



Desert Region Communications Systems Upgrades

Engineering and Operations Committee

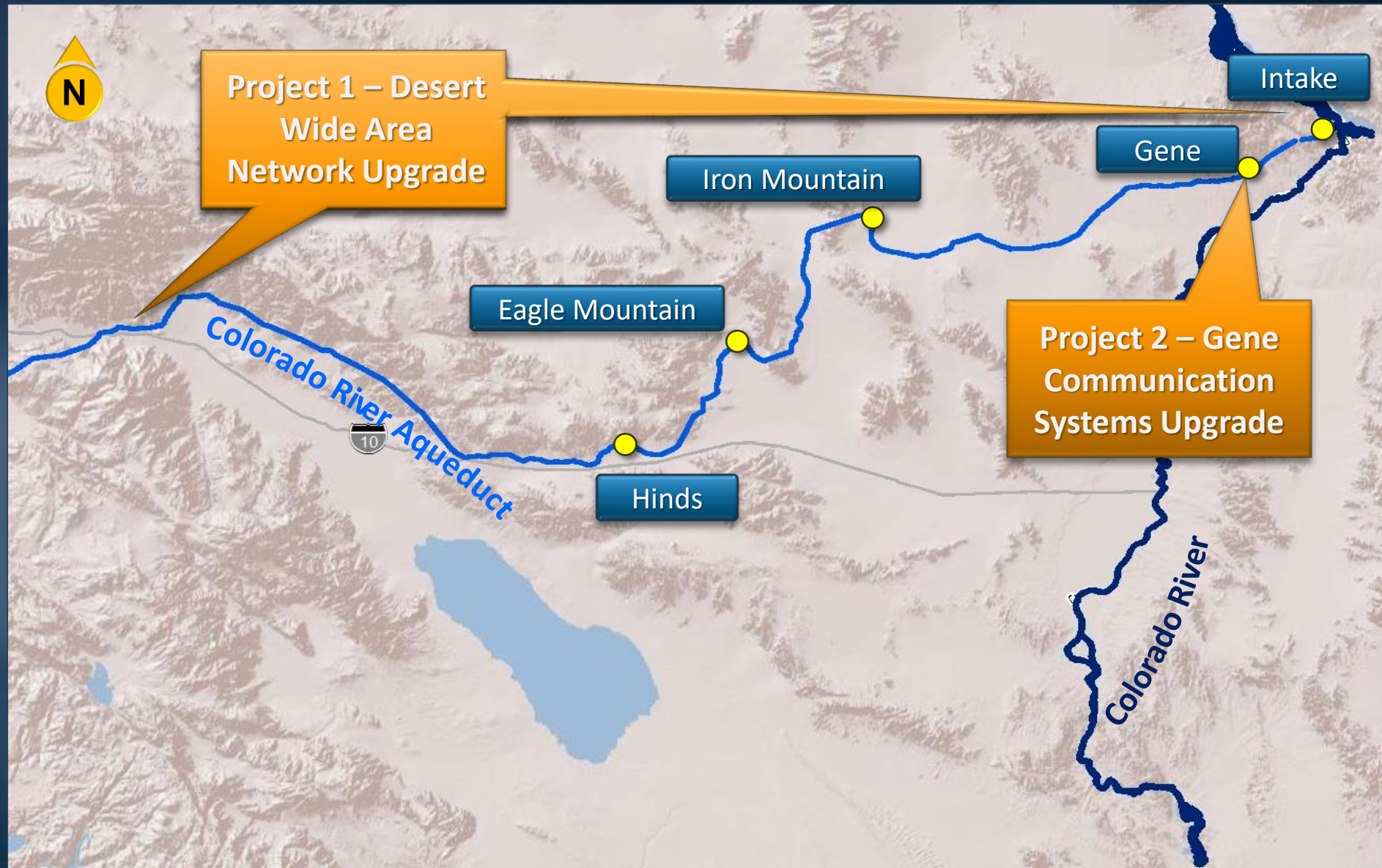
Item 7-3

July 12, 2021

Current Action

- Authorize an agreement with Nokia of America, Inc. in an amount not to exceed \$5,297,000 for equipment procurement & design support to upgrade the wide-area network
- Authorize increase of \$250,000 to the agreement with Hatfield & Dawson Consulting Engineers, LLC for a new not-to-exceed amount of \$730,000 for specialized technical support for the upgrades
- Amend current CIP to include upgrades to the communication system at Gene Pumping Plant
- Authorize an agreement with HDR Engineering, Inc. in an amount not to exceed \$275,000 for design services

