

Appendix H
Cost Estimates and Assumptions

This cost model calculates implementation cost estimates through the permit term for the Yolo HCP/NCCP . The model takes input from the conservation strategy (acres of land acquired and restored by natural community), develops assumptions to estimate cost factors, and generates costs per period and cumulative total costs over the permit term. The model also generates an estimate of annual average post-permit costs.

Title Page	
Legend	sources of cost factor assumptions
BLS_CPI_West	Consumer Price Index, West region, all urban consumers: used to bring original cost factors to current year dollars
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)	
Tables 2 - 6	background source data and information
2 ProtectionRestorationJuly 2015	source data from ICF
3 Fee Title_Easement	allocation of reserve acquisition details by natural community and means of acquisition (for newly protected lands)
4 Restoration detail	detail on restoration acres
5 Species_ProtectRestore	cross-walk from natural community to species for use in monitoring estimates (source data from ICF)
6 PrePermitReserveSites	Table 1: Sites likely to be enrolled as pre-permit reserve lands
7a INPUT Schedule	assumptions on the timelines for reserve assembly and restoration, by natural community and other categories
7b Schedule Acres	INPUT schedule multiplied by acres by natural community and type
7c Schedule Parcels	INPUT schedule multiplied by rough estimate of parcels by natural community and type
8 Qualified Biologist Rate	assumption used in a number of cost estimates
9 Establish Reserve	cost to acquire conservation easements on newly protected lands and to enroll pre-permit reserve lands, including transaction costs and pre-acquisition surveys
10 RestoreNaturalCommunities	cost to acquire restoration land in fee title, cost of restoration, and cost to manage and monitor the restored land
11 Manage and Enhance	cost to manage the rest of the reserve, including management oversight, management plans, and enhancements for SWHA on newly protected and pre-permit reserve lands (includes costs for remedial measures to respond to changed circumstances)
12 MonitoringResearchScience	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 research and Science and Technical Advisory Committee
13 Plan Administration	costs for administrative staff and overhead, costs for legal and financial services, GIS and database updates, insurance and occupancy
14 Local Partner Activities	costs for activities in Cache Creek and Putah Creek riparian corridors funded by Yolo County and the Solano County Water Agency
15 Contingency	additional cost allowance for these planning level estimates
16 Post Permit Costs Annual	estimated annual average post permit costs for relevant cost categories
17 Staffing Plan and Costs	staffing plan, per FTE staff salaries, benefits, and overhead assumptions

Legend (input assumption)	Source
	HEG/ICF 2014/2015/2017
	HEG/ICF earlier
	Yolo Land Trust
	Yolo Habitat Conservancy and other Yolo County Sources, i.e., Yolo RCD
	Local Partners: Yolo County Cache Creek Area Plan Program and Lower Putah Creek Coordinating Committee
	Other Plans
	Guesstimate/Placeholder
link to other cell(s) in workbook	
cost variable	Changing these cells will change the cost model output
<i>plan input assumption</i>	
Final Yolo HCP/NCCP	Indicates Conservation Strategy / Plan Status
Jan-18	Cost Model Date
2017	Enter year for constant dollar values

CPI-All Urban Consumers (Current Series) Original Data Value

Series Id: CUUR0400SA0
 Not Seasonally Adjusted
 Series Title: All items in West urban, all urban consumers, not
 Area: West urban
 Item: All items
 Base Period: 1982-84=100
 Years: 2003 to 2017

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2003	186.600	188.100	189.300	188.800	188.500	188.100	188.400	189.200	189.600	189.400	188.500	188.300	188.600	188.200	188.900
2004	189.400	190.800	192.200	192.300	193.400	193.300	192.900	193.000	193.800	195.000	195.100	194.200	193.000	191.900	194.000
2005	194.500	195.700	197.100	198.600	198.800	198.000	198.600	199.600	201.700	202.600	201.400	200.000	198.900	197.100	200.700
2006	201.700	202.700	203.800	205.300	206.900	206.400	206.700	207.500	207.800	207.100	206.300	206.200	205.700	204.500	206.900
2007	207.790	208.995	210.778	212.036	213.063	212.680	212.542	212.406	212.920	213.917	214.904	214.733	212.230	210.890	213.570
2008	215.739	216.339	218.533	219.437	221.009	223.040	223.867	222.823	222.132	221.034	217.113	214.685	219.646	219.016	220.276
2009	215.923	217.095	217.357	217.910	218.567	219.865	219.484	219.884	220.294	220.447	219.728	219.307	218.822	217.786	219.857
2010	219.989	220.179	220.809	221.202	221.417	221.147	221.331	221.523	221.384	221.708	221.671	222.081	221.203	220.790	221.616
2011	223.149	224.431	226.558	227.837	228.516	228.075	227.805	228.222	229.147	229.195	228.771	228.117	227.485	226.428	228.543
2012	228.980	229.995	232.039	232.561	233.053	232.701	231.893	233.001	234.083	234.966	233.206	232.029	232.376	231.555	233.196
2013	232.759	234.595	235.511	235.488	235.979	236.227	236.341	236.591	237.146	237.000	236.153	236.096	235.824	235.093	236.555
2014	236.707	237.614	239.092	239.808	241.350	241.616	241.850	241.660	241.920	241.650	240.220	239.095	240.215	239.365	241.066
2015	238.318	239.748	241.690	242.302	244.227	244.332	245.040	244.737	244.257	244.341	243.749	243.434	243.015	241.770	244.260
2016	244.600	244.821	245.404	246.589	247.855	248.228	248.375	248.498	249.234	249.897	249.448	249.516	247.705	246.250	249.161
2017	250.814	252.252	252.949	253.806	254.380	254.469	254.708	255.282	256.504					253.112	

percent increase in costs	5.93%	CPI index factor	0.9439853	to convert 2014 to 2017 dollars
percent increase in costs	4.71%	CPI index factor	0.9549886	to convert 2015 to 2017 dollars

percent increase in costs	27.94%	CPI index factor	0.7816276	to convert 2005 to 2017 dollars
percent increase in costs	15.85%	CPI index factor	0.8631543	to convert 2008 to 2017 dollars

Table 1a
Yolo HCP / NCCP Cost Summary by Cost Category, 50-year Permit Term

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

Detail may not add to total due to independent rounding.

Cost Category ¹	Permit Period (years)											Average Annual Cost	
	Start up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50		50 Year Total
Establish Reserve System, except restored lands ²	\$0	\$24,530,797	\$24,269,919	\$24,269,919	\$24,269,919	\$24,269,919	\$24,269,919	\$24,269,919	\$24,099,364	\$24,125,907	\$0	\$218,375,581	\$4,367,512
Restore Natural Communities ³	\$0	\$7,737,635	\$7,944,333	\$8,085,991	\$8,203,701	\$8,292,292	\$8,398,028	\$8,551,660	\$8,693,317	\$1,073,392	\$1,169,184	\$68,149,534	\$1,362,991
Manage and Enhance Easement & Pre-Permit Reserve Lands ⁴	\$0	\$1,404,523	\$1,477,700	\$1,351,945	\$1,417,306	\$1,365,305	\$1,430,666	\$1,497,179	\$1,562,540	\$1,633,823	\$1,326,820	\$14,467,808	\$289,356
Monitoring, Research & Scientific Review, except restored lands ⁴	\$0	\$1,239,811	\$1,414,650	\$1,642,457	\$1,688,871	\$1,916,677	\$1,952,840	\$2,180,647	\$2,408,453	\$2,375,395	\$1,982,088	\$18,801,889	\$376,038
Plan Administration	\$0	\$3,590,264	\$3,598,296	\$3,453,661	\$3,461,566	\$3,566,931	\$3,428,648	\$3,436,553	\$3,346,998	\$3,208,841	\$3,053,066	\$34,144,826	\$682,897
Local Partner Activities in Riparian Corridors	\$0	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$21,519,750	\$430,395
Contingency	\$0	\$3,266,983	\$3,287,169	\$3,297,077	\$3,320,816	\$3,357,792	\$3,364,690	\$3,410,275	\$3,444,802	\$3,224,680	\$753,116	\$30,727,401	\$614,548
Total	\$0	\$43,921,988	\$44,144,043	\$44,253,025	\$44,514,154	\$44,920,891	\$44,996,766	\$45,498,208	\$45,707,451	\$37,794,014	\$10,436,249	\$406,186,789	\$8,123,736

Notes:

¹ Includes permit term implementation costs only; does not include additional costs of plan preparation and endowment.

² Reserve assembly is assumed to occur at an even pace throughout the first 45 years of Plan implementation. Actual reserve assembly may differ in order to meet the rough proportionality standard or due to other factors.

³ Includes costs of fee title acquisition of land on which restoration activity occurs, costs to restore, as well as on-going management and monitoring of restored lands.

⁴ Management and monitoring on restored lands is included in the Restore Natural Communities line item.

Table 1b
Yolo HCP / NCCP Cost Summary by Cost Category, 50-year Permit Term (rounded to thousands)

Final Yolo HCP/NCCP	Conservation Strategy / Plan Status
Jan-18	Cost Model date
2017	constant dollars

Detail may not add to total due to independent rounding.

Cost Category ¹	Permit Period (years)											Average Annual Cost	
	Start up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50		50 Year Total
Establish Reserve System, except restored lands ²	\$0	\$24,531,000	\$24,270,000	\$24,270,000	\$24,270,000	\$24,270,000	\$24,270,000	\$24,270,000	\$24,099,000	\$24,126,000	\$0	\$218,376,000	\$4,367,520
Restore Natural Communities ³	\$0	\$7,738,000	\$7,944,000	\$8,086,000	\$8,204,000	\$8,292,000	\$8,398,000	\$8,552,000	\$8,693,000	\$1,073,000	\$1,169,000	\$68,150,000	\$1,363,000
Manage and Enhance Easement & Pre-Permit Reserve Lands ⁴	\$0	\$1,405,000	\$1,478,000	\$1,352,000	\$1,417,000	\$1,365,000	\$1,431,000	\$1,497,000	\$1,563,000	\$1,634,000	\$1,327,000	\$14,468,000	\$289,360
Monitoring, Research & Scientific Review, except restored lands ⁴	\$0	\$1,240,000	\$1,415,000	\$1,642,000	\$1,689,000	\$1,917,000	\$1,953,000	\$2,181,000	\$2,408,000	\$2,375,000	\$1,982,000	\$18,802,000	\$376,040
Plan Administration	\$0	\$3,590,000	\$3,598,000	\$3,454,000	\$3,462,000	\$3,567,000	\$3,429,000	\$3,437,000	\$3,347,000	\$3,209,000	\$3,053,000	\$34,145,000	\$682,900
Local Partner Activities in Riparian Corridors	\$0	\$2,152,000	\$2,152,000	\$2,152,000	\$2,152,000	\$2,152,000	\$2,152,000	\$2,152,000	\$2,152,000	\$2,152,000	\$2,152,000	\$21,520,000	\$430,400
Contingency	\$0	\$3,267,000	\$3,287,000	\$3,297,000	\$3,321,000	\$3,358,000	\$3,365,000	\$3,410,000	\$3,445,000	\$3,225,000	\$753,000	\$30,727,000	\$614,540
Total	\$0	\$43,922,000	\$44,144,000	\$44,253,000	\$44,514,000	\$44,921,000	\$44,997,000	\$45,498,000	\$45,707,000	\$37,794,000	\$10,436,000	\$406,187,000	\$8,124,000

Notes:

¹ Includes permit term implementation costs only; does not include additional costs of plan preparation and endowment.

² Reserve assembly is assumed to occur at an even pace throughout the first 45 years of Plan implementation. Actual reserve assembly may differ in order to meet the rough proportionality standard or due to other factors.

³ Includes costs of fee title acquisition of land on which restoration activity occurs, costs to restore, as well as on-going management and monitoring of restored lands.

⁴ Management and monitoring on restored lands is included in the Restore Natural Communities line item.

