UTILITIES ADVISORY COMMISSION MEETING
MINUTES OF APRIL 21, 2021 SPECIAL MEETING

CALL TO ORDER
Chair Forssell called the meeting of the Utilities Advisory Commission (UAC) to order at 6:01 p.m.

Present: Chair Forssell, Vice Chair Segal, Commissioners Danaher, Jackson, Johnston, Scharff and Smith

Absent:

AGENDA REVIEW AND REVISIONS
None.

ORAL COMMUNICATIONS
John Kelley stated that there are inconsistencies between the City's sustainability and housing goals and the policies that the City follows regarding the Electric, Gas and Water Utility. He emphasized that there are discriminatory new service, metering and connection policies that operate to penalize citizens in Accessory Dwelling Units (ADU) and associated dwellings.

APPROVAL OF THE MINUTES
None.

UNFINISHED BUSINESS
None.

UTILITIES DIRECTOR REPORT
None.

NEW BUSINESS
ITEM 1: ACTION: <u>Staff Recommends That the Utilities Advisory Commission Recommend the City Council Review and Provide Direction on Fiber Expansion for the City.</u>

Andy Poggio noted that the information provided by Magellan indicated that a survey will be conducted and that the City will provide educational outreach and launch a communication platform. He encouraged the City to market fiber to the premises before any survey is conducted.

Tom DuBois spoke for himself, not as a Council Member, and encouraged the UAC to keep an open mind and to look for solutions that will benefit the community. He supported any concepts that encouraged low-cost construction approaches.

Douglas Adams looked forward to the discussion.

Dean Batchelor, Director of Utilities, introduced John Honker from Magellan who presented the item to the UAC.

John Honker, Magellan, presented Phase 1 and Phase 3a of the Fiber to the Home (FTTH) Plan. Future next steps included Phase 3b, Phase 2 and Phase 4. Phase 1 included the fiber backbone, business case study, planning and high-level design for Automated Metering Infrastructure (AMI), Supervisory Control and Data Acquisition (SCADA) and wireless. Phase 3a included FTTH, business case study and assessment of possible alternatives for FTTH. It is recommended that the City expand its existing fiber backbone to support essential City infrastructure, support external stakeholders, reduce cost and improve capabilities. Through discussions between Magellan and City departments, it was identified that the fiber network is at capacity and contains limitations that resulted in unmet needs.

In answer to Chair Forssell's inquiry regarding what can be accomplished if fiber is increased for a City component, Jory Wolf, Magellan, explained that many traffic management and smart parking technologies cannot be supported without fiber optic. Mr. Honker noted that expanding existing fiber will provide higher levels of reliability to the electric grid.

Mr. Honker continued with the presentation and shared that the original fiber backbone was constructed in 1996. The network has generated $4 million in gross revenue and has yielded $30 million in the Fiber Reserve for the City. All City facilities, substations, water facilities, traffic signals, Palo Alto Unified School District (PAUSD) facilities, well-connected business parks, and 220 plus business customers are connected to the existing fiber network. If the fiber backbone is expanded, it would help facilitate utility modernization, allow the City to have smart infrastructure, allow for commercial fiber leasing and allow broadband FTTH. What is required beyond expanding the fiber backbone is greater funding for Citywide FTTH. The City is already using dark fiber leasing but expanding it will provide more revenue to the City. As FTTH is implemented, the City will have to decide to either partner with an Internet Service Provider (ISP) or have its own City ISP. The new fiber backbone is a necessary component for FTTH and will reduce total construction cost for FTTH.

In reply to Commissioner Scharff's query about how much extra revenue the City will receive if dark fiber is expanded, Mr. Honker explained that dark fiber is difficult to model in terms of growth because dark fiber is similar to a one-off business. If the City grew the existing dark fiber network by 2 percent a year, the revenue would grow by 2 percent a year. In reply to Commissioner Scharff's inquiry that 2 percent is too conservative and would the dark fiber expansion be needed if the City did not move forward with FTTH, Mr. Honker confirmed that it is a conservative approach. The City has a lot of dark fiber customers already and for this reason, Magellan did not predict huge dark fiber growth. In terms of expanding the existing dark fiber network, Mr. Honker emphasized that it should be expanded, regardless of the City doing FTTH or not because dark fiber is still needed to meet all of the City's needs.

