higher than the yearly median in 2012 (\$119,000). The increase in median sales price from \$119,000 to \$138,500 implies an annual appreciation rate of about 4% (both on a straight-line and compound basis). This trend is considered historically consistent with rural residential land trends in Placer County over longer time periods.

ATTACHMENT F:

RURAL RESIDENTIAL LAND VALUE TRENDS (CONT.)

The next charts show the number of rural residential land properties for sale and those that have actually closed, by month, over the last five years:



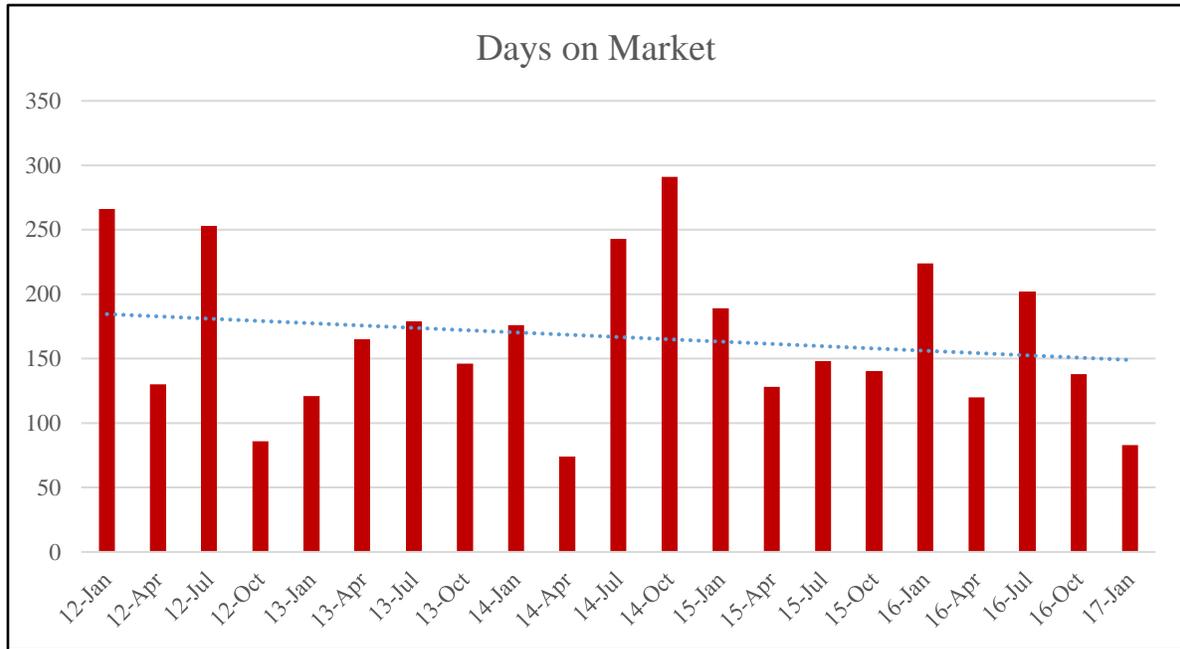
MEDIAN NUMBER OF FOR SALE AND SOLD PROPERTIES						
Year	2012	2013	2014	2015	2016	2012-2016 % change
For Sale (per month)	155.5	178.5	195.5	200	195.5	26%
Sold (per month)	3.5	7.5	6.5	8.5	10.5	200%

Listings of rural residential land properties generally increased from 2012 into 2014, but have leveled off since. The overall change in listing activity from 2012 to 2016 was 26%, or an average of about 6.5% per year. The median number of sales per month increased sharply from 2012 into 2013, declined into 2014, and increased again into 2015 and 2016. The most recent (2016) figure of 10.5 sales per month (or 126 sales per year) is the highest figure in the data set, indicating a healthy sales market with regard to absorption of this property type. Overall, the number of sales increased approximately 200% from the low of 3.5 sales per month in 2012 to 10.5 sales per month in 2016.

ATTACHMENT F:

RURAL RESIDENTIAL LAND VALUE TRENDS (CONT.)

