



Engineering, Operations, & Technology Committee

State Water Project Invasive Mussel Mitigation and Control

Item 7-1

October 13, 2025

Subject

Amend the Capital Investment Plan for fiscal years 2024/25 and 2025/26 to include invasive mussel mitigation and control at Metropolitan facilities; and authorize an increase of \$500,000 in the operating equipment budget for the current biennium to purchase equipment to control the growth of invasive mussels

Purpose

Mitigate and control invasive mussels and veligers (mussel larvae) at Metropolitan facilities receiving State Water Project (SWP) supplies

Recommendation and Fiscal Impact

Amend the Capital Investment Plan (CIP) to include SWP Invasive Mussel Mitigation and Control

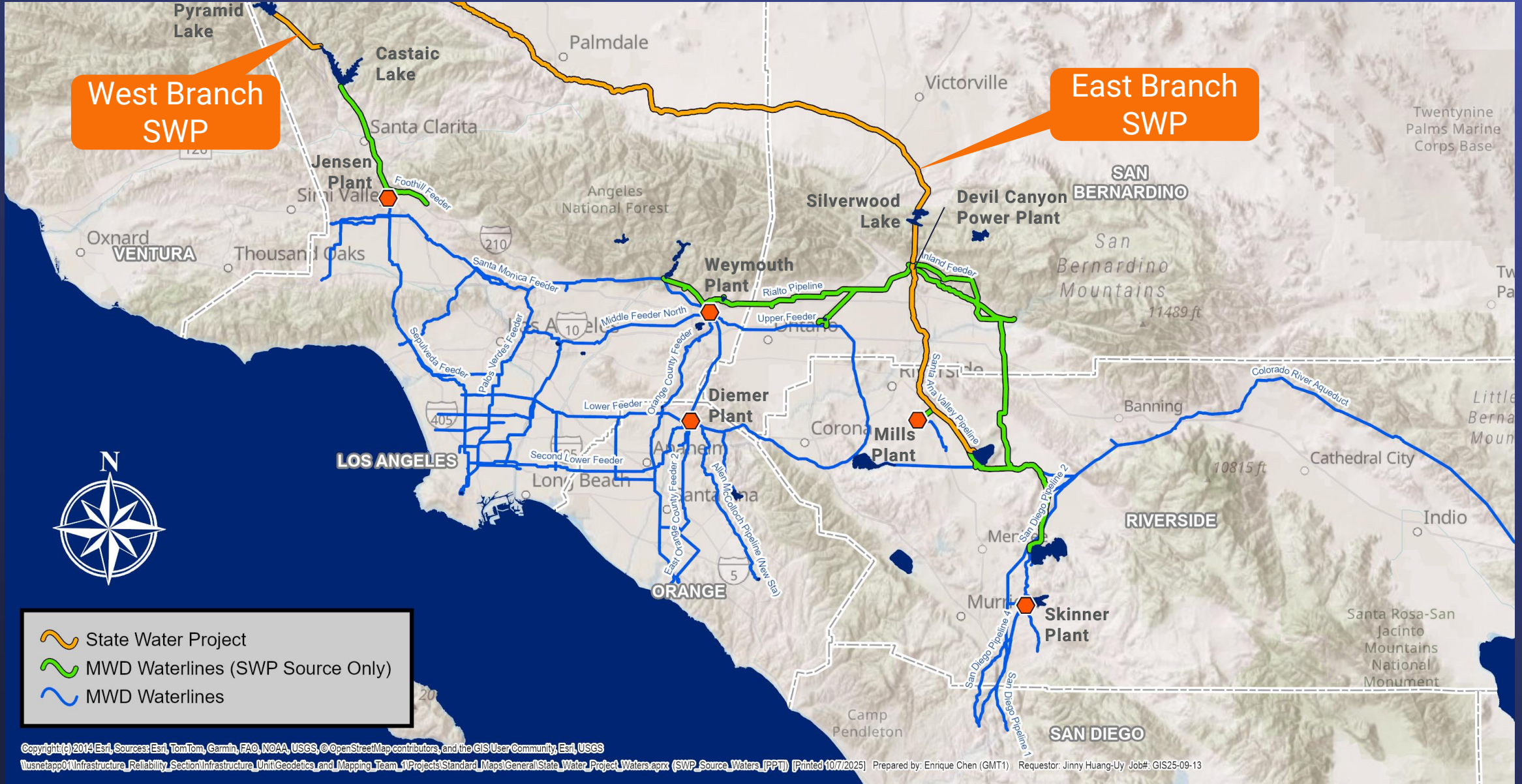
Fiscal Impact – \$1.97 million in budgeted CIP funds and an additional \$0.5 million in Operating Funds

