



AGENDA REPORT

Meeting Date: December 15, 2015

Item Number: F-5

To: Honorable Mayor & City Council

From: David Schirmer, Chief Information Officer

Subject: PRESENTATION OF THE FINDINGS OF THE FIBER-TO-THE-PREMISE FEASIBILITY STUDY TO MAKE BROADBAND SERVICES AVAILABLE TO RESIDENTS AND BUSINESSES THROUGHOUT THE CITY; AUTHORIZATION FOR THE CITY MANAGER TO NEGOTIATE AN AMENDMENT TO THE AGREEMENT WITH UPTOWN SERVICES FOR THE COMPLETION OF ENGINEERING DESIGN SERVICES FOR THE FIBER TO THE PREMISE PROJECT; APPROPRIATION OF \$500,000 FROM THE CITY'S TECHNOLOGY FUND 41; AND APPROVAL OF A PURCHASE ORDER TO UPTOWN SERVICES FOR THIS WORK IN AN AMOUNT NOT-TO-EXCEED \$500,000.

Attachments:

1. FTTP Feasibility Study
2. Uptown Services Agency Introduction

RECOMMENDATION

Staff is seeking direction from City Council in terms of next steps for the Fiber-to-the-Premise initiative. As envisioned, this initiative anticipates providing broadband services (Internet Service) to residents and businesses throughout the City. Should consensus coalesce around moving forward with the project, staff recommends approval for the City Manager to finalize an amendment to the agreement with Uptown Services, an appropriation of \$500,000 from the Information Technology Fund, and approval of a purchase order in the amount not-to-exceed \$500,000 for the completion of design work and development of bid documents.

INTRODUCTION

In December 2014, City Council confirmed the Fiber-to-the-Premise initiative as an 'A' priority during the annual priority setting session. Also in December of 2014, the Information Technology Department, with support from the Technology Committee worked through various iterations of the business case to provide broadband services to the community. This business case was developed as the result of a feasibility study developed by Uptown Services retained by the City earlier in the year after an RFP selection process. By April of 2015, Uptown Services refined the business case by including feedback gathered from the business community. From that time to the present, preliminary engineering work was undertaken to confirm initial estimates, and to develop high-level designs for the fiber optic system.

At a very high level, the Fiber-to-the-Premise project will provide 1 Gigabit-per-second Internet speeds to residents for about \$50 per month. Voice and video services (phone and television) will also be available as add-on services. By way of comparison, Internet speeds of 1 Gigabit-per-second is at least three times faster than what the incumbent residential carriers, Time Warner Cable and AT&T, are offering. Most residents experience speeds slower than this, however. As envisioned, these services will be available to every premise in the City, including multi-family and commercial areas. Businesses will be offered an array of tiered plans at additional cost.

While this action requests \$500,000 to move to the next phase of the project, the total cost for this initiative is currently set at \$32 million. Council will have additional opportunity to address financial considerations as part of the 2016-2017 budget process. Various financing options have been developed, and the current working model delivers positive cash flow in year four, with the project being net cash positive after 15 years.

DISCUSSION

To facilitate Council deliberation, Uptown Services will present comprehensive findings of their feasibility study to Council that includes current conditions, anticipated demand, study methodologies, market research, recommended offerings, anticipated revenue, technology strategies, and capital costs.

Consulting Firm

In 2014 Uptown Services was retained by the City after an RFP process to conduct a comprehensive feasibility study for the potential for the City to offer Internet services to all premises throughout the City. Uptown Services is a consulting firm specializing in the provision of broadband services by municipalities. Uptown Services has conducted some 40 similar surveys, and has launched six fiber systems as the result of their work, including Sallisaw OK, Morristown TN, Pulaski TN, Tullahoma TN, Wilson NC, Longmont CO.