Location Map



1. Metropolitan's Microwave Wide-Area Network



1. Metropolitan's Tele-protection Systems

- Essential to operation of high-power transmission lines
 - Transmission studies concluded need for tele-protection system
 - Clear electrical disturbances quickly to protect equipment and prevent electric grid instability
- Relies on WAN system that is connected to other regional electrical providers
- Other regional providers use Nokia of America, Inc. microwave radio equipment



1. Background

- Microwave radio WAN constructed in late 1990s
 - Transmit data, voice, video and command signals to operate its distribution and business systems
- Existing WAN equipment at end of useful service life
 - Typical life expectancy range from 12 to 15 years
 - Reliability decreased due to recurring intermittent failures
- Need to provide reliable carrier-grade system to transmit tele-protection, emergency radio, meter readings, security camera & security alarms

1. Alternatives Considered

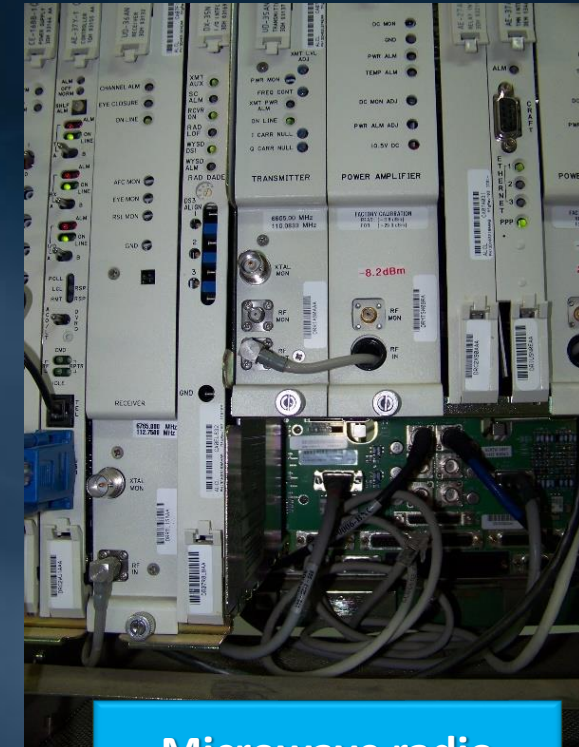
- Remove and replace individual components of the microwave radio system
 - Would maintain equipment from several different manufacturers
 - Two out of five are no longer in business
 - Continued risk of interoperability issues
- Selected option
 - Upgrade WAN to a single vendor platform
 - Opportunity to standardize microwave radio equipment
 - Simplifies maintenance and operations
 - Consolidates equipment from disparate manufacturers
 - Streamlines future upgrades and interoperability

1. Planned Work

- Replace current microwave system with a high-capacity carrier-grade system
 - Antennas
 - Waveguides
 - Routers
 - Microwave radio equipment
 - Battery systems
 - Network Management system



Tower/Waveguides



Microwave radio equipment

1. Selection Process

- Proof-of-concept of Nokia equipment conducted
- Nokia equipment recommended to enhance reliability of tele-protection
- Majority of the regional power providers Metropolitan interconnects with are/will be utilizing Nokia solutions



Proof-of-concept
around Diamond
Valley Lake

1. Recommended Procurement Process

- Utilize NASPO cooperative agreement procurement mechanism
 - Consistent with Metropolitan Administrative Code provision
- State of Washington Department of Enterprise Services solicited a competitive procurement of Public Safety Communication Support Equipment in 2015
 - Solicitation 05715 included microwave radio systems and services
 - Currently 22 states participate in this NASPO program

NASPO: National Association of State Procurement Officers



State of Washington
DEPARTMENT OF ENTERPRISE SERVICES
1500 Jefferson SE, PO Box 41411
Olympia, Washington 98504-1411 • (360) 407-2210
<http://www.des.wa.gov>

1. Nokia of America Corporation

New Agreement

- Selected using cooperative agreement
 - Solicitation 05715, completed in 2016
- Scope of Work
 - Provide new microwave radio equipment
 - Conduct microwave design
 - Assist with preparation of an installation contract
- NTE amount: \$5.297 M

1. Hatfield & Dawson Consulting Engineers, LLC Agreement Amendment

- Competitively selected under RFP 1179
- Scope of Work
 - Provide technical reviews of WAN drawings & specifications
 - Provide as-needed technical services (e.g., support during leasing negotiations, review of system frequencies, industry research)
- Amend agreement: \$250,000
- New NTE amount: \$730,000

