

Executive Summary

Large Reservoir with New Diversion (Alternative C)

Alternative C (Figure ES-5) is the same as Alternative A, except that it uses a 1.8 MAF reservoir.

Alternative C operations would deliver water for agricultural and M&I purposes (with approximately 90 percent export), incremental Level 4 refuge water supply, and Delta environmental water quality. Operations would be cooperative, with CVP and SWP operations to provide benefits to anadromous fish. Water stored during wet years would increase the reliability of water supply during dry years.

The larger reservoir under this alternative would require more saddle dams than are needed for Alternative A. The main dams (i.e., Sites Dam and Golden Gate Dam) would also be larger under this alternative than they are in Alternative A.

The Delevan Pipeline Intake Pumping/Generating Plant would include a new screened intake capable of pumping up 2,000 cfs from the Sacramento River and releasing up to 1,500 cfs back to the river. Electric power transmission lines to the Delevan Intake Pumping/Generating Plant would cross the valley with a west-to-east alignment to bring power from the existing transmission lines near Holthouse Reservoir.

Alternative C proposes three new recreation areas.

Local Alternative, Including Large Reservoir with New Diversion (Alternative D)

Alternative D (Figure ES-6) has been developed by the Authority. The facilities in this alternative are identical to those for Alternative C, except that the power transmission lines to the Delevan Intake Pumping/Generating Plant have a different alignment, there are two recreation areas instead of three, and the Terminal Regulating Reservoir (TRR) is smaller. The operations are significantly different, with more water retained in the north and less exported south-of-the-Delta.

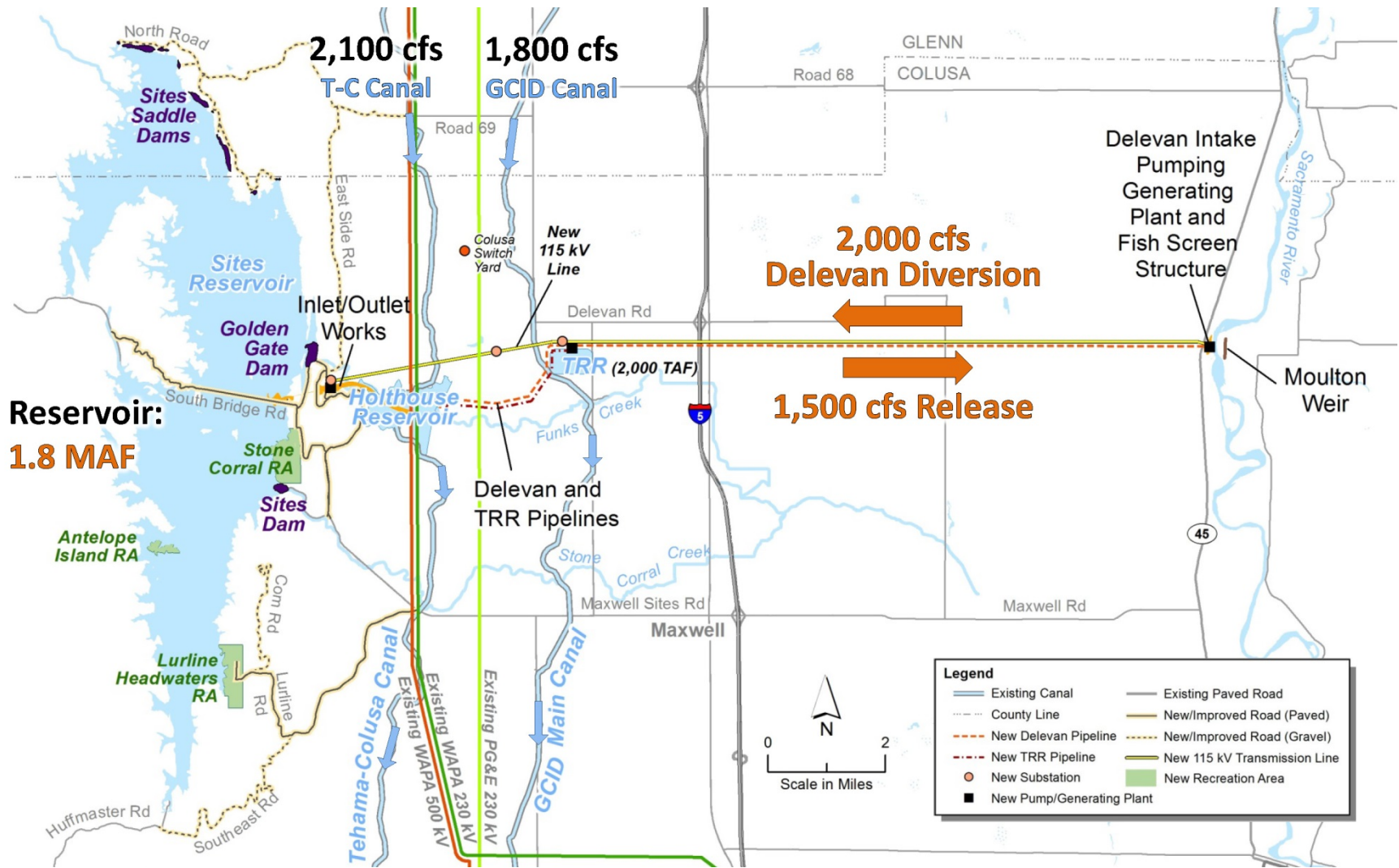


Figure ES-5. Features of NODOS Project Alternative C

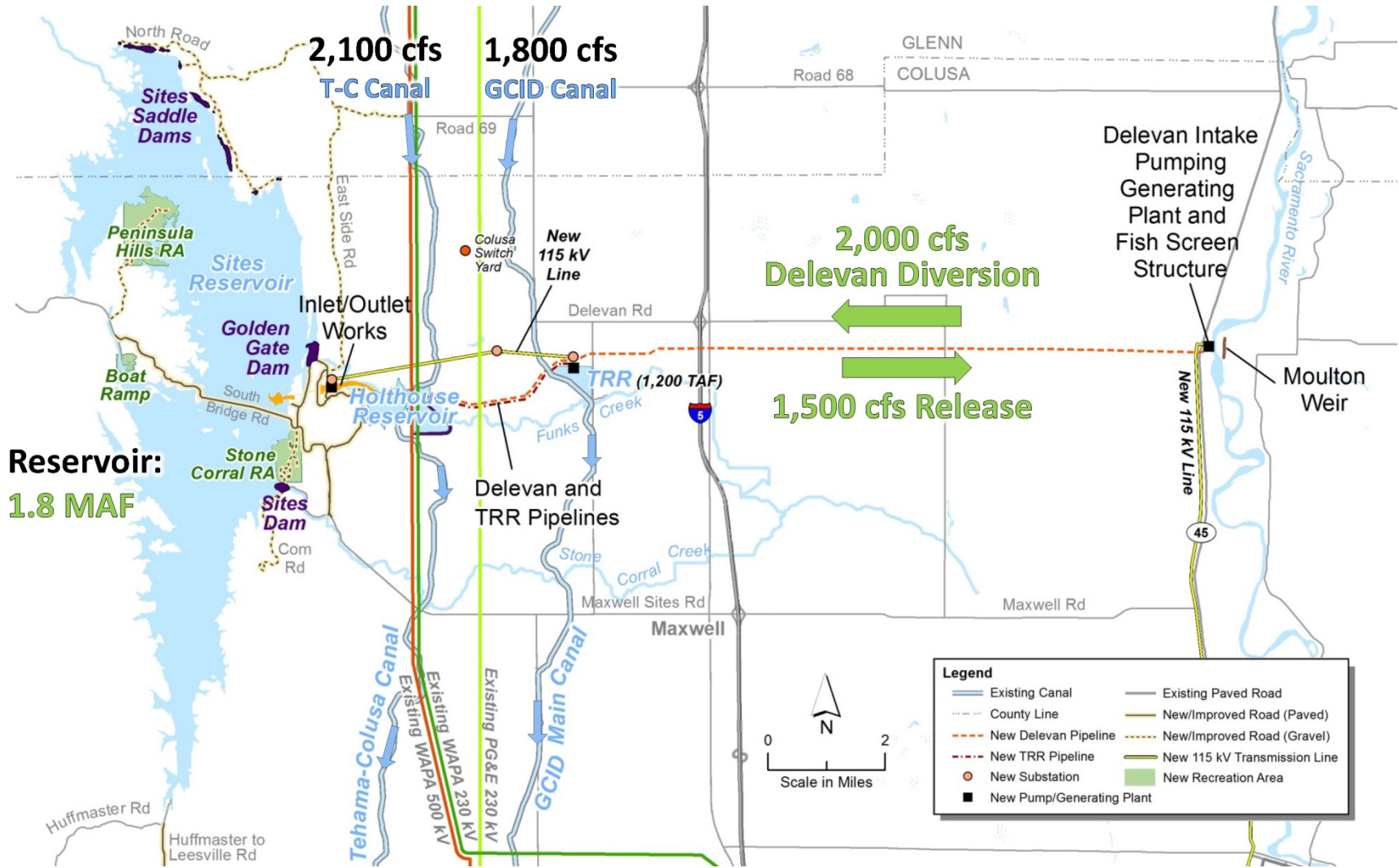


Figure ES-6. Features of NODOS Project Alternative D

Alternative D operations would deliver water for agricultural and M&I purposes (with approximately 45 percent of the water delivered for agricultural purposes in the Sacramento Valley, and the remainder exported), incremental Level 4 refuge water supply, and Delta environmental water quality. Operations would be cooperative, with CVP and SWP operations to provide benefits to anadromous fish. This alternative would provide less water for Delta environmental water quality than would the other action alternatives, but would provide increased benefits to anadromous fish between Keswick Dam and Red Bluff. Water stored during wet years would increase the reliability of water supply during dry years.

Alternative D would have a 1.8 MAF storage capacity. The larger reservoir would require more saddle dams than are needed for Alternative A, and the Sites Dam and Golden Gate Dam are larger than for Alternative A as well (Figure ES-6). Water would be diverted to fill the reservoir using the T-C Canal, GCID Main Canal, and the Delevan Pipeline. The Delevan Pipeline Pumping/Generating Facilities would include a new screened intake capable of pumping up 2,000 cfs from the Sacramento River and releasing up to 1,500 cfs back to the river. Transmission lines to the Delevan Intake Pumping/Generating Plant would have a south-to-north alignment to bring power from the existing transmission lines near the City of Colusa.

Ownership

The Authority would own and operate Sites Reservoir, the TRR, the Delevan Pipeline, and the three new pumping/generating plants (Sites, TRR, and Delevan Intake). Operation of Sites Reservoir would require the use of the T-C Canal and Funks Reservoir, which are owned by Reclamation, for diverting water into Sites Reservoir and releasing water for deliveries. The proposed operations would similarly require the use of the GCID Main Canal owned by GCID for diversions into Sites Reservoir and deliveries to downstream GCID customers.

Deliveries to south-of-the-Delta wildlife refuges would require the use of CVP or SWP pumping and conveyance facilities. Deliveries to south-of-the-Delta water customers (agriculture or M&I) would also require the use of CVP or SWP pumping and conveyance.

Contracts

Implementation of any of the alternatives described in this Draft Feasibility Report would require new contracts and agreements, in addition to the construction of new facilities. The following contracts and agreements are envisioned for this project.

- A contract between Reclamation and the Authority to allow the diversion of water through the T-C Canal into Sites Reservoir. Releases from the reservoir into Holthouse Reservoir and into the T-C Canal for deliveries to downstream users would also be required. The Authority would also require an agreement to allow them to expand the existing Funks Reservoir into Holthouse Reservoir.
- An agreement between the Authority and GCID to allow diversion of water through the GCID Main Canal into Sites Reservoir. The agreement would also cover releases from Sites Reservoir to provide deliveries to downstream users through the GCID Canal.
- A contract between Reclamation and the Authority to store water for public benefit under the State of California's Water Storage Investment Program (WSIP) in Shasta (or Folsom or Trinity). This storage would be accomplished by exchanging water in Sites Reservoir

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for water in Shasta that would be dedicated to coldwater pool and flow augmentation for anadromous fish. This exchange would allow CVP water to be delivered from Sites Reservoir in accordance with existing CVP contract terms (only the point of origin would change).

