

Meeting: **Phase 1 Reservoir Project Agreement**

**2018 April 19**

Subject: **Reservoir Committee Meeting**

**1:30 PM–5:00 PM**

Location: Tsakopoulos Library Galleria (West Meeting Room)  
828 I Street, Sacramento, CA 95814

Call in: 1-800-201-7439  
Code: 644237

Chair: Thad Bettner (Glenn-Colusa Irrigation District)

Vice Chair: Doug Headrick (San Bernardino Valley Municipal Water District)

Treasurer: Jamie Traynham (Davis Water District)

## MEETING MINUTES

**ROLL CALL & QUORUM:** Roll was called (see Attachment A), which resulted in 19 eligible representatives. This equates to 77% of the current participation percentage being in attendance, which is greater than the 50% needed to have a quorum of the Reservoir Committee. By 2:00 pm, 2 additional members joined, bringing the participation percentage to 87%.

**ATTENDANCE:** See Attachment B.

**CALL TO ORDER:** Chairman Bettner called the meeting to order at 1:30 PM followed by the Pledge of Allegiance.

**AGENDA APPROVAL:** It was moved by Traynham and seconded by Vanderwaal to approve the April 19, 2018, Sites Reservoir Committee Agenda. Motion approved unanimously.

### **MEETING MINUTES APPROVAL:**

Approval of March 16, 2018, meeting minutes was moved by Vanderwaal and seconded by Leitterman with minor changes identified by Headrick. Motion approved unanimously.

### **INTRODUCTIONS**

### **PERIOD FOR PUBLIC COMMENT:**

No comments were provided.

#### **1. Chairpersons' Report:**

Bettner & Headrick

##### **1.1 Introductory remarks**

Nothing to report.

##### **1.2 Major Infrastructure Projects - An Owner's Perspective and Lessons Learned**

Panel discussion  
with Q&A

A panel of major infrastructure project owners was assembled to provide lessons learned and perspectives on program management. Panelists' presentations and notes from the question and answer session are provided as Attachment C.

Action items serve as meeting minutes

Status: Meeting Record

Version: B

Purpose: Informational

Date: 2018 April 19

Participation by phone is not counted  
in quorum or voting.

Caveat 1 Approved, 2018 May 18

Ref/File #:

Caveat 2

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**BREAK** (3:25 PM to 3:34 PM)

**2. Manager's Report:**

Watson

- 2.1 Discussion and possible direction to staff regarding the General Manager's monthly status report *(Attachment 2-1)*

Work for the month of March was focused on procurements and contract compliance, bringing on the financial advisor, working on prep to retain bond council services, and coming up with a recommendation for independent advisors for finance and alternative delivery (discussed later in the agenda).

- 2.2 Report on status of Prop 1 WSIP application and WIIN Act funding

Figure 1 in the agenda packet shows four components that make up the return on investment, while the solid bars are set by staff. The hatched area indicates the Commissioners' discretionary allocation.

The meeting with CWC in February indicated to staff the need to better explain the benefits to salmon and smelt.

On Friday, April 20<sup>th</sup>, 2018, CWC will post their decision on the applicants' appeals. Staff has a meeting with the CWC on April 24, 2018, to understand their technical reviewer's point of view and provide clarifications. A meeting with the Commissioners is scheduled for May 3, 2018. By the end of that week, they will have defined scores for public benefit.

By June 2018, CWC will be working on the other components and will have points decided. By July, negotiations will begin with the highest valued project.

The May 3, 2018, milestone is when CWC will announce their public benefit ratios, which need to be converted into points at the June meeting. The other components of the application are not negotiable.

- 2.3 Consider a recommendation to the Sites Project Authority to retain Independent Advisory services in the areas of finance and alternative delivery *(Attachment 2-3)*

Staff have been putting together plans for Phase 2, have included budget in certain fields, and there are areas where more expertise would be helpful. Dave Houston is proposed to support finance and participation agreements, and Mike Loulakis is proposed for early advisory support on alternative delivery. This support was budgeted in the original work plan.

Action: It was motioned by Headrick and seconded by Vanderwaal to recommend both candidates for approval to the Authority. The motion was approved unanimously.

- 2.4 Report on status of USDA data requests for potential Rural Development grant

Exploratory discussions with USDA's California office in Davis regarding how Sites can benefit rural communities are ongoing. Results based on current participation indicate that the project can provide direct benefits for 100,000 people, as well as indirect benefits for 250,000 people. The USDA is evaluating the Sites Project's eligibility for a low interest loan.

Three options were provided to USDA:

- Low cost: adding pump and doing canal improvements (\$44 million)
- Medium cost: canal improvements, TRR, pipeline, pump station (\$550 million)
- High cost: expand Funks Reservoir to create Holthouse Reservoir

It is expected that USDA will come back with questions and request further clarifications of cost.

2.5 Discussion and possible direction to staff regarding the Draft Phase 2 Work Plan.

Staff has been working to develop a bottoms-up level of detail, trying to understand the timing of expenditures. This will be run through Water Facilities Work Group to develop the work plan.

3. **Ad Hoc Finance & Economics Work Group:** Traynham

3.1 Review Payment of Claims and Treasurer's Report (Attachment 3-1)  
and consider approval to the Authority Board

Traynham provided an overview and review of the Treasurer's Report as of March 31, 2018. These statements were reviewed in the work group, which recommended approval and present to authority board on Monday.

**Action:** It was motioned by Headrick and seconded by Vanderwaal to approve the Payment of Claims and Treasurer's Report. The motion was approved unanimously.

3.2 Report on status to develop the interim finance plan

The work group had a meeting with Montague DeRose about early observations and things that would and wouldn't work. Pooled structure for credit with step up provisions, private sale through a large bank, and take-or-pay contracts were discussed.

Doug Montague gave a summary on initial thoughts. There was discussion of how to identify general parameters for credit that investors in Phase 2 would be interested in, and that a pooled credit approach would work best for this scale of project.

There is an option to fast-track getting agency ratings for the agencies and have more rated agencies before entering future phases. The group has an initial list of agencies without ratings that are requesting to participate at more than 20 TAF. Phase 2 agreements and debt instrumentation will need to come together at the same time.

4. **Ad Hoc Document Review Work Group:** Bettner

No Report.

5. **Ad Hoc Reservoir Operations Work Group:** Kunde & Ruiz

5.1 Report on Work Group's activities to define the Phase 2 rebalancing process

The Reservoir Operations Work Group has 13 participants. 12 participated on the April 18 Work Group Conference Call. The purpose was to recommend the "size of

pie" (\*) for Phase 1 and Phase 2 i.e. the basis for rebalancing Phase 1 participation and costs, conversion of Phase 1 Class 2 to Class 1 participation, and for initial subscription for Phase 2 participation.

(\*) "Size of pie" is for allocation of costs and benefits. Use it to determine % share of Project. Somewhat arbitrary. 500 TAF/year has not been determined to be the Project Yield as this won't be known until permitting is completed at the end of Phase 2. But, based on modeling, it is in the range of possible average annual yields at Holthouse after losses.

Action: The following motion was moved by Kunde and seconded by Leittermann. The motion was approved unanimously.

The recommendation of the Sites Reservoir Operations Work Group is to use 500 TAF/year deliveries at Holthouse Reservoir (after losses) as the basis for:

- (1) rebalancing of Phase 1 costs among participants,
- (2) conversion of Class 2 to Class 1 water in Phase 1, and
- (3) the initial allocation of shares and costs to Phase 2 participants.

The Work Group shall continue to evaluate the use of reservoir storage as a basis for Phase 2 cost allocations.

**6. Ad Hoc Water Facilities Work Group:** Arita

6.1 Report on Work Group's activities regarding of Phase 2 Procurement planning

Covered under budget. Informational material from the Design Build Institute is in the agenda packet.

**7. Ad Hoc Siting Work Group:** Azevedo

No report.

**8. Ad Hoc Risk Management Work Group:** Vanderwaal

8.1 Report on Work Group's activities to perform a project-wide risk assessment:

The mitigated risk assessment report was discussed. Comments will be incorporated using the comment-response process.

