



Engineering, Operations, & Technology Committee

CRA 230 kV Transmission Line & Fiber Optic Improvements

Item 7-1

November 17, 2025

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CRA 230 kV Transmission Line Improvements

Subject

Authorize agreements with (1) HDR Engineering Inc. in an amount not to exceed \$1.8 million for a comprehensive investigation of the 230 kV transmission system; and (2) Towill Inc. in an amount not to exceed \$270,000 to perform an aerial survey of the 230 kV transmission system

Purpose

Enhance reliability of the 230 kV transmission system and provide a fiber optic network to enhance communications and system monitoring capabilities within Metropolitan's Desert Region

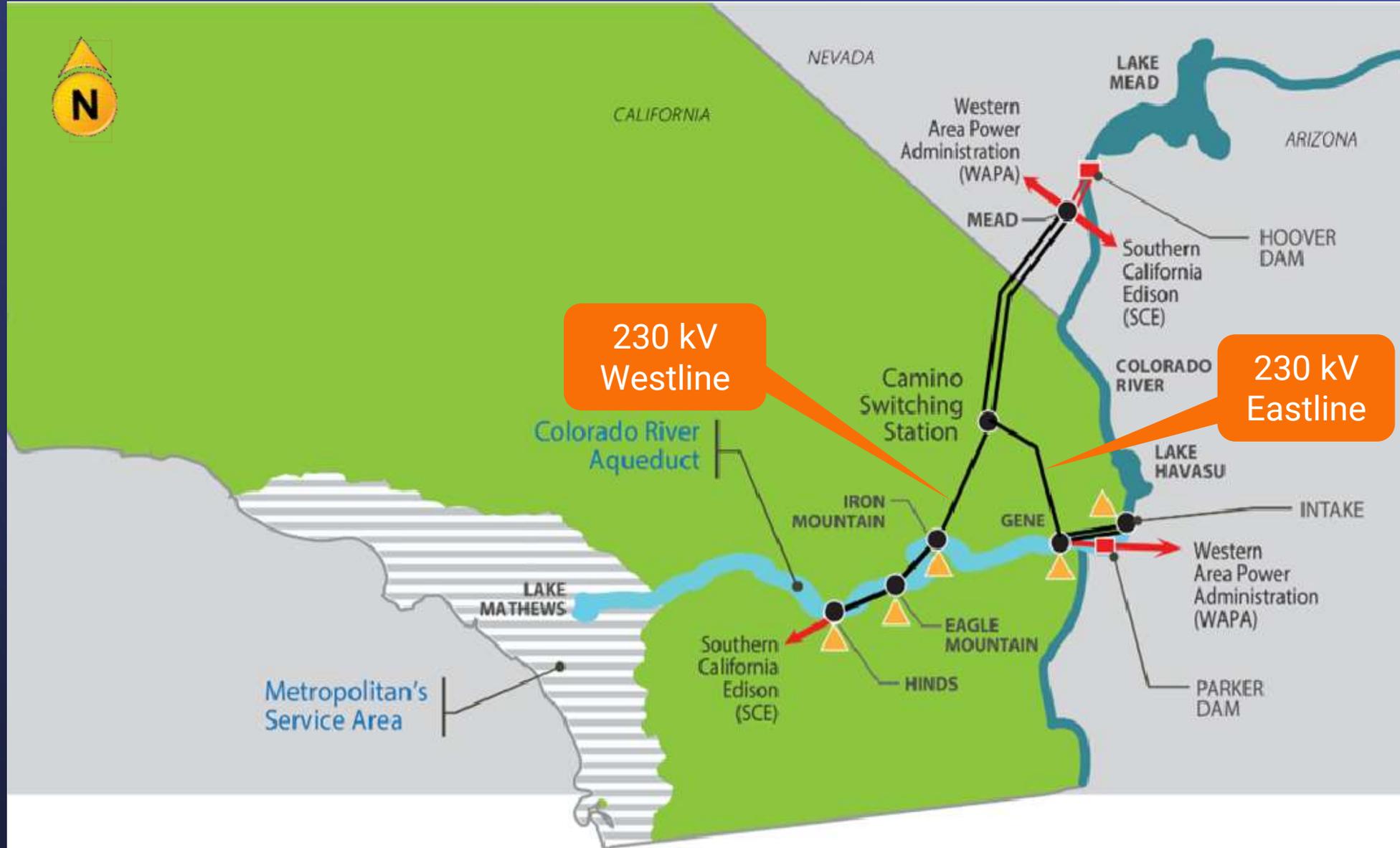
Recommendation and Fiscal Impact

Authorize two agreements to perform a comprehensive investigation for the 230 kV transmission system within the Desert Region

