

REFUGE  
CHARTERS APPENDIX B

*For the*  
2017 ANNUAL WORK PLAN  
PUBLIC FINAL

CENTRAL VALLEY PROJECT IMPROVEMENT ACT  
Title XXXIV of public law 102-575

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## RWSP Technical Support

Technical Support Administering the Refuge Water Supply Program - Conveyance, Construction, and Water Acquisition components.

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Classification: Administration, Administration

Location: Central Valley Project Improvement Act

Funding Years: 2017 - 2018

Benefits Start Year: 2017

Priority: 1 - 1) Labor & overhead (Administrative and Technical); 2) Conveyance of 100% Level 2 water, subject to CVP water supply availability; 3) Acquisition and conveyance of IL4 “backstop” water needed to help meet Level 2 demands when CVP Level 2 allocation is less than 100%; 4) Facilities construction – ongoing needs, for example the Sutter NWR's design/permitting project; and 5) IL4 water acquisition and conveyance over and above what is required under Priority 3

Partners: CDFW, FWS, GWD

Related Programs: No Data.

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(1) Refuge Conveyance L2	57.0%	Conveyance of Level 2 water supplies (Reimbursable by water and power users)
(d)(2) Refuge Acquisition IL4	11.0%	Acquisition of Incremental Level 4 water supplies (Non-reimbursable and Subject to Cost Share)
(d)(2) Refuge Conveyance IL4	27.0%	Conveyance of Incremental Level 4 water supplies (Non-Reimbursable and Subject to Cost Share)
(d)(5)-(1) Refuge Facility L2	4.0%	Facilities Construction for Level 2 water purposes (Reimbursable by water and power user)
(d)(5)-(2) Refuge Facility IL4	1.0%	Facilities Construction for Incremental Level 4 water purposes (Non-reimbursable and subject to State Cost Share)

### Metrics

No Data.

### Deliverables

<u>Date</u>	<u>Title</u>
Oct. 2015	Contract Administration - Monthly
Apr. 2016	Operating Budgets
Apr. 2016	Annual Work Plans
Oct. 2015	Refuge Water Delivery Reports - Monthly
Nov. 2015	Water Quality Analysis Reports
Oct. 2015	IRWMT Meetings - Monthly

<u>Date</u>	<u>Title</u>
Oct. 2015	Contract Modifications
Nov. 2015	Accomplishment Reports
Oct. 2015	Water Purchase Contracts

**Narrative**

Activities performed by specialists outside the Refuge Water Supply Team supporting the administrative management of the Refuge Water Supply Program and its components: Conveyance, Construction, and Water Acquisition.

**Data Management**

Most of the Refuge Water Supply Program records are maintained in MP-410 Resources Management Division. Contract and agreement records are maintained in both MP-3800 Acquisitions Division and MP-410. Administrative costs will be tracked using FBMS and operating budget Excel spreadsheets. FBMS records are maintained electronically in MP-3600. Operating budget records are maintained in MP-410.

**Risks**

No Data.

**Cost Estimate**

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2017	CVPRF	\$195,541	\$190,806	\$4,736
2018	CVPRF	\$197,497	\$197,497	\$0
2019	CVPRF	\$199,452	\$199,452	\$0

Total Cost: \$592,490

**Activities and Resources**

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Administration - Technical support for the administrative management of the Refuge Water Supply Program.</i>					
Labor	\$11,786	0.11	BOR	CVPRF	Flow/Pump Meter Management: Collect delivery data from meters at Gray Lodge Wildlife Area and Bear Creek; perform QA/QC on data and coordinate with other BOR/FWS staff; maintain and calibrate flow meters and groundwater pump meters. (Estimated FTE 0.11)
Labor	\$4,736	0.02	FWS	CVPRF	Overtime required to operate temporary lift pumps at Sutter NWR during fall. Pumps must

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					be monitored on a 12 to 24-hour cycle for lubrication and diesel refills. (Estimated FTE .02)
Labor	\$14,934	0.11	BOR	CVPRF	Conveyance Agreement Administration - NCAO: Administers north-of-the-Delta refuge water conveyance agreements. (Estimated FTE .11)
Labor	\$0	0.00	BOR	CVPRF	SCCAO - BOR WORKS: Enter data for CVP water delivered to south-of-the-Delta refuges into BOR WORKS, Mid-Pacific Region's database for documenting delivery of CVP water. (Estimated FTE .03)
Labor	\$56,781	0.26	BOR	CVPRF	Labor involved for MP-150 staff to provide required water (groundwater and surface water) monitoring services as required at Gray Lodge Wildlife Area. (Estimated FTE 0.26)
Labor	\$5,088	0.05	BOR	CVPRF	Information technology support to the Gray Lodge Wildlife Area (GLWA) flow data Web site, which provides real-time information about surface water deliveries at GLWA. (Estimated FTE .05)
Labor	\$47,736	0.24	BOR	CVPRF	Labor involved for MP-150 staff to provide required groundwater monitoring services, as required, related to CDFW, South of Delta Refuges Reimbursement Agreement. (Estimated FTE 0.24)
Labor	\$21,839	0.10	BOR	CVPRF	MP150: Implementation and oversight of water quality monitoring sites at designated refuges to assure groundwater and recaptured return flows continue to meet regular water quality standards. Provides WQM analysis; reviews water quality reports; provides technical assistance for water acquisitions.
Labor	\$5,166	0.04	BOR	CVPRF	Printing of Geographic Information System (GIS) maps as requested by the Refuge Water Conveyance Component. (Estimated FTE .04)
Labor	\$27,475	0.27	BOR	CVPRF	Develop acquisition, service, and construction contracts. Process conveyance contract and agreement obligations, payments, and modifications. Provide support on the use of the Automated Standard Application for Payments (ASAP) system. (Estimated FTE 0.27)

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
<b>2018</b>					
<i>Administration - Technical support for the administrative management of the Refuge Water Supply Program.</i>					
Labor	\$27,750	0.27	BOR	CVPRF	Develop acquisition, service, and construction contracts. Process conveyance contract and agreement obligations, payments, and modifications. Provide support on the use of the Automated Standard Application for Payments (ASAP) system. (Estimated FTE 0.27)
Labor	\$11,904	0.11	BOR	CVPRF	Flow/Pump Meter Management: Collect delivery data from meters at Gray Lodge Wildlife Area and Bear Creek; perform QA/QC on data and coordinate with other BOR/FWS staff; maintain and calibrate flow meters and groundwater pump meters. (Estimated FTE 0.11)
Labor	\$4,783	0.02	BOR	CVPRF	Overtime required to operate temporary lift pumps at Sutter NWR during fall. Pumps must be monitored on a 12 to 24-hour cycle for lubrication and diesel refills. (Estimated FTE .02)
Labor	\$15,084	0.11	BOR	CVPRF	Conveyance Agreement Administration - NCAO: Administers north-of-the-Delta refuge water conveyance agreements. (Estimated FTE .11)
Labor	\$0	0.00	BOR	CVPRF	SCCAO - BOR WORKS: Enter data for CVP water delivered to south-of-the-Delta refuges into BOR WORKS, Mid-Pacific Region's database for documenting delivery of CVP water. (Estimated FTE .00)
Labor	\$5,139	0.05	BOR	CVPRF	Information technology support to the Gray Lodge Wildlife Area (GLWA) flow data Web site, which provides real-time information about surface water deliveries at GLWA. (Estimated FTE .05)
Labor	\$48,213	0.24	BOR	CVPRF	Labor involved for MP-150 staff to provide required groundwater monitoring services, as required, related to CDFW, South of Delta Refuges Reimbursement Agreement. (Estimated FTE 0.24)
Labor	\$22,057	0.10	BOR	CVPRF	MP150: Implementation and oversight of water quality monitoring sites at designated refuges to assure groundwater and recaptured return flows

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					continue to meet regular water quality standards. Provides WQM analysis; reviews water quality reports; provides technical assistance for water acquisitions.
Labor	\$5,217	0.04	BOR	CVPRF	Printing of Geographic Information System (GIS) maps as requested by the Refuge Water Conveyance Component. (Estimated FTE .04)
Labor	\$57,349	0.26	BOR	CVPRF	Labor involved for MP-150 staff to provide required water (groundwater and surface water) monitoring services as required at Gray Lodge Wildlife Area. (Estimated FTE 0.26)
<b>2019</b>					
<i>Administration - Technical support for the administrative management of the Refuge Water Supply Program.</i>					
Labor	\$12,022	0.11	BOR	CVPRF	Flow/Pump Meter Management: Collect delivery data from meters at Gray Lodge Wildlife Area and Bear Creek; perform QA/QC on data and coordinate with other BOR/FWS staff; maintain and calibrate flow meters and groundwater pump meters. (Estimated FTE 0.11)
Labor	\$4,830	0.02	BOR	CVPRF	Overtime required to operate temporary lift pumps at Sutter NWR during fall. Pumps must be monitored on a 12 to 24-hour cycle for lubrication and diesel refills. (Estimated FTE .02)
Labor	\$15,233	0.11	BOR	CVPRF	Conveyance Agreement Administration - NCAO: Administers north-of-the-Delta refuge water conveyance agreements. (Estimated FTE .11)
Labor	\$0	0.00	BOR	CVPRF	SCCAO - BOR WORKS: Enter data for CVP water delivered to south-of-the-Delta refuges into BOR WORKS, Mid-Pacific Region's database for documenting delivery of CVP water. (Estimated FTE .00)
Labor	\$28,024	0.27	BOR	CVPRF	Develop acquisition, service, and construction contracts. Process conveyance contract and agreement obligations, payments, and modifications. Provide support on the use of the Automated Standard Application for Payments (ASAP) system. (Estimated FTE 0.27)
Labor	\$5,190	0.05	BOR	CVPRF	Information technology support to the Gray Lodge Wildlife Area (GLWA) flow data Web

