From: Ben King <bking@pacgoldag.com>
Sent: Friday, June 12, 2026 2:32 PM
To: Jensen, Laura@DWR <Laura.Jensen@water.ca.gov>
Cc: Steiner, Fern@CWC <Fern.Steiner@cwc.ca.gov>
Subject: Undisclosed Dunnigan Pipeline Construction and Management Costs - Public Comment Background For June 17,2026 Meeting

Dear Executive Director Jensen and Chairperson Steiner,

As you know we support the Sites Reservoir Project but believe the Dunnigan Pipeline is an ill-conceived conveyance plan due to subsidence risk for the Tehama Colusa Canal and the likely water quality impacts for the Colusa Basin Drain. The Dunnigan Pipeline will also allow Environmental Flows to circumvent a six-mile stretch of the Colusa Basin Drain south of the Davis Weir Bladder Dam and Balsdon Weir where our 250 acre wetlands are located. The proposed Dunnigan Pipeline will materially harm our riparian habitat and ecosystem and harm our real property and water rights for Colusa Basin Drain flows.

Since the last meeting of the California Water Commission it has become apparent that the Sites Authority intentionally omitted a cost component for the construction costs of the Dunnigan Pipeline and most likely significantly underestimated O&M costs for the operation of the use of the Colusa Basin Drain for the conveyance of Sites Water.

In the attached excerpt of the Sites Reservoir Feasibility Report you can see that Sites only disclosed a construction costs for the portion of Dunnigan Pipeline to the Colusa Basin Drain of $ 93.8 million. At the May 22, 2026 meeting for the Sites Authority it was disclosed that the authority had a cost estimate of $ 129 million for construction for the extension of the Dunnigan Pipeline from the Colusa Basin Drain to the Sacramento River. This cost is now $ 236 million. This costs was completely omitted from the disclosed costs in the 2021 Feasibility Report. There should have been some discussion and allocation of costs for the Dunnigan Pipeline extension in the 2021 Report. In our opinion, there is a significant probability that the Sites Project will be enjoined from discharging water into the Colusa Basin

Drain due to mercury and harmful algae bloom contamination issues after the Reservoir is constructed. In our opinion the proposed Dunnigan Pipeline is negligently designed without the extension to the Sacramento River because of the foreseeable and likely water quality and water temperature negative impacts of only having the Pipeline flow to the Colusa Basin Drain and this may be the basis for a future injunction.

The costs for the extension were known to be $ 129 million at the time of the Feasibility Report but were not disclosed. Additionally the Sites Authority is estimating an annual O&M for the use of the Colusa Basin Drain to be approximately $ 100 million which appears to be underestimated in the 2021 Feasibility Report.

Thank you for your time and consideration

Best Regards,

Ben King
Manager
T&M King Farms, LLC

Sites Reservoir Feasibility Report

Prepared for the California Water Commission

November 2021

TABLE 5-24. SUMMARY OF CONSTRUCTION COSTS

Facility	Total Project Cost (2019)	Total Project Cost (2021)
Develop Sites Reservoir, including Sites Lodoga Road, Clearing and Demolition	$220,600,000	$227,400,000
Other Roads (Project and Recreation)	$68,800,000	$70,900,000
South Road to Residents	$44,200,000	$45,500,000
Sites Lodoga Road Bridge	$167,600,000	$172,700,000
North Construction Access Road	$28,400,000	$29,300,000
Construct Sites Dam and Golden Gate Dam	$1,025,200,000	$1,056,800,000
Construct Saddle Dams	$470,300,000	$484,800,000
Construct TRR	$205,600,000	$212,000,000
Funks Reservoir Dredging/Structures	$38,900,000	$40,000,000
Hunters Creek Release Structures	-	-
Construct I/O Structure and Tunnels for Reservoir	$255,700,000	$263,600,000
Construct TRR Pumping/Generating Plant	$109,400,000	$112,700,000
Construct Funks Pumping/Generating Plant	$111,000,000	$114,400,000
Construct Funks Release Channel	-	-
Red Bluff Pump Addition	$4,700,000	$4,900,000
Construct TRR Pipeline	$220,100,000	$226,900,000
Construction Dunnigan Pipeline to CBD (1,000 cfs)	$93,800,000	$96,700,000
Release Structure	-	-
Transmission Lines, Substations, Switchyards	$151,900,000	$156,600,000
General Property, including Recreation Areas and OM&R Facilities	$32,000,000	$33,000,000
Mitigation	$562,500,000	$579,400,000
GCID Improvements	$6,400,000	$6,600,000
Total	**$3,817,100,000**	**$3,934,200,000**