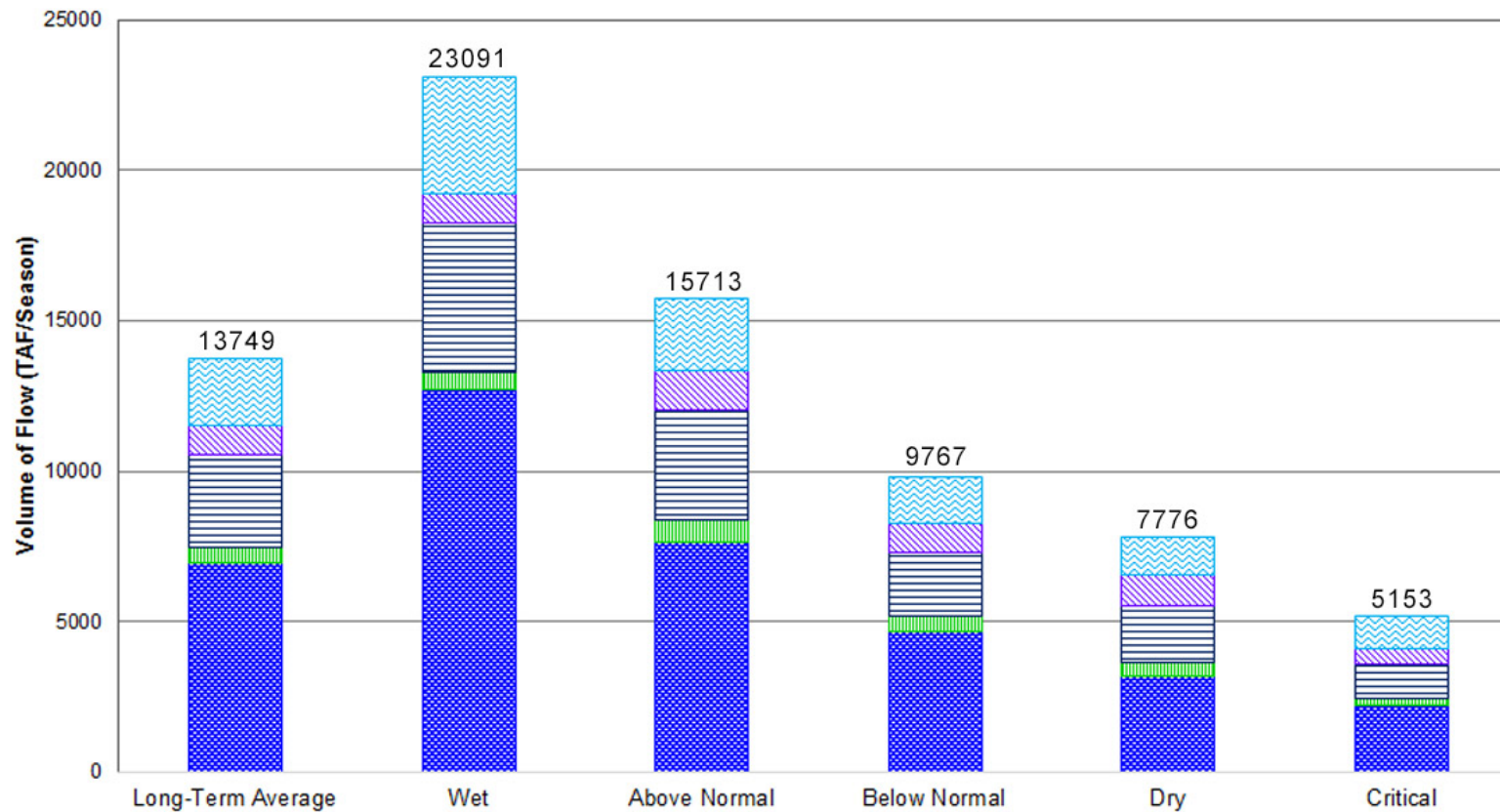
- An agreement between the Authority and DWR to allow the storage of public benefit water under WSIP in Oroville. This storage would be accomplished by exchanging water in Sites Reservoir for water in Oroville.
- A contract between Reclamation and any exporting agencies in the CVP service area to convey water they have purchased from the Authority to their place of use south of the Delta. This conveyance can be accomplished only after fulfillment of CVP deliveries and will not affect CVP contracts.
- An agreement with DWR or modification of existing SWP contracts for any agency in the SWP service area to convey water it has purchased from the Authority to its place of use south of the Delta.
- A contract between the Authority and the State for public benefits funded by WSIP.

Water Rights

Water rights would need to be obtained from California's State Water Resources Control Board (SWRCB) for diversions, storage, and regulation of Sites Reservoir, and delivery of that water for beneficial use. In February 1975, DWR, Northern District, published *Major Surface Water Development Opportunities in the Sacramento Valley: A Progress Report*. This report considered the results of previous DWR and Reclamation reports, and provided in-depth analyses of four reservoir locations in the Sacramento Valley, including the "Colusa Reservoir Complex" (which included the currently proposed Sites Reservoir) and the "Glenn Reservoir Complex" (which included a potential Newville Reservoir). The analysis considered the timing and volume of unregulated water (see Figure ES-7) in the Sacramento River with respect to riparian and senior appropriative water rights holders. For the Colusa Reservoir proposal, the report acknowledged that water from local water rights would be included in the operation of the originally proposed Colusa Reservoir; however, the study focused primarily on using unregulated Sacramento River and associated tributary water supplies to provide up to 3,164,000 acre-feet of storage.

Subsequently, on September 30, 1977, the DWR submitted, under Water Code 10500, a water right application for diversions that would provide water to the Colusa and Glenn Reservoir Complexes. Water Right Application A025517 was filed for the Colusa Reservoir Complex; it included diversion at Red Bluff (T-C Canal) and Hamilton City (GCID Main Canal), along with Stone Corral and Funks Creeks.

Sacramento River Uncaptured, Stored and Exported Flow Volumes During November Through March, by Water Year Type¹



- Uncaptured Flow Entering Below Sites at Delevan
- Flow Diverted to Storage in Sites
- Uncaptured Flow Entering Below Shasta Lake and above Sites Diversions
- Flow Stored in Shasta Lake
- Uncaptured Flow Entering above Shasta Lake

¹Sacramento Valley 40-30-30 water year types

Figure ES-7. Sacramento River and Tributary Flows Below Keswick Dam

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The resulting State filing is now held by the SWRCB. The Face Value Amount² of this filing was for 3,164,000 acre-feet/year. The stated water uses under this State filing included irrigation, municipal, domestic, industrial, recreational, fish and wildlife, water quality control, incidental power, and other, without any seasonal restrictions (i.e., proposed application requested diversion from January 1 through December 31). The water right application will need to be updated to reflect the details of the Sites Reservoir Project, including all of the points of diversion in the current alternatives; places of use; and adjustment of the storage amount down to 1.81 MAF.

The State filing did not include the proposed Delevan Pipeline intake diversion from Sacramento River near the existing Maxwell Irrigation District diversion. This diversion would require a new water right.

The Authority is developing a Water Rights Strategy for the project.

Summary of Alternative Features

Table ES-1 provides a summary of NODOS Alternatives A, B, C, and D.

Estimated Physical Accomplishments

The Sites project would provide several benefits to society and the environment. The proposed operations seek to avoid negative impacts to the CVP and SWP while giving the CVP and SWP more flexibility in operations. Additional analysis and discussions are under way to verify that negative impacts are avoided.

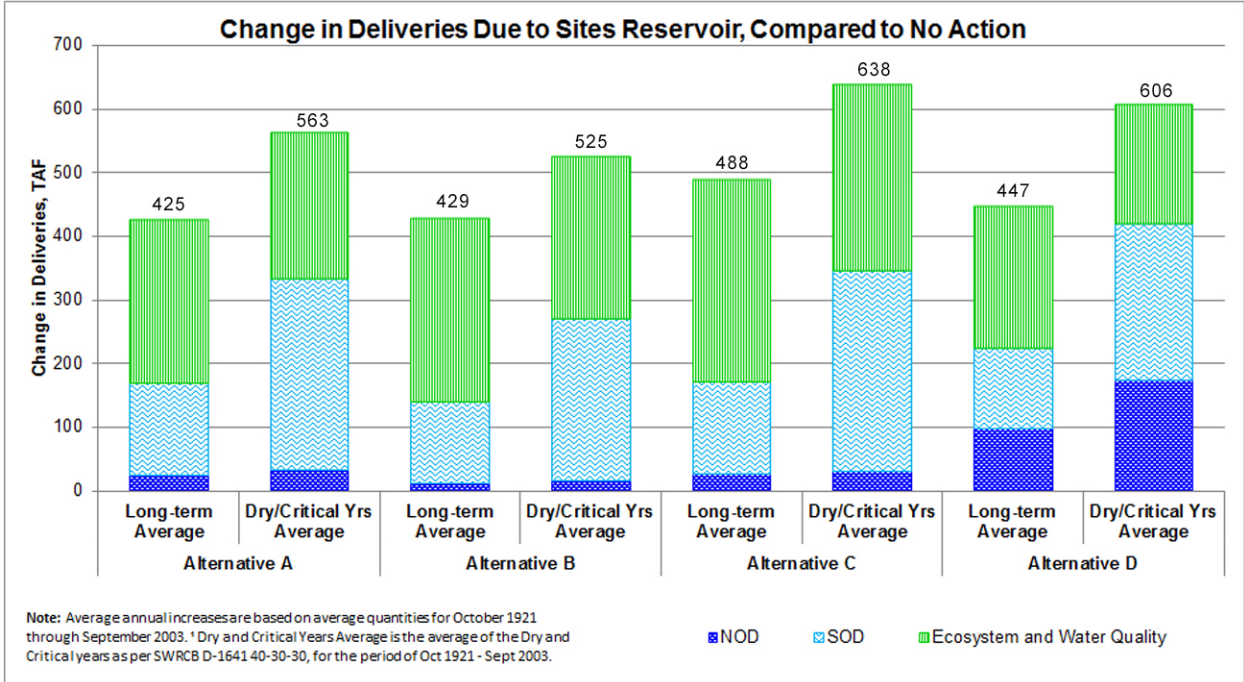
Reclamation, the Authority, and DWR used CALSIM-II, DSM2, SALMOD, USRWQM, and other computer models to simulate the performance of the No Action Alternative and the four action alternatives to evaluate their potential to meet the planning objectives (additional information on the models is presented in the Draft EIR/EIS). It was determined that each of the action alternatives would result in improvements, of varying degrees, and meet all of the primary and secondary objectives.

Releases from Sites Reservoir for Water Supply and Environmental Purposes

Water in Sites Reservoir would be dedicated to both water supply and environmental purposes (i.e., anadromous fish in the Sacramento River and Delta environmental water quality).

As shown on Figure ES-8, releases are split between water supply and public benefits (environmental purposes). More water is provided for water supply in dry and critical years. Only Alternative D devotes a substantial quantity of water to water supply north of the Delta.

² SWRCB defines Face Value Amount as the maximum amount of water that can be appropriated for water rights issued after 1914 (Title 23 California Code of Regulations Section 731). The Face Value Amount, as shown on each water right application and permit, includes the total amount of water to be diverted for consumptive uses plus water not consumed by the water rights holder that may be used by other users (e.g., conveyance losses to percolation or surface runoff) (SWRCB 2016). For appropriative water rights, the total Face Value Amount is only available after flows are provided to senior water rights, instream flow criteria, and other senior water regulatory requirements as specified in the actual water right permit.



D-1641 = Water Rights Decision 1641 Revised (SWRCB 2000)
 NOD = north of the Delta
 SOD = south of the Delta
 SWRCB = State Water Resources Control Board

Figure ES-8. Change in Water Deliveries for Project Purposes with Respect to No Project Alternative

Water Supply and Water Supply Reliability

All of the action alternatives would meet the planning objective and improve water supply and water supply reliability. The action alternatives would involve significant new storage (see Figure ES-9)—both in Sites Reservoir and in existing CVP and SWP reservoirs—that would enhance the reliability of water supply. Increased storage in existing CVP and SWP reservoirs would be achieved by exchanging water in Sites for water in the CVP and SWP reservoirs that would provide public benefits.

Figure ES-9 shows the potential/estimated storage increases for the long-term Average and Critical (driest) periods in CVP and SWP reservoirs for the four action alternatives. This increase in storage at Folsom, Trinity, Oroville, and Shasta would be achieved through exchanges with Sites Reservoir.

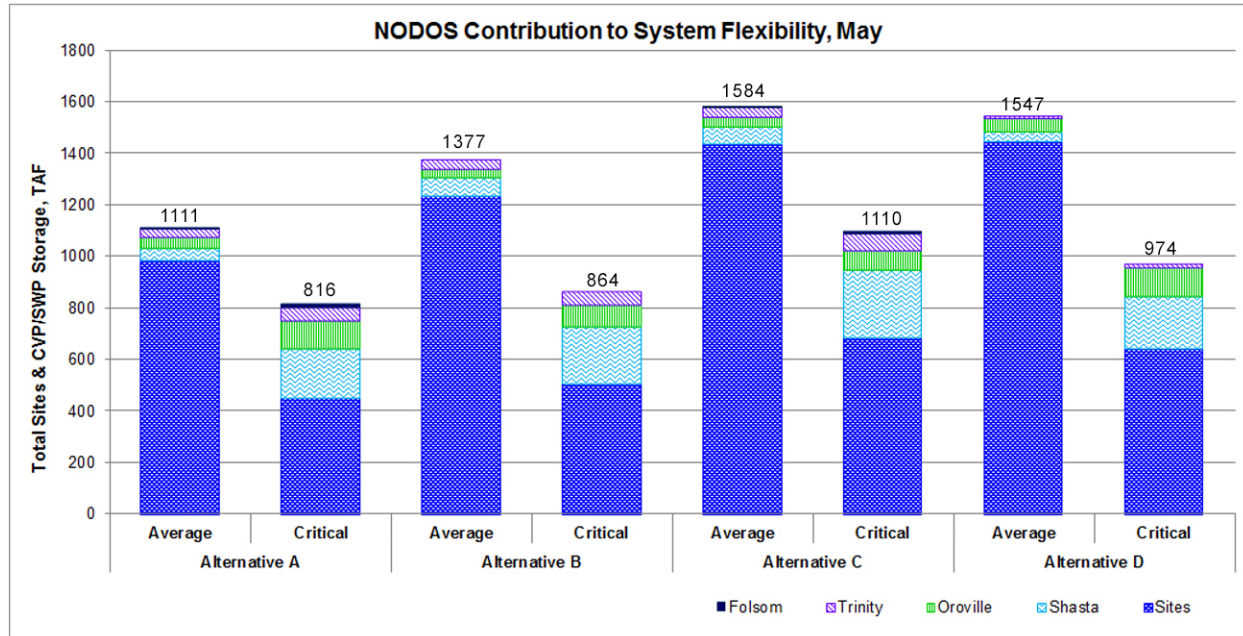


Figure ES-9. Increases in Average System Storage Above Without Project Conditions

The additional storage (800 to 1,600 TAF) could significantly increase the ability to respond to system needs and provide for greater flexibility in system operations.

Sites Reservoir would provide supplemental water supply for the agencies participating in the project. Alternative D (Table ES-2) provides the highest Average long-term annual delivery increases (225 TAF) and Dry and Critical year increases (418 TAF) due to a greater operational focus on water supply. Alternative D also provides more water north of the Delta, but less water in the south. Alternative C (similar facilities to Alternative D, but operated differently) provides the second-highest deliveries, followed by Alternatives A (smaller reservoir) and B (only two intakes).