The next charts show exposure times of rural residential land properties in Placer County over the last five years:



MEDIAN DAYS ON MARKET						
Year	2012	2013	2014	2015	2016	2012-2016 % change
DOM	191.5	155.5	209.5	144	170	-11%

As shown by the graphics, exposure time for rural residential land properties has fluctuated over the past five years, with no clear trend. The most recent (2016) annual figure of 170 days on the market is about 11% less than that observed in 2012 (191.5 days).



MEMORANDUM

Date: July 30, 2012

To: Loren Clark, Placer County Planning Department

From: Sally Nielsen

Subject: **Land acquisition cost factors for the Placer County Conservation Plan: 2012 estimates – DRAFT FOR REVIEW AND COMMENT**

This memorandum presents the analysis used to develop updated land cost factors for use in estimating land acquisition costs for the Placer County Conservation Plan (PCCP). The analysis draws on a number of sources. Under subcontract to Hausrath Economics Group (HEG), Bender Rosenthal, Inc. (BRI) completed “Report on Property Value Ranges, Placer County Conservation Plan” in July 2011 (the BRI Report). HEG also reviewed recent Placer County and Placer Land Trust open space land acquisitions and newspaper articles in the *Sacramento Bee* and the *Sacramento Business Journal* tracking trends in land prices in the region, and specifically in Placer County, since 2006.

Data from the 2011 BRI Report

The BRI Report describes 34 fee title transactions in Placer County Foothill and Valley subareas of the PCCP plan area. Thirty of these transactions are in the Reserve Acquisition Area (RAA) or are adjacent to the RAA and include stream system resources, and four transactions are in the Potential Future Growth (PFG) area. See land sales transactions detail at the end of this memorandum (Attachment A).

The 2011 BRI Report presents sales data for a total of 64 land sales transactions. Because of the relatively small number of recent transactions in the PCCP area, BRI expanded the search to include confirmed purchases of properties outside the plan area. Twenty five of those transactions were for properties outside the PCCP Plan area in the higher foothills east of Auburn and another five transactions were for conservation land in Yolo County (Woodland and West Sacramento areas). The Yolo County transactions were fee title transactions also encumbered with conservation easements. These transactions for land outside the PCCP area are not directly

included in HEG’s analysis of values for the purposes of developing the PCCP land acquisition cost factors, although the conservation easement transactions are used to develop indicators of the amount paid for conservation easements as a percentage of fee title value.

HEG used a subset of the 34 PCCP plan area transactions in the analysis of land cost factors for the Foothill and Valley subareas. We removed from the database the outlier transactions at both the high and the low ends. We also removed from the database three listings in the Foothills that are all part of the same larger parcel that is being split and sold off. One of these listings had been active for two years with no offers as of July 2011. The more recent listings of other parts of the larger parcel (also with no offers after several months on the market) indicate no change in the seller’s expectations.

The resultant list of transactions covers the period from November 2008 through March 2011. (The BRI Report is dated July 22, 2011). There are also eight active listings (as of July 2011) in the BRI transactions database. Parcel sizes range from just under 40 acres (39.2 acres) to 328.5 acres in the Foothills subarea and from 49.7 acres to 320 acres in the Valley subarea. After removing the outliers, the average price per acre ranges from \$5,950 per acre up to \$17,734 per acre in the Foothills and from \$5,218 per acre up to \$8,250 per acre in the Valley subarea.

Table 1 shows the weighted average price per acre by parcel size category for the Valley and Foothills subareas, based on analysis of the PCCP plan area transactions identified in the BRI Report. Parcels in the Foothills are generally more costly than parcels in the Valley. This is due to a number of factors such as average parcel size, topography, water access, soil type, and the value attributable to demand for ranchette or estate rural residential development. The weighted average price is \$5,800 per acre for larger Valley parcels and \$6,600 per acre for smaller Valley parcels. In the Foothills, parcel size makes a bigger difference; parcels in the range of 40 – 100 acres sell for a \$10,500 on average—a 50 percent premium over larger Foothills parcels that average \$6,900 per acre.

