MARIN WATER

Emergency Drought Projects Update

September 17 , 2021

Overview

- Conservation
- Partnering with SCWA
- Desalination
- Status to-date of Emergency Intertie Project
- Next Steps

Options to Address Current Drought

Option	Pro	Con
Conservation	• Long term savings • No major capital cost	• Uncertainty on level that can be reached and timeframe
Intertie Project	• Diversification – multiple sources of water • Resilience	• High capital cost • Dependency on others
Desalination	• Proven technology • Security in water supply	• High capital cost • Temporary facility • Limited capacity

Conservation

- Continuing efforts to reduce demand
  - 9/21 - Penalties for excessive use of water
  - 9/21 – Best in class additional measures & opportunities for both near and long term demand reduction
  - Date TBD - Drought Rates- Under development

Conservation To Address Drought

- ASSUMPTIONS
  - Projected Water storage December 1, 2021 ~ 25 TAF
  - Reservoir Inflows ~ 10 TAF (2 x run off from 2020/21)
  - SCWA Supply ~ 4 TAF (Curtailment continues)
  - Stream releases ~ 8 TAF (assumes 2 TAF relief from TUCP)
  - Demand to 8 TAF (35 gpcd➔25 gpcd / ~70% reduction from baseline) by Dec 1, 2021
  - Evaporation ~2 TAF
  - **Projected Water storage December 1, 2022 ~21 TAF (less than we are projecting this year)**

Additional Investigations

- SCWA Winter Water – Looking at historical data to determine flow above streamflow requirements
- Truck, Rail and barge – availability, costs, capacity
- Kastania – Online in Feb 2022

Partnering with SCWA

- Concept – precipitation increases flow in the river beyond streamflow requirements that can be used
- Analysis by SCWA to-date:
  - Wet or normal weather there may be as much as 10 TAF available above normal delivery
  - Dry weather or drought there is 1.1 TAF that could be available
- Longer term Aquifer Storage & Recovery may be a good fit – store water in wet years and withdraw in dry, cost, capacity and allocation of that water for MMWD is unknown at this time.

