

## MEMORANDUM

Date: Thursday, September 24, 2015

From: Richard Brand, Bob Harrington, Donn Lee, Christine Moe, and Andy Poggio, City of Palo Alto FTTP and Wireless Citizen Advisors

To: Honorable Councilmembers, City of Palo Alto

Re: Fiber to the Premises (FTTP) is critical Palo Alto infrastructure

**A dark fiber to the premises (FTTP) network is critical Palo Alto infrastructure.** There are several compelling reasons for this conclusion:

1. **Location.** At the heart of Silicon Valley, Palo Alto is the startup capital of the world. The Internet has quickly become the communications network that connects our planet. To assure all our citizens and businesses world class access to the world's most powerful network, and at competitive prices, Palo Alto logically should own and control a FTTP network.
2. **Municipal utilities.** Palo Alto Utilities is unique in California; we own and operate *all* our own utilities. The value of municipal utilities to our community has been immense for over a century. For the past two decades, our city has benefited from investing in, and owning, the open dark fiber network serving our commercial areas, many municipal locations, and recently schools. Cost-effectively building out our fiber network so everyone in town can access it makes perfect sense.
3. **Insurance.** Having a dark FTTP network in place provides our City options in the communications space should opportunities present themselves or negative surprises occur.
4. **Emergency services.** Emergency services (public safety, fire, paramedics, and utilities) can best be performed when an ultra-fast fail-safe wireless network is available to all responders, especially during a disaster. Wireless communications need fiber backhaul to remain robust in most challenging situations. In a widespread regional emergency, even with fiber backhaul, a Palo Alto **public** WiFi network would not likely remain viable. A wireless network dedicated to emergency services operating on the licensed 4.9 GHz public safety spectrum likely would remain viable. Being in earthquake country, a regional disaster is guaranteed. How we respond to the Big One, and other challenging emergencies, greatly depends on our having a robust communications network and being trained to effectively use it.
5. **Universal access (ubiquitous access).** Our community greatly values our citizens having access to all our services. Like other utilities, communications should become a core service with basic access guaranteed by the City. America is falling behind globally in terms of communication infrastructure. As a world-leading technology community, Palo Alto can ill-afford this. Our City must have access to world-class communications while leaving no one behind. We can insure at least a basic level of service to every household, with citizen choice for higher speed broadband. Excellent communications promotes green values, replaces car trips with electronic trips, and improves our global competitiveness.
6. **Independence.** The right of self-determination is very valuable in the telecommunications space. City Fiber network independence can foster competition, not just in pricing, but in quality and variety of available services as well. We have enjoyed this exact experience over the past two decades with the City's open dark fiber network.
7. **Future value. Metcalfe's Law** says that the value of a telecommunications network is proportional to the square of the number of connected users of the system. Internet user numbers and devices are growing exponentially. Future services will require significant bandwidth that only fiber can provide efficiently. Whatever our City invests in a fiber network today will come back in ever-greater values to our community for decades to come.

8. **The right thing to do right now.** Three of the biggest telecoms in America may soon declare their interest in building closed fiber networks in Palo Alto. They will be seeking pole and conduit access, fast-track permitting and inspections, knowledge of City infrastructure, and swift management decisions from the City to make their builds most efficient. Each will build with significant economies of scale. This is the optimum time to seek cooperative efforts to build additional City-owned infrastructure. A City FTTP network could be pulled by any one of them at the same time they pull their own fiber, a “dig-once, pull-once program.” A cost-effective “co-build” should be our goal. City Council should direct staff to explore possibilities with each firm to achieve the City’s objective of a cost-effective FTTP network.

#### **Building a Palo Alto Municipal FTTP Network:**

1. **Cost.** We suspect the \$77.6 million mentioned in the CTC report is high. We suggest the consultant provide more detail in Table 10, Capital Additions, including the breakout of labor vs. capital items so the public can more clearly understand the assumptions used. Using our existing Fiber Fund reserves (accumulated from dark fiber user fees) and other measures, costs may be materially reduced.
2. **Google Fiber may not be the answer.** We can envision multiple scenarios where Google would relinquish its fiber infrastructure to the highest bidder, e.g. Comcast. Then, Palo Alto would again suffer from high cost, lack of infrastructure investment, and poor service. We would prefer to outline our further thinking after we see how things unfold over the next few months.
3. **Empower our community.** We should pursue a public-private relationship with a provider to leverage building the Palo Alto FTTP infrastructure. This is a golden opportunity for a telecom provider to differentiate itself by empowering our community.

**Fiber is critical infrastructure** that will define our City for at least the next 50 years.

#### **We urge Council:**

1. **Clearly state the City goal** is to own at least a dark fiber to the premises (FTTP) network with dark fiber drops to all Palo Alto premises, residences and businesses alike. Potentially this could be accomplished with a negotiated co-build with a private network provider.
2. **Direct staff** to explore possibilities with potential private partners, the known incumbents and regional network providers, for a build-out of a City fiber network, possibly in parallel with their own, even if City fiber is initially dark.
3. **Limit wireless investment** to an emergency responder network with fiber backhaul using 4.9 GHz licensed public safety spectrum until the FTTP public-private partnership issue is clarified. (Yes on Wireless Scenario 3 and Scenario 4, capital investment estimates \$370,000 and \$338,000 respectively; annual operating cost estimates \$10,000 and \$30,000 respectively.) Public WiFi is not recommended. (No on Scenario 2A and 2B.) The citizen advisors agree that the Wireless RFP seek bids in two components:
  - a. The emergency responder network (Scenario 3 and Scenario 4), and
  - b. a separate bid to accomplish Scenario 1.
4. **Not accept the consultant reports** until they are updated to include:
  - a. In the FTTP Master Plan, detailed assumptions, and their impacts, used to forecast the FTTP capital additions are to be reviewed by, and agreed to, by a majority of active citizen advisors. Once this is accomplished, a revised forecast is to be provided.
  - b. In the Wireless Network Report,
    - i. A 20-year forecast should be provided consistent with the FTTP report.
    - ii. The description of Scenario 1 lacked both a price forecast and fiber backhaul details for the proposed municipal properties to be served. These details should be included in an update.