DOCUMENTS IN THIS PACKET INCLUDE:

LETTERS FROM CITIZENS TO THE
UTILITIES ADVISORY COMMISSION

From:	Jeff Hoel
To:	Council, City; UAC
Cc:	Hoel, Jeff; Reichental, Jonathan
Subject:	BBC"s annual municipal FTTP issue
Date:	Wednesday, October 12, 2016 4:19:16 PM

Council members and UAC commissioners,

The August/September 2016 issue of Broadband Communities magazine is now available online here. Several of the articles in this issue are about municipal FTTP.
http://www.bbpmag.com/

Here's a PDF of the entire issue (63 pages)
http://www.bbcmag.com/2016mags/Aug_Sep/BBC_Aug16_webFINAL.pdf

The main article is "Cities Take the Lead" (12 pages)
http://www.bbcmag.com/2016mags/Aug_Sep/BBC_Aug16_CitiesTakeLead.pdf
It says there are 178 networks that are either municipal or public-private partnership. The magazine's interactive database says there are now 185 (169 muni and 16 PPP).
http://www.bbpmag.com/search.php

Thanks.

Jeff

Jeff Hoel
731 Colorado Avenue
Palo Alto, CA 94303

From:	Jeff Hoel
To:	ConnectedCity
Cc:	Hoel, Jeff; Council, City; UAC
Subject:	COMMENTS -- History of the City of Palo Alto Dark Fiber Optic Backbone Network
Date:	Wednesday, October 19, 2016 4:13:27 PM

CAC members,

On 10-14-16, Todd Henderson sent the CAC committee a message that included an attachment about a "brief history of fiber in Palo Alto." (As far as I know, it's not online, but maybe it should be.)

Please see my comments (below the "###" line).

Thanks.

Jeff

Jeff Hoel
731 Colorado Avenue
Palo Alto, CA 94303

##

> Utilities Department Version:1.0

Footer:

> Fiber-to-Fiber Premises and Wireless Communication Initiative
> Page 1 of 5
> Date Last Updated 10/11/2016

End footer. (I won't repeat the footer after every page.)

> HISTORY OF THE CITY OF PALO ALTO DARK FIBER OPTIC BACKBONE NETWORK

The title is misleading. It is -- or should be -- a history of Palo Alto's fiber optic utility, not just its dark fiber optic backbone network.

> FIBER-TO-THE-PREMISES AND WIRELESS COMMUNICATIONS INITIATIVES

In my opinion, wireless should not be part of the fiber optic utility.

> Executive Summary
>
> This document is intended to provide a summary of the highlights of
> the City’s dark fiber optic backbone network, in addition to various
> initiatives to expand the network for citywide fiber-to-the-premises
> and wireless services. Staff makes no representation regarding the
> completeness, accuracy or timeliness of any information and data
> contained in this document. It is only meant to inform the reader who
> wants to understand the history of the City’s network since it was
> conceived in the mid-1990s.

This is a very strange caveat. If the document is not accurate, how can it inform?

> City of Palo Alto Dark Fiber Optic Backbone Network
>
> The dark fiber optic backbone network ("fiber network") was
> originally conceived by the City in the mid-1990s and is maintained
> and operated by City of Palo Alto Utilities ("CPAU"). The City's
> initial telecommunications strategy was to build a dark fiber ring

As you can see from a map (January 2013) of the City's dark fiber network, it's not really a "ring." See page 45 here:
http://www.cityofpaloalto.org/civicax/filebank/documents/42930
For some -- but not all -- pairs of connection points in the network, there are multiple paths connecting them. But the shortest path might be a lot shorter, and therefore less expensive, than other paths.

> around Palo Alto that would be "capable of supporting multiple
> network developers and/or service providers with significant growth
> potential."

Where does this quote come from? The earliest instance I could find on the City's website is from the FY 2013 Adopted Operating Budget (page 292).
http://www.cityofpaloalto.org/civicax/filebank/documents/30338
(Google "site:cityofpaloalto.org 'significant growth potential' dark fiber" 8 hits.) In other words, it apparently didn't come from the City's dark fiber "founding fathers" in the mid-1990s.

By the way, what's supposed to have the "significant growth potential" -- the City's network or its customers?

This 05-18-04 staff report
http://www.cityofpaloalto.org/cityagenda/publish/cmrs/3306.pdf
cites a 08-05-96 staff report, saying, "The City of Palo Alto established the dark fiber-optic system in 1996 (CMR:361:96) 'as an extension of the City's long-standing policy of providing utilities infrastructure for the citizens and businesses of Palo Alto,' and 'for accelerating the pace at which high-quality, low-cost, advanced telecommunications services are delivered throughout Palo Alto while limiting any negative impacts on Palo Alto's physical environment.'" In other words, in 1996, the City was more concerned about serving citizens and businesses than about significant growth potential per se.

> In the mid-1990s, most investor-owned and public utilities invested
> in fiber optics to improve command and control of their utility
> infrastructure. Many of these networks typically had excess
> capacity that could be licensed or leased to third parties.

This didn't say what was true of Palo Alto's dark fiber network. I believe that it was designed from the beginning to have strands for leasing to customers. In other words, I don't think the idea of leasing strands to customers came about as the result of an accidental "excess capacity."

> The first phase of the fiber backbone construction occurred in
> 1996-1997. The initial portions of the network were constructed in
> a backbone ring architecture in existing utility rights-of-way.
> The fiber backbone was routed to pass and provide access to key
> City facilities and offices. The majority of the City's business
> parks (e.g. Stanford Research Park) and commercial properties are
> also passed by the fiber backbone.