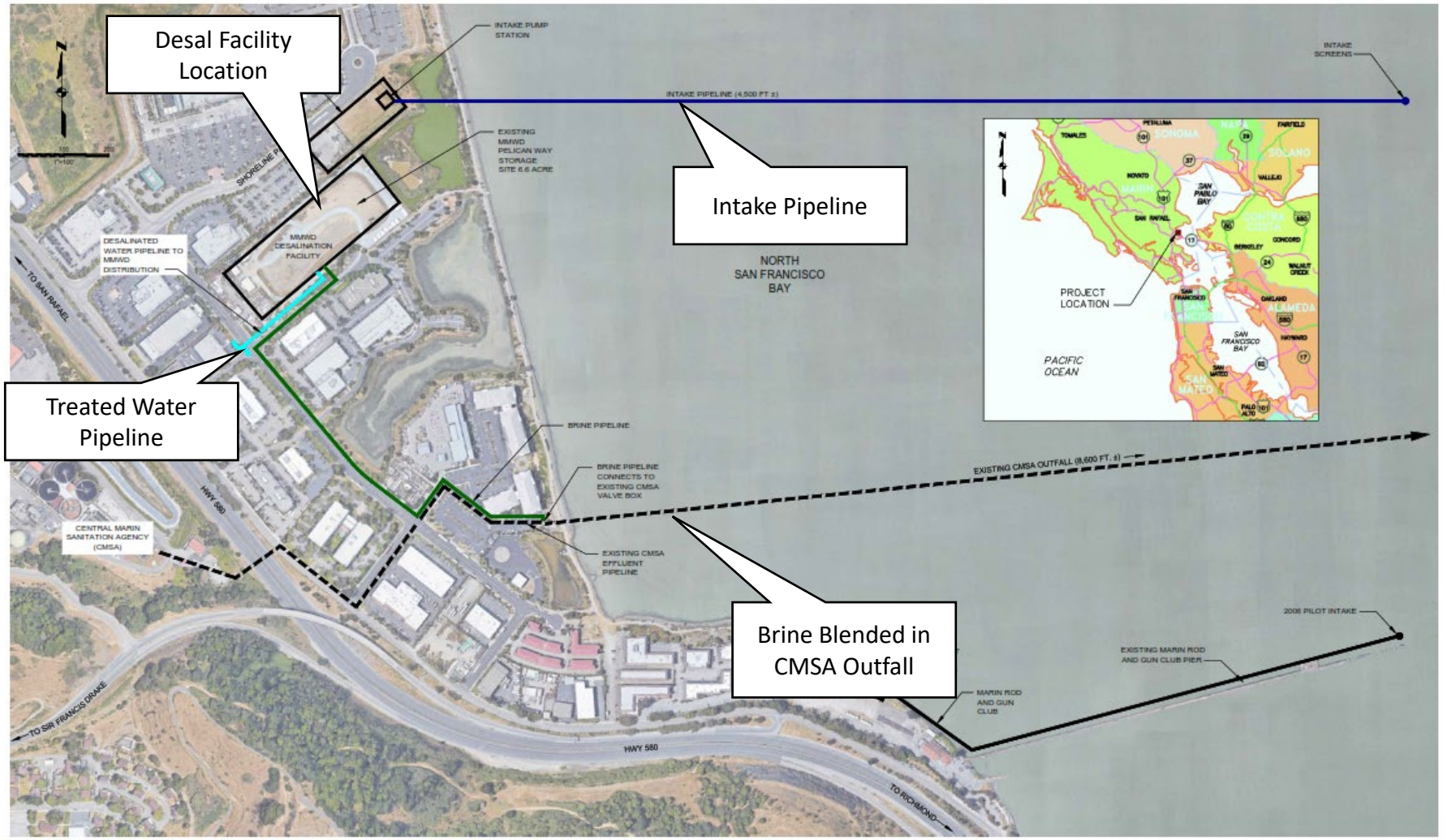
Rapid Deployment Desalination System

- Engineered & prefabricated to meet the schedule
- Desal Pilot demonstrated that this established water treatment technology provides safe and reliable drinking water
- Capacity to 5.4-MGD is available
- Likely requires near term agreement with financial commitment to secure the desalination system

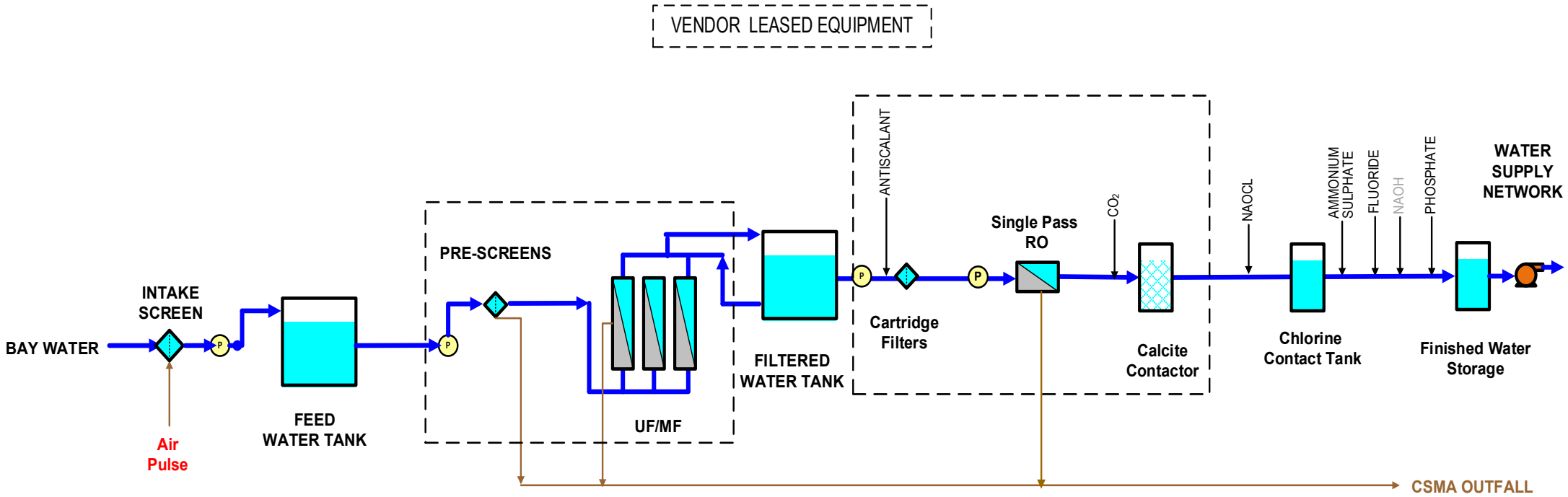
Osmoflo Desal Plant

Desal Pilot Plant (2005/2006)

