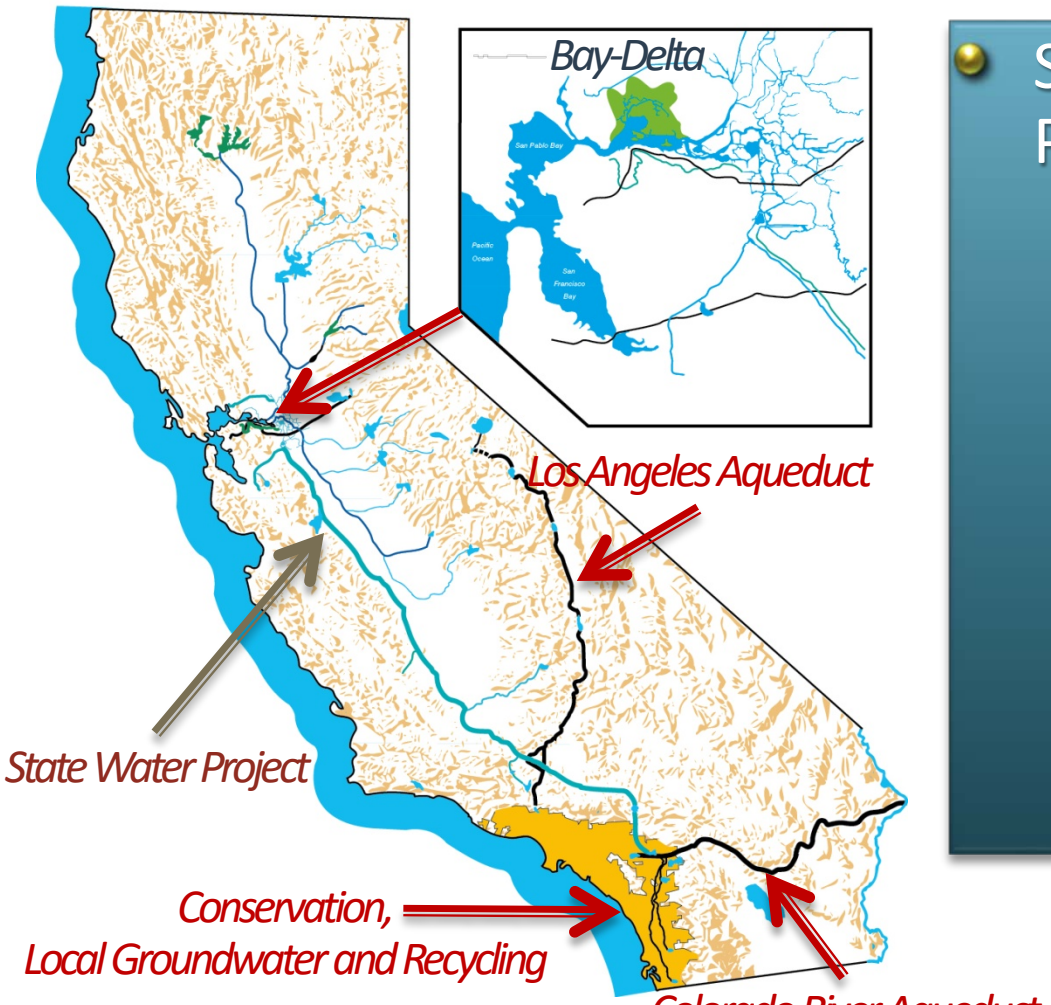
Modernizing the System
California WaterFix

Roger K. Patterson, Assistant General Manager
August 24, 2017
San Diego County Water Authority
Imported Water Committee Meeting