Mr. Honker continued with the presentation and explained the new fiber backbone design. The design included 432 new strand fiber for City departments, commercial dark fiber enterprise and FTTH broadband; 144 strands of fiber in a separate cable for the Electric Utility; 43 miles of total fiber backbone; and dedicated fiber for every department, commercial fiber leasing and future FTTH. The fiber backbone also included routing through neighborhoods and business districts as well as utilized abandoned gas infrastructure where feasible.

In answer to Commissioner Smith's question if the dark fiber expansion included aerial and subterranean distribution, Mr. Honker noted that it included both.

In reply to Chair Forssell's inquiry regarding how the City's existing backbone compared to the proposed expanded backbone and how many miles are in the existing backbone, Mr. Honker reported that 27 percent of the existing backbone overlaps with the proposed backbone. Dave Yuan, Strategic Business Manager, estimated 47- to 49-miles.

Mr. Honker continued with the presentation and reported that expanding the backbone would cost the City between $22,219,561 and $28,059,212. The cost estimates included all capital costs for construction, a 20 percent contingency cost for labor and materials but excluded pole loading and replacement fees. Underground construction is the main cost driver for new fiber.

In response to Commissioner Scharff's query regarding if the costs are driven by Palo Alto requirements, Mr. Honker shared that one challenge was there is a lot of underground congestion and directional drilling is a slow process. Three main issues were raised by construction companies who provided estimates for expanding the dark fiber network. The City has constraints on the workday, lengthy permitting processes and strong tree protections. Batchelor added that prevailing wage is also a constraint but he added that prevailing wage is state law.

Commissioner Danaher supported having one or two dedicated permitting folks for the project to help minimize the permitting cost and production. He mentioned that the City may agree to relax workday constraints if Magellan raises the concerns with City Council.

Mr. Honker concluded that the next step for the fiber backbone is to start the low-level engineering and the detailed engineering design. He shared that in Boulder, Colorado, they have phased the permitting process to allow for up to 10-miles to be constructed at a time instead of street by street permitting. He emphasized that it is important that the City have resources to keep up with the permitting process and construction.

Commissioner Jackson commented that the Public Works Department should be involved as well. Mr. Honker confirmed that the project will interface with the Utilities Department, the Public Works Department, permitting and community relations.

In reply to Commissioner Scharff's query regarding cons to the project, Mr. Honker restated that the recommendation is to expand the fiber backbone.

In answer to Chair Forssell's inquiry about what other Cities do who do not have their own fiber utility and what is the cost if the City contracted with a third-party provider, Mr. Honker stated that when the network is leased, it does not provide flexibility on what can happen with the network. Everything additional that the City wished to connect to a contracted company's network is an extra cost and those networks do not give the security for electricity or City departments. Also, there would be no opportunity to provide FTTH. Wolf added that a City-owned network enabled the City to implement government innovation where the City would be able to afford to do that.

In response to Commissioner Scharff's question regarding 2-inch conduits versus 4-inch conduits, depth, and 12-inch minimum separation from other utilities, Mr. Honker clarified that 4-inch conduit is harder to construct so the recommendation was to use a 2-inch conduit but staff has indicated that they wish to explore 4-inch. In terms of depths, Mr. Honker confirmed the deeper the trench, the higher the cost. Batchelor confirmed that 36-inches is the deepest depth that the City will have to trench and the 12-inch separation is important to reduce potential hazards from other utilities failing. In answer to Commissioner Scharff's query regarding aerial versus undergrounding the fiber network, Batchelor explained that the assumption is that the expansion will use the poles where available.

In reply to Vice Chair Segal's question regarding staff's request to explore 4-inch conduits, Mr. Honker shared that staff wants to have enough space in the 4-inch conduit to back feed fiber. In a new network, back-feeding should be avoided unless is it necessary. Vice Chair Segal announced that when construction for fiber is happening, other infrastructure like purple pipes should be installed at the same time.