	Valley	Foothills
40 – 100 acre parcels	\$6,600	\$10,500
100-acre parcels or larger	\$5,800	\$6,900
Subarea average	\$6,000	\$8,100

Placer County and Placer Land Trust transactions

The 2011 BRI Report transactions database does not include land acquisitions accomplished in the plan area over the past five years by Placer County and the Placer Land Trust. HEG identified three fee title transactions in the Foothills to add to the analysis of land cost factors.

- ◆ Kotomyan Big Hill Preserve, 160 acres, Placer Land Trust, April 2007
- ◆ Taylor Ranch Preserve, 320.5 acres, Placer Land Trust with Placer County contribution towards acquisition, April 2007
- ◆ Bruin Ranch/Harvego Preserve, 1,773 acres, Placer Land Trust and Placer County (easement), December 2010

Adding these fee title transactions for large conservation and open space areas to the database lowers the weighted average land cost per acre in the Foothills subarea, as shown in **Table 2**. The weighted average price per acre for large parcels in the Foothills is reduced to \$6,000 per acre, just above the weighted average for large parcels in the Valley subarea. This overall average is consistent with a March 2012 appraisal opinion for another Placer Land Trust Foothills open space acquisition. The Jarrette Company indicated a market value of \$6,000 per acre for fee simple interest in the 80-acre Johnston property on Big Hill Road west of Auburn.

Table 2 Weighted Average Purchase Price Per Acre – BRI transactions plus Acquisitions of Open Space for Conservation		
	Valley	Foothills
40 – 100 acre parcels	\$6,600	\$10,500
100-acre parcels or larger	\$5,800	\$6,000
Subarea average	\$6,000	\$6,600

There are some pre-2007 Placer County and Placer Land Trust acquisitions for open space and conservation that bracket the values indicated by the above analysis. In December 2003, Placer County acquired the Spears Ranch and in November 2004, the County finalized acquisition of the Didion Ranch. Combined, these two foothills properties total 1,200 acres and are now managed by the County as Hidden Falls Regional Park. The acquisition price for the two properties was about \$3,500 per acre. In 2005, Placer Land Trust acquired two large conservation areas in the Valley (Doty Ravine Preserve—427.4 acres and Swainson’s Grassland Preserve—453.9 acres.) The acquisitions occurred during the run-up to the housing bubble and the 2012 assessed values per acre indicate average 2005 purchase prices in the range of \$13,000 - \$16,000 per acre.

Values for “transitional” land in specific plan areas and rural residential infill areas

The BRI Report includes commentary on trends in the values for speculative land in the path of potential new development. Values are substantially lower than in the middle of the last decade (the time period covered by the last land cost analysis for the PCCP). In fact, some owners of land beyond the boundaries of current development are being forced to sell due to debt pressures, and land values are reverting to pure agricultural values. BRI indicates that transitional land within specific plan areas in Placer County is selling for \$15,000 - \$20,000 per acre.

The BRI list of Placer County transactions includes four cases in the PCCP Potential Future Growth Area. Although small in number, these data points confirm a price premium almost double that of average values in the Reserve Acquisition Area. A transaction for 356 acres of land having some wetlands and mitigation potential was recorded at \$15,000 per acre in the Valley, and the Foothills transactions ranged from \$12,000 per acre for 125 acres up to \$15,600 per acre for a small parcel just over 20 acres.

The case of 808-acre Antonio Mountain Ranch provides another example of a land sale for a close-in property with substantial habitat resources. In July 2008, the purchase price of \$14,700 per acre was considered a bargain by industry sources, due to the potential value as mitigation land. (“Placer land sells for \$12M,” *Sacramento Business Journal*, July 30, 2008)

Changes since the last land cost analysis

Bender Rosenthal Inc. conducted the original PCCP land cost analysis in 2004, documenting and analyzing land transactions that occurred in 2002, 2003, and 2004. In 2006, HEG prepared an update using land sales transactions through 2005, among other sources. This period covered the peak of the housing market bubble and the years leading up to that point, when the land market was driven by speculative pressure. Land cost factors derived from that analysis do not represent realistic long-term average values consistent with a healthy housing market.