Table ES-2. Increased Long-Term and Dry/Critical Year Deliveries

Objectives and Accomplishments (above No Project Alternative conditions) ^a	Alternative A		Alternative B		Alternative C		Alternative D	
	Average (TAF)	Dry and Critical (TAF)	Average (TAF)	Dry and Critical (TAF)	Average (TAF)	Dry and Critical (TAF)	Average (TAF)	Dry and Critical (TAF)
Alternative Facilities	1.3 MAF Reservoir New Intake		1.8 MAF Reservoir No New Intake		1.8 MAF Reservoir New Intake		1.8 MAF Reservoir New Intake	
Alternative Operation	Export Focus		Export Focus		Export Focus		Sac Valley Focus	
Supplemental Deliveries in SWP Service Area	122	267	130	248	134	291	116	228
NOD Ag	0	2	0	1	-1	-3	1	4
NOD M&I	1	2	1	2	1	3	1	2
SOD Ag	30	57	34	55	36	67	28	51
SOD M&I	91	206	95	190	98	224	86	171
Supplemental Deliveries in CVP Service Area	47	67	11	22	38	55	109	190
NOD Ag	19	28	12	14	25	30	97	169
NOD M&I	2	1	0	0	2	1	1	0
SOD Ag	25	37	-1	8	10	22	11	21
SOD M&I	1	1	0	0	1	1	0	0
Sub-Total Deliveries for Water Supply	169	334	141	270	172	346	225	418
Incremental Level 4 alternative water supply for refuges	44	22	72	37	74	37	48	24
Water supply for Delta environmental water quality/salmonid improvement ^b	212	208	216	217	242	255	174	163
Sub-Total Deliveries for Environmental Benefits	256	230	288	254	316	292	222	187
Total Deliveries	425	564	429	524	488	638	447	605
Additional end-of-September storage in Shasta (TAF)	101	139	106	180	108	175	132	198

^a Increases in deliveries above the No Project Alternative, including supplies for agriculture, M&I, and environmental purposes. Dry and Critical period average is the average quantity for the combination of the SWRCB's D-1641 40-30-30 Dry and Critical years for the period October 1921 to September 2003. The "Average (TAF)" is for this period.

^b Releases from Sites Reservoir to the Delta solely for environmental benefit. This quantity excludes any water released for export or carriage water requirements. No specific releases were dedicated to water quality improvements for M&I or agriculture.

Ag = agriculture
 CVP = Central Valley Project
 D-1641 =
 M&I = municipal and industrial
 MAF = million acre-feet

NOD = north of the Delta
 SOD = south of the Delta
 SWP = State Water Project
 SWRCB = State Water Resources Control Board
 TAF = thousand acre-feet

Incremental Level 4 Refuge Water Supply

All action alternatives would meet the planning objective and provide an alternate source for incremental Level 4 refuge water supply for wildlife refuges. Refuges in the Central Valley support the Federally endangered California tiger salamander, long-horned fair shrimp, and San Joaquin kit fox and the Federally threatened giant garter snake. These refuges are wintering grounds and migratory stopover points on the Pacific flyway for waterfowl and shorebirds, providing habitat for many species listed in the Migratory Bird Treaty Act of 1918.

Water is currently purchased both north of the Delta (3.35 TAF/year maximum) and south of the Delta (101.09 TAF/year maximum) to provide incremental Level 4 refuge water supplies for optimum habitat management. The alternatives show a significant ability to provide additional water over the full simulation period, ranging from 44 TAF under Alternative A to 74 TAF under Alternative C. The ability to provide incremental Level 4 refuge water supply is significantly constrained in critical years (an additional 6 to 12 TAF could be provided). It is envisioned that most of the water would be made available to refuges south of the Delta.

Populations of Anadromous Fish and Other Aquatic Species

The Sites Reservoir Project provides additional flexibility to support Central Valley Project operations to provide flows of suitable quality, quantity, and timing to protect all life stages of anadromous fish, consistent with CVPIA Section 3406(b)(1)(B). All action alternatives would meet the planning objective and improve conditions to increase populations of anadromous fish, including endangered winter run Chinook salmon. Figure ES-10 provides a conceptual model of how the potential benefits to fish would be derived from Sites Reservoir. Figure ES-11 shows the increases in salmonid juvenile production that were obtained from simulations for each of the action alternatives. These benefits would be achieved by operating Sites Reservoir in collaboration with existing CVP and SWP reservoirs to accomplish the following actions:

- Improve the reliability of coldwater pool storage in Shasta Reservoir to provide suitable water temperatures for fish species in the Sacramento River.
- Provide releases of appropriate water temperatures from Shasta Dam, and subsequently from Keswick Dam, to maintain mean daily water temperatures year-round at levels suitable for all species and life stages of anadromous salmonids in the Sacramento River between Keswick Dam and Red Bluff Diversion Dam.
- Augment flows in the Sacramento River between Keswick Dam and Red Bluff Diversion Dam to minimize dewatering of fall-run Chinook salmon redds (for the spawning and embryo incubation life stage periods extending from October through March), particularly during fall months.
- Provide increased flows from spring through fall in the lower Sacramento River by reducing diversions at Red Bluff Diversion Dam (into the Tehama-Colusa Canal) and at Hamilton City (into the GCID Main Canal), and by providing supplemental flows (at Delevan).
- Improve the reliability of coldwater pool storage in Lake Oroville to improve water temperature suitability for juvenile steelhead and spring run Chinook salmon over-summer rearing and fall run Chinook salmon spawning in the Feather River from May through November during all water year types.

- Provide additional ability to maintain water temperature and suitable flows to reduce the stranding of redds in the American River.
- Stabilize flows in the American River to minimize dewatering of fall run Chinook salmon redds (i.e., October through March) and steelhead redds (i.e., January through May), and reduce isolation events (specifically, flow increases to $\geq 4,000$ cfs, with subsequent reduction to $< 4,000$ cfs) of juvenile anadromous salmonids, particularly from October through June.
- Provide supplemental Delta outflow during summer and fall months (i.e., May through December) to improve X2 location (if possible, west of Collinsville, 81 kilometers) and increase estuarine habitat, reduce entrainment, and improve food availability for anadromous fishes.

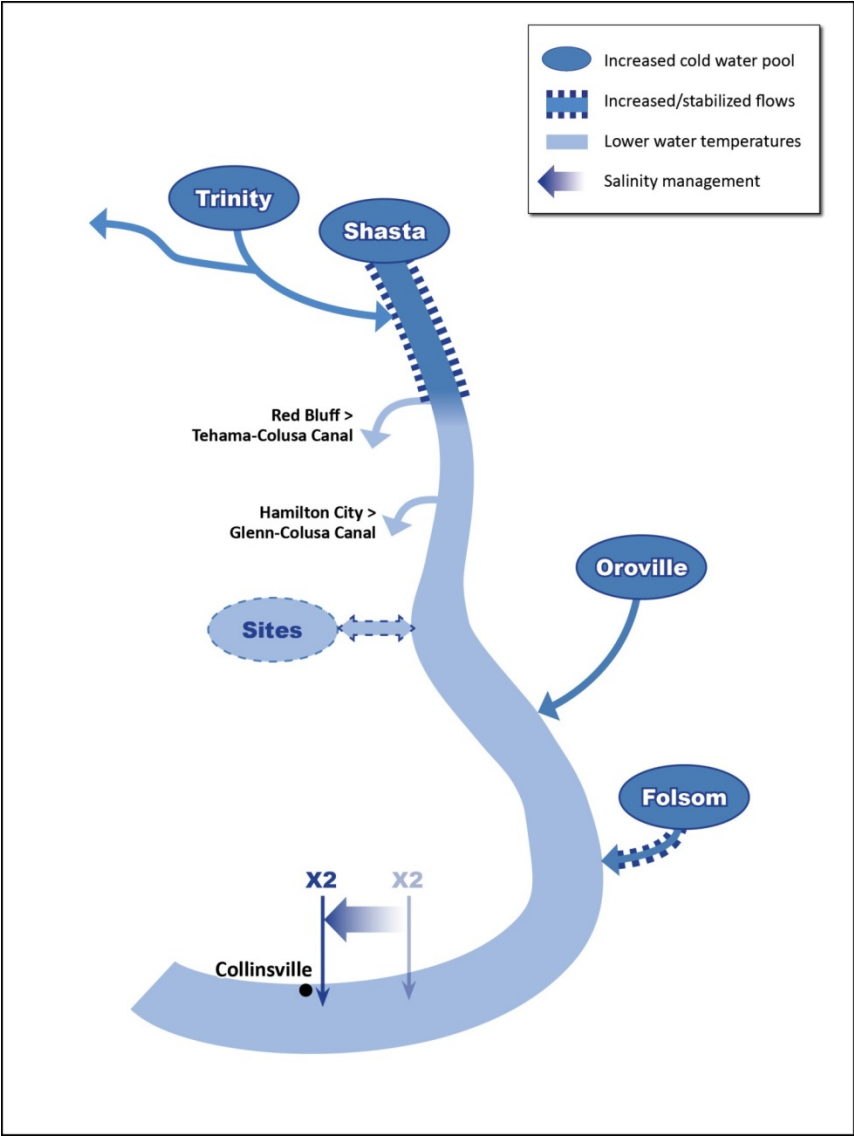


Figure ES-10. Conceptual Model of Benefits to Anadromous Fish from NODOS/Sites Reservoir Project

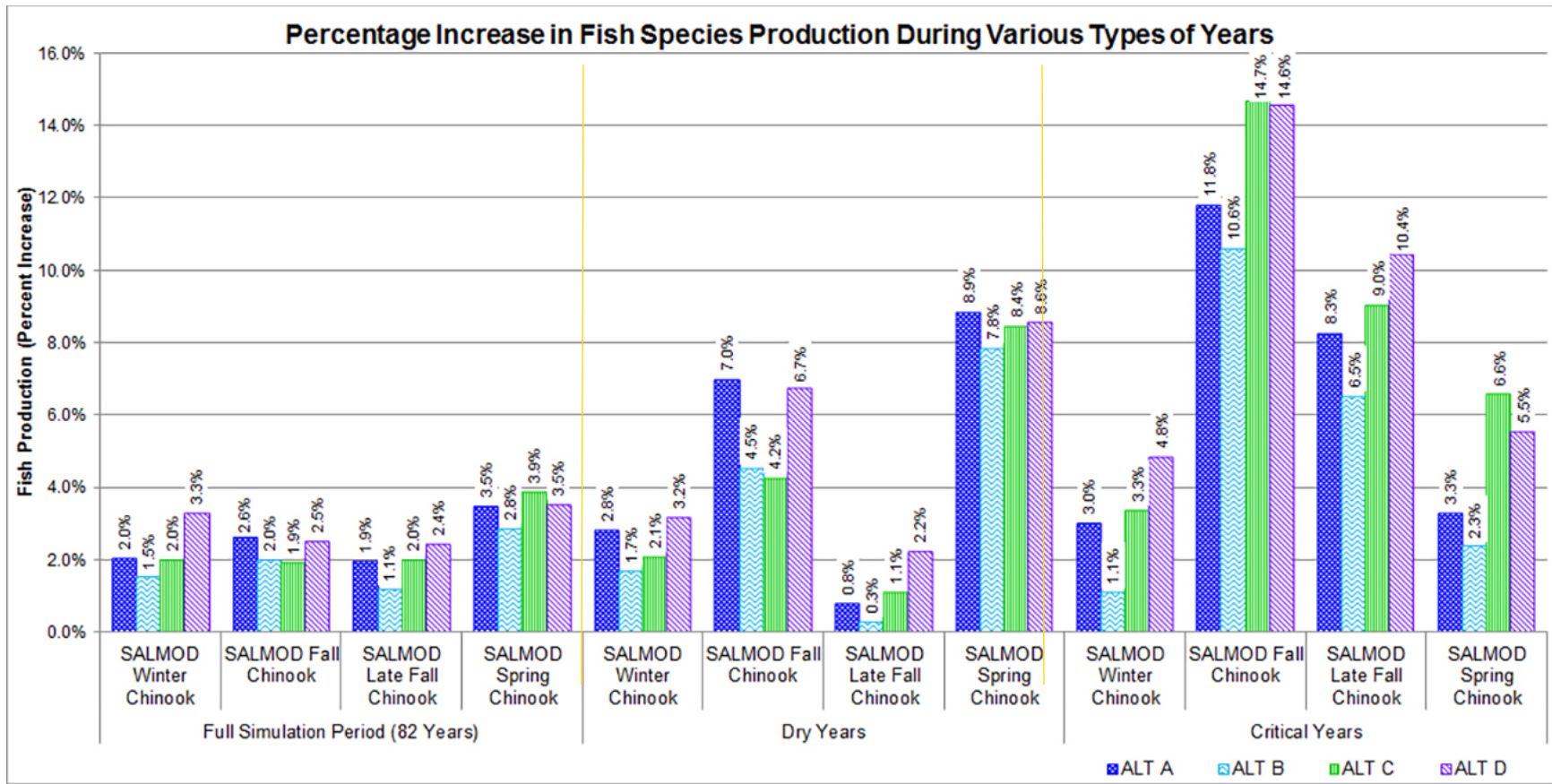


Figure ES-11. Anticipated Effects of Alternatives A, B, C, and D Compared to No Project Alternative on Sacramento River Chinook Salmon Juvenile Production (SALMOD Model)

Alternative D operations were adjusted specifically to provide greater benefits to winter-run Chinook. This benefit can be seen for all year types in Figure ES-11. Alternative B generally has lower benefits due to the constraints in operation that result from having only two intakes. Even though the reservoir is smaller, Alternative A performs comparably to Alternatives C and D for most runs and year types. Analysis by the Authority (*Sites Project Water Storage Investment Program Application*) indicates that Sites Reservoir would minimize the impacts from climate change on salmon populations based on modeling of 2030 and 2070 conditions.

Delta Water Quality Improvement

The action alternatives would meet the planning objective and improve Delta water quality.

