

Ad-Hoc Environmental Planning and Permitting Work Group

June 7, 2021



Agenda

- Revised Draft EIR/Supplemental Draft EIS
 - Part 3 EIR/EIS Briefing
 - Operations-related Analysis
 - Growth Inducement Analysis
- Permitting
 - Mitigation Cost Estimate Revisions
- Schedule and Dashboard Update
- Upcoming Priorities and Timing of Next Meeting

RDEIR/SDEIS – Part 3

Briefing

Laurie Warner Herson / Nicole Williams

Discussion Goals

- Review key components of the RDEIR/SDEIS and receive input and feedback in preparation for the public release in August 2021
- More in-depth focus on
 - Water Quality
 - Aquatic Resources

Administrative Draft Chapter Development

Summary of Current Draft Chapter Deliverables

Deliverable	Deliverable Date	Number of Chapters/Appendices
Batch 1A	December 2020	20
Batch 1B	January 2021	8
Group 1	May 5, 2021	16
Group 2	May 24, 2021	37
Group 3	May 28 & June 1, 2021	15

Preliminary Determinations – Chapters with Impacts Requiring Mitigation

- Water Quality
- Air Quality
- Greenhouse Gases
- Aquatic Biological Resources
- Cultural Resources
- Vegetation and Wetlands
- Wildlife
- Geology and Soils
- Agricultural Resources
- Tribal Cultural Resources
- Environmental Justice

Preliminary Determinations – Chapters with Significant Unavoidable Impacts

- Air Quality
- Water Quality
- Vegetation and Wetlands
- Wildlife
- Geology and Soils
- Agricultural Resources
- Land Use
- Cultural Resources
- Visual Character and Quality
- Tribal Cultural Resources
- Transportation and Traffic
- Environmental Justice

Water Quality – Overview

- Evaluated multiple water quality constituents in multiple locations incorporating multiple sources of data for construction (including initial fill) and operation
- Selection of water quality constituents:
 - Elevated concentrations present in the study area
 - Existing impairments - 303(d) list or TMDLs
 - Known to be a concern, but not included in the 303(d) listings (e.g., water temperature and HABs).
 - Mechanism of effect

Water Quality – Methods

Mechanism	Main Constituents Considered	Main Region of Concern	Model Results Considered
Temporal Shift (river concentration during filling higher than during release)	Metals Pesticides Salinity	Sacramento River downstream of discharge locations	CALSIM
Evapoconcentration in Sites Reservoir	Metals Salinity	Sites Reservoir and Sacramento River downstream of discharge locations	CALSIM
In-Reservoir Processes	Mercury HABs Nutrients/organic carbon/DO Temperature Salinity	Sites Reservoir and receiving waters	CALSIM Sites Reservoir temperature model (CE-QUAL-W2) CVRWQCB model of fish tissue methylmercury concentrations in Yolo Bypass and Delta
Change in System Reservoir Operations	Temperature HABs Mercury	Shasta Lake and Sacramento River, Lake Oroville and Feather River, Folsom Lake and American River, and San Luis Reservoir	CALSIM HEC5Q Reclamation temperature model
Change in Delta Operations	Salinity/Chloride	Delta	CALSIM DSM2 QUAL
Redirection of Some CBD Flow through Yolo Bypass	Pesticides Nutrients/organic carbon/DO HABs Mercury Temperature	North Delta/Cache Slough Complex	CALSIM

Water Quality – Key Drivers of Less Than Significant Finding

- Implementation of Best Management Practices
- Implementation of the Reservoir Management Plan
- Low concentrations of most constituents in the Sacramento River
- Small contribution from local inflows (e.g., Salt Pond)
- Multiple tiers in Inlet/Outlet tower
- Dilution in the Sacramento River
- Current monitoring programs (e.g., pesticides in Yolo Bypass) provide data for real-time assessment
- Limited effects of CVP/SWP reoperation