Table 2
Yolo HCP/NCCP - Protection and Restoration by Natural Community
Final Yolo HCP/NCCP

Natural Community	Vegetation / Land Cover Detail	Crop Type	HCP/NCCP New Protection Requirement	Acres Restored
Cultivated lands				
Agriculture: wetland	Rice	Rice	2,800	
Agriculture: non-wetland			14,362	
Grassland			4,430	
Serpentine			0	
Chamise			0	
Mixed chaparral			0	
Blue oak and foothill pine			0	
Blue oak woodland	Blue oak alliance		10	
Closed-cone pine-cypress			0	
Montane hardwood			0	
Valley oak woodland	Valley oak alliance		20	
Alkali prairie	Alkali sink		34	
Vernal pool complex	Vernal pool complex		0	
Fresh emergent wetland			500	88
Valley foothill riparian			1,600	608
Lacustrine and riverine	Open water		600	260
<i>Bank swallow</i>	<i>not technically a natural semi natural comm.</i>		50	
Total natural and seminatural communities + bank swallow			24,406	956
pre-permit reserve lands			8,000	
restored (additive)			956	
			33,362	

includes 20 acres independent of effect
 includes 24 acres independent of effect

Source: Table 5-4, *Natural Community Benefits and Net Effects*; Table 6-1(b), *Reserve System Land Types*; and Table 6-3 *Biological Goals and Objectives and Applicable Conservation Measures and Monitoring*

Table 3
Yolo HCP/NCCP - Fee Title and Easement Acquisition Input
Final Yolo HCP/NCCP

	A	B	C	D = A+B	E = C+D		
	Newly Protected Lands Commitment (Table 5-4 and Table 6-2(a))	Additional Acquisition to Ensure Commitment of Sensitive Habitats¹	Additional Fee Title Acquisition (for restoration)	New Easement Acquisition	Total Acres Acquired	number of minimum patch size (6.4.1.4.1; Table 6-5)	parcels acquired (rough estimate)
Natural Community							
Cultivated lands							
Agriculture - rice	2,800		-	2,800	2,800	160	18
Agriculture - non-rice	14,362		741	14,362	15,103	160	94
Grassland ²	4,364		215	4,364	4,579	400	50
Blue oak woodland	10		-	10	10		1
Valley oak woodland	20			20	20		1
Alkali prairie and upland grassland ²	100			100	100		1
Fresh emergent wetland	500	25	-	525	525	160	3
Valley foothill riparian	1,600	80	-	1,680	1,680	25	67
Lacustrine and riverine	600	30	-	630	630	160	4
Other - Barren							
Bank swallow habitat	50		-	50	50		
Total newly protected lands³	24,406	135	956	24,541	25,497		239

[incl as CM2 cost]

Assumptions/Notes:

Percent increase in acres acquired
 Number of transactions/parcels acquired **10** **230** **240** (rounded)

¹ Because of parcel size boundaries and limitations regarding available acquisitions from willing sellers, land acquisition to meet the small acreage targets for sensitive habitats will most likely be greater than the underlying newly protected lands commitment. For the purpose of the cost analysis, the Conservancy assumes that 5 percent more acreage for sensitive habitats will be acquired to meet the sensitive habitat targets exactly.

² The acres of newly protected grassland to be acquired is reduced from the 4,430 acres shown in Table 2 Protection and Restoration by Natural Community because 66 acres of associated upland grassland at Woodland Regional Park is acquired and managed as part of the alkali prairie reserve lands. The 66 acres of upland grassland are added to the 34 acres of alkali prairie for a total of 100 acres of alkali prairie and upland grassland natural community for the purposes of the acquisition cost and management cost analysis.

³ The newly protected lands commitment includes 276 acres of reclaimed mining land held in fee title by Yolo County and committed to the reserve, with the addition of habitat conservation easements, as newly protected lands. The sites are part of the Cache Creek Area Plan and include the following (with acres possibly under easement noted):

Corell	39
Millsap	15
Capay Open Space	10
Wild Wings	12
Rodgers	30
Granite Esparto Trail Corridor	115
Syar Upland	25
CEMEX Snyder Lakes	30
Total acres possibly under easement	276

Table 4
Yolo HCP/NCCP - Restoration Detail
Final Yolo HCP/NCCP

Natural communities	Restored from:		Total
	Cultivated lands (non-rice)	Grassland	
Restored to:			
Fresh emergent wetland			88
Valley foothill riparian			608
Lacustrine and riverine			260
Total	741	215	956

Table 5

Yolo HCP/NCCP - Acres by species and habitat type for use in monitoring cost estimates

Final Yolo HCP/NCCP

			NEWLY PROTECTED LANDS		PRE-PERMIT RESERVE LANDS (illustrative for the purposes of planning level estimates)
			Table 5-7 10/1/2015		
Species	Unit	Habitat Type that is monitored annually	Acres of protection	Acres of restoration	GIS analysis provided by ICF 7/14/2015 + acres in sites 7 - 23
Valley elderberry longhorn beetle	acres	Valley foothill riparian	1,600	531	105
California tiger salamander	acres				
	Upland dispersal	Annual grassland	2,000	-	222
	Aquatic breeding	Lacustrine & riverine	36	36	35
Western pond turtle	acres	Grassland, fresh emergent wetland, lacustrine	2,400	369	42
Giant garter snake	acres				
	Rice		2,800	-	1,000
	Aquatic	Annual grassland	420	109	18
	Freshwater emergent wetland		500	76	-
	Active upland	Grassland	1,160	-	18
	Overwintering upland	Other uplands	2,315	-	39
Swainson's hawk	acres				
	<i>Nesting</i>	Riparian	1,600	598	184
	<i>Foraging</i>	Grassland/cultivated lands	18,792	-	5,635
White-tailed kite	acres				
	<i>Nesting</i>	Riparian	1,600	598	184
	<i>Foraging</i>	Grassland/cultivated lands	18,797	-	2,843
Western yellow-billed cuckoo	acres	Valley foothill riparian	500	100	112
Western burrowing owl	acres	Cultivated lands, grassland	5,500	-	763
Least Bell's vireo	acres	Valley foothill riparian	600	80	83
Bank swallow	acres	Barren	50	-	-
Tricolored blackbird	acres				
	<i>Nesting</i>	Wetland	200	86	-
	<i>Foraging</i>	Grassland/cultivated lands	16,610	-	2,033
Palmate-bracted bird's beak	acres	Alkali prairie	34	-	55

VELB Assumptions: Monitoring is different than that which would be done for valley riparian community (i.e., percent canopy, structural diversity).

Table 6
Yolo Habitat Conservancy
Local Cost Share Sources and Potential Approaches
Source: June 26, 2015 memorandum "Yolo HCP / NCCP Local Cost Share Source Assessment", as revised January 2018 by Yolo Habitat Conservancy staff
Pre-Permit Reserve Lands

Number	Site	Managing agency	Acres	Actions needed to qualify as pre-permit reserve lands	Factors determining on-going cost estimates
Type 1: Baseline public and easement lands					
1	River Ranch - VELB Conservation Bank - Phase 2	Wildlands/Wildlife Heritage Foundation	35.5	Baseline public and easement lands with endowments: No additional actions: to be enrolled as is	Sites have endowments or agricultural income to cover management and some monitoring costs. Species monitoring required for all but the mitigation banks (Sites 1 - 6)
2	River Ranch - VELB Conservation Bank - Phase 3	Wildlands/Wildlife Heritage Foundation	99.7		
3	Teal Ridge - Ridge Cut Farms Mitigation Bank	Wildlands	185.9		
4	Pope Ranch - Giant Garter Snake	Wildlands	391.0		
5	River Ranch - VELB Conservation Bank - Phase 1	Wildlands/Wildlife Heritage Foundation	76.0		
6	River Ranch - Wetlands Mitigation Bank	Wildlands/Wildlife Heritage Foundation	113.4		
7	Grasslands Regional Park - Burrowing Owl Mitigation	County of Yolo/City of Davis	33.0		
8	Conaway - Giant Garter Snake	American West Conservation	1,000.0		
9	Conaway - Swainson's Hawk	American West Conservation	1,000.0	Baseline public and easement lands with endowments: Need management plan to qualify	
10	Conaway - Tri-colored Blackbird	American West Conservation	224.2		
11	SWHA Mitigation - Bogle	Yolo Land Trust	76.0		
12	SWHA Mitigation - Chickahominy Creek 1	Yolo Habitat Conservancy	148.9		
13	SWHA Mitigation - Lara West	Yolo Land Trust	83.1		
14	SWHA Mitigation - Lara East	Yolo Land Trust	41.0		
15	SWHA Mitigation - Los Rios	Yolo Land Trust	80.2		
16	SWHA Mitigation - Schmid	Yolo Land Trust	80.2		
17	SWHA Mitigation - Tule Ranch	Yolo Land Trust	143.4		
18	SWHA Mitigation - Virgin	Yolo Habitat Conservancy	347.0		
19	SWHA - Kerr	Yolo Land Trust	87.3		
20	SWHA Mitigation - Chickahominy Creek 4		160.7		
21	SWHA Mitigation - Chickahominy Creek 5		161.1		
22	SWHA Mitigation - Tule Ranch Area II		289.6		
23	Yolo Bypass Wildlife Area		TBD		
24	Gateway Preserve - City of Woodland SWHA mitigation	Wildlife Heritage Foundation	74.8	Baseline public and easement lands consistent with the conservation strategy that are missing endowments and/or management plans: Need easement modifications, management plan and/or endowment to qualify	
25	River Ranch - SWHA Mitigation - Caltrans 70 - DeSilva Gates	Wildlife Heritage Foundation	72.0		
26	River Ranch - SWHA Mitigation - Yolo 286 - Yolo County HCP/JPA	Wildlands	221.1		
27	River Ranch - SWHA Mitigation - Yolo other	Wildlife Heritage Foundation	54.0		
28	Los Rios North	Yolo Land Trust	778.0		
29	Pope Ranch North - Swainson's Hawk Preserve 2	Wildlands	108.6		
30	Heidrick - Swainson's Hawk	Yolo Land Trust	216.3		
31	Pope Ranch North - Swainson's Hawk Preserve 1	Wildlands	107.0		
32	Spring Lake - Merritt Ranch	Yolo Land Trust	641.0		
33	Notch Farm		39.9		
34	Alforex Seeds LLC		45.0		

Pre-permit reserve land, by natural community (illustrative for the purposes of planning level estimates)

Natural community (Table 6-2(b))	All sites (acres)
Cultivated lands (rice)	1,775
Cultivated lands (non-rice)	3,649
Grassland	335
Alkali prairie	140
Fresh emergent wetland	750
Other land cover types	1,351
Total	8,000

Natural community (ICF GIS analysis, adapted 1/2018 to new list with all but mitigation banks)	Illustrative for all but Sites 1 - 10 (acres)
Cultivated lands (rice)	-
Cultivated lands (non-rice)	3,649
Grassland	254
Alkali prairie	55
Vernal pool complex	27
Fresh emergent wetland	-
Valley foothill riparian	153
Lacustrine and riverine	41
Other land cover types	599
Total	4,778

For species monitoring cost estimate
 Sites 1 - 6 Mitigation Banks (no cost) **902**

Table 6
Yolo Habitat Conservancy
Local Cost Share Sources and Potential Approaches
Source: June 26, 2015 memorandum "Yolo HCP / NCCP Local Cost Share Source Assessment", as revised January 2018 by Yolo Habitat Conservancy staff

Pre-Permit Reserve Lands		
Type 2: Baseline public and easement lands that are held in fee title and have a habitat component		
35 Davis Communications Facility	NPS/Yolo County	320.0
36 Helvetia Oak Grove	County of Yolo	11.1
37 Howatt/Clayton Ranch	City of Davis	769.4
38 Los Rios South	City of Davis	252.0
39 South Fork Preserve	City of Davis	191.3
40 Wildhorse Ag Buffer	City of Davis	40.3
41 Davis Municipal Golf Course Expansion	City of Davis	24.5
42 Davis Wetland Demonstration	City of Davis	419.6
43 Elkhorn Regional Park	County of Yolo	49.0
44 Guesisosi Site	County of Yolo	14.4
45 Jan T. Lowrey Cache Creek Nature Preserve	County of Yolo	119.0
46 Knights Landing Fishing Access	County of Yolo	1.4
Subtotal acres Sites 1 - 10		3,158.7
Subtotal acres Sites 11 - 23		1,698.5
Subtotal acres Sites 1 - 23		4,857.21
Subtotal acres Sites 24 - 46		4,569.7
Average acres per site, Sites 24 - 46		200
Grand Total Types 1 & 2		9,426.93

Baseline public and easement lands consistent with the conservation strategy that are missing endowments and/or management plans: Need easement modifications, management plan and/or endowment to qualify

Table 7a
Reserve Acquisition and Restoration Schedules - Percent by Five-Year Period
Final Yolo HCP/NCCP

		Permit Period (years)										50 Year Total	
		Start up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	
CM1	Newly Protected Lands												
	Natural community	Conservation Easement Acquisition Schedule											
	Cultivated lands: rice	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Cultivated lands: non-rice	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Grassland	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Blue oak woodland	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Valley oak woodland	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Alkali prairie and upland grassland	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Fresh emergent wetland	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Valley foothill riparian	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Lacustrine and riverine	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Other - Barren												
	Bank swallow habitat	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	<i>Overall average</i>	0%	20%	10%	10%	10%	10%	10%	10%	10%	10%	0%	100%
	Natural community	Fee Title Acquisition Schedule											
	Cultivated lands: non-rice	0%	13%	13%	13%	13%	13%	13%	13%	13%	0%	0%	100%
	Grassland	0%	13%	13%	13%	13%	13%	13%	13%	13%	0%	0%	100%
	<i>Overall average</i>	0%	13%	13%	13%	13%	13%	13%	13%	13%	0%	0%	100%
CM1	Pre-Permit Reserve Lands	Enrollment Schedule											
	Sites 1-10 (as-is)	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	Sites 11-23 (as-is)	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	From other sites	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
	<i>Overall average</i>	0%	11%	11%	11%	11%	11%	11%	11%	11%	11%	0%	100%
CM2	Natural community	Restoration Schedule											
	Fresh emergent wetland	0%	13%	13%	13%	13%	13%	13%	13%	13%	0%	0%	100%
	Valley foothill riparian	0%	13%	13%	13%	13%	13%	13%	13%	13%	0%	0%	100%
	Lacustrine and riverine	0%	13%	13%	13%	13%	13%	13%	13%	13%	0%	0%	100%

Assumptions:

All conservation easements acquired by year 45.