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					site, which provides real-time information about surface water deliveries at GLWA. (Estimated FTE .05)
Labor	\$48,691	0.24	BOR	CVPRF	Labor involved for MP-150 staff to provide required groundwater monitoring services, as required, related to CDFW, South of Delta Refuges Reimbursement Agreement. (Estimated FTE 0.24)
Labor	\$5,269	0.04	BOR	CVPRF	Printing of Geographic Information System (GIS) maps as requested by the Refuge Water Conveyance Component. (Estimated FTE .04)
Labor	\$22,276	0.10	BOR	CVPRF	MP150: Implementation and oversight of water quality monitoring sites at designated refuges to assure groundwater and recaptured return flows continue to meet regular water quality standards. Provides WQM analysis; reviews water quality reports; provides technical assistance for water acquisitions
Labor	\$57,917	0.26	BOR	CVPRF	Labor involved for MP-150 staff to provide required water (groundwater and surface water) monitoring services as required at Gray Lodge Wildlife Area. (Estimated FTE 0.26)



## Level 2 Refuge Water Conveyance (FY2017)

Conveyance of surface water and groundwater pumping for refuges

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Classification: Improvement, Refuge Surface  
 Location: Central Valley Wide  
 Funding Years: 2016 - 2019  
 Benefits Start Year: 2017  
 Priority: 2 - Refuge Water Supply Program - Priority Ranking Numbers & Definitions:

- 1) Administration;
- 2) Level 2 Conveyance;
- 3) Incremental Level 4 (IL4) Acquisitions and conveyance;
- 4) Facilities construction – ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.);
- 5) Other IL4 Acquisitions (i.e. NVRWP); and
- 6) Unfunded needs

Partners: CDFW, FWS, GWD

Related Programs: No Data.

### Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(1) Refuge Conveyance L2	100.0%	

### Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Conveyance: L2 Refuge Water Convey (annual)	9640	acre-foot	L2 Groundwater Pumped for WY2017
Conveyance: L2 Refuge Water Convey (annual)	335329	acre-foot	L2 Surface Water Conveyance for WY2017
Conveyance: L2 Refuge Water Convey (annual)	52826	acre-foot	L2 Water from Diverse Sources at no Cost to RWSP for WY2017

### Deliverables

<u>Date</u>	<u>Title</u>
Mar. 2017	Level 2 Water Conveyance to CVPIA Refuges

## Narrative

Conveyance of Level 2 refuge water supplies to CVPIA refuges. This includes CVP surface water and water from diverse sources such as groundwater, mitigation water, water rights water, riparian rights water, and accretion water. The conveyance budget for FY2017 includes some assumptions to reduce the potential for over-estimations. For example, instead of using full Level 2 quantities for NOD conveyance cost estimates, an average of Level 2 deliveries for 2-3 recent years (excluding critically dry years) is used. Early in FY2017, the conveyance budget will be refined and recalculated. If the revised budget need is less than the allocated budget amount, the CVPIA Program Administrator and Refuge Water Supply Program (RWSP) team will be informed to allow for a determination where the unneeded funds can be used to benefit other RWSP activities or CVPIA Program needs. Known needs are shown as 'Unfunded Needs' table in the Work Plans.

The conveyance of surface water supplies requires conveyance contracts with a number of conveying entities. Due to the geographical location of the refuges, direct delivery of water to a refuge boundary from Reclamation conveyance facilities can only be achieved for two of the 19 refuges. The remaining refuges receiving surface water deliveries require up to 3 conveying entities (including Reclamation facilities) for water to reach their boundaries. For the purpose of this charter, the primary conveyor represents the contracted conveyor conveying the initial diversion of refuge water supplies. In most cases, this water is then delivered to another conveying entity (secondary conveyor) with facilities in closer proximity to specific refuges. In some instances, the secondary conveyor completes the conveyance, delivering water to the refuge boundary. In other instances, a third conveying entity (tertiary conveyor) is necessary to complete refuge water conveyance due to the distances between certain refuges and available conveyance facilities. When a tertiary conveyor is utilized, the secondary conveyor moves refuge water into the tertiary conveyor's system for final delivery to refuge boundaries.

-- FY17 represents projected costs to convey full L-2 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2017 (March 1, 2017, thru February 28, 2018).

-- FY18 represents projected costs to convey full L-2 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2018 (March 1, 2018, thru February 28, 2019).

- FY19 represents projected costs to convey full L-2 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2019 (March 1, 2019, thru February 29, 2020).

A factor of 3% increase was applied to all FY2017 conveyance estimates to arrive at an estimate for FY2018, repeating the process for FY2019 estimates, to meet the out-year planning estimates for the work plans, providing an adjustment to account for future rate increases. However, once each of those years moves up into the position of being the "next fiscal year" with an assigned Proposed President's Budget, the Refuge Water Conveyance budget is reanalyzed, recalculated and refined, incorporating the then-prevailing rates for all conveyance contracts, applying the

same process as described earlier above, again narrowing the budget closer to expected conditions.

There are no “fixed” conveyance costs for any of the 19 CVPIA refuges. Overall conveyance costs may vary according to hydrology; for example, in a critically dry year where refuges are allocated 75% of their full Level 2 allocation, there may be a reduction in Level 2 conveyance costs through delivering fewer Level 2 supplies. All current conveyance agreements contain provisions allowing for rate increases or include a rate escalator.

**Data Management**

Contract and agreement records are maintained in Acquisitions Division, MP-3800 and Resources Division, MP-410.

Delivery data is maintained in MP-410 on the J Drive. Flow data for Gray Lodge Wildlife Area surface water is available on the internet at:

<http://www.usbr.gov/mp/glwa/index.cfm>

**Risks**

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Unfavorable hydrology	1	2
Conveyance contractor default	1	3

**Cost Estimate**

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>	<u>DFW</u>
2017	CVPRF	\$15,489,541	\$14,708,333	\$781,208	\$0
2018	CVPRF	\$15,928,477	\$15,123,833	\$804,644	\$0
2019	CVPRF	\$16,392,413	\$15,564,333	\$828,080	\$0
2017	SIK	\$81,000	\$0	\$0	\$81,000
2018	SIK	\$81,000	\$0	\$0	\$81,000
2019	SIK	\$81,000	\$0	\$0	\$81,000

Total Cost: \$48,053,432

## Activities and Resources

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Implementation - L2 Water from Diverse Sources</i>					
Agreement	\$0	n/a	BOR	CVPRF	L-2 surface water provided from diverse sources with NO conveyance/power cost to Refuge Conveyance Program. Sutter 9,070 AF riparian rights; Gray Lodge 18,800 AF water rights; Los Banos 3,995 AF mitigation; Merced 9,500 AF mitigation via Merced ID (FERC license); Pixley 650 groundwater ;GWD 10,821 groundwater.
<i>Implementation - L2 Surface Water Conveyance</i>					
Agreement	\$1,782,000	n/a	BOR	CVPRF	Convey surface water to Sacramento, Colusa and Delevan NWRs (AF included in 335,329 under Benefit section)
Agreement	\$115,000	n/a	BOR	CVPRF	Convey surface water to Gray Lodge WA (AF included in 335,329 under Benefit section)
Agreement	\$675,318	n/a	FWS	CVPRF	Convey surface water to San Luis and West Bear Creek Units of the San Luis NWR (AF included in 335,329 under Benefit section)
Agreement	\$9,823,000	n/a	BOR	CVPRF	Convey surface water to Volta & Mendota WAs; and to secondary & tertiary conveyors for Los Banos WA; China Island and Salt Slough Units of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Kern NWR; & Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
Agreement	\$62,000	n/a	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR (AF included in 335,329 under Benefit section)
Agreement	\$249,500	n/a	BOR	CVPRF	Convey surface water directly to Kern NWR (AF included in 335,329 under Benefit section)