Water Quality – Mercury

- Long-term (~10 years after initial filling)
 - Comparable to existing reservoirs
 - 1.9 to 2.3 ng/L total mercury
 - 0.10 to 0.15 methylmercury
- Short-term (up to ~10 years after initial filling)
 - Conditions are conducive to mercury methylation
 - 3.8 to 4.5 ng/L total mercury
 - 0.2 to 0.3 ng/L methylmercury
- Total mercury concentrations would not exceed California Toxics Rule Objective (50 ng/L)
- Tissue concentrations among other reservoirs > CA sport fish objective (0.2 mg/kg ww in 350 mm largemouth bass)

Water Quality – Mercury (cont)

- Not exceed the California Toxics Rule criterion
- Fish tissue methylmercury concentrations in Sites Reservoir could exceed sport fish tissue methylmercury objective
- Sites Reservoir releases could increase aqueous and fish tissue methylmercury concentrations in CBD and the north Delta during the release period in some years, and in Funks and Stone Corral Creeks

Water Quality – Mercury (cont)

- Reservoir Management Plan
 - Remove vegetation in inundation footprint prior to initial filling
 - Monitor reservoir fish tissue methylmercury
 - Post fish consumption warning signs if fish tissue methylmercury concentrations exceed CA sport fish objective
 - Adhere to the State Water Board TMDL for mercury in reservoirs, once adopted

Water Quality – Metals Impacts

- Less than Significant Impacts:
 - In Sites Reservoir
 - High concentrations would be temporary and have limited detrimental effects on aquatic communities
 - In the Sacramento River
 - Discharges to the river would occur after reductions in total metal concentrations due to settling of suspended sediment
 - Discharges would not cause any exceedances or exacerbation of exceedances of water quality standards for metals in the Sacramento River
- Significant Impacts:
 - Discharges to Stone Corral Creek could have elevated metal concentrations due to depth of withdrawal
 - Yolo Bypass habitat flows could introduce metals from the CBD into the bypass

Water Quality – Metals Mitigation

- Mitigation Measure WQ-1.1 – For metals concentrations in Stone Corral Creek and the Yolo Bypass
 - Terminate habitat flows to Yolo Bypass if studies indicate they do not provide a net benefit to aquatic communities
 - Adjust Sites Reservoir releases to Stone Corral Creek to modify metal concentrations
 - Effectiveness of this measure for Stone Corral Creek has high uncertainty

Aquatic Biological Resources – Overview

- Evaluated 20 Impacts
 - Impact FISH-1: Construction
 - Impact FISH-2 through -19: Operation effects on listed species and special status species of concern, including Killer Whales
 - Impact FISH-20: Maintenance Effects
- Impact assessments rely primarily on modeled hydrologic changes in SWP and CVP operations that would occur as a result of Project operations
- Depending on the species and location, the specifics of the assessment methodologies differ

Aquatic Biological Resources – Examples of Analyses

- **CALSIM II:** Monthly flow output used to assess changes in reservoir water surface elevation, storage, and instream flows associated with implementation of the alternatives. The CALSIM II monthly flow output also served as input to many of the other models used to analyze potential impacts to aquatic resources.
- **Weighted Usable Area:** Provides estimates of the amount of suitable spawning and rearing habitat of fishes available in rivers and streams at various levels of flow.
- **SALMOD:** Used to evaluate flow and temperature related mortality of early life stages and overall production of each race of Chinook salmon in the Sacramento River.
- **Juvenile Stranding:** Juvenile stranding is computed using USRDOM daily flow estimates for Alternatives 1–3 and the NAA at three locations in the upper Sacramento River: Keswick Dam, Clear Creek, and Battle Creek.
- **Martin and Anderson:** Winter-Run Chinook Salmon eggs are positively correlated with water temperature.
- **HEC5Q:** Used for Sacramento River and American River daily water temperature analysis
- **Reclamation Temperature Model:** Used for Feather River temperature analysis