All fee title acquisitions and restoration projects complete by year 40.

Pre-permit reserve lands enrolled evenly over 50-year permit term

9	number of easement acquisition periods
8	number of fee title acquisition periods
9	number of pre-permit reserve acquisition periods

Table 7b
Reserve Acquisition and Restoration Schedules - Acres by Five-Year Period
Final Yolo HCP/NCCP

Start up	Permit Period (years)										50 Year Total
	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	

CM1 Newly Protected Lands

Natural community Conservation Easement Acquisition (acres per period)												
Cultivated lands: rice	-	311	311	311	311	311	311	311	311	311	-	2,800
Cultivated lands: non-rice	-	1,596	1,596	1,596	1,596	1,596	1,596	1,596	1,596	1,596	-	14,362
Grassland	-	485	485	485	485	485	485	485	485	485	-	4,364
Blue oak woodland	-	1	1	1	1	1	1	1	1	1	-	10
Valley oak woodland	-	2	2	2	2	2	2	2	2	2	-	20
Alkali prairie and upland grassland	-	100	-	-	-	-	-	-	-	-	-	100
Fresh emergent wetland	-	58	58	58	58	58	58	58	58	58	-	525
Valley foothill riparian	-	187	187	187	187	187	187	187	187	187	-	1,680
Lacustrine and riverine	-	70	70	70	70	70	70	70	70	70	-	630
Other - Barren												
Bank swallow habitat	-	6	6	6	6	6	6	6	6	6	-	50
Total	-	2,816	2,716	2,716	2,716	2,716	2,716	2,716	2,716	2,716	-	24,541
<i>Number of transactions</i>	-	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	-	<i>230</i>

Natural community Fee Title Acquisition for Restoration (acres per period)												
Cultivated lands: non-rice	-	93	93	93	93	93	93	93	93	-	-	741
Grassland	-	27	27	27	27	27	27	27	27	-	-	215
Total	-	120	120	120	120	120	120	120	120	-	-	956
<i>Number of transactions</i>	-	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-	-	<i>10</i>

CM1 Pre-permit Reserve Lands

Enrollment (acres per period)												
Sites 1-10 (as-is)	-	351	351	351	351	351	351	351	351	351	-	3,159
Sites 11-23 (as-is)	-	189	189	189	189	189	189	189	189	189	-	1,698
From other sites	-	349	349	349	349	349	349	349	349	349	-	3,143
Total	-	889	889	889	889	889	889	889	889	889	-	8,000
<i>Number of transactions Sites 1 - 10</i>	-	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>2.0</i>	-	<i>10</i>
<i>Number of transactions Sites 11 - 23</i>	-	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>2.0</i>	-	<i>10</i>
<i>Number of transactions from other sites</i>	-	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	-	<i>18</i>

CM2 Natural community

Restoration (acres per period)												
Fresh emergent wetland	-	11	11	11	11	11	11	11	11	-	-	88
Valley foothill riparian	-	76	76	76	76	76	76	76	76	-	-	608
Lacustrine and riverine	-	33	33	33	33	33	33	33	33	-	-	260
Total	-	120	120	120	120	120	120	120	120	-	-	956

Cumulative Total Newly Protected Lands by Natural Community

Natural community	Start up	50 Year										Total	
		1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50		
Cultivated lands: rice	-	311	622	933	1,244	1,556	1,867	2,178	2,489	2,800	2,800	2,800	2,800
Cultivated lands: non-rice	-	1,596	3,192	4,787	6,383	7,979	9,575	11,170	12,766	14,362	14,362	14,362	14,362
Grassland	-	485	970	1,455	1,940	2,424	2,909	3,394	3,879	4,364	4,364	4,364	4,364
Blue oak woodland	-	1	2	3	4	6	7	8	9	10	10	10	10
Valley oak woodland	-	2	4	7	9	11	13	16	18	20	20	20	20
Alkali prairie and upland grassland	-	100	100	100	100	100	100	100	100	100	100	100	100
Fresh emergent wetland	-	69	139	208	277	347	416	485	555	613	613	613	613
Valley foothill riparian	-	263	525	788	1,051	1,313	1,576	1,839	2,101	2,288	2,288	2,288	2,288
Lacustrine and riverine	-	103	205	308	410	513	615	718	820	890	890	890	890
Other - Barren													
Bank swallow habitat	-	6	11	17	22	28	33	39	44	50	50	50	50
Total	-	2,935	5,770	8,606	11,441	14,276	17,111	19,946	22,781	25,497	25,497	25,497	25,497

Table 7c
Reserve Acquisition and Restoration Schedules - Parcels by Five-Year Period
Final Yolo HCP/NCCP

		Permit Period (years)										50 Year	
		Start up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	Total
CM1	Newly Protected Lands												
	Natural community	Conservation Easement Acquisition (parcels per period)											
	Cultivated lands: rice	-	2	2	2	2	2	2	2	2	2	-	18
	Cultivated lands: non-rice	-	10	10	10	10	10	10	10	10	10	-	89
	Grassland	-	5	5	5	5	5	5	5	5	5	-	48
	Blue oak woodland	-	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	-	1
	Valley oak woodland	-	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	-	1
	Alkali prairie and upland grassland	-	1.00	-	-	-	-	-	-	-	-	-	1
	Fresh emergent wetland	-	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	-	3
	Valley foothill riparian	-	7.44	7.44	7.44	7.44	7.44	7.44	7.44	7.44	7.44	-	67
	Lacustrine and riverine	-	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	-	4
	Other - Barren												
	Bank swallow habitat	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	27	26	26	26	26	26	26	26	26	-	232
	<i>Number of transactions</i>	-	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	-	<i>230</i>
	Natural community	Fee Title Acquisition for Restoration (parcels per period)											
	Cultivated lands: non-rice	-	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	-	-	5
	Grassland	-	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	-	-	2
	Total	-	1	1	1	1	1	1	1	1	-	-	7
	<i>Number of transactions</i>	-	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	-	-	<i>10</i>
CM1	Pre-permit Reserve Lands	Enrollment (acres per period)											
	Sites 1-10 (as-is)	-	351	351	351	351	351	351	351	351	351	-	3,159
	Sites 11-23 (as-is)	-	189	189	189	189	189	189	189	189	189	-	1,698
	From other sites	-	349	349	349	349	349	349	349	349	349	-	3,143
	Total	-	889	889	889	889	889	889	889	889	889	-	8,000
	<i>Number of transactions Sites 1 - 10</i>	-	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>2.0</i>	-	<i>10</i>
	<i>Number of transactions Sites 11 - 23</i>	-	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>1.0</i>	<i>2.0</i>	-	<i>10</i>
	<i>Number of transactions from other sites</i>	-	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	-	<i>18</i>
	Total parcels enrolled	-	32	31	31	31	31	31	31	31	32	-	
	Total parcels enrolled, cumulative	-	32	63	94	125	156	187	218	249	281	281	

Table 8
Qualified biologist rate assumption

Base cost per hour	\$169	\$ per hour
Direct expenses (meals) per day	\$15	\$ per day
Travel	\$54	\$ per day
assuming	100	miles
and	\$0.535	\$ per mile
Hours per day	8	hours per day
Total cost per hour including travel	\$178	\$ per hour

Assumptions:

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

Table 9
Establish Reserve System

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

Detail may not add to total due to independent rounding.

Reserve Assembly Cost	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	50 Year Total
YHC real estate acquisition specialist (staff & overhead)	\$0	\$341,108	\$341,108	\$341,108	\$341,108	\$341,108	\$341,108	\$341,108	\$170,554	\$170,554	\$0	\$2,728,867
Acquire conservation easements on newly protected lands	\$0	\$21,080,539	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$0	\$187,691,089
Enroll pre-permit reserve lands as-is	\$0	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$60,000	\$0	\$300,000
Enroll other pre-permit reserve lands	\$0	\$924,677	\$924,677	\$924,677	\$924,677	\$924,677	\$924,677	\$924,677	\$924,677	\$924,677	\$0	\$8,322,097
Pre-acquisition surveys on newly protected lands	\$0	\$195,441	\$188,782	\$188,782	\$188,782	\$188,782	\$188,782	\$188,782	\$188,782	\$180,825	\$0	\$1,697,742
Transaction costs - newly protected lands	\$0	\$1,916,667	\$1,916,667	\$1,916,667	\$1,916,667	\$1,916,667	\$1,916,667	\$1,916,667	\$1,916,667	\$1,916,667	\$0	\$17,250,000
Transaction costs - pre-permit reserve lands	\$0	\$42,365	\$42,365	\$42,365	\$42,365	\$42,365	\$42,365	\$42,365	\$42,365	\$46,865	\$0	\$385,785
Total	\$0	\$24,530,797	\$24,269,919	\$24,269,919	\$24,269,919	\$24,269,919	\$24,269,919	\$24,269,919	\$24,099,364	\$24,125,907	\$0	\$218,375,581
Acquire conservation easements on newly protected lands - detail by natural community, appearing as one line item above in reserve assembly cost summary table												
Cultivated lands: rice	\$0	\$2,613,333	\$2,613,333	\$2,613,333	\$2,613,333	\$2,613,333	\$2,613,333	\$2,613,333	\$2,613,333	\$2,613,333	\$0	\$23,520,000
Cultivated lands: non-rice	\$0	\$17,090,780	\$17,090,780	\$17,090,780	\$17,090,780	\$17,090,780	\$17,090,780	\$17,090,780	\$17,090,780	\$17,090,780	\$0	\$153,817,020
Grassland	\$0	\$916,406	\$916,406	\$916,406	\$916,406	\$916,406	\$916,406	\$916,406	\$916,406	\$916,406	\$0	\$8,247,658
Blue oak woodland	\$0	\$706	\$706	\$706	\$706	\$706	\$706	\$706	\$706	\$706	\$0	\$6,354
Valley oak woodland	\$0	\$1,412	\$1,412	\$1,412	\$1,412	\$1,412	\$1,412	\$1,412	\$1,412	\$1,412	\$0	\$12,708
Alkali prairie and upland grassland	\$0	\$254,220	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$254,220
Fresh emergent wetland	\$0	\$37,065	\$37,065	\$37,065	\$37,065	\$37,065	\$37,065	\$37,065	\$37,065	\$37,065	\$0	\$333,585
Valley foothill riparian	\$0	\$118,608	\$118,608	\$118,608	\$118,608	\$118,608	\$118,608	\$118,608	\$118,608	\$118,608	\$0	\$1,067,472
Lacustrine and riverine	\$0	\$44,478	\$44,478	\$44,478	\$44,478	\$44,478	\$44,478	\$44,478	\$44,478	\$44,478	\$0	\$400,302
Bank swallow habitat	\$0	\$3,530	\$3,530	\$3,530	\$3,530	\$3,530	\$3,530	\$3,530	\$3,530	\$3,530	\$0	\$31,770
	\$0	\$21,080,539	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$20,826,319	\$0	\$187,691,089