In answer to Commissioner Smith's question will a 4-32 strand fit into a 2-inch conduit comfortably and abandoned gas pipes, Mr. Honker answered yes, two 4-32 strands can fit inside a 2-inch conduit. Abandoned gas pipes will be utilized in areas that are expensive to go under like highways and railroads. During the

detailed engineering process, it will be determined if abandoned pipes should be used for FTTH. Commissioner Smith mentioned that there is a product called Cable Runner that runs fiber in storm sewers. Mr. Honker concurred that Magellan has installed fiber in storm drains and water mains but only in places where there are long runs. Places that require splicing the fiber would not be a place to install fiber in a water line.

Mr. Honker moved to FTTH and upon further investigation, it was discovered that existing services are not evenly distributed throughout the City for all providers.

Commissioner Scharff commented that many folks in Palo Alto have either Comcast and AT&T and that it may not be true that there are residents who cannot receive either of those services. Mr. Honker explained that Comcast and AT&T do provide Citywide service but the speeds for broadband internet varies throughout the City.

In answer to Councilmember Filseth's understanding that AT&T claims to be able to provide 10,000 residents FTTH, Mr. Honker clarified that the only way to know for sure was to survey residents and speed test their service.

Mr. Honker expressed that not only does FTTH provide internet, it also provides grid modernization, energy management, public safety, traffic management, smart parking and many other benefits.

In response to Commissioner Danaher's inquiry about will customers want to exceed 1 gigabit (GB), Mr. Honker acknowledged that some Cities deploy 10 GB to the home. The most near-term driver for higher gigabits is virtual reality (VR) streaming. Once FTTH is installed, it is easy to switch to a higher GB output.

Mr. Honker shared that 63 Cities run their ISP, 286 Cities provide wholesale or dark fiber and 71 Cities use partner ISP.

In reply to Chair Forssell's query regarding how many Cities provide municipal FTTH and have other providers in the area, Mr. Honker confirmed all Cities are in that situation.

Mr. Honker covered the key questions that Magellan investigated to determine what is needed in Palo Alto which resulted in two business models for the City to consider. Regardless of what business model the City chooses, the City will have to build the FTTH network. In the City ISP business model, the advantage was that the City has full control over the network, pricing, ownership, operations, customer experience and anything related to broadband. The disadvantages included high execution risk, higher operational costs, and possible impact on debt rating. In a partner ISP business model, advantages included the City not having to provide internet service; no competitive, operational, or regulatory risk; and allowed the City to have access to low-cost capital. The disadvantages included the City being responsible for most of the capital investment, the City has little control over the actual service, and it could impact the City's debt rating.

In response to Commissioner Scharff's request regarding how successful are other Cities that use the partner ISP and City ISP, Mr. Honker explained that the partner ISP model is a newer model and the track record is short. There are no significant metrics to measure its success. In reply to Commissioner Scharff's query regarding if a model has been investigated where the City provides the ISP but have it ran through a separate organization, Mr. Honker articulated that it is a governance issue of if the City is investing tax dollars, how is the governance kept under control. Commissioner Scharff announced that other Cities do have that type of hybrid model and he saw more advantages going with that approach than the partner ISP model. In answer to Commissioner Scharff's question regarding what competitive environment meant, Mr. Honker explained that if the City provides ISP service, then the City has to have sales and marketing, market intel, the ability to flex the pricing structure quickly but the City could hire for those positions. The goals of the City are easier to achieve in the City ISP model versus the partner ISP model. Commissioner Scharff mentioned that in past years when the City has tried to do a public/private partnership, it has always failed. He was not sure it was

worth exploring and that it may delay the project. Mr. Honker acknowledged Commissioner Scharff's concern and the question he posed was does the City want to see what is out there and will the partnership fulfill the City's goals.

Commissioner Danaher viewed the two models not as alternatives but more of a sliding scale depending on how much was contracted out. He suggested that in a future report there should be a breakdown of the different functions that have to be performed, which could be done by vendors and what can done by the City.

In reply to Commissioner Johnston's query regarding what it means if the City is an ISP, Mr. Honker stated that the key service is providing high-speed internet but other services, such as television and phone service, can be provided. The survey that Magellan plans to send to residents will show the City what complimentary services the City should provide based on the number of residents who use those services now. In response to Commissioner Johnston's assumption that having those answers would help the City decide on which business model to choose, Mr. Honker did not believe that the survey would aid in that decision.

