



Agenda Report

November 18, 2019

TO: Honorable Mayor and City Council
FROM: Department of Information Technology
SUBJECT: AUTHORIZATION TO ENTER INTO A FIBER LICENSE AGREEMENT WITH THE CALIFORNIA INSTITUTE OF TECHNOLOGY

RECOMMENDATION:

It is recommended that the City Council:

1. Find that the following proposed action is exempt from the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines Section 15061(b)(3), General Rule; and
2. Authorize the City Manager to enter into a license agreement with the California Institute of Technology for use of City fiber for a five-year term.

BACKGROUND:

Originally installed in the late 1990s and expanded over the past several years, the City's fiber optic network supports the City's voice and data networks and utility operations. The City also leverages excess capacity within the network to lease fiber and provide fiber-based services to a variety of customers, generating revenue in the process. City fiber customers include a competitive carrier, CenturyLink, and local institutions and businesses such as the California Institute of Technology, the Jet Propulsion Laboratory, ArtCenter College of Design, and Idealab.

Caltech's Seismological Laboratory (SeismoLab) is a modern geophysical observatory that emphasizes the acquisition, analysis, and modeling of data pertaining to the structure and dynamics of the earth. One of the SeismoLab research programs is using Digital Acoustic Sensing (DAS) Technology to detect seismic movements using fiber optic cable resulting in the ability to gather exponentially more data about a seismic event than traditional seismometers. For example, there are only 11 seismometers within the Pasadena city limits used to analyze data after a seismic event. Using a few strands of fiber optics around the City's 25-mile fiber optic ring to measure seismic activity will gather data equivalent to 30,000 seismometers, thereby turning each meter

of fiber optic cable into its own seismometer. With tens of thousands of new data points available with this new technology, researchers believe the data will help Pasadena, and eventually other communities, better prepare for, and respond to seismic events.

In 2018, Caltech first approached the City to pilot the new research using a small segment of the City's fiber assets to prove out the concept and use the results to apply for federal grants to continue the research. Based on the success of the initial research, the SeismoLab applied for and was awarded a National Science Foundation grant to fund the ongoing research for the next five years.

Given that the research will continue into the foreseeable future and the research depends on continued access to the City's fiber assets, staff recommends developing a formal fiber license agreement. In lieu of the City collecting licensing fees for the use of the fiber assets, Caltech will provide public information and education regarding earthquakes in the Pasadena area, and data that will help the community prepare and respond to earthquakes. Some of the areas under discussion, but not limited to, are:

- Delivering educational outreach at local schools and libraries to support earthquake awareness and preparedness
- Sharing information with the City regarding shaking patterns in Pasadena, such as ShakeMap type mapping at the local level, in support of hazard mitigation
- Conducting an annual review with the City of opportunities to share earthquake data, and develop public service programs and products

The recommended fiber license agreement will be a five-year term, aligning to the length of the National Science Foundation grant, which is currently estimated to end on March 31, 2024. The agreement does not contemplate the City receiving compensation for use of the fiber optics, although Caltech will be responsible for any engineering and third-party contractor costs to design, configure, and make any modifications. The agreement does not include service and maintenance guarantees or repair commitments by the City.

Caltech currently has an existing multi-year fiber license agreement, 21232, with the City. The agreement is revenue generating and compensates the City for ongoing use of the fiber, as well as City maintenance and repair of any outages.

COUNCIL POLICY CONSIDERATION:

This agreement supports the City Council Strategic Goal to "Support and promote the quality of life and the local economy", leveraging the fiber optic network to help meet the data communications needs of local institutions and businesses. Additionally, the agreement supports the City Council Strategic Goal to "Ensure Public Safety", by supporting Caltech's efforts in researching seismic activity to mitigate its potential effects on the Pasadena community.

ENVIRONMENTAL ANALYSIS:

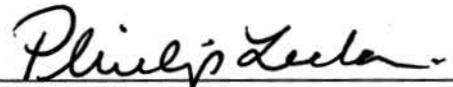
The proposed agreement is exempt from the California Environmental Quality Act (CEQA) in accordance with Section 15061 (b)(3), the General Rule. The General Rule can be applied where there can be seen with certainty that the activity will not have a significant effect on the environment. The proposed action relates to services for connection, maintenance and emergency troubleshooting of fiber optic cable that has been previously installed.

FISCAL IMPACT:

Although the new license agreement is intended to be provided without fee to Caltech, the City expects to receive consideration of an equivalent value through sharing of data and analysis of the research that will help the community to better prepare for, and respond to earthquakes. Staff also estimates revenue of approximately \$15,000 over the five-year agreement for any engineering and third-party contractor costs to design, configure, or modify the fiber assets when requested by Caltech.

The anticipated impact to other operational programs or capital projects as a result of this action will be minimal.

Respectfully submitted,



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