Delta Environmental Water Quality

Releases from Sites Reservoir (ranging from average releases of 174 to 242 TAF/year, depending on the alternative) could be used to augment flows through the Delta (see Table ES-2). These flows would increase estuarine habitat and improve food availability for estuarine-dependent species (e.g., Delta smelt, longfin smelt, Sacramento splittail, starry flounder, and California bay shrimp). The SWRCB has concluded that the best available science suggests that current Delta flows are insufficient to protect public trust resources, including fish populations. The most widely used metric for evaluating increases in estuarine habitat in the Delta is the position of X2. Shifting X2 downstream (reducing salinity) improves the habitat for Delta smelt, and reduces water quality stress for other species, including salmonids. East of X2, water becomes progressively fresher, and west of X2 the water becomes more saline until reaching the ocean, which has a salinity of approximately 35 parts per thousand.

Habitat quality in the Delta is degraded when the salinity in the Delta increases. The highest salinities occur during the fall and early winter, when Delta outflow is at its lowest. Water quality degradation is most pronounced in Dry and Critical years. Figure ES-12 shows the change in the average X2 positions during September to November in Dry and Critical years for each of the alternatives. Alternative C releases the most water to the Delta and shifts X2 westward by 0.3 to 1.0 kilometer, depending on the year type. Analysis by the Authority (*Sites Project Water Storage Investment Program Application*) suggests that this benefit may decline over time as a result of climate change.

Agricultural and M&I Water Quality

Improved water quality in the Delta would benefit Delta export water quality. Exporters using water for M&I purposes would experience a reduction in water treatment costs. Agricultural users, particularly in the San Joaquin River Basin, would benefit from reduced salt loads.

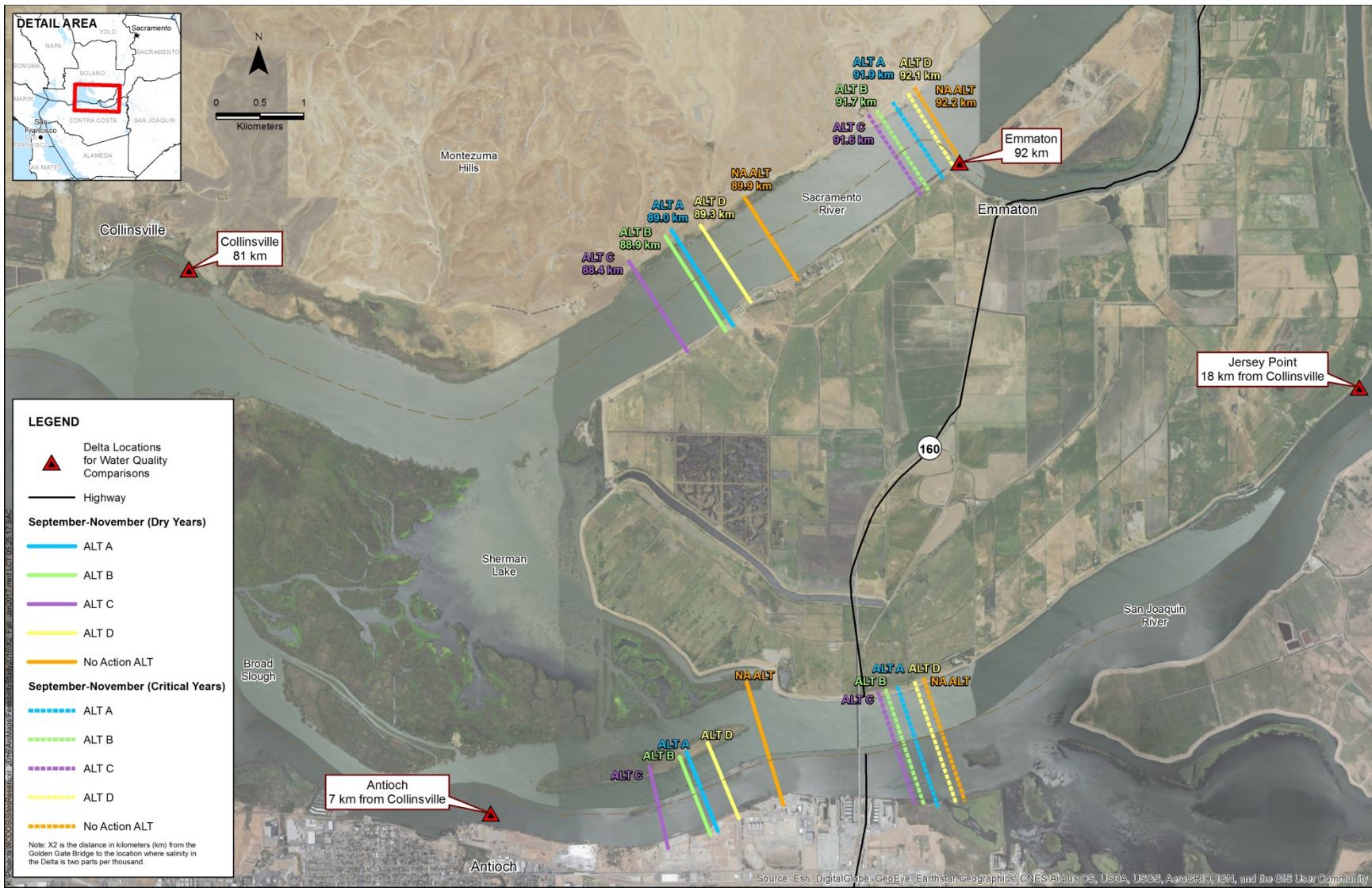


Figure ES-12. Position of X2 During September – November in Dry and Critical Years

Sustainable Hydropower

The action alternatives would meet the planning objective and provide sustainable hydropower. Hydropower could be generated when water is released from Sites Reservoir or through pump-back operations between Sites Reservoir and Holthouse Reservoir (the forebay/afterbay). This energy recovery operation would offset the cost of pumping, and modeling results suggest that the revenues generated would be greater than the energy costs. Table ES-3 presents the rated hydropower generating capacity for the facilities under each alternative, and the range of hydropower generation (not accounting for the energy consumed in the system by pumping) over the 30-year analysis period in the NODOS Power Optimization Scheme.

Table ES-3. Hydropower Generation for NODOS Alternatives

Generation Capacity	Alternative A	Alternative B	Alternative C	Alternative D
Sites-rated generation capacity (MW)	96.3	109.7	109.7	109.7
TRR-rated generation capacity (MW)	4.9	4.9	4.9	4.9
Sacramento River-rated generation capacity (MW)	12	N/A	12	12
Long-term average dispatchable power generated through pump-back operation (GWh)	60.4	43.8	42.0	47

GWh = gigawatt-hour(s)

MW = megawatt(s)

N/A = not applicable

NODOS = North-of-the-Delta Offstream Storage

Recreation

The action alternatives would meet the planning objective and provide new recreational opportunities. New facilities would be developed on the shore of the reservoir to support other recreational activities (e.g., camping, hiking, picnicking, and sightseeing). Alternatives A, B, and C would include up to three new recreation areas, and Alternative D would include up to two new recreation areas. For all alternatives, the recreation areas would be implemented sequentially in a phased approach. After each new recreation area opened, the local demand for recreation would be reassessed prior to adding or expanding the recreation areas to prevent construction in excess of the local demand.

Flood-Damage Reduction

The action alternatives would meet the planning objective by providing protection against flooding for a portion of the Funks Creek and Stone Corral Creek watersheds downstream of Golden Gate and Sites Dams that is in the 100-year floodplain. All alternatives would provide equal flood-damage reduction. Under current No Project conditions, Funks Reservoir is not a flood control reservoir; therefore, it can be overwhelmed with runoff and still send peak flows downstream in Funks Creek. The construction of Golden Gate and Sites Dams would significantly reduce the potential for flooding for Funks Creek, Stone Corral Creek, and various other unnamed streams. All alternatives would result in a similar reduction in flood damages. Of the 22,200 acres of land prone to flooding in these watersheds, approximately 43 percent (9,570 acres) would experience a reduction in flood-related damages during a 100-year flood event. This area includes the northern portion of the town of Maxwell.

Estimated Benefits and Costs

As specified in the P&Gs, the Federal objective of water resources project planning is to formulate alternatives that contribute to national economic development (NED) consistent with protecting the Nation’s environment.

Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units. The alternative plan that reasonably maximizes net NED benefits, consistent with the Federal objective, is to be formulated and will be identified as the NED plan.

Net NED benefits (total project benefits less costs) of each of the action alternatives were evaluated in accordance with the P&Gs.

The total project benefits and costs were analyzed over a 100-year planning horizon based on expected project completion in 2030, with full annual operations beginning in 2032, after the reservoir fills for a couple of years during the interim. Consequently, the end of the Federal planning horizon for the project’s future operations is 2131. Annualized benefits for each action alternative are presented in Table ES-4.

Table ES-4. Summary of Estimated Annual NED Benefits for NODOS Alternatives (\$ Millions, 2015)

Purposes	Alternative A	Alternative B	Alternative C	Alternative D
Water supply	\$135.5	\$136.5	\$149.3	\$137.9
Agricultural	\$13.9	\$7.7	\$13.0	\$20.8
Urban	\$121.6	\$128.8	\$136.2	\$117.1
Incremental Level 4 refuge	\$22.2	\$35.8	\$37.3	\$24.2
Anadromous fish & other aquatic	\$45.7	\$33.3	\$36.9	\$48.1
Water quality	\$59.5	\$59.9	\$71.1	\$41.6
Agricultural	\$1.3	\$1.4	\$1.6	\$1.0
Urban	\$18.9	\$20.8	\$25.2	\$14.0
Delta environmental	\$39.3	\$37.8	\$44.2	\$26.6
Hydropower (system)	\$19.0	\$14.8	\$22.0	\$20.2
Recreation	\$2.2	\$2.2	\$2.3	\$2.3
Flood damage reduction	\$4.3	\$4.3	\$4.3	\$4.3
Total benefits	\$288.4	\$285.5	\$323.2	\$278.6

NED = National Economic Development
 NODOS = North-of-the-Delta Offstream Storage

Alternative C has the highest NED benefits due to higher deliveries for M&I water supply and greater releases for Delta environmental water quality. Alternative A has the second highest NED benefits. The benefits for Alternative B are less due to the operational restrictions associated with having only two intakes for diversions. Although Alternative D has the same facilities as Alternative C, it has the lowest NED benefits due to operations that provide more water for agricultural water purposes and less water for Delta environmental water quality.

Table ES-5 summarizes the accomplishments, costs, and benefits of the action alternatives.

Table ES-5. Summary of Relative Accomplishments of Alternative Plans and Estimates of Preliminary Costs and Benefits

Purposes and Accomplishments (above No Project Alternative Conditions)	Alternative A 1.3 MAF New Intake		Alternative B 1.8 MAF No New Intake		Alternative C 1.8 MAF New Intake		Alternative D 1.8 MAF New Intake	
	Average	Dry and Critical (TAF)	Average	Dry and Critical (TAF)	Average	Dry and Critical (TAF)	Average	Dry and Critical (TAF)
Increase in Deliveries								
Increase in deliveries for M&I and agricultural purposes ^a	169	333	141	271	173	349	224	418
Deliveries for incremental Level 4 refuge water supply for refuges	44	22	72	37	74	37	48	24
Deliveries for Delta environmental water quality/salmonid improvement ^a	212	208	216	217	242	255	174	163
Physical Accomplishments								
Shasta coldwater pool – Average end of September in TAF	101		106		108		132	
Anadromous fish – Chinook fish production (habitat units from SALMOD model) ^b	936		683		756		985	
Delta environmental water quality – Downstream shift in X2 (July/August) in Dry/Critical years	1.4		1.4		1.7		1.0	
Hydropower – Long-term average dispatchable power (GWh)	60.4		43.8		42.0		47.1	
Recreation included ^c	Yes		Yes		Yes		Yes	
Flood damage reduction (acres)	8,625		8,625		8,625		8,625	
Economics								
Cost (2015)								
Construction cost (\$ millions)	\$4,270		\$4,313		\$4,671		\$4,697	
Total development cost (\$ millions) ^d	\$4,825		\$4,873		\$5,278		\$5,308	
Annual cost (\$ millions) ^e	\$174		\$175		\$187		\$188	
Benefits (2015)								
Annual NED benefits (\$ millions/yr)	\$288		\$286		\$323		\$279	
Net annual NED benefits (\$ millions/yr)	\$115		\$110		\$136		\$90	
BCR	1.66		1.63		1.72		1.48	

Notes for Table ES-5:

- ^a Water supply increases above the No Project Alternative, including supplies for agriculture, M&I, and environmental purposes. Dry and critical period average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of October 1921 – September 2003. Average annual is for the period of October 1921 through September 2003.
 - ^b Increase in production (SALMOD model) when compared to the No Project Alternative.
 - ^c Ranking based on ability of alternatives to support flat water recreation at Sites Reservoir.
 - ^d Total development cost shown for 2015 price level.
 - ^e Includes both capital amortization and OM&R costs.
- BCR = benefit-cost ratio
 D-1641 = Water Rights Decision 1641 Revised (SWRCB 2000)
 GWh = gigawatt-hour(s)
 M&I = municipal and industrial
 MAF = million acre-feet
 NED = National Economic Development
 OM&R = operation, maintenance, and replacement
 SALMOD= a computer model that simulates the dynamics of freshwater salmonid populations
 SWRCB= State Water Resources Control Board
 TAF = thousand acre-feet
 X2 = the distance in kilometers from the Golden Gate Bridge to the location where salinity in the Delta is 2 parts per thousand
 yr = year(s)

Summary of Potential Environmental Effects

Implementation of the action alternatives would affect environmental resources. All action alternatives are considered to be similar in terms of their potential environmental effects, although some adverse effects would be increased for the 1.8 MAF reservoir and the inclusion of an additional Sacramento River intake for the Delevan Pipeline (Alternative D). Generally, adverse effects would be mitigated to less-than-significant levels with the mitigation measures that have been identified. Some adverse effects for all action alternatives would be unavoidable despite mitigation.