Commissioner Jackson supported the City ISP model and he found the idea raised by Commissioner Scharff of using a hybrid option interesting. He emphasized that if the City decided early to use the City ISP model, then there is no need to explore the partner ISP model.

Commissioner Smith echoed Commissioner Scharff's comment that the City should not be exploring a public/private partnership and the City should pursue a model that is a blend of City staff and vendors.

The Commission took a break at 7:56 pm and returned at 8:07 pm.

Mr. Honker moved to the FTTH financial review portion of the presentation. For the City ISP model, the take rate was assumed at 32 percent with the take rate for the partner ISP modal at 43 percent. In summary, the City ISP model was slightly more expensive with a total capital cost of $85,972,581 than the partner ISP modal that had a total cost of $80,488,447. The partner ISP model saved money in the categories of data center and headend, home equipment and installation, and business equipment and installation. Also, working capital of $12,500,000 is needed for the City ISP model and $6,000,000 for the partner ISP to cover startup costs. Total funding for the entire City ISP model was $98,472,581 and the partner ISP total was $86,488,447. To fund the project, the City could use the Fiber Fund and the Electric Special Project Reserve which resulted in $32,500,000 which would be used towards the total price. The City ISP model still required $65,972,581 to be funded and the partner ISP model required $53,988,447 to be funded.

In reply to Commissioner Jackson's question regarding if a loan can legally be taken from the Electric Special Project Reserve, Batchelor announced that legal staff has concurred that the Fiber can borrow those funds. Chair Forssell added that it is a loan and will be paid back to the Electric Special Project Reserve.

Mr. Honker continued and shared that the dark fiber network's revenue is growing by $2 million a year and can help offset costs. The City ISP model combines the dark fiber and FTTH businesses to help offset the deficits in years 3, 4, and 5 of deployment.

In response to Chair Forssell's query regarding the estimated $8.5 million in revenue in the first year of FTTH business, Mr. Honker explained that is the working capital fund balance. If the City did not want to use the dark fiber business to cover the FTTH deficit, then the City would need $16,000,000 in working capital. Chair Forssell recommended a graph showing the annual operating expenses and how big of a deficit there will be in years 1, 2 and 3.

Mr. Honker moved to the net revenues for the partner ISP model. This model grows the FTTH net revenues to roughly $15 million in 20-years versus the City ISP net revenues coming close to $38 million in 20-years. The partner ISP model would have a deficit in revenue in years 3, 4, 5 with breaking even in year 6. In the

partner ISP model, the City will receive less revenue from the FTTH business than in the City ISP model. In the City ISP model, the City needed to have a 24 percent take rate to break even. In summary, the City ISP model will provide more benefits to the City than the partner ISP model.

In answer to Commissioner Scharff's question about why fiber would trigger the utility to replace the pole, Mr. Honker anticipated there being pole replacement and those costs can be split between departments and electric. Batchelor noted that staff would have to investigate if the Electric Utility could pay for all the pole replacements. Pole calculations in terms of pole size versus weight on the pole would be required. Adding fiber and conduit could cause the pole to have to be upgraded to a larger size in order to hold the weight. Commissioner Scharff mentioned that it is a legal issue and the logic that the last utility on the pole should pay for the pole replacement did not make sense. He concluded that costs needed to be reduced by 20 percent in order to provide the right cushion.

Mr. Honker presented a third model that used an incremental deployment approach for FTTH. The model components included an incremental buildout over a longer period, reinvested excess revenues back into expansion and utilized companion projects wherever possible to reduce costs. This model would allow the City to use the $32,500,000 in funding that is available in the first 3-years and then $21 million would be needed for years 4-10. In the first 3-years, 12,412 households and 558 businesses would receive FTTH and in years 4-10, 7,092 households and 537 businesses would receive FTTH. The remaining 7,000 households and 209 businesses would need further exploration on how to pay for the network to those areas.