Market Assessment

Uptown Services conducted a scientifically valid survey of some 250 households resulting in a plus or minus sample error of 6.15 percent. Additionally, resident responses were modified using conservative research techniques to remove "overstatement bias". High-level findings include:

- 86% of households use the internet at home and understand the value of high speed internet
- 65% of respondents would definitely or probably switch to the City's offering
- 25% of households believe bundling internet services with video and voice is very important
- Of all utilities mentioned in survey, water service delivery provided by the City ranks highest in satisfaction
- Current DSL and Cable modem service satisfaction ranks relatively low
- Faster Internet speeds is priority for residents
- 79% of residents felt fast, low cost Internet is important to local economy
- Over-the-top video viewing (Netflix, Amazon, Hulu, etc.) will increase the demand for broadband services
- Residents are currently paying \$108 per month for 300 Mb/s for internet service (where available)
- Inclusion of voice and video will be a requirement for the finance model to pencil out.

Technology

Part of the analysis conducted by Uptown Services included a survey of the current state of the art technology for broadband services. Some technology findings include:

- A hybrid Gigabit Passive Optical Network / Active Ethernet system is being proposed to minimize capital costs, while at the same time, providing additional flexibility
- The City's existing Municipal Area Network can be leveraged to facilitate the build out
- Following Southern California Edison's infrastructure, both underground and overhead distribution will be utilized
- Front lot undergrounding will be utilized where appropriate, additionally aerial drops will be utilized in areas of the City where electric service is provided via overhead lines
- A phased construction approach is being anticipated where parts of the city could be 'lit' once construction is complete. A potential starting place would be to focus on the commercial areas of the City as a starting point. Additionally, Council could target a region of the City such as the Southeast for the initial roll-out

- Based on what is currently known of future advances in wireless technology, wireless does not appear to be a viable option to handle the anticipated increase in demand for broadband services
- Using an in-house staffing model project headcount is anticipated to be 18 full time equivalents when fully implemented. Other staffing models hold a potential to provide additional flexibility for the City.

Broadband Services Demand

From 2013 to 2015 Internet traffic has doubled driven largely by increased demand for video services. By mid 2018, it is expected that Internet traffic will again double. Currently, there are two primary Internet service providers within Beverly Hills, Time Warner Cable and AT&T. AT&T offers up to 18 Megabits-per-second to a limited geographic area within the City, while Time Warner offers up to 300 Megabits-per-second to a limited region of the City.

Alternatives to City-Provided Internet / Video Service

Time Warner Cable - Current Conditions

The California Public Utilities Commission granted a state video franchise to Time Warner effective January 2, 2008 for certain geographical areas in the state including Beverly Hills. The company operates a fiber/coaxial hybrid network in Beverly Hills to provide service. The company offers basic and premium cable services, digital telephone, and Internet services. Time Warner sells services separately and bundles services into various packages. The company expanded its "TV Everywhere" offering that allows subscribers to access video programming on stationary and mobile Internet connected devices including televisions, computers, tablets and smartphones. According to the Federal Communications Commission, TV Everywhere usage continues to increase. It's estimated that between 8,000 and 9,000 Beverly Hills households subscribe to Time Warner; however these are approximate numbers, as actual subscribership numbers are not made available to the City.

Time Warner offers broadband services throughout the City. For residential customers, Time Warner provides last mile service via copper coaxial cable. While technology is continually advancing, a copper-based platform for service delivery is limited by the network speeds that can be achieved as compared to fiber.

It should be noted that the Time Warner Cable, AT&T, and many other network service providers offer fiber-based Internet services within the City of Beverly Hills. These services are primarily available to the commercial areas of the City. Internet speeds for commercial customers are only limited by the current state of network electronics, often exceeding 1 Gigabit per second. The challenge for businesses is that these services are often expensive as the cost of construction to enter the premise is born by the customers. The lack of economies of scale also adds to the monthly cost of service to these customers.

Online Video Options

Several technology companies, notably Netflix, Amazon, Apple, Sony, Google, and Microsoft among others are delivering internet-based solutions for video programming. Subscribers may begin to sever (also known as cord cutting) or supplement traditional video programming connections in favor of online distribution options that provide video content. This industry continues to evolve and expand the amount of video content to consumers through original programming and new licensing agreements with traditional content creators. These internet-based video service, however, do require a reasonably robust Internet connection to take full advantage of the offering. The two incumbent Internet service providers in the City include Time Warner Cable and AT&T. Based on the currently deployed technology, Time Warner Cable is able to offer greater bandwidth than AT&T.