In the fiber-to-the-premises (FTTP) context, to "pass" a premises means to provide a connection point close enough to the premises that it could be connected as a matter of routine. The City's dark fiber network doesn't "pass" anything in this sense. To connect a dark fiber customer, the City in general has to do a one-of-a-kind engineering analysis just to see how much it will cost the customer, and the connection might be several blocks long.

> The original fiber backbone consisted of 33 route miles

On 08-05-96, when Council voted (on a motion made by Simitian and seconded by Kniss) to approve construction of the dark fiber network, it was said to be a 15-mile network.
http://www.cityofpaloalto.org/cityagenda/publish/citycouncil-archive/1996/19960805.html
(Sorry, I couldn't find the staff report (CMR:361:96) online.)

A 12-19-97 article says it was 24 miles.
http://www.paloaltoonline.com/weekly/morgue/news/1997_Dec_19.LOOP.html

A 06-01-99 article says it was 29 miles.
http://www.lightwaveonline.com/articles/print/volume-16/issue-7/news/ftth-trial-approved-in-palo-alto-53488752.html

> with 144 or more strands of single-mode fiber along most routes. Since the late 1990s, the fiber backbone has been expanded to approximately 49 route miles of mostly 144- or 288-count single-mode fiber.

These items (from 2007 and 2016) say it's 31 miles.
http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=57&TargetID=10
http://www.cityofpaloalto.org/visiting/about_palo_alto.asp

In January 2008, a City Auditor report said the dark fiber backbone was 40.6 miles (and that there were also 39.5 miles of service connection fiber).
http://www.cityofpaloalto.org/civicax/filebank/documents/10358

This 02-23-10 press release says it's both 41 miles and 41+ miles.
http://www.cityofpaloalto.org/civica/press/display.asp?layout=1&Entry=535

On 06-01-11, UAC considered this staff report,
http://www.cityofpaloalto.org/civicax/filebank/documents/27421
which said it's 41 miles, and suggested adding another 6.8 miles. But since UAC's agenda listed this item as a "discussion" item,
http://www.cityofpaloalto.org/civicax/filebank/documents/27423
UAC could take no action. And the minutes seem to indicate that extending the dark fiber network backbone wasn't even discussed.
http://www.cityofpaloalto.org/civicax/filebank/documents/41419

On 11-15-11, the Finance Committee discussed a similar item, and took some actions, but not with respect to extending the dark fiber backbone.
http://www.cityofpaloalto.org/civicax/filebank/documents/32516

> Fiber network construction was financed internally by the Electric
> Enterprise Fund through a 20-year, $2 million loan at a 0% interest
> rate. These funds were used to construct the network and to cover
> operating expenses. At the end of Fiscal Year 2008, the fiber optics
> business completed the loan repayment to the Electric Enterprise Fund
> for all capital and operating expenses from the beginning of the
> project. A separate Fiber Optics Enterprise Fund, capable of
> maintaining its own capital and operating budgets and financial
> operating reserve, was also created. In Fiscal Year 2009, a Fiber
> Optics Enterprise Fund Rate Stabilization Reserve (RSR) was
> established.
>
> The fiber network was built in part in response to telecommunications
> service providers such as emerging Competitive Local Exchange
> Carriers (CLECs) that would use available dark fiber to provide

> various telecom services.

Did any CLECs actually say they would use the City's dark fiber? Or was it just hoped that they would?

> In the mid-1990s, there was a high demand for fiber transport
> facilities to support the expansion of bandwidth-intensive
> broadband services.
>
> By the late 1990s, many CLECs left the market either through mergers
> with other CLECs or bankruptcy; the so-called "dot com bust" also
> occurred at roughly the same time. As a result, the anticipated
> demand for dark fiber in the original target market proved to be
> somewhat limited. By the late 1990s there was a glut of available
> dark fiber in many areas of the country. Nonetheless, it was evident
> that a fiber network would be a valuable asset for command and
> control of City of Palo Alto Utilities (CPAU) facilities (e.g.
> electric substations) and other critical City infrastructure such
> as traffic

> signals. The network would also support a wide range of broadband
> voice, data and video applications for City departments, in
> addition to various commercial users, telecommunications service
> providers, and the community as a whole.
>
> In 2000, the City began to license "dark fiber" for commercial
> purposes.

This 12-19-97 article says there were two dark fiber customers, WebTV Networks and Brooks Fiber Communications,
http://www.paloaltoonline.com/weekly/morgue/news/1997_Dec_19.LOOP.html
And "[a]greements are close to being finalized with six others."

This 02-09-00 article says that 17 companies had signed dark fiber agreements.
http://www.paloaltoonline.com/weekly/morgue/news/2000_Feb_9.FIBER.html
And that Yipes (formerly Nanospace) "ran fiber into an apartment complex on Sheridan Avenue in 1998."

> Dark fiber is unused fiber through which no light is transmitted, or
> installed fiber optic cable not carrying a signal.

This definition makes no sense in the context of the City's dark fiber network. Rather, dark fiber is City fiber that the City does not light -- but its customers do.

> The basic business model is to provide dark fiber connectivity to
> users requiring access to large amounts of bandwidth.

The City doesn't have to know why a customer leases dark fiber. Maybe it's bandwidth. Maybe it's latency. Maybe it's privacy. Maybe it's reliability. Maybe it's freedom to use non-standard protocols.