YHC oversight and management - real estate acquisition specialist

100%	percent of Real Estate Specialist time and associated overhead allocated to Establish Reserve; Real Estate Specialist assumed at 0.5 FTE years 1-35 and 0.25 FTE years 36 - 50. Although the Executive Director and other staff and contractors will spend time on reserve acquisition tasks those costs are captured in Plan Administration. See 13 Plan Administration.
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Table 9
Establish Reserve System

Final Yolo HCP/NCCP	Conservation Strategy / Plan Status
Jan-18	Cost Model date
2017	constant dollars

Acquisition cost factors by natural community for newly protected lands

Per acre, fee title (2017)

\$14,000	cultivated agriculture: rice
\$2,648	annual grassland, large parcels > 160 acres in Dunnigan Hills planning unit
\$4,237	annual grassland and alkali prairie, in the Valley, assuming small parcels 50 - 160 acres that have homesite value
\$1,059	blue oak woodland
\$1,059	valley oak woodland
\$1,059	fresh emergent wetland
\$1,059	valley foothill riparian
\$1,059	lacustrine and riverine
\$1,059	bank swallow habitat

Per acre, cost of easement restricting conversion to orchard/vineyard (2017)

\$10,200	cultivated agriculture: non-rice
5%	additional cost to reflect price for easement encumbrances, i.e., access for monitoring and various prohibitions

Assumptions/Notes:

The fee title values are used to support the cost of acquiring conservation easements. The YHC will not acquire land in fee title except in the case of cultivated agriculture (non-rice) and grassland parcels acquired for restoration (see Table 5).

These cost factors are solely for the purposes of developing planning level estimates of the reserve assembly component of implementation costs. Actual land costs may vary significantly around this average, depending on parcel-specific factors.

Actual costs will be determined by qualified appraisals of each potential acquisition site.

The following sources informed these cost factors: *Trends in Agricultural Land and Lease Values (2014 and 2017 Annual Reports)*, California and Nevada, American Society of Farm Managers and Rural Appraisers (ASFMRA), California; Scott Stone, California Agricultural Properties, Inc.; and Ron Garland, MAI, SRA.

The easement acquisition cost for all other cultivated agricultural lands except rice is estimated based on the differential in value between orchard/vineyard land (\$24,250 per acre) and irrigated cropland (\$17,600 per acre) or field crop land (\$10,500 per acre). Calculation of midpoint value for an easement restricting conversion to orchards or vineyards: [\$24,250 - \$17,600 = \$6,650; \$24,250 - \$10,500 = \$13,750; the midpoint of \$6,650 and \$13,750 is \$10,200]

The range of ASFMRA 2017 values for rice is \$9,500 - \$15,500 with a mid-point of \$12,500. Values at the high end of the range are justified in the area served by RD 108 (Colusa Basin).

The cost factor assumption reflects a mix of values across this range.

60%	easement percent of fee title acquisition cost for rice
68%	percent of annual grassland acquired in Dunnigan Hills (Planning Unit 5) Table 6-2(a)
32%	percent of annual grassland acquired elsewhere in the plan area, assuming in smaller scattered parcels in the Valley

The approximately \$1,000 value for all other land covers assumes no grazing or farming value.

60%	Easement percent of fee title acquisition cost, grassland and all other non-agricultural natural communities
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The acquisition cost for all other cultivated agricultural lands except rice is estimated based on the differential in value between orchard land and irrigated cropland/field crop land.

Orchard and vineyard values are the key factor in the current agricultural land market in Yolo County. The Yolo HCP/NCCP conservation easement, similar to the Swainson's Hawk easement, would restrict conversion to orchards and vineyards, allowing all other agricultural use.

For planning purposes at this time, given the current spike in agricultural land prices and the predominance of investor-fueled demand based on expectations of high orchard/vineyard values, it is reasonable to use this differential as an estimate of the price the YHC would have to offer for conservation easements on the majority of the newly protected lands. In these market conditions, the cost for easement acquisition is essentially the same as the cost for fee title acquisition.

Table 9
Establish Reserve System

Final Yolo HCP/NCCP	Conservation Strategy / Plan Status
Jan-18	Cost Model date
2017	constant dollars
Transaction costs (appraisal, preliminary title report, legal description, boundary surveys, negotiating easement terms, perhaps Phase 1 site assessment, and site-specific management plan)	
<u>Assumptions/Notes:</u>	
Newly protected lands will require a full suite of transaction costs.	
Newly protected lands will require site-specific management plans, based on reserve unit management plan guidelines.	
\$45,000	per transaction for newly protected lands
\$30,000	per transaction for site-specific management plans
Cost to enroll pre-permit reserve lands	
<u>Assumptions/Notes:</u>	
Sites 1-23 of the pre-permit reserve lands have existing in-perpetuity conservation easements and endowments or agricultural income to support management and monitoring in perpetuity. Relatively minor updates to easements are assumed covered in Plan Administration staff and legal services costs.	
Of these sites, Sites 1 - 10 have management plans in place; Sites 11 - 23 will require a Swainson's Hawk Management Plan and site-specific management plans to be enrolled as pre-permit reserve lands.	
The balance of the pre-permit reserve lands would come from among other sites that are protected under conservation easements or held in fee title by YHC member agencies but would require easement modifications to be added to the Yolo HCP/NCCP reserve. These costs are likely to vary based on the specifics of the property.	
\$0	cost per acre to enroll pre-permit reserve lands from Sites 1 - 10
\$30,000	per site cost for SWHA and site-specific management plans for Sites 11 - 23
\$2,648	cost per acre to enroll other pre-permit reserve lands
Transaction costs for pre-permit reserve lands	
<u>Assumptions/Notes:</u>	
Costs would be substantially lower for pre-permit reserves, consisting of research of existing documents and preparing modifications as needed.	
Some sites would require more intensive easement acquisition services to be conducted under contract or by YHC staff/legal services.	
5%	percent of per transaction cost for newly protected lands required to enroll Sites 1 - 23 pre-permit reserve lands
\$2,250	per transaction to enroll Sites 1 - 23 pre-permit reserve lands
15%	percent of per transaction cost for newly protected lands required to enroll all other pre-permit reserve lands
\$6,750	per transaction to enroll all other pre-permit reserve lands
50%	percent of the other pre-permit reserve sites requiring easement acquisition/modification services
\$24,365	cost per site for easement acquisition services, based on CNLM contract for easement acquisition services (if have to contract out; otherwise do this in house with Plan Administration staff) includes identifying appraisers, review of title report, drafting easement and management plan, conducting PAR analysis
Pre-acquisition assessment and evaluation (contractor cost)	
<u>Assumptions/Notes:</u>	
Covers costs to verify biological resources in the field to determine the degree to which they are suitable for achieving Yolo HCP/NCCP biological goals and objectives.	
Includes evaluation of infrastructure and other site conditions.	
The work will be completed by qualified biologists and includes field work, data collection, and report writing.	
Land cover type surveys include surveys for federal and state jurisdictional waters, and submitting of a report to the USACE and obtaining a verification.	
Covered wildlife surveys include surveys at a protocol level.	
160	acres, assumed average parcel size
24	hours per parcel for land cover type and habitat assessment surveys
24	hours per parcel for covered species surveys
1.25	due diligence premium to account for land surveyed but not acquired.
0.38	average hours per acre, with due diligence premium
\$67	average cost per acre, with due diligence premium
\$10,654	average cost per 160 acre parcel, with due diligence premium
\$178	hourly cost for biologist

Table 10
Restore Natural Communities

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

Detail may not add to total due to independent rounding.

Cost to restore natural communities (acquisition, restoration, management & monitoring)	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	50 Year Total
YHC oversight and management (staff & overhead)	\$0	\$53,066	\$106,132	\$106,132	\$106,132	\$53,066	\$53,066	\$53,066	\$53,066	\$0	\$0	\$583,729
Acquire fee title interest for restoration	\$0	\$1,363,881	\$1,363,881	\$1,363,881	\$1,363,881	\$1,363,881	\$1,363,881	\$1,363,881	\$1,363,881	\$0	\$0	\$10,911,046
Pre acquisition surveys	\$0	\$7,957	\$7,957	\$7,957	\$7,957	\$7,957	\$7,957	\$7,957	\$7,957	\$0	\$0	\$63,656
Transaction cost	\$0	\$93,750	\$93,750	\$93,750	\$93,750	\$93,750	\$93,750	\$93,750	\$93,750	\$0	\$0	\$750,000
Site improvements	\$0	\$92,949	\$92,949	\$92,949	\$92,949	\$92,949	\$92,949	\$92,949	\$92,949	\$0	\$0	\$743,588
Cost to restore fresh emergent wetlands	\$0	\$485,029	\$485,029	\$485,029	\$485,029	\$485,029	\$485,029	\$485,029	\$485,029	\$0	\$0	\$3,880,231
Cost to restore valley foothill riparian	\$0	\$4,048,885	\$4,048,885	\$4,048,885	\$4,048,885	\$4,048,885	\$4,048,885	\$4,048,885	\$4,048,885	\$0	\$0	\$32,391,081
Cost to restore lacustrine and riverine	\$0	\$958,181	\$958,181	\$958,181	\$958,181	\$958,181	\$958,181	\$958,181	\$958,181	\$0	\$0	\$7,665,449
Environmental compliance for restoration projects	\$0	\$164,763	\$164,763	\$164,763	\$164,763	\$164,763	\$164,763	\$164,763	\$164,763	\$0	\$0	\$1,318,103
Water management for restored GGS habitat	\$0	\$15,031	\$30,063	\$45,094	\$60,125	\$75,156	\$90,188	\$105,219	\$120,250	\$120,250	\$120,250	\$781,625
Other management cost on fee title restored lands	\$0	\$26,665	\$53,330	\$79,995	\$106,660	\$133,325	\$159,990	\$186,655	\$213,320	\$213,320	\$213,320	\$1,386,580
Remedial measures	\$0	\$4,170	\$8,339	\$12,509	\$16,679	\$20,848	\$25,018	\$29,187	\$33,357	\$33,357	\$33,357	\$216,821
Species monitoring - restored lands	\$0	\$423,309	\$531,075	\$626,867	\$698,711	\$794,502	\$854,372	\$962,138	\$1,057,930	\$706,465	\$802,257	\$7,457,625
Total	\$0	\$7,737,635	\$7,944,333	\$8,085,991	\$8,203,701	\$8,292,292	\$8,398,028	\$8,551,660	\$8,693,317	\$1,073,392	\$1,169,184	\$68,149,534

YHC oversight and management

33% percent of Restoration/Reserve Project Manager time allocated to Restoration, until restoration projects are complete in year 40.

Acquisition cost factors by natural community

Per acre, fee title (2017)

\$13,500	cultivated agriculture: non-rice
\$4,237	annual grassland, assuming small parcels 50 - 160 acres that have homesite value

Assumptions/Notes:

These cost factors are solely for the purposes of developing planning level estimates of the reserve assembly component of implementation costs. Actual land costs vary significantly around this average, depending on parcel-specific factors. Actual costs will be determined by qualified appraisals of each potential acquisition site. The mid-point of the range for Class I & II irrigated vegetable crop soils in ASFMRA 2017 is \$17,600 per acre; the midpoint for Class II & III field crop soils is \$10,500 per acre. Weighting these two values by the percentage of Yolo County Crop land in irrigated vegetable crops vs. field crops (per the 2016 Yolo County Crop Report) results in a weighted average of \$13,200 per acre which is rounded up to \$13,500 per acre. The use of the weighted average approach to value is justified based on the greater likelihood of finding willing sellers among those owning land of lower value soil types with more constraints on use or properties subject to flooding.

Transaction costs (appraisal, preliminary title report, legal description, boundary surveys, negotiating easement terms, Phase 1 site assessment, and site-specific management plan)

\$45,000	per transaction for newly protected lands
\$30,000	per transaction for site-specific management plans

Pre-acquisition survey and evaluation (contractor cost)

Assumptions/Notes:

Covers costs to verify biological resources in the field to determine the degree to which they are suitable for achieving Yolo HCP/NCCP biological goals and objectives. Includes evaluation of infrastructure and other site conditions. The work will be completed by Qualified Biologists and includes field work, data collection, and report writing. Land cover type surveys include surveys for federal and state jurisdictional waters, and submitting of a report to the USACE and obtaining a verification. Covered wildlife surveys include surveys at a protocol level.