The companion Draft EIR/EIS describes the environmental setting, identifies the potential direct and cumulative impacts that could result from implementation of each of the proposed action alternatives, and proposes mitigation measures for impacts found to be significant. The Draft EIR/EIS also considers the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity of the affected resources. Significant irreversible environmental changes that would be caused by the proposed project, should it be implemented, are described in the Draft EIR/EIS.

Plan Evaluation and Comparison

The evaluation of feasibility for the action alternatives is presented through four accounts established by the P&Gs. The NED, Regional Economic Development (RED), Environmental Quality (EQ), and Other Social Effects (OSE) accounts are used to facilitate evaluation and display of the beneficial and adverse effects of the action alternatives.

NED Account

The NED account considers beneficial and adverse effects, expressed in monetary units, on the Nation's economy.

The NED effects analysis determined the change in net value of the Nation's output of goods and services that would be achieved by implementing each alternative.

The P&Gs define the NED Plan as the action alternative that reasonably maximizes the net NED benefits. Table ES-6 summarizes the annualized benefits and costs, and presents the net NED benefits for each alternative.

The analysis of benefits and costs indicates that Alternative C would provide the highest net NED benefits consistent with protection of the environment (all alternatives are considered protective of the environment as evaluated in the DEIR/EIS). Consistent with the P&Gs, Alternative C is identified as the NED Plan.

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Table ES-6. Summary of Annual Benefits, Annual Costs, and NED Benefits (\$ Millions, 2015)

Costs/Benefits	Alternative A	Alternative B	Alternative C (NED Plan)	Alternative D (LPA)
Total NED benefits	\$288.4	\$285.5	\$323.2	\$278.6
Capital amortization (100 years, 2.875%)	\$147.4	\$148.9	\$161.2	\$162.1
Operations, maintenance, and replacement	\$26.4	\$26.5	\$26.2	\$26.2
Total cost	\$173.7	\$175.4	\$187.4	\$188.3
BCR	1.66	1.63	1.72	1.48
Annual net NED benefits	\$114.7	\$110.2	\$135.8	\$90.4
Total net present value of benefits	\$3,754	\$3,607	\$4,446	\$2,958

BCR = benefit-cost ratio
 LPA = Locally Preferred Alternative
 NED = National Economic Development

Depending on the method used to estimate the economic benefits, the benefit-cost ratio (BCR) would vary for each alternative. The range in BCR for each alternative is as follows:

- Alternative A: BCR ranges from 1.56 to 2.90.
- Alternative B: BCR ranges from 1.62 to 2.85.
- Alternative C: BCR ranges from 1.70 to 2.97.
- Alternative D: BCR ranges from 1.35 to 2.36.

RED Account

The RED account considers changes in the distribution of regional economic activity that would result from alternative implementation. RED effects are expressed in monetary or other numeric and non-numeric units. Alternative D would provide the highest RED benefits, and would provide more water supply for local agriculture, thereby increasing regional income and employment opportunities; and would modify facilities to reduce impacts on local landowners.

EQ Account

The EQ account considers information about the environmental quality resources and NEPA human environment effects. EQ effects are expressed in appropriate numeric and non-numeric units. Alternatives C and D would provide the greatest value under the EQ account. Operations under Alternative C would provide greater benefits to Delta environmental water quality (including improved habitat for endangered Delta smelt). Operations under Alternative D would provide greater benefits than Alternative C to anadromous fish (including endangered winter-run Chinook salmon) in the Sacramento River. Operations for either alternative could be adaptively managed to selectively increase benefits for either smelt or salmon. Potential environmental effects are summarized in Table ES-7. This table compares the future effects of the alternatives against current conditions. Conditions for each resource area could deteriorate or improve with each alternative. Conditions could include negative impacts for some resources as a result of doing nothing under the No Action Alternative.

Table ES-7. Summary of Potential Future Environmental Effects (Positive and Negative Effects Compared to Current Conditions)

Resource Area and Potential Effects	No Action	Alt A	Alt B	Alt C	Alt D
Surface Water Resources: Beneficial effect of increasing deliveries in Dry and Critical years. No negative impacts.	▲	●	●	●	◆
Surface Water Quality: Less-than-significant impact on water temperatures. Potentially beneficial effect on temperature in the Sacramento River between Keswick Dam and Red Bluff. No impact to mercury, nutrients, salinity, or dissolved oxygen. Potentially beneficial effect of reducing salinity in the Delta. Less-than-significant impact on the Yolo Bypass. Less-than-significant impact from construction activities.	▲	◆	◆	◆	●
Fluvial Geomorphology and Riparian Habitat: Less-than-significant impact in the Primary and Secondary Study Areas to riverine processes, river meander, bank erosion, alteration of riparian vegetation, and aquatic habitat. No impact in the Extended Study Area.	■	■	■	■	■
Flood control: No impact in the Secondary or Extended Study Areas. Less-than-significant impact in the Primary Study Area. Potentially beneficial effect of reducing flooding in the Stone Corral and Funks Creeks watersheds, including downstream benefit in Colusa Basin Drain.	■	●	●	●	●
Groundwater Resources: Potential benefits in the Extended and Secondary Study Areas, including improvements to the quantity and quality of riparian and floodplain habitats for aquatic and terrestrial species. Potentially beneficial effects of providing water supply for groundwater banking and in-lieu recharge. Less-than-significant impacts in the Primary Study Area from construction activities.	▲	●	●	●	◆
Groundwater Quality: Potential benefits in the Extended Study Areas for incremental Level 4 refuge water quality. Less-than-significant impacts in the Primary and Secondary Study Areas.	▲	●	●	●	◆
Aquatic Biological Resources: Less-than-significant impacts in the Extended and Secondary Study Areas. Potentially beneficial effects from providing cold water at times and locations to increase the survival of salmonid eggs and fry, and improve conditions for the migration of juveniles. Helps maintain flows to minimize dewatering of salmonid redds and reduce stranding. Potential to increase upstream attraction flows. Potential to provide lower-salinity habitat for Delta smelt, longfin smelt, and other estuarine fishes. Significant impacts in the Primary Study Area to the Stone Corral and Funks Creek watershed can be mitigated to less-than-significant levels. Significant impacts from the Delevan Pipeline Intake/Discharge Facility can be mitigated to less-than-significant levels.	▲	●	●	●	◆
Botanical Resources: Less-than-significant impacts in the Extended Study Area. Potentially beneficial effects in the Secondary Study Area. Significant impact to vegetation communities in the inundation, recreation, and buffer areas can be mitigated to less-than-significant levels. Significant impact to freshwater marsh and riparian vegetation along the Delevan Pipeline can be mitigated to less-than-significant levels. Significant impacts to Fremont cottonwood forest at the Delevan Intake can be mitigated to less-than-significant levels. Potential impacts from construction to special-status plants can be mitigated to less-than-significant levels. Significant impacts from invasive or noxious species can be mitigated to less-than-significant levels. Indirect impacts from human disturbance can be mitigated to less-than-significant levels.	■	■	■	■	■

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Resource Area and Potential Effects	No Action	Alt A	Alt B	Alt C	Alt D
Terrestrial Biological Resources: Impacts are less than significant in the Extended and Secondary Study Areas. In the Primary Study Area, adverse effects, including alteration of habitat suitability and mortality, on any wildlife habitat identified in local or regional plans, policies, and regulations or identified by CDFW or USFWS can be mitigated to less-than-significant levels, with the exception of golden eagle. Significant and unavoidable impact to golden eagle habitat. Significant impacts to the movement of wildlife species can be mitigated to less-than-significant levels. Less-than-significant impact to common wildlife from human disturbance. No impacts from conflicts with conservation plans, local policies, or ordinances.	■	▲	▲	▲	▲
Wetlands and Other Waters of the U.S.: Less-than-significant effects in the Extended and Secondary Study Areas. In the Primary Study Area, significant impacts to the use or quality of waters could be reduced to less-than-significant levels with mitigation. Adverse effects to Federally protected wetlands can be reduced to less-than-significant levels with mitigation.	■	■	■	■	■
Geology, Minerals, Soils, and Paleontology: No impact in the Extended or Secondary Study Areas. In the Primary Study Area, adverse impacts to paleontological resources could be reduced to less-than-significant levels with mitigation.	■	■	■	■	■
Faults and Seismicity: No impacts in the Extended or Secondary Study Areas. Impacts in the Primary Study Area are less than significant.	■	■	■	■	■
Cultural Resources: Less-than-significant impact in the Extended and Secondary Study Areas. In the Primary Study Area, significant impact to archaeological resources can be mitigated to less-than-significant levels. If possible, historic resources will be avoided, but there is a potential for significant and unavoidable impact to historical properties. Disturbance of cultural properties and tribal resources can be mitigated to less-than-significant levels. Significant and unavoidable impact from disturbance of human remains.	■	▲	▲	▲	▲
Indian Trust Assets: Less-than-significant impact to Indian Trust assets.	■	■	■	■	■
Land Use: No impacts in the Extended or Secondary Study Areas. In the Primary Study Area, significant and unavoidable impact from physical division of an established community. Construction would result in significant and unavoidable conflicts or incompatibilities with designated land uses, existing zoning, and conversion of land with Williamson Act contracts.	■	▲	▲	▲	▲
Recreation: No impacts to recreation in the Extended and Secondary Study Areas. Impacts in the Primary Study Area are less than significant. Potential benefit from newly constructed recreation areas. Potential benefit to water levels in existing reservoirs (Shasta, Folsom, Oroville, and Trinity).	■	●	●	●	●
Socioeconomics: All impacts are considered to be less than significant. Potentially beneficial effect to recreation economics.	■	■	■	■	■
Environmental Justice: No impacts.	■	■	■	■	■
Air Quality: No impacts in the Extended or Secondary Study Areas. Significant and unavoidable impacts from particulate and vehicle exhaust emissions (NO _x and ROG) during construction in the Primary Study Area.	■	▲	▲	▲	▲
Climate Change and Greenhouse Gas Emissions: Significant and unavoidable impact from generation of cumulative GHG emissions.	■	▲	▲	▲	▲
Navigation, Transportation, and Traffic: All impacts are at less-than-significant levels.	■	■	■	■	■
Noise: No impact in the Extended or Secondary Study Areas. All impacts in the Primary Study Area are at less-than-significant levels.	■	■	■	■	■

Resource Area and Potential Effects	No Action	Alt A	Alt B	Alt C	Alt D
Public Health and Environmental Hazards: All impacts are at less-than-significant levels.	■	■	■	■	■
Public Services and Utilities: No impacts in the Extended or Secondary Study areas. Impacts in the Primary Study Area are at less-than-significant levels.	■	■	■	■	■
Visual Resources: Significant and unavoidable impacts from the proposed TRR facilities. All other impacts are less than significant.	■	▲	▲	▲	▲
Power Production and Energy: Potential benefit from hydropower generation that could support the development of renewable wind and solar energy. Potential impacts could be mitigated to less-than-significant levels.	■	●	●	●	●

- CVP = Central Valley Project
- NO_x = nitrous oxides
- ROG = reactive organic gases
- TRR = Terminal Regulating Reservoir
- ▲ = negative impact
- = neutral to mitigated impact
- = beneficial effect
- ◆ = highly beneficial effect

OSE Account

The OSE account considers urban and community impacts; life, health, and safety factors; displacement; and long-term energy requirements. OSE effects are expressed in monetary or other numeric and non-numeric units.

Long-term drought preparedness, sustainable groundwater management, and emergency water supply and emergency response were considered under the OSE account. Alternative C was considered to provide the highest value under the OSE account, followed by Alternative D.

Criteria for Alternative Evaluation

The P&Gs provide four criteria for consideration in formulating and evaluating alternatives: effectiveness, efficiency, completeness, and acceptability. These criteria are defined as follows:

- **Effectiveness** – the extent to which an alternative plan achieves planning objectives
- **Efficiency** – the cost-effectiveness of the alternative, consistent with the protection of the Nation’s environment
- **Completeness** – the extent to which the alternative has all the elements necessary to achieve the planning objectives (i.e., independent of the actions of others). This criteria also considers the resilience of the alternative.
- **Acceptability** – acceptance by Federal, State, local entities, public interest groups, and individuals, and compatibility with existing laws, regulations, and public policies

The effectiveness of each alternative in achieving the primary and secondary objectives was the basis for ranking the alternatives in terms of effectiveness. Primary objectives were weighted twice as much as secondary objectives. A lower level of effectiveness does not mean an alternative would be infeasible or that it does not address the specified problems and opportunities. Alternative C was the most effective, followed by Alternative D, then Alternative A, Alternative B, and the No Action Alternative. Alternatives C and D combine a larger reservoir

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with additional conveyance and, as a result, are more effective in meeting water needs for both public and non-public benefits.

The efficiency of each alternative was evaluated using the benefit cost ratio. Using this metric the alternatives were ranked from the highest to the lowest efficiency as Alternative C, Alternative A, Alternative B, Alternative D, and, finally, the No Action Alternative.

Each of the alternatives requires operational cooperation by others to achieve the planning objectives, but this dependency is considered equal for all alternatives. Some of the alternatives are; however, more resilient in maintaining the anticipated benefits under a wide range of hydrologic conditions. The ability of the alternatives to deliver water supply and environmental benefits was used to rank the completeness of the alternatives. Using this criteria, the most complete alternative was Alternative C, followed by Alternative D, Alternative A, Alternative B, and, finally, the No Action Alternative.

The ranking of acceptability was deferred pending the outcome of public review of the draft document. It should be noted that Colusa County had significant input into the location of the facilities for Alternative D and that the Authority prefers this alternative. Reclamation continues to evaluate the operations of the project. The findings from these ongoing evaluations could affect the acceptability of the project.

The alternatives were evaluated and ranked in regard to the four criteria. The score assigned to acceptability will be updated following feedback that will be obtained during the review of the Draft Feasibility Report and Draft EIR/EIS. Table ES-8 provides a summary comparison of the No Action Alternative and the action alternatives.

