STAFF REPORT

Meeting Type:	Operations Committee/Board of Directors
Title:	Network Infrastructure Refresh Project
From:	Bret Uppendahl, Finance Director
Through:	Ben Horenstein, General Manager
Meeting Date:	November 15, 2024

TYPE OF ACTION: Action Information X Review and Refer

RECOMMENDATION: Review and refer to a future regularly scheduled Board meeting an agreement with Quest Technology Management for upgrades and maintenance of the District's network equipment

SUMMARY: Much of the current hardware supporting the District network is well past its service life or will no longer be supported by the manufacturer within a year. Additionally, remediation is required to replace cabling and fiber infrastructure to support modern networking standards and increased speeds. Lastly, the current Wide Area Network (WAN) architecture can be simplified by migrating off of the current solution and moving towards WAN services directly provided by our primary carrier.

Staff is proposing network equipment replacement and cabling infrastructure upgrades at all sites that require remediation. Staff obtained estimates of the hardware purchases required for the replacement of current network hardware as well as "not to exceed" quotes to perform remedial cabling work at every District site (Administrative Building, Corporation Yard, Bon Tempe Treatment Plant, Sky Oaks, San Geronimo Treatment Plant and Ignacio). All work will be performed in this fiscal year and funding to cover both equipment purchasing and cabling services is currently available within the Information Systems department budget.

This project marks an important step in improving the reliability, capacity, and performance of the District local and wide area networks and is critical for the delivery of IT services, solutions, and applications across the organization.

DISCUSSION: This Network Infrastructure Refresh project is necessary to ensure future serviceability and manageability of the District's network and is a crucial component supporting

the adoption of cloud services and the modernization of the District's ERP infrastructure. There are several benefits to the District in approving this Project:

Ensure Future Serviceability: Core portions of the current network were manufactured on or before 2003. Typical service life of networking equipment is 10 years. The network "core" will exceed its extended service life in December of this year. Most core network components are or will soon be no longer supported or serviceable.

Simplification and Cost Reduction: A key benefit of this project will be the removal of an overly complex and costly Software-Defined WAN infrastructure and an opportunity to migrate to data services procured under the CALNET 3 contract, which is a statewide contract that provides telecommunications services at special rates for local governments. This will not only reduce recurring costs, but will also reduce network outages, increase performance, and reduce latency on the network. Network speeds between sites will improve, capacity will be increased, and cloud services will be more responsive.

Addresses Current Pain Points: The current network architecture has several pain points that will be eliminated by this project.

1. Improve the connection between all switch interfaces removing current data bottlenecks currently in our networks
2. Move network intermediate distribution frames at Bon Tempe, Ignacio and Corporation Yard to secure and environmentally stable locations
3. Allow the IT Team to properly segment and control traffic between all sites eliminating the current problems with the Cisco VoIP phone system
4. Properly manage and filter internet traffic to ensure business systems and applications get the highest speed and priority
5. Improve WAN connections between all sites allowing for faster data speeds on large files and allow for unification of the two production data centers

Expanded Wi-Fi Capabilities: The implementation of this project provides the opportunity to create and manage several Wi-Fi networks with varying methods of authentication and resource allocation. In addition to providing dedicated Wireless Networks for District Devices, Employee Devices, and Guest Devices, the re-distribution of Wireless Access Points will greatly expand current coverage by including new high density Wi-Fi 6 and Outdoor Access Points. Real-time heat maps will allow for redistribution and or expansion of Access Points as needed.

Advanced Networking Capabilities: Another benefit of this project is the introduction of advanced networking capabilities not currently available with the current network infrastructure. Some of these new capabilities will include:

- Real-time utilization and diagnostic reports
- The ability to visualize network traffic in real-time allowing IT staff to spot potential issues or bottlenecks and resolve issues quickly
- The ability to optimize performance by re-routing network traffic
- The ability to custom tailor network resources according to business needs at the application and or protocol/port level

Advanced Threat Protection: Included with this project are subscriptions for Cisco AMP and Umbrella. These two powerful security tools allow for better and a vastly more robust security posture and will allow IT staff to track and mitigate any security threats in real time with unprecedented speed and accuracy.

Remote Serviceability: Cisco Meraki equipment can be easily and remotely managed and allows the Information Technology team to develop advanced network skills necessary for success in future technology initiatives.

ENVIRONMENTAL REVIEW: Not Applicable.

FISCAL IMPACT: As shown in the table below, the estimated cost of the Network Infrastructure Refresh Project is projected to be $364,621 in FY 2024/25. This includes all networking equipment, cabling, and fiber upgrades as well as professional services for execution of the project. The first five years of licensing costs and maintenance are included in this agreement. Future licensing costs will be included in the Information Technology department budget.

Component	Description	Quote
Network Hardware	• All new Cisco Meraki Switches, Firewalls, Access Points and Optical Connectors	$259,693
Admin Building/Corp Yard	• Install armored and outdoor-rated fiber optic cable • Install a 12U network rack in the electrical room. • Install 1 Cat 6 plenum rated cable for a feeder from the electrical room to an existing rack in the Lab. • Install 275 feet of indoor/outdoor fiber between the electrical room and the warehouse. • Install 1 harsh environment 42U network cabinet.	$54,928
Bon Tempe/ San Geronimo/ Ignacio	• Install a 10-12U wall mounted rack • Install a 3U vertical network rack. • Install new 24-port modular patch panels. • Relocate the OSP cables and Access Points • Install Cat 6 data drops	$30,000
Sky Oaks	• Install a new 24-port modular patch panel. • Install approximately 15 plenum rated data cables. • Run new 6 Strand outdoor rated fiber between ranger station and both trailers	$20,000
	Total Project Cost:	**$364,621**

ATTACHMENT(S): None.