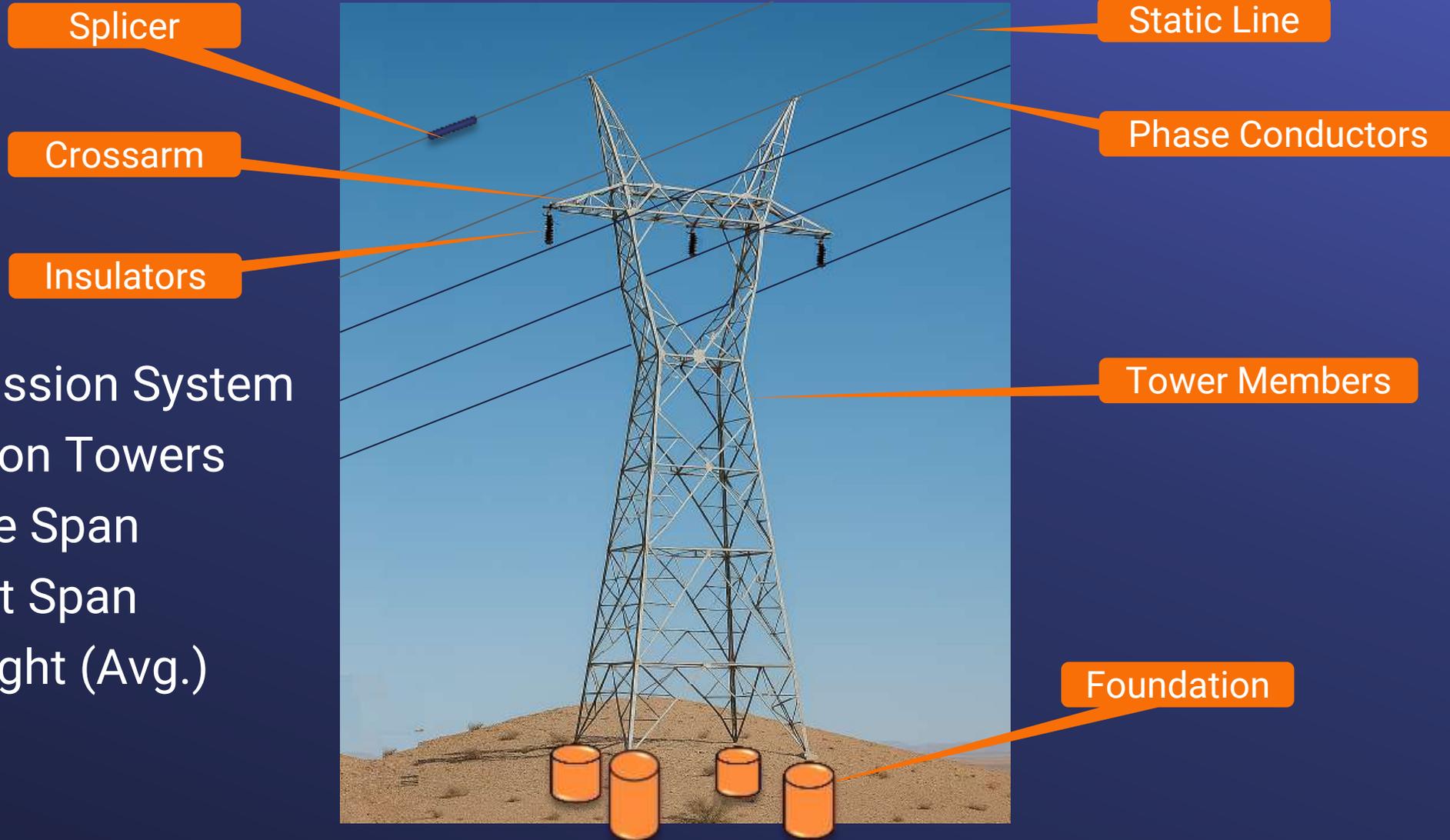
Fiscal Impact – \$2.7 million

Budgeted

Location Map



Typical Transmission Tower



- 305 Mile Transmission System
- 1,280 Transmission Towers
- 1,320 ft. - Average Span
- 2,177 ft. - Longest Span
- 84 ft. - Tower Height (Avg.)

Background

- Installed in the 1930s & 1950s
- Approximately 305 miles of 230 kV & 69 kV transmission line
- 230 kV system in good condition
- 90-yr-old system
 - Corrosion in static lines splices
 - Insufficient vertical line clearances
 - Aging insulators, conductors, dampers, & clamps & connectors
- Comprehensive investigation recommended



230 kV Transmission Tower
(Typ.)

Fiber Optic Network Communication - Desert Facilities

- Separate CIP project exists for fiber optic network to Iron Mtn., Eagle & Hinds pumping plants
 - Current system uses microwave towers
- Proposed solution to utilize MWD 230 kV transmission lines to deliver fiber optic network
- Fiber optic network would enhance the reliability of desert communications
 - Provides higher bandwidth capacity for improved communication & security features



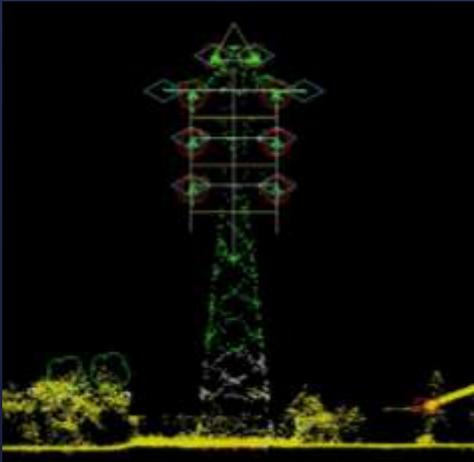
Microwave Towers

CRA 230 kV Transmission Line Improvements

Alternatives Considered

- Alternatives Considered – Perform the CRA 230 kV transmission line upgrades & fiber optic installation separately
 - Higher design & construction costs
 - Delays fiber optic installation
- Selected Alternative – Combine the 230 kV transmission line upgrades & fiber optic installation
 - Allows efficient use of 230 kV transmission corridor

CRA 230 kV Transmission Line Improvements



Tower Modeling (Typ.)

New Agreement – HDR Engineering Inc.

- Prequalified through RFQ 1404
 - Expertise with design in high voltage transmission systems
- Scope of Work
 - Detailed field investigations & visual inspections of all transmission towers
 - Perform conductor & electrical load capacity analysis
 - Model the system to analyze seismic & wind conditions affecting tower structures, foundations & identify overstressed steel members
 - Perform analysis for fiber optic integration
 - Risk assessment analysis to identify short & long-term equipment failures
 - Develop cost estimate & comprehensive investigation report
- NTE amount: \$1,800,000
- SBE participation level: 25%

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New Agreement – Towill Inc.

