

APPENDIX I
SSHCP Economic Model

SSHCP Implementation Cost Summary (2015\$)

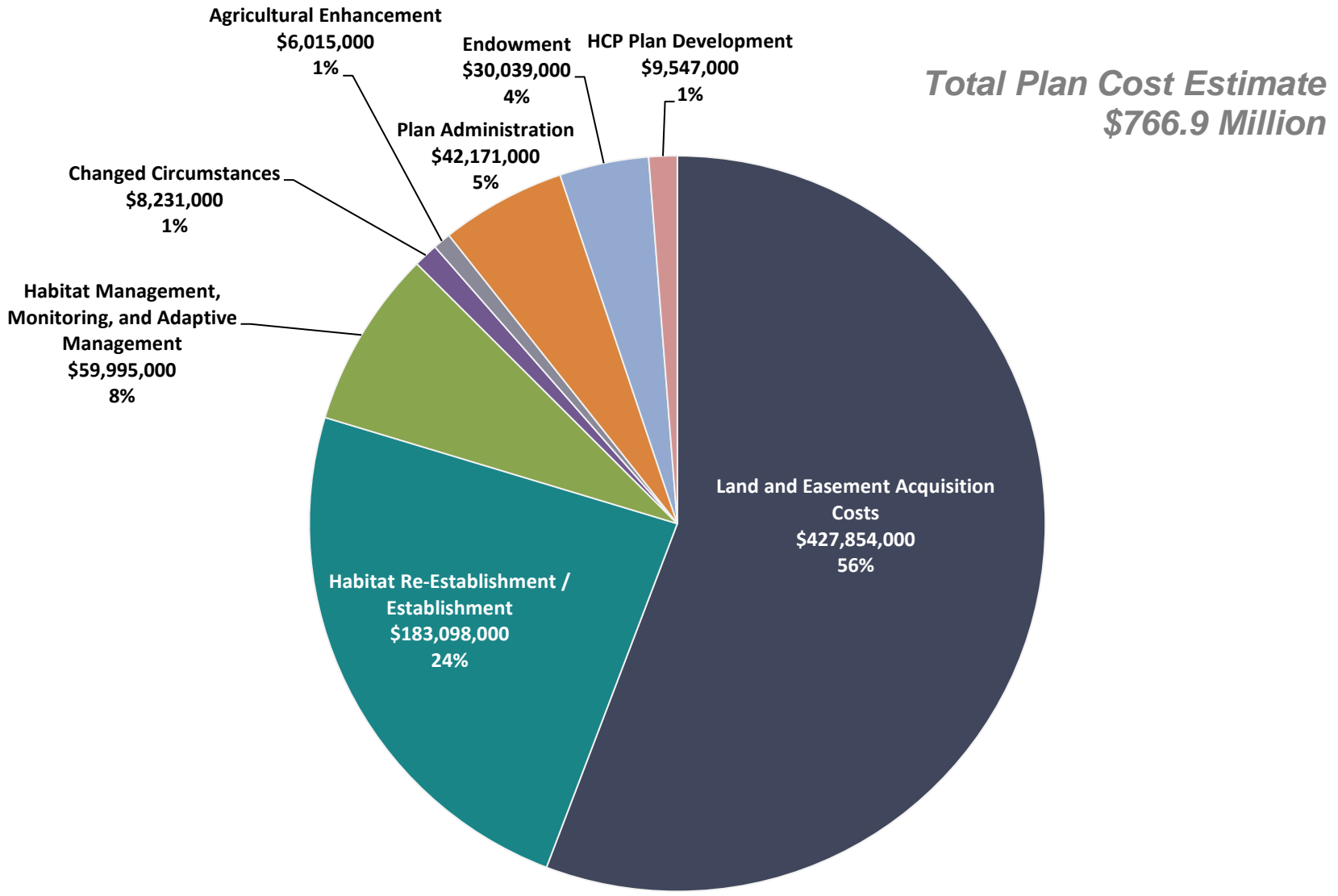


Figure 1
SSHCP Implementation Cost Summary (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Cost Category	Preservation Cost Estimate	Re-Establishment/ Establishment Cost Estimate	Total Cost Estimate	Distribution
Land and Easement Acquisition Costs	\$404,519,000	\$23,334,000	\$427,854,000	55.8%
Habitat Re-Establishment / Establishment	\$0	\$183,098,000	\$183,098,000	23.9%
Habitat Management, Monitoring, and Adaptive Management	\$55,538,000	\$4,458,000	\$59,995,000	7.8%
Changed Circumstances	\$7,649,000	\$582,000	\$8,231,000	1.1%
Agricultural Enhancement	\$6,015,000	\$0	\$6,015,000	0.8%
Plan Administration	\$40,094,000	\$2,077,000	\$42,171,000	5.5%
Endowment	\$28,443,000	\$1,595,000	\$30,039,000	3.9%
HCP Plan Development	\$9,077,000	\$470,000	\$9,547,000	1.2%
Total	\$551,334,000	\$215,614,000	\$766,948,000	100.0%

Figure 2
SSHCP Implementation Cost Summary by Land Cover (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Perservation Cost Estimate	Re-Establishment/ Establishment Cost Estimate	Total Cost Estimate	Distribution
Agriculture	\$155,299,000	\$0	\$155,299,000	20%
Valley Grassland	\$349,072,000	\$0	\$349,072,000	46%
Vernal Pool	\$14,668,000	\$61,455,000	\$76,123,000	10%
Blue Oak	\$989,000	\$4,578,000	\$5,567,000	1%