> Customers are responsible for providing and maintaining the equipment
> to "light-up" or provision licensed fiber strands. Dark fiber is
> licensed or leased by a provider such as the City without the
> accompanying transmission service. In contrast, traditional
> telecommunication service providers only make available certain
> products (commonly known as "managed services") within their
> service options that may not adequately meet the requirements of

> the specific applications.
>
> The fiber network has high market share and brand awareness among
> commercial enterprises and other organizations that need the
> quantity and quality of bandwidth provided by direct fiber optic
> connections.
>
> By connecting to the City's fiber backbone, the customer gains fiber
> access to their Internet Service Provider (ISP) of choice.

In general, a dark fiber connection connects any two points the customer wants to connect. Often, but not always, one of the two points is the ISP that the customer wants to connect to.

> A dark fiber customer can interconnect communications systems or
> computer networks across multiple Palo Alto locations and can also
> connect directly to their local and/or long distance carrier(s) of
> choice with a full range of communications services. Dark fiber
> customers can also have redundant telecommunication connections
> for enhanced reliability.
>
> Many of the City's commercial dark fiber customers gain access to
> the Internet through the Palo Alto Internet Exchange (PAIX, now
> owned by Equinix). PAIX is a carrier-neutral collocation facility
> and hosts over 70 ISPs at their facility located in downtown Palo
> Alto. Equinix has 21 similar facilities in the United States and
> other collocation facilities in Asia and Europe.
>
> The City currently licenses dark fiber connections to 107 commercial
> customers.

The most recent quarterly utilities update (08-31-16) says there are 105 commercial customers. (PDF page 21.)
http://www.cityofpaloalto.org/civicax/filebank/documents/53656
(So maybe two more customers have been added since then.)

> The fiber network also serves the following City accounts: IT
> Infrastructure Services, Utilities Substations, Utilities Engineering,
> Public Works, Water Quality Control Plant and Community Services (Art
> Center). The total number of dark fiber service connections serving
> commercial customers and the City is 219

The most recent quarterly utilities update (08-31-16) says there are 232 connections. (PDF page 21.)
http://www.cityofpaloalto.org/civicax/filebank/documents/53656

> (some customers have more than one connection). At the end of fiscal
> year 2016, the licensing of dark fiber service connections resulted
> in a fiber reserve of approximately $24 million.

More precisely, $23,418,000. (PDF page 38.)
http://www.cityofpaloalto.org/civicax/filebank/documents/53656

> There is a separate $1.0 million Emergency Plant Replacement fund.

See PDF page 116 here:
http://www.cityofpaloalto.org/civicax/filebank/documents/54083

> According to the proposed Fiscal Year 2017 Budget, the fiber reserve is projected to increase by $2.3 million.

On PDF page 116, it says the increase will be $1,279,000.
http://www.cityofpaloalto.org/civicax/filebank/documents/54083
Am I looking in the wrong place?

> Annual dark fiber license revenues come from the following customer categories:
>
> • City service connections: 27% of gross revenues.
>
> Private sector entities licensing dark fiber from the City:
>
> • Resellers: 42% of gross revenues. "Resellers" are telecommunication
> companies that purchase large amounts of transmission capacity from
> other carriers and resell it to smaller end-users.

In the case of the City's dark fiber network, resellers lease dark fiber connections from the City and then allow their customers to make use those connections somehow.

> Examples of resellers are telecom companies that sell broadband,
> telephony and video services to the commercial and residential
> markets.

It's not really the City's business what the reseller sells to its customers. But here's an example of a reseller.
http://fiberinternetcenter.com/why-fic.html

--- page 3 ---

> • Various commercial enterprises: 31% of gross revenues.

At one point, I believe the dark fiber network connected three residences. Is staff saying that they're considered to be "commercial enterprises"?

> Examples of private end-users are companies involved in various
> technologies, web hosting, social media, finance, medical,
> pharmaceuticals, research and development, software, law firms,
> consulting firms, e-commerce, etc.
>
> Service offerings: Dark fiber backbone license fees are based on the
> number of fiber miles per month.

The per-month license fees are based on a lot of things, of which length of backbone fiber leased is an important one.
http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=1508&TargetID=235

> The base license price is $272.25 per fiber mile, per month.

This EDF-3 rate sheet (which I think is still current although it's from 09-18-16) gives you an idea of the complexity of the pricing.
http://www.cityofpaloalto.org/civicax/filebank/documents/8108

> Quantity, route, length, topology, and other discounts are available.
> The minimum backbone license fee is $425 per month. Lateral
> connection (premises to backbone) fees are based on the length and
> type of the lateral, with a minimum fee of $210.

Not mentioned are the initial fees for creating the connections in the first place.

> Available configurations include point-to-point and diverse rings.

>
> The majority of business parks and commercial properties are passed
> by the fiber backbone.

Again, they are not "passed" in the sense that you could connect without doing a custom engineering analysis first.

By the way, how many business parks are there in Palo Alto, and why is providing dark fiber access to only a simple majority of them considered to be good enough?

> In 2014, CPAU completed a project to serve all Palo Alto Unified
> School District facilities with dark fiber service connections.
>
> Fiber-to-the-Premises
>
> For more than fifteen years, the City has worked to develop a
> business case to build a citywide fiber-to-the-premises ("FTTP")
> network to serve homes and business. A number of business models
> have been evaluated. The following is a summary of the highlights
> to develop a network:
>
> 1999: A Request for Proposal (RFP) was issued to build citywide
> FTTP. There were no viable bids.