Non-Budgeted

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State Water Project Invasive Mussel Mitigation & Control

Location Map



Background

- Quagga mussels and golden mussels are freshwater invasive species that impact raw water systems
- Quagga mussels first discovered in the SWP West Branch in December 2016 and have established in Pyramid Lake and Castaic Lake
- Golden mussels first discovered in the Delta in October 2024 and have spread quickly throughout the SWP, including West and East Branches
- Groundwater replenishment deliveries temporarily stopped until control measures in place



Golden Mussels at O'Neill Forebay
(photo credit: DWR)

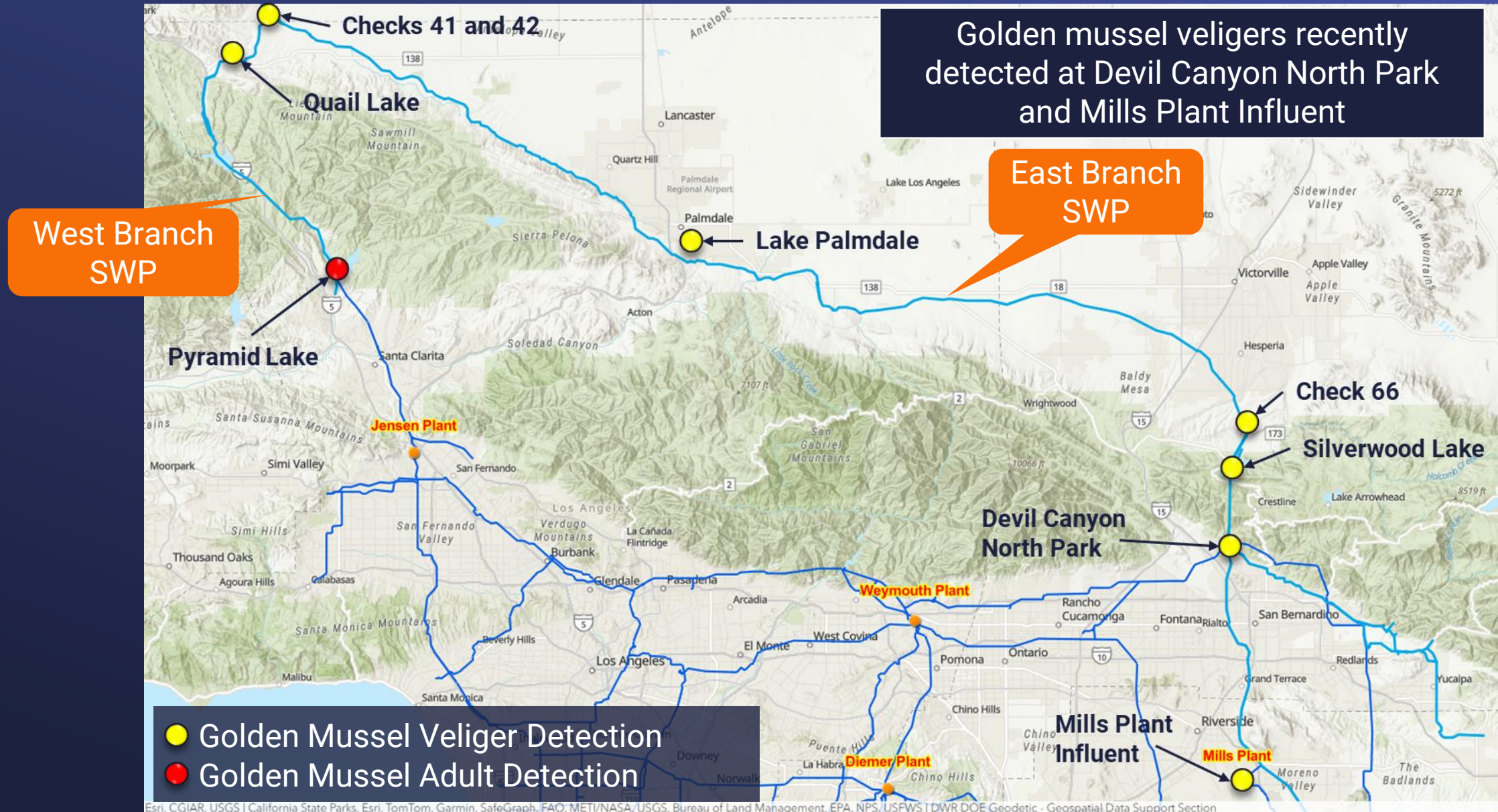


Golden Mussels at O'Neill Forebay
(photo credit: DWR)

Quagga Mussel Infested Areas in the SWP



Golden Mussel Monitoring Results from Metropolitan and CDFW/DWR



Metropolitan's Operational Response to Invasive Mussels

- Enhanced monitoring and inspections for quagga and golden mussels in SWP and Metropolitan reservoirs
- Multi-disciplinary taskforce evaluating and implementing mussel control strategies and plans
 - Groundwater replenishment deliveries (e.g., USG-03, B-06)
 - Treatment plants and shutdowns
 - Updating and developing control plans
 - Research on control approaches
 - Advanced legislation (AB 149)
- Quagga mussel control measures are expected to be effective for golden mussels
 - Some control measures for SWP may be different than those implemented for CRA due to different water qualities



USG-03 Water Delivery



Jensen Plant Ozone Cooling System Strainer

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CIP Program Overview

- Phase I – Feasibility studies, vulnerability assessments, conceptual design of near-term mitigation measures and deployment of portable equipment
- Phase II – Implement prioritized infrastructure upgrades identified in Phase I
- Phase III – Address long-term mitigation strategies for district-wide invasive mussel control

Example: Chemical Injection at Joseph Jensen WTP