**9. Recap & Adjourn** Bettner/Headrick

9.1 Agenda topics for next meeting?

- Update for members in advancing procurement plan.
- Kunde and Ruiz would like to schedule an Operations Work Group meeting at ACWA.
- Takeaways from panel to be included in the meeting minutes.

9.2 Upcoming Reservoir Committee meetings:

Joint Authority/Reservoir Committee Workshop (ACWA Conference):

**May 8, 2018 1:30 – 3:00 PM**

Sheraton Grand Hotel – Royal Meeting Room

1230 J Street, Sacramento, CA 95814

Reservoir Committee Meeting:

**May 18, 2018 9:30 AM – 12:00 PM**

122 Old Highway 99 West Maxwell, CA 95955

**ADJOURN**

Meeting adjourned at 4:30 pm.

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Chairperson  
Thad Bettner

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General Manager  
Jim Watson

**Attachment A to Meeting Minutes****Current Voting Committee Participants (27):**

<input checked="" type="checkbox"/>	<i>Pct</i>	<i>Participant</i>	<input checked="" type="checkbox"/>	<i>Pct</i>	<i>Participant</i>
<input type="checkbox"/>	1.93	4M Water District	<input checked="" type="checkbox"/>	4.96	Metropolitan WD
<input checked="" type="checkbox"/>	2.31	American Canyon, City (1)	<input checked="" type="checkbox"/>	5.15	Orland-Artois WD
<input checked="" type="checkbox"/>	2.11	Antelope Valley-East Kern WA	<input checked="" type="checkbox"/>	3.10	Pacific Resources MWC
<input checked="" type="checkbox"/>	4.03	Cal Water Service	<input type="checkbox"/>	2.35	Proberta WD
<input type="checkbox"/>	1.91	Carter MWC	<input checked="" type="checkbox"/>	5.15	Reclamation District 108
<input checked="" type="checkbox"/>	5.32	Coachella Valley WD (5)	<input checked="" type="checkbox"/>	7.78	San Bernardino Valley MWD
<input checked="" type="checkbox"/>	3.50	Colusa County	<input checked="" type="checkbox"/>	3.69	San Geronio Pass WA (4)
<input checked="" type="checkbox"/>	7.14	Colusa Co. WD	<input checked="" type="checkbox"/>	5.00	Santa Clara Valley WD
<input type="checkbox"/>	1.90	Cortina WD	<input checked="" type="checkbox"/>	2.51	Santa Clarita Valley WA (2)
<input checked="" type="checkbox"/>	2.18	Davis WD	<input type="checkbox"/>	2.43	Western Canal WD
<input checked="" type="checkbox"/>	0.00	Department of Water Resources (non-voting)	<input checked="" type="checkbox"/>	5.97	Westside WD
<input checked="" type="checkbox"/>	2.70	Desert WA	<input checked="" type="checkbox"/>	4.47	Wheeler Ridge-Maricopa WSD
<input type="checkbox"/>	2.68	Dunnigan WD	<input checked="" type="checkbox"/>	0.00	US Bureau of Reclamation (non-voting) (5)
<input checked="" type="checkbox"/>	2.10	Garden Highway MWC (3)	<input checked="" type="checkbox"/>	4.47	Zone 7 WA
<input checked="" type="checkbox"/>	5.15	Glenn-Colusa ID			

**19. Voting members present at Meeting start** (See Note 1)**77. % Participation percentage****21. Voting Present before 2:00 PM****87.1 % Percentage****20. Voting Present after 4:00 PM****81.7 % Percentage**

Representation has been delegated as follows:

- |                                  |   |
|----------------------------------|---|
| (1) To Jamie Traynham (Davis WD) | (4) After 4 PM, voting transferred to M. Krause (Desert WA) |
| (2) To Rob Kunde (WRM-WSD)       | (5) Not present after 4 PM with no delegation               |
| (3) To Thad Bettner (GCID)       |   |

**NOTE 1:** Participation by phone are not counted in quorum or voting.Status: **Meeting Record**Version: **0**

Purpose:

Date: **2018 Apr 19****NOTE 2:** Additional participants were on the phone but did not identify themselves.

Caveat 1

Ref/File #: **12.221-210.018**

Caveat 2

Subject to revision

Page: **1** of **1**

**SIGN IN - CHECK SHEET****Attachment B to Meeting Minutes****Current Voting Reservoir Committee Participants (27):**

<i>Participant</i>	<input checked="" type="checkbox"/> <i>Representative</i>	<input checked="" type="checkbox"/> <i>Alternate</i>	<i>Others</i>
4M Water District	<input type="checkbox"/> Wade Mathis	<input type="checkbox"/>	
American Canyon, City	<input type="checkbox"/> Steve Hartwig	<input type="checkbox"/> Jason Holley	
AVEK WA	<input type="checkbox"/> Dwayne Chisam	<input checked="" type="checkbox"/> Dan Flory	
Cal Water Service	<input type="checkbox"/> Mike Hurley	<input type="checkbox"/> Rob Kuta <input checked="" type="checkbox"/> Dan Flory	
Carter MWC	<input type="checkbox"/> Ben Carter	<input type="checkbox"/>	
Coachella Valley WD	<input checked="" type="checkbox"/> Ivory Reyburn	<input type="checkbox"/> Dan Charlton	
Colusa County.	<input type="checkbox"/> Azevedo, Mike	<input type="checkbox"/> Gary Evans	
Colusa Co. WD	<input type="checkbox"/> Shelley Murphy	<input type="checkbox"/> Joe Marsh	
Cortina WD	<input type="checkbox"/> Jim Peterson	<input type="checkbox"/> Chuck Grimmer	
Davis WD	<input checked="" type="checkbox"/> Jamie Traynham	<input type="checkbox"/> Tom Charter	
Desert WA	<input checked="" type="checkbox"/> Mark Krause	<input checked="" type="checkbox"/> Steve Johnson	
Dunnigan WD	<input type="checkbox"/> Donita Hendrix	<input type="checkbox"/>	
Garden Highway MWC	<input type="checkbox"/> Nicole Van Vleck	<input type="checkbox"/> Jon Munger	
Glenn-Colusa ID	<input checked="" type="checkbox"/> Thad Bettner	<input type="checkbox"/> Don Bransford	
Metropolitan WD	<input checked="" type="checkbox"/> Randall Neudeck	<input type="checkbox"/> Steve Arakawa	
Orland-Artois WD	<input type="checkbox"/> John Erickson	<input checked="" type="checkbox"/> Emil Cavagnolo	
Pacific Resources MWC	<input checked="" type="checkbox"/> Preston Brittan	<input type="checkbox"/>	
Proberta WD	<input type="checkbox"/> Dan Jones	<input type="checkbox"/>	
RD 108	<input checked="" type="checkbox"/> Bill Vanderwaal	<input type="checkbox"/>	
San Bernardino V MWD	<input checked="" type="checkbox"/> Doug Headrick	<input type="checkbox"/> Bob Tincher	

**NOTE 1:** Participation by phone is not counted in quorum or voting.

Status: **Meeting Record**

Purpose:

Caveat 1

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<i>Participant</i>	✓ <i>Representative</i>	✓ <i>Alternate</i>	<i>Others</i>
San Geronio Pass WA	<input checked="" type="checkbox"/> Jeff Davis	<input type="checkbox"/>	
Santa Clara Valley WD	<input type="checkbox"/> Cindy Kao	<input checked="" type="checkbox"/> Eric Leitterman	
Santa Clarita Valley Water Agency (Formerly Castaic Lake WA)	<b>P</b> Dirk Marks	<input type="checkbox"/> Rick Viergutz	
Western Canal WD	<input type="checkbox"/> Ted Trimble	<input type="checkbox"/> Greg Johnson	
Westside WD	<input checked="" type="checkbox"/> Allan Myers	<input checked="" type="checkbox"/> Dan Ruiz <input type="checkbox"/> Blake Vann	
Wheeler Ridge-Maricopa	<input checked="" type="checkbox"/> Rob Kunde	<input type="checkbox"/>	
Zone 7 WA	<input checked="" type="checkbox"/> Amparo Flores	<input type="checkbox"/> Carol Mahoney <input type="checkbox"/> Jarnail Chahal	

