



Date: April 25, 2018

To: Thomas J. Bonfield, City Manager
Through: Wanda Page, Deputy City Manager
From: Kerry L. Goode, CIO/Director of Technology Solutions
Subject: City/Duke Fiber Optic Network Partnership

Executive Summary

The City of Durham has partnered with Duke University to build and utilize a fiber optic network to provide high-speed, reliable, network connectivity to all City facilities and Durham Public Housing Authority locations. The current metropolitan area network will not provide the capabilities to meet our future broadband requirements without tremendous increase in cost.

The shared fiber optic network connections are necessary to accommodate the City's broadband growth requirements of gigabyte connections to all facilities for communications (phone and email); enterprise-wide systems such as MUNIS, OnBase, Internet, Fire Reporting, Police Body Cam System, various video driven systems, SaaS Systems, the Open Software Solutions Inc. (OSSI); and Parks and Recreation computer labs. The future smart city technologies will also require gigabyte connections to every facility and other locations throughout the City.

The breakdown of the current connectivity provided to the City's facilities is as follows:

- 35 facilities connected with 5 MB broadband service (highest capacity available from Spectrum at these locations)
- 5 facilities connected with 10 MB broadband service
- 13 facilities connected with 100 MB broadband service
- 9 facilities connected with 1 GB broadband service

The facilities that are receiving 5 MB connections are not getting the broadband connectivity required to run certain applications. The annual cost for all of the aforementioned connectivity services provided to facilities from Spectrum is \$359,664. If Spectrum was capable of providing 1 GB connection to all facilities, the cost would increase to \$1,730,880 annually for City facilities only.

The cost to invest in the shared fiber optic network with Duke University is \$4,266,200. The overall cost of the fiber network project is \$6,112,690 (Please refer to the Financial Impact section for a breakdown of the project cost.)

Recommendation

The Administration recommends that the City Council authorize the City Manager to execute a Fiber Optical Network Infrastructure Agreement with Duke University in the amount of \$4,266,200 for the term of 25 years to provide current and future broadband requirements to the

City's business units.

It is recommended that the City Council adopt an ordinance amending the General Capital Improvements Project Ordinance, Fiscal Year 2017-18, as amended, the same being Ordinance #15131, for the purpose of adding the City/Duke Fiber project in the amount of \$6,112,690.

Background

During the last several years, the City has been exploring partnerships with various organizations regarding building a fiber optic network. Duke University approached the City with the opportunity to partner in building a fiber network. The City currently owns a very limited amount of fiber infrastructure. The City is also utilizing a small portion of the County's backbone fiber because the County's fiber is only located in the downtown area and only a few City facilities can be connected to it. Currently City Hall is the only facility connected to County's fiber. There are plans to connect the new Police Headquarters utilizing the County fiber network for redundancy purposes.

Issues/Analysis

The current broadband services provided to the City by Spectrum are not currently meeting the needs of the City. Based on a comparative analysis, the City will obtain more broadband value at a much reduced cost by partnering with Duke University, than to purchase the required broadband from a service provider. In addition, Spectrum has informed the City that they are not going to provide high speed broadband service to many of the City facilities due to the location.

Alternatives

The City can try to find a service provider that will give the City the required service for each location. However the cost will be much greater than the cost to partner with Duke University.

Financial Impact

The estimated one time cost is \$4,266,200 for the Fiber Optical Agreement with Duke University. The other associated cost for this project is as follows:

One Time Fiber Backbone Hardware Cost	\$ 611,926
One Time Professional Service Cost-- Backbone Hardware Installation	\$ 70,000
Project Management	\$ 202,897
One Time Cost for Hardware for City Facilities	\$ 146,544
Kimley-Horn and Associates Permit and Design Fee Agenda # 12526	\$ 650,000
One Time Professional Service Cost – City Facilities Hardware Installation	\$ 70,762
First Year Maintenance Cost	\$ 94,361
One Time Network Construction Cost	\$4,266,200

The total cost of the fiber network project is \$6,112,690.

EBOP Summary

The Equal Opportunity/Equity Department reviewed the agreement.

EBOP Requirements

There were no EBOPs to provide this service.