Table ES-8. Summary Comparison of No Action Alternative and Action Alternatives

Alternative	Effectiveness	Efficiency	Completeness	Acceptability	Combined
No Action	5	5	5	TBD	18
A	3	2	3	TBD	11
B	4	3	4	TBD	14
C (NED Plan)	1	1	1	TBD	6
D (Authority)	2	4	2	TBD	9

Alternatives are ranked from 1 to 5, with the best performer receiving a 1.

NED = National Economic Development

TBD = To be determined in the future following public review

Alternative C, the NED Plan, has the best (lowest) combined score. Alternative D has the next best score, primarily due to the support from local interests and consistency with the California Water Bond.

Project Feasibility

Technical Feasibility

The evaluation of technical feasibility includes engineering, operations, and constructability analyses to confirm that it is technically possible to construct, operate, and maintain the project.

All alternatives are considered to be constructible, and can be operated and maintained. Reclamation's Design, Estimating, and Constructability (DEC) special assessment in 2017 identified some additional actions to ensure that the estimates are at feasibility level for all facilities. Future work needed to complete the Final Feasibility Report and to reach a conclusion of technical feasibility includes the following:

- Geotechnical investigation is needed for the pumping plants, Holthouse dam, and the TRR.
- Additional engineering is needed to bring all facilities to feasibility level. The resulting cost estimate should be a Class 3 estimate.
- The Authority will develop a Water Rights Strategy.
- Reclamation, the Authority, and DWR need to develop Principles of Agreement for cooperative operations to ensure there is no harm to CVP or SWP contractors.
- Additional operational modeling is needed to evaluate the performance of the Sites project with anticipated changes to the CVP-SWP system.

Environmental Feasibility

The evaluation of environmental feasibility considers the environmental impacts to endangered species, cultural, Indian Trust Assets, or other resources that would result from construction and operation of the project. The environmental feasibility of implementing the action alternatives is evaluated in the accompanying Draft EIR/EIS, which is incorporated into this document by reference. Environmental effects were evaluated, and mitigation measures are identified in Appendix 1A to the Draft EIR/EIS. From the evaluation of the environmental benefits and impacts, the Draft EIR/EIS does not identify a Locally Preferred Alternative. Implementation of the NED Plan (Alternative C) or the Locally Preferred Alternative (Alternative D) is considered environmentally feasible, pending the completion of the Final EIR/EIS. Future work needed to complete the Final EIR/EIS and to reach a conclusion of environmental feasibility includes the following:

- Additional modeling and studies are needed to complete the Final EIR/EIS.

Economic Feasibility

The economic feasibility is evaluated to confirm that constructing and operating the project would result in positive net NED benefits. Alternative C provides the greatest net NED benefits, and was identified as the NED Plan. The NED Plan is anticipated to be economically feasible, because it would generate \$290 million in net NED benefits per year. The Locally Preferred Alternative is anticipated to be economically feasible, and generate \$201 million in net NED benefits per year. Further refinement of the benefits and costs will be ongoing through completion of the Final Feasibility Report, but is not expected to change the basic finding on economic feasibility.

- Future work to reach a conclusion of economic feasibility will focus on revising the net NED benefits once the Class 3 estimate is finalized.

Financial Feasibility

The evaluation of financial feasibility includes (1) an allocation of costs to project purposes; (2) identification of potential project beneficiaries; and (3) a cost assignment and determination of the financial capability of the beneficiaries to pay their allocated costs, including capital and long-term operation, maintenance, and replacement costs. This process informs the evaluation of the appropriateness of the investment in the project by Federal and State decision makers. For this project, financial feasibility includes an evaluation of how this project could potential affect repayment of the CVP debt.

- Future work to reach a conclusion of financial feasibility will provide a financial capability analysis of the Authority for the Final Feasibility Report.

Allocation of Costs to Project Purposes

The allocation of water to beneficiaries is the basis for the allocation of many of the Project’s costs. The deliveries for different purposes vary considerably by water-year type; but Figure ES-13 illustrates the amount delivered for each purpose.

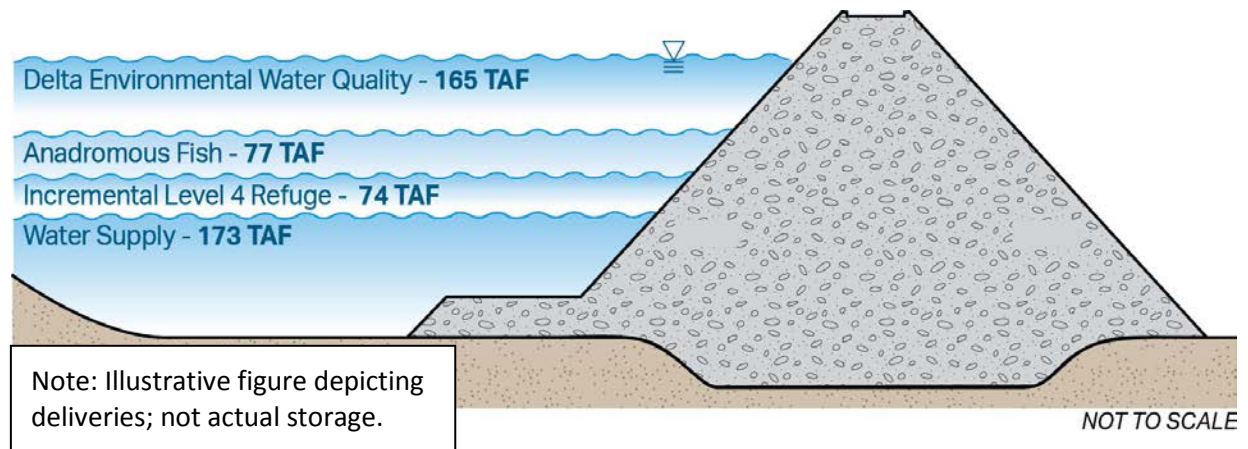


Figure ES-13. Average Acre-Feet Delivered per Project Purpose for Alternative C

A separable costs–remaining benefits analysis was performed to allocate costs to project purposes (cost allocation) to evaluate the financial feasibility of Alternative C as the NED Plan. Estimated costs are allocated to the various project purposes, and are assigned to potential beneficiaries to establish their financial obligations. Table ES-9 presents the cost allocation for Alternative C. Table ES-10 presents the cost allocation for Alternative D, the Locally Preferred Alternative.

Table ES-9. Estimated Annual Cost Allocation Summary for Alternative C (\$ Millions, 2015)

Category	Water Supply	Incremental Level 4 Refuge	Anadromous Fish & Other Aquatic	Water Quality	Hydropower (System)	Recreation	Flood Damage Reduction	Total
Allocated Total Cost (Construction, IDC, and OM&R)								
Total Costs								\$187.4
Benefits by Purpose	\$149.3	\$37.3	\$36.9	\$71.1	\$22	\$2.3	\$4.3	\$323.2
Single-Purpose Cost	\$97.6	\$90.0	\$98.7	\$98.7	\$161.2	\$144.9	\$144.4	-
Justifiable Expenditures	\$97.6	\$37.3	\$36.9	\$71.1	\$22	\$2.3	\$4.3	\$271.5
Separable Costs	\$0.0	\$0	\$0	\$0	\$16.5	\$0.3	\$0	\$16.8
Remaining Benefits (Justifiable Expenditures Less Separable Costs)	\$97.6	\$37.3	\$36.9	\$71.1	\$5.5	\$2.0	\$4.3	\$254.7
Percent (Distribution of Remaining Benefits)	38.3%	14.7%	14.5%	27.9%	2.2%	0.8%	1.7%	100%
Allocated Joint Costs	\$65.3	\$25.0	\$24.7	\$47.6	\$3.7	\$1.3	\$2.9	\$170.6
Total Allocated Costs (Separable Plus Allocated Joint Costs)	\$65.3	\$25.0	\$24.7	\$47.6	\$20.2	\$1.7	\$2.9	\$187.4
Percent Total Cost Allocation	34.9%	13.3%	13.2%	25.4%	10.8%	0.9%	1.5%	100%
Allocated OM&R Annual Costs								
Separable OM&R	\$0	\$0	\$0	\$0	\$0	\$0.2	\$0	\$0.2
Allocated Joint OM&R	\$10.0	\$3.8	\$3.8	\$7.3	\$0.6	\$0.2	\$0.4	\$26.0
Total Allocated OM&R	\$10.0	\$3.8	\$3.8	\$7.3	\$0.6	\$0.4	\$0.4	\$26.2
Percent Allocated OM&R	38.0%	14.6%	14.4%	27.7%	2.1%	1.5%	1.7%	100%
Allocated Construction Annual Costs								
Separable Construction	\$0	\$0	\$0	\$0	\$14.6	\$0.1	\$0	\$14.7
Allocated Construction	\$49.0	\$18.8	\$18.5	\$35.7	\$2.8	\$1.0	\$2.2	\$127.9
Total Allocated Construction	\$49.0	\$18.8	\$18.5	\$35.7	\$17.4	\$1.1	\$2.2	\$142.7
Percent Allocated Construction	34.4%	13.1%	13.0%	25.0%	12.2%	0.8%	1.5%	100%
Allocated IDC Annual Costs								
Separable IDC	\$0	\$0	\$0	\$0	\$1.9	\$0.02	\$0	\$1.9
Allocated Joint IDC	\$6.4	\$2.4	\$2.4	\$4.6	\$0.4	\$0.1	\$0.3	\$16.6
Total Allocated IDC	\$6.4	\$2.4	\$2.4	\$4.6	\$2.3	\$0.1	\$0.3	\$18.5
Percent Allocated IDC	34.4%	13.1%	13.0%	25.0%	12.2%	0.8%	1.5%	100%
Allocated Construction and IDC Costs (Nominal)								
Allocated Total Development Cost	\$1,813	\$694	\$686	\$1,321	\$642	\$42	\$80	\$5,278
Allocated IDC	\$209	\$80	\$79	\$152	\$74	\$5	\$9	\$607
Construction Cost	\$1,605	\$614	\$607	\$1,169	\$569	\$37	\$71	\$4,671

IDC = interest during construction

OM&R = operation, maintenance, and replacement

Table ES-10. Estimated Annual Cost Allocation Summary for Alternative D (\$ Millions, 2015)

Category	Water Supply	Incremental Level 4 Refuge	Anadromous Fish & Other Aquatic	Water Quality	Hydropower (System)	Recreation	Flood Damage Reduction	Total
Allocated Total Cost								
Total Project Costs								\$188.3
Benefits by Purpose	\$137.9	\$24.2	\$48.1	\$41.6	\$20.2	\$2.3	\$4.3	\$278.6
Single-Purpose Cost	\$98.4	\$80.0	\$97.5	\$97.5	\$162.1	\$146.6	\$146.0	-
Justifiable Expenditures	\$98.4	\$24.2	\$48.1	\$41.6	\$20.2	\$2.3	\$4.3	\$239.1
Separable Costs	\$0	\$0	\$0	\$0	\$15.1	\$0.3	\$0	\$15.5
Remaining Benefits (Justifiable Expenditures Less Separable Costs)	\$98.4	\$24.2	\$48.1	\$41.6	\$5.0	\$2.0	\$4.3	\$223.6
Percent (Distribution of Remaining Benefits)	44.0%	10.8%	21.5%	18.6%	2.3%	0.9%	1.9%	100%
Allocated Joint Costs	\$76.0	\$18.7	\$37.2	\$32.1	\$3.9	\$1.5	\$3.3	\$172.8
Total Allocated Costs (Separable Plus Allocated Joint Costs)	\$76.0	\$18.7	\$37.2	\$32.1	\$19.0	\$1.9	\$3.3	\$188.3
Percent Total Cost Allocation	40.4%	9.9%	19.8%	17.1%	10.1%	1.0%	1.8%	100%
Allocated OM&R Annual Costs								
Separable OM&R	\$0	\$0	\$0	\$0	\$0	\$0.2	\$0	\$0.2
Allocated Joint OM&R	\$11.4	\$2.8	\$5.6	\$4.8	\$0.6	\$0.2	\$0.5	\$26.0
Total Allocated OM&R	\$11.4	\$2.8	\$5.6	\$4.8	\$0.6	\$0.4	\$0.5	\$26.2
Percent OM&R Allocated	43.7%	10.8%	21.4%	18.5%	2.2%	1.6%	1.9%	100%
Allocated Construction Annual Costs								
Separable Construction	\$0.0	\$0.0	\$0.0	\$0.0	\$13.4	\$0.1	\$0.0	\$13.5
Allocated Construction	\$57.2	\$14.1	\$28.0	\$24.2	\$2.9	\$1.2	\$2.5	\$129.9
Total Allocated Construction	\$57.2	\$14.1	\$28.0	\$24.2	\$16.3	\$1.3	\$2.5	\$143.5
Percent Construction Allocated	39.8%	9.8%	19.5%	16.8%	11.4%	0.9%	1.7%	100%
Allocated IDC Annual Costs								
Separable IDC	\$0	\$0	\$0	\$0	\$1.7	\$0.02	\$0	\$1.8
Allocated Joint IDC	\$7.4	\$1.8	\$3.6	\$3.1	\$0.4	\$0.15	\$0.3	\$16.8
Total Allocated IDC	\$7.4	\$1.8	\$3.6	\$3.1	\$2.1	\$0.17	\$0.3	\$18.6
Percent IDC Cost Allocated	39.8%	9.8%	19.5%	16.8%	11.4%	0.9%	1.7%	100%
Allocated Construction and IDC Costs (Nominal)								
Allocated Total Development Cost	\$2,115	\$521	\$1,035	\$893	\$604	\$47.8	\$92.4	\$5,308
Allocated IDC	\$243	\$60	\$119	\$103	\$69	\$5.5	\$10.6	\$611
Construction Cost	\$1,871	\$461	\$916	\$791	\$535	\$42.3	\$81.8	\$4,697

Notes for Table ES-10

No capital cost adjustment applied for any potential IDC cost savings from Federal non-reimbursable funding.