CMR:331:99 (08-02-99) is a staff report about the Universal Telecommunications System (UTS) RFP.
http://www.cityofpaloalto.org/civicax/filebank/documents/2084
Attachment A, the RFP itself, is not part of the online document, unfortunately, and I didn't find the RFP online.

Apparently there were five (non-viable) bids.
http://www.cityofpaloalto.org/cityagenda/publish/cityclerk-reports/documents/060117Item10.pdf

CMR:331:99 says, "Although the City supports programs that bring fiber closer to homes and businesses in Palo Alto, the UTS-RFP does not specify a particular network architecture or platform." However, for non-FTTH proposals, it wanted to hear about a "migratory path" to FTTH. (In 1999, the term fiber-to-the-premises had not yet been coined, so FTTH was used to denote fiber to both homes and businesses.)

CMR:331:99 says the UTS should "provide high-speed access to various telecommunications services." But it doesn't quantify "high-speed." I remember that when UAC discussed the RFP, it was talking about accepting speeds as low as 9600 bps (!!) so that the incumbents would be able to provide it.

> 2000-2005: The City Council approved a Fiber-to-the-Home ("FTTH")
> trial to determine the feasibility of providing citywide FTTH
> access in Palo Alto.

On 04-05-99, Council approved doing both the FTTH Trial and the UTS (7-1, Rosenbaum no, Eakins absent).
http://www.cityofpaloalto.org/cityagenda/publish/citycouncil-archive/1999/990405.html

> The FTTH trial passed 230 homes

I don't think so! I think the Trial was intended never to serve more than number of the homes it served initially, so there was no point in designing it so that more homes could be connected later.

The FTTH Trial was originally intended to run for only about a year, but Council ended up extending it a few times.
Per CMR:403:02 (11-18-02), Council (12-02-02 consent calendar) extended it to 09-30-03.
http://www.cityofpaloalto.org/cityagenda/publish/cmrs/1243.pdf
Per CMR:451:03 (10-14-03), Council (consent calendar) extended it indefinitely (i.e., until it was terminated or incorporated into a citywide build-out), since at this point it was cash flow positive.
http://www.cityofpaloalto.org/cityagenda/publish/cmrs/2507.pdf

Staff then replaced the original Marconi FTTH equipment (about 5 Mbps symmetrical per user) with BPON equipment from Quantum Bridge and Motorola (622/155 Mbps shared among 4 users), ostensibly because it was an emerging FSAN standard.

Per CMR:360:04 (07-19-04), Council extended the Trial for another year, provided it wouldn't cost the City anything.
http://www.cityofpaloalto.org/cityagenda/publish/cmrs/3545.pdf

Per CMR:319:05 (07-25-05), Council voted 6-0 (Morton, Mossar, Ojakian not participating) to terminate the Trial (probably by December 2005 or whenever the equipment failed).
http://www.cityofpaloalto.org/cityagenda/publish/citycouncil-meetings/documents/050725minutes.pdf
Trial participants strongly objected and talked Motorola into donating the FTTH equipment so that a continuation of the Trial could continue to be cash flow positive. On 10-17-05, Council Member Kishimoto asked for a rethink. On 10-24-05, FOUR Council members (Morton, Mossar, Ojakian, and Kleinberg) recused themselves on the FTTH Trial item. Since "un-terminating" the Trial would have amounted to approving a contract, five affirmative votes were needed. One Council member (Beecham) said he'd vote no. So the Trial remained destined for termination.
http://www.cityofpaloalto.org/cityagenda/publish/citycouncil-meetings/documents/051024minutes.pdf
Service was terminated on 12-16-05.
http://www.paloaltoonline.com/weekly/morguepdf/2005/2005_12_21.paw.section1.pdf

> and included 66 participants in the Community Center neighborhood.

The 04-05-99 Council minutes don't say explicitly how many homes the Trial would include, but advocate Ken Poulton said that 69 was "inadequate," so I'm guessing that the option approved by Council proposed to do 69 homes.

> The purpose of the trial was to test the concept of fiber-to-the-home.
> The FTTH trial proved successful (i.e., proved technical feasibility),
> but when initial investment and overhead expenditures were included
> in the calculation to create a business case, it was not profitable
> for the City and the trial was ended.

It was never intended that the Trial should have demonstrated "business case" financial feasibility.

No history of FTTP in Palo Alto would be complete without the following item:

2002-2004: The City contracted with Uptown Services to write, with staff, 1) a FTTH business case; 2) a FTTH business plan, phase 1; and 3) a business plan, phase 2.
On 12-04-02, UAC looked at the FTTH business case,
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/1322.pdf
and recommended (5-0) proceeding to the FTTH business plan, phase 1.
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/1469.pdf
On 05-07-03, UAC looked at the FTTH business plan, phase 1,
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/1952.pdf
and recommended (4-0, Carlson absent) to approve the report.
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/2578.pdf
On 03-17-04 and 03-18-04, UAC looked at a FTTH business plan, phase 2,
https://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/3062.pdf
and recommended (3-2, Dawes, Bechtel, Melton aye, Rosenbaum, Dahlen nay) to recommend proceeding with FTTH but subject to an advisory vote of the people.
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/3235.pdf
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/3236.pdf
On 04-19-04, Council had a study session (no staff report) about financing options for FTTH.
http://www.cityofpaloalto.org/cityagenda/publish/citycouncil-meetings/3187.pdf
(so it took no formal action).
http://www.cityofpaloalto.org/cityagenda/publish/citycouncil-meetings/3328.pdf