Riparian	\$12,860,000	\$40,336,000	\$53,196,000	7%
Mine Tailing Riparian Woodland	\$3,048,000	\$28,099,000	\$31,147,000	4%
Seasonal Wetland	\$2,266,000	\$12,183,000	\$14,449,000	2%
Freshwater Marsh	\$3,269,000	\$14,127,000	\$17,396,000	2%
Swale	\$4,309,000	\$26,139,000	\$30,448,000	4%
Streams/Creeks (VPIH)	\$641,000	\$2,329,000	\$2,970,000	0%
Open Water	\$2,991,000	\$14,335,000	\$17,326,000	2%
Streams/Creeks	\$1,922,000	\$12,033,000	\$13,956,000	2%
Total	\$551,334,000	\$215,614,000	\$766,948,000	100%

Figure 3
SSHCP Estimated Fee Levels per Acre of Impact (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Preservation Fee	Re-Establishment/ Establishment Fee	Total Fee
Agriculture	\$16,212	\$0	\$16,212
Valley Grassland	\$17,704	\$0	\$17,704
Vernal Pool - Direct	\$33,322	\$157,982	\$191,304
Vernal Pool - Indirect	\$33,322	\$0	\$33,322
Blue Oak	\$21,049	\$97,396	\$118,445
Riparian	\$34,477	\$108,140	\$142,617
Mine Tailing Riparian Woodland	\$13,981	\$128,896	\$142,876
Seasonal Wetland	\$22,189	\$116,031	\$138,220
Freshwater Marsh	\$27,851	\$111,236	\$139,088
Swale - Direct	\$19,267	\$111,705	\$130,972
Swale - Indirect	\$19,267	\$0	\$19,267
Streams/Creeks (VPIH) - Direct	\$38,879	\$105,860	\$144,739
Streams/Creeks (VPIH) - Indirect	\$38,879	\$0	\$38,879
Open Water	\$21,160	\$92,483	\$113,643
Streams/Creeks	\$16,592	\$102,849	\$119,441