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
Agreement	\$236,000	n/a	BOR	CVPRF	Convey surface water to Los Banos WA and Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
Agreement	\$421,000	n/a	BOR	CVPRF	Convey surface water supplies to Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Freitas and Kesterson Units of San Luis NWR (AF included in 335,329 under Benefit section)
Agreement	\$1,267,000	n/a	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA; and to tertiary conveyor for Los Banos WA; Salt Slough Unit of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
In-Kind Equipment or Materials	\$81,000	n/a	DFW	SIK	District fees to convey water to primary and secondary lands within the Gray Lodge Wildlife Area.
<i>Implementation - L2 Groundwater Pumping and Lift Pumping</i>					
Agreement	\$712,000	n/a	BOR	CVPRF	Costs for pumping L2 groundwater & lift pumping required to elevate surface water supplies at refuge boundaries. (5,640 AF included in L2 Groundwater Pumped Benefit) Refuges: Pixley NWR; Gray Lodge, Volta, Los Banos, & Mendota WAs; China Island & Salt Slough Units.
Agreement	\$105,890	n/a	FWS	CVPRF	1)Groundwater pumping at Merced (4,000 AF--part of 9,640 in Benefit section);2)temp lift pumps rental for fall @ Sutter & lift pumping @ Sutter Triangle (AF included in 52,826 in Benefit);3)lift pumping to elevate surface water at Colusa & Sutter ref boundaries (AF included in 335,329 under Benefit)
<i>Monitoring - L2 Water Quality Monitoring</i>					
Agreement	\$15,833	n/a	BOR	CVPRF	Contract laboratory water sampling analysis costs and supply costs for Gray Lodge Wildlife Area water

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
					quality monitoring program for both groundwater and surface water supplies.
Labor	\$0	1.00	BOR	CVPRF	Collect and evaluate flow data to determine conveyance water losses to the East Bear Creek Unit of the San Luis NWR Complex. Costs included in 'RWSP Technical Support' charter for labor.
Equipment or Materials	\$25,000	n/a	BOR	CVPRF	Contract to provide necessary flow meter measurements (similar to calibrations) to assure accuracy of data collected; maintenance and equipment parts replacement. Flow meters located on Bear Creek for purpose of determined water losses in deliveries to E. Bear Cr. Unit.
<b>2018</b>					
<i>Implementation - L2 Groundwater Pumping and Lift Pumping</i>					
Agreement	\$109,067	n/a	FWS	CVPRF	1)Groundwater pumping at Merced (4,000 AF--part of 9,640 in Benefit section);2)temp lift pumps rental for fall @ Sutter & lift pumping @ Sutter Triangle (AF included in 52,826 in Benefit);3)lift pumping to elevate surface water at Colusa & Sutter ref boundaries (AF included in 335,329 under Benefit)
Agreement	\$733,360	n/a	BOR	CVPRF	Costs for pumping L2 groundwater & lift pumping required to elevate surface water supplies at refuge boundaries. (5,640 AF included in L2 Groundwater Pumped Benefit) Refuges: Pixley NWR; Gray Lodge, Volta, Los Banos, & Mendota WAs; China Island & Salt Slough Units.
<i>Implementation - L2 Surface Water Conveyance</i>					
Agreement	\$118,450	n/a	BOR	CVPRF	Convey surface water to Gray Lodge WA (AF included in 335,329 under Benefit section)
Agreement	\$1,835,460	n/a	BOR	CVPRF	Convey surface water to Sacramento, Colusa and Delevan NWRs (AF

<b><u>Type</u></b>	<b><u>Total</u></b>	<b><u>FTE</u></b>	<b><u>Agency</u></b>	<b><u>Fund</u></b>	<b><u>Description</u></b>
					included in 335,329 under Benefit section)
Agreement	\$63,860	n/a	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR (AF included in 335,329 under Benefit section)
Agreement	\$256,985	n/a	BOR	CVPRF	Convey surface water directly to Kern NWR (AF included in 335,329 under Benefit section)
Agreement	\$433,630	n/a	BOR	CVPRF	Convey surface water supplies to Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Freitas and Kesterson Units of San Luis NWR (AF included in 335,329 under Benefit section)
Agreement	\$243,080	n/a	BOR	CVPRF	Convey surface water to Los Banos WA and Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
Agreement	\$1,305,010	n/a	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA; and to tertiary conveyor for Los Banos WA; Salt Slough Unit of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
Agreement	\$695,578	n/a	FWS	CVPRF	Convey surface water to San Luis and West Bear Creek Units of the San Luis NWR (AF included in 335,329 under Benefit section)
Agreement	\$10,117,690	n/a	BOR	CVPRF	Convey surface water to Volta & Mendota WAs; and to secondary & tertiary conveyors for Los Banos WA; China Island and Salt Slough Units of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Kern NWR; & Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
In-Kind Equipment or Materials	\$81,000	n/a	DFW	SIK	District fees to convey water to primary and secondary lands within the Gray Lodge Wildlife Area.

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
<i>Implementation - L2 Water from Diverse Sources</i>					
Agreement	\$0	n/a	BOR	CVPRF	L-2 surface water provided from diverse sources with NO conveyance/power cost to Refuge Conveyance Program. Sutter 9,070 AF riparian rights; Gray Lodge 18,800 AF water rights; Los Banos 3,995 AF mitigation; Merced 9,500 AF mitigation via Merced ID (FERC license);Pixley 650 groundwater ;GWD 10,821 groundwater.
<i>Monitoring - L2 Water Quality Monitoring</i>					
Agreement	\$16,308	n/a	BOR	CVPRF	Contract laboratory water sampling analysis costs and supply costs for Gray Lodge Wildlife Area water quality monitoring program for both groundwater and surface water supplies.
Labor	\$0	1.00	BOR	CVPRF	Collect and evaluate flow data to determine conveyance water losses to the East Bear Creek Unit of the San Luis NWR Complex. Costs included in 'RWSP Technical Support' charter for labor.
<b>2019</b>					
<i>Implementation - L2 Surface Water Conveyance</i>					
Agreement	\$715,837	n/a	FWS	CVPRF	Convey surface water to San Luis and West Bear Creek Units of the San Luis NWR (AF included in 335,329 under Benefit section)
In-Kind Equipment or Materials	\$81,000	n/a	DFW	SIK	District fees to convey water to primary and secondary lands within the Gray Lodge Wildlife Area.
Agreement	\$65,720	n/a	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR (AF included in 335,329 under Benefit section)
Agreement	\$1,888,920	n/a	BOR	CVPRF	Convey surface water to Sacramento, Colusa and Delevan NWRs (AF included in 335,329 under Benefit section)



<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
Agreement	\$121,900	n/a	BOR	CVPRF	Convey surface water to Gray Lodge WA (AF included in 335,329 under Benefit section)
Agreement	\$264,470	n/a	BOR	CVPRF	Convey surface water directly to Kern NWR (AF included in 335,329 under Benefit section)
Agreement	\$250,160	n/a	BOR	CVPRF	Convey surface water to Los Banos WA and Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
Agreement	\$446,260	n/a	BOR	CVPRF	Convey surface water supplies to Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Freitas and Kesterson Units of San Luis NWR (AF included in 335,329 under Benefit section)
Agreement	\$1,343,020	n/a	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA; and to tertiary conveyor for Los Banos WA; Salt Slough Unit of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
Agreement	\$10,412,380	n/a	BOR	CVPRF	Convey surface water to Volta & Mendota WAs; and to secondary & tertiary conveyors for Los Banos WA; China Island and Salt Slough Units of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Kern NWR; & Grassland Resource Conservation District (AF included in 335,329 under Benefit section)
<i>Implementation - L2 Groundwater Pumping and Lift Pumping</i>					
Agreement	\$754,720	n/a	BOR	CVPRF	Costs for pumping L2 groundwater & lift pumping required to elevate surface water supplies at refuge boundaries. (5,640 AF included in L2 Groundwater Pumped Benefit) Refuges: Pixley NWR; Gray Lodge, Volta, Los Banos, & Mendota WAs; China Island & Salt Slough Units.
Agreement	\$112,243	n/a	FWS	CVPRF	1)Groundwater pumping at Merced (4,000 AF--part of 9,640 in Benefit

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					section);2)temp lift pumps rental for fall @ Sutter & lift pumping @ Sutter Triangle (AF included in 53,826 in Benefit);3)lift pumping to elevate surface water at Colusa & Sutter ref boundaries (AF included in 335,329 under Benefit)
<i>Implementation - L2 Water from Diverse Sources</i>					
Agreement	\$0	n/a	BOR	CVPRF	L-2 surface water provided from diverse sources with NO conveyance/power cost to Refuge Conveyance Program. Sutter 9,070 AF riparian rights; Gray Lodge 18,800 AF water rights; Los Banos 3,995 AF mitigation; Merced 9,500 AF mitigation via Merced ID (FERC license);Pixley 650 groundwater ;GWD 10,821 groundwater.
<i>Monitoring - L2 Water Quality Monitoring</i>					
Labor	\$0	1.00	BOR	CVPRF	Collect and evaluate flow data to determine conveyance water losses to the East Bear Creek Unit of the San Luis NWR Complex. Costs included in 'RWSP Technical Support' charter for labor.
Agreement	\$16,783	n/a	BOR	CVPRF	Contract laboratory water sampling analysis costs and supply costs for Gray Lodge Wildlife Area water quality monitoring program for both groundwater and surface water supplies.

