



**DATE:** June 1, 2017

**TO:** Council Technology Application Committee

**FROM:** City Manager

**SUBJECT** Review and Discussion on Highspeed Hayward Fiber Request for Information Regarding Design and Specifications of the Fiber Network

### **RECOMMENDATION**

That the Committee reviews and provides feedback on the attached Request for Information (RFI) regarding fiber-optic network design standards.

### **BACKGROUND**

The City's adopted [Economic Development Strategic Plan \(FY 2014-2018\)](#) identifies that the City should "explore a public/private partnership to secure broadband/fiber optic network in the industrial area." To achieve this task, which is programmed over the duration of the five-year plan, City staff developed, and is actively executing, a comprehensive work plan designed to meet near- and long-term needs. Core elements of this program include:

1. Collecting data on existing broadband resources and business needs;
2. Engaging with technology and service providers to identify each organization's plan or willingness to expand service to the Industrial Crescent and explore potential public-private partnerships;
3. Pursuing funding opportunities including federal economic development and public works grants for network design and construction; and
4. Developing a Fiber Master Plan to guide the City in planning, budgeting and implementing a telecommunications infrastructure project.

The addition of this infrastructure to Hayward's Industrial Crescent will serve as a competitive advantage over other communities. Improved broadband connectivity in the City's industrial areas will support business attraction efforts. While the existence of fiber is only one of many site selection factors (such as lease rents, building configuration, traffic patterns, etc.), being able to market Hayward's broadband connectivity to the business community at-large not only helps satisfy a site selection criterion, it will strengthen the City's reputation as a center for innovation and growth.

Economic Development Administration Fiber Network Construction Grant:

In late 2016, the City was awarded a \$2.74 million grant by the U.S. Department of Commerce - Economic Development Administration to construct a fiber optic network in the Industrial Corridor. This system will serve as a backbone for a broader fiber network and will consist of existing infrastructure and newly constructed conduit and fiber. Specifically, this network must meet the following minimum specifications:

- Consist of 11 miles of high speed fiber optic cabling
- Include the installation of 97 pull boxes on 600 ft. intervals
- Install at least 3 railroad crossings and one major highway crossing.

The City has five (5) years to complete this project. Construction is scheduled to commence by October 2017 and must be complete by October 2020. However, it is anticipated that the timeline will be extended due to timing concerns, Union Pacific and Caltrans permitting processing, and design guideline approvals.

#### Fiber Master Plan Formation:

In April 2016, the City initiated the formulation of a Fiber Optic Master Plan (Fiber Master Plan) to collect the data needed to analyze and recommend the most feasible path and business model to deploy a network with an initial emphasis on serving businesses in the Industrial Technology and Innovation Corridor. A draft plan was presented to City Council in January 2017 and a Final Plan is anticipated to be adopted by the Fall of 2017. The Draft Fiber Master Plan is attached to this staff report.

The most significant recommendation of the Draft Fiber Master Plan is the adoption of a business model to deploy a fiber optic network that meets the community's goals and reduces risk to the City. The plan recommends the City adopt a "dark fiber" business model in which the City manages and maintains the fiber infrastructure. This approach involves the City installing the conduit and fiber strands required to deploy a network and providing one or more private partners with a license or lease to use the City-owned fiber. This partner then "lights" the fiber and offers services to end users.

#### **DISCUSSION**

The RFI (see Attachment III) will be sent to a variety of internet service providers, businesses and other interested parties during the month of June. The RFI seeks feedback from these parties on the following items:

1. **Capacity**—What are the conduit needs of internet service providers or related vendors? Specifically, what size, type, etc. should be installed to accommodate future users' needs?
2. **Segmentation**—Users need to have the appropriate level of separation from each other for commercial, security, or operational reasons.

3. **Access**— Vaults and handholes need to be placed to provide access to conduit and the ability to pull fiber. What are preferred distances and design characteristics of vaults for minimizing the cost of extending conduit to buildings?
4. **Robustness**—What materials, construction standards, and placement needs exist to reasonably protect the fiber, and not unduly complicate maintenance and repairs?
5. **Architecture**—What conduit weeps, bend radius, and vault sizes need to be to meet provider demands?
6. **Other** – What other design criteria or issues should the City examine to ensure standards meet the needs of providers?

### **ECONOMIC IMPACT**

Staff cannot estimate at this time the job creation impacts attributable to the construction of this new infrastructure. However, per the City's Economic Development Division, information collected through the Economic Development Business Visitation Program since September 2014, as well as the results of the business surveys and interviews conducted during the Fiber Master Plan formation process, indicates there is demand for broadband connectivity from small to medium-sized businesses within the advanced industries sector. Firms in the biotechnology, construction and engineering, information and business services, and manufacturing sectors have expressed a need for such service to help them grow and remain competitive.

### **FISCAL IMPACT**

Outside of the expenditure of staff time, there is no fiscal impact for the completion of the RFI.

### **PUBLIC CONTACT**

Paul Nguyen, Economic Development Specialist, will oversee the RFI process in consultation with the City Manager's Office and Information Technology Department.

*Prepared by:* John Stefanski, Management Analyst

*Recommended by:* Adam Kostrzak, Director of Information Technology

Approved by:



---

Kelly McAdoo, City Manager