**Non-Voting Committee Participants (2):**

<i>Participant</i>	✓ <i>Representative/Other</i>	✓ <i>Alternate/Other</i>	
Dept of Water Resources	<input checked="" type="checkbox"/> Rob Cooke	<input type="checkbox"/> David Sandino	
	<input type="checkbox"/> Ajay Goyal	<input type="checkbox"/> Jim Wieking	<input type="checkbox"/> Dave Arrate
Bureau of Reclamation	<input checked="" type="checkbox"/> Richard Welsh	<input type="checkbox"/> Don Bader	
	<input type="checkbox"/> David Van Rijn	<input checked="" type="checkbox"/> Mike Dietl	<input type="checkbox"/> John Menniti
	<input type="checkbox"/> Shana Kaplan	<input type="checkbox"/> Mike Mosley	

**Pending Reservoir Committee Participants (1):**

<i>Participant</i>	✓ <i>Representative</i>	✓ <i>Alternate</i>
LaGrande WD	<input type="checkbox"/> Matt LaGrande	<input type="checkbox"/> Dennis Zachary

**Authority, Non-Signatory (7):**

<i>Participant</i>	✓ <i>Representative</i>	✓ <i>Alternate</i>
Glenn County	<input type="checkbox"/> John Viegas	<input type="checkbox"/>
Maxwell ID	<input type="checkbox"/> Mary Wells	<input type="checkbox"/>
PCWA	<input type="checkbox"/> Ed Horton	<input checked="" type="checkbox"/> Ben Barker <input type="checkbox"/> Darin Reintjes
Roseville	<input type="checkbox"/> Sean Bigley	<input type="checkbox"/>
Sacramento, City of	<input type="checkbox"/> Jim Peifer	<input type="checkbox"/> Dan Sherry
Sacramento County WA	<input type="checkbox"/> Kerry Schmitz	<input type="checkbox"/> Michael Peterson
Tehama-Colusa Canal Authority	<input type="checkbox"/> Jeff Sutton	<input type="checkbox"/>



**Staff & Consultants:**

<input checked="" type="checkbox"/>	Name	Representing
<input type="checkbox"/>	Barbieri, Janet	JB Comm
<input type="checkbox"/>	Barnes, Joe	AECOM
<input type="checkbox"/>	Black, Lyna	Ch2m
<input checked="" type="checkbox"/>	Brown, Scott	LWA
<input type="checkbox"/>	Bruner, Marc	Perkins Coie
<input type="checkbox"/>	Carlson, Nik	AECOM
<input type="checkbox"/>	Conant, Ernest	Young Wooldridge
<input type="checkbox"/>	Davis, Kim	Sites Project Authority
<input checked="" type="checkbox"/>	Herrin, Jeff	AECOM
<input checked="" type="checkbox"/>	Johns, Jerry	Johns
<input type="checkbox"/>	Kuney, Scott	Young Wooldridge

<input checked="" type="checkbox"/>	Name	Representing
<input checked="" type="checkbox"/>	Oliver, Mark	Ch2m
<input type="checkbox"/>	Nicholas, Rebeca	Nicholas Communications
<input checked="" type="checkbox"/>	Qazi, Shayann	AECOM
<input type="checkbox"/>	Spesert, Kevin	Sites Project Authority
<input checked="" type="checkbox"/>	Thomson, Rob	Sites Project Authority
<input checked="" type="checkbox"/>	Trapasso, Joe	Sites Project Authority
<input checked="" type="checkbox"/>	Tull, Rob	Ch2m
<input type="checkbox"/>	Van Camp, Marc	MBK
<input checked="" type="checkbox"/>	Watson, Jim	Sites Project Authority
<input checked="" type="checkbox"/>	Montague, Doug	Montague DeRose
<input checked="" type="checkbox"/>	Perkins, Natalie	Montague DeRose

**Other Attendees:** *(An email address is required to be added to the distribution list)*

Name	Representing	Contact (Phone & E-mail)
Marguerite Patil	CCWD	Guest speaker
Ray Tritt	CalTrans	Guest speaker
Richard Welsh	Bureau of Reclamation	Guest speaker
Arleen Arita	MWD	Guest speaker
Grace Lui	Fugro	
Linc To	HDR	
Debanik Chaudhuri	Shannon & Wilson	
Arun Parsons	Black & Veatch	
Tom Frisher	CDM Smith	
Armando Lopez	AECOM	
Steve Sanders	SAGE	
Mark Salmon	WSP	
Ted Hopkins	Shannon & Wilson	
Phil Dunn	GEI	

**Other Attendees:** *(An email address is required to be added to the distribution list)*

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Topic: **Sites Reservoir Project****2018 Apr 19**Subject: **Major Infrastructure Projects - An Owner's Perspective and Lessons Learned - Panel discussion with Q&A****Summary of Presentations:**

Arlene Arita (MWD), Diamond Valley Reservoir, management of CIP

- Managed Diamond Valley Reservoir, 810 MAF of off-stream storage, reservoir composed of 3 dams.
- Reservoir Cost: \$800 million
- I/O tower and pressure tunnel: \$46 million
- Pumping plant: \$101 million
- 2.7 Megawatts of power generation, which was introduced after DSOD permit approval was received. Waited for DSOD permit before engaging with FERC
- Program approved budget- \$2087.1M, expenditures \$1992.9M

## Lessons Learned:

- Use a single accounting system (second set of books causes problems)
- Change control – financial and design scope
- Separate tracking of claims from total cost
- Owners staff important – resident engineers, project manager, and project controls manager
- Use unit prices for large cost growth contracts
- Coordinate with the regulatory agencies early on
- Mitigate environmental and social impacts such as property and groundwater rights prior to implementation

Marguerite Patil, CCWD Los Vaqueros and subsequent Dam Raise

- Off-stream reservoir in Contra Costa County with a capacity of 160 TAF
- CCWD operates Los Vaqueros Reservoir in using four Delta intakes
- Benefits: water quality improvements, drought supply reliability, emergency supply.
- Provides strategic diversions from the Delta
- Raise was to expand service area and maintain/expand benefits
- 2004 advisory vote, planning objectives in 2009, draft EIR development with USBR
- Phase 1 expansion to 160 TAF completed in 2012
- Phase 2 expansion to 275 TAF in development

Status: Meeting Notes  
 Purpose: Informational  
 Caveat:  
 Notes:

Preparer: Qazi  
 Checker: Herrin  
 QA/QC:

Phase: 1 Version: A  
 Date: 2018 Apr 19  
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- Managed by district staff and embedded consultants (shift to District staff in subsequent phases), not outside program manager.
- \$35M in mitigation

#### Lessons Learned:

- Hire good attorneys
- Emphasized importance of accounting not just through construction
- This is a storage, conveyance, and accounting project (accounting for the deliveries is ongoing and critical)

#### Ray Tritt, Caltrans, Program/CIP Management and Alternative Delivery

- Primarily used Design-Bid-Build
- 600-700 projects a year
- Received authority for Design-Build in 2009
- Design build design and construction is given to one firm who delivers the project
- Caltrans uses RFQ to short list, followed by an RFP, then award.