## RWSP Administration

Administration of the Refuge Water Supply Program - Conveyance, Construction, and Water Acquisition components.

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Classification: Administration, Administration

Location: Central Valley Project Improvement Act

Funding Years: 2016 - 2017

Benefits Start Year: 2016

Priority: 1 - 1) Labor & overhead (Administrative and Technical); 2) Conveyance of 100% Level 2 water, subject to CVP water supply availability; 3) Acquisition and conveyance of IL4 “backstop” water needed to help meet Level 2 demands when CVP Level 2 allocation is less than 100%; 4) Facilities construction – ongoing needs, for example the Sutter NWR's design/permitting project; and 5) IL4 water acquisition and conveyance over and above what is required under Priority 3

Partners: CDFW, FWS, GWD

Related Programs: No Data.

Authority

<b><u>Provision</u></b>	<b><u>Percentage</u></b>	<b><u>Comment</u></b>
(d)(1) Refuge Conveyance L2	21.0%	Conveyance of Level 2 water supplies (Reimbursable by water and power users)
(d)(2) Refuge Acquisition IL4	44.0%	Acquisition of Incremental Level 4 water supplies (Non-reimbursable and Subject to Cost Share)
(d)(2) Refuge Conveyance IL4	12.0%	Conveyance of Incremental Level 4 water supplies (Non-Reimbursable and Subject to Cost Share)
(d)(5)-(1) Refuge Facility L2	17.0%	Facilities Construction for Level 2 water purposes (Reimbursable by water and power user)
(d)(5)-(2) Refuge Facility IL4	6.0%	Facilities Construction for Incremental Level 4 water purposes (Non-reimbursable and subject to State Cost Share)

### Metrics

No Data.

### Deliverables

<b><u>Date</u></b>	<b><u>Title</u></b>
Monthly	Contract Administration
Monthly	Operating Budgets
Monthly	Annual Work Plans
Monthly	Refuge Water Delivery Reports
Monthly	Water Quality Analysis Reports
Monthly	IRWMT Meetings

<b><u>Date</u></b>	<b><u>Title</u></b>
As required	Accomplishment Reports
As required	Water Purchase Contracts

**Narrative**

Administrative management of the Refuge Water Supply Program components of Conveyance, Construction, and Water Acquisition. This includes administration of construction activities to increase conveyance capacity, contracting for Incremental Level 4 water, and administration of various contracts and agreements for the conveyance and delivery of both Level 2 and Incremental Level 4 water to CVPIA refuges. The Work Plan attempts to mirror the management structures in place whereby some flexibility can occur between the administrative components of the fisheries and refuge activities as opposed to the independent programs. The independent programs are handled differently due to a lack of direct control over the structure and character of the work. Funding from the CVPRF does not drive the activities, but rather leverages other appropriations to accomplish joint goals beyond what can be achieved on their own.

The Work Plans define administrative costs as planned expenditures that cannot reasonably be attributed to a discrete action. In most cases these costs represent staff and in some cases those costs include actions by staff for activities such as environmental compliance, design, permitting, and management of specific projects where such expenditures are not tracked on a project specific basis. We include the designation of costs as administrative to assist in understanding activities, but do not consider the designation particularly significant and focus on the actual products.

Note: The RWSP Lead is also the WAP-Instream Lead and Reclamation's Co-Lead for the Anadromous Fish Screen Program (AFSP) whose time is shared between the three programs. Similarly, the RWSP Construction Lead is also the AFSP Construction Lead whose time is shared between the two programs.

**Data Management**

Most of the Refuge Water Supply Program records are maintained in MP-410 Resources Management Division. Contract and agreement records are maintained in both MP-3800 Acquisitions Division and MP-410. Administrative costs will be tracked using FBMS and operating budget Excel spreadsheets. FBMS records are maintained electronically in MP-3600. Operating budget records are maintained in MP-410.

**Risks**

No Data.

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2017	CVPRF	\$947,372	\$710,590	\$236,782
2018	CVPRF	\$956,846	\$956,846	\$0
2019	CVPRF	\$967,088	\$967,088	\$0

Total Cost: \$2,871,306

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Administration - Administrative management of the Refuge Water Supply Program.</i>					
Labor	\$75,413	1.00	BOR	CVPRF	RWSP Support Specialist: Provides support services for the RWSP. Administers contracts, reconciles invoices, and assists with annual work plans and budget preparation. Assists with coordination of refuge delivery schedules. Maintains delivery records for the RWSP. COR for power contracts.
Labor	\$93,640	0.70	BOR	CVPRF	Refuge Facilities Construction Component Manager: Manages, provides oversight, and administers construction projects to provide needed conveyance capacity for CVPIA refuges. Oversees planning and construction of facilities to convey full Level 4 refuge water supplies to CVPIA refuges.
Labor	\$141,640	1.00	BOR	CVPRF	Refuge Water Conveyance Component Manager: Administers, manages, & provides oversight of Refuge Water Conveyance Component. Negotiates & administers contracts for water conveyance actions. Leads IRWMT. Identifies & develops projects to further progress toward performance goals
Labor	\$153,444	1.00	BOR	CVPRF	Environmental Specialist - Senior: Provides environmental support and prepares compliance documents such as Environmental Assessments for water acquisition, refuge conveyance and facilities construction contracts and projects.
Labor	\$109,484	0.60	BOR	CVPRF	Refuge Water Supply Program (RWSP) Lead: Provides Reclamation administrative oversight for all aspects of the RWSP. Provides

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					guidance to technical support personnel on contracting, budget, and environmental issues. Participates in various meetings. Prepares and makes presentations on the RWSP.
Labor	\$236,782	1.00	FWS	CVPRF	Refuge Water Supply Program Co-Lead: Provides biological oversight for the Refuge Water Supply Program. Provides guidance to technical support personnel on water contracting, budget, and environmental issues. Participates in various meetings. Prepares and makes presentations on the RWSP.
Labor	\$136,968	1.00	BOR	CVPRF	Refuge Water Acquisition Manager: Negotiates, prepares, and administers water acquisition contracts for Incremental Level 4 water. Coordinates refuge delivery schedules with refuge partners. Tracks and monitors obligations and expenditures.
<b>2018</b>					
<i>Administration - Administrative management of the Refuge Water Supply Program.</i>					
Labor	\$76,167	1.00	BOR	CVPRF	RWSP Support Specialist: Provides support services for the RWSP. Administers contracts, reconciles invoices, and assists with annual work plans and budget preparation. Assists with coordination of refuge delivery schedules. Maintains delivery records for the RWSP. COR for power contracts.
Labor	\$94,577	0.70	BOR	CVPRF	Refuge Facilities Construction Component Manager: Manages, provides oversight, and administers construction projects to provide needed conveyance capacity for CVPIA refuges. Oversees planning and construction of facilities to convey full Level 4 refuge water supplies to CVPIA refuges.
Labor	\$143,056	1.00	BOR	CVPRF	Refuge Water Conveyance Component Manager: Administers, manages, & provides oversight of Refuge Water Conveyance Component. Negotiates & administers contracts for water conveyance actions. Leads IRWMT. Identifies & develops projects to further progress toward performance goals
Labor	\$154,978	1.00	BOR	CVPRF	Environmental Specialist - Senior: Provides environmental support and prepares compliance documents such as Environmental

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					Assessments for water acquisition, refuge conveyance and facilities construction contracts and projects.
Labor	\$239,150	1.00	BOR	CVPRF	Refuge Water Supply Program Co-Lead: Provides biological oversight for the Refuge Water Supply Program. Provides guidance to technical support personnel on water contracting, budget, and environmental issues. Participates in various meetings. Prepares and makes presentations on the RWSP.
Labor	\$138,338	1.00	BOR	CVPRF	Refuge Water Acquisition Manager: Negotiates, prepares, and administers water acquisition contracts for Incremental Level 4 water. Coordinates refuge delivery schedules with refuge partners. Tracks and monitors obligations and expenditures.
Labor	\$110,579	0.60	BOR	CVPRF	Refuge Water Supply Program (RWSP) Lead: Provides Reclamation administrative oversight for all aspects of the RWSP. Provides guidance to technical support personnel on contracting, budget, and environmental issues. Participates in various meetings. Prepares and makes presentations on the RWSP.
<b>2019</b>					
<i>Administration - Administrative management of the Refuge Water Supply Program.</i>					
Labor	\$241,518	1.00	BOR	CVPRF	Refuge Water Supply Program Co-Lead: Provides biological oversight for the Refuge Water Supply Program. Provides guidance to technical support personnel on water contracting, budget, and environmental issues. Participates in various meetings. Prepares and makes presentations on the RWSP.
Labor	\$144,473	1.00	BOR	CVPRF	Refuge Water Conveyance Component Manager: Administers, manages, & provides oversight of Refuge Water Conveyance Component. Negotiates & administers contracts for water conveyance actions. Leads IRWMT. Identifies & develops projects to further progress toward performance goals
Labor	\$95,513	0.70	BOR	CVPRF	Refuge Facilities Construction Component Manager: Manages, provides oversight, and administers construction projects to provide needed conveyance capacity for CVPIA