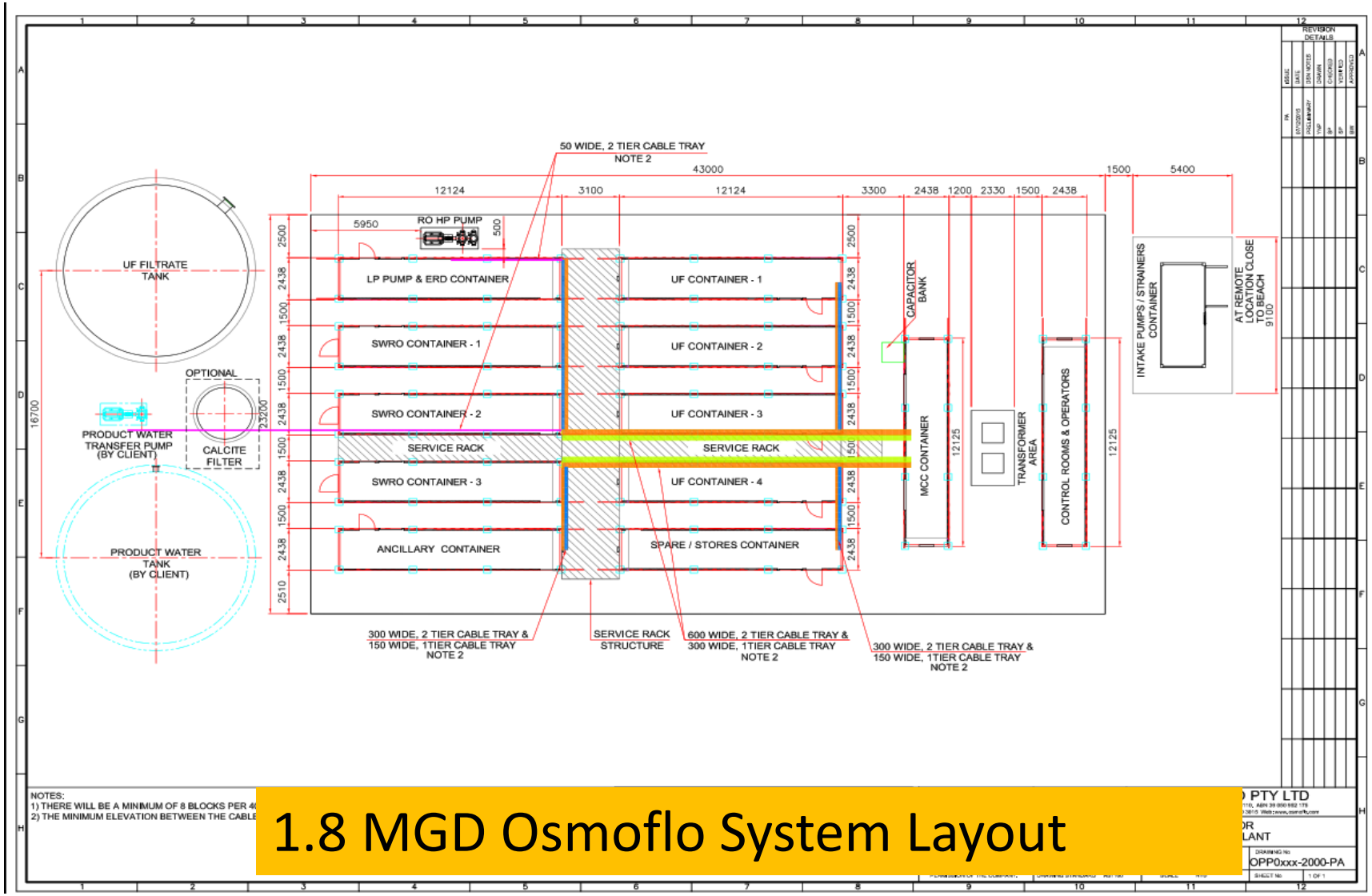
Conceptual Emergency Desalination Project Location



