



Sp Jt BOD and Exec Committee and Wksp on EOT Comm

Arc Flash Protection

Item 7-2

June 24, 2025

Item 7-2

Arc Flash Protection

Subject

Authorize \$1,500,000 increases to existing on-call agreements with Mangan Inc., and Burns & McDonnell Western Enterprises Inc., for new not-to-exceed amounts of \$3,750,000 to provide technical services to enhance arc flash protection at Metropolitan's facilities

Purpose

Enhance operational safety of Metropolitan's high-voltage power distribution systems

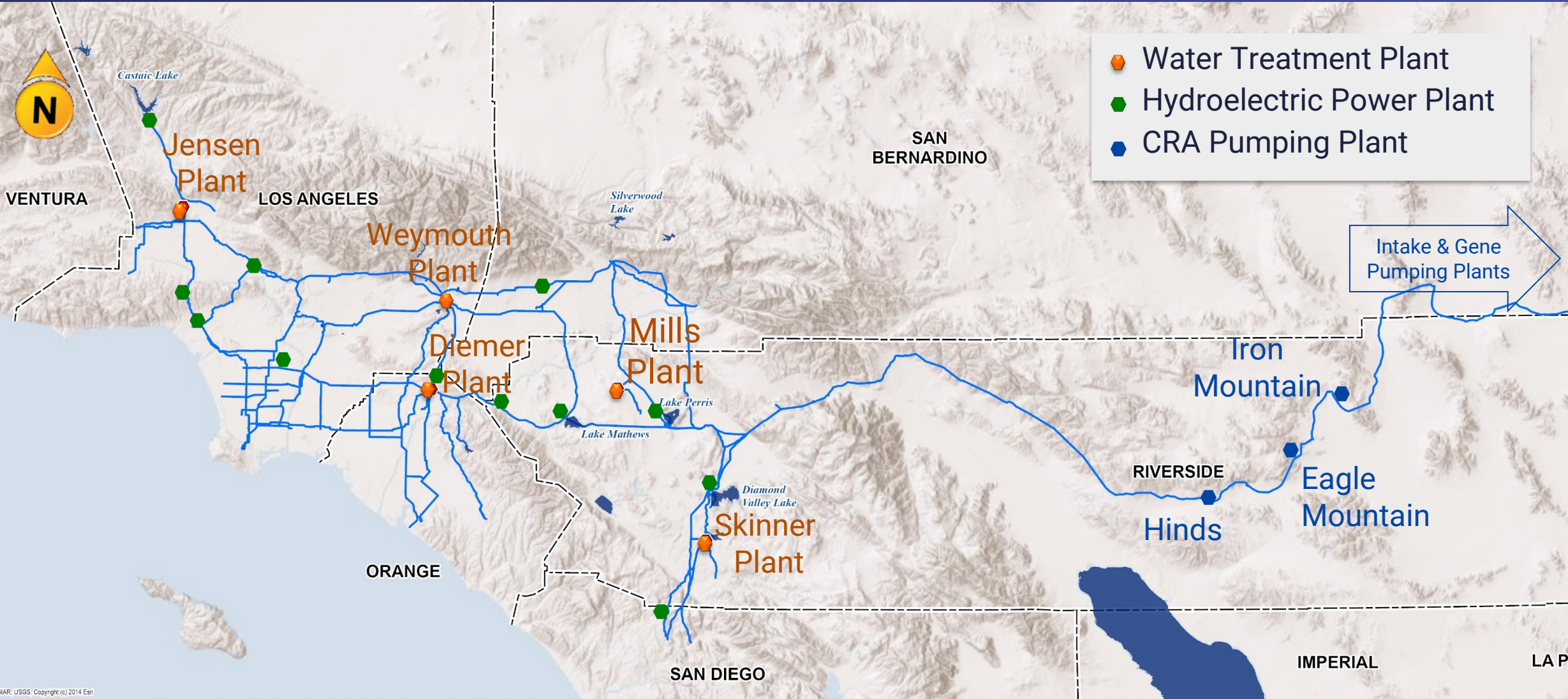
Recommendation and Fiscal Impact

Authorize an amendment to two existing on-call agreements to complete the second phase of arc flash risk assessment and mitigation at Metropolitan's facilities