Aquatic Biological Resources – Species Evaluated

Listed Species	Other Species
Delta smelt, Longfin Smelt	California Bay Shrimp
Killer Whale	Starry Flounder, Northern Anchovy
Green Sturgeon	Pacific Lamprey, River Lamprey
Steelhead	Native Minnows
Fall-run/Late Fall-run Chinook	Striped Bass, Black Bass
Spring-run Chinook	American Shad, Threadfin Shad
Winter-run Chinook	White Sturgeon

Aquatic Biological Resources – Examples of Key Drivers of LTS

- **Weighted Usable Area:**
 - Indicates that Alternatives 1 and 2 would have little effect on **late fall–run** spawning WUA and Alternative 3 would have moderate, primarily beneficial, effects
 - Indicates that the Alternatives would result in frequent minor reductions in spawning habitat WUA for **fall-run**, and occasional somewhat greater reductions, primarily for Alternative 3
 - The Alternatives are expected to have little effect on **spring-run** spawning in the Sacramento River
 - The Alternatives are not expected to substantially affect **winter-run** spawning WUA
- **SALMOD:** Overall results show a minimal effects of Alternatives on salmon mortality and potential production in the Sacramento River
- **HEC5Q:** Mean monthly temperatures by water year type between alternatives in the Sacramento, American, and Feather river indicates that water temperatures would be similar among alternatives during the period of presence of (where applicable):
 - Winter-run, spring-run, fall-run/late fall–run Chinook salmon, steelhead
 - Native Minnows
 - Lamprey
 - Sturgeon (white and green)
 - Striped Bass
 - American Shad

Aquatic Biological Resources – Mitigation Measures

- Mitigation Measure FISH-9.1: Tidal Habitat Restoration for Longfin Smelt
 - Tidal habitat restoration mitigation for longfin smelt was calculated based on the same method recently applied by DWR (2019d: 5-5). The method is described in more detail in Appendix 11F, *Smelt Analysis*. The mitigation requirement for each alternative varies between 11 and 15 acres, depending on the alternative

Aquatic Biological Resources – BMPs and Plans

- Example BMPs
 - Develop and implement an underwater sound control, abatement, and monitoring plan to avoid and minimize the effects of underwater construction noise on fish
 - Worker Environmental Awareness Program (WEAP)
 - Develop and Implement Fish Rescue and Salvage Plans
- Sediment Technical Studies Plan and Adaptive Management
 - Sediment Monitoring
 - Sediment Modeling
 - Sediment Reintroduction
- Fish Monitoring and Technical Studies Plan and Adaptive Management
 - 4 Technical Studies: Fish Distribution and Density; Juvenile Salmonid Survival Rates; Predator Density and Distribution; Long-Term Hydraulic Fish Screen Evaluation
 - 3 Types of Aquatic Monitoring: Rotary Screw Traps; Entrainment and Impingement; and Stranding Behind Screens

Growth Inducing

- No impact determination
- Evaluates direct and indirect growth inducing effects from construction and operations
- Approach considers:
 - Water supply reliability describing simulated deliveries to agriculture and M&I uses by hydrologic regions
 - Population growth over last 20 years and projected growth
 - Local authority of governments over land use planning
- Alternatives are not growth-inducing and would not induce secondary growth impacts

Process for Approval of Release of the Supplemental Draft EIR

- April – Part 1 Overview
 - CEQA overview and process presentation
- May – Part 2, Key Sections
 - Construction-Related Sections and Local Issues
- June – Part 3, Key Sections
 - Operations-Related Sections and Growth Inducement
- July – Request approval
 - Cumulative
 - Request approval from the Reservoir Committee and Authority Board for release of the public RDEIR in August
- August 2021 - Release of RDEIR
 - Schedule assumes parallel review and release of SDEIS as joint document

Permitting

John Spranza / Harry Oaks

Discussion Goals

- Mitigation Cost Estimate
 - Review June update of current planning level mitigation cost estimate
 - Discuss reasons for modifications from May estimate