Conclusions for the PCCP in 2012

The lower values indicated by the 2011/12 update are consistent with a more sustainable land development market. BRI indicates that prices appear to be stabilizing over the last couple of years. Over time under the PCCP, land acquisition costs for the PCCP will be influenced by scarcity considerations, particularly for key mitigation land covers. The scarcity premium could be as much as 25 percent in the Valley and 10 percent in the Foothills. Applying these factors conservatively to the updated average cost factors indicated in Table 2 above results in the proposed land cost factors shown in **Table 3**. In addition, a land cost factor of **\$20,000 per acre** is proposed for wetland land covers in the Valley subarea: vernal pool grasslands, riparian, and aquatic and wetland land covers.

Table 3		
Proposed Land Cost Factors for the Placer County Conservation Plan, by subarea and parcel size and generalized land cover		
	Valley	Foothills
All land covers except wetlands		
40 – 100 acre parcels	\$8,250	\$11,500
100-acre parcels or larger	\$7,250	\$6,600
Subarea average	\$7,500	\$7,300
Wetland land covers (vernal pool grasslands, riparian, aquatic and wetland)	\$20,000	
NOTE: The proposed cost factors reflect analysis of land sales transactions occurring from 2007 through 2011 and a premium of 25 percent added in the Valley subarea and 10 percent added in the Foothill subarea to capture the influence of scarcity on habitat land values for over time.		

Conservation easement values

The 2011 BRI Report indicates that conservation easements can be acquired for 40 – 50 percent of fee title value. This conclusion is based on review of five conservation easement sales in Yolo County occurring between February 2007 and September 2010. The value of the easement reflects the restrictions on the use of the property, how remote the property is, and demand for development in that location. The BRI examples from Yolo County are consistent with Placer County’s experience with the Bruin Ranch/Harvego Preserve conservation easement in December 2010, where the County’s interests were valued at just over 50 percent of the fee title value. (Note that the December 2010 acquisition also included some related interests in the Doty Ravine Preserve, so the percentage attributable to Bruin Ranch values is probably lower than 50 percent.)

While the “percentage of fee title factor” is not the method by which easement values are appraised in the marketplace, it does provide an indicator that can be used for the purposes of the PCCP land acquisition cost estimate.

