Unique Opportunity for Ecosystem Enhancement, Improved Water Supply Reliability, and Emergency Water Supply

Valley Water – Board of Directors Meeting January 12, 2021



Pacheco Reservoir Expansion Project Update: Preliminary Project Alternatives

Presented by Ryan McCarter, Pacheco Project Delivery Unit Manager



Attachment 2 Page 1 of 17





valleywater.org

WSIP Application Concept

- **Dam** approximately 300 feet high, one location under consideration
- Reservoir up to 140 thousand acre-feet (TAF)
- **Spillway** capable of passing the Maximum Probable Flood
- Intake/Outlet Works large diameter pipe, smaller outlet pipe to Pacheco Creek
- Pump Station & Conveyance Pipeline to transfer water to and from Pacheco Conduit
- Roadways access to and from SR 152





Project Cost Estimate History

Year	CIP Estimate	Estimate with future inflation (CIP calc.)	
2017	\$969,000,000	N/A	2015 dollars for WSIP Application
2019	\$1,182,004,000	\$1,345,000,000	No construction cost changes from WSIP estimate
2020	\$2,203,321,000	\$2,519,622,000	*NEW CONSTRUCTION ESTIMATE*



Attachment 2 Page 5 of 17

Factors contributing to \$1B construction cost increase





Attachment 2 Page 6 of 17



Primary Variations Between Alternatives

- Dam Site Location
- Reservoir Size
- Dam Type

Pictured above: Earthfill Dam Construction in Bay Area



Attachment 2 Page 7 of 17

Upstream Dam Site

Downstream Dam Site

Confluence of North Fork Creek and South Fork Creek

Dam Site Location

Two Dam Site Locations

- Downstream Dam Site
 1.0 mile upstream from confluence
- Upstream Dam Site
 2.2 miles upstream from confluence
 Narrower geographic features



Attachment 2 Page 8 of 17



Pictured above: Earthfill Dam at Downstream Dam Site with 140,000 acre-feet Expanded Reservoir

Reservoir Size

Two Reservoir Sizes

- 140,000 acre-feet
 Downstream Dam Site
 Upstream Dam Site
- 96,000 acre-feet
 Upstream Dam Site



Attachment 2 Page 9 of 17

Existing Core Filter Ground Surface Shell



Dam Types

Two Dam Types

- Earthfill Dam
- ✓ Zoned, compacted earth fill
- ✓ Dam, spillway, inlet/outlet separate structures
- Hardfill Dam
- ✓ Roller-compacted rock with cement
- ✓ Spillway and inlet/outlet integrated into dam structure





Attachment 2 Page 10 of 17

- Downstream Site
- Earthfill Dam \checkmark
- 140,000 AF \checkmark



- ✓ DownstreamSite
- ✓ Hardfill Dam
- ✓ 140,000 AF



✓ Upstream Site
✓ Earthfill Dam
✓ 140,000 AF



✓ Upstream Site
✓ Hardfill Dam
✓ 140,000 AF



- ✓ Upstream Site✓ Earthfill Dam
- ✓ 96,000 AF



Summary of Preliminary Alternatives

Preliminary Alternative #	Facilities Variations		ions		
	Dam Site Location	Expanded Reservoir Size	Dam Type	Notes	Estimated Cost
1	Downstrea m	140,000 AF	Earthfill	 Similar to WSIP application Spillway and inlet/outlet works are separate from dam 	\$2.52 B
2	Downstrea m	140,000 AF	Hardfill	 Spillway and inlet/outlet works are integrated into dam Potentially shorter construction duration Technical/permitting challenges 	\$2.19 B
3	Upstream	140,000 AF	Earthfill	 Narrower dam (less embankment volume) Spillway and inlet/outlet works are separate from dam Encroaches into Henry Coe Park at full pool 	\$2.25 B
4	Upstream	140,000 AF	Hardfill	 Narrower dam (less embankment volume) Spillway and inlet/outlet works are integrated into dam Potentially shorter construction duration Technical/permitting challenges Encroaches into Henry Coe Park at full pool 	\$2.12 B
5	Upstream	96,000 AF	Earthfill	 Narrower and smaller dam Spillway and inlet/outlet works are separate from dam Provides 31% less reservoir capacity 	\$2.09 B Attachment 2 Page 16 of 17

Questions?

Subscribe and Follow



@valleywater

f

@valleywater

https://www.valleywater.org/pachecoexpansion

@valleywater

Valley Water

Attachment 2 Page 17 of 17 THIS PAGE INTENTIONALLY LEFT BLANK