#### Pros:

- Faster
- Reduces internal staffing needs
- Lots of innovation
- Earlier cost certainty
- Shortlist preferred/qualified competition
- 14% reduction in construction cost
- Can transfer risks to contractors that they can manage better
- Design competition brings good ideas

#### Cons:

- Less control over design
- Quality subordinate to cost
- Fast pace of reviews
- Steep learning curve for staff
- Need to define project at 30% design
- Need to set stipends
- Undocumented practices in construction

CMGC (Construction Manager/General Contractor) or CMAR (Construction Manager at Risk):

- Bring contractor in early for design, helps to make project more constructible.
- Owner still has right to return to traditional bid
- Selection of contractor based on qualifications, not price
- Some projects are done in portions (i.e., split facilities)
- Less cost growth and more control with CMAR
- Get earlier cost estimates with more certainty
- Low chance of claims due to change orders
- Single bidder
- Higher support costs bring in someone to do the design

#### Success Factors:

- Legislation
- People
- Project selection (apply right method to right project)
- Procurement timing is critical

#### Richard Welsh (Reclamation), Red Bluff Diversion Dam and others

- Red Bluff Pumping Plant was – designed to help winter-run Chinook salmon and endangered species in the Sacramento River
- Used the Best Value approach for price and technical
- Joint owner/contractor design and CM effort
- Four contracts for Red Bluff project
- Reclamation does their own supply contract for motors, generators, pumps. Prefer to have owner contract directly with manufacturers. Leadership needs common goals
- Multiagency involvement – each with different expectations
- \$225M budget, \$183M cost total actual

#### Lessons Learned:

- Start early on land acquisition and plan/mitigate for waste issues
- Emphasis on relationships – teambuilding and trust essential. Need a relationship with the contractor.
- Issue resolution process important

#### **Q&A SESSION:**

1. Explain the organizational structure of your agency and how PM/CM fits into your contracts?

MWD: Project management is typically done in-house. Hire design consultants to do design.

Project controls were provided by the consultant for Diamond Valley – would have preferred to do it in-house. The resident engineer and construction manager worked for MWD, and were originally in design group and then moved in to construction group for continuity. The organization was blended; MWD and consultant staff worked together. The review staff was comprised of MWD employees as well.

Caltrans: The project development team manages the project. Districts oversee.

CCWD: Used Design-Bid-Build (DBB) with outside design. Internal staff for CM/PM. CCWD preferred not to give up control via alternative delivery.

MWD: Used in-house project management, design consultants, blended team of in-house project management with consultant support. Recommend in-house project controls and one set of books. Resident engineers for construction management were annuitants from MWD (trusted former employees). Used design engineers to provide engineering support during construction. Altogether, approximately 20 MWD staff were on the team for Diamond Valley. All reviews by were done by MWD. Everyone else was a consultant. Arita also emphasized the importance of getting permitting and real estate started early.

CCWD: Like to have cradle-to-grave involvement by some internal staff and maintain institutional knowledge.

## 2. Time Management and Planning – At what point do you have “baton pass”?

CCWD: Strive for early involvement with ongoing engagement of selected staff, otherwise the baton pass is more difficult.

Los Vaqueros had staff for the life of the project, so organizationally they can move across groups. The “baton pass” can be a rough transition. Recommend the introduction of a user group process early on to do program review for people in O/M, construction, and follow a cradle to grave alternative.

Caltrans: Also seeks for cradle-to-grave involvement of the Project Development Team – hand off/baton pass can have things fall through cracks.

With CMGC, you have more overlap so there is no real hand-off, rather it is more of a steady flow. Co-locating staff helps.

## 3. In terms of Design-Build, where are you with permitting?

Caltrans: If permit relies heavily on what contractor is designing, gives it over to the contractor to get permit. The key permits are often kept in-house.

Reclamation: The Planning Division handles the project through planning phase, and then hands it off to program management team. Early involvement of the program management team in planning is preferred.

#### **OPEN SESSION:**

4. For large projects, what were the biggest problems that came up that you didn't anticipate and how did you handle it?

Reclamation: Red bluff – Thought the design was finalized, but then PG&E wanted variable frequency drives on all the motors for energy, which increased HVAC load for the pumping plant dramatically. Reclamation changed the contract, had some liquidated damages, but were able to stay on schedule. Liquidated damages are needed, but if too high they can scare off contractors.

Caltrans: Design-build project – submitted a foundation that was strong enough, took 6 months to reach decision. Key Lesson: better to make the wrong decision on-time than the right decision too late. Maintaining schedule usually controls costs.

CCWD: Hit unexpected geotechnical condition on one side of the abutment. Impact in foundation was such that it could not be left that way. Had done extensive investigation; however, this got missed. It was obvious that design would have to change. Brought in DSOD right away, had a relatively large change order, but only a 66 day delay. Stayed within budgetary limit for change orders.

MWD: Had 3 dams and 9 contracts. Biggest risk on dam project is below grade. Excavation contracts required early excavation with enough cleaning to see features such as faults to minimize risk.

Had a materials claim on above-grade fill. The contractor encountered clay and did test fills to mitigate. Material that came out of contractor's rock borrow areas didn't match the design specifications.

5. Can you elaborate on the use of the dispute review board?

Reclamation: Uses dispute review board, which is distinct from formal partnering. They can work together.

6. Can you provide some examples of innovations from DB process?

Caltrans: San Bernardino County – saved owner \$25 million by changing the geometrics, reducing facilities, and balancing earthwork. Allow

contractor to make changes within footprint – otherwise they take on the risk of additional environmental requirements.

7. How do you decide which delivery method to use?

Caltrans: Look at a project and pick based on design criteria – they have algorithm to tell them what option is better fit.

8. Can you explain what you mean by embedded staff?

CCWD: For the initial construction of Los Vaqueros, the staff from JM Montgomery was embedded with the District working staff side by side. Prefer to have project permanent District staff and used this model for the expansion phases. Having District staff in critical roles keeps the owners needs in mind.

9. Can you elaborate on unit costs?

MWD: They have had claims related to unidentified unit costs. The contractor added another zone/subzone that wasn't in the defined unit cost. This resulted in a claim.

10. Do you develop a risk register and risk management plan?

MWD: Uses risk management on their projects, especially when unforeseen geotechnical situations are likely to be encountered. There is no cost threshold; it is used even for small tunnels. Well worth the money to break it down and manage the risk. In terms of claims and time loss, the longer it takes, the more money is spent. If you can keep to the schedule, you can manage your cost. Managing risk helps manage the schedule, which helps manage the cost.

Things to consider:

- Project labor agreement
- unforeseen conditions for the contractor
- mitigate early on, use labor agreements to cover the duration

CCWD: Typically does not use risk registers, but is doing so this time. Even if it's not area of expertise, it's more of a trust but verify: how much do you trust others to do what you want?

Need to consider legal, biological, and cultural resource risks.



Caltrans: Caltrans uses risk management on all projects. All projects lower than \$100 million require qualitative risk assessment; anything larger requires a quantitative risk assessment. Require updates at project milestones. Can make contractor manage the risk manager.

Reclamation: Uses risk registers, partnering workshops, and uses a geotechnical baseline report to allocate risk.

11. Did you have staff dedicated to risk management?

No. It is folded in with other work functions.

12. What about the type of overruns that were seen on construction of the Bay Bridge?

Caltrans: That project was politically complicated and required over water construction. Those factors increased the risk. Always have potential for cost overruns.

Alternative design may manage some risks better. Need multidisciplinary teams ready to respond to and manage risks for fast decisions.

CCWD: Always push for escalation to midpoint of construction. WSIP requires everything in 2015 dollars. Always label to avoid losing trust.

Caltrans: Use risk based estimating and try to use ranges with assumed key drivers that could result in cost differences.

13. Do you use contingency or management reserve? (Asked by Vanderwaal)

CCWD: Customize contingencies; don't just apply contingencies standard just across the board. LV tries to put contingency on management and legal side as well, and do more detailed line items.

Caltrans: Standard 5% contingency at final design, initially have 20% contingency.

There is an additional management contingency that requires management approval for use.

MWD: Doesn't assign contingency, just remaining budget.

14. Does anyone use project management information systems?

MWD: Uses PMIS, their internal system.

CCWD: Has own in-house, IFIS. Supplemented by designers who do their own cost estimate: schedule controls, work flow, etc.

Caltrans: Uses PRISM, but customized to Caltrans.