Mitigation Cost Estimate: June Update

Resource	May 2021 Planning Level Cost	June 2021 Planning Level Cost in 2019 Dollars	Difference
Aquatic Resources	\$46,500,000	\$56,000,000	+\$9,500,000
Sensitive Natural Communities and Wetland & Non-Wetland Waters Resources	\$333,412,500	\$333,412,500	0
Terrestrial Wildlife Resources/Wildlife Habitat	\$123,090,500	\$109,215,500	-\$13,875,000
Surface Water Quality	\$200,000	\$200,000	0
Agriculture & Forestry	\$58,756,750	\$46,059,000	-\$12,697,750
Cultural & Paleontological Resources	\$13,840,300	\$13,840,300	0
Air Quality	\$250,000	\$3,750,000	+\$3,500,000
Riverine-Based Species and Habitats (operations)	N/A*	N/A*	N/A*
Contingencies and Forward Escalation	N/A	N/A	N/A
Total	\$ 576,050,050	\$562,477,300	-\$13,572,750

* Operational mitigation costs are included in the above categories where applicable

Key Changes in Mitigation Cost Estimate

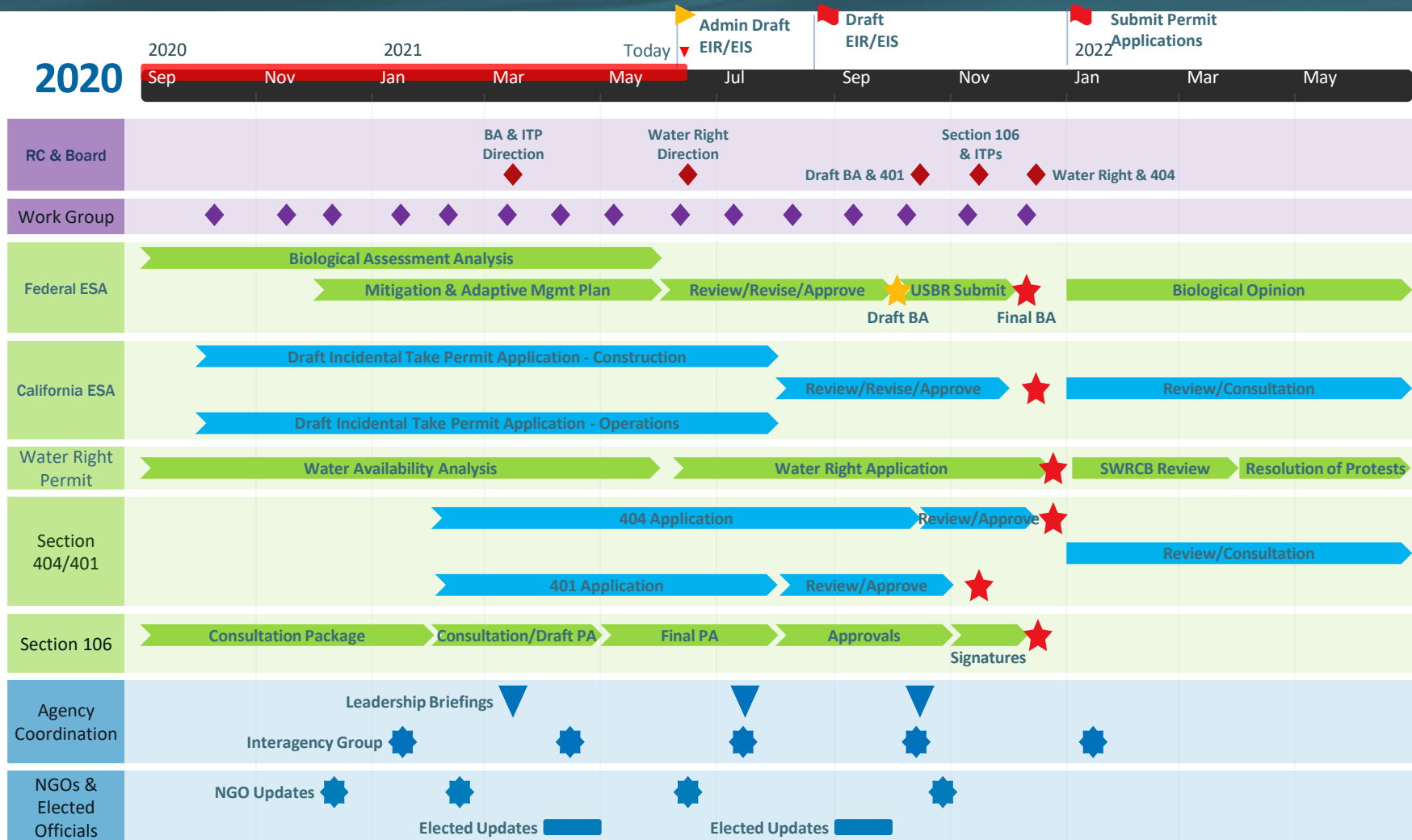
- Aquatics revised to use a slightly higher, more conservative estimate recognizing some uncertainty
- Reduction in assumed elderberry presence
 - 250 bushes, reduced from 500
- Revision of CRLF habitat around Funks Reservoir
 - Aquatic and terrestrial
- Including additional air quality mitigation
 - Greenhouse gas emissions
- Removal of Williamson Act costs associated with remnant parcels
 - Covered already in land acquisition costs