- Ozone cooling system uses SWP supply from plant inlet channel
- Invasive mussels will clog the heat exchanger
- Protect ozone cooling water system by chlorination



Ozone Cooling System
Heat Exchanger



Critical Facilities along SWP
(West Branch)

Example: Chemical Injection at Magazine Canyon

- Protect San Fernando Tunnel and B-06 groundwater deliveries by chlorination
- Potential chlorination site at Magazine Canyon, de-chlorination at San Fernando Gate Structure, and chlorine residual monitoring at B-06



Magazine Canyon Shaft



B-06 Turnout



Critical Facilities along SWP
(West Branch)

Example: Chemical Injection at Live Oak Reservoir

- Protect Glendora Tunnel and USG-03, PM-26, CENB-48/PM-SDW groundwater deliveries



Critical Facilities along SWP (West Branch)



San Dimas
Pressure Control Structure



Live Oak Reservoir

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Alternatives Considered

- Considered Alternative – Implement mitigation and control measures under next biennial CIP budget
 - Infrastructure receiving SWP waters would be unprotected from invasive mussels possibly leading to operational challenges
- Selected Alternative – Rapid deployment of operating equipment and implementation of invasive mussel mitigation and control strategies
 - Reduces risk of mussels damaging equipment and infrastructure
 - Reduces impact to operational reliability

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Scope of Work – O&M

- Procure new surveillance and detection equipment
- Rapidly deploy mobile operating equipment



Remotely Operated Vehicle



Mobile Chlorinator



Sampling Equipment and
Microscope

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Scope of Work – Capital

- Assess near-term invasive mussel control measures targeting Metropolitan facilities receiving SWP supplies
- Conduct bench and pilot-scale testing
- Develop conceptual plans for chemical injection at critical facilities
- Develop an approach for long-term mussel control to be implemented in Phase III