15. What risks that get transferred and what do you keep?

Caltrans: Right of way, utility relocation, some of which can be transferred through Design-Build (DB). Environmental commitments and compliance can be transferred. Some permits can also be transferred, but we tend to keep the ones where there is a need to maintain long-term relationships with agencies. Look at each risk and decide who can manage it better.

16. What about inspection staff?

Caltrans: Caltrans has own inspectors. In-house staff tend to be more rigorous, while contractors are often more passive. Contractors used to validate and in-house staff is used to verify. Contractors usually do okay on laboratory testing.

17. What was the size of the organization for Diamond Valley?

MWD: MWD staff was 20 to 25 internal staff, including program manager, design manager, principal, project dams engineer, hydraulic structures engineer and assistant, roads, visitor center, and ancillary facilities, among others.

18. How do you go about selecting contractors?

Caltrans: Pick based on qualifications, submitted past projects, claim history, incentive for them to behave and perform well so they can get other work.

19. Are you finding one method works better than other? CM at Risk or Design-Build?

Caltrans: Both are beneficial. CMGC is more popular at Caltrans because the owner controls the design. Design-Build often allows work to be completed ahead of schedule.

20. What about strategies for engaging regulatory agencies? What works or what doesn't?

CCWD: Have to partner, can't come in with wrong attitude, many of the agencies have high staff turnover.

Assist agencies and help people with their work. Share thoughts and drafts to move the process along. Have tried agency staff augmentation, but helping them more works better.

MWD: Don't change their opinion – listen the first time and work with them closely, collaborate, and get agreements. Diamond Valley had a diamond diagram with DSOD – worked with them ahead of time to reach deadlines. Had to pay to have an FTE to review work. Important to meet deadlines and keep your commitments to build trust.

21. What about water rights for Los Vaqueros?

CCWD: Los Vaqueros needed water rights. Point of diversion required for expansion.

Marguerite suggested a presentation by Amanda with the state board to CWC that is available online at the California Water Commission (CWC) website (Jim Watson to provide a link).

22. What is your safety approach? (Asked by member of the public)

MWD: Had a safety program in the beginning then had an incentive program, which helped.

CCWD: Los Vaqueros has big safety culture. They have safety officer to do review of design, as is required in the specs. Never hurts to have a CIH on the job.

Reclamation: Contractors usually give attention because it affects their insurance.

23. What about soft costs in relation to construction? (Asked by member of the public)

CCWD: Higher than you would expect. Track all costs.

Caltrans: Track soft cost, support cost, construction cost.

MWD: Start tracking them early. DSOD will review when determining their fee for jurisdictional work.



# Owner's Perspective Lessons Learned for Mega Projects

# Diamond Valley Lake





# Key Dates for Diamond Valley Lake

- **October 1991 – Metropolitan Board Certified FEIR**
- **May 1995 – Reservoir Groundbreaking Ceremony**
- **November 1999 – Begin Initial Reservoir Filling**
- **January 2000 – DSOD Issued Certificate of Approval**
- **March 2000 – Reservoir Dedication Ceremony**
- **May 2001 – Power Generation On-Line**
- **August 2003 – Appropriation Closed**

# Aerial View of Reservoir - 3 Dams & Forebay



Total Construction Costs for 3 dams & forebay  
including claims & settlements = \$796 million



# Inlet/Outlet Tower



Total Construction Cost of Tower &  
Pressure Tunnel = \$46 million



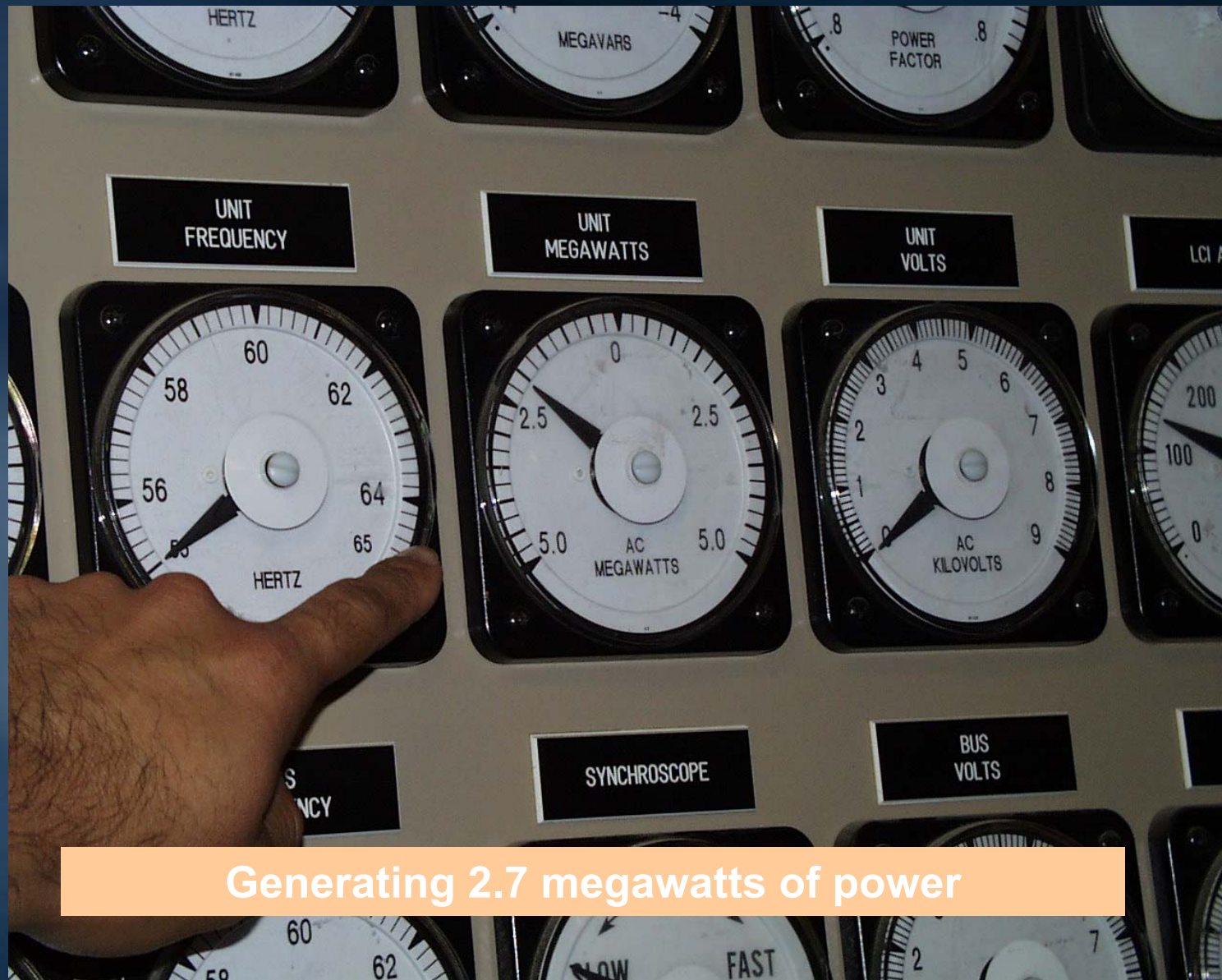
# Hiram W. Wadsworth Pumping Plant



Total Construction Costs for Pumping Plant  
including Pump Procurement = \$101 million)



# Power Generation



Generating 2.7 megawatts of power

# Financial Summary

Approved Program Budget	\$2,087.1 M
Expenditures	\$1,992.9 M

Category	Expenditures
Construction	\$1,126
Land	361
Quality Control & Inspection	230
Design	121
Mitigation	50
Program Management	34
Planning	18
Legal	5
Claims Settlement	47

# Lessons Learned

- Use a single accounting system
- Change control – financial & design scope
- Separate construction claim projections from total projected costs
- Use Owner's Staff for key CM and PM positions such as Resident Engineer, Project Manager, & Project Controls Manager
- Use unit prices for large cost growth construction contracts
- Coordinate w/ regulatory agencies for permits
- Mitigate environmental and social impacts such as property & groundwater rights before implementing project