- Prequalified through RFQ 1354
- Scope of Work
 - Perform an aerial (LiDAR) survey along 230 kV transmission system
 - Establish geodetic control points
 - Process & classify collected data for modeling analysis
- NTE amount: \$270,000
- SBE participation level: 100%

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Metropolitan Scope of Work

- Establish survey controls
- Review of consultant's work
- Perform technical oversight
- Provide environmental support
- Agreement administration
- Project management & project controls

Allocation of Funds

CRA 230 kV Transmission Line Improvements

Metropolitan Labor

Comprehensive Investigations	\$	270,000
Owner Costs (Proj. Mgmt., Agreement Admin., Envir. Support)		265,000

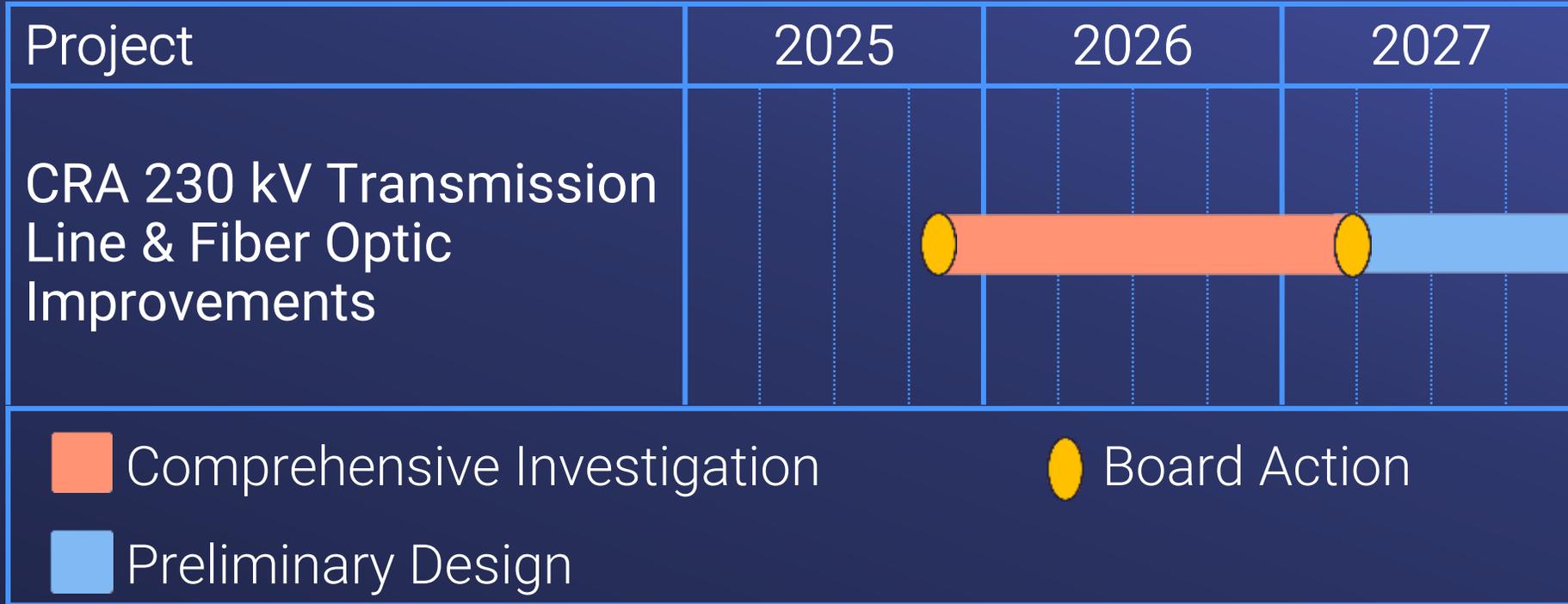
Professional/Technical Services

HDR Engineering Inc.		1,800,000
Towill Inc.		270,000

Remaining Budget		95,000
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Total \$ 2,700,000

Project Schedule



Board Options

- Option #1
 - a. Authorize an agreement with HDR Engineering Inc. in an amount not to exceed \$1.8 million for a comprehensive investigation of Metropolitan's 230 kV transmission system; and
 - b. Authorize an agreement with Towill Inc. in an amount not to exceed \$270,000 to perform an aerial survey of the 230 kV transmission system.
- Option #2

Do not proceed with the project at this time.

Staff Recommendation

- Option #1