Notes:
CDB = Colusa Basin Drain
cfs = cubic feet per second
GCID = Glenn-Colusa Irrigation District
I/O = inlet/outlet
OM&R = operation, maintenance, and replacement
TRR = Terminal Regulating Reservoir

TABLE 5-28. COST SUMMARY – NET PRESENT VALUE ($MILLIONS, 2021$)

Expense	Cost – NPV (2021$)	
	IDC – WSIP TG (@ 3.5%)	*IDC – JPA (@ 2.6%)*
Capital Cost	$4,431	$4,295
Construction (Including Env. Mitigation)	$3,934	$3,934
Interest During Construction	$497	$360
OM&R	$502	$502
Conveyance	$450	$450
Total Cost	**$5,384**	**$5,247**

Notes:
IDC = Interest During Construction
JPA = Joint Powers Authority
NVP = net present value
OM&R = operation, maintenance, and replacement
WSIP TG = Water Storage Investment Program Technical Guidance

The total capital cost of Sites Reservoir is estimated to have an NPV of $4,431 million using the WSIP IDC Scenario. The Project's total capital cost would decrease to $4,295 million under the JPA recommended IDC scenario.

When the Project's expected future OM&R and Conveyance expenses over the future 93-year operating period are added, the Project's total future lifecycle cost is estimated to have an NPV of $5,247 million (under the WSIP IDC scenario).

5.5 Findings

5.5.1 Benefit Cost Analysis Results

The updated BCA determined that the Project would result in total net benefits with a NPV of $190 million (in 2021 dollars) using the WSIP IDC Scenario (see Table 5-29). Under the JPA-recommended IDC scenario the Project's total net benefits would increase to $326 million (in 2021 dollars).

TABLE 5-29. BENEFIT-COST ANALYSIS RESULTS ($MILLIONS; 2021$)

Results	Project w/ IDC – WSIP TG	Project w/ IDC – JPA
Total Benefits – NPV [(a)]	$5,573	$5,573
Total Cost – NPV	$5,384	$5,247
Net Benefits – NPV	$190	$326
Benefit Cost Ratio	1.04	1.06

Note:
(a) Includes the project's Residual Value (2123).
IDC = Interest During Construction
JPA = Joint Powers Authority
NVP = Net present value
WSIP TG = Water Storage Investment Program Technical Guidance

Meeting: **Reservoir Committee & Authority Board** **May 22, 2026**
Agenda Item 3.1

Subject: **Lower Colusa Basin Drain (CBD) System Costs Updates for Project Baseline Report**

Requested Action:

Receive Lower Colusa Basin Drain System project cost updates for the Project Baseline Report.

Detailed Description/Background:

The Sites Reservoir Project (Project) plans to utilize existing conveyance systems as part of the operations of the Project, including the lower portion of the CBD and associated facilities ("Lower CBD System"). As development of the Project Baseline Report advances, staff has reviewed whether current cost assumptions adequately reflect potential risks and operational considerations- associated with using the Lower CBD to convey Sites water to the Sacramento River for South of Delta deliveries.

Current Lower CBD Costs:

The June 2025 project cost estimate reviewed by the Board does not specifically include capital costs for improvements in the Lower CBD system beyond the Dunnigan pipeline outfall structure. However, there are 2025 cost estimate elements that could be considered available for Lower CBD improvements, including (1) a portion of the non-contract costs could be used for additional modeling analysis and flow monitoring, and (2) a risk-based design contingency determined based on the 2025 estimated cost to extend the Dunnigan pipeline to the Sacramento River.

Lower CBD System Costs Updates:

The need to develop an itemized cost estimate for CBD improvements rather than using contingency was identified as a Conditions Precedent prior to entering the investor commitment period following the October 2025 participant tour.