Figure 4
SSHCP Impacts and Mitigation Requirement Summary by Land Cover (Acres)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Impacts		Ratio Equivalence		Conservation Acreage		
	Direct	Indirect	Preservation Ratio	Re-Establishment/ Establishment Ratio	Preservation	Restoration/ Creation	Total
Agriculture	9,696	0	1.0	0.0	9,696	0	9,696
Valley Grassland	22,014	0	1.0	0.0	22,014	0	22,014
Vernal Pool	389	94	2.0	1.0	966	389	1,355
Blue Oak	47	0	1.0	1.0	47	47	94
Riparian	373	0	2.0	1.0	746	373	1,119
Mine Tailing Riparian Woodland	218	0	1.0	1.0	218	218	436
Seasonal Wetland	105	0	1.0	1.0	105	105	210
Freshwater Marsh	127	0	1.0	1.0	127	127	254
Swale	234	44	1.0	1.0	278	234	512
Streams/Creeks (VPIH)	22	4	1.0	1.0	26	22	48
Open Water	155	0	1.0	1.0	155	155	310
Streams/Creeks	117	0	1.0	1.0	117	117	234
Total	33,497	142			34,495	1,787	36,282

Figure 5
SSHCP Conservation Summary by Land Cover (Acres)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Preservation Required	Preserve Dedications ¹	HCP Land Acquisition		Total
			Net Preservation	Re-Establishment/ Establishment	
Agriculture	9,696	143	9,553	0	9,553
Valley Grassland	22,014	3,142	18,872	0	18,872
Vernal Pool	966	120	846	389	1,235
Blue Oak	47	0	47	47	94
Riparian	746	0	746	373	1,119
Mine Tailing Riparian Woodland	218	0	218	218	436
Seasonal Wetland	105	4	101	105	206
Freshwater Marsh	127	12	115	127	242
Swale	278	73	205	234	439
Streams/Creeks (VPIH)	26	11	15	22	37
Open Water	155	18	137	155	292
Streams/Creeks	117	2	115	117	232
Total	34,495	3,523	30,972	1,787	32,759

¹ Preserve dedications include 1,850 acres of "hardline preserve" and an additional 1,673 acres from within the UDA.

Figure 6
SSHCP Fee Title and Easement Acquisition Summary by Land Cover (Acres)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Fee Title Acquisitions		Easement		Total
	Acres	Percentage	Acres	Percentage	
Agriculture	1,797	19%	7,757	81%	9,553
Valley Grassland	4,930	26%	13,941	74%	18,872
Vernal Pool	590	48%	645	52%	1,235
Blue Oak	64	68%	30	32%	94
Riparian	522	47%	597	53%	1,119
Mine Tailing Riparian Woodland	252	58%	184	42%	436
Seasonal Wetland	143	69%	64	31%	206
Freshwater Marsh	200	83%	42	17%	242
Swale	297	68%	143	32%	439
Streams/Creeks (VPIH)	37	100%	0	0%	37
Open Water	203	69%	90	31%	292
Streams/Creeks	138	59%	94	41%	232
Total	9,173	28%	23,586	72%	32,759

Figure 7
SSHCP Acquisition Land Cost Estimate by PPU (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

PPU	Fee Title Acquisitions			Easement Acquisitions			Acquisition Cost Estimate
	Acres	Avg. Per-Acre Cost Estimate	Total Cost	Acres	Avg. Per-Acre Cost Estimate	Total Cost	
PPU 1	1,302	\$28,172	\$36,669,096	0	\$22,538	\$0	\$36,669,096
PPU 2	0	\$0	\$0	0	\$0	\$0	\$0
PPU 3	1,048	\$31,621	\$33,123,967	0	\$25,297	\$0	\$33,123,967
PPU 4	348	\$26,379	\$9,172,431	0	\$21,103	\$0	\$9,172,431
PPU 5	403	\$10,606	\$4,273,774	2,283	\$8,485	\$19,374,442	\$23,648,216
PPU 6	1,412	\$12,963	\$18,300,550	8,000	\$9,074	\$72,592,182	\$90,892,732
PPU 7	2,348	\$9,074	\$21,300,754	13,303	\$7,259	\$96,563,419	\$117,864,173
PPU 8	303	\$53,284	\$16,152,412	0	\$42,627	\$0	\$16,152,412
N/A	223	\$42,781	\$9,550,744	0	\$34,225	\$0	\$9,550,744
Restoration	1,787	\$10,881	\$19,443,719	N/A	N/A	N/A	\$19,443,719
Total	9,173	\$18,314	\$167,987,447	23,586	\$7,993	\$188,530,043	\$356,517,490