# DVL and DVR Transfers

**DVL Projected Cost to Complete** **\$1,992.9 M**

- Costs incurred which benefited recreation - \$22.9M

**Rec-Related Budget Transferred to DVR** **\$ 58.0 M**

- Expended costs included above - \$5.6 M

**Potential Reallocation Back to DVL** **Per Board Direction**





# LOS VAQUEROS RESERVOIR EXPANSION PROJECT

Sites Reservoir  
Committee Meeting

April 19, 2018

# Existing Los Vaqueros Reservoir

- Los Vaqueros Reservoir is an off-stream reservoir in Contra Costa County with a capacity of 160 TAF
- Contra Costa Water District (CCWD) operates Los Vaqueros Reservoir in conjunction with four Delta intakes
- Benefits:
  - Water quality improvements
  - Drought supply reliability
  - Emergency supply

LOS  
VAQUEROS  
RESERVOIR  
EXPANSION  
PROJECT



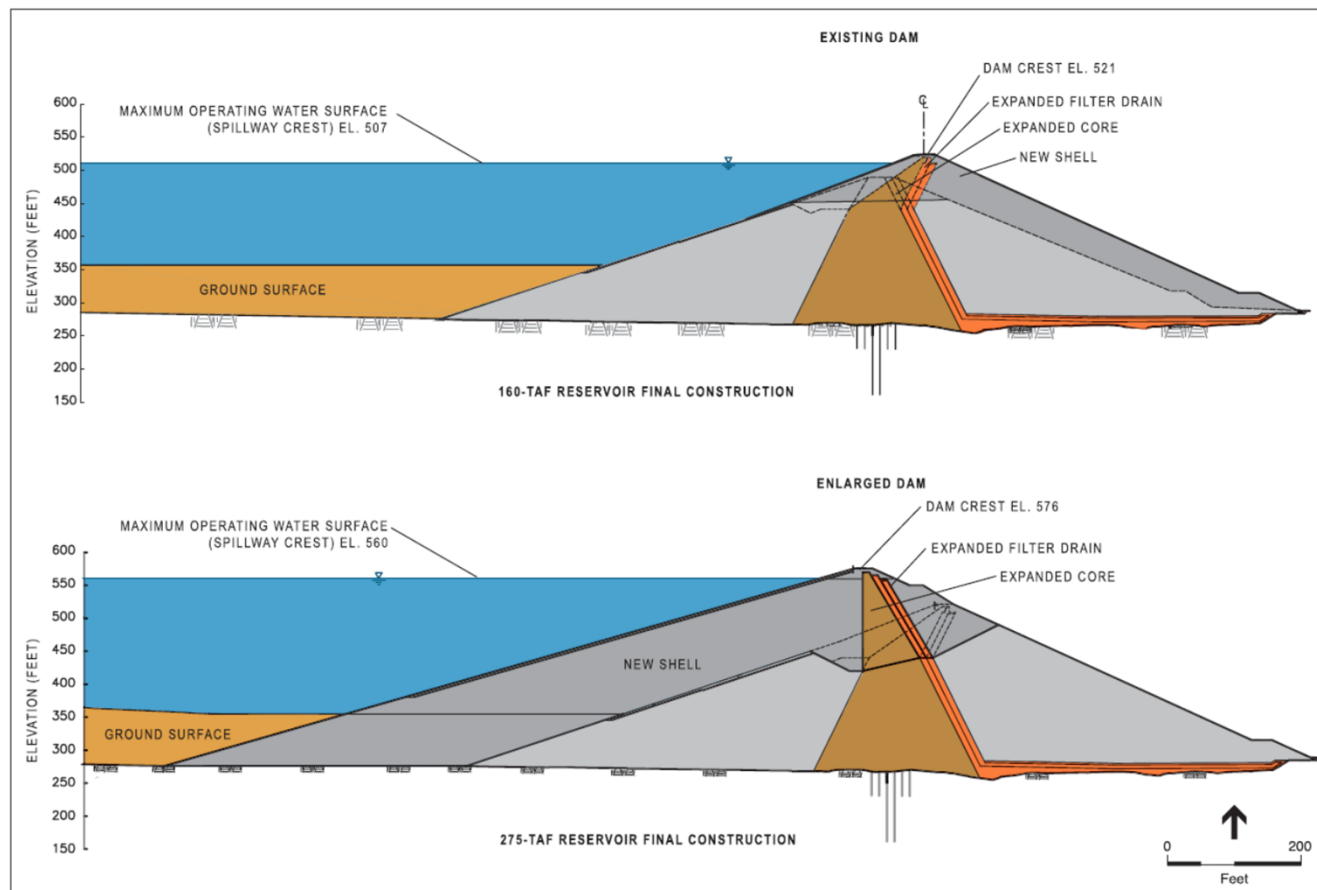


# Overview

- Planning Objectives for Reservoir Expansion established in 2009
  - Primary
    - Develop water supplies for environmental water management
    - Increase water supply reliability
  - Secondary
    - Improve the quality of water deliveries
- Phase 1 Expansion to 160 TAF completed in 2012
  - 2010 Final EIS/EIR analyzed future expansion to 275 TAF
- Phase 2 Expansion to 275 TAF in development
  - 2017 Draft Supplement to Final EIS/EIR and 2018 Draft Federal Feasibility Report analyzed future expansion to 275 TAF