Through modeling advancements, coordination with the Lower CBD stakeholders, and analysis since the participant tour, the following costs are recommended to

be added to the upcoming 2026 project cost estimate to be included in the Baseline Report:

1. **Lower CBD system O&M (add)**: This additional cost item covers the Authority's costs for Site's portion of Lower CBD system maintenance and Site's contract operations.
2. **Flowage Agreements (add)**: Includes costs for development and execution of flowage agreements with Landowners to gain rights for conveying water through the Lower CBD system.
3. **Risk Based Contingency for Extending the Dunnigan Pipeline to the Sacramento River (update)**: Includes the cost updates that will be provided in the Conveyance Capacity TM for extending Dunnigan Pipeline to the River.

Based on recent hydraulic modeling updates and input from the Lower CBD working group, the berm improvements that were envisioned at the time of the October 2025 tour are no longer recommended. Berm improvements would expose the Authority to real and perceived flood risk liability and would have agricultural and conservation easement land impacts that may not be acceptable to entities and individual landowners along the Lower CBD.

Lower CBD solutions have shifted to operational solutions (i.e., operating to maximum water surface elevations, maximum Lower CBD flow rates). Additional flow monitoring, cross-sectional data, and landowner coordination will be key next steps toward Lower CBD model accuracy, which will be used to set operational boundaries and lay the groundwork for operations in the Lower CBD system.

Other Lower CBD System Costs to Consider:

Two additional items in the Lower CBD system to consider that may impact project performance are (1) Lower CBD System Losses, and (2) Lower CBD System Missed Release Opportunity Costs.

Lower CBD System Losses

Lower CBD system losses could be caused by evapotranspiration, seepage, out of channel flow loss, start-up filling of the Lower CBD, and potential unauthorized diversion of Sites Water. Additional details on the factors contributing to potential losses and the valuation of these losses will be addressed in the Baseline Report after being discussed with the O&E Committee.

Lower CBD Missed Release Opportunity Costs

In addition to the losses, the opportunity cost of not being able to convey Site's water when the ambient Lower CBD flows are too high also should be acknowledged. Based on the available Lower CBD stage level data at the discharge to the Sacramento River, high flows in the Lower CBD are more rare than low flows during the transfer window. How the Lower CBD system hydraulic limitations will impact project performance requires additional flow monitoring, hydraulic modeling, analysis, and coordination with the operational model. This more extensive analysis can be accomplished immediately following the start of Phase 3.

Costs for Extending the Dunnigan Pipeline to the Sacramento River

An alternative examined in the Final EIR/EIS but not selected within the approved project is delivery of project releases to the Sacramento River by extending the Dunnigan pipeline directly to the river. Construction costs to extend the pipeline to the Sacramento River will be addressed in the Baseline Report after being discussed with the O&E Committee. It is also of note that upon initiating preliminary design for extending the pipeline to the river, it will take 6-7 years for design, CEQA/NEPA, permitting, geotechnical investigations, land acquisition and construction to be completed prior to the extended pipeline being in operation.

In conclusion, to address Lower CBD system unknowns staff is seeking Board feedback on the following concept approach:

1. Update Lower CBD costs in the Baseline report to include O&M, flowage agreements, and updating the risk-based contingency for extending the Dunnigan pipeline to the Sacramento River. This is estimated to add approximately $100,000,000 to the management budget for the downstream facilities.

2. Upon initiation of Phase 3, proceed with board approved studies and evaluations necessary to proceed with a dual strategy of i) continuing work on the use of the Lower CBD system and ii) proceed with further conceptual analysis of an extension of the Dunnigan Pipeline to the Sacramento River as more is learned about use of the Lower CBD system.

Prior Action:

March 2026: Receive an update on Lower Colusa Basin Drain System conditions precedent to Investor Commitment.

Fiscal Impact/Funding Source:

There are sufficient funds in the Amendment 3 work plan to pay the costs related to this effort in 2026. Initiation of schedule critical activities for the Pipeline to River will be covered in Phase 3/4/5 (i.e., 2027 and beyond).

Staff Contact:

JP Robinette/Rob Natoli

Primary Service Provider:

HDR/Jacobs

Reservoir Committee and Authority Board Meeting

Agenda Item 3.1: Lower CBD Cost Updates for the Project Cost Estimate

May 22, 2026

Sites

Current Cost Included for the Lower CBD

- Risk based contingency for Extending Dunnigan Pipeline to the Sacramento River – $64,750,000
- Non-Contract Costs: Portion used for Lower CBD Flow Monitoring and Hydraulic Modeling Analysis

Lower CBD Cost Updates

- Berm Improvements
- Operations & Maintenance
- Flowage Agreements
- Risk Based Contingency