Figure 8
SSHCP Acquisition Total Cost Estimate (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Cost Item	Assumption	Total Land Cost Estimate
Base Land Acquisition Cost	See Figure 7	\$356,517,000
Transaction Costs	5 percent of Base Cost	\$17,826,000
PDR (Preserve Documentation Record Review)	\$189 per acre	\$6,204,000
Site Improvement Costs	\$257 per acre	\$8,411,000
Contingency	10 percent	\$38,896,000
Total Land Cost		\$427,854,000

Figure 9
SSHCP Land Acquisition Summary by PPU (Acres)
South Sacramento Habitat Conservation Plan Cost Analysis

PPU	Agriculture	Valley Grassland	Vernal Pool	Blue Oak	Riparian	MTRW	Seasonal Wetland	Freshwater Marsh	Swale	VPIH	Open Water	Streams/Creeks	Total
PPU 1	1	1,206	56	0	0	2	0	0	16	13	8	0	1,302
PPU 2	0	0	0	0	0	0	0	0	0	0	0	0	0
PPU 3	162	786	29	12	13	0	0	7	16	2	18	2	1,048
PPU 4	17	222	2	0	22	0	21	58	1	0	5	0	348
PPU 5	369	1,848	19	0	351	0	20	3	7	0	20	50	2,686
PPU 6	8,228	640	27	0	349	0	25	41	10	0	49	43	9,412
PPU 7	529	13,914	713	35	3	216	29	6	151	0	37	19	15,650
PPU 8	247	50	0	0	0	0	4	0	1	0	0	0	303
N/A	0	206	1	0	8	0	1	0	3	0	1	2	223
Restoration	0	0	389	47	373	218	105	127	234	22	155	117	1,787
Total	9,553	18,872	1,235	94	1,119	436	206	242	439	37	292	232	32,759

Figure 10
SSHCP Re-Establishment / Establishment Cost Estimate (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Restoration Acreage	Per-Acre Cost Estimate¹	Per-Acre Cost w/ Contingency 10%	Re-Establishment/ Establishment Cost Estimate	Regulatory Compliance Cost Estimate 20%	Total Cost
Vernal Pool	389	\$106,000	\$116,000	\$45,314,000	\$9,063,000	\$54,377,000
Blue Oak	47	\$60,000	\$66,000	\$3,102,000	\$620,000	\$3,722,000
Riparian	373	\$68,000	\$74,800	\$27,957,000	\$5,591,000	\$33,549,000
MTRW	218	\$84,000	\$92,400	\$20,110,000	\$4,022,000	\$24,132,000
Seasonal Wetland	105	\$74,000	\$81,400	\$8,561,000	\$1,712,000	\$10,273,000
Freshwater Marsh	127	\$70,000	\$77,000	\$9,847,000	\$1,969,000	\$11,816,000
Swale	234	\$71,000	\$78,100	\$18,234,000	\$3,647,000	\$21,881,000
VPIH	22	\$66,000	\$72,600	\$1,607,000	\$321,000	\$1,929,000
Open Water	155	\$56,000	\$61,600	\$9,595,000	\$1,919,000	\$11,514,000
Streams/Creeks	117	\$64,000	\$70,400	\$8,254,000	\$1,651,000	\$9,904,000
Total	1,787			\$152,581,000	\$30,516,000	\$183,098,000

¹ Includes planning and design, construction cost, and O&M costs (for initial 5 years). Also reflects success rates ranging from 65 percent to 90 percent.