On 05-05-04, UAC considered financing options,
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/3266.pdf
and voted (5-0) to recommend some financing options but not others. Dawes said, "A brief comment. I felt that the last several weeks have been a set-back for this project. I am disappointed that the financing issues did not come to the surface sooner than they have. I feel that a good deal of time and cash was wasted because of the delay in having this come forward."
On 07-07-04, UAC considered financing options,
http://www.cityofpaloalto.org/cityagenda/publish/cmrs/3545.pdf
and voted (3-2, Roesenbaum, Dawes, Bechtel aye; Dahlen, Melton nay) to not have a vote of the people, and to "halt consideration on further action until a viable financial plan emerges." (Note that as of June 2004, the UAC minutes are no longer verbatim. And videos older than 2007 are not online.)
http://www.cityofpaloalto.org/cityagenda/publish/uac-meetings/4129.pdf

In other words, in 2004, UAC thought that citywide FTTH was financially viable, except that California law might not allow backing FTTH bonds with electric revenues.

> 2006-2009: In 2006, the City issued another RFP and negotiated with
> a consortium of private firms to build FTTP under a public-private
> partnership model.

On 07-25-05, Council initiated this effort (5-1, Cordell no, Morton, Mossar, Ojakian not participating)
http://www.cityofpaloalto.org/cityagenda/publish/citycouncil-meetings/documents/050725minutes.pdf
in response to a 07-21-05 colleagues memo from Beecham and Kishimoto.
http://www.cityofpaloalto.org/cityagenda/publish/cityclerk-reports/documents/Fiber-to-the-Home.pdf

> In 2009, Staff recommended to Council termination of the RFP process
> and negotiations due to the lack of financial resources of the private
> firms.
>
> 2010: The City responded to Google Fiber's Request for Information.
>
> 2011: Staff worked with two telecommunications consulting firm to
> evaluate the expansion of the existing dark fiber network for its
> commercial dark fiber licensing enterprise and also to expand the
> network on an incremental basis to attract a "last mile" FTTP
> builder and operator. This is a link to the staff report provided
> to the Utilities Advisory Commission in June of 2011, and the
> Council Finance Committee in November of 2011:
>
> Subject: Provide Feedback on the Development of a Business Plan
> for the Citywide Ultra-High-Speed Broadband System Project
> http://www.cityofpaloalto.org/civicax/filebank/documents/27421
>
> 2012: Staff worked with a telecommunications consulting firm[s] to
> study the feasibility of an alternative model for citywide FTTP
> which would rely on homeowners paying on a voluntary basis for some
> or all of the cost to build-out the existing dark fiber network into
> residential neighborhoods. The name of this model is "user-financed"
> FTTP. The

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> analysis concluded that an opt-in FTTP network can be built using a
> combination of upfront user fees and City financing; however, there
> is very little probability of the debt incurred being repaid through
> operations. Ongoing subsidies would be required, very likely in
> excess of surpluses in the Fiber Optics Fund reserve generated by

> licensing dark fiber. The study was supported by a market survey
> which concluded there was limited interest among residents in this
> model.

If you're curious, read the report. It doesn't actually say how the questions were worded, which is a deficiency. The report says (PDF page 22) that 36 percent of Palo Alto homeowners would be willing to invest, even though the connect fee might be $3,000, plus between $50 and $250 per month for service.

> This is a link to the staff report provided to the Utilities Advisory
> Commission in June 2012:
>
> Subject: Request for Feedback Concerning the Dark Fiber Optic
> Backbone Network
> http://www.cityofpaloalto.org/civicax/filebank/documents/30112

On 06-06-12, UAC voted 4-3 (Cook, Eglash, Hall, Keller yes; Foster, Waldfogel, Melton no)
http://www.cityofpaloalto.org/civicax/filebank/documents/31450
to recommend the staff recommendation: giving up on this approach.
http://www.cityofpaloalto.org/civicax/filebank/documents/30112
(The dissenting commissioners wanted to send the report back to staff for improvements.) Next, the report should have been considered first by the Finance Committee and then by Council, but it never got there.

> 2013 - 2015: The City Council started it's

its

> "Technology and the Connected City" initiative and directed staff to
> prepare a Fiber-to-the-Premises Master Plan and a Wireless Network
> Plan. In 2015, staff worked with a telecommunications consulting
> firm to prepare these plans and they are provided for your review
> in this September 28, 2015 Council staff report:
>
> Summary Title: Discussion of Fiber-to-the-Premises and Direction
> on Next Steps for Fiber and City Wireless Services
> http://www.cityofpaloalto.org/civicax/filebank/documents/49073
>
> At the September 28, 2015 Council meeting, staff and the consultant
> reviewed these plans with the Council Members.

That is, on 09-28-15, Council reviewed this document, and staff and consultants made a presentation and answered questions.