Desalination Facilities Process Schematic



Three 1.8 MGD Systems would require ~2.5 Acres



1.8 MGD Osmoflo System Layout

Conceptual Capital Costs for Emergency 5.4 MGD Desal Supply

MMWD Leased Containerized Desalination Facility	
SWRO Facility Components	**3.6 MGD Containerized System**
12 Month Leased Equipment Subtotal	$17,000,000
Additional Support Facilities Subtotal	$8,430,000
Contractor Markups and 30% Contingency	$4,610,000
Construction Subtotal	**$30,400,000**
Permitting, Engineering, Mgmt Costs	$4,828,000
Conceptual Project Costs	**$34,868,000**

Desalination

- Estimated Construction Cost ~$35M
- Schedule – 9 months
  - Permitting – 6 to 9 months (Emergency)
  - Equipment procurement and site work – 6-9 months
- Available Capacity 5.4 MGD – Less than identified need
- Note: Does not preclude long term desalination alternatives

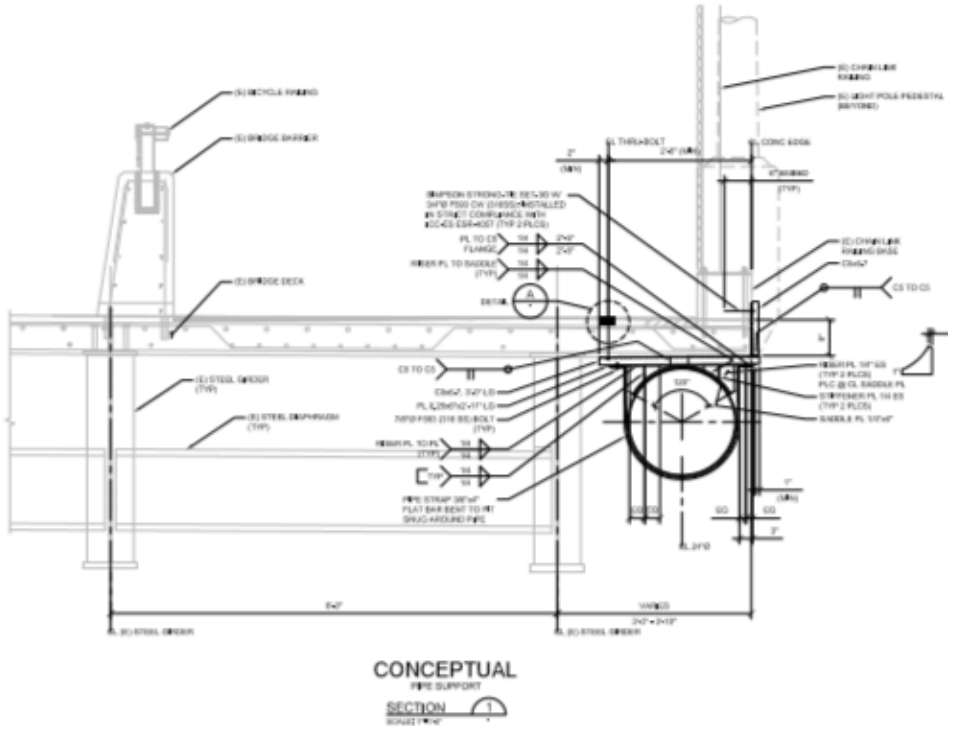
Emergency Intertie Project Update

- Negotiating MOU with EBMUD and will bring to Board for review in the next month
- Negotiating with Glenn-Colusa Irrigation District for 15 TAF water supply agreement terms are advanced and could be brought to board in the next month.
- CCWD are working to secure water from YUBA for Marin Water in amount of 10 TAF and CCWD is targeting Oct 20 for that agreement.
- Project Engineering – Technical feasibility established and Caltrans are reviewing, pursuing contract amendments for final design and pre-purchase of materials to meet schedule of next July.