160	acres, assumed average parcel size
24	hours per parcel for land cover type and habitat assessment surveys
24	hours per parcel for covered species surveys
1.25	due diligence premium to account for land surveyed but not acquired.
0.38	average hours per acre, with due diligence premium
\$67	average cost per acre, with due diligence premium
\$10,654	average cost per 160 acre parcel, with due diligence premium
\$178	hourly cost for biologist

Table 10
Restore Natural Communities

Final Yolo HCP/NCCP	Conservation Strategy / Plan Status
Jan-18	Cost Model date
2017	constant dollars

Detail may not add to total due to independent rounding.

Site improvements on land acquired in fee title for restoration

Assumptions/Notes:

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

Includes labor and necessary materials.

Fencing

10,560	linear feet, parcel perimeter, quarter section of 160 acres (0.5 miles wide by 0.5 miles long)
100%	percent of existing fence that needs repair/replacement at acquisition
\$8.47	cost per linear foot for fence repair/replacement
\$559	cost of fence repair/replacement per parcel acre

Components of other site improvement cost, per parcel (assume 160 acre average)

\$1,589	demolition/stabilization of old facilities
\$26,483	road removal/repair
\$4,237	gate repair replacement
\$1,059	signage
\$1,589	other security
\$218	cost of other site improvements per parcel acre

Cost per acre for restoration by natural community type

	Fresh Emergent Wetland (wetlands only)	Valley Foothill Riparian	Lacustrine & Riverine
Pre-construction restoration planning surveys	\$426	\$426	\$237
Bid assistance	\$191	\$169	\$127
Plans, specifications, and engineering	\$4,767	\$4,237	\$3,178
Construction activity	\$19,068	\$16,949	\$12,712
Construction biological monitoring	\$379	\$379	\$379
Construction oversight	\$953	\$847	\$636
Post-construction restoration monitoring & maintenance	\$14,301	\$25,424	\$9,534
Total per acre, before contingency	\$40,085	\$48,432	\$26,802
Restoration contingency	\$4,009	\$4,843	\$2,680
Total per acre, including contingency	\$44,094	\$53,275	\$29,482

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 activity cost for fresh emergent wetland is the cost per acre for project sites that include wetland restoration as well as associated uplands.

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.

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

Table 10
Restore Natural Communities

Final Yolo HCP/NCCP Jan-18 2017	Conservation Strategy / Plan Status Cost Model date constant dollars
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Restoration planning surveys	Hours per acre 75 assumed average parcel size
for fresh emergent wetland	2.40 180 total hours per parcel for field work and reporting
for valley foothill riparian	2.40 180 total hours per parcel for field work and reporting
for lacustrine/riverine	1.33 100 total hours per parcel for field work and reporting
Construction monitoring for sensitive species and habitats, all land covers	2.13 160 total hours per parcel for construction monitoring, one month of oversight, 40 hours per week
Bid assistance all land covers	1.0% of construction cost, all land covers
Plans, specifications, and engineering, all land covers	25% of construction cost, all land covers
Construction oversight, all land covers	5% of construction cost, all land covers
Restoration contingency	10%
Post-construction restoration monitoring & maintenance cost as percent of total construction costs	
All wetland land covers	15%
Years of post-construction monitoring & maintenance following installation of restoration project	
Emergent wetland, riverine, and lacustrine	5 coincides with 5-year period in which restoration occurs
Valley foothill riparian	10 coincides with 5-year period in which restoration occurs and 5 years thereafter
Environmental compliance for restoration projects	
<u>Assumptions/Notes:</u>	
Covers costs to comply with environmental laws and regulations such as the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), Clean Water Act (CWA), and National Historic Preservation Act (NHPA), as well as California Department of Fish and Game Section 1602 Streambed Alteration permitting, and other permits and approvals such as County grading, road encroachment or other permitting requirements.	
Not all projects would require the same level of effort; some projects would be covered by general permits.	
Costs include all permit and application fees.	
3.0%	percent of restoration cost budgeted for various environmental compliance reporting and permit and application fees
Natural community management and enhancement - 6.4.3.5.3 and 6.4.3.5.5	
Newly Protected Lands:	
<u>Assumptions/Notes:</u>	
Active reserve land management is limited to the acres acquired in fee title for the purpose of habitat restoration.	
Active reserve land management activities include: signage installation and repair, trash/debris removal, and vegetation and pest management, including invasive species control.	
Labor is contracted and vehicles and equipment are rented. Supervision provided by YHC staff.	
Costs to manage water in restored GGS habitat estimated as a separate line item.	
\$53	annualized cost per acre to manage valley foothill riparian acres, including costs for labor, supplies, equipment and vehicles
\$30	annualized cost per acre to manage fresh emergent wetland, lacustrine and riverine acres, including costs for labor, supplies, equipment and vehicles
\$130	annualized cost per acre to manage water supply in aquatic habitat for giant garter snake.
Includes water supply cost, electricity, well and pump maintenance/repair, berm and flashboard maintenance and repair.	
Sources: On-going task and cost analyses prepared in 2005 and 2008 for mitigation banks in Yolo County, updated to 2017 dollars.	
185	acres of restored aquatic habitat flooded for GGS, complete reserve system (Table 5 -7)
Remedial measures to address changed circumstances (7.7.1)	
<u>Assumptions/Notes:</u>	
Covers costs associated with responses to adaptive management findings as well as costs for restoration or maintenance of reserve areas in response to other changed circumstances such as new species listings, climate change, wildfire, nonnative invasive species or disease, flooding, drought, or earthquakes.	
Remedial measures for restored lands are included as a restoration cost.	
10%	percent of all management costs on restored lands budgeted for remedial measures on the reserve lands

Table 10
Restore Natural Communities

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

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Species biological monitoring on restored lands - 6.5.3.2

2.0		survey crew: number of qualified biologist contractors per survey visit, all surveys											
\$178		qualified biologist hourly rate, including meals and travel for 8 hour day											
Species	Restored Acres Monitored for Species	Baseline Surveys						Status and Trends Monitoring				ANNUAL TOTALS	
		Acres Restored every Five Years (Per "Input Schedule")	Survey Days for Survey Crew (Annually, per parcel)	Data Summary/ Reporting for Survey Crew (Annually, per parcel)	Number of Years to Establish Baseline, per parcel	Person Hours Needed to Establish Baseline, per parcel	Total Person Hours Needed to Establish the Baseline over the Permit Term	Survey Recurrence After Baseline (Years)	Total Person Hours for Every Recurring Survey	Total Surveys Needed for the Permit Term	Total Person Hours for Trends Surveys	Average Number of Monitoring Days per Year	Total person hours per year (8 hour days)
Valley elderberry longhorn beetle	531	66	5	2	5	560	4,480	5	112	45	5,040	16	190
California tiger salamander													
Upland dispersal	-	-	-	-	-	-	-	-	-	-	-	-	-
Aquatic breeding	36	5	2	1	5	240	1,920	3	48	31	1,488	6	68
Western pond turtle													
Aquatic	369	46	3	1	5	320	2,560	7	64	67	4,288	11	137
Upland dispersal	-	-	-	-	-	-	-	-	-	-	-	-	-
Giant garter snake													
Rice	-	-	-	-	-	-	-	-	-	-	-	-	-
Aquatic	109	14	3	1	5	320	2,560	5	64	45	2,880	9	109
Freshwater emergent wetland	76	10	3	1	5	320	2,560	5	64	45	2,880	9	109
Active upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Overwintering upland	-	-	-	-	-	-	-	-	-	-	-	-	-
Swainson's hawk													
Nesting	598	75	3	1	3	192	1,536	5	64	45	2,880	7	88
Foraging (covered in cultivated lands monitoring cost)	-	-	-	-	-	-	-	-	-	-	-	-	-
White-tailed kite													
Nesting	598	75				-	-		-	-	-	-	-
Foraging (covered in cultivated lands monitoring cost)	-	-	-	-	-	-	-	-	-	-	-	-	-
Western yellow-billed cuckoo	100	13	2	2	3	192	1,536	3	64	31	1,984	6	70
Western burrowing owl	-	-	-	-	-	-	-	-	-	-	-	-	-
Least Bell's vireo	80	10				-	-		-	-	-	-	-
Bank swallow	-	-	-	-	-	-	-	-	-	-	-	-	-
Tricolored blackbird													
Nesting	86	11	2	1	5	240	1,920	3	48	31	1,488	6	68
Foraging (covered in cultivated lands monitoring cost)	-	-	-	-	-	-	-	-	-	-	-	-	-
total person hours for baseline surveys, per period in which restoration occurs						2,384	total person hours for recurring surveys, per permit term				22,928		
number of periods for baseline surveys						8	total contractor cost for recurring surveys, per permit term				\$4,071,153		

Table 11
Manage and Enhance the Reserve System

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

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Cost for management planning and on-going management and enhancement of the reserve system	Permit Period (years)											50 Year Total
	Start up	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	
YHC oversight and management (staff & overhead)	\$0	\$302,659	\$410,399	\$410,399	\$410,399	\$302,659	\$302,659	\$302,659	\$302,659	\$306,995	\$306,995	\$3,358,482
Reserve unit management plans	\$0	\$317,800	\$323,098	\$148,309	\$148,309	\$148,309	\$148,309	\$148,309	\$148,309	\$148,309	\$148,309	\$1,827,370
Invasive species control program	\$0	\$105,934	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$105,934
Management cost on pre-permit lands/existing endowments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Management cost on other pre-permit reserve lands	\$0	\$45,396	\$90,792	\$136,187	\$181,583	\$226,979	\$272,375	\$317,771	\$363,166	\$408,562	\$408,562	\$2,451,373
Management cost for alkali prairie reserve lands	\$0	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$1,060,000
Cost to establish hedgerows on newly protected cultivated lands	\$0	\$143,620	\$143,620	\$143,620	\$143,620	\$143,620	\$143,620	\$143,620	\$143,620	\$143,620	\$0	\$1,292,580
Cost manage hedgerows on newly protected cultivated lands	\$0	\$11,183	\$22,365	\$33,548	\$44,730	\$55,913	\$67,095	\$78,278	\$89,460	\$100,643	\$100,643	\$603,857
Cost to establish hedgerows on pre-permit reserve cultivated lands	\$0	\$36,490	\$36,490	\$36,490	\$36,490	\$36,490	\$36,490	\$36,490	\$36,490	\$36,490	\$0	\$328,410
Cost manage hedgerows on pre-permit reserve cultivated lands	\$0	\$2,841	\$5,682	\$8,524	\$11,365	\$14,206	\$17,047	\$19,888	\$22,729	\$25,571	\$25,571	\$153,424
Planting nest trees on newly protected cultivated lands	\$0	\$72,936	\$72,936	\$72,936	\$72,936	\$72,936	\$72,936	\$72,936	\$72,936	\$72,936	\$0	\$656,424
Planting nest trees on pre-permit reserve cultivated lands	\$0	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$18,531	\$0	\$166,780
Western burrowing owl enhancements on grassland preserves	\$0	\$7,517	\$7,517	\$8,563	\$8,563	\$9,610	\$9,610	\$10,657	\$10,657	\$11,703	\$4,187	\$88,583
Remedial measures	\$0	\$117,091	\$123,743	\$112,311	\$118,253	\$113,525	\$119,467	\$125,514	\$131,456	\$137,936	\$110,027	\$1,209,322
Remedial measures to address regional loss of SWHA foraging habitat	\$0	\$116,527	\$116,527	\$116,527	\$116,527	\$116,527	\$116,527	\$116,527	\$116,527	\$116,527	\$116,527	\$1,165,270
Total	\$0	\$1,404,523	\$1,477,700	\$1,351,945	\$1,417,306	\$1,365,305	\$1,430,666	\$1,497,179	\$1,562,540	\$1,633,823	\$1,326,820	\$14,467,808

YHC oversight and management

Assumptions/Notes:

Includes costs associated with the adaptive management decision-making process.