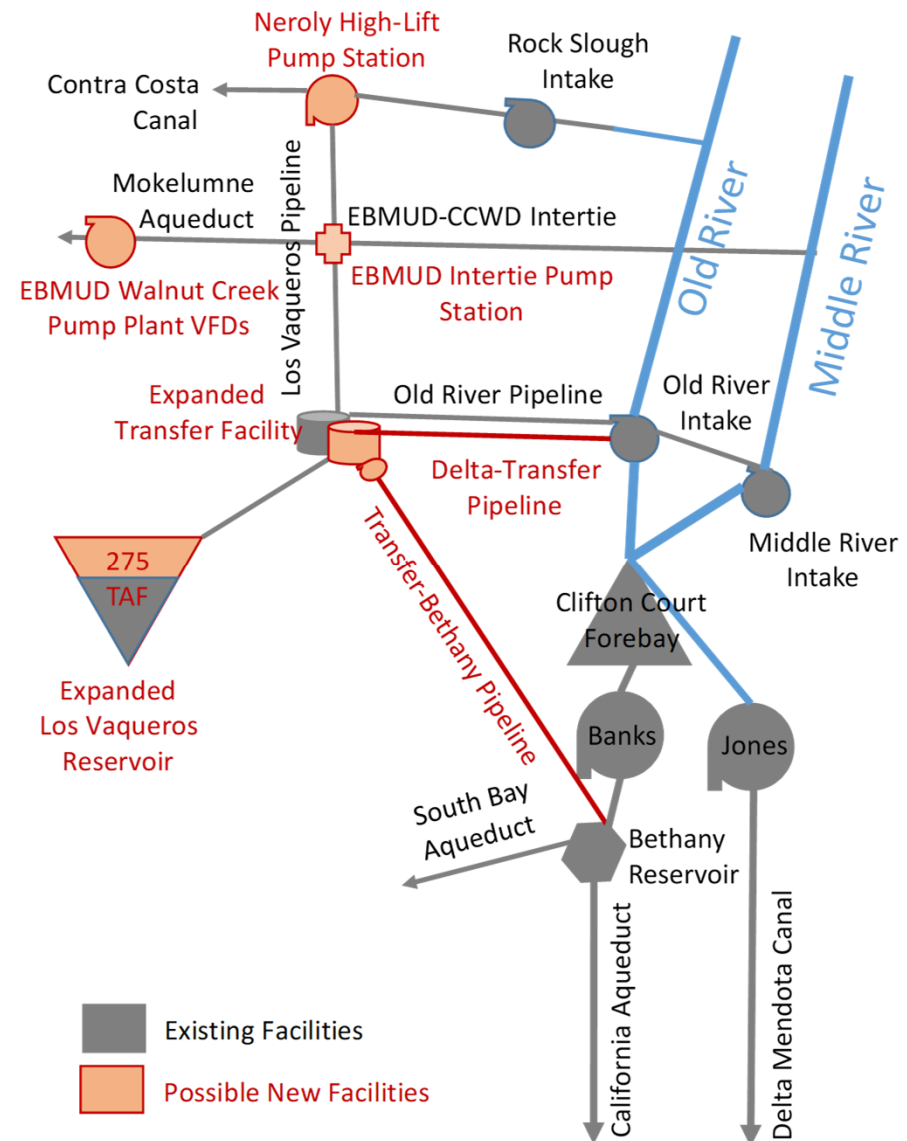


# 275-TAF Dam



# Proposed Facilities

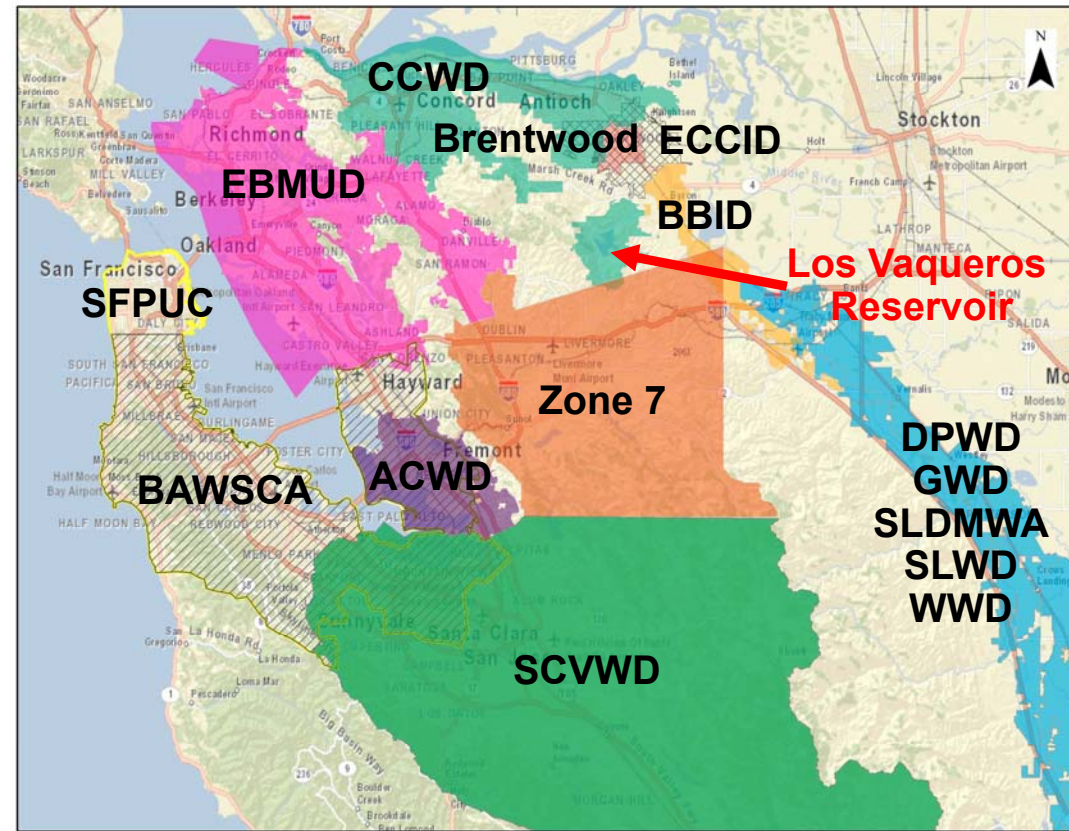
- New Neroly High-Lift Pump Station
- EBMUD system improvements for increased use of EBMUD-CCWD Intertie
- New Delta-Transfer Pipeline
- Expanded Transfer Facility
- New Transfer-Bethany Pipeline
- Expanded reservoir capacity of 275 TAF
- Enhanced recreation facilities





# Potential Partners

- Alameda County Water District
- Bay Area Water Supply and Conservation Agency
- Byron-Bethany Irrigation District
- City of Brentwood
- Del Puerto Water District
- Grassland Water District
- East Bay Municipal Utility District
- East Contra Costa Irrigation District
- San Francisco Public Utilities Commission
- San Luis & Delta-Mendota Water Authority
- San Luis Water District
- Santa Clara Valley Water District
- Westlands Water District
- Zone 7 Water Agency





# Public Benefits

- Ecosystem
  - Increased water supply for San Joaquin Valley wildlife refuges
  - Improved survival of salmonids migrating through Delta
- Emergency Response
  - Catastrophic emergency
  - Drought emergency
- Recreation
  - Enhance recreation at Los Vaqueros Reservoir & Watershed



# Non-Public Benefits

- Increased Municipal & Industrial Supply
- Drinking Water Quality Improvements
- Agricultural Supply



# Thank You!

For more information:

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Special Assistant to the General Manager  
Contra Costa Water District  
P.O. Box H20  
Concord, CA 94524  
(925) 688-8018  
[mpatil@ccwater.com](mailto:mpatil@ccwater.com)

- CCWD Project Website  
[www.cewater.com/lvstudies](http://www.cewater.com/lvstudies)
- Reclamation Project Website  
[www.usbr.gov/mp/vaqueros/index.html](http://www.usbr.gov/mp/vaqueros/index.html)



# Alternative Delivery Methods

Reservoir Committee Meeting

April 19, 2018



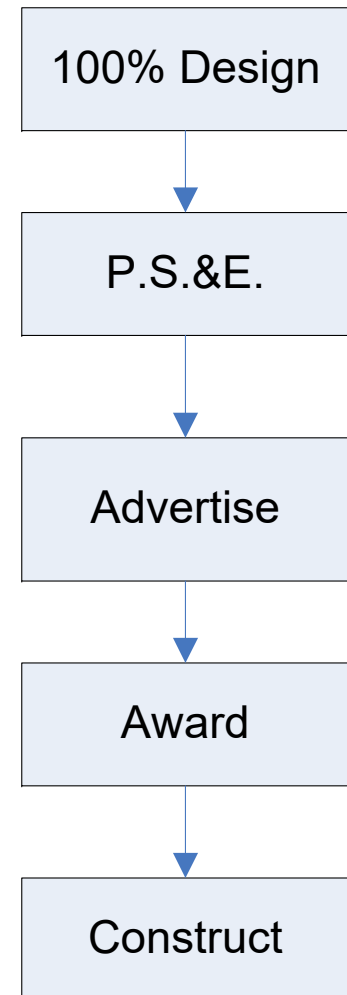
**California Department of Transportation**



# Design-Bid-Build (DBB)

Traditional delivery method where design and construction are performed by two separate entities. Design can be performed “in-house” or can be contracted.