Figure 11
SSHCP Management and Monitoring Cost Estimate (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Management		Monitoring		Total Cost
	Acres	Cost	Acres	Cost	
Agriculture	2,327	\$2,386,973	9,696	\$3,575,400	\$5,629,122
Valley Grassland	8,770	\$8,995,136	22,014	\$29,168,550	\$36,907,853
Vernal Pool	742	\$705,598	1,355	\$1,795,375	\$2,450,391
Blue Oak	66	\$60,663	94	\$124,550	\$182,535
Riparian	552	\$512,537	1,119	\$1,482,675	\$1,969,612
Mine Tailing Riparian Woodland	262	\$237,007	436	\$577,700	\$808,477
Seasonal Wetland	150	\$138,431	210	\$278,250	\$410,292
Freshwater Marsh	214	\$201,100	254	\$336,550	\$525,221
Swale	376	\$352,546	512	\$678,400	\$1,010,557
Streams/Creeks (VPIH)	48	\$46,034	48	\$63,600	\$105,918
Open Water	225	\$208,365	310	\$410,750	\$609,122
Streams/Creeks	144	\$131,247	234	\$310,050	\$437,389
Total	13,875	\$13,975,639	36,282	\$38,801,850	\$51,046,489
Contingency		\$1,397,564		\$5,820,278	\$7,217,841
Total w/ Contingency		\$15,373,203		\$44,622,128	\$59,995,330

Figure 12
SSHCP Plan Administration Cost Estimate (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Cost Item	Total	Average Annual Cost
Staff and Board Compensation ¹	\$23,497,115	\$469,942
Office and Equipment Costs	\$1,913,100	\$38,262
Additional Overhead, Professional Services, Other Costs	\$12,926,750	\$258,535
Total	\$38,336,965	\$766,739
Contingency	\$3,833,697	\$76,673.93
Total	\$42,170,662	\$843,413

¹ Assumes 3.0 Full Time Equivalent (FTE) staff at Implementing Entity from Year 5 onwards. Assumes 2.5 FTE in Year 1.

Figure 13
SSHCP Ongoing Costs and Endowment Cost Estimate (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Land Cover	Management	Monitoring	Agricultural Enhancement	Admin	Total Annual
Agriculture	\$20,371	\$70,325	\$77,567	\$108,197	\$276,459
Valley Grassland	\$66,126	\$551,525	\$139,413	\$236,681	\$993,744
Vernal Pool	\$5,447	\$33,475	\$6,450	\$14,365	\$59,737
Blue Oak	\$1,775	\$6,625	\$298	\$2,843	\$11,541
Riparian	\$2,128	\$21,275	\$5,971	\$9,130	\$38,504
Mine Tailing Riparian Woodland	\$1,279	\$8,625	\$1,837	\$3,701	\$15,442
Seasonal Wetland	\$2,090	\$8,475	\$636	\$3,637	\$14,837
Freshwater Marsh	\$816	\$3,725	\$423	\$1,599	\$6,563
Swale	\$2,230	\$10,825	\$1,428	\$4,645	\$19,128
Streams/Creeks (VPIH)	\$1,072	\$3,575	\$1	\$1,534	\$6,182
Open Water	\$523	\$3,875	\$897	\$1,663	\$6,958
Streams/Creeks	\$205	\$2,925	\$944	\$1,255	\$5,329
Annual Legal Defense Allowance					\$109,082
Total Annual					\$1,563,508
Year-50 Endowment Requirement					\$52,116,926
Year 1-50 Cumulative Interest Earnings					\$22,078,352
Net Funding Required for Endowment					\$30,038,574

Figure 14
SSHCP Other Costs and Assumptions (2015\$)
South Sacramento Habitat Conservation Plan Cost Analysis

Cost Item	Cost	Assumptions
Agricultural Enhancement Costs	\$6,014,525	\$10 per acre per year over 23,586 easement acres
Changed Circumstances	\$8,230,639	Adds 10% to the cost of habitat management and 15% to the cost of habitat monitoring
HCP Plan Development	\$9,546,963	Reimbursement of \$6.0 million plan preparation cost, financed with interest over the 50-year permit term