Addition of Berm Improvements Costs are Not Recommended

- **New Berms expose Sites to assume flood risk in winter operations due to real or perceived impacts**
- Operate to max. WSEL levels / max flows in the CBD and modulate Sites flows when/if ambient flows are high in the Lower CBD
- Conservation easement land and Agricultural land both have berm impact issues (O&M, drainage, access)

O&M and Flowage Agreements

- Operations and Maintenance costs added for Lower CBD items such as:
  - Weed abatement
  - Flow monitoring and metering program
  - Dredging / clean up
  - Other Contract Operations
- Flowage Agreements
  - Adding costs for development and execution of flowage agreements

Risk Based Contingency Updates

- Extension of Dunnigan Pipeline to the River costs (without design contingencies) rose from $129m to $236m in draft Conveyance Capacity TM.
  - With 50% likelihood of occurrence this accounts for an additional $54m
- Drivers on Cost Differential:
  - Detailed bottom-up estimate vs. original Unit price per LF
  - Added valve vault, tunneling, and increased to costs per linear foot for pipeline installation
  - Dewatering assumptions were increased which impacted costs per LF.

Additional Lower CBD Considerations

Lower CBD Operational Losses

- Evapotranspiration
- Seepage
- Overflows onto adjacent Lands
- Start up filling of Lower CBD
- *Offsetting Losses: Ambient Lower CBD flows*

Opportunity Costs of High Flows in Lower CBD Impacting Sites Releases

- Rice field drain: Typically, 1-2 weeks late August / early September (+/-)
- Fall Storms

Recommend Cost Changes for Baseline Report Project Cost Estimate

- Add approximately $100,000,000 to the management budget for the Lower CBD
- Add to plan of finance Lower CBD O&M annual budget
- Upon initiation of Phase 3, proceed with board approved studies and evaluations necessary to proceed with a dual strategy of:
  - Continuing work on the use of the Lower CBD system
  - Additional conceptual analysis of an extension of the Dunnigan Pipeline to the Sacramento River as more is learned about use of the Lower CBD system.

Questions?

Bullpen

Potential NPV Costs of Measurement Differential (i.e. Losses)

- NPV Calculation Assumptions:
  - $2,000/AF
  - 50-year lifecycle (1st 8 years no water)
  - 2% discount rate
  - Water right application – Top Speed scenario used, used average annual flow
- NPV Results for estimated loss range:

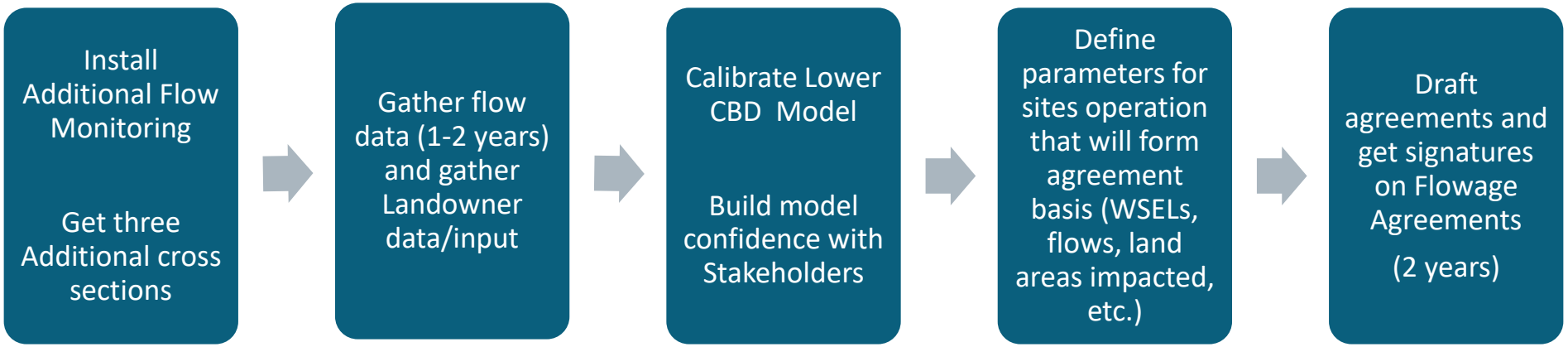
50-year NPV w/ 2% Losses	50-year NPV w/ 5% Losses
$134m	$334m