Metropolitan's Service Area Diverse Water Supplies

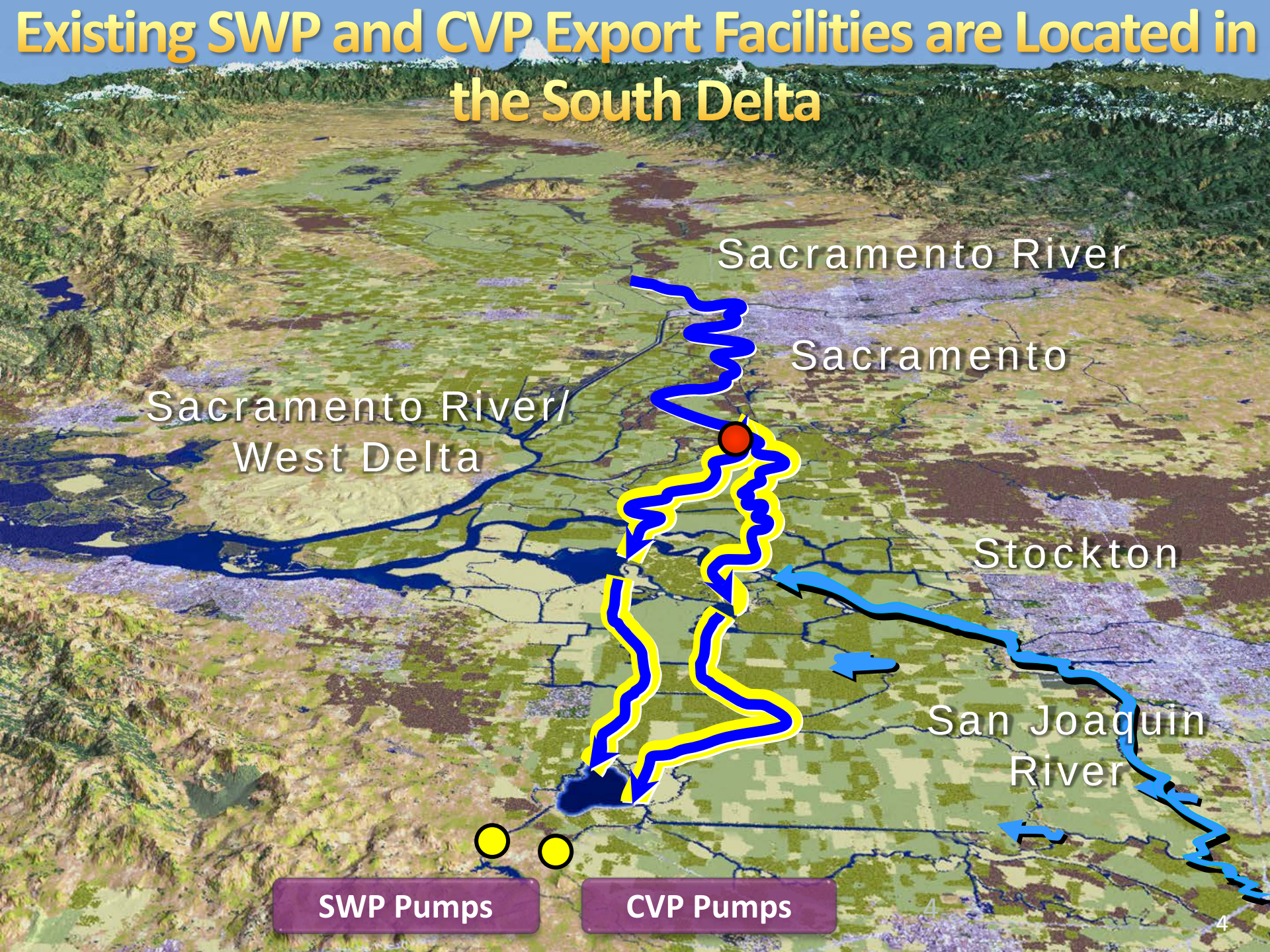


- Southern California Water Portfolio
  - 25% Colorado River
  - 30% State Water Project (through the Delta)
  - 45% Local Supplies
    - Los Angeles Aqueduct
    - Conservation
    - Groundwater
    - Recycling
    - Desalination

Metropolitan's Board Policy Adopted 2007 Benchmarks for a Delta Solution

- Provide water supply reliability