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					refuges. Oversees planning and construction of facilities to convey full Level 4 refuge water supplies to CVPIA refuges.
Labor	\$111,674	0.60	BOR	CVPRF	Refuge Water Supply Program (RWSP) Lead: Provides Reclamation administrative oversight for all aspects of the RWSP. Provides guidance to technical support personnel on contracting, budget, and environmental issues. Participates in various meetings. Prepares and makes presentations on the RWSP.
Labor	\$156,513	1.00	BOR	CVPRF	Environmental Specialist - Senior: Provides environmental support and prepares compliance documents such as Environmental Assessments for water acquisition, refuge conveyance and facilities construction contracts and projects.
Labor	\$77,690	1.00	BOR	CVPRF	RWSP Support Specialist: Provides support services for the RWSP. Administers contracts, reconciles invoices, and assists with annual work plans and budget preparation. Assists with coordination of refuge delivery schedules. Maintains delivery records for the RWSP. COR for power contracts.
Labor	\$139,707	1.00	BOR	CVPRF	Refuge Water Acquisition Manager: Negotiates, prepares, and administers water acquisition contracts for Incremental Level 4 water. Coordinates refuge delivery schedules with refuge partners. Tracks and monitors obligations and expenditures.



## Inc. Level 4 Water Purchases and L2 Exchanges

### Purchase of Incremental Level 4 and Exchange of L2 Refuge Water

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Classification: Improvement, Water Acquisition  
Location: South of Delta Refuges and Wildlife Areas  
Funding Years: 2016 - 2017  
Benefits Start Year: 2016  
Priority: 3 - 1. Administration

2. Level 2 Conveyance

3. Incremental Level 4 (IL4) acquisitions

4. Facilities construction - ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.)

5. Other IL4 acquisitions (i.e., NVRRWP)

6. Unfunded Need

Partners: GWD, CDFW, FWS

Related Programs: No Data.

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(2) Refuge Acquisition IL4	100.0%	

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
b3 and d2 Refuge: Inc L4 Water Acquisition, including Replacement Water	15000	acre-feet	Does not include the amount of acre feet we plan to acquire from the Exchange Contractors

Deliverables

<u>Date</u>	<u>Title</u>
Sep. 2017	Incremental Level 4 Water

**Narrative**

Purchase water from Grassland WD, Exchange Contractors and enter into uneven exchange agreements for refuge Level 2 to increase IL4 supplies.

**Data Management**

Water contract records are maintained in Acquisitions Division, MP-3800 and in Resources Mgt. Division, MP-410. Incremental Level 4 delivery and losses data is maintained in Resources Mgt. Division, MP-410.

**Risks**

<b><u>Risk</u></b>	<b><u>Likelihood</u></b>	<b><u>Impact</u></b>
Water Not Available for Purchase	1	1

**Cost Estimate**

<b><u>Year</u></b>	<b><u>Fund</u></b>	<b><u>Total</u></b>	<b><u>BOR</u></b>	<b><u>FWS</u></b>
2017	CVPRF	\$6,000,000	\$6,000,000	\$0
2018	CVPRF	\$1,800,000	\$1,800,000	\$0
2019	CVPRF	\$6,000,000	\$6,000,000	\$0

Total Cost: \$13,800,000

**Activities and Resources**

<b><u>Type</u></b>	<b><u>Total</u></b>	<b><u>FTE</u></b>	<b><u>Agency</u></b>	<b><u>Fund</u></b>	<b><u>Description</u></b>
<b>2017</b>					
<i>Acquisition - Execute contracts for purchase of Incremental Level 4 refuge water and exchange of L2 water to acquire IL4 water.</i>					
Agreement	\$4,200,000	n/a	BOR	CVPRF	Acquire IL4 water under our agreement with the Exchange Contractors
Agreement	\$1,800,000	n/a	BOR	CVPRF	Acquire up to 15,000 A/F of groundwater from Grassland WD to be used to meet Inc. L4 supplies
Labor	\$0	1.00	BOR	CVPRF	Various L2 exchanges are anticipated that would result in additional IL4 water being made available. Costs to negotiate and administer agreements would be covered under admin costs - no additional costs are anticipated.

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2018</b>					
<i>Acquisition - Execute contracts for purchase of Incremental Level 4 refuge water and exchange of L2 water to acquire IL4 water.</i>					
Labor	\$0	0.00	BOR	CVPRF	Acquire IL4 water under our agreement with the Exchange Contractors
Agreement	\$1,800,000	n/a	BOR	CVPRF	Acquire up to 15,000 A/F of groundwater from Grassland WD to be used to meet Inc. L4 supplies
Labor	\$0	1.00	BOR	CVPRF	Various L2 exchanges are anticipated that would result in additional IL4 water being made available. Costs to negotiate and administer agreements would be covered under admin costs - no additional costs are anticipated.
<b>2019</b>					
<i>Acquisition - Execute contracts for purchase of Incremental Level 4 refuge water and exchange of L2 water to acquire IL4 water.</i>					
Agreement	\$1,800,000	n/a	BOR	CVPRF	Acquire up to 15,000 A/F of groundwater from Grassland WD to be used to meet Inc. L4 supplies
Labor	\$0	1.00	BOR	CVPRF	Various L2 exchanges are anticipated that would result in additional IL4 water being made available. Costs to negotiate and administer agreements would be covered under admin costs - no additional costs are anticipated
Labor	\$4,200,000	1.00	BOR	CVPRF	Acquire IL4 water under our agreement with the Exchange Contractors



## Refuge Water Acquisition - NVERRWP

### North Valley Regional Recycled Water Program

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Classification: Improvement, Refuge Surface  
Location: Patterson - Los Banos, CA, South of Delta Refuges and Wildlife Areas  
Funding Years: 2016 - 2017  
Benefits Start Year: 2018  
Priority: 5 - RWSP Funding Priorities:

1. Administration

2. Level 2 Conveyance

3. Incremental Level 4 (IL4) acquisitions

4. Facilities construction - ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.)

5. Other IL4 acquisitions (i.e., NVERRWP)

6. Unfunded Need

Partners: City of Modesto, City of Turlock, Del Puerto Water District

Related Programs: CVPIA b2

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(2) Refuge Acquisition IL4	100.0%	Incremental Level 4 benefits (Non-reimbursable and subject to State Cost Share)

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Incremental Level 4 water delivery	0	acre-feet	Long-term acquisition of reliable IL4 water for SOD refuges.

Deliverables

<u>Date</u>	<u>Title</u>
Mar. 2018	Water acquisition start date.

**Narrative**

This project is the acquisition of tertiary treated wastewater from the cities of Turlock and Modesto into the DMC for delivery to Del Puerto Water District and refuges. Refuges that would benefit from this water includes the San Luis Unit, West Bear Creek Unit, Kesterson Unit, Freitas Unit, Los Banos Wildlife Area, China Island, Salt Slough, Mendota Wildlife Area, Grasslands Resource Conservation District, and Kern National Wildlife Refuge. At the Cities' full build out (estimated to be approximately 2045), the total amount of water that could be delivered annually to Del Puerto WD and SOD refuges is up to approximately 59,000 acre-feet. Additional funds are required to augment the federal contribution. Reclamation's funding will be proportionate (percentage) to the amount of water that will be made available to SOD Refuges

Although the Project has a RWSP funding priority of 5, it presently is an unfunded need for FY 2017 and FY 2018.

**Data Management**

Annual water acquisition records will be stored and managed by the Refuge Water Supply Program - Water Acquisitions within Reclamation's Resources Management Division, Program Management Branch (MP-410).

**Risks**

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Project Approval	2	2

**Cost Estimate**

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>	<u>Local</u>
2017	CVPRF	\$10,000,000	\$0	\$0	\$10,000,000
2018	CVPRF	\$10,000,000	\$0	\$0	\$10,000,000

Total Cost: \$20,000,000

**Activities and Resources**

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Acquisition - Acquisition of tertiary treated wastewater from the Cities of Modesto and Turlock via the Del Puerto Water District.</i>					
Agreement	\$10,000,000	n/a	Local	CVPRF	Provide additional funding for the Project's design and construction. Reclamation's funding will be proportionate (percentage) to the amount of water that will be made available to the Program.