ATTACHMENT A

LAND TRANSACTIONS DETAIL FOR PLACER COUNTY CONSERVATION PLAN LAND COST FACTOR ESTIMATES, 2011/12

Land transactions and current listings - PCCP Reserve Acquisition Area

Plan Area									
Count	BR Sale #	Location	APN	Location	Sale Date	Parcel Size	Total Sale Price	Price/AC	Comments
1	5	Foothills	026-072-074	Lincoln	Nov-08	39.20	\$550,000	\$14,031	older home adds some value
2	6	Foothills	021-040-004	Lincoln	Mar-11	40.00	\$238,000	\$5,950	used for cattle grazing; historically for rice
3	8	Foothills	075-090-038	Auburn	Dec-09	40.00	\$650,000	\$16,250	canal on property; near 49; surrounded by rural residential; can split to two 20-ac lots
4	9	Foothills	026-080-098	Auburn	listing	40.00	\$350,000	\$8,750	existing conservation easement; surrounded by rural residential estate homes (short-sale)
5	13	Foothills	018-130-004	Lincoln	listing	44.49	\$789,000	\$17,734	northeast of Sheridan /south of CFWR reservoir
6	26	Foothills	075-080-053	Auburn	Jan-11	80.00	\$1,000,000	\$12,500	2 canals and a creek, near 49, surrounded by rural residential
7	29	Foothills	026-061-055	Auburn	listing	80.00	\$595,000	\$7,438	listed for 3 yrs; leased for cattle grazing; surrounded by high end rural residential
8	33	Foothills	026-030-061	Lincoln	Feb-10	81.30	\$499,000	\$6,138	located in gated community/ home site
40 - 100 acre parcels						444.99	\$4,671,000	\$10,497	
9	36	Foothills	020-144-010	Lincoln	May-10	121.50	\$900,000	\$7,407	leased for grazing; one habitable house rented; barns and outbuildings; historically a turkey farm
10	41	Foothills	026-030-060	Lincoln	Sep-10	131.10	\$625,000	\$4,767	pasture; in gated community; planned home site
11	PLT	Foothills	026-080-075, 076		Apr-07	160.00	\$1,100,000	\$6,875	Kotomyan Big Hill Preserve, Placer Land Trust
12	49	Foothills	026-061-069 & 070	Auburn	Jan-09	160.20	\$1,050,000	\$6,554	pasture, few trees, planned home site
13	50	Foothills	026-061-071 & 072	Auburn	listing	160.20	\$1,350,000	\$8,427	listed for 2 years; area dominated by rural residential custom estates
14	PLT	Foothills	026-110-001, 026-120-028		Apr-07	320.50	\$2,240,000	\$6,989	Taylor Ranch Preserve, Placer Land Trust
15	59	FH	026-071-001, 026-030-015	Lincoln	listing	328.50	\$2,250,000	\$6,849	dirt road access, barn, creek and pond, listed for one year with some price reductions
16	PLT	Foothills	026-020-009, 011-013 & 026-061-001, 003, 007, 051, 068		Dec-10	1,773.00	\$9,500,000	\$5,358	Bruin Ranch, Harvego Preserve, Placer Land Trust
100-acre parcels or larger						3,155.00	\$19,015,000	\$6,027	
Foothill Average						3,599.99	\$23,686,000	\$6,579	
17	16	Valley	026-030-066	Lincoln	Nov-10	49.70	\$390,000	\$7,847	pasture; listed off and on for 5 years, planned home site
18	18	Valley	020-150-032	Lincoln	listing	60.00	\$495,000	\$8,250	old barn; overpriced per broker
19	24	Valley	021-060-009	Pleasant Grove	listing	79.10	\$474,600	\$6,000	used for cattle grazing; part of estate sale, with #51
20	27	Valley	021-020-026	Lincoln	Jul-10	80.00	\$428,000	\$5,350	Lincoln SOI adjacent to bypass; Lincoln GPU zones commercial
21	28	Valley	020-150-085	Lincoln	Dec-09	80.00	\$500,000	\$6,250	Lincoln SOI; part of larger ranch; to be combined with a adjacent parcels with 10+ yr development potential; also value as mitigation land
40 - 100 acre parcels						348.80	\$2,287,600	\$6,558	
22	43	Valley	021-081-008	Lincoln	Jul-09	153.60	\$840,000	\$5,469	stream system; sale satisfies delinquent bank debt
23	44	Valley	020-150-085 & 053	Lincoln	Aug-09	158.10	\$825,000	\$5,218	Lincoln SOI (Village 3); stream system See also #28; two creeks;
24	45	Valley	021-020-063	Lincoln	Jul-09	158.80	\$1,060,000	\$6,675	PFG and RAA/stream system; sale satisfied delinquent bank debt
25	51	Valley	021-060-006	Pleasant Grove	listing	163.24	\$979,000	\$5,997	used for cattle grazing; part of estate sale, with #24
26	54	Valley	021-152-003, 004, 009	Lincoln	Apr-10	268.40	\$1,677,500	\$6,250	Lincoln SOI, near 65; used for grazing; PFG and RAA/stream system; Lincoln GP Area (Village 2?)
27	58	Valley	021-020-052	Lincoln	Oct-09	320.00	\$1,694,014	\$5,294	Lincoln SOI/Village 4; sold to Richland Communities; PFG/stream system
100-acre parcels or larger						1,222.14	\$7,075,514	\$5,789	
Valley Average						1,570.94	\$9,363,114	\$5,960	

Land transactions and current listings - PCCP Potential Future Growth Area

Plan Area									
Count	BR Sale #	Location	APN	Location	Sale Date	Parcel Size	Total Sale Price	Price/AC	Comments
1	1	FH - PFG	051-080-179	Auburn	Apr-10	20.80	\$325,000	\$15,625	PFG, just east of RAA/north of Auburn; planned home site; can be split to 5 lots
2	38	FH - PFG	040-050-071,001	Newcastle	May-10	125.00	\$1,500,000	\$12,000	PFG, Newcastle, Lozano Road/Chili Hill Road; grazing land with older improvements
40 - 100 acre parcels						145.80	\$1,825,000	\$12,517	
3	20	Vly - PFG	020-020-034	Sheridan	listing	67.50	\$417,717	\$6,188	PFG - Sheridan Andressen Road; used for grazing, barn, shed
4	60	Vly - PFG	023-200-045 & 066	Pleasant Grove	Dec-10	356.00	\$5,325,000	\$14,958	PVSP, stream system; listed for \$50K per ac in 2010; offers at \$14K per ac.; earlier transaction at \$20K per ac not completed; wetlands on-site (28 ac)
40 - 100 acre parcels						423.50	\$5,742,717	\$13,560	