- Enhance ecosystem habitat throughout the Delta
- Allow flexible operations in dynamic fishery environment
- Improve water quality
- Reduce seismic risks
- Reduce climate change risks

Existing SWP and CVP Export Facilities are Located in the South Delta



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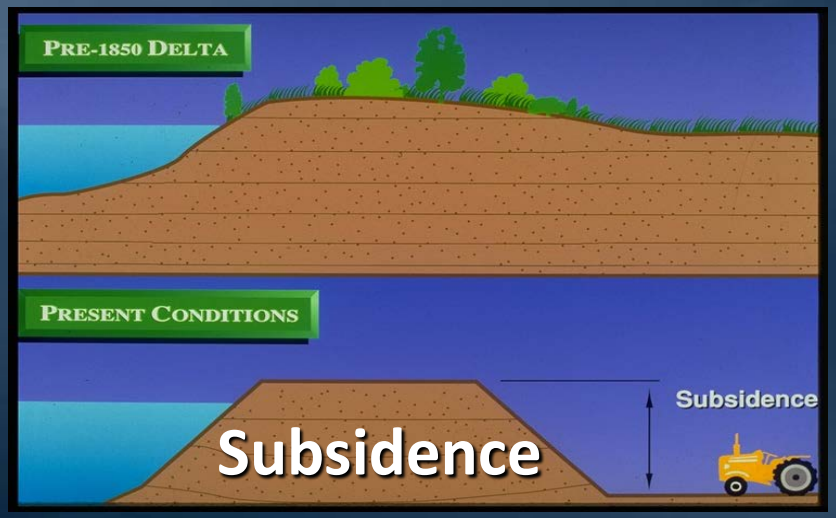
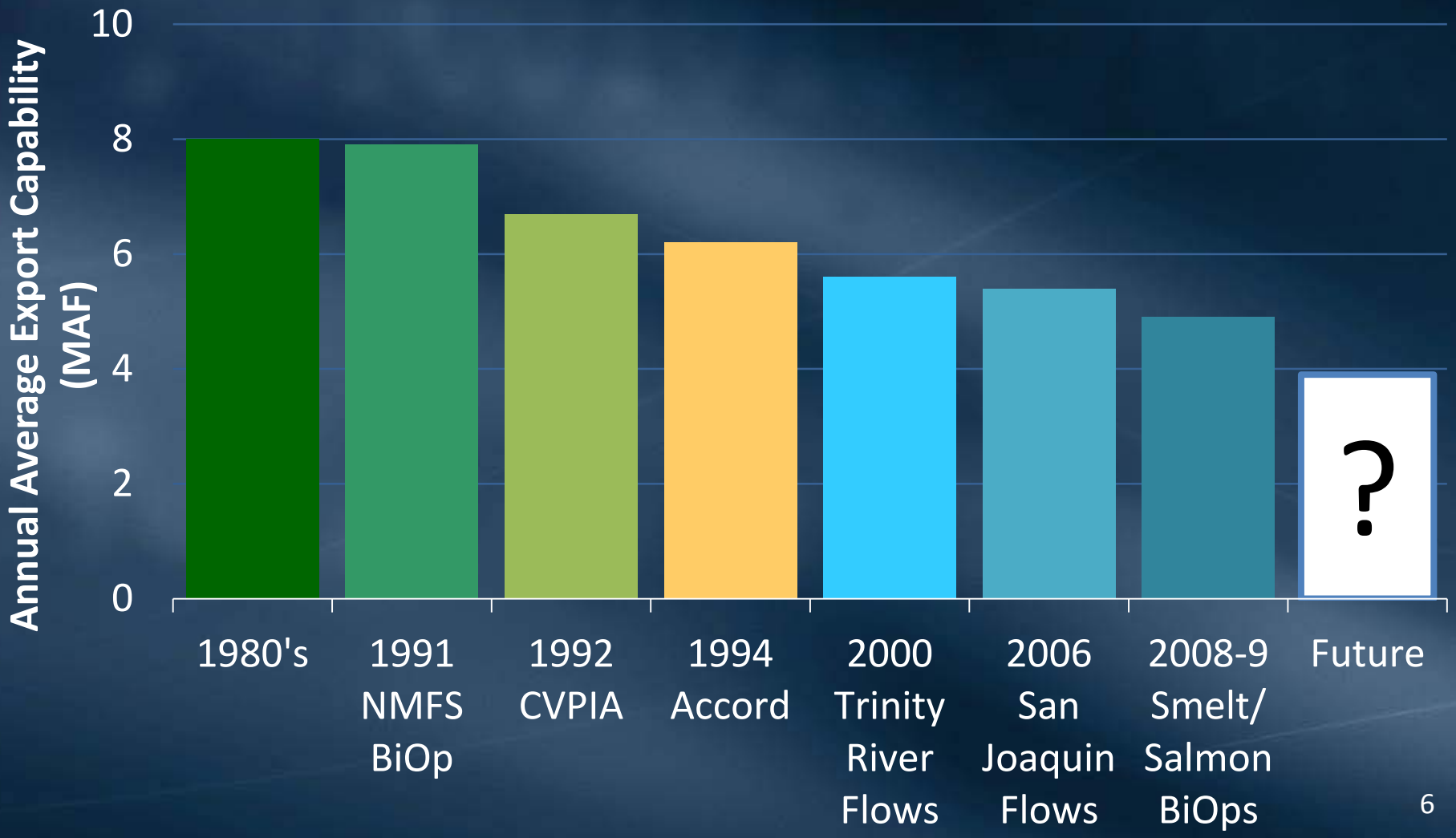
Key Delta Risks