Schedule and Dashboard Update

Schedule Update

2020

2022



Dashboard Update

Key

- Prepared:** Internal work by team
- Presented:** Provided to agencies for review
- Reviewed:** Reviewed and discussed with agencies
- Revised:** Agency comments considered and addressed
- Resolved:** Agency issues/concerns discussed and resolved
- Deferred:** Deferred to further negotiations after application
- Confirmed:** Agencies have confirmed acceptance/agreement

- Complete** Activity completed
- In Process** Activity in progress
- Challenge** Team and agencies discussing how to resolve issues
- Roadblock** Significant issues slowing progress; escalation may be needed

Permit	Summary Status	Permit Topics/Considerations	Agreement Status with Agencies						
			Prepared	Presented	Reviewed	Revised	Resolved	Deferred	Confirmed
Biological Assessment/ Biological Opinion Reclamation USFWS NMFS	●	Project Description							
		Species List							
		Terr. Species Modeling Approach							
		Aquatic Species Modeling Approach							
		Mitigation Approach							
		Species Modeling							
		Effects Analysis							
		Essential Fish Habitat Analysis							
		Construction Effects Analysis							
		Aquatic Effects Analysis							
Mitigation and Adaptive Mgmt Plan									
Incidental Take Permit – Construction CDFW	●	Project Description							
		Species List							
		Species Modeling Approach							
		Mitigation Approach							
		Species Modeling							
		Effects Analysis							
Mitigation and Adaptive Mgmt Plan									
Incidental Take Permit – Operations CDFW	●	Project Description							
		Diversion Criteria							
		Modeling Approach							
		Mitigation Approach							
		Species Modeling							
		Effects Analysis							
Mitigation and Adaptive Mgmt Plan									
Water Right Permit SWRCB	●	Water Availability Analysis							
		Draft Water Right Application							
		Internal Review/Revise							
		Submit Water Right Application							

Dashboard Update

Key

- Prepared:** Internal work by team
- Presented:** Provided to agencies for review
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Permit	Summary Status	Permit Topics/Considerations	Agreement Status with Agencies						
			Prepared	Presented	Reviewed	Revised	Resolved	Deferred	Confirmed
Clean Water Act - USACOE	●	Desktop Wetland Delineation							
		Pre-Application Meeting							
		LEDPA* Analysis							
		404 Permit Application							
		Compensatory Mitigation Plan							
		Internal Review/Revise							
		Approve/Submit 404 Application							
Clean Water Act - Section 401 SWRCB	●	Pre-Application Meeting							
		Draft 401 Application							
		Review/Revise							
		Approve/ Submit							
Section 106 Reclamation	●	Consultation Information Package							
		Phased Identification Work Plan							
		Draft Programmatic Agreement							
		Consultations							
		Final Programmatic Agreement							
		Reviews							
		Final PA for signature Execution							
EIR/EIS Reclamation &	●	Project Description & Alternatives							
		Modeling Baseline & Approach							
		Fisheries Impacts							
		Tribal Cultural Resources							
		Terrestrial Impacts							
		Water Quality							
		Water Rights Cumulative Impacts & GHGs							