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2018</b>					
<i>Acquisition - Acquisition of tertiary treated wastewater from the Cities of Modesto and Turlock via the Del Puerto Water District.</i>					
Agreement	\$10,000,000	n/a	Local	CVPRF	Provide additional funding for the Project's design and construction. Reclamation's funding will be proportionate (percentage) to the amount of water that will be made available to the Program.





## Inc. Level 4 Refuge Water Conveyance (FY2017)

Conveyance of surface water and groundwater pumping for refuges

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Classification: Improvement, Refuge Surface  
 Location: Central Valley Wide  
 Funding Years: 2016 - 2019  
 Benefits Start Year: 2017  
 Priority: 3 - Refuge Water Supply Program - Priority Ranking Numbers & Definitions:

- 1) Administration;
- 2) Level 2 Conveyance;
- 3) Incremental Level 4 (IL4) Acquisitions and conveyance;
- 4) Facilities construction – ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.);
- 5) Other IL4 Acquisitions (i.e. NVRWP); and
- 6) Unfunded needs

Partners: CDFW, FWS, GWD

Related Programs: No Data.

### Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(2) Refuge Conveyance IL4	100.0%	

### Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Conveyance: Inc L4 Refuge Water Conveyance (annual)	15737	acre-feet	Inc L4 Water with no Conveyance Cost to RWSP for WY2017
Conveyance: Inc L4 Refuge Water Conveyance (annual)	24777	acre-feet	Inc. L4 Surface Water Conveyance for WY2017
Conveyance: Inc L4 Refuge Water Conveyance (annual)	13100	acre-feet	Inc. L4 Groundwater Pumping for WY2017

### Deliverables

<u>Date</u>	<u>Title</u>
Mar. 2017	Conveyance of Inc. Level 4 Water Supplies

**Narrative**

Conveyance of Incremental (Inc.) Level 4 refuge water supplies to CVPIA refuges. This includes annually acquired surface water, purchased permanent surface water, and pumped groundwater.

The conveyance of surface water supplies requires conveyance contracts with a number of conveying entities. Due to the geographical location of the refuges, direct delivery of water to a refuge boundary from Reclamation conveyance facilities can only be achieved for two of the 19 refuges. The remaining refuges receiving surface water deliveries require up to 3 conveying entities (including Reclamation facilities) for water to reach their boundaries. For the purpose of this charter, the primary conveyor represents the contracted conveyor conveying the initial diversion of refuge water supplies. In most cases, this water is then delivered to another conveying entity (secondary conveyor) with facilities in closer proximity to specific refuges. In some instances, the secondary conveyor completes the conveyance, delivering water to the refuge boundary. In other instances, a third conveying entity (tertiary conveyor) is necessary to complete refuge water conveyance due to the distances between certain refuges and available conveyance facilities. The secondary conveyor moves refuge water into the tertiary conveyor’s system for final delivery to refuge boundaries.

-- FY17 represents projected costs to convey Inc. Level 4 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2017 (March 1, 2017, thru February 28, 2018).

-- FY18 represents projected costs to convey Inc. Level 4 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2018 (March 1, 2018, thru February 28, 2019).

--FY19 represents projected costs to convey Inc. Level 4 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2019 (March 1, 2019, thru February 29, 2020)

Inc. Level 4 metrics (acre-feet estimates), both surface and ground water, for FY2017-2019 were based on Inc. Level 4 quantities projected for WY2016 deliveries as of 5/2016.

**Data Management**

Contract and agreement records are maintained in Acquisitions Division, MP-3800 and Resources Division, MP-410.

Delivery data is maintained in MP-410 on the J Drive. Flow data for Gray Lodge Wildlife Area surface water is available on the internet at:

<http://www.usbr.gov/mp/glwa/index.cfm>

**Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>
Unfavorable hydrology	1	3

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Conveyance contractor default	1	3

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2017	CVPRF	\$1,401,579	\$1,401,579	\$0
2018	CVPRF	\$1,443,626	\$1,443,626	\$0
2019	CVPRF	\$1,485,674	\$1,485,674	\$0

Total Cost: \$4,330,879

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Implementation - Inc. Level 4 Groundwater Pumping</i>					
Agreement	\$120,000	n/a	BOR	CVPRF	Costs for pumping Inc. L4 groundwater water developed on SOD Wildlife Areas (WA) and lift pumping of Inc. L4 surface water onto SOD WAs – 2,500 AF developed groundwater. (Acre-feet included in Incremental Level 4 Groundwater Pumped Benefit of 13,100)
Agreement	\$92,000	n/a	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from wells on Pixley NWR. (600 AF included in Inc. L-4 Groundwater Pumped Benefit of 13,100).
<i>Implementation - Inc. L4 Surface Water Conveyance</i>					
Agreement	\$46,000	n/a	BOR	CVPRF	Convey surface water to Kern NWR (1,658 AF of permanent purchased NOD Incremental Level 4 water (ACID) via reallocation/transfer from NOD to SOD; and 981 AF via E. Bear Creek Unit groundwater/CVP exchange projects). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
Agreement	\$11,500	n/a	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR (1,658 AF of permanent purchased NOD Inc. Level 4 water (ACID) via reallocation/transfer from NOD to SOD; and 981 AF via E.

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					Bear Creek Unit groundwater/CVP exchange projects). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
Agreement	\$885,000	n/a	BOR	CVPRF	Convey surface water to secondary & tertiary conveyors for Kern NW; Los Banos & Mendota WAs; China Island & Salt Slough Units of N. Grasslands WA; and Grassland Resource Conservation District. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
Agreement	\$120,000	n/a	BOR	CVPRF	Convey surface water to Delevan NWR (5,355AF of permanent purchased NOD Incremental Level 4 water (Corning-Thomes-Proberta WDs). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
Agreement	\$57,000	n/a	BOR	CVPRF	Convey surface water to Los Banos WA and Salt Slough Unit of N. Grasslands WA. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
Agreement	\$55,000	n/a	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA and to tertiary conveyors for Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Grassland Resource Conservation District. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
<i>Implementation - Incremental Level 4 Conveyance at NO Cost to RWSP</i>					
Agreement	\$0	n/a	BOR	CVPRF	Inc L4 water delivered with no conveyance costs to RWSP. (2,500 AF surface water via Merced ID FERC mitigation agreement; 21,000 AF via following groundwater projects: GWD; SLWD/DPWD/GWD; PWD/GWD; and CDFW Reimb Agrmt.) AF included in "Inc L4 Water with No Conveyance Cost to RWSP Benefit'.)

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<i>Monitoring - Inc. Level 4 Water Quality Monitoring</i>					
Equipment or Materials	\$15,079	n/a	BOR	CVPRF	Costs for laboratory analysis of water samples and supplies for Inc. L4 groundwater quality monitoring program related to CDFW SOD WAs Reimbursement Agreement.
<b>2018</b>					
<i>Implementation - Inc. L4 Surface Water Conveyance</i>					
Agreement	\$58,710	n/a	BOR	CVPRF	Convey surface water to Los Banos WA and Salt Slough Unit of N. Grasslands WA. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
Agreement	\$11,845	n/a	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR (1,658 AF of permanent purchased NOD Inc. Level 4 water (ACID) via reallocation/transfer from NOD to SOD; and 981 AF via E. Bear Creek Unit groundwater/CVP exchange projects). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
Agreement	\$911,550	n/a	BOR	CVPRF	Convey surface water to secondary & tertiary conveyors for Kern NW; Los Banos & Mendota WAs; China Island & Salt Slough Units of N. Grasslands WA; and Grassland Resource Conservation District. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
Agreement	\$123,600	n/a	BOR	CVPRF	Convey surface water to Delevan NWR (5,355AF of permanent purchased NOD Incremental Level 4 water (Corning-Thomes-Proberta WDs). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
Agreement	\$56,650	n/a	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA and to tertiary conveyors for Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Grassland Resource Conservation District. (AF included in 24,777 of Inc.

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
					L4 Surface Water Conveyance in Benefit section).
Agreement	\$47,380	n/a	BOR	CVPRF	Convey surface water to Kern NWR (1,658 AF of permanent purchased NOD Incremental Level 4 water (ACID) via reallocation/transfer from NOD to SOD; and 981 AF via E. Bear Creek Unit groundwater/CVP exchange projects). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
<i>Implementation - Inc. Level 4 Groundwater Pumping</i>					
Agreement	\$123,600	n/a	BOR	CVPRF	Costs for pumping Inc. L4 groundwater water developed on SOD Wildlife Areas (WA) and lift pumping of Inc. L4 surface water onto SOD WAs – 2,500 AF developed groundwater. (Acre-feet included in Incremental Level 4 Groundwater Pumped Benefit of 13,100)
Agreement	\$94,760	n/a	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from wells on Pixley NWR. (600 AF included in Inc. L-4 Groundwater Pumped Benefit of 13,100).
<i>Implementation - Incremental Level 4 Conveyance at NO Cost to RWSP</i>					
Agreement	\$0	n/a	BOR	CVPRF	Inc L4 water delivered with no conveyance costs to RWSP. (2,500 AF surface water via Merced ID FERC mitigation agrmt; 21,000 AF via following groundwater projects: GWD; SLWD/DPWD/GWD; PWD/GWD; and CDFW Reimb Agrmt.) AF included in "Inc L4 Water with No Conveyance Cost to RWSP Benefit'.)
<i>Monitoring - Inc. Level 4 Water Quality Monitoring</i>					
Equipment or Materials	\$15,531	n/a	BOR	CVPRF	Costs for laboratory analysis of water samples and supplies for Inc. L4 groundwater quality monitoring program related to CDFW SOD WAs Reimbursement Agrmt.