SWP-CVP Export Capability Has Declined Due to Regulations

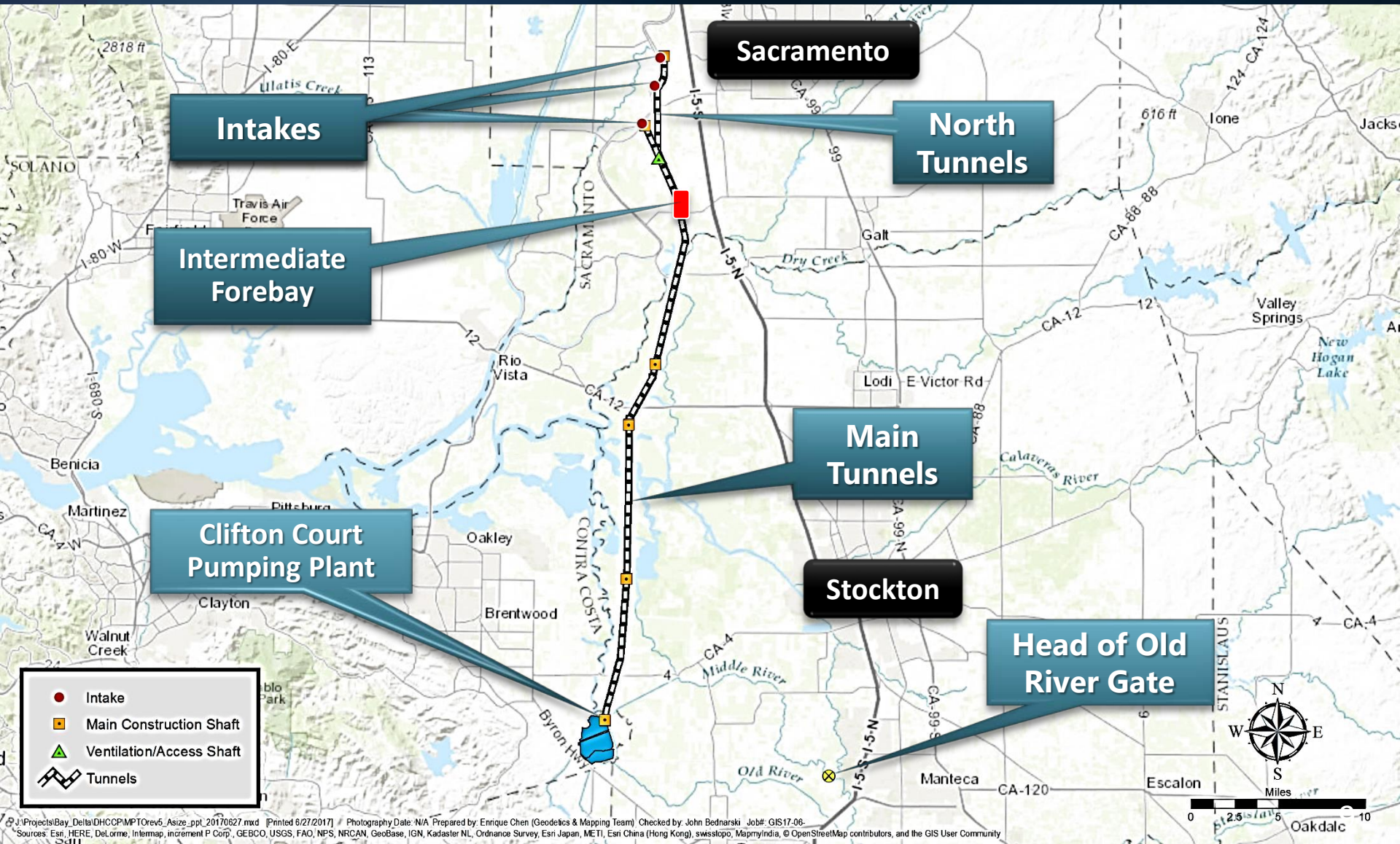


What is the Preferred Solution?

Alternatives Analyzed – State/Federal

- 11 Years – Planning Agreement October 6, 2006
- Public Draft EIR/S
  - 16 alternatives
    - No Action
    - Isolated Conveyance (Pipeline/Tunnel/Canal)
    - Through-Delta
    - Dual Conveyance
- Recirculated EIR/S
  - Three additional sub-alternatives
- California WaterFix
  - Preferred alternative

California WaterFix - Overall Program



Main Tunnels

- Twin bore main tunnels
- 30 miles long each
- 150 ft below grade
- 2-foot thick concrete liner
- 40-ft internal diameter
- Gravity flow

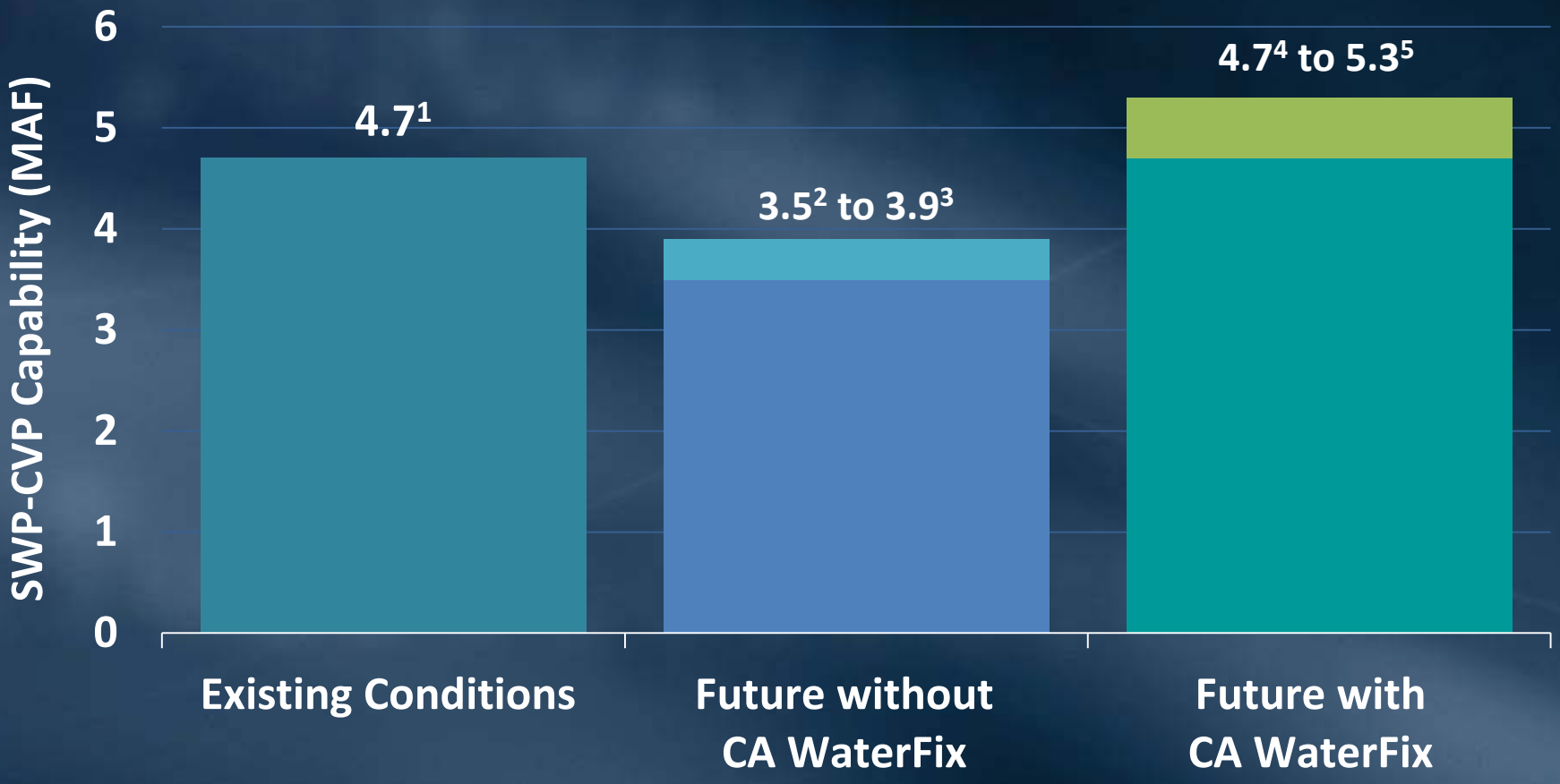
Who will build the Project?