Allocation of Funds

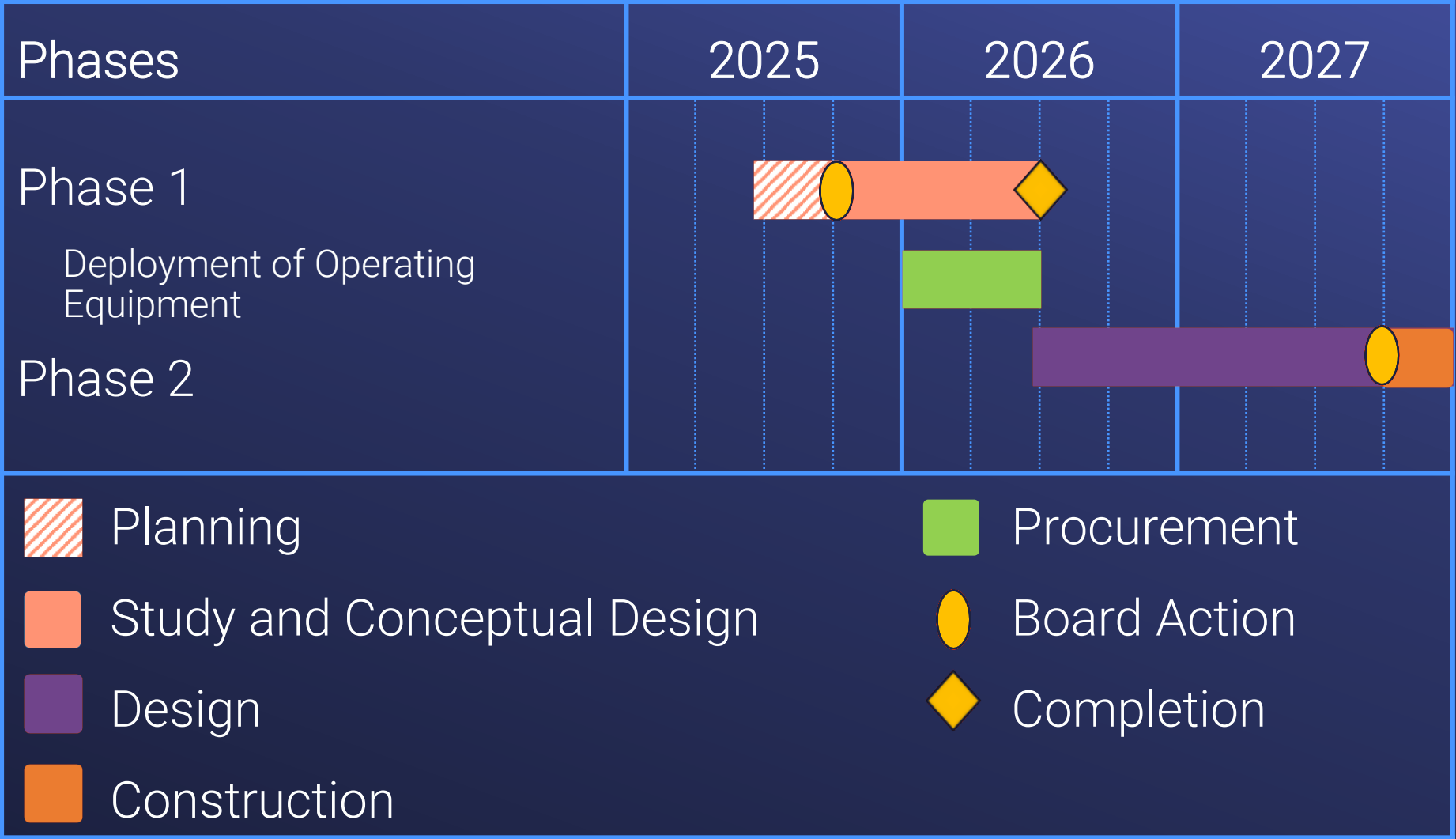
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Metropolitan Labor	
Studies & Investigations	\$ 1,480,000
Owner Costs (Proj. Mgmt., Contract Admin., Envir. Support)	420,000
Remaining Budget	70,000
Total	\$ 1,970,000

This action also authorizes an additional expenditure of \$500,000 in O&M funds in fiscal year 2025/26 to purchase operating equipment to control the growth of invasive mussels.

Project Schedule

State Water Project Invasive Mussel Mitigation and Control



Board Options

- Option #1
 - a. Amend the Capital Investment Plan for fiscal years 2024/25 and 2025/26 to include invasive mussel mitigation and control at Metropolitan facilities; and
 - b. Authorize an increase of \$500,000 in the operation and maintenance budget for fiscal year 2025/26 to purchase operating equipment to control the growth of invasive mussels.
- Option #2

Do not proceed with this project at this time.

Staff Recommendation

- Option #1