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2019</b>					
<i>Implementation - Incremental Level 4 Conveyance at NO Cost to RWSP</i>					
Agreement	\$0	n/a	BOR	CVPRF	Inc L4 water delivered with no conveyance costs to RWSP. (2,500 AF surface water via Merced ID FERC mitigation agrmt; 21,000 AF via following groundwater projects: GWD; SLWD/DPWD/GWD; PWD/GWD; and CDFW Reimb Agrmt.) AF included in "Inc L4 Water with No Conveyance Cost to RWSP Benefit'.)
<i>Implementation - Inc. L4 Surface Water Conveyance</i>					
Agreement	\$48,760	n/a	BOR	CVPRF	Convey surface water to Kern NWR (1,658 AF of permanent purchased NOD Incremental Level 4 water (ACID) via reallocation/transfer from NOD to SOD; and 981 AF via E. Bear Creek Unit groundwater/CVP exchange projects). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
Agreement	\$12,190	n/a	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR (1,658 AF of permanent purchased NOD Inc. Level 4 water (ACID) via reallocation/transfer from NOD to SOD; and 981 AF via E. Bear Creek Unit groundwater/CVP exchange projects). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).
Agreement	\$938,100	n/a	BOR	CVPRF	Convey surface water to secondary & tertiary conveyors for Kern NW; Los Banos & Mendota WAs; China Island & Salt Slough Units of N. Grasslands WA; and Grassland Resource Conservation District. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
Agreement	\$127,200	n/a	BOR	CVPRF	Convey surface water to Delevan NWR (5,355AF of permanent purchased NOD Incremental Level 4 water (Corning-Thomes-Proberta WDs). (Included in Inc. L4 Surface Water Conveyance in Benefit 24,777).

<b>Type</b>	<b>Total</b>	<b>FTE</b>	<b>Agency</b>	<b>Fund</b>	<b>Description</b>
Agreement	\$58,300	n/a	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA and to tertiary conveyors for Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Grassland Resource Conservation District. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
Agreement	\$60,420	n/a	BOR	CVPRF	Convey surface water to Los Banos WA and Salt Slough Unit of N. Grasslands WA. (AF included in 24,777 of Inc. L4 Surface Water Conveyance in Benefit section).
<i>Implementation - Inc. Level 4 Groundwater Pumping</i>					
Agreement	\$127,200	n/a	BOR	CVPRF	Costs for pumping Inc. L4 groundwater water developed on SOD Wildlife Areas (WA) and lift pumping of Inc. L4 surface water onto SOD WAs – 2,500 AF developed groundwater. (Acre-feet included in Incremental Level 4 Groundwater Pumped Benefit of 13,100)
Agreement	\$97,520	n/a	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from wells on Pixley NWR. (600 AF included in Inc. L-4 Groundwater Pumped Benefit of 13,100).
<i>Monitoring - Inc. Level 4 Water Quality Monitoring</i>					
Equipment or Materials	\$15,984	n/a	BOR	CVPRF	Costs for laboratory analysis of water samples and supplies for Inc. L4 groundwater quality monitoring program related to CDFW SOD WAs Reimbursement Agrmt.



## Refuge Construction - Mendota WA Water Supply Study

Planning and analysis study for identifying and developing water supply conveyance alternatives to address water delivery constraints at the Mendota WA.

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Classification: Improvement, Refuge Facility  
 Location: Mendota Pool Vicinity, San Joaquin Upper Mainstem  
 Funding Years: 2016 - 2017  
 Benefits Start Year: 2018  
 Priority: 4 - RWSP Funding Priorities:

1. Administration

2. Level 2 Conveyance

3. Incremental Level 4 (IL4) acquisitions

4. Facilities construction - ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.)

5. Other IL4 acquisitions (i.e., NVRRWP)

6. Unfunded Need

Partners: CDFW  
 Related Programs: No Data.  
 Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(5)-(1) Refuge Facility L2	93.0%	Level 2 Water Supply (Reimbursable by water & power customers)
(d)(5)-(2) Refuge Facility IL4	7.0%	IL4 Water Supply (Non-reimbursable and subject to State cost share)

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Full Level 4 water delivery capacity.	29650	acre-feet	Amount of water required for optimum wetland habitat development and management.

**Deliverables**

<b>Date</b>	<b>Title</b>
Mar. 2017	Contract Award
Sep. 2018	Water Supply Final Report

**Narrative**

Currently, the Mendota Wildlife Area (Refuge) is experiencing difficulties diverting by gravity sufficient water supplies for developing and managing its wetlands due lower water surface elevations in the Mendota Pool area and vicinity as a result of increasing land subsidence. Therefore, alternative water supply and conveyance options need to be identified that would provide a reliable and long-term supply of full Level 4 water to this Refuge. The water supply study is expected to:

1. Develop potential water supply and conveyance alternatives (interim for agency managers' consideration).
2. Compare and prioritize the most promising alternatives
3. Develop conceptual designs
4. Prepare 'planning level' construction cost estimates
5. Identify possible operational concerns associated with priority alternatives.

**Data Management**

Data collection and management will be maintained in Reclamation's Resources Management Division, specifically within the Program Management Branch (MP-410)

**Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>
Completion of Study on Schedule	1	1

**Cost Estimate**

<b>Year</b>	<b>Fund</b>	<b>Total</b>	<b>BOR</b>	<b>FWS</b>
2017	CVPRF	\$465,967	\$465,967	\$0

Total Cost: \$465,967

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2017					
<i>Planning and Analysis - Water supply and conveyance study for the Mendota WA .</i>					
Agreement	\$465,967	n/a	BOR	CVPRF	Contract with contractor (consultant) to prepare water supply and conveyance study for the Mendota Wildlife Area (Refuge). Study would investigate and develop potential water supply and conveyance options for providing a long-term and reliable supply of water for this Refuge.



## Refuge Construction - Sutter NWR Lift Station

### Sutter NWR Lift Station Construction

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Classification: Improvement, Refuge Facility  
Location: Sutter Flood Control Bypass, North of Delta Refuges and Wildlife Areas  
Funding Years: 2016 - 2017  
Benefits Start Year: 2019  
Priority: 6 - RWSP Funding Priorities:

#### 1. Administration

#### 2. Level 2 Conveyance

#### 3. Incremental Level 4 (IL4) acquisitions

#### 4. Facilities construction - ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.)

#### 5. Other IL4 acquisitions (i.e., NVRRWP)

#### 6. Unfunded Need

Partners: CDFW, CDWR, FWS

Related Programs: CVPIA b2

#### Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(5)-(1) Refuge Facility L2	78.0%	Facilities Construction for Level 2 benefits (Reimbursable by water and power users)
(d)(5)-(2) Refuge Facility IL4	22.0%	Facilities Construction for Level 4 benefits (Non-reimbursable and subject to State Cost Share)

#### Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Full Level 4 water delivery capacity.	30000	acre-feet	Amount of water required for optimum management of wetlands, subject to water supply availability.

## Deliverables

<b>Date</b>	<b>Title</b>
Mar. 2017	Contract Award
May. 2017	Construction Notice to Proceed
Jul. 2019	Construction Completion

## Narrative

The Sutter NWR Lift Station (Project) is the 'interim solution' as identified in the Sutter NWR Conveyance Study (Study), which was completed January 2015. Although identified as the 'interim solution', the Project will be sized to pump the Refuge's full Level 4 water supply (30,000 AF) and will be a key component for all possible long-term solutions identified in the Study. Project design, environmental compliance, and permitting are expected to be completed in late fall 2016. Project construction is expected to start by summer 2017, however, actual start date is subject to available appropriated funds. The Lift Station will be equipped with state-of-the-art cylindrical fish screens.

Contract and construction management services to be provided by Reclamation's Construction Office in Willows, CA.

This project is currently unfunded for FY 2017, but is listed as an 'unfunded need' of the Refuge Water Supply Program.

## Data Management

Project information will be maintained within Reclamation's Resources Management Division, Program Management Branch (MP-410).