Fiscal Impact – \$3 Million

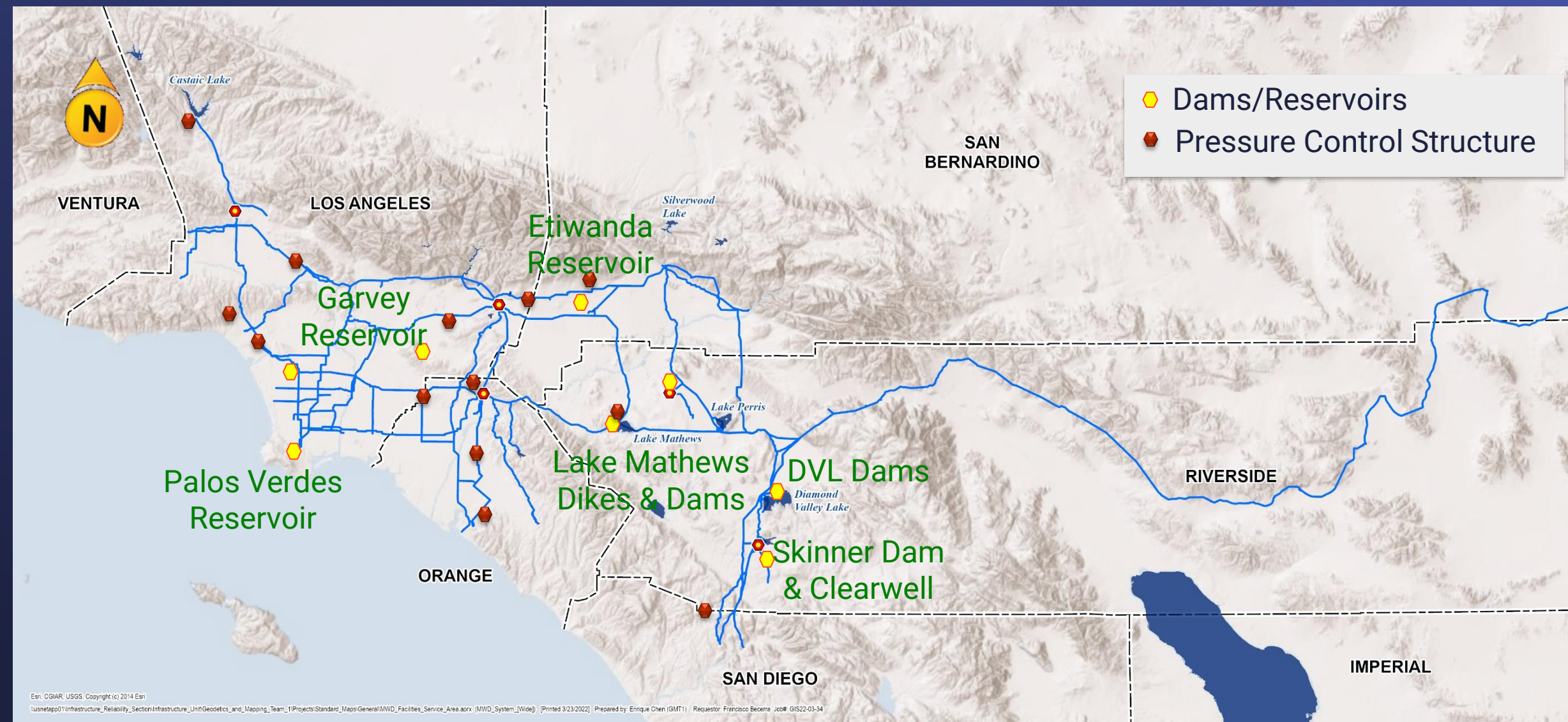
Budgeted

Metropolitan Distribution System



SAAR, USGS, Copyright (c) 2014 Esri

Metropolitan Distribution System



Background

- Metropolitan power distribution system
 - Electrical power systems from 480 volts to 230,000 volts
- Arc flash event
 - Sudden and intense release of electrical energy traveling through air
 - Serious risks to personnel safety, equipment integrity & operations
- NFPA regulations
 - Formal arc flash risk assessments
 - Intervals NTE 5 years



Staff Performing Electrical Maintenance on 230kV Circuit Breaker

Background

- Metropolitan's Programmatic Safety Response
 - Authorized a comprehensive multi-year initiative in June 2022
 - Risk assessments per NFPA 70E
 - Development of digital system models
 - PPE guidance, safety labels
 - Integration of program findings into long-term O&M and training protocols



Staff Isolating Equipment for Maintenance at Skinner WTP

Background – Arc Flash Assessment & Mitigation

- Work executed in two phases
- Initial assessment of 41 critical facilities
 - CRA pumping plants, water treatment plants & hydroelectric power plants
 - Work by Metropolitan staff & consultant
 - 99% completed to date
- Second phase assessment – this action
 - 25 sites including pressure control structures, dams & reservoirs
- Minor review/updates every 5 years in compliance with NFPA regulations



Labeling & Working with Live System

Arc Flash Protection

Consultant Scope

- For each facility
 - Perform site investigations
 - Verify electrical single-line diagrams
 - Develop computerized models using ETAP software
 - Conduct arc flash assessment & analysis
 - Recommend improvements
 - Prepare deliverables & submittals