Design and Construct Authority

- Single-purpose organization – Joint Powers Authority
- Under contract with State DWR
- Independent staffing
- World-class expertise and methods
- Sunsets at completion of project commissioning

What are the Project Benefits?

Total Average Delivery Capability With and Without CA WaterFix



[1] California WaterFix EIR/EIS No Action Alternative, existing conditions with 2025 climate change impacts
[2] 2015 Delivery Capability Report Existing Conveyance High Outflow scenario
[3] 2015 Delivery Capability Report Existing Conveyance Low Outflow scenario
[4] California WaterFix EIR/EIS Alternative 4A-H4, initial operating criteria lower range
[5] California WaterFix EIR/EIS Alternative 4A-H3, initial operating criteria upper range

North Delta Bypass Criteria Protect Flows, Water Quality, and Fish

Metropolitan Analysis of Excess Storm Flow
Winter 2012-2013

Increased export with California WaterFix ~ 781,000 acre-feet (thru Feb 17)
SWP/CVP export losses due to BioOp ~ 800,000 AF (larger amount of SWP loss)
Analysis by State Water Contractors – Feb 2013

Enhance Ecosystem Fishery Habitat Throughout Delta

- Improved flow patterns
- Reduced risk of entrainment
- Physical habitat actions

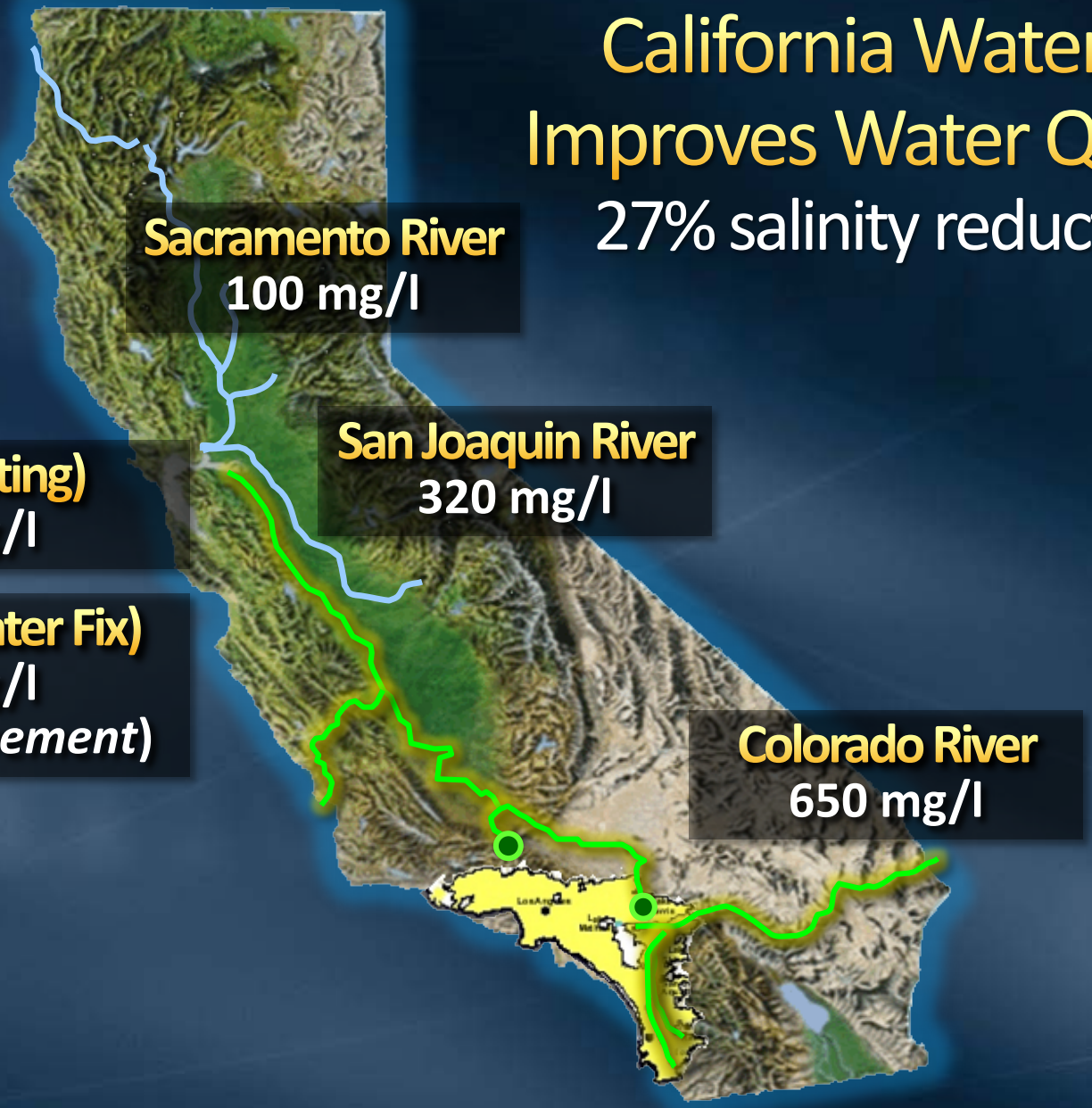

Photo by Morgan Bond


Photo by Jacob Katz


Photo by Joel Williams

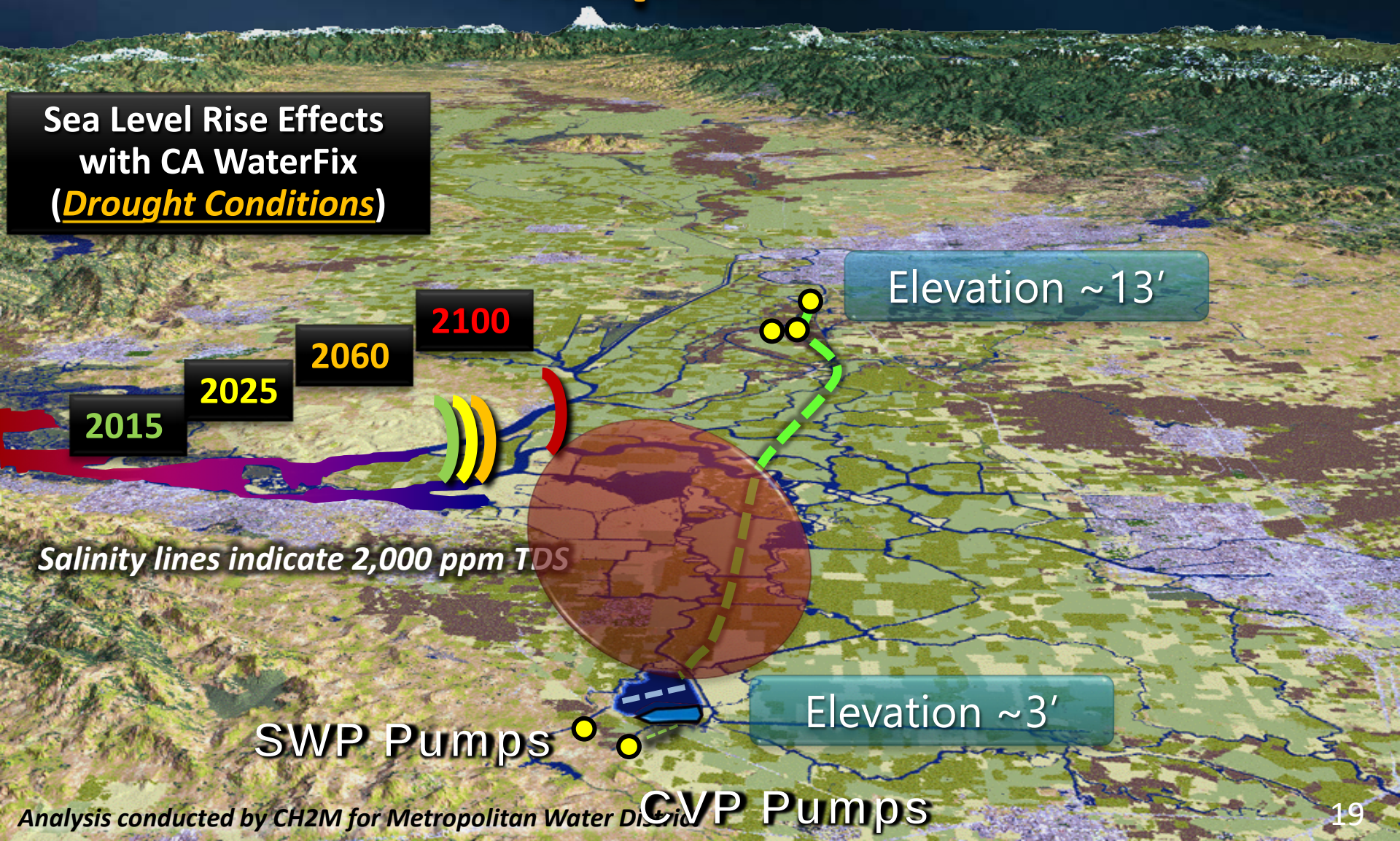
California WaterFix Improves Water Quality

27% salinity reduction



- *Sacramento, San Joaquin & Colorado River water quality represents historical average annual recorded data*
- *State Water Project water quality is a comparison of modeled data from the Recirculated Draft EIR/EIS*