25%	percent of Senior Environmental Scientist time allocated to Reserve Management
67%	percent of Restoration/Reserve Project Manager time allocated to Reserve Management until restoration projects are complete in year 40
100%	percent of Restoration/Reserve Project Manager time allocated to Reserve Management after year 40

Reserve management plans - 6.4.3.3 (prepared/updated by contractors)

Assumptions/Notes:

One for each of 7 reserve management units. Initial cost and periodic updates during permit term. Includes costs for a management plan that incorporates existing protected lands in reserve management units.

Management plans will address actions under 5.4.3.4.2 Management and Enhancement of Connectivity, identifying measures, strategies, and implementing responsibilities.

Management plans will cover newly protected lands and pre-permit reserve lands enrolled in the reserve.

Site-specific management plans will be prepared based on guidelines in reserve unit management plans. The costs are included in the reserve assembly cost category.

Baseline ecological surveys are covered as a monitoring cost.

\$79,450	initial cost for reserve management plan, per reserve management unit. Four completed in first 5-year period. Three completed in second 5-year period.
\$21,187	cost per reserve management unit to update the management plan every 5 years

Invasive species control program - 6.4.3.4.1 (prepared by contractors/updated by staff)

\$105,934	initial cost incurred during first 5-year period. Subsequently updated by staff; included as a Plan Administration cost.
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Pollinator strategy - 6.4.3.4.3

This is largely a coordination and communication effort that will be the responsibility of Plan Administration staff.

Table 11
Manage and Enhance the Reserve System

Final Yolo HCP/NCCP	Conservation Strategy / Plan Status
Jan-18	Cost Model date
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Natural community management and enhancement - 6.4.3.5

Newly protected lands:

Assumptions/Notes:

Active reserve land management is limited to the acres acquired in fee title for the purpose of habitat restoration.

Active reserve land management activities include: fencing, gate, and signage installation and repair; trash/debris removal; and vegetation and pest management, including invasive species control.

Labor is contracted and vehicles and equipment are rented. Supervision provided by YHC staff.

Costs to manage water in restored GGS habitat estimated as a separate line item.

All other newly protected lands in the reserve are assumed acquired by means of conservation easements. The landowner retains responsibility for management, according to the terms of the easement.

Management and enhancement activities would not incur significant environmental compliance costs. Any environmental compliance costs for these management activities are covered in Plan Administration.

Pre-permit reserve lands:

Assumptions/Notes:

Many of the pre-permit reserve acres that will be enrolled have existing endowments and/or agricultural income that cover reserve management costs.

Management and enhancement activities would not incur significant environmental compliance costs. Any environmental compliance costs for these management activities are covered in Plan Administration.

Other pre-permit reserve lands do not have existing endowments or income to support these activities and enrollment will be contingent on upgraded and standardized management to provide a cohesive reserve system.

4,857	acres in pre-permit reserve lands that have endowments or agricultural income (Sites 1 - 23)
\$0	annualized cost to YHC to manage these pre-permit reserve lands
3,143	acres in pre-permit reserve lands that are enrolled that do not have existing endowments or agricultural income or may require enhanced HCP/NCCP management
\$26	annualized cost per acre to YHC to manage these pre-permit reserve lands (NOMINAL PLACEHOLDER ESTIMATE)

Alkali prairie - 6.4.3.5.4:

Assumptions/Notes:

The YHC will manage alkali prairie habitat and associated uplands for covered and other native species by improving hydrologic conditions and reducing adverse effects of nonnative plants and human activities.

Note that cost factor includes monitoring as well as reserve management activities.

100	acres of alkali prairie reserve at Woodland Regional Park: 34 acres alkali prairie habitat plus 66 acres of upland grassland
\$212	cost per acre for management/monitoring activities on alkali prairie and associated uplands; based on Alkali Grasslands Preserve Management Plan, 12/30/2014

Enhance Swainson's hawk foraging and nesting habitat on cultivated lands reserve lands - 6.4.3.6.1

Assumptions/Notes:

Cultivated reserve lands will be enhanced by providing uncultivated habitat strips adjacent to cultivated fields.

There will be some opportunity cost as a result of the loss of productive land, and there might be some longer-term higher costs associated with on-going management practices, compared to a situation without hedgerows.

These longer-term effects are likely to be relatively small, however. Offsetting economic benefits may include enhanced weed control, soil erosion control, and increased beneficial insect activity.

Hedgerows would be established at parcel edges along existing roads, canals, or drainage ditches.

This cost estimate is for a hedgerow native grasses, forbs, shrubs and trees for purposes of demarcation as well as nesting habitat. A less intensive hedgerow of largely native perennial grassland with a limited number of trees would be less costly.

The cost estimates include site analysis and design, site preparation, installation, and three years of maintenance to ensure establishment.

160	average easement parcel size (quarter section)
2,640	hedgerow length, assuming along one perimeter edge
20	hedgerow width
1.21	hedgerow area in acres, per parcel
\$11,865	cost per hedgerow acre to plan, prepare, and install a hedgerow and maintain the hedgerow for three years.
\$14,400	hedgerow cost per easement parcel
\$185	cost per hedgerow acre for perpetual maintenance
\$224	cost of perpetual maintenance per easement parcel
14,362	newly protected non-rice cultivated lands in the reserve system
3,649	acres of pre-permit reserve lands that are non-rice cultivated lands

Table 11
Manage and Enhance the Reserve System

Final Yolo HCP/NCCP	Conservation Strategy / Plan Status
Jan-18	Cost Model date
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Plant Swainson's hawk nest trees - 6.4.3.6.1

Assumptions/Notes:

YHC will establish native trees within the cultivated lands reserve system at a density of at least 1 tree per 10 acres (protected existing trees count towards the density requirement).

Associated surveying and monitoring costs are covered in the Monitoring and Research cost category.

14,362	newly protected non-rice cultivated lands in the reserve system
3,649	acres of pre-permit reserve lands that are non-rice cultivated lands
18,011	total non-rice cultivated lands in the reserve system
1,801	total nest trees at 1 per 10 acres
(34)	credit for existing protected nest trees (6.3.4.6.3)
1,767	net new nest trees to be established in the cultivated lands reserve system
50%	percent of net new nest trees included in hedgerow cost
705	net new nest trees on newly protected lands (based on percent of total cultivated reserve acres that are newly protected)
179	net new nest trees on pre-permit reserve lands (based on percent of total cultivated reserve acres that are pre-permit reserve sites)
\$847	cost per tree including planting, fertilizer, irrigation, and three years of maintenance to establish
10%	replacement allowance to ensure success of tree planting

Enhancements for the western burrowing owl - 6.4.3.5.2

Assumptions/Notes:

YHC will enhance grassland preserves to encourage occupancy by burrowing owls. Enhancements include artificial nest boxes and debris piles

3,000	acres of grassland habitat
2	nest boxes per 100 acres of grassland habitat
60	total number of nest boxes installed
\$333	cost per nest box, initial installation, including materials, labor, and equipment
\$157	cost per nest box, replacement every 10 years, including materials, labor and equipment
1	debris piles per 200 acres of grassland habitat
15	total number of debris piles
\$3,178	cost per debris pile, materials (labor and equipment included in nest box installation cost). No replacement required.

Remedial measures to address changed circumstances (7.7.1)

Assumptions/Notes:

Covers costs associated with responses to adaptive management findings as well as costs for restoration or maintenance of reserve areas in response to other changed circumstances such as new species listings, climate change, wildfire, nonnative invasive species or disease, flooding, drought, or earthquakes.

Remedial measures for restored lands are included as a restoration cost.

10%	percent of all other reserve management costs budgeted for remedial measures on these reserve lands
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Remedial measures for regional loss of Swainson's hawk habitat

Assumptions/Notes:

Covers costs to implement a menu of activities to address the potential regional loss of Swainson's hawk foraging habitat below identified thresholds. Could fund additional enhancements, land acquisition, or incentives to discourage crop conversions.

\$116,527	anticipated cost per 5-year period, including plan preparation at about \$100,000
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Table 12
Species and Natural Community Monitoring, Research, and Scientific Review

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
 Jan-18 Cost Model date
 2017 constant dollars

Detail may not add to total due to independent rounding.

Cost for biological monitoring and adaptive management studies	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	50 Year Total
Natural community monitoring - newly protected lands	\$0	\$70,315	\$113,462	\$156,610	\$156,610	\$199,758	\$199,758	\$242,906	\$286,053	\$286,053	\$258,886	\$1,970,411
Natural community monitoring - pre-permit reserve lands	\$0	\$46,877	\$74,576	\$102,276	\$102,276	\$129,976	\$129,976	\$157,676	\$185,375	\$185,375	\$166,199	\$1,280,581
Species monitoring - newly protected lands	\$0	\$357,966	\$470,729	\$583,492	\$655,250	\$768,013	\$829,520	\$942,282	\$1,055,045	\$1,126,803	\$881,600	\$7,670,700
Species monitoring - pre-permit reserve lands	\$0	\$145,956	\$190,153	\$234,349	\$261,972	\$306,168	\$333,791	\$377,987	\$422,183	\$449,806	\$348,046	\$3,070,411
YHC oversight and management (staff & overhead)	\$0	\$389,836	\$389,836	\$389,836	\$389,836	\$389,836	\$389,836	\$389,836	\$389,836	\$292,377	\$292,377	\$3,703,444
Research	\$0	\$158,901	\$105,934	\$105,934	\$52,967	\$52,967	\$0	\$0	\$0	\$0	\$0	\$476,703
Science advisors	\$0	\$69,960	\$69,960	\$69,960	\$69,960	\$69,960	\$69,960	\$69,960	\$69,960	\$34,980	\$34,980	\$629,640
Total	\$0	\$1,239,811	\$1,414,650	\$1,642,457	\$1,688,871	\$1,916,677	\$1,952,840	\$2,180,647	\$2,408,453	\$2,375,395	\$1,982,088	\$18,801,889

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.
 - YHC 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.
 - YHC 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 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.
 - Species monitoring on restored lands is included as a Habitat Restoration cost.
 - Compliance monitoring to track the status of HCP/NCCP implementation is covered as a Plan Administration cost.
 - 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.
- | | |
|-------|--|
| 50% | percent of Senior Environmental Scientist time allocated to Monitoring & Research |
| 1.5 | survey crew: number of qualified biologist contractors per survey visit, all surveys |
| \$178 | qualified biologist hourly rate, including meals and travel for 8 hour day |

Table 12
Species and Natural Community Monitoring, Research, and Scientific Review

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
 Jan-18 Cost Model date
 2017 constant dollars

Detail may not add to total due to independent rounding.

Natural community biological monitoring on newly protected lands - 6.5.3.2

	Newly Protected Lands by Natural Community	Acres Acquired every Five Years (Per "Input Schedule")	Baseline Surveys					Status and Trends Surveys					ANNUAL TOTALS		
			Survey Days for Survey Crew (Annually, per parcel)	Data Summary/ Reporting for Survey Crew (Annually, per parcel)	Number of Years to Establish Baseline, per parcel	Person Hours Needed to Establish Baseline, per parcel	Total Person Hours Needed to Establish the Baseline over the Permit Term	Survey Recurrence After Baseline (Years)	Total Person Hours for Every Recurring Survey	Total Surveys Needed for the Permit Term	Total Person Hours for Trends Surveys	Average Number of Monitoring Days per Year	Total person hours per year (8 hour days)		
Natural Communities															
Cultivated lands: wetland (rice)	2,800	311	0.50	0.25	2.00	18	162	3	9	31	279	1	9		
Cultivated lands: non-wetland	14,362	1,596	2.00	1.50	1.00	42	378	3	42	31	1,302	3	34		
Grassland	4,364	485	2.00	1.00	3.00	108	972	3	36	31	1,116	3	42		
Blue oak woodland	10	1	0.50	0.50	1.00	12	108	3	12	31	372	1	10		
Valley oak woodland	20	2	0.50	0.50	1.00	12	108	3	12	31	372	1	10		
Alkali prairie (covered in management cost factor)	100	11	-	-	-	-	-	-	-	-	-	-	-		
Fresh emergent wetland	500	56	2.00	1.00	2.00	72	648	3	36	31	1,116	3	35		
Valley foothill riparian	1,600	178	3.00	2.00	1.00	60	540	3	60	31	1,860	4	48		
Lacustrine and riverine	600	67	1.50	1.50	2.00	72	648	3	36	31	1,116	3	35		
total person hours for baseline surveys, per period in which acquisition occurs						396	total person hours for trends surveys, permit term						7,533		
number of periods for baseline surveys						9	total contractor cost for trends surveys, permit term						\$1,337,578		

Natural community biological monitoring on pre-permit reserve lands - 6.5.3.2

Assumptions/Notes:

Some of the pre-permit reserve acres that will be enrolled have existing endowments and/or agricultural income that cover natural community and species biological monitoring costs. Other pre-permit reserve lands do not have existing endowments or income to support these activities and enrollment will be contingent on upgraded and standardized monitoring to provide a cohesive reserve system.