Upcoming Permitting Work and Priorities – June/July

- BA/ITP:
 - Continue discussions on operations criteria and effects to species with agencies
 - Continue joint agency workshops
 - Resolve operations ESA consultation lead with Reclamation
 - Prepare complete Admin Draft BA
- 404/401 – Continue discussions with USACE and State Board on delineation, permit approach, and coordination of activities; prepare admin draft LEDPA analysis
- Section 106 PA – Continue to prepare draft PA with Reclamation; host meeting with possible signatory agencies
- Water Rights – Continue Water Availability Analysis; continue discussions with State Board staff on approach and key parameters

Upcoming RDEIR/SDEIS Work and Priorities – June/July

- Continue NGO meetings
- Ongoing AB52 Consultation with Tribes
- On-going review of all chapters and appendices of the Administrative RDEIR/SDEIS Chapters
 - Authority and Legal
 - Reclamation
 - Review of key chapters by Cooperating and Responsible agencies
- Complete RDEIR/SDEIS and initiate Reclamation internal review process

Timing of Next Meeting

- Next meeting – July 12, 2021
 - Topics –
 - EIR/EIS
 - Cumulative Analysis
 - Review and delegate authority to release
 - Permitting –
 - Section 106 (Cultural Resources) update

Thank you!



Water Quality: Main Data Sources

Constituent Group	Data Source	Location
Metals Electrical Conductivity Nutrients	DWR Water Data Library (WDL)	Sacramento River below Red Bluff Sacramento River at Hamilton City Sacramento River above CBD CBD near Knights Landing Stone Corral Creek near Sites
Flow Mercury	USGS WDL CA Data Exchange Center	Sacramento River at Keswick (flow) Sacramento River above Bend Bridge (flow) Reservoirs: Shasta and Oroville (mercury) Funks Creek, Stone Corral Creek, CBD, Sacramento River and Yolo Bypass (mercury)
Pesticides	CA Dept of Pesticide Regulation Surface Water Database (CDPR SURF)	Sacramento River near Hamilton City Sacramento River at Colusa CBD above Knights Landing Yolo Bypass Toe Drain near Babel Slough
Water Temperature	CA Data Exchange Center	Yolo Bypass, Sacramento Deep Water Ship Channel, Sacramento River at Rio Vista
HABs	State Water Board HABs data portal	Sacramento Valley reservoirs

Water Quality: Analysis

Constituent	Best Management Practices	Reservoir Management Plan	Mitigation Measure
Temperature		X	None
Salinity		X	None
Nutrients/OC/DO			None
HABs		X	None
Mercury/Methylmercury		X	None
Pesticides	X		None
Metals (aluminum, hexavalent chromium, copper, iron, and lead)		X	X
Construction Contaminants (e.g., oil, gasoline)	X		None

Mitigation Cost Estimate

From May 2021 Ad Hoc

Resources Covered

- Scope of analysis included the resources covered in 2016 technical memorandum (TM)
 - Aquatic resources
 - Sensitive natural communities and wetland & non-wetland waters resources
 - Terrestrial wildlife resources/wildlife habitat
 - Surface water quality
 - Agricultural resources
 - Cultural resources
 - Paleontological resources
 - Air quality

Approach, Methods & Key Assumptions

- Cost developed in coordination with core mitigation team
- 2016 TM used as basis
- Review of current resource chapters & discussions with authors
- For terrestrial resources & land cover types
 - Outreach to experts in mitigation banking
 - Assumed 2:1 mitigation ratio & used median, per acre costs
 - Credit stacking (e.g., SWHA foraging habitat and rare plants stacked with annual grasslands)
- Cultural resources cost developed & reviewed by resource specialists
- Agricultural land cost based on preliminary outreach to Sites real estate team