Recall: Conveyance water losses in CBD estimated around 2 to 5%

- Pipeline to River Construction Cost Addition $315m

Key Takeaway: The NPV cost of losses around 5% are similar to the construction costs of a pipeline to the river

Key Steps to Setting Operational Parameters and Establishing Flowage Agreements

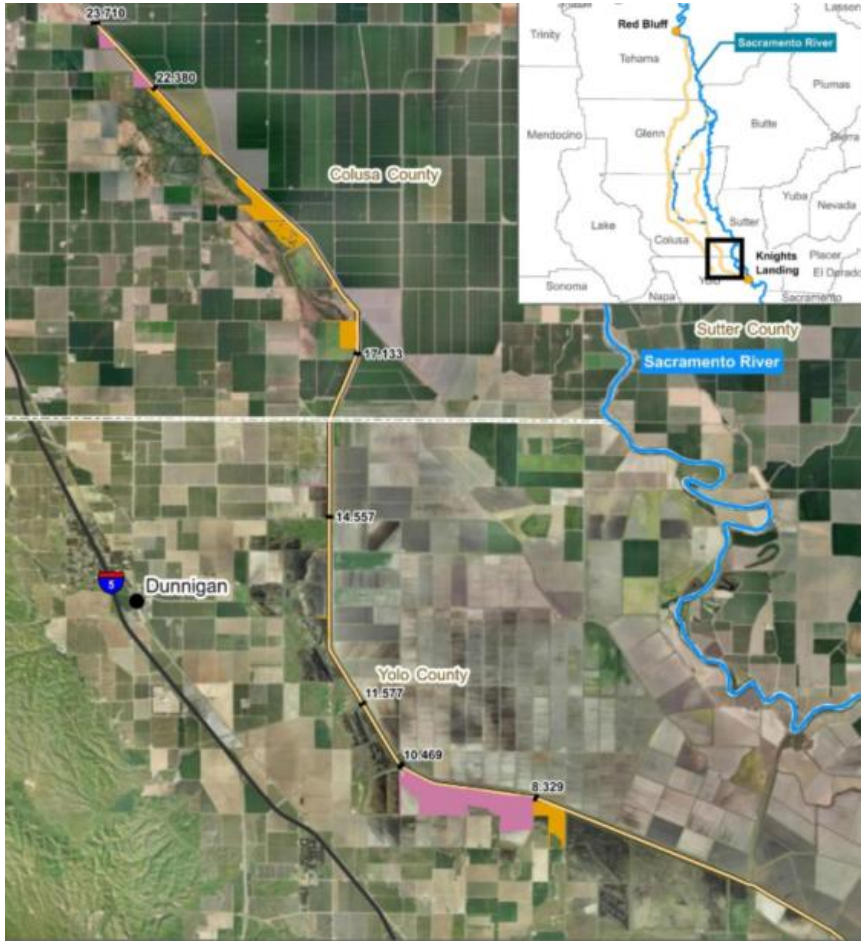


- Process on hold until 2027
- Calibrated model needed to hone Lower CBD Sites capacity impacts during transfer window from:
  - 2 weeks +/- of rice field drain (Late August/Early Sept)
  - Fall storms
- Operational Parameters timeline: 2029-30
- Flowage Agreement timeline: 2031-32