- Design must be complete
- Awarded to the lowest responsible bidder



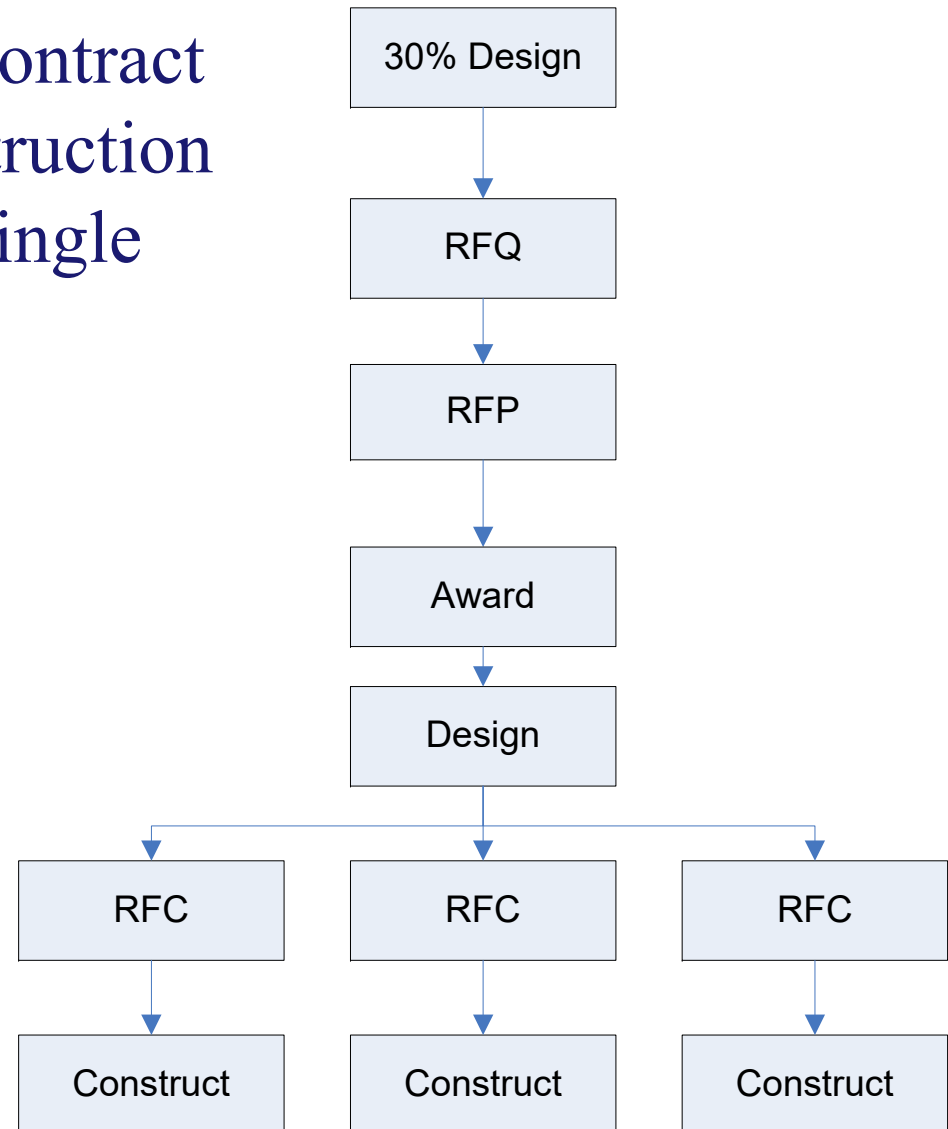
# Design-Build

The image features a dark blue background with a large, lighter blue rectangular area in the center. To the right of this central area, there is a smaller rectangle outlined in orange. A vertical orange line extends from the top edge of the slide, passing through the orange-outlined rectangle. At the bottom of the slide, there is a solid orange horizontal bar. The text "Design-Build" is centered within the large blue area.

# Design-Build

A delivery method where a contract for both the design and construction of a project is awarded to a single entity.

- Awarded to either lowest responsible proposer or best value proposer.



# Demonstration Projects

## Awarded Projects

- |   |               |
|---|---------------|
| ■ LA 710 – <i>Gerald Desmond Bridge</i> | \$650 million |
| ■ I-15 Cajon Pass Rehabilitation        | \$140 million |

## Substantially Completed Projects

- |                                |               |
|--------------------------------|---------------|
| ■ SD 805 – I-805 North HOV/BRT | \$ 72 million |
|--------------------------------|---------------|

## Completed Projects

- |  |               |
|--|---------------|
| ■ Mad 99 – Rehabilitate Roadway                | \$ 23 million |
| ■ SM 101 – Install Ramp Metering System        | \$ 11 million |
| ■ Fre 180 – Construct Braided Ramps            | \$ 41 million |
| ■ North Region Bridge Deck Rehabilitation      | \$ 58 million |
| ■ LA 10/110 – <i>Express Lanes</i>             | \$ 72 million |
| ■ LA 10/605 – Construct EB 10/SB 605 Connector | \$ 46 million |
| ■ SBd 15/215 – Devore Interchange              | \$208 million |

# Design-Build – Pros and Cons

## Pros

- Faster delivery
- Reduced staffing needs
- Innovation
- Control of design
- Earlier cost certainty (award)
- Shortlisting most qualified teams
- Best Value selection
- Risk transfer
- Design competition among teams

## Cons

- Less control over design
- Quality may be subordinate to cost
- Fast pace of reviews
- Steep learning curve for staff
- Defining the project at 30% design
- Setting proper stipends
- Undocumented preferences/practices



# **Construction Manager-General Contractor Pilot Program**

# What is CMGC?

## *Two-Phase Contract*

### ○ **PRE-CONSTRUCTION**

Construction  
Manager

#### **Professional Services**

- *Cost Estimating*
- *Subcontracting Plan*
- *Scheduling*
- *Material Procurement*
- *Utility Coordination*
- *Construction Phasing*
- *Constructability Review*
- *Risk Analysis*
- *Quantity Verification*
- *Third Party Negotiation*

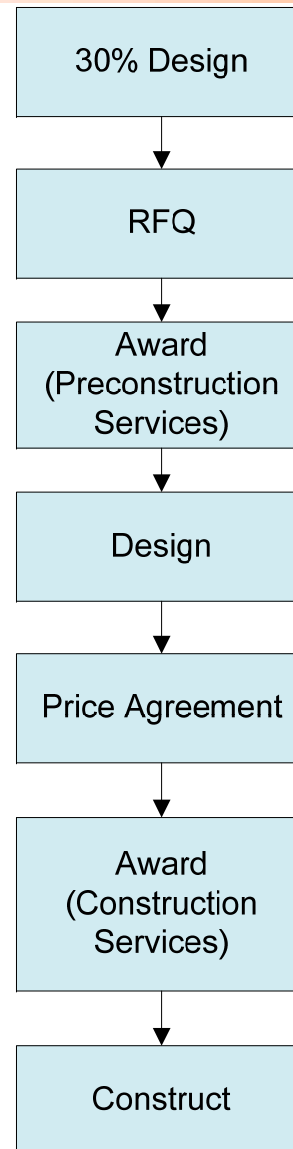
### ○ **CONSTRUCTION**

General  
Contractor

#### **Construction Services**

 **Price Agreement**

# CMGC Process





# Projects

## Awarded Projects (Preconstruction Services)

■ Fre 99 – Freeway realignment for High Speed Rail	\$155 million
■ Mpa 140 – Ferguson Slide Restoration	\$ 52 million
■ SF/Ala 80 – SFOBB Foundation Removal	\$116 million
■ SD 5 – Improve I-5, Rail, and Transit	\$606 million
■ SBd 215 – Reconstruct Barton Road Interchange	\$ 79 million
■ SBd 58 – Convert to 4-lane Freeway	\$158 million

## Awarded Projects (Construction)

■ Mpa 140 – Ferguson Slide Restoration (portion)	\$ 16 million
■ SF/Ala 80 – SFOBB Foundation Removal (portion)	\$ 15 million
■ SF/Ala 80 – SFOBB Foundation Removal (remainder)	\$101 million
■ Fre 99 – Freeway realignment for High Speed Rail (portion)	\$ 27 million
■ Fre 99 – Freeway realignment for High Speed Rail (remainder)	\$128 million
■ SD 5 – Improve I-5, Rail, and Transit (portion)	\$220 million

# CMGC – Pros and Cons

## Pros

- Improved constructability
- Innovation
- Control of design
- Contractor selection based on qualifications
- Earlier cost certainty
- Delivery in packages
- Reduced cost growth during construction
- Improved risk allocation/mitigation
- Improved partnering

## Cons

- Higher support costs
- Single “bidder”
- Estimate reconciliation process (bid-based vs cost-based)
- Redesign efforts to implement contractor’s suggestions

# Alternative Delivery Success Factors

- Legislation
- People
- Project Selection
- Procurement Timing

# Red Bluff Pumping Plant and Fish Screen



RECLAMATION

# Red Bluff Pumping Plant and Fish Screen

- **Points for Discussion**
  - Division of Work
  - Multiple Agency Involvement
  - Issue Resolution Process

RECLAMATION