Annualized shown in 2015 dollars based on 2.875 percent discount rate and 100-year period of analysis.

Totals may not add up exactly due to rounding.

OM&R = operation, maintenance, and replacement

IDC = Interest During Construction

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Identification of Potential Project Beneficiaries

In general, the potential beneficiaries can be characterized for each project purpose as follows:

- Water Supply – The primary beneficiaries under the NED plan are South Coast M&I water agencies that would receive the largest increase in deliveries. For the Locally Preferred Alternative, the increase in deliveries would be more evenly split between northern and southern California, with an emphasis on northern agriculture and southern M&I.
- Incremental Level 4 Refuge Water Supply – This is a public benefit to be coordinated and paid for by Federal and State water resources and wildlife agencies.
- Anadromous Fish – This is a public benefit to be coordinated and paid for by Federal and State water resources and wildlife agencies.
- Delta Environmental Water Quality – This is a public benefit to be coordinated and paid for by State of California water resources and water quality agencies.
- Hydropower – This is a non-public benefit that is assigned to the Authority and its partnering agencies.
- Recreation – This is a public benefit assigned to the State.
- Flood Damage Reduction – This is a public benefit assigned to Federal and State agencies.

Cost Assignment and Financial Capability

The costs for the NED Plan were assigned based on the following considerations.

- M&I and agricultural water purposes and hydropower benefits were assigned to the beneficiaries.
- The development costs for providing public benefits were assigned to the Federal and State governments. Federal funding for incremental Level 4 refuge water supply, anadromous fish, and flood damage reduction benefits may be authorized by the Water Infrastructure Improvements for the Nation [WIIN] Act (P.L. 114-612 [2016]) and funding appropriated by Congress. State funding is being sought for the development costs associated with public benefits (ecosystem, water quality, recreation, and flood damage reduction) consistent with WSIP.

Table ES-11 presents the assignment of the project's development cost (construction and IDC) to the Federal government and the non-Federal partners under Alternative C. The Federal government's cost share for project development for the NED Plan is estimated at \$730 million (13.8 percent of the total development costs). The Federal assignment for the NED Plan includes the following:

Table ES-11. Cost Assignment for Federal and Non-Federal Partners for Development Costs: Alternative C

Purpose/Action	Total Percent	Total Cost	Cost Assignment (\$ millions)			
			Federal Non-Reimbursable		Non-Federal Partners ^a	
			Percent	Cost	Percent	Cost
Alternative C: Development Cost Assignment (Construction and IDC) – Nominal						
Water Supply	34%	1,813	0%	0	100%	1,813
M&I Water Supply	91%	1,653	0%	0	100%	1,653
CVP Service Area	3%	49	0%	0	100%	49
SWP Service Area	97%	1,605	0%	0	100%	1,605
Agricultural Water Supply	9%	160	0%	0	100%	160
CVP Service Area	51%	81	0%	0	100%	81
SWP Service Area	49%	79	0%	0	100%	79
Incremental Level 4 Refuge	13%	694	50%	347	50%	347
Anadromous Fish	13%	686	50%	343	50%	343
Water Quality	25%	1,321	0%	0	100%	1,321
M&I Water Quality	10%	130	0%	0	100%	130
Agricultural Water Quality	1%	10	0%	0	100%	10
Delta Environmental Water Quality	89%	1,181	0%	0	100%	1,181
Hydropower	12%	642	0%	0	100%	642
Recreation	1%	42	0%	0	100%	42
Flood Damage Reduction	1.5%	80	50%	40	50%	40
Total	100%	5,278	13.8%	730	86.2%	4,548

^a Includes non-Federal non-reimbursable and beneficiaries' paid funding.

Assumes cost assignment based on beneficiaries' benefits.

Totals may not add exactly due to rounding.

- CVP = Central Valley Project
- IDC = Interest During Construction
- M&I = municipal and industrial
- SWP = State Water Project

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- 50 percent non-reimbursable funding for incremental Level 4 refuge water supply. This funding level is below the ceiling of 75 percent allowed by the Central Valley Project Improvement Act [P.L. 102-575, Title 34], but it leverages State funding for these public benefits through the Proposition 1, California Water Bond. Refuge water supply could be provided to both Federal and State refuges from Sites Reservoir.
- 50 percent non-reimbursable funding for anadromous fish benefits. This funding level is below the ceiling of 75 percent allowed by the Federal Water Project Recreation Act of 1965 (P.L. 89-72), but it leverages State funding for these public benefits through the Proposition 1, California Water Bond. Most of these benefits would be the result of storing additional water in Shasta Reservoir, and would occur immediately downstream of this Federal reservoir.
- 50 percent non-reimbursable funding for flood damage reduction. This funding level is below the ceiling of 100 percent allowed by the Reclamation Project Act of 1939, but it leverages State funding for these public benefits through the Proposition 1, California Water Bond.

Funding for Delta Environmental Water Quality Improvements would benefit Delta smelt, but would not be the direct result of changes in storage or releases from Federal facilities. Therefore, the costs for water quality benefits have been assigned to the State.

The costs of the Locally Preferred Alternative (Alternative D) were similarly assigned and are presented in Table ES-12. All deliveries would be through the Authority. The non-reimbursable funding shown in Table ES-12 for incremental Level 4 refuge water supply, anadromous fish, and flood damage reduction is consistent with the funding for the NED Plan; however, advancing the project is not contingent on Federal funding for construction.

Approximate costs per acre-foot of water are summarized in Table ES-13.

Risk and Uncertainty

During the NODOS Investigation, reasonable assumptions based on engineering, economic, and scientific judgment were made to support the evaluation and comparison of the alternatives. Analyses were developed with advanced modeling and estimating tools using historical data and trends. Although the analysis supported the evaluation of project outcomes, many risks and uncertainties could affect future project performance.

Implementation risks and uncertainties are discussed below.

- **Climate Change and Sea Level Rise** – Future climate change could result in hydrologic conditions and sea levels that differ from the existing conditions that were used to evaluate the alternatives. Increasing temperatures and sea level rise would tend to increase project benefits to anadromous fish in the Sacramento River, but decrease the benefits to Delta water quality.

Table ES-12. Cost Assignment for Federal and Non-Federal Partners for Development Costs: Alternative D

Purpose/Action	Total		Cost Assignment (\$ millions)			
			Federal Non-Reimbursable		Non-Federal Partners ^a	
	Percent	Cost	Percent	Cost	Percent	Cost
Alternative D: Development Cost Assignment (Construction and IDC) – Nominal						
Water Supply	40%	2,115	0%	0	100%	2,115
M&I Water Supply	85%	1,795	0%	0	100%	1,795
CVP Service Area	1%	20	0%	0	100%	20
SWP Service Area	99%	1,775	0%	0	100%	1,775
Agricultural Water Supply	15%	319	0%	0	100%	319
CVP Service Area	79%	251	0%	0	100%	251
SWP Service Area	21%	68	0%	0	100%	68
Incremental Level 4 Refuge	10%	521	50%	260	50%	260
Anadromous Fish	19%	1,035	50%	517	50%	517
Water Quality	17%	893	0%	0	100%	893
M&I Water Quality	34%	302	0%	0	100%	302
Agricultural Water Quality	2%	20	0%	0	100%	20
Delta Environmental Water Quality	64%	572	0%	0	100%	572
Hydropower	11%	604	0%	0	100%	604
Recreation	1%	48	0%	0	100%	48
Flood Damage Reduction	2%	92	50%	46	50%	46
Total	100%	5,308	15.5%	824 ^b	84.5%	4,484

^a Includes non-Federal non-reimbursable and beneficiaries' paid funding.

^b The potential future Federal allocation has not yet been determined, and it may be limited by the potential Federal contribution for the NED Plan (Alternative C), in which case, the non-Federal partners would have to cover the differential despite is current assignment as Federal non-reimbursable.

Assumes cost assignment based on beneficiaries' benefits.

Totals may not add exactly due to rounding.

CVP = Central Valley Project
 IDC = interest during construction
 M&I = municipal and industrial
 SWP = State Water Project

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Table ES-13. Average Annualized Cost of Water for Project Purposes

Benefit	Increased Deliveries (TAF)	Alternative C Annual Cost per Acre-Foot	Increased Deliveries (TAF)	Alternative D Annual Cost per Acre-Foot
Water Supply/Quality – Ag	71	\$179	136	\$128
Water Supply/Quality – M&I	102	\$622	88	\$808
Refuge Water Supply (including conveyance)	74	\$412	48	\$465
Anadromous Fish ^a	108	\$229	132	\$282
Delta Environmental Water Quality	242	\$175	174	\$118

^a The anadromous fish \$/AF unit costs are based on estimated equivalent water supply quantities for achieving projected coldwater pool and habitat unit benefits.

Ag = agricultural
M&I = municipal and industrial
TAF = thousand acre-feet

- Water Supply Reliability and Demands** – Water supplies and demands will continue to vary into the future. Many variables are considered in forecasting future water supply requirements for California. The *California Water Plan Update 2013* estimates demand for several growth scenarios. The analysis in this report is consistent with current trends.
- Anadromous Fish Populations** – Trying to predict fish survival is difficult because of the many factors that influence it. To reduce the uncertainty associated with the evaluation of anadromous fish populations, the Draft Feasibility Report considered three independent lines of analysis (qualitative evaluation of physical effects, SALMOD modeling results, and IOS life cycle modeling results). In general, findings from each of the methods indicated overall beneficial trends from the implementation of a NODOS project.
- Future Water System Operations** – Continuing uncertainty in the regulatory environment, assumptions regarding future facilities, operational constraints, and hydrology make long-term planning for CVP and SWP operations challenging. There is a risk that future regulations could reduce the allowable diversions into Sites Reservoir, thereby reducing the benefits.
- Cost Estimates** – The cost estimates developed for the comprehensive plans included in this Draft Feasibility Report are based on 2015 price levels. Varying uncertainties are associated with the material and unit costs used to develop the estimates. Unknowns include the variability of the price of construction materials, the proximity of materials to the project site, and labor costs. Trends from the past few years were used to try to reliably estimate the cost of materials, but outside factors could further influence price changes.
- Monetizing Project Benefits** – Uncertainties are associated with the methodologies that are used to estimate the benefits associated with each of the project objectives. Sensitivity analysis was performed to help define the likely range of NED benefits. As a result of

increasing demands on the constrained CVP and SWP water systems, water is likely to become increasingly valuable due to the increased frequency and duration of water shortages.

Federal Interest

For an action to be implementable, a Federal interest in the action is required, and the action must be feasible. Federal actions must contribute to the NED in accordance with the requirements of the P&Gs. The NED and the Locally Preferred Alternative indicate net benefits while protecting the environment.

Reclamation's interest in the action is based on the agency's mission: to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. Implementing the NED Plan in an environmentally and economically sound manner would accomplish the following:

- Improve water supply reliability and the system flexibility for water supplies throughout the CVP and SWP service areas for agricultural, urban, and environmental uses.
- Improve deliveries of incremental Level 4 supply for optimum habitat management in the Central Valley refuges.
- Improve Sacramento and American River water temperatures and flow conditions for salmon and other native fish.

Cooperative Operations

The Authority proposes to operate Sites Reservoir with no negative impacts to CVP or CVP contractors. Reclamation anticipates that a modification to the COA would be needed to accommodate cooperative operations for Sites Reservoir.

Licensing for Hydropower Facilities

The Reclamation Lease of Power Privilege provides a contractual right to a non-Federal entity to use a Reclamation asset (e.g., Funks Reservoir) for electric power generation consistent with Reclamation project purposes. These projects cannot impair the efficiency of Reclamation-generated power or Reclamation water deliveries (including no impacts to CVP power users), jeopardize public safety, or negatively affect other Reclamation project purposes.

It is recommended that the Sites Pumping/Generating Plant hydropower generation facilities be permitted using the Lease of Power Privilege process. Reclamation owns the existing Funks Reservoir, which will be expanded into the forebay/afterbay (Holthouse Reservoir) for pump-back storage. The Lease of Power Privilege permitting process would greatly expedite the permitting and construction of the reservoir. Otherwise, the hydropower generations facilities will be permitted through the Federal Energy Regulatory Commission process.

Feasibility Report – Next Steps

The following efforts are expected to be completed before issuing the Final Feasibility Report.

Technical Feasibility

- **Water Rights** – The Authority is developing a Water Rights Strategy. This strategy will inform the Final Feasibility Report.
- **Operations** – The Authority has formed an Operations Work Group with Reclamation and DWR participation to define cooperative operations, which are critical to maximizing the benefits of the project. Cooperative operations would require a new agreement with Reclamation and DWR, with the Principles of Operations to govern system operations.
Additional modeling is recommended to address limitations in using the data output and conclusions that are based on Sites Reservoir CALSIM II models.
- **Engineering:** The Final Feasibility Report will address the six findings in the 2017 Design, Estimating, and Construction special assessment.
 - **Geotechnical Studies:** Geotechnical investigation is needed for the pumping plants, Holthouse Dam, and the TRR.
 - **Power Requirements:** System impact studies are needed for the utilities that would supply power for the pumps.
 - **Cost Estimates:** Additional engineering is needed to bring all facilities to feasibility-level cost estimates. The resulting cost estimates should be Class 3 estimates.

Environmental Feasibility

The Final Feasibility Report will incorporate the findings of the Final EIR/EIS. Additional evaluation of climate change will also be completed to support the Final EIR/EIS.

Economic Feasibility

The Class 3 cost estimates will be used to confirm economic feasibility. Additional economic modeling may also be performed.

Financial Feasibility

The Authority will deliver an evaluation of financial capability based on the award of WSIP funding, which would provide a clearer definition of the beneficiaries and their respective cost-shares, including State funding commitments. Once the State determines its level of contribution to the project through WSIP, the non-public water supply, along with the corresponding cost-shares, will be allocated between the agencies participating in the Authority.

Approvals and Funding

After the Final Feasibility Report is prepared, the following approvals would be required for project implementation.