Sources: Bender Rosenthal, Inc., "Report on Property Value Ranges, Placer County Conservation Plan, as of April 2011", July 2011; Placer County, and Hausrath Economics Group.

**REPORT ON PROPERTY VALUE RANGES
PLACER COUNTY CONSERVATION PLAN**

FOR

**MS. SALLY E. NIELSEN
VICE PRESIDENT
HAUSRATH ECONOMICS GROUP
1212 BROADWAY, SUITE 1500
OAKLAND, CALIFORNIA 94612-1817**

BY

**BENDER ROSENTHAL, INC.
4400 AUBURN BOULEVARD, SUITE 102
SACRAMENTO, CALIFORNIA 95841**

AS OF

APRIL 2011



Memorandum

Date:	October 16, 2015
To:	Sally Nielsen Hausrath Economics Group 1212 Broadway, Suite 1500 Oakland, CA 94612
Cc:	
From:	Carl Jensen ICF International
Subject:	Documentation for PCCP restoration costs

Sally:

Pursuant to your request, this memorandum provides background and rationale for the Placer County Conservation Plan habitat restoration cost factors.

Approach

Restoration cost factors were based on past experience in designing and constructing habitat restoration projects in Placer County and the neighboring area, as well as feedback from general engineering contractors who have experience with habitat restoration. I have 17 years of experience designing and implementing habitat restoration projects throughout California.

Per acre costs for planning, design, construction oversight, and post-construction maintenance and monitoring are based on percentages of the construction cost and were determined by the level of effort required for each task. The percentages were based on the professional experience of biologists, designers, and planners who have completed similar work in the past.

For consistency, a 200 acre parcel size was used for estimating per acre costs.

Vernal Pool Type Habitats

In general, vernal pools and other depressional wetlands will be located in grasslands without existing wetland features or in existing, low-density vernal pool-grassland complexes. Overall wetland density will be limited to 10% for vernal pools and 30% for seasonal wetlands.

Pre-construction restoration surveys and construction biological monitoring will be similar regardless of the type of wetland being constructed.

Design, construction, construction oversight, and post-construction restoration monitoring and maintenance for vernal pools will be more expensive than other types of depressional wetlands such as seasonal wetlands and swales. The higher cost for vernal pools is a result of the factors listed below.

- The level of detail required to accurately design and construct the micro-topography of a vernal pool feature.
- The detailed topographic collection (sub-foot) necessary to design the contours of the features.
- The difficulty in recreating the functional properties that support vernal pool hydrology and organisms.
- The full-time oversight of the construction procedure by a person familiar with vernal pool construction techniques.
- The assumption that vernal pool inoculum would be utilized during construction.
- The rigorous monitoring required for flora, fauna, and hydrology post-construction.

Based on an average cost of \$900 per constructed vernal pool, an average size of 0.006 acre (261 square feet), and a 10% overall wetland density, approximately 16 pools would be constructed at a cost of approximately \$15,000 per acre. This cost is similar to those realized in several vernal pool restoration projects constructed during the last 10 years in Placer County, including the Toad Hill Ranch Mitigation Bank and the Locust Road Mitigation Bank. This cost can vary as much as 50% up or down depending on the topography of the site and previous land uses.

Compared with vernal pools, seasonal swales and seasonal wetlands are generally less expensive to construct because of the broader definition of success that is applied to each wetland type. These features do not necessarily have to support organisms endemic to vernal pools, and their hydrology can vary more than what is found in vernal pools. Additionally, restored seasonal wetlands are typically not restricted to the lower wetland densities found in restored vernal pool complexes, so more wetted acres can be restored on a given site. Because of these factors and those listed below, per acre costs for these types of features will be less than for vernal pools.