Arc Flash Protection

Alternatives Considered

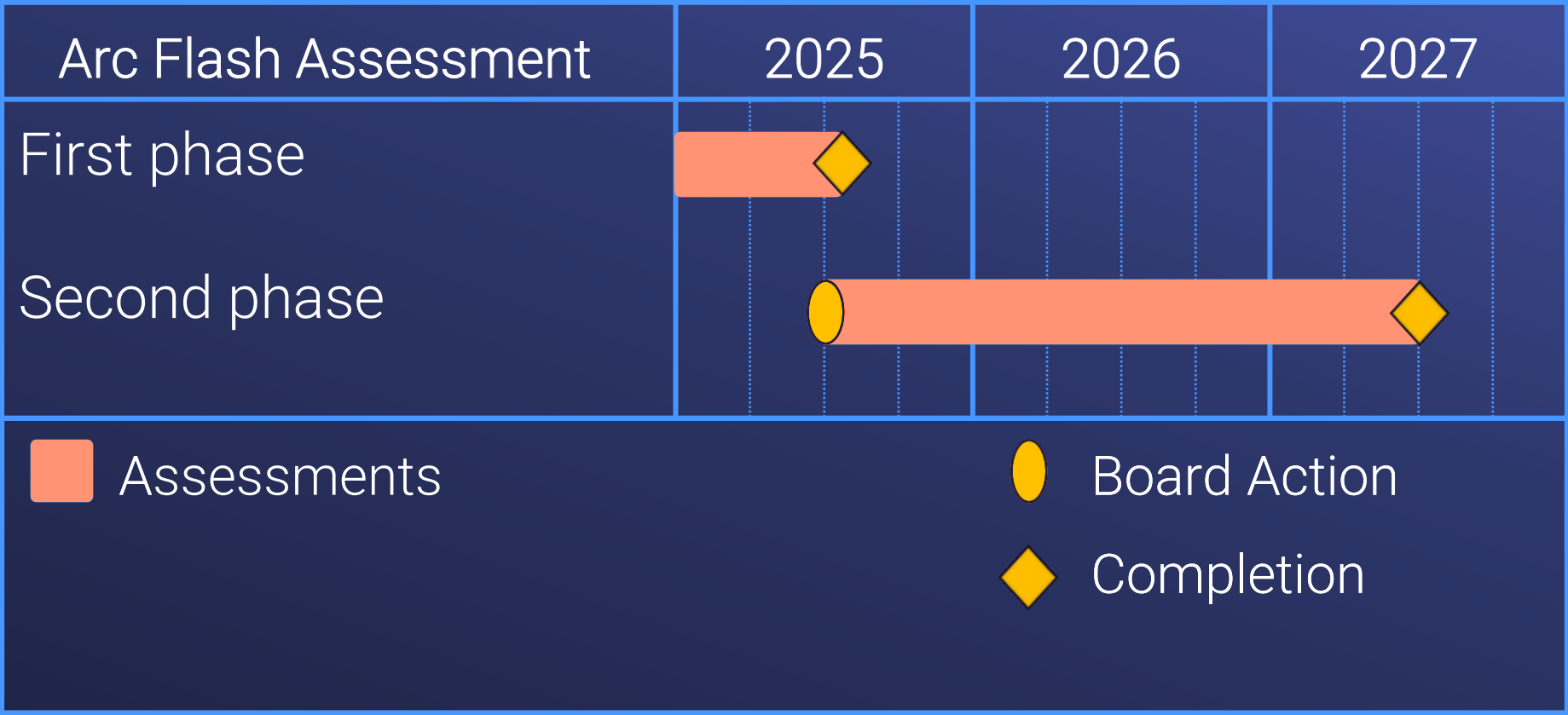
- Considered Alternative – Utilize only Metropolitan staff
 - Uses internal engineering capabilities
 - Limited availability may delay completion
- Selected Alternative – Hybrid approach
 - Maintains compliance & project schedule
 - Efficient resource allocation
 - Balances consultant expertise with internal priorities

Arc Flash Protection

Arc Flash Agreements

- Pre-qualified consultants via RFQ 1301
- Amend two agreements
 - Mangan Inc.
 - Burns & McDonnell Western Enterprises Inc.
- Recommended amendment
 - Complete second phase of arc flash risk assessment & mitigation
- For each agreement
 - Amendment amount: \$1,500,000
 - New NTE amount: \$3,750,000
 - SBE participation level: 25%

Project Schedule



Board Options

- Option #1

Authorize \$1,500,000 increases to existing on-call agreements with Mangan Inc., and Burns & McDonnell Western Enterprises Inc., for new not-to-exceed amounts of \$3,750,000, to provide technical services to complete arc flash risk assessment and mitigation at Metropolitan's facilities.

- Option #2

Do not proceed with the consulting agreements at this time.

Staff Recommendation

- Option #1