Overall Project Alignment

Eastern Approach

Eastern Approach



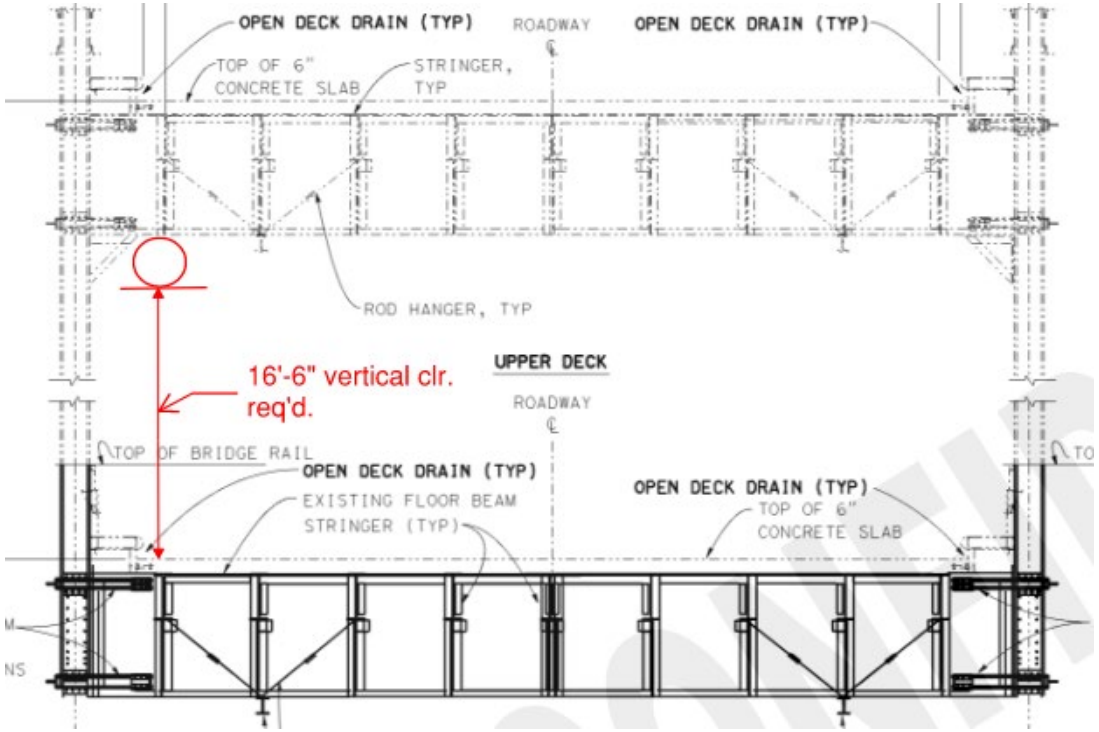
Western Approach

Locations For Pipeline on The Bridge

- **Alternative 1 Below the lower deck -** does not appear feasible due to construction challenges, maintenance challenges and permitting.
- **Alternative 2 Below the upper deck -** does appear feasible and we are still analyzing how all sections of the bridge will respond to pipe installation.
- **Alternative 3 In the multi-use pathway -** does appear technically feasible however operational and permitting challenges are formidable.