> As a result, a Council Motion directed staff to pursue several
> initiatives, which are described in this August 16, 2016 staff report
> which updated the Council about the various activities from the
> Motion:
>
> Summary Title: Fiber-to-the-Premises update on City Council Motions
> and Google Fiber
> http://www.cityofpaloalto.org/civicax/filebank/documents/53363
>
> 2014 - 2016: Google Fiber announced Palo Alto as a potential "Google
> Fiber City" for a build-out of their fiber optic network. Since early
> 2014, staff has been engaged with Google personnel to complete an
> extensive checklist process regarding City infrastructure and
> processes, in addition to negotiating agreements for a project
> description, utility pole attachments, encroachment permits,

> environmental reviews and other agreements for cost recovery for use
> of staff time. Based on Council direction, staff has also worked
> with Google to develop a "co-build" concept which would explore the
> feasibility of building a City network in parallel with Google’s
> network. In July 2016, Google announced a delay in their plans for
> up to six (6) months

It was reported in the press as "up to six months or more."
http://www.mercurynews.com/2016/08/08/san-joses-google-fiber-rollout-is-delayed-while-tech-giant-explores-alternatives/

> to build a fiber optic network in Silicon Valley, which also included
> Mountain View, San Jose, Santa Clara and Sunnyvale. Google advised
> staff that they are exploring more innovative ways to deploy their
> network, which may include implementing wireless technologies.
> Co-build discussions have also been delayed. In the summer of 2016,
> the City approved permits for two cabinets so AT&T can begin to
> deploy their "GigaPower" service. AT&T is exploring deployment of
> additional cabinets in 2017. Based on Council direction, staff is
> also pursuing co-build discussions with AT&T.
>
> Wireless Network Plan
>
> Based on the above-mentioned Wireless Network Plan, Council directed
> staff to issue an RFP for a Point-to-Multipoint Secure Access Network
> for Public Safety and Utilities communications, in addition to an RFP
> for a Mobile Broadband Network to improve "in-vehicle" broadband
> access in Public Safety vehicles. Staff is also working to extend the
> City’s

--- page 5 ---

> existing Wi-Fi service to other City facilities that are currently
> unserved. Most key City facilities already have Wi-Fi available for
> staff and public use.

From:	Andy Poggio
To:	Richard Brand; Henderson, Todd; Reichental, Jonathan; Bob & Margie Harrington; Wallace, Joshua; Yuan, Dave; Christine Moe; Donn Lee; Andrew Kau; Tom DuBois; UAC; Hoel, Jeff
Subject:	Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 9:36:53 AM

See

http://googlefiberblog.blogspot.com/2016/10/advancing-our-amazing-bet.html

They have stopped work on new deployments, reduced staff, and the relevant CEO has resigned. They may well relaunch with a new, wireless approach — but such a new approach hasn't been deployed on a massive scale yet. It's hard to what the timing for a PA launch might be and how well the new technology would work.

While I think we should continued to engage Google with respect to a PA/Google partnership, I also feel more and more like we're on our own to build high-speed, cost-effective internet in PA and that FTTP continues to be the best approach.

—andy

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Subject:	Re: Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 9:41:40 AM

Google announced some Web Pass cities; see

https://fiber.google.com/newcities/#viewcities

PA isn't one of them. It's hard to assess whether this is good news (we'll get proven fiber instead) or bad (we won't get anything at all).

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To:	Andy Poggio
Cc:	Richard Brand; Henderson, Todd; Reichental, Jonathan; Bob & Margie Harrington; Wallace, Joshua; Yuan, Dave; Christine Moe; Donn Lee; Andrew Kau; UAC; Hoel, Jeff
Subject:	Re: Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 11:48:52 AM

Beat me to sending this out - very interesting article and I don't see the resignation of the CEO as a good thing.

On Wed, Oct 26, 2016 at 9:38 AM, Andy Poggio <apoggio@pacbell.net> wrote:

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To:	Andy Poggio
Cc:	Richard Brand; Henderson, Todd; Reichental, Jonathan; Bob & Margie Harrington; Wallace, Joshua; Yuan, Dave; Christine Moe; Donn Lee; Andrew Kau; UAC; Hoel, Jeff
Subject:	Re: Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 11:49:23 AM

Another tale

http://www.theverge.com/2016/10/25/13411912/alphabets-access-will-lay-off-employees-as-it-moves-away-from-fiber

On Wed, Oct 26, 2016 at 11:45 AM, Tom DuBois <tomforcouncil@gmail.com> wrote:

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To:	Tom DuBois
Cc:	Richard Brand; Henderson, Todd; Reichental, Jonathan; Bob & Margie Harrington; Wallace, Joshua; Yuan, Dave; Christine Moe; Donn Lee; Andrew Kau; UAC; Hoel, Jeff
Subject:	Re: Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 12:14:07 PM

CEO resignation likely means a major change they don't think he can handle. It also likely means things won't happen quickly.

It's interesting that they didn't make the Web Pass CEO into the Access CEO.

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From:	Jeff Hoel
To:	Andy Poggio; Tom DuBois
Cc:	Richard Brand; Henderson, Todd; Reichental, Jonathan; Bob & Margie Harrington; Wallace, Joshua; Yuan, Dave; Christine Moe; Donn Lee; Andrew Kau; UAC; Hoel, Jeff
Subject:	Re: Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 12:58:36 PM

Andy,

Thanks for your messages.

I think the list of Webpass cities you cited was all from before Google bought them. And their wireless technology was used to make a connection between two tall buildings, but connections to individual premises were still wired. So I think Webpass CEO Charles Barr doesn't have a lot of experience delivering wireless to random premises. Anyhow, who knows what qualities Google wants in its next Access CEO?