1. Metropolitan Scope

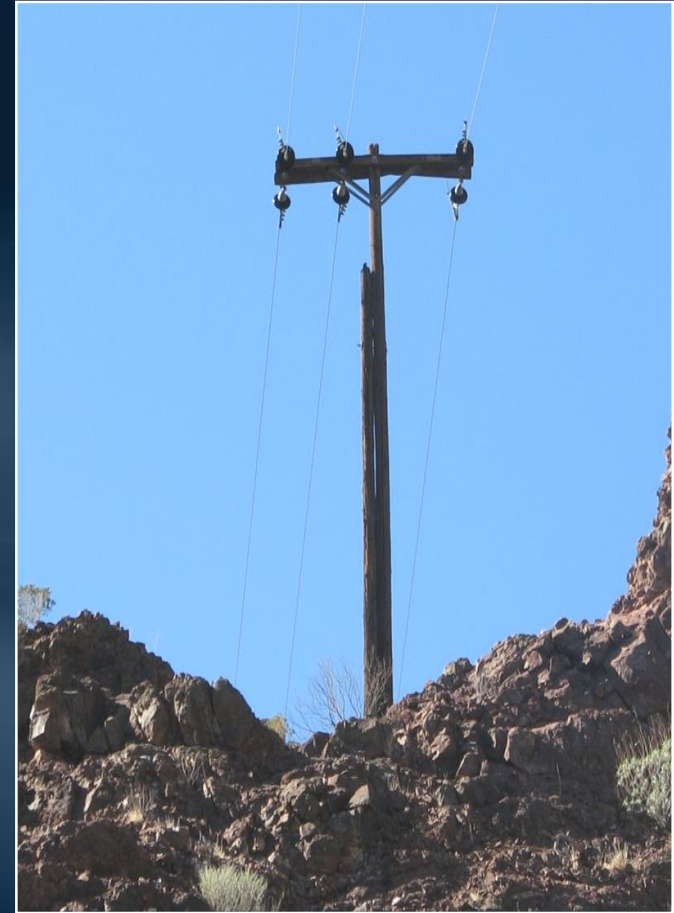
- Prepare drawings & specifications for installation of microwave radio WAN equipment
- Obtain local agency permits
- Develop construction cost estimates
- Prepare environmental documentation
- Advertise the installation contract
- Project controls & project management

2. Gene Communications System Upgrade



2. Background

- Provides critical redundancy to the existing desert WAN system
- Initiates long term plan to install fiber optic communications to desert facilities
- New fiber optic connection will
 - Improve speed & video surveillance resolution at the Gene Plant
 - Allow desert facilities to access more innovative cloud applications
 - Improve communication system overall speed, reliability & resiliency
- Staff recommends adding this project to current CIP
 - Sufficient funds are available



2. Alternatives Considered

- Add 3rd microwave path between Parker Dam & Gene Plant
 - Path has limited capacity for expansion of the facility at this time
 - Does not take advantage of the technology improvements offered by fiber optic communication
- Selected option
 - Install fiber optic cable to provide critical redundancy at Gene Plant
 - First step in bringing fiber optic cable communications to all CRA plants
 - Improves data transmission speed, reliability, & resiliency
 - Improves internet service for desert employees at Gene Plant

2. HDR Engineering, Inc.

New Agreement

- Competitively selected under RFP 1252
- Scope of work
 - Design criteria development
 - Detailed design
 - Plans & specifications development
 - Construction cost estimates
 - Technical support during bidding period
- SBE participation level: 25%
- NTE amount: \$275,000