In answer to Commissioner Jackson's query about what bond means, Council Member Filseth stated it would be done with a CoP (Certificate of Participation), which doesn't go to the voters. Mr. Honker suggested that the word bond be changed to borrow. In reply to Commissioner Jackson's question about can you collateralize the network, Mr. Honker confirmed that other Cities have done that, explaining that the City of Boulder, CO issued $20M of CoPs and were able to use the network being built as collateral. Mr. Yuan noted that the City has done it for other Capital Improvement Projects (CIP).

In reply to Chair Forssell's inquiry regarding underground utilities, Batchelor shared that 60 percent of utilities are overhead and 40 percent are underground.

Mr. Honker concluded that the steps that have already been approved included community engagement, broadband survey for residents and businesses, and explore partnerships. The recommended next steps included detailed engineering for Phases 2 and 4 and explore federal grant options.

In response to Vice Chair Segal's inquiry regarding explore partnerships, Mr. Honker understood that the UAC is interested in a model that optimizes the City ISP model and uses a combination of insourcing and outsourcing.

Commissioner Jackson emphasized that under the City ISP model, different alternatives can be looked at. That did not include partnerships. Mr. Honker agreed.

Commissioner Scharff supported doing the detailed engineering and combining Phases 2 and 4 as well as have staff move forward on exploring federal grant options. He agreed with Commissioner Jackson that the UAC should recommend to Council that partnerships not be explored, but rather explore how best to optimize the City ISP model.

Commissioner Jackson asked where does the UAC stand on the bond and build approach versus incremental deployment over 10-years. He noted that he supported the bond and build model.

Vice Chair Segal preferred bond and build as well and she mentioned that it did not make sense to travel down the partner ISP path.

Commissioner Johnston agreed that the bond and build model is best and that the City ISP model is preferable. He continued to be concerned about the take rate. He agreed with the public speaker that the survey will not be meaningful unless there is a fairly detailed explanation of what the community would receive if they signed up for the service.

Commissioner Smith emphasized that this is incredibly important work, it should be pushed forward, and he supported the bond and build and City ISP approach. He agreed that there is an equity issue with the third model's approach. He appreciated the work that Magellan has provided. He expressed concern about introducing something that is too technologically advance to the community without education. He supported heavy community and education engagement and that it should happen before a survey. Batchelor noted that the City Manager strongly agrees with the comment that community and education engagement should come before a survey.

Commissioner Danaher agreed with all prior comments and the bond and build approach.

Commissioner Jackson suggested that the UAC provide stronger recommendations than the staff recommendation. The recommendation should include proceeding with Phase 2, Phase 4, recommend the bond and build model for FTTH, endorse the City ISP model, do not explore the partner ISP model, and continue exploring federal grants.

Vice Chair Segal mentioned that there are discussions of the City receiving funds that could be used for broadband but the City has decided to use them in other areas. She wanted to understand if there are ways to raise the funds for the other areas and use the funds for broadband. Mr. Honker shared that future federal grants are coming for urban municipalities that can be explored further.

Commissioner Scharff agreed that the third model poses an equity issue. He agreed that Council should move forward with community engagement, the broadband survey, detailed engineering and exploration of federal grants. The partner ISP model should not be explored. He recommended that financing options to build out the whole City be explored and a plan be drafted.

Chair Forssell stated she was intrigued with the idea of having a survey done before education and outreach as well as after. Vice Chair Segal was worried about survey fatigue and that it may impact the more important second survey. Commissioner Scharff noted that the folks who are surveyed are picked at random and normally one person will not fill out two surveys.

Discussion commenced on how to layout the motion to Council.

Commissioner Smith indicated that no bonds are needed to build the dark fiber backbone. The motion should indicate that the backbone be built first.

Commissioner Scharff mentioned that the risk of building out the dark fiber network first is that the City may not do the rest of the project. Commissioner Smith agreed 100 percent with that statement.

Chair Forssell believed it was premature to recommend that Council approve building the network when detailed engineering is the first step. Commissioner Smith understood from the discussion that building the dark fiber backbone is the first action and if the design was to be advanced, then concurrently a discussion needed to take place regarding funding. Mr. Honker explained that detailed engineering becomes a way to ground-truth the final costs.

Council Member Filseth observed that there are interesting assumptions in the numbers and that it is important to understand where all the risks are. He shared that the survey will provide interesting data that can help facilitate further discussion on which direction the City should take.

