

HOFFMAN ESTATES PARK DISTRICT MEMORANDUM # 17-119

To: Administration & Finance Committee
From: Dean Bostrom, Executive Director
Craig Talsma, Deputy Director/Director of Finance & Administration
John Agudelo, Information Technology Manager
Date: October 18, 2017
Re: Comcast Network Infrastructure Renewal & Upgrade

Background

In 2015, the District signed a three year contract with Comcast to upgrade our network infrastructure. The upgrade laid down a foundation for our Shoretel phone system as well as to provide better and faster speeds for the ever increasing needs of our internet based business applications. This contract with Comcast is set to expire March 2018. Staff has been planning to upgrade the network infrastructure to include a foundation for a disaster recovery & redundancy plan, to provide faster internet speed for our GIS application at Parks, and to upgrade current coax lines to more reliable & scalable fiber based lines.

Our current network topology is based on what Comcast calls Ethernet Virtual Private Line (EVPL). This is essentially a hub & spoke network design in which Triphahn is the central location (hub) of the network. All remote facilities: Bridges (BPC), Prairie Stone Sports & Wellness (PSSWC), Willow (WRC), & Parks) utilize a coax line to communicate back & forth with Triphahn (TC). TC is currently the only facility on fiber with a dedicated internet line of 100Mbps which all facilities share. The current local network speeds for each facility are as follows:

- BPC – 10Mbps
- PSSWC – 10Mbps
- WRC – 4Mbps
- Parks – 4Mbps
- TC – 28Mbps

As the hub, TC's local network speed is 28Mbps, which is the sum of all the remote facilities' speeds. Internet & network connectivity over fiber has become the gold standard for fast, high-quality data transmission for businesses. Considered "futureproof", this technology relies on clusters of transparent glass fibers, each about the same diameter as a human hair. Electrical signals carrying data are converted to light which results in much faster speeds compared to coax. Although fiber lines are hair-thin, they have the capacity for greater bandwidth & have higher reliability than traditional coax. We potentially could go up to 1000Mbps (1GB) if our business needs demand it.

The proposed network topology, which can support disaster recovery, is what Comcast calls Ethernet Network Services (ENS). This is referred to as a mesh network design in which all facilities can access one another without having to go back to a central hub. Along with the change in network topology, a second dedicated internet line at Parks will be installed and all coax facilities (BPC, WRC, & Parks) with the exception of PSSWC will be upgraded to faster fiber based lines. PSSWC current construction cost because of their geographical location will not yet support the installation costs to provide this facility with fiber.

Implications

We are highly invested in Comcast's enterprise solutions and have been extremely satisfied with not only the overall performance but the standard of care and minimal downtime the District has experienced. The original migration provided our facilities with stable and faster connectivity. The proposed upgrade includes all facilities changing to the ENS topology as well as:

- BPC would be upgraded to fiber and their local network speed would increase from 10Mbps to 20Mbps.
- PSSWC would stay on coax and their local network speed would increase from 10Mbps to 20Mbps.
- WRC would be upgraded to fiber and their local network speed would increase from 4Mbps to 10Mbps.
- Parks will receive the most drastic change as they will act as our disaster & recovery location. Parks will be upgraded to fiber and their local network speed would increase from 4Mbps to 50Mbps. They will also have a 50Mbps dedicated internet line second only to Triphahn in speed. The dedicated internet line will help load balance the District's internet traffic as well as make our GIS application run more efficiently. As part of the disaster recovery and redundancy plan we will plan to install hardware (i.e. server, firewall, & switch) to mimic Triphahn in the event of a disaster. If a disaster were to occur at Triphahn, all traffic would be redirected to Parks and we would have business continuity within a few hours instead of weeks depending on the severity of the disaster.
- TC's local network speed would increase from 28Mbps to 100Mbps. This is to ensure that Triphahn will be capable of sustaining the sum of all the remote facilities speeds. Triphahn's 100Mbps dedicated internet line will continue to be shared by all facilities.

Below is a table that summarizes the changes as well as the associated costs.

Comcast Service Description				
SERVICE FROM:	See Below			
PRODUCTS:	Ethernet Network Service (ENS)-Priority, Ethernet Dedicated Internet (EDI), ISDN PRI (PRI)			
LOCATION & SERVICE TYPE	ANTICIPATED SERVICE INSTALLATION DATE	TOTAL MONTHLY RECURRING CHARGE	INCREASE FROM EXISTING MONTHLY CHARGES	TERMS
TRIPHAHN CENTER, 100MBPS EDI & 100MBPS ENS FIBER	120 DAYS	\$2307.00	\$440.50	36-MONTHS
TRIPHAHN CENTER 2 PRI'S	120 DAYS	\$678.00	\$0.00	36-MONTHS
BRIDGES OF POPLAR CREEK GC, 20MBPS ENS FIBER	120 DAYS	\$640.00	\$80.00	36-MONTHS
PARKS MAINTENANCE GARAGE, 50MBPS EDI & 50MBPS ENS FIBER	120 DAYS	\$1842.00	\$1490.00	36-MONTHS
PRAIRIE STONE, 20MBPS ENS COAX	120 DAYS	\$640.00	\$80.00	36-MONTHS
WILLOW REC CENTER, 10MBPS ENS FIBER	120 DAYS	\$560.00	\$208.00	36-MONTHS

Construction costs to bring Comcast's fiber to the aforementioned facilities are estimated at \$50,000. This cost would be waived if we enter into a new three year agreement with Comcast for the other services. There is approximately a 120 day installation period due to the construction for the new Fiber lines.

The total cost of Comcast's proposal is \$6,667.50 per month (plus surcharges & taxes) for a three year contract. The District is currently paying \$4,389.50 per month. Comcast's knowledgeable account team, excellent reputation, & impressive Service Level Agreements (SLA), will provide the District with stable & scalable bandwidth as our needs change and increase in the future. The contracting of data services is not required to be bid and the District may enter into a three year contract for such services.

Recommendation

That the A&F Committee recommends to the full board to enter into a three year contract with Comcast to provide the District the outlined network infrastructure renewal & upgrade for a base monthly cost of \$6,667.50 plus taxes and fees.