A randomly found analyst, Jan Dawson, says:
http://www.usatoday.com/story/tech/news/2016/10/25/google-fiber-halts-rollout-ceo-leaves/92746288/
"Although Google is framing this as a pause while it considers next generation technologies, I would hope that it's actually a concession on the company's part that being in the access business is a distraction rather than a strategic imperative." I don't know why it's a "hope" for her. Anyhow, what's not a strategic imperative for a private-sector company like Google might well be a strategic imperative for a municipality.

Jeff

----- Original Message -----
From: Andy Poggio <apoggio@pacbell.net>
To: Tom DuBois <tomforcouncil@gmail.com>
Cc: Richard Brand <mmqos@earthlink.net>; "todd.henderson@cityofpaloalto.org" <todd.henderson@cityofpaloalto.org>; Jonathan Riechental <jonathan.reichental@cityofpaloalto.org>; Bob & Margie Harrington <bobharrington@outlook.com>; Josh Wallace <joshua.wallace@cityofpaloalto.org>; Dave Yuan <dave.yuan@cityofpaloalto.org>; Christine Moe <eomac.cam@gmail.com>; Donn Lee <donnlee@gmail.com>; Andrew Kau <akau@waldenintl.com>; uac@cityofpaloalto.org; Jeff Hoel <jeff_hoel@yahoo.com>
Sent: Wednesday, October 26, 2016 12:10 PM
Subject: Re: Google Fiber "Paused"

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From:	Jeff Hoel
To:	Andy Poggio; Bob Harrington; Richard Brand; Christine Moe; Andrew Kau; Donn Lee; Reichental, Jonathan; Henderson, Todd; Wallace, Joshua; Yuan, Dave; Tom DuBois
Cc:	Hoel, Jeff; UAC
Subject:	Fw: BSL List: 10/26/16
Date:	Wednesday, October 26, 2016 1:36:00 PM

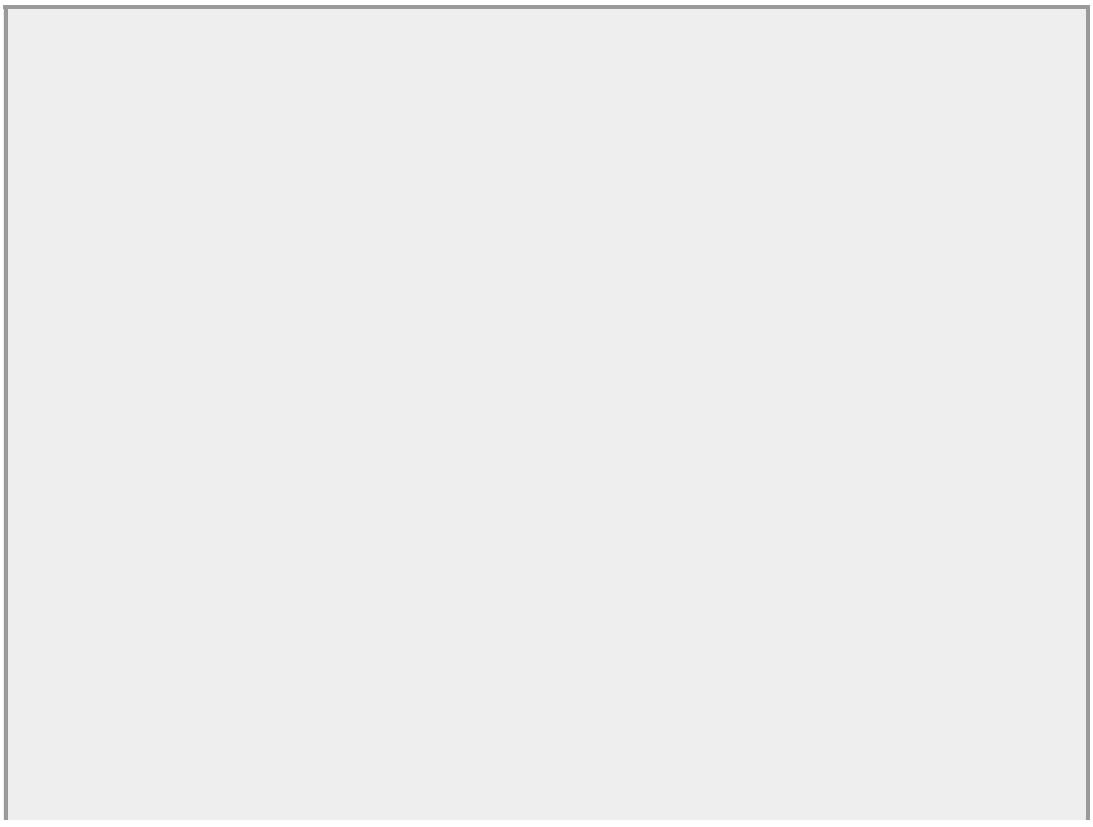
Folks,

I recommend the free newsletter about municipal broadband put out by Baller Stokes & Lide. Here's a sample.

Today's newsletter has this item about Google Fiber developments:
10-25-16: "Alphabet Cutting Jobs in Google Fiber Retrenchment"
https://www.bloomberg.com/news/articles/2016-10-25/alphabet-access-unit-to-cut-about-9-of-google-fiber-staff?mc_cid=1caa6ba2c6&mc_eid=99443c82f8
" Moving into big cities was a contentious point inside Google Fiber, according to one former executive."