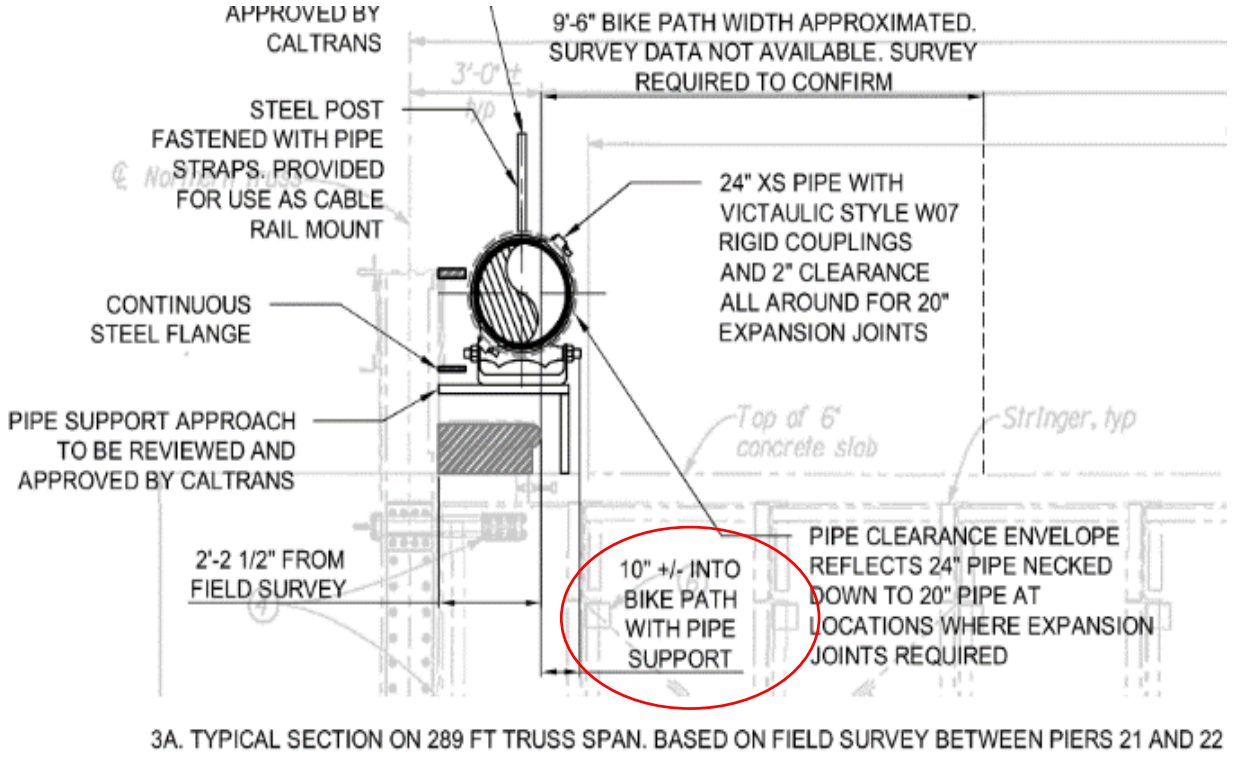
Placement on Bridge Alternative 2: Below the Upper Deck

- Appears to be feasible.
- Continuing to understand how bridge structure responds to pipeline and pipeline alignment across the bridge.



Placement on Bridge Alternative 3: Edge of the Multi-use Path

- Installation of a pipeline at this location will encroach ~10” into the multi-use path at certain locations
- Compatibility with future use as a traffic lane
- Less strengthening than Alt 2
- Constructability
- More to do to confirm this option



3A. TYPICAL SECTION ON 289 FT TRUSS SPAN. BASED ON FIELD SURVEY BETWEEN PIERS 21 AND 22

Fiscal Impacts - Preliminary Estimates

Project Cost Estimate [Million]	$60	$90
Term [Years]	30	30
Rate [%]	4.06	4.06
Debt Service [Million]	$2.90	$4.35
Rate Increase to support project	2.77	4.16

Timeline for Bond Financing

Sep 17	RFP for Underwriter
Sep 21	Board Engages BC and MA
	Reimbursement Resolution
Oct 19	Engage Underwriter
Nov 16	Board authorizes sale
Dec 2	Bond Sale
Dec 15	Closing

Emergency Intertie - Key Milestones

✓ August 30 – Amendments for feasibility work and 30% design to support CEQA – ($2.2M)

- September- November – Various transfer and wheeling agreements
- October 5 – Authorize full Design – (~$TBD)
- October 19 – Pre purchase of Material – (~$20M)
- December 2 – Bond sale
- February 2022 – Award Construction – (~$40M)

Next Steps

- Continuing efforts to develop Emergency Intertie Project & Rapid Deployment for Desalination
- Regular Updates to the board
- Conservation – continuing to develop programs, additional incentives and reduce demand