- Less detailed grading design.
- Less finish grading and generally larger constructed features leading to quicker, more efficient construction.
- Less than full-time construction oversight.
- Less intensive post-construction monitoring with no hydrology or invertebrate surveys.

Aquatic/Wetland Type Habitats

Fresh emergent marsh, lacustrine, and non-vernal pool seasonal wetlands will generally occur in lower parts of the landscape, on heavier soils, and near perennial ground or surface water sources.

Of these, fresh emergent marsh will require the most inputs to restore because of the amount of soil that needs to be excavated and graded in order to achieve perennial hydrology.

Pre-construction restoration surveys and construction biological monitoring will be similar regardless of the type of wetland being constructed.

For the purposes of the cost model, it was assumed that 3 feet of soil would need to be excavated from each wetted acre of fresh emergent marsh at a restoration site. This equals approximately 5,000 cubic yards of excavated soil per acre. Per yard excavation costs can vary widely, depending on how far the material needs to be transported, how the material is excavated, and its condition when excavated (i.e., wet or dry). For this cost model, \$3.50 per cubic yard was used as a representative cost for onsite excavation and placement of dry or moist soil. Because of the more seasonal hydrology of the other habitats, it is assumed that approximately 18 inches will be excavated per wetted acre of seasonal wetland and 2 feet per wetted acre of lacustrine wetland, or 2,400 and 3,200 cubic yards of soil, respectively.

Construction oversight will require a level of effort roughly proportional to that for vernal pool construction, specifically, full time monitoring by a construction monitor familiar with wetland construction for fresh emergent marsh and lacustrine wetland construction, and part-time oversight for seasonal wetland construction.

Post-construction monitoring will require vegetation and hydrology surveys that are less intensive and frequent than those required for vernal pool type wetlands.

Riparian Woodland and Riverine Type Habitats

Riparian woodland and riverine type habitats will generally occur in areas that historically supported such habitat in the past, such as natural floodplains and along the banks of streams, creeks, and sloughs. For this cost model, it is assumed that little to no earthwork would be required in the restoration areas and that the work would consist primarily of planting and irrigation system installation. Any site preparation would consist of minor finish grading or weed abatement prior to planting.

Pre-construction restoration surveys and construction biological monitoring will be similar regardless of the type of habitat being constructed.

For construction, it is assumed that 1-gallon container plants would be installed at 10-foot intervals for a total of approximately 436 plants per acre. At \$20 per plant, this equates to a total of approximately \$8,700 per acre. An on-grade drip irrigation system costs approximately \$7,000 per acre. These costs are based on several riparian restoration projects that have been implemented in the Sacramento Valley, including the Star Bend Restoration Project on the Feather River in Sutter County.

Post-construction maintenance and monitoring will be intensive for both habitat types. Vegetation monitoring will involve assessing the overall health and vigor of each planting during the establishment period, and significant mortality (20–40% of the total initial plantings) usually occurs

in the first 2 years following plant installation. Irrigation system maintenance is also a consideration, especially in areas that flood during the rainy season.

Grassland from Rice

Converting land from rice production to grassland will typically involve preparing the area ahead of time through grazing or herbicide application to reduce non-target plant species and then seeding with an appropriate seed mix.

The following assumptions were used in developing the per acre cost estimate for restoration of this habitat type.

- The site should be prepared over the course of at least one growing season with multiple herbicide application events.
- Seed used should be a blend of native grasses and forbs selected to mimic natural grassland communities in the PCCP area.
- Seed should be applied with a drill seeder to maximize seed-soil contact.

It is estimated site preparation and seeding costs will be \$1,500 to \$3,000 per activity per acre. The final cost for each activity will depend on how much weed abatement or other site preparation activities are required and the plant species utilized in the seed mix.

Post-construction activities will include selective herbicide application or controlled grazing to control certain weed species.

Oak Woodland and Valley Oak Woodland

A description of the restoration cost factors for these habitats is provided in a separate document, *Recommendations of the Committee Appointed to Evaluate Oak Woodland Enhancement and Restoration* (December 18, 2013)