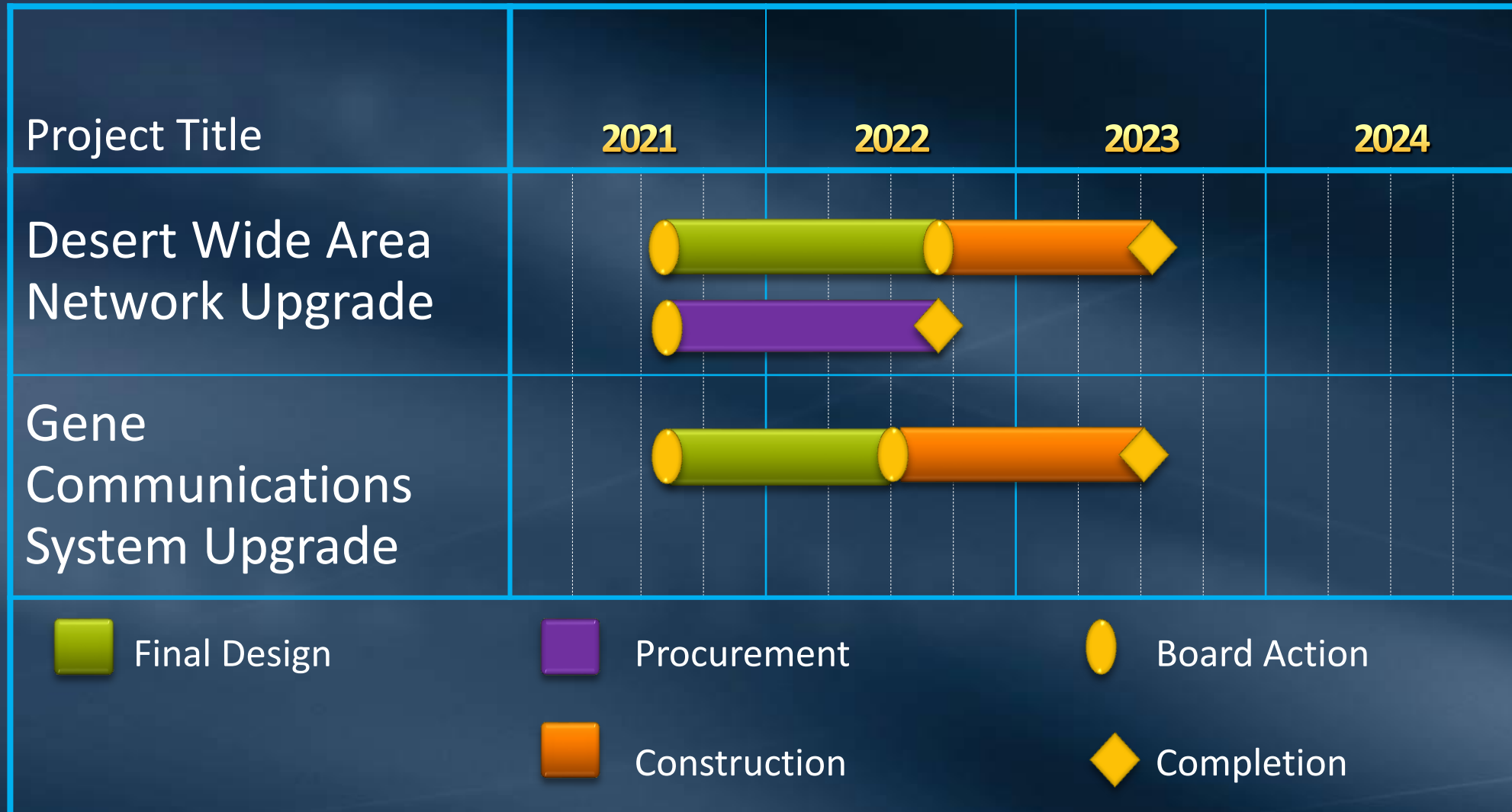
2. Metropolitan Scope

- Conduct field investigations
 - Geotechnical analysis
 - Aerial topographic survey
- Acquire temporary rights-of-way
 - Contractor staging
 - Work areas
- Permitting & agreement execution with service provider
- Review consultant work, project controls & project management
- Advertise & receive competitive bids

Allocation of Budgeted Funds

	Desert WAN Upgrade	Gene Comm. System Upgrade
Labor		
Studies & Investigations	-	\$59,000
Final Design and Specifications	\$800,000	49,000
Owner Costs (Program mgmt., envir. monitoring)	350,000	178,000
Submittals Review and Technical Oversight	350,000	-
Materials & Incidentals	125,000	10,000
Professional Services		
Nokia of America Corporation	5,297,000	-
H&D Consulting Engineers, LLC	250,000	-
HDR Engineering, Inc.	-	275,000
Rick Engineering Company (aerial survey)	-	29,000
Specialty Consultant - Tower Analysis	60,000	
Right-of-Way	-	14,000
Remaining Budget	779,000	51,000
	Total	
	\$8,011,000	\$665,000

Project Schedule



Board Options – Option #1

- Authorize an agreement with Nokia of America Inc for a not-to-exceed amount of \$5,297,000 for furnishing wide-area network equipment and design support to upgrade the desert region-wide-area network;
- Authorize increase of \$250,000 to the agreement with Hatfield & Dawson Consulting Engineers, LLC for a new not-to-exceed amount of \$730,000 for specialized technical support for the upgrade;
- Amend current CIP to include upgrades to the communication system at Gene Pumping Plant; and
- Authorize an agreement with HDR Engineering, Inc. for a not-to-exceed amount of \$275,000 for design services.

Board Options – Option #2

- Authorize an agreement with Nokia of America Inc for a not-to-exceed amount of \$5,297,000 for furnishing wide-area network equipment and design support to upgrade the desert region-wide-area network;
- Authorize increase of \$250,000 to the agreement with Hatfield & Dawson Consulting Engineers, LLC for a new not-to-exceed amount of \$730,000 for specialized technical support;
- Do not amend current CIP to include upgrades to the communication system at Gene Pumping Plant; and
- Do not authorize an agreement with HDR Engineering, Inc. for a not-to-exceed amount of \$275,000 for design services.

Board Options – Option #3

- Do not proceed with these projects at this time.

Staff Recommendation

- Option #1