CA WaterFix Provides Sea Level Rise Adaptation

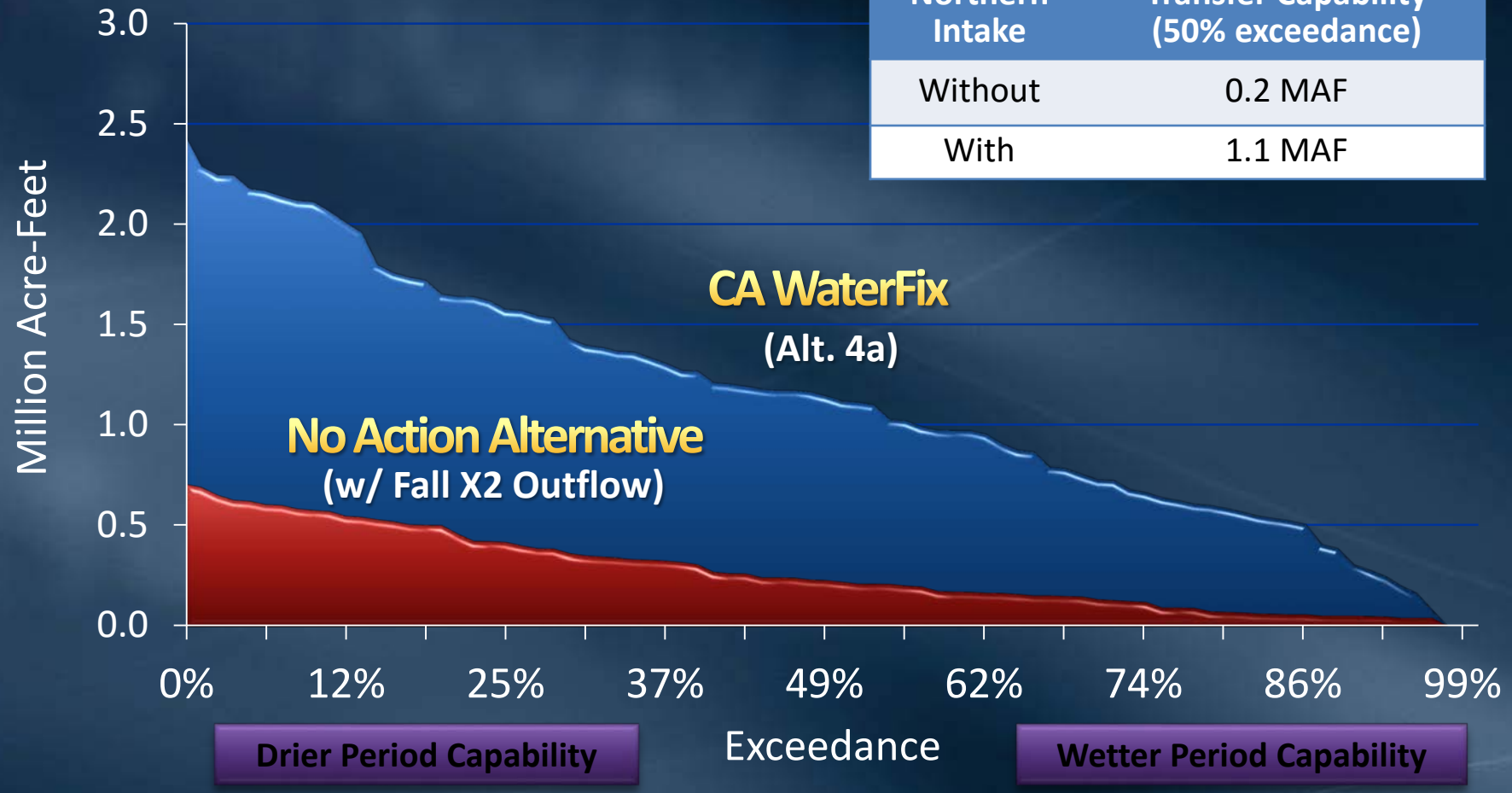


Analysis conducted by CH2M for Metropolitan Water District

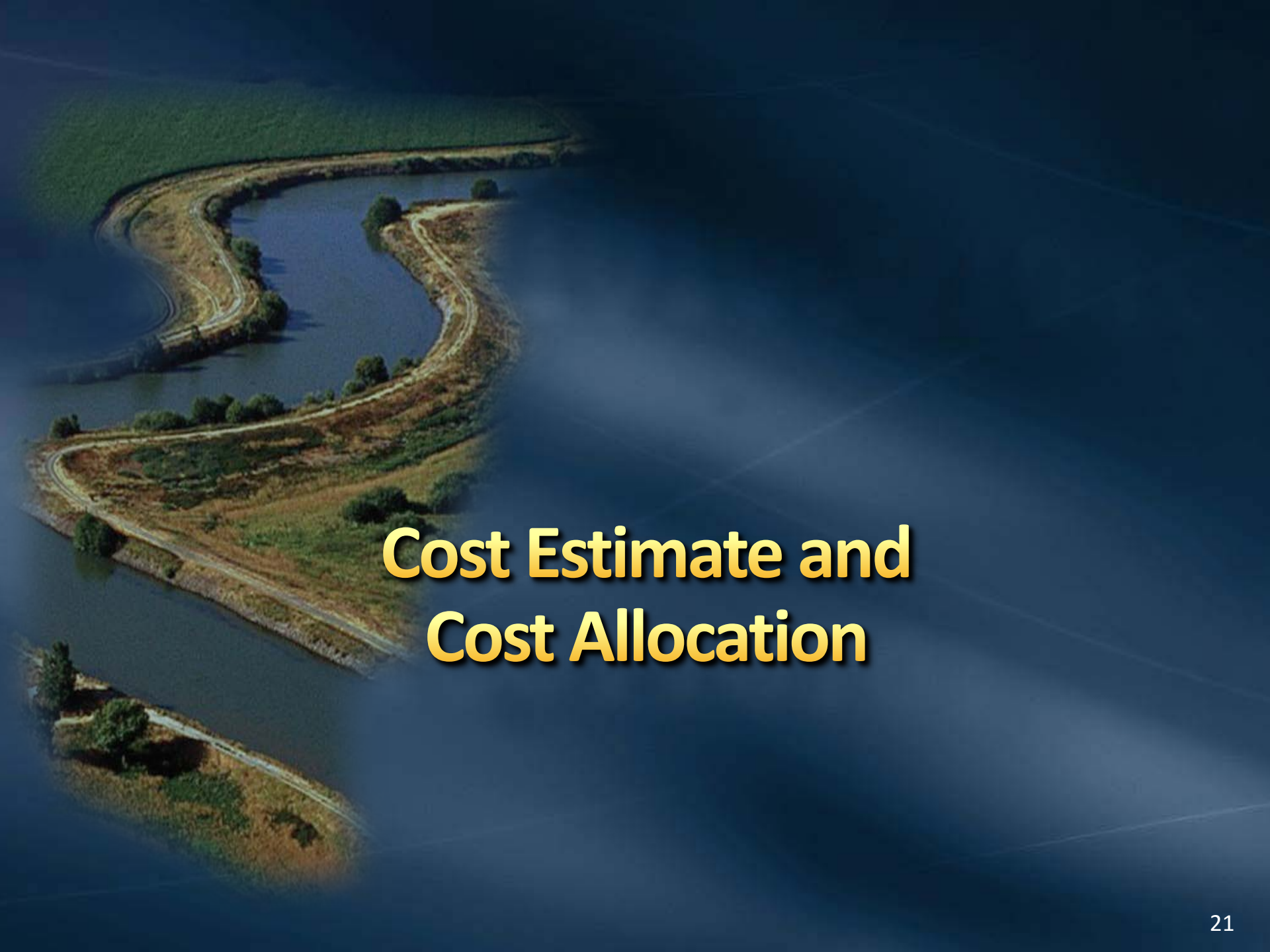
Potential Water Transfer Capability

SWP and CVP Total

Northern Intake	Transfer Capability (50% exceedance)
Without	0.2 MAF
With	1.1 MAF



Data represents modeled transfer capability; Seller willingness & actual deliveries not represented
Preliminary State Water Contractor analysis - Subject to Revision



Cost Estimate and Cost Allocation

Cost Estimate Comparison

ITEM	Estimate 1 5RMK Inc. (Billions) [1,2]	Estimate 2 Jacobs Engineering (Billions) [1,2]	Estimate 3 Risk Adjusted with Mitigation at 75% Confidence Interval (Billions) [1,3]
Construction	$9.50	$8.86	$10.66
Contingency	$3.38	$3.15	----
Subtotal	**$12.88**	**$12.01**	**$10.66**
PM/CM/Eng	$1.91	$1.91	$1.91
Land acquisition	$0.15	$0.15	$0.15
Overall Total	**$14.94**	**$14.07**	**$12.72**