3,159	acres in pre-permit reserve lands that have endowments or agricultural income that are presumed to cover natural community monitoring (Sites 1 - 10)
\$0	annualized cost to YHC to monitor natural communities on these pre-permit reserve lands
4,841	acres in pre-permit reserve lands that are enrolled that do not have existing endowments or agricultural income or that may require enhanced NCP/NCCP monitoring

Natural community biological monitoring on pre-permit reserve lands without endowments or income (illustrative for the purposes of planning level estimates)

	Pre-permit Reserve Lands (other sites besides 1 - 10) by Natural Community	Acres Acquired every Five Years (Per "Input Schedule")	Baseline Surveys					Status and Trends Surveys					ANNUAL TOTALS	
			Survey Days for Survey Crew (Annually, per parcel)	Data Summary/ Reporting for Survey Crew (Annually, per parcel)	Number of Years to Establish Baseline, per parcel	Person Hours Needed to Establish Baseline, per parcel	Total Person Hours Needed to Establish the Baseline over the Permit Term	Survey Recurrence After Baseline (Years)	Total Person Hours for Every Recurring Survey	Total Surveys Needed for the Permit Term	Total Person Hours for Trends Surveys	Average Number of Monitoring Days per Year	Total person hours per year (8 hour days)	
Natural Communities														
Cultivated lands: wetland (rice)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cultivated lands: non-wetland	3,649	405	1.00	1.50	1.00	30	270	3	30	31	930	2	24	
Grassland	254	28	1.00	1.00	3.00	72	648	3	24	31	744	2	28	
Alkali prairie (covered by existing endowment)	55	6	-	-	-	-	-	-	-	-	-	-	-	
Vernal pool complex	27	3	1.00	1.00	2.00	48	432	3	24	31	744	2	24	
Fresh emergent wetland	-	-	-	-	-	-	-	-	-	-	-	-	-	
Valley foothill riparian	153	17	1.50	2.00	1.00	42	378	3	42	31	1,302	3	34	
Lacustrine and riverine	41	5	1.50	1.50	2.00	72	648	3	36	31	1,116	3	35	
total person hours for baseline surveys, per period in which acquisition occurs						264	total person hours for trends surveys, permit term						4,836	
number of periods for baseline surveys						9	total contractor cost for trends surveys, permit term						\$858,692	

Table 12
Species and Natural Community Monitoring, Research, and Scientific Review

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
 Jan-18 Cost Model date
 2017 constant dollars

Detail may not add to total due to independent rounding.

Species Biological Monitoring on Newly Protected Lands - 6.5.3.2

Species	Baseline Surveys							Status and Trends Monitoring				ANNUAL TOTALS	
	Newly Protected Lands Monitored for Species	Acres Acquired every Five Years (Per "Input Schedule")	Survey Days for Survey Crew (Annually, per parcel)	Data Summary/ Reporting for Survey Crew (Annually, per parcel)	Number of Years to Establish Baseline, per parcel	Person Hours Needed to Establish Baseline, per parcel	Total Person Hours Needed to Establish the Baseline over the Permit Term	Survey Recurrence After Baseline (Years)	Total Person Hours for Every Recurring Survey	Total Surveys Needed for the Permit Term	Total Person Hours for Trends Surveys	Average Number of Monitoring Days per Year	Total person hours per year (8 hour days)
Valley elderberry longhorn beetle	1,600	178	3.0	2.0	3.0	180	1,620	5	60	45	2,700	7	86
California tiger salamander													
Upland dispersal	2,000	222	-	-	-	-	-	-	-	-	-	-	-
Aquatic Breeding	36	4	3.0	2.0	3.0	180	1,620	3	60	31	1,860	6	70
Western pond turtle													
Aquatic	2,400	267	8.0	2.0	1.0	120	1,080	3	120	31	3,720	8	96
Upland dispersal	-	-	-	-	-	-	-	-	-	-	-	-	-
Giant garter snake													
Rice	2,800	311	4.0	3.0	5.0	420	3,780	5	84	45	3,780	13	151
Aquatic	420	47	2.0	1.0	5.0	180	1,620	5	36	45	1,620	5	65
Freshwater emergent wetland	500	56	2.0	1.0	5.0	180	1,620	5	36	45	1,620	5	65
Active upland	1,160	129	-	-	-	-	-	-	-	-	-	-	-
Overwintering upland	2,315	257	-	-	-	-	-	-	-	-	-	-	-
Swainson's hawk													
Nesting	1,600	178	3.0	1.0	3.0	144	1,296	5	48	45	2,160	6	69
Foraging (covered in cultivated lands monitoring cost)	18,792	2,088	-	-	-	-	-	-	-	-	-	-	-
White-tailed kite													
Nesting (covered in Swainson's hawk nesting cost)	1,600	178	-	-	-	-	-	-	-	-	-	-	-
Foraging (covered in cultivated lands monitoring cost)	18,797	2,089	-	-	-	-	-	-	-	-	-	-	-
Western yellow-billed cuckoo	500	56	3.0	2.0	3.0	180	1,620	3	60	31	1,860	6	70
Western burrowing owl	5,500	611	3.0	2.0	3.0	180	1,620	5	60	45	2,700	7	86
Least Bell's vireo	600	67	-	-	-	-	-	-	-	-	-	-	-
Bank swallow	50	6	2.0	2.0	3.0	144	1,296	4	48	40	1,920	5	64
Tricolored blackbird													
Nesting	200	22	2.0	1.0	3.0	108	972	3	36	31	1,116	3	42
Foraging (covered in cultivated lands monitoring cost)	16,610	1,846	-	-	-	-	-	-	-	-	-	-	-
Palmate-bracted bird's beak (covered in mngmt cost factor)	34		-	-	-	-	-	-	-	-	-	-	-
Total person hours for baseline surveys, per period in which acquisition occurs						2,016	Total person hours for recurring surveys, per permit term				25,056		
number of periods for baseline surveys						9	Total contractor cost for recurring surveys, per permit term				\$4,449,006		

Table 12

Species and Natural Community Monitoring, Research, and Scientific Review

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
 Jan-18 Cost Model date
 2017 constant dollars

Detail may not add to total due to independent rounding.

Species biological monitoring on pre-permit reserve lands - 6.5.3.2

Assumptions/Notes:

Some of the pre-permit reserve acres that will be enrolled have existing endowments and/or agricultural income that cover natural community and species biological monitoring costs.
 This cost analysis assumes only the six mitigation bank sites have sufficient endowment revenue to cover species monitoring. All other pre-permit reserve sites will need species monitoring.
 Other pre-permit reserve lands do not have existing endowments or income to support these activities and enrollment will be contingent on upgraded and standardized monitoring to provide a cohesive reserve system.

Species biological monitoring on pre-permit reserve lands without endowments or income (illustrative for the purposes of planning level estimates)

Species	Baseline Surveys						Status and Trends Monitoring					ANNUAL TOTALS	
	Pre-permit Reserve Lands Monitored for Species	Acres Enrolled every Five Years (Per "Input Schedule")	Survey Days for Survey Crew (Annually, per parcel)	Data Summary/ Reporting for Survey Crew (Annually, per parcel)	Number of Years to Establish Baseline, per parcel	Person Hours Needed to Establish Baseline, per parcel	Total Person Hours Needed to Establish the Baseline over the Permit Term	Survey Recurrence After Baseline (Years)	Total Person Hours for Every Recurring Survey	Total Surveys Needed for the Permit Term	Total Person Hours for Trends Surveys	Average Number of Monitoring Days per Year	Total person hours per year (8 hour days)
Valley elderberry longhorn beetle	105	12	1.0	1	3	72	648	5	24	45	1,080	3	35
California tiger salamander													
Upland dispersal	222	25				-	-	-	-	-	-	-	-
Aquatic Breeding	35	4	1.5	1	3	90	810	3	30	31	930	3	35
Western pond turtle													
Aquatic	42	5	2.0	1	1	36	324	3	36	31	1,116	2	29
Upland dispersal	-	-	-	-	-	-	-	-	-	-	-	-	-
Giant garter snake													
Rice	1,000	111	2.0	3.0	5.0	300	2,700	5	60	45	2,700	9	108
Aquatic	18	2	0.5	1	5	90	810	5	18	45	810	3	32
Freshwater emergent wetland	-	-	-	-	-	-	-	-	-	-	-	-	-
Active upland	18	2	-	-	-	-	-	-	-	-	-	-	-
Overwintering upland	39	4	-	-	-	-	-	-	-	-	-	-	-
Swainson's hawk													
Nesting	184	20	1.0	1.0	3.0	72	648	5	24	45	1,080	3	35
Foraging (covered in cultivated lands monitoring cost)	5,635	626	-	-	-	-	-	-	-	-	-	-	-
White-tailed kite													
Nesting (covered in Swainson's hawk nesting cost)	-	-	-	-	-	-	-	-	-	-	-	-	-
Foraging (covered in cultivated lands monitoring cost)	-	-	-	-	-	-	-	-	-	-	-	-	-
Western yellow-billed cuckoo	112	12	1.0	0.5	3.0	54	486	3	18	31	558	2	21
Western burrowing owl	763	85	2.0	1.0	3.0	108	972	5	36	45	1,620	4	52
Least Bell's vireo	83	9	-	-	-	-	-	-	-	-	-	-	-
Bank swallow	-	-	-	-	-	-	-	-	-	-	-	-	-
Tricolored blackbird													
Nesting	-	-	-	-	-	-	-	-	-	-	-	-	-
Foraging (covered in cultivated lands monitoring cost)	-	-	-	-	-	-	-	-	-	-	-	-	-
Palmate-bracted bird's beak (covered by existing endowment)	55	-	-	-	-	-	-	-	-	-	-	-	-
Total person hours for baseline surveys, per period in which acquisition occurs						822	Total person hours for recurring surveys, per permit term					9,894	
number of periods for baseline surveys						9	Total contractor cost for recurring surveys, per permit term					\$1,756,803	
902	acres in pre-permit reserve lands that have endowments or agricultural income (Sites 1 - 6, Mitigation Banks)												
\$0	annualized cost to YHC to monitor these pre-permit reserve lands												
7,099	acres in pre-permit reserve lands that are enrolled that do not have existing endowments or agricultural income or that may require enhanced NCP/NCCP monitoring												

Table 12
Species and Natural Community Monitoring, Research, and Scientific Review

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
 Jan-18 Cost Model date
 2017 constant dollars

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Research - 6.5.3.3 and 6.5.4.2

Assumptions/Notes:

The YHC will conduct and/or fund studies to identify preferred methods for monitoring, pilot projects to evaluate management techniques, and directed studies to resolve uncertainties to improve management for systems and species.

The YHC may use graduate students, university researchers, or other scientists to conduct these studies.

Research activities are complete by year 25.

\$158,901	per period cost for research studies, years 1 - 5
\$105,934	per period cost for research studies, years 6 - 15
\$52,967	per period cost for research studies, years 16 - 25

Science and Technical Advisory Committee (STAC) - 6.5.5.3

Assumptions/Notes:

Science advisors are scientists and resource management experts providing the YHC with science-based expert opinion and recommendations, "white papers", peer review and feedback regarding scientific aspects of plan implementation.

Average annual cost for STAC, Years 1-40	\$13,992
Average annual cost for STAC, Years 41-50	\$6,996
Number of members	5
Travel cost compensation per member per meeting (non chair)	\$106
Travel cost compensation per member per meeting (chair)	\$159
Number of meetings per year Years 1 - 40	24
Number of meetings per year Years 41 - 50	12

Table 13
Plan Administration

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

Detail may not add to total due to independent rounding.