AT&T U-verse / Giga-Power

AT&T was awarded a state franchise for Beverly Hills in 2007 that allows them to provide video services to Beverly Hills residences and businesses. To date the company has not yet made application for an encroachment permit to build out the necessary infrastructure to provide video services to the community.

City staff has worked closely with AT&T representatives to determine the nature and timing of the company's build-out of these higher speed networks that would support video services. There has been extensive conversation over getting Beverly Hills "into the construction queue", but presently, construction schedules (if any) have not been shared with the City. AT&T has recently announced significant investments in the Giga-Power program to certain areas of Los Angeles, however, staff remains unaware of any plans for expansion into Beverly Hills.

The next step in the process would be for the company to apply for a City encroachment permit. It's expected that an AT&T encroachment permit application would seek to build out an 'all fiber' or 'fiber hybrid' network and include several above ground cabinets located throughout the City in the public rights of way. Under state law and as part of the encroachment permit process the City can oversee time, place and manner for the build out of such infrastructure.

AT&T offers its U-verse video service to a few Beverly Hills households in the southeast as a result of bordering Los Angeles telephone hub equipment that services those households. This service area is very limited and only a small number of residents have access.

Direct Broadcast Satellite (DBS)

There are two DBS providers currently available to Beverly Hills residents and businesses. Direct TV is the nation's largest satellite TV provider and Dish Network is the second largest satellite provider. National trends suggest that

satellite operators account for approximately 33% of video service subscribers. It can be inferred that Beverly Hills satellite subscribers are within a range similar to the national trend; however specific subscriber numbers are unknown and not made available to the City.

Satellite dish technology is limited to a clear view of the southern sky that may prevent some residents from receiving service. Subscribers living in multi-unit housing must seek permission from the property owner or housing association to locate dish equipment on a roof or otherwise common area of the property. However, Federal law allows for the placement of DBS dish equipment without permission on an exclusive use area such as a patio or balcony. Satellite currently cannot provide robust Internet speeds.

Additionally, DBS providers operate national systems and are exclusively regulated at the Federal level. The operators are under no obligation to provide space for the City's local channels.

Other Cable Providers and Telephone Companies

Historically, cable companies rarely compete with one another in the same geographic area. Large cable providers often cluster cable systems together using some of the same infrastructure to provide cable service to a larger geographic area. Time Warner along with other cable operators has swapped local systems to enable Time Warner to become the dominant operator in the Los Angeles metro area. Due to high costs, the City should not expect another traditional cable provider to overbuild the existing area; however it's plausible that the system could be transferred to another cable operator in the future. Since 1971, the existing cable TV system has transferred ownership between cable TV operators five times.

The geographic footprints of the two California telephone companies Verizon and AT&T do not overlap. Verizon Communications operates video service networks utilizing a fiber to the home infrastructure approach known as Fios. Verizon holds a state issued franchise for areas in California in which they currently offer telephone service – this does not include Beverly Hills. The company has no immediate or future plans to build in areas that they do not currently provide telephone service.

Large fixed costs and an entrant's recognition that most of its subscribers would need to switch from an incumbent provider are disincentives to overbuilding service areas. Additionally wireless technology, while improving, likely will not be able to keep up with the anticipated increase in demand for network speeds. Wireless broadband is subject to spectrum availability, and the high costs of this spectrum limit the bandwidth available, and thus the applications that can be provided.

Private-Public Partnerships

Conditions for new providers to enter a market are determined primarily by entry costs and expected profitability. There is the need to invest large financial resources in order to complete a build out of infrastructure.

A number of market conditions influence if, and when, entry occurs. Economies of scale, industry profit margins, capital requirements, and the reaction of competitors to new entrants all affect a firm's ability and incentive to enter into a market. Economies of scale appear to produce cost advantages, especially with respect to the cost of acquiring programming and consumer premise equipment.