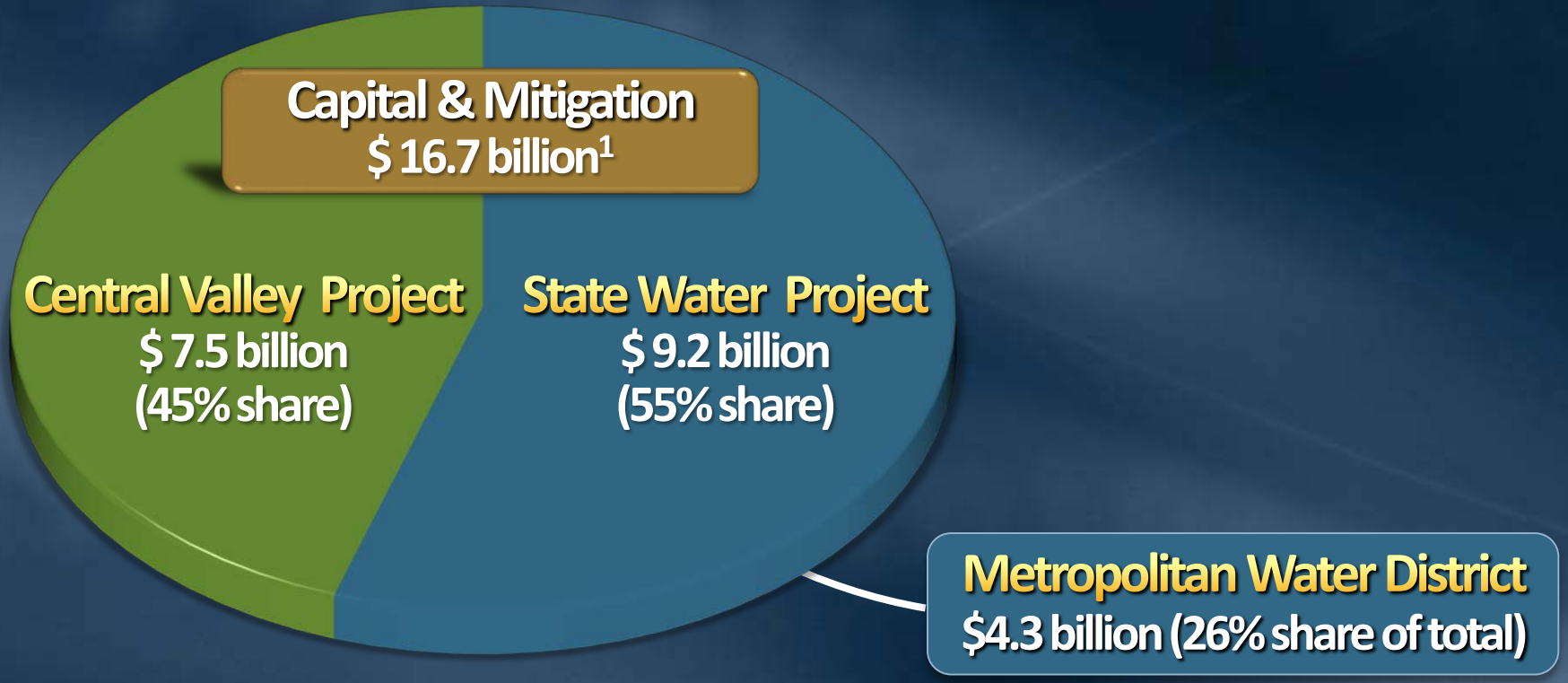
1. Program estimates in 2014 dollars
2. ~36% contingency on construction for 5RMK and Jacob Engineering estimates
3. Based on risks known at time of assessment

California WaterFix
Capital Cost

ITEM	2014 ($ Billions)	2017 ($ Billions)
Conveyance Facility		
• Construction	9.5	10.4
• Contingency for construction (~36%)	3.4	3.7
• Program Mgmt.| Construction Mgmt. | Engineering	1.9	2.1
• Land acquisition (includes 20% contingency)	.15	.16
Subtotal	**14.9**	**16.3**
Mitigation	.37	.40
Total	**$15.3 B**	**$16.7 B**

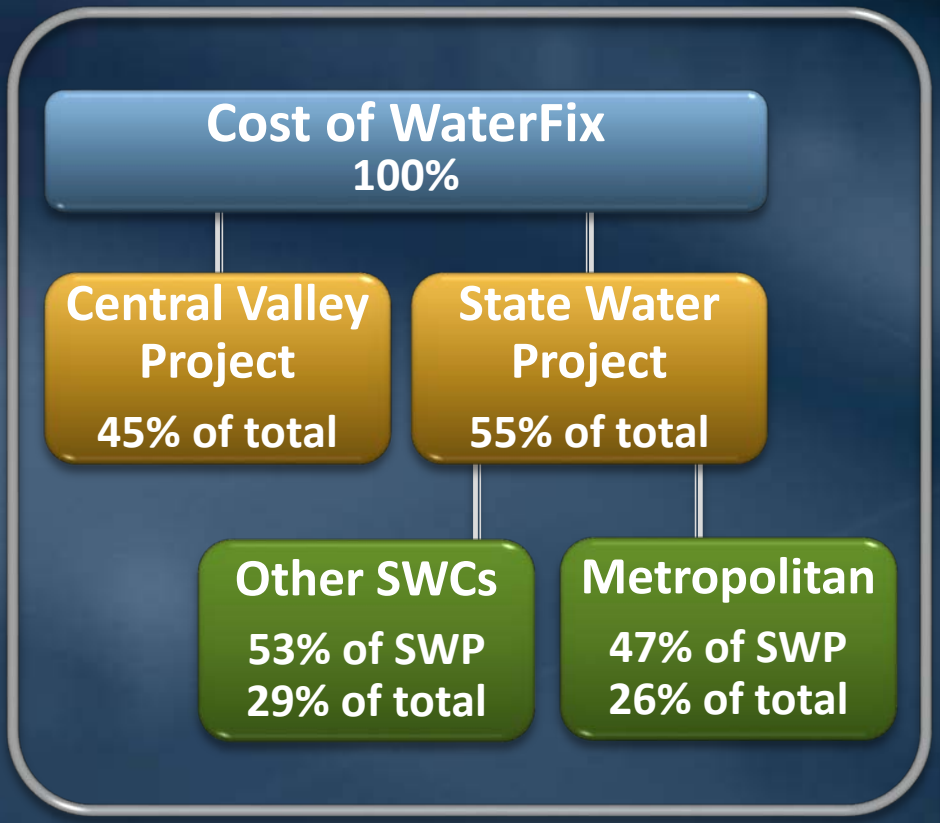
California WaterFix

Capital Cost Share



1. In 2017 dollars

California WaterFix
Cost Allocation



- Key Principles
  - Beneficiaries Pay
  - Costs follow benefits
- Key Financing Assumptions
  - 55% SWP / 45% CVP split
  - 26% – Metropolitan's share
  - 40-year bond term
  - 4%, 6%, 8% bond rate scenarios (current market rate ~ 3.9%)
  - Capital costs are debt financed
  - Operation & maintenance costs are paid as incurred