DRAFT Mitigation Cost Estimate

Resource	Current Planning Level Cost (\$)
Aquatic Resources	\$ 46,500,000
Sensitive Natural Communities and Wetland & Non-Wetland Waters Resources	\$ 333,412,500
Terrestrial Wildlife Resources/Wildlife Habitat	\$ 123,090,500
Surface Water Quality	\$ 200,000
Agriculture & Forestry	\$ 58,756,750
Cultural Resources	\$ 13,303,500
Paleontology	\$ 536,800
Air Quality	\$ 250,000
Total	\$ 576,050,050

- Estimate is draft – additional refinements underway

Comparison to Value Planning Estimate

Resource	February 2020 Value Planning Estimate (\$)	Current DRAFT Planning Level Cost (\$)
Aquatic Resources	\$56,000,000	\$46,500,000
Sensitive Natural Communities and Wetland & Non-Wetland Waters Resources	\$174,800,000	\$333,412,500
Terrestrial Wildlife Resources/Wildlife Habitat	\$53,000,000	\$123,090,500
Surface Water Quality	\$200,000	\$200,000
Agriculture & Forestry	\$31,000,000	\$58,756,750
Cultural & Paleontological Resources	\$35,000,000	\$13,840,300
Air Quality	\$200,000	\$250,000
Riverine-Based Species and Habitats (operations)	\$150,000,000	N/A*
Contingencies and Forward Escalation	\$40,000,000	N/A
Total	\$540,000,000	\$ 576,050,050

* Operational mitigation costs are included in the above categories where applicable

Aquatic Resources

- Affects analysis is ongoing; therefore, specific mitigation requirements due to operations and/or maintenance effects have not been identified
- Aquatics mitigation cost from 2016 TM used as a placeholder
- One specific project identified: Tidal Habitat Restoration for Longfin Smelt
- Variation from Value Planning estimate (- \$9.5M) - current estimate used 2016 TM cost

Sensitive Natural Communities and Wetland & Non-Wetland Waters Resources

- Total cost estimated at \$333M
- Unit cost based on median estimated cost for 1 acre of mitigation bank credit
- A 2:1 mitigation ratio was assumed for all affected land cover types
- Sensitive natural communities were mapped based aerial imagery interpretation; on the ground surveys have not been performed
- When each parcel is available for surveys, initial land cover type mapping will be field-truthed
- Variation from Value Planning estimate (+ \$159M) - Unit cost of current estimate used mitigation bank pricing

Terrestrial Wildlife Resources/Wildlife Habitat

- Credit stacking with sensitive natural communities, where appropriate
 - Example: SWHA foraging habitat and rare plants stacked with annual grasslands
- Vernal pool branchiopods
 - Cost assumes presence; assumed 1/3 of modeled habitat would be required as mitigation
 - Using this approach, vernal pool mitigation approximately \$77M
 - Modeled habitat to be verified; surveyed to determine presence/absence
- CRLF
 - Cost assumes presence, aquatic mitigation approximately \$16M
 - Funks Reservoir removed
 - Upland credits stacked with other cover types
- Variation from Value Planning estimate (+ \$70M) - primary increase was inclusion of current mitigation bank cost for modeled vernal pool habitat

Agricultural Lands

- RDEIR/SDEIS Mitigation Measures
 - Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland
 - 304 acres in Colusa County, none in Glenn or Yolo Counties
 - Minimize impacts on Williamson Act-Contracted (WAC) Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators
 - Considers land under WAC to be permanently disturbed, remnant parcels below County thresholds, and WAC contracts rescinded
- Variation from Value Planning estimate (+ \$38M) - current estimate may include values that are a real estate cost

Next Steps

- Continue to work with technical team to refine effects and assumptions
- Continue working with design teams to avoid and minimize effects through design refinements
- Work with agencies to solidify mitigation ratios
 - Ensure proper consideration for landscape-level mitigation is reflected in our ratios