Other Municipalities

Fiber-to-the-Premise is one of the 'hottest' topics in the municipal information technology arena. The majority of our regional partners including Santa Monica, Culver City, Burbank, Glendale, etc. are in varying stages of offering or considering offering broadband services to the public. Across the country, municipalities are recognizing the importance of leveraging gigabit level Internet to attract new businesses and create jobs, improve health care and education, and connect residents to new opportunities. Some examples of other municipalities' experience include:

- Chattanooga, TN
 - Chattanooga's investments are reshaping the economic landscape. The gigabit broadband service has helped the City attract a new community of computer engineers, tech entrepreneurs and investors. For example, local entrepreneurs have organized Lamp Post, a venture incubator that provides capital and mentorship to startups. Lamp Post now has over 150 employees in a 31,000 square foot office space in downtown Chattanooga. CO.LAB, a local nonprofit organization, provides shared working space, access to investor networks and hosts the annual summer GITANK program, a 14-week business accelerator. The investment community has responded in kind. Since 2009, Chattanooga has gone from close to zero venture capital to at least five organized funds with investable capital of over \$50 million.

- Santa Monica, CA
 - Making broadband access affordable is beginning to pay off in terms of economic development, as the city had hoped. As an upscale beach city, Santa Monica is an inherently desirable location, but high rents deter some businesses from operating there. By offsetting the high rents, low broadband costs make it possible for more businesses to locate in the city. In addition, existing businesses have found ways to compete more effectively. The low broadband costs in Santa Monica have presented a compelling reason for businesses to relocate from neighboring communities and existing businesses to stay.

A 67.6% reduction in broadband costs for our businesses translates to a savings of approximately \$40,000 annually per business. Business retention has increased, as existing businesses are able to relocate to fiber-connected buildings in Santa Monica with larger or more accommodating space due to their broadband savings. Through our fiber network, the UCLA Santa Monica Medical Center is able to implement its Telemedicine Health initiative and go paperless on patient records and medical records. UCLA is now expanding its IT operations to support the Telemedicine program, hiring an additional 180 software developers and network support for health care services in Santa Monica.

- Mesa, Arizona
 - Mesa which has long been on the cutting edge in terms of laying city-wide fiber conduit and providing firms next-generation infrastructure, will be the new site of a \$2 billion Apple global command center.
- Wilson, NC
 - A film production company, Exodus FX, opened its new special effects studios in Wilson, North Carolina, citing high-speed municipal broadband as a major reason for locating its services in the small city
- San Leandro, CA
 - San Leandro has used a city-owned fiber to rival Silicon Valley tech companies, and now houses the world's largest cluster of 3-D printing firms, along with the Westlake / OSIsoft Technology Complex, a tech campus.
- Cedar Falls, IA
 - An industrial park in Cedar Falls, Iowa went from having 27 businesses and \$5 million in taxable valuation to having 160 businesses and \$270 million in valuation in the twenty years since it hooked up to the city's municipal fiber network.

FISCAL IMPACT

For the next phase of the project that includes completion of the design work and bid document development, staff is seeking an appropriation of \$500,000 from the Information Technology fund (fund 41). The bid documents will be for the five-year build out of the fiber network. It will contain all of the necessary design documents and detailed requirements for the system.

The total anticipated 5-year costs for the project stands at \$32 million. Using the currently financial model the project will cash positive after four years, and net cash positive after 15 years. The financial model that has been developed allows for a variety of options that result in shorter or longer payback periods, differing levels of bonding and differing levels of capital investment. Council will have additional opportunity to address financial considerations as part of the 2016-2017 budget process.

As part of its review of all major projects identified by the Infrastructure and Technology Task Forces, the Mayor's Finance Task Force looked at possible funding options for the Fiber-to-the-Premise project, and given its complexity, was not able to offer Council a recommendation pending further review of the business plan and financial projections. Staff recommends that the Task Force continue to review this project's business plan and financial pro-forma in order to develop funding strategies for the project. The results would then be included in the 2016-2017 budget for further consideration should the Council elect to move forward.

Appropriation of funds from the Information Technology Fund 41 for this project are recommended as follows:

Project	Program	Account #	Description of Fund Source/Account #	Amount
00410	41000883	850000	Municipal Area Network	\$500,000.00



David Schirmer
Approved By