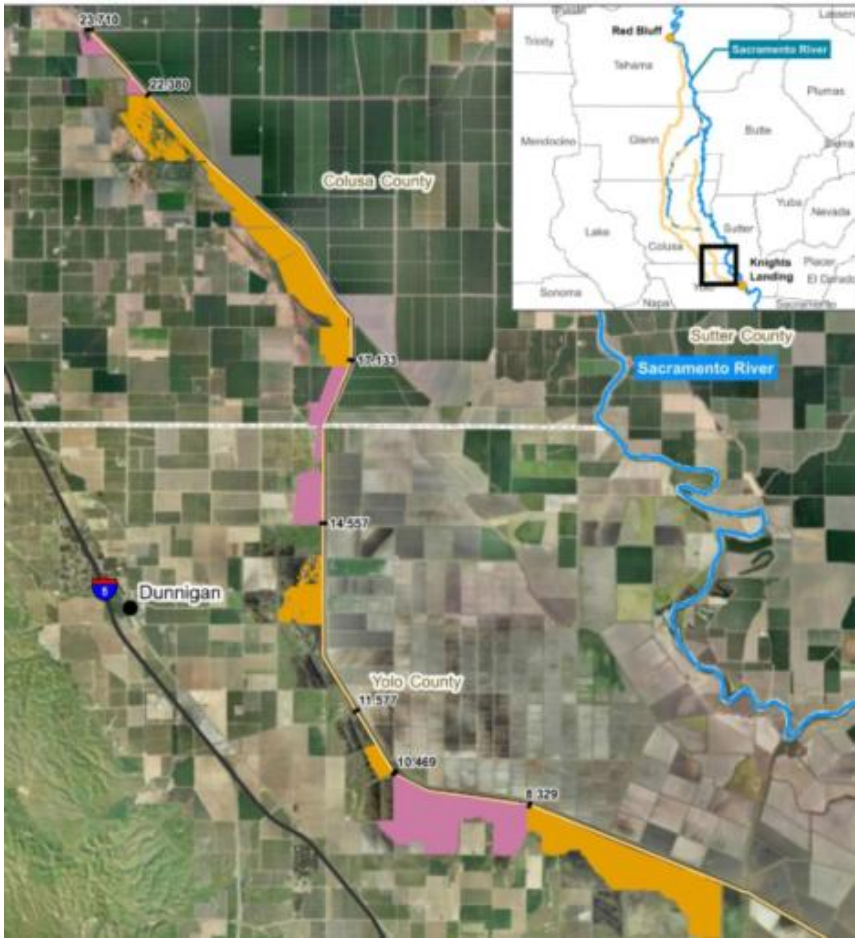
Pipeline to River Considerations

- Preliminary Assessment of Pipeline to River
  - Access, crop, and leased land impacts
  - Discharge location coordination
  - CBD benefits missed = missed opportunity
- Meeting planned with RD 108 to discuss Pipeline to River in more detail in Late May
- Once decision made to start pipeline to river, flowing water through pipe will take 6-7(+/-) years
  - Time and costs associated with Design, CEQA/NEPA, Geotech, permitting, land acquisition/easements, final design, construction, O&M
  - **Total other costs: $75m**

3/26 Lower CBD Working Group Modeling Results Presented



Ambient Conditions during Late August Peak Flow (1,870+/- cfs)



Ambient Peak (1,870 cfs) + 1,000 cfs from Sites

How Flow is Measured through the Lower CBD

- In accordance with agreements that the Authority is working on with DWR and Reclamation, releases through the Dunnigan pipeline are **required to be measured prior to entering the lower CBD and as conveyed through KLOG**.
- The Sites Authority **will be credited for the lesser** of (1) Sites releases measured in the Dunnigan Pipeline (accounting for travel time), or (2) the amount of flow measured through KLOG.
- **Differences between these two measurements are not included in the operations model** as these differences will be measured and credited based on real-time data.

Potential NPV Costs of Measurement Differential (i.e. Losses)

Inputs for Scenario Analysis	Scenario 1	Scenario 2	Scenario 3
Value per Acre Foot of Water (3), in 2026 dollars	$2,000	$2,000	$2,000
Measurement Differential Percentage (Losses)	2.00%	4.75%	5.00%
Years until flow in the Lower CBD, in years	8	8	8
Years of Lower CBD Flows included in NPV Cost Calculations, in years	42	42	42
Discount Rate, as a Percentage (4)	2.00%	2.00%	2.00%

Values from Operational Modeling	Value	Units	Notes
Average Annual PWA SOD Flow through Lower CBD - Top Speed	126,420	AF/year	See Note 1 below
Average Annual PWA NOD Flow through Lower CBD - Top Speed	12,040	AF/year	See Note 2 below
Average Annual NOD + SOD Flow through Lower CBD - Top Speed	**138,460**	**AF/year**	**See Note 2 below**

NPV Calculations for Measurement Differentials	Scenario 1	Scenario 2	Scenario 3
Total NOD + SOD Avg. Annual Flow, in AF	138,460	138,460	138,460
Estimated Measurement Differential, in AF	2,769	6,577	6,923
Annual Value of Measurement Differential, in 2026 Dollars	$5,539,000	$13,154,000	$13,846,000
Net Present Value of Measurement Differential (5)	**$ 133,480,000**	**$ 316,987,000**	**$ 333,663,000**

Key Takeaway: The NPV cost of losses around 5% are similar to the construction costs of a pipeline to the river