Cost and Rate Impacts

Cost Impact Summary
in 2017 Dollars

	Base Case 4% Interest	6% Interest Scenario	8% Interest Scenario
State Water Project Share			
• SWP Total Annual Costs (Capital + O&M)	$438 M	$567 M	$709 M
Metropolitan's Share Annual Project Cost			
• Total Costs (47.13% of SWP)	$207 M	$268 M	$334 M
Metropolitan's Cost Impact			
• Metropolitan's Overall Cost Increase [1]	13%	17%	21%
• Annual Cost Increase (spread over 15-yrs)	0.9%	1.1%	1.4%
• Average Cost Increase per AF Sold [2]	**$122/AF**	**$157/AF**	**$196/AF**

(1) Based on Metropolitan's 2017/18 Revenue Requirement of $1,574 M
(2) Based on Metropolitan's 2017/18 sales budget of 1.70 million acre-feet

Household Impacts Estimate
WaterFix

- Calculation Method and Assumptions
  - Residential water use = ~70% of total regional water use
  - Metropolitan's service area = ~6.2 million occupied households
  - Household impact estimate calculation:
    - Monthly Impact = (Annual Cost x .70) / 6.2 million / 12 months
- Household Impacts
  - Base Case
    - $1.90 = ($207M x .70) / 6.2 Million / 12
  - 6% Interest Case
    - $2.50 = ($268M x .70) / 6.2 Million / 12
  - 8% Interest Case
    - $3.10 = ($334M x .70) / 6.2 Million / 12

Water supply reliability
Costs - Alternatives?

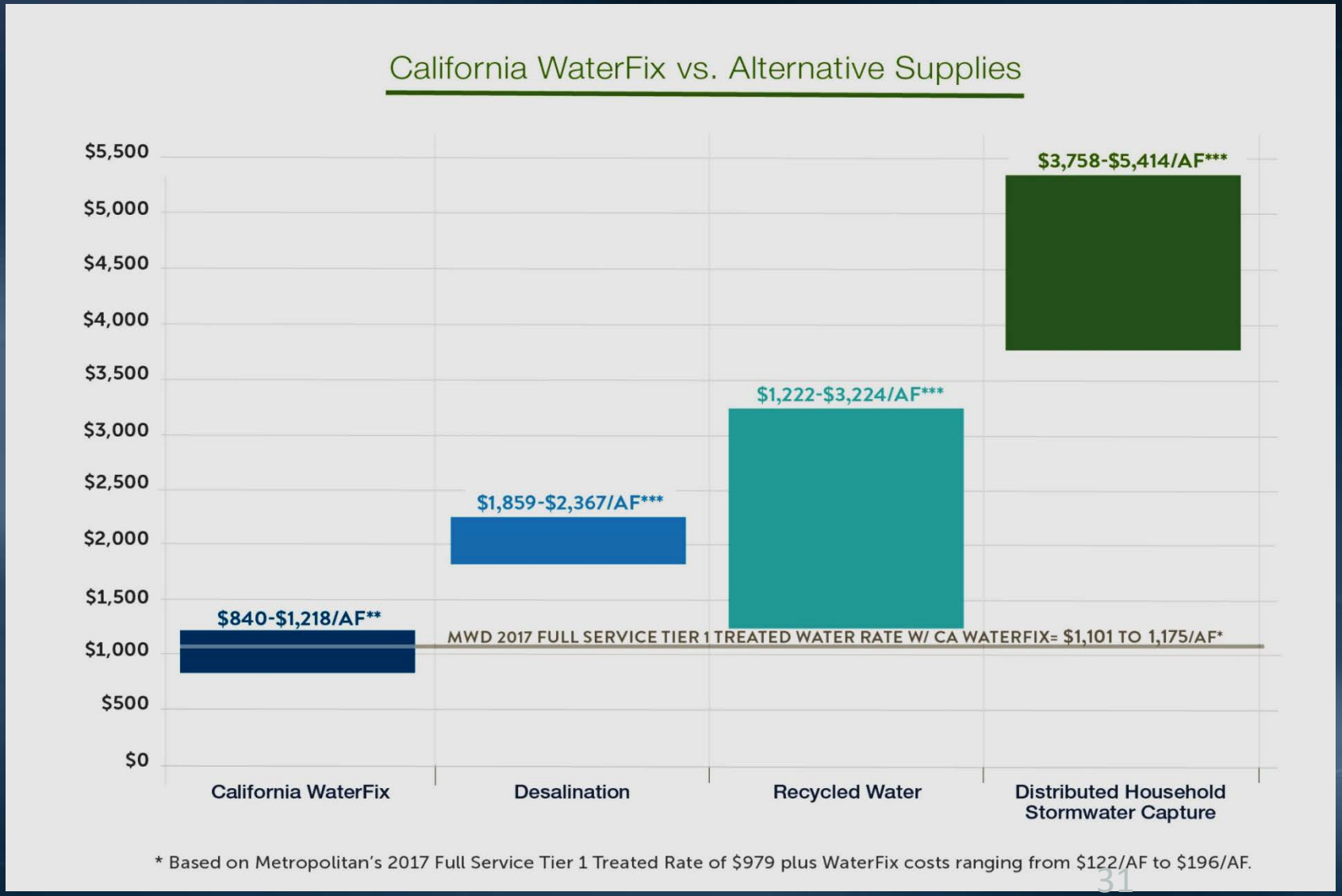
WaterFix Illustrative Marginal Cost

Delivered & Treated to MWD Service Area

- Calculation Method and Assumptions
  - Marginal cost of WaterFix at Delta pumps = $613/AF
  - Marginal cost to convey & treat SWP supply = $227/AF
    - Power for transportation = $197/AF
    - Variable treatment costs = $ 30/AF
  - Marginal cost in MWD Service Area
    - Marginal Costs at Delta Pumps + Power & Variable Treatment

- $840 per AF = $613 + $227

California WaterFix Maintains Cost and Rate Stability



MWD Board Review Process

- Process
  - Three Joint WP&S and Bay-Delta Committee Meetings
  - Workshop & Special Board Meeting
- Three white papers
  - Infrastructure
  - Operations
  - Finance/Cost Allocation

Questions

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