Feasibility Report Approval

The Commissioner of Reclamation would submit the Final Feasibility Report to the Secretary of the Interior.

Funding

The WIIN Act (P.L. 114-322) allows the Secretary of the Interior to participate in a State-led storage project in an amount equal to not more than 25 percent of the total cost of the project. The WIIN Act appropriation is limited to \$335 million.

No alternative is designated as the preferred alternative in this Draft Feasibility Report. The Authority is presenting Alternative D (the Locally Preferred Alternative) to the CWC for funding. A waiver would be required for the Secretary of the Interior to approve the Locally Preferred Alternative rather than the NED Plan. The Federal contribution may be capped based on the Federal cost assignment for the NED Plan.

Cost-Share Partners

The non-Federal cost-share partners (the Authority and/or the State) would be responsible for all costs that are not allocated to the Federal government. The Authority has identified potential non-Federal cost-share partners, but further work is needed to finalize the allocation of water and determine the cost-share split. The extent of WSIP funding awarded for the project will inform the cost-share split for public benefits.

Post-Authorization Activities

If the project is approved by the Federal and/or State government and the Authority continues the pursue the project, then it is anticipated that the Sites Project Authority would serve as the lead local agency for implementation of the project.

Indian Tribe Consultation and Coordination

Since the initiation of the NODOS Investigation, agency representatives have provided Indian tribes with status updates and opportunities to comment on issues or resources of concern through meetings, telephone calls, and correspondence. Numerous cultural resources would be affected by the implementation of any of the action alternatives. Tribal participation will continue through the NHPA Section 106 and NEPA processes, in accordance with Executive Orders 13175 and 12898, and through other Federal requirements.

Environmental Compliance and Regulatory Requirements

The Final EIR/EIS for the NODOS/Sites Reservoir Project would satisfy NEPA by providing a meaningful analysis of all issues relevant to the human environment. Implementation of the NED Plan or Locally Preferred Alternative would be subject to additional Federal, State, and local laws, policies, and environmental regulations. All Federal, State, and local agencies with permitting or approval authority over any aspect of project implementation are expected to use the information contained in the Final EIR/EIS to make decisions and/or issue permits if a project is authorized.

The lead agencies would need to obtain various permits and regulatory authorizations before beginning project construction. The lead agencies would also have to comply with a number of

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environmental regulatory requirements as part of the NEPA/CEQA process. Table ES-14 summarizes the potential major permits and approvals for project implementation.

Table ES-14. Summary of Potential Major Permits and Approvals for Project Implementation

Agency Permit/Approval	Recommended Prerequisites for Submittal
Federal	
USACE Clean Water Act Section 404	<ul style="list-style-type: none"> • Application • ESA compliance document for submittal to USFWS/NMFS/CDFW • Section 401 Water Quality Certification permit or application • NEPA documentation (environmental compliance documents) • NHPA Section 106 compliance documentation • Wetland delineation • CWA Section 404(b)(1) evaluation and identification of the Least Environmentally Damaging Practicable Alternative • Mitigation and monitoring plan
USACE Rivers and Harbors Act of 1899 Section 14 (33 USC 408) (Section 408 Application)	<ul style="list-style-type: none"> • Compliance with EC 1165-2-216, <i>Policy and Procedural Guidance for Processing Requests to Alter U.S. Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408</i> • Engineering studies and justification documentation
USFWS/NMFS Endangered Species Act Section 7 Consultation	<ul style="list-style-type: none"> • Regular informal technical consultation • ESA compliance documentation • Draft Biological Assessment • Draft environmental compliance documents
NMFS Essential Fish Habitat Assessment	<ul style="list-style-type: none"> • Regular formal and informal technical consultation • Biological Assessment • Draft environmental compliance documents
USFWS Fish and Wildlife Coordination Act	<ul style="list-style-type: none"> • Service agreements among USFWS, NMFS, and CDFW • Regular informal technical consultation • ESA compliance documentation • Draft environmental compliance documents
USFWS Bald and Golden Eagle Protection Act	<ul style="list-style-type: none"> • Application • EIS/EIR compliance document • Pre-construction survey report(s) • Eagle management Plan
ACHP/SHPO National Historic Preservation Act, Section 106	<ul style="list-style-type: none"> • Historic Property Inventory Report • Native American consultation • Impacts to Indian trust resources and sacred sites • Environmental compliance documents
State	
Central Valley Water Board Clean Water Act Section 401	<ul style="list-style-type: none"> • Application • Fish and Wildlife Code Section 1602 application • CWA Section 404 permit or application • Draft environmental compliance documents • Mitigation and monitoring plan (if needed)
CDFW California ESA Section 2081 – Incidental Take Permit or Section 2080.1 Consistency Determination	<ul style="list-style-type: none"> • Informal technical consultation • Application, if requesting a Section 2081 Incidental Take Permit • Biological Opinion and incidental take statement, if requesting a consistency determination

Agency Permit/Approval	Recommended Prerequisites for Submittal
CDFW Fish and Game Code Section 1600 Streambed Alteration Agreement	<ul style="list-style-type: none"> • Application • CWA Section 401 Water Quality Certification permit or application • CWA Section 404 permit or application • Draft environmental compliance documents • Mitigation plan
Central Valley Flood Protection Board California Code of Regulations Title 23 Waters: Encroachment Permit	<ul style="list-style-type: none"> • Application
State Water Board Water Rights	<ul style="list-style-type: none"> • Application • Probable petition for assignment of State-filed applications • Draft (possibly final) environmental compliance documents
State of California Department of Transportation (Caltrans) Encroachment Permit	<ul style="list-style-type: none"> • Application • Environmental compliance documents • Permit Engineering Evaluation Report
California Department of Conservation Williamson Act	<ul style="list-style-type: none"> • Application
Glenn and Colusa Counties Construction-Related Permits	<ul style="list-style-type: none"> • Demolition, grading, building, mechanical, and utility construction and encroachment permits; and easements
Glenn County Air Pollution Control District Fugitive Dust Control Plan Authority to Construct Permit to Operate	<ul style="list-style-type: none"> • Dust Control Plan • Dust Control Training Course • Pre-application meeting (encouraged) • Authority to Construct Permit Application • Required conformity and inclusion in the State Implementation Plan • Annual Operating Permit
Colusa County Air Pollution Control District Fugitive Dust Control Plan Authority to Construct Permit to Operate	<ul style="list-style-type: none"> • Dust Control Plan • Dust Control Training Course • Pre-application meeting (encouraged) • Authority to Construct Permit Application • Required conformity and inclusion in the State Implementation Plan • Annual Operating Permit

- ACHP = Advisory Council on Historic Preservation
- CDFW = California Department of Fish and Wildlife
- CWA = Clean Water Act
- EC = Engineer Circular
- EIS/EIR = Environmental Impact Statement/ Environmental Impact Report
- ESA = Endangered Species Act
- NEPA = National Environmental Policy Act
- NHPA = National Historic Preservation Act
- NMFS = National Marine Fisheries Service
- SHPO = State Historic Preservation Officer
- USACE = United States Army Corps of Engineers
- USC = United States Code
- USFWS = United States Fish and Wildlife Service

Coordination and Outreach

Efforts to engage the public, Federally recognized Indian tribes, Native American groups, NGOs, public agencies, and other stakeholders in decisions affecting the implementation of the NODOS project would continue to play an important role in the investigation. The Public Outreach Plan in use during the NODOS Investigation has relied on activities with a primary focus on the following objectives to support stakeholder engagement:

- Raising awareness of project progress and status, including information on the development of alternatives throughout the NODOS Investigation and those currently under consideration in the Feasibility Report and EIR/EIS process
- Clarifying and communicating the complex issues associated with the NODOS Investigation, including how the project relates to other ongoing water programs
- Providing opportunities for public participation at appropriate investigation milestones

The Authority has launched an interactive project website that provides project information, current news items, and links to project documents and Authority meeting agendas and meeting minutes. The Authority has also developed social media platforms that are used to disseminate project information; these platforms include Facebook, Twitter, Instagram, and YouTube.

Future public outreach activities to support the NODOS Investigation will include additional formal public meetings, focused stakeholder workshops, and increased outreach activities to landowners in the project footprint. Outreach to regional and statewide communities, civic and business organizations, NGOs, and public agencies will be continued.

Pre-Construction Activities

The following activities would be Federal responsibilities with or without Federal funding.

- Expedite and coordinate Federal regulatory compliance and permitting for the project (including ecosystem and water quality benefits identified by the Authority and the State), as authorized, through a sequenced process.
- Participate in the development of cooperative operations with mutually acceptable Principles of Agreement with the Authority and DWR to maximize the benefits of Sites Reservoir throughout the water system.
- Develop contracts and other agreements to facilitate cooperative operations.
- Authorize the use of the Lease of Power Privilege (LOPP) program for electric power generation consistent with Reclamation project purposes and the ownership of Holthouse Reservoir and Dam and consistent with Cost Assignment Scenario 3. The use of LOPP facilitates licensing for hydropower generation (Reclamation and the Western Area Power Administration will also coordinate the grid interconnection for power supply and electrical generation.)

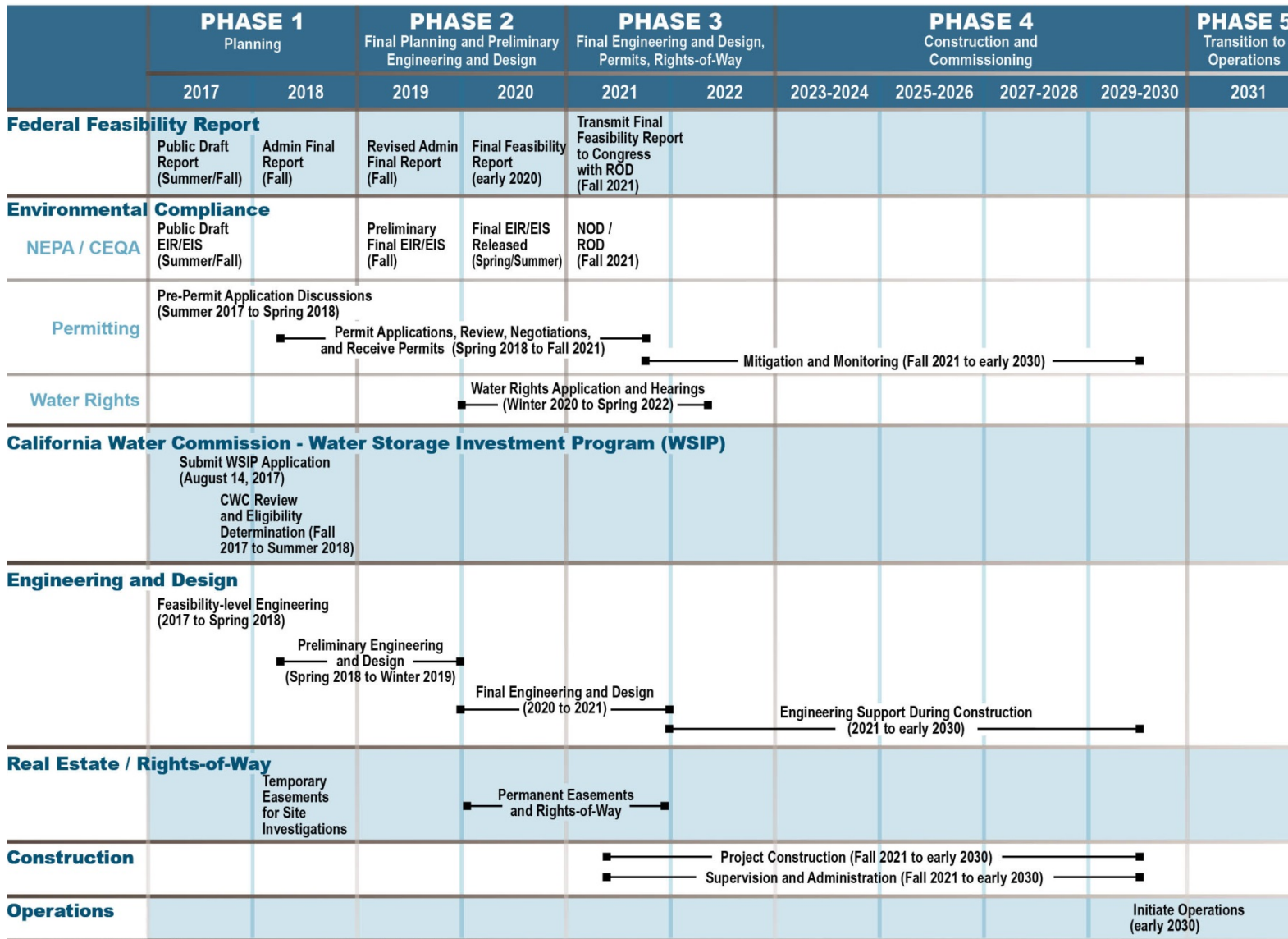
Implementation

In the event that the project is implemented, the following additional activities would occur.

- The Authority would lead the construction effort, including the environmental commitments and mitigation measures identified in the accompanying Final EIR/EIS. Reclamation could have a role in reviews during the construction phase.
- It is recommended that Reclamation increase the construction cost to allow for escalation from stated price levels (October 2015) to the NOP, based on Reclamation's Construction Cost Trends publication or similar source.
- It is recommended that the Federal government allow for increased total construction cost, but not by more than 15 percent, if needed for modifications that do not materially alter the scope or functions of the project as authorized.

Timeline

A timeline of major actions to complete the NODOS Investigation and future milestones leading to project implementation is shown on Figure ES-14.



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Figure ES-14. NODOS/Sites Reservoir Project Timeline

Notes for Figure ES-14

- CEQA = California Environmental Quality Act
- CWC = California Water Commission
- EIR = Environmental Impact Report
- EIS = Environmental Impact Statement
- NEPA = National Environmental Policy Act
- NOD = Notice of Determination
- ROD = Record of Decision
- WSIP = Water Storage Investment Program

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