## Risks

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>
Project Construction Start	1	2
Project Construction Completion	1	2

## Cost Estimate

<b>Year</b>	<b>Fund</b>	<b>Total</b>	<b>BOR</b>	<b>FWS</b>
2017	CVPRF	\$4,350,000	\$4,350,000	\$0
2018	CVPRF	\$150,000	\$150,000	\$0
2019	CVPRF	\$150,000	\$150,000	\$0

Total Cost: \$4,650,000

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Construction - Construction of Sutter NWR Lift Station</i>					
Agreement	\$150,000	n/a	BOR	CVPRF	Service agreement with Reclamation's Construction Office in Willows, CA for contract management and construction management services in FY 2017.
Agreement	\$4,200,000	n/a	BOR	CVPRF	Construction of Sutter NWR Lift Station
<b>2018</b>					
<i>Construction - Construction of Sutter NWR Lift Station</i>					
Agreement	\$150,000	n/a	BOR	CVPRF	Service agreement with Reclamation's Construction Office in Willows, CA for contract management and construction management services in FY 2018.
<b>2019</b>					
<i>Construction - Construction of Sutter NWR Lift Station</i>					
Agreement	\$150,000	n/a	BOR	CVPRF	Service agreement with Reclamation's Construction Office in Willows, CA for contract management and construction management services in FY 2019.





## Refuge Construction - Biggs-West Gridley/Gray Lodge Refuge

Project Construction funding including Service Agreement with Reclamation's Construction Office (Willows, CA) for contract and construction management services.

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Classification: Improvement, Refuge Facility  
 Location: Sutter Buttes Region, North of Delta Refuges and Wildlife Areas  
 Funding Years: 2016 - 2017  
 Benefits Start Year: 2020  
 Priority: 6 - RWSP Funding Priorities:

### 1. Administration

### 2. Level 2 Conveyance

### 3. Incremental Level 4 (IL4) acquisitions

### 4. Facilities construction - ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.)

### 5. Other IL4 acquisitions (i.e., NVRRWP)

### 6. Unfunded Needs

Partners: FWS, Gray Lodge, BWGWD, CDFW

Related Programs: CVPIA b2

#### Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(5)-(1) Refuge Facility L2	80.0%	Facilities Construction for Level 2 benefits (Reimbursable by water and power users)
(d)(5)-(2) Refuge Facility IL4	20.0%	Facilities Construction for Level 4 benefits (Non-reimbursable and subject to State Cost Share)

#### Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Full Level 4 Delivery Capacity	44000	acre-feet	Amount of water required for optimum management of wetlands, subject to water supply availability.

**Deliverables**

<b><u>Date</u></b>	<b><u>Title</u></b>
Jan. 2020	Construction Completion
Oct. 2016	Service Agmt - FY2017
Jun. 2017	Construction Contract Award

**Narrative**

Provide construction funding for the Biggs-West Gridley Water District (BWGWD) Conveyance Improvement Project under a new contract to re-construct a water flow control structure and a canal reach, thus helping to increase water supply deliveries to the Gray Lodge WA as well as enhance BWGWD's system's integrity. FY 17 and FY 18 funding is the total amount estimated to construct and complete only these improvements and not the entire project. The Service Agreement is for contract management and construction management services to monitor the aforementioned construction activities on the BWGWD project. Personnel will be on site to help coordinate the construction work, verify that the work in place is per the design and specifications, monitor schedules and budgets, attend weekly project management meetings, provide construction/engineering support as needed, and prepare written daily and weekly construction update reports. This project is currently unfunded for FY 2017 (and FY 2018), thus is listed as an 'unfunded need' of the Refuge Water Supply Program.

**Data Management**

Project notes will be maintained by the Willows construction office. Data (project daily updates and weekly reports) will be kept within the Reclamation's Resources Management Division, Program Management Branch (MP-410).

**Risks**

<b><u>Risk</u></b>	<b><u>Likelihood</u></b>	<b><u>Impact</u></b>
Cost estimates and budget	1	2

**Cost Estimate**

<b><u>Year</u></b>	<b><u>Fund</u></b>	<b><u>Total</u></b>	<b><u>BOR</u></b>	<b><u>FWS</u></b>
2017	CVPRF	\$4,270,000	\$4,270,000	\$0
2018	CVPRF	\$4,270,000	\$4,270,000	\$0
2019	CVPRF	\$270,000	\$270,000	\$0

Total Cost: \$8,810,000

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Construction - BWGWD Conveyance Improvements Construction Project.</i>					
Agreement	\$4,000,000	n/a	BOR	CVPRF	Estimated amount of funding needed for the project's next construction phase(s). Funds would be obligated under a new contract.
Agreement	\$270,000	n/a	BOR	CVPRF	Contract management and on-site construction management services in FY 2017.
<b>2018</b>					
<i>Construction - BWGWD Conveyance Improvements Construction Project.</i>					
Agreement	\$270,000	n/a	BOR	CVPRF	Contract management and on-site construction management services in FY 2018.
Agreement	\$4,000,000	n/a	BOR	CVPRF	Estimated amount of additional funding needed for the project's next construction phase(s). Funds would be obligated under a contract with BWGWD executed in FY 2017.
<b>2019</b>					
<i>Construction - BWGWD Conveyance Improvements Construction Project.</i>					
Agreement	\$270,000	n/a	BOR	CVPRF	Contract management and on-site construction management services in FY 2019.



## Refuge Construction - East Bear Creek Pump Station O&M

5-Yr Contract for O&M Services, Years 1, 2, and 3.

Classification: Improvement, Refuge Facility  
 Location: San Luis NWR Complex, South of Delta Refuges and Wildlife Areas  
 Funding Years: 2016 - 2021  
 Benefits Start Year: 2017  
 Priority: 4 - RWSP Funding Priorities:

1. Administration

2. Level 2 Conveyance

3. Incremental Level 4 (IL4) acquisitions

4. Facilities construction - ongoing work (i.e., EBC O&M, Sutter NWR Lift Station Design, etc.)

5. Other IL4 acquisitions (i.e., NVRRWP)

Partners: FWS

Related Programs: No Data.

### Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(5)-(1) Refuge Facility L2	67.0%	Facilities Construction for Level 2 benefits (Reimbursable by water and power users)
(d)(5)-(2) Refuge Facility IL4	33.0%	Facilities Construction for Incremental Level 4 benefits (Non-reimbursable and subject to State Cost Share)

### Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Full Level 4 water delivery capacity.	13290	acre-feet	Amount of water required for optimum wetland management, subject to water supply availability.

### Deliverables

<u>Date</u>	<u>Title</u>
Mar. 2017	5-Year Contract for O&M Services

<b>Date</b>	<b>Title</b>
Oct. 2016	Internal Service Agreement w/Reclamation's Engineering & Design Division for FY 2017

**Narrative**

East Bear Creek Pump Station is the only facility available to divert water from Bear Creek for this refuge's wetlands. Therefore, it is very important to keep it fully operational throughout the year, addressing any electrical and mechanical issues quickly. Funding is needed to:

1. Enter into a service agreement with Reclamation's Engineering and Design Division to provided contract management services for a 5-Year contract with a contractor to provide O&M (electrical and mechanical) services for the East Bear Creek PS.
2. Obligate funds for the 5-Year Contract with a contractor to provide electrical and mechanical O&M services for the East Bear Creek PS.

Note: Currently, no funds have been allocated to the San Joaquin Action Plans Lands. Funds would need to be moved to this account from the Refuge Water Supplies, Facilities account.

**Data Management**

Data and reports will be maintained within Reclamation's Resources Management Division, Program Management Branch (MP-410)

**Risks**

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>
Plant failure - inability to pump water	2	2

**Cost Estimate**

<b>Year</b>	<b>Fund</b>	<b>Total</b>	<b>BOR</b>	<b>FWS</b>
2017	CVPRF	\$606,000	\$606,000	\$0
2018	CVPRF	\$20,000	\$20,000	\$0
2019	CVPRF	\$20,000	\$20,000	\$0

Total Cost: \$646,000

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>FTE</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<b>2017</b>					
<i>Construction - 5-Year Contract with contractor to provide electrical and mechanical O&amp;M services.</i>					
Agreement	\$56,000	n/a	BOR	CVPRF	Enter into service agreement with Engineering/Design Division for contract management services in FY 2017.
Agreement	\$550,000	n/a	BOR	CVPRF	Enter into a 5-year contract with a contractor for future O&M and pump repair services. Such a contractor would be available to troubleshoot and repair equipment (electrical, mechanical, etc.) malfunctions, as needed.
<b>2018</b>					
<i>Construction - 5-Year Contract with contractor to provide electrical and mechanical O&amp;M services.</i>					
Agreement	\$20,000	n/a	BOR	CVPRF	Enter into service agreement with Engineering/Design Division for contract management services in FY 2018.
<b>2019</b>					
<i>Construction - 5-Year Contract with contractor to provide electrical and mechanical O&amp;M services.</i>					
Agreement	\$20,000	n/a	BOR	CVPRF	Enter into service agreement with Engineering/Design Division for contract management services in FY 2019.