Commissioner Jackson wanted the motion to emphasize that the UAC strongly encouraged focusing on developing different financing models for building the entire system upfront.

Council Member Filseth shared that some of the UAC is reluctant to explore a plan that does not include an entire City build-out. He heard another approach of rolling out some of dark fiber expansion and then seeing what take rates the Cities receives.

Vice Chair Segal clarified that the City should consider earlier revenue as part of the funding for later expenses.

Commissioner Scharff disclosed that there may be a concern that the project will be built and only 15 percent of the City will use the service. If that concern is real, then the City should take the incremental approach and that would be better than doing nothing. He announced that he did not believe that the take rate will be low.

Mr. Batchelor indicated that it will take 7- to 8-years to build the entire network. Mr. Honker estimated 5- to 7-years with the majority being done in the first 5-year period.

In answer to Commissioner Smith's ask regarding when Phases 2 and 4 will be completed, Mr. Honker estimated that the backbone phase will be completed by the end of the year and FTTH in the first quarter of 2022. Commissioner Smith suggested that the design, engineering, funding, education and survey results all be complete and available by March 31, 2022.

ACTION: Commissioner Scharff moved staff recommendation that the Utilities Advisory Commission (UAC) recommend the City Council:
     1. Build out fiber backbone in a manner designed to support city-wide FTTH
     2. Establish city-operated ISP to offer city-wide FTTH service within five years
     3. Accelerate and complete community education and engagement regarding FTTH
     4. By March 31, 2022;
          a. Combine and complete Magellan phases 2 and 4
          b. Complete detailed city-operated ISP model (include mix of insource and outsource
              functions)
          c. Complete customer analysis
          d. Complete risk analysis
          e. Determine best financing mode (including availability of federal and state grant funding
              options)
Seconded by Commissioner Jackson. Motion carries 7-0 with Chair Forssell, Vice Chair Segal, and Commissioners Danaher, Jackson, Johnston, Scharff and Smith voting yes.

Mr. Batchelor reported that the City had experienced three large power outages. The March 27, 2021 outage occurred due to a failure at a substation which resulted in inadequate coordination and communication between staff and the contractor. An investigation was underway on what happened, what procedures were not followed, and what the communication level issues were. Staff continues to investigate communication gaps with the public. Staff has troubleshot the outage map and it is now working properly. A Request for Proposal (RFP) will be issued to purchase a new outage management system. The outage on April 4, 2021, was due to a failure of an underground transformer and the outage on April 13, 2021, was a failure of a tie switch.

Commissioner Johnston commented that the community is concerned about the repeated outages and the community is losing confidence in the push for electrification. He requested the item be agendized for a future meeting.

Mr. Batchelor noted that during a meeting, the Commission cannot change an item from a discussion item to an action item. Staff does have a sense of what items are coming forward for the Commission. The Chair,

Vice Chair and staff can discuss if future items should be a discussion item, action item, or informational item and make changes where appropriate. At the May 12, 2021 meeting, the UAC will take action on the budget, there will be an informational piece regarding electric vehicles and bucket one Renewable Energy Certificates (REC), discuss the hydro rate adjuster update and have an action item on the Urban Water Management Plan.

In answer to Vice Chair Segal's query regarding do discussion items carry up to the Council, Council Member Filseth shared that other City Boards and Commissions have requested that staff include in the staff report the discussion.

Commissioner Scharff recommended every item be an action item because it is more effective and clearer for Council.

Commissioner Jackson had no suggestions for changing the May 12, 2021 agenda.

COMMISSIONER COMMENTS and REPORTS from MEETINGS/EVENTS

None.

FUTURE TOPICS FOR UPCOMING MEETINGS:

Vice Chair Segal wanted to have a more robust discussion about the power outages.

NEXT SCHEDULED MEETING: May 12, 2021

Commissioner Jackson moved to adjourn. Commissioner Johnston seconded the motion. The motion carried 7-0 with Chair Forssell, Vice Chair Segal, and Commissioners Danaher, Jackson, Johnston, Scharff, and Smith voting yes. Meeting adjourned at 10:00 p.m.

Respectfully Submitted
Tabatha Boatwright
City of Palo Alto Utilities