Cost for administration and documentation of program compliance	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	50 Year Total
Staff Salaries and Benefits	\$0	\$2,044,526	\$2,044,526	\$2,129,274	\$2,129,274	\$2,214,022	\$2,086,902	\$2,086,902	\$2,002,154	\$1,875,033	\$1,747,913	\$20,360,525
Services, Supplies	\$0	\$306,679	\$306,679	\$319,391	\$319,391	\$332,103	\$313,035	\$313,035	\$300,323	\$281,255	\$262,187	\$3,054,079
Legal Services	\$0	\$492,750	\$492,750	\$242,750	\$242,750	\$242,750	\$242,750	\$242,750	\$242,750	\$242,750	\$242,750	\$2,927,500
Financial Services	\$0	\$132,417	\$132,417	\$132,417	\$132,417	\$132,417	\$132,417	\$132,417	\$132,417	\$132,417	\$132,417	\$1,324,170
State Agency Staff Support	\$0	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$2,500,000
Advocacy/Public Outreach	\$0	\$211,870	\$211,870	\$211,870	\$211,870	\$211,870	\$211,870	\$211,870	\$211,870	\$211,870	\$211,870	\$2,118,700
Neighboring Landowner Protection Program	\$0	\$13,667	\$13,667	\$13,667	\$13,667	\$13,667	\$13,667	\$13,667	\$13,667	\$13,667	\$0	\$123,000
GIS/Database Updates	\$0	\$15,890	\$15,890	\$15,890	\$15,890	\$15,890	\$15,890	\$15,890	\$15,890	\$15,890	\$15,890	\$158,900
Insurance	\$0	\$26,485	\$26,485	\$26,485	\$26,485	\$26,485	\$26,485	\$26,485	\$26,485	\$26,485	\$26,485	\$264,850
Rent	\$0	\$78,000	\$78,000	\$78,000	\$78,000	\$78,000	\$78,000	\$78,000	\$78,000	\$78,000	\$78,000	\$780,000
Risk Management / Easement Defense	\$0	\$17,980	\$26,013	\$33,918	\$41,823	\$49,728	\$57,633	\$65,538	\$73,443	\$81,475	\$85,555	\$533,103
Total	\$0	\$3,590,264	\$3,598,296	\$3,453,661	\$3,461,566	\$3,566,931	\$3,428,648	\$3,436,553	\$3,346,998	\$3,208,841	\$3,053,066	\$34,144,826

See 17_Staffing Plan and Costs for description of staff responsibilities and detail on cost assumptions

Legal services	
2,000	hours per period years 1-10
750	hours per period years after year 10
\$200	hourly rate, for in-house counsel
250	hours per period for outside special counsel
\$371	hourly rate, for outside special counsel
Financial services	
\$15,890	annual financial review/audit
\$52,967	cost per period for annual adjustment of fees; 5-year review of costs and funding
State agency staff support	
\$50,000	annual cost for 0.25 FTE Environmental Scientist Specialist, includes overhead and benefits (average of Senior and non-Senior staff rates)
Advocacy/public outreach	
\$42,374	annual cost for advocacy/public outreach services
Neighboring landowner protection program	
\$123,000	total cost over the permit term to fund baseline surveys on property participating in the program
GIS and database updates	
\$15,890	cost per period to update GIS land cover layers with aerial photographs, satellite imagery and other relevant data sources
Liability insurance/director's and officers/professional liability insurance	
\$5,297	annual premium, per YHC budget is \$2,500; multiply by 2
Occupancy	
1,000	square feet of office space leased
\$1.30	monthly rental rate, includes utilities (Loopnet, office rent listings in Woodland, December 2014) inflated to 2017 dollars
\$15,600	annual rent
Risk management / Conservation easement defense	
\$2,600	Land Trust Alliance annual membership for operating budget \$1,000,001 - \$2,000,000
\$900	Terraforma one-time registration fee for enrolling parcels, based on number of parcels enrolled (25 - 49)
\$63	Terraforma annual premium per parcel enrolled, 2018 rate
\$51	Terraforma annual premium per parcel enrolled, with accreditation/risk management discount (save \$11 + \$1 per parcel enrolled)

Table 14
Costs associated with Local Partner activities

Final Yolo HCP/NCCP	Conservation Strategy / Plan Status
Jan-18	Cost Model date
2017	constant dollars

Detail may not add to total due to independent rounding.

Cost for Local Partner activities in riparian corridors	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	50 Year Total	
Activities in Cache Creek riparian corridor	\$0	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$1,108,315	\$11,083,150
Activities in Lower Putah Creek riparian corridor	\$0	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$1,043,660	\$10,436,600
Total	\$0	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$2,151,975	\$21,519,750

Assumptions/Notes:

See Yolo Habitat Conservancy, Local Cost Share Sources and Potential Approaches, Yolo HCP/NCCP Local Cost Share Source Assessment, June 26, 2015 (costs updated here to 2017 dollars)

These activities will contribute to the conservation of habitat for species to be protected by the Yolo HCP/NCCP.

CCRMP activities in the Cache Creek riparian corridor - 6.4.3.7.1

\$53,927	Invasive species control
\$12,880	Elderberry surveys
\$50,262	Aerial survey
\$29,121	Creek Walk (monitor invasive species, special status species habitat, etc.)
\$12,353	Riparian vegetation mapping and analysis
\$33,121	OHV creekwide enforcement and restoration
\$29,999	Restoration and management of sites to be enrolled as newly protected lands (Millsap, Correll, and Capay Open Space Preserve)
\$221,663	Total annual cost

SCWA activities in the Putah Creek riparian corridor - 6.4.3.7.2

\$14,294	Invasive species control
\$78,620	Wildlife monitoring and assessment throughout Putah Creek corridor
\$23,037	Riparian and wetland restoration: supplies and materials
\$57,178	Riparian and wetland restoration: portion of Streamkeeper position (≈ 40%)
\$20,943	Riparian and wetland restoration: SCWA engineering and permitting support
\$10,471	Native plant propagation
\$4,189	equipment loan for HCP/NCCP activities
\$208,732	Total annual cost

**Table 15
Contingency**

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

Detail may not add to total due to independent rounding.

	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	50 Year Total
Reserve acquisition capital cost	\$0	\$23,492,046	\$23,237,826	\$23,237,826	\$23,237,826	\$23,237,826	\$23,237,826	\$23,237,826	\$23,237,826	\$21,810,996	\$0	\$207,967,821
Acquisition contingency	\$0	\$2,349,205	\$2,323,783	\$2,323,783	\$2,323,783	\$2,323,783	\$2,323,783	\$2,323,783	\$2,323,783	\$2,181,100	\$0	\$20,796,782
All other program costs, except restoration	\$0	\$9,177,781	\$9,633,869	\$9,732,944	\$9,970,334	\$10,340,095	\$10,409,072	\$10,864,928	\$11,210,199	\$10,435,808	\$7,531,158	\$99,306,188
General operating contingency	\$0	\$917,778	\$963,387	\$973,294	\$997,033	\$1,034,010	\$1,040,907	\$1,086,493	\$1,121,020	\$1,043,581	\$753,116	\$9,930,619
Total contingency fund	\$0	\$3,266,983	\$3,287,169	\$3,297,077	\$3,320,816	\$3,357,792	\$3,364,690	\$3,410,275	\$3,444,802	\$3,224,680	\$753,116	\$30,727,401

Assumptions / Notes:

Restoration contingency is included in restored lands costs.

No contingency factor is applied to the costs for local partner activities in riparian corridors.

10%	contingency factor for acquisition capital costs, including site improvements
10%	contingency factor for all other program costs, exclusive of acquisition capital and restoration costs and local partner activity costs

Table 16
Yolo HCP / NCCP Post-Permit Costs, Annual Average Costs in Perpetuity

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

Detail may not add to total due to independent rounding.

Cost Category	Annual Average Cost	Assumptions:
Assemble reserve, except restored lands	\$0	Reserve assembly complete in year 45
Restored lands, ongoing management	\$50,250	75 percent of annual average level of effort in year 50 is maintained on average in perpetuity
Restored lands, ongoing species monitoring	\$48,000	30 percent of annual average level of effort in year 50 is maintained on average in perpetuity
YHC reserve management staff and overhead	\$30,500	50 percent of annual average level of effort in year 50 is maintained on average in perpetuity
Reserve unit management plans	\$37,077	7 plans updated every 20 years, annualized cost
Other management costs	\$64,000	50 percent of annual average level of effort in year 50 is maintained on average in perpetuity
Natural communities monitoring, rest of reserve	\$0	not required after permit term
Species monitoring, rest of reserve	\$61,500	25 percent of annual average level of effort in year 50 is maintained on average in perpetuity
Plan administration	\$152,750	25 percent of annual average level of effort in year 50 is maintained on average in perpetuity
Local partner activities in riparian corridors	\$0	not required
Contingency fund	\$0	not required
Total	\$444,077	
Percent of average annual cost, years 46 - 50	21%	

Table 17
Staffing Plan and Cost Factors

Final Yolo HCP/NCCP Conservation Strategy / Plan Status
Jan-18 Cost Model date
2017 constant dollars

Responsibilities of program staff include the following:

Day-to-day management of the HCP/NCCP. This includes managing reserve acquisition, restoration, management and monitoring activities, reporting to the YHC Board and state and federal agencies.
 HCP/NCCP annual compliance reporting to state and federal agencies, including setting up and maintaining GIS and other databases.
 Coordination with other agencies and conservation programs on invasive species control programs (6.4.3.4.1)
 Coordination and communication with Plan Area agricultural programs on pollinator strategy, including assistance to secure funding and related public outreach (6.4.3.4.3)
 YHC staff responsibilities include monitoring to assess Cache Creek Resource Management Plan and Lower Putah Creek program progress towards meeting Yolo HCP/NCCP biological goals and objectives and benefitting covered species (6.4.3.7.1 and 6.4.3.7.2)
 Supervision of specialized contractor services as well as labor for restoration projects and reserve management.
 With Science and Technical Advisory Committee, specify targeted studies and review and direct the work of monitoring contractors.
 With Science and Technical Advisory Committee, implement adaptive management in response to findings of monitoring activities and reports.

Staffing plan Staff category	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	
Executive Director	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sr. Environmental Scientist, Specialist	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.75
Restoration/Reserve Project Manager	-	0.25	0.50	0.50	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Data Analyst/GIS Specialist	-	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Real Estate Specialist	-	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.25	0.25	-	-
Planner/Grant Specialist	-	0.50	0.50	0.50	0.50	0.50	0.25	0.25	0.25	0.25	-	-
Accountant/Budget Analyst	-	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Administrative Support	-	0.50	0.50	0.75	0.75	1.00	1.00	1.00	0.75	0.50	0.50	0.50
Total FTE	-	4.50	4.75	5.00	5.00	5.00	4.75	4.75	4.25	3.75	3.25	3.25

50%	percent of Senior Environmental Scientist time allocated to Monitoring & Research
25%	percent of Senior Environmental Scientist time allocated to Reserve Management
33%	percent of Restoration/Reserve Project Manager time and associated overhead allocated to Restoration, until restoration projects are completed in year 40.
67%	percent of Restoration/Reserve Project Manager time and associated overhead allocated to Reserve Management through year 40
100%	percent of Restoration/Reserve Project Manager time and associated overhead allocated to Reserve Management after year 40
100%	percent of Real Estate Specialist time and associated overhead allocated to Establish Reserve

All other staff time allocated to Plan Administration.

Staff cost assumptions

Annual salary per FTE	
\$127,121	Executive Director (Yolo County Cache Creek Area Plan, Manager of Natural Resources is \$110,000 at the high end of the range)
\$84,747	Sr. Environmental Scientist, Specialist (State of California , Senior Environmental Scientist, Specialist at high end of salary range)
\$69,916	Restoration/Reserve Project Manager (Cache Creek Conservancy, Habitat Restoration Manager, job announcement 10/2014 (range \$45K - 60K))
\$79,450	Data Analysis and Management/GIS Specialist (Yolo County General Services/Information Technology, Senior Business Systems Analyst)
\$74,154	Real Estate Specialist (Yolo County Assessor, Principal Appraiser)
\$63,560	Planner/Grant Specialist (Yolo County Cache Creek Area Plan, Natural Resources Program Coordinator)
\$58,264	Accountant/Budget Analysis (Yolo County General Services, Accountant)
\$42,374	Administrative Support (Yolo County Planning and Public Works, Office Support Specialist)

Assumptions/Notes:

60%	Benefit multiplier applied to annual salary across all staff categories
15%	Services and supplies as percent of salaries and benefits, based on analysis of 2014/15 YHC budget