Jeff

----- Forwarded Message -----
From: "Baller Stokes & Lide, P. C." <list@baller.com>
To: Jeff <jeff_hoel@yahoo.com>
Sent: Wednesday, October 26, 2016 12:02 PM
Subject: BSL List: 10/26/16



WASHINGTON, D.C.
October 26, 2016
www.baller.com

BROADBAND

Google Fiber's CEO, Craig Barratt, announces it will halt operations in "potential Fiber cities" where it had been exploring fiber build-outs. Barratt also said he planned to step down as the company shifted its approach to focus on new technologies and methods to deploy gigabit-capable broadband. | Google Fiber Blog; N.Y. Times ("Google Curbs Expansion of Fiber Network, Cutting Jobs")

"Moving into big cities was a contentious point inside Google Fiber, according to one former executive. Leaders like Barratt and Dennis Kish, who runs Google Fiber day-to-day, pushed for the big expansion. Others pushed back because of the prohibitive cost of digging up streets to lay fiber-optic cables across some of America's busiest cities." | BloombergTechnology (Gary White)

"Revenue from providing Internet access—including fixed broadband and cellular charges—is expected to grow at an average of 6.3% a year from 2016 to 2021, producing roughly $177 billion more revenue over that period." | Wall Street Journal

"Comcast yesterday sued the Nashville metro government and mayor to stop a new ordinance designed to give Google Fiber faster access to utility poles." | Ars Technica

Wilson, NC, agreed to provide telephone and Internet services to Pinetops, NC, for no charge for the

next six months in order to avoid shutting off the service entirely due to a state law restriction. City Manager Grant Goings: "We are thankful that, in partnership with our phone service provider, we have identified a way to keep folks connected while Rep. Martin and Sen. Brown work to fix this broken State law." | Community Broadband Networks

"Big Apple Claims SF's Miguel Gamiño as New CTO" | Government Technology

Spirit Communications and 11 independent ILECS partner to launch "GigUP South Carolina" campaign. | FierceTelecom

"Crown Castle's heavy investments in fiber in recent years are paying dividends as the small-cell market finally begins to pick up some steam." | FierceTelecom

The broadband gap exists in urban areas, too. | POTs and PANs

WIRELESS

"A new WiFi standard named WiGig is poised to dramatically speed up short-range wireless in the new year." But "WiGig only works over relatively short distances of roughly 33 feet (or 10 meters) using unlicensed 60GHz spectrum, which doesn't penetrate walls well." | Broadband Reports

VIDEO

FCC released a notice of proposed rulemaking that would prohibit the use of "unconditional" most favored nation provisions and "unreasonable alternative distribution method provisions in pay-TV programming distribution contracts. FCC says these rules would foster consumer choice and more diverse programming. Comments due December 27, 2016. Reply Comments due January 23, 2017. | FCC Public Notice

Experts warn "[i]t will be hard -- if not impossible -- to stop hackers from weaponizing the 'Internet of Things' anytime soon." | Washington Post

OTHER NEWS

Bernie Sanders: "If Hillary Clinton is elected president we must do everything possible to make certain that her administration mounts a vigorous anti-trust effort....We must reject the AT&T-Time Warner merger. We need more diverse media ownership, not less." | Washington Post

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Articles included on the list may or may not reflect the views or opinions of the firm.

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list@baller.com

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From:	Richard Brand
To:	Tom DuBois; Andy Poggio
Cc:	Henderson, Todd; Reichental, Jonathan; Bob & Margie Harrington; Wallace, Joshua; Yuan, Dave; Christine Moe; Donn Lee; Andrew Kau; UAC; Hoel, Jeff
Subject:	Re: Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 2:13:46 PM

Craig Barratt is a seasoned exec (he worked for Andy Grove at Intel) who is smart enough to know to get out if he does not have the support of his superiors.
Can we cancel all permits issued for Serge and Larry?
Richard

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From: Tom DuBois
Sent: Oct 26, 2016 11:45 AM
To: Andy Poggio
Cc: Richard Brand , "todd.henderson@cityofpaloalto.org" , Jonathan Riechental , Bob & Margie Harrington , Josh Wallace , Dave Yuan , Christine Moe , Donn Lee , Andrew Kau , uac@cityofpaloalto.org, Jeff Hoel
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From:	Bob Harrington
To:	Richard Brand; Tom DuBois; Andy Poggio
Cc:	Henderson, Todd; Reichental, Jonathan; Wallace, Joshua; Yuan, Dave; Christine Moe; Donn Lee; Andrew Kau; UAC; Hoel, Jeff
Subject:	Google Fiber "Paused"
Date:	Wednesday, October 26, 2016 2:41:32 PM

Richard,

Two different guys:

Craig Barratt, Alphabet Access SVP (resigned 2016)

Craig Barrett, Intel CEO (retired as CEO in 2005, retired as Board Chair in 2009)

Google Fiber, as we came to know it as a GF prospect city, has died. This "Advancing Our Amazing Bet" October 25 Google Blog by outgoing Access CEO Craig Barratt is corporate speak for an obit. Google Fiber as a competitive threat in future cities just evaporated. It is back to business as usual for Comcast, AT&T, Time Warner, etc. Not good news for anyone except Comcast, AT&T, Time Warner, etc.

Bob

Date: Wed, 26 Oct 2016 14:10:21 -0700
From: mmqos@earthlink.net
To: tomforcouncil@gmail.com; apoggio@pacbell.net
CC: todd.henderson@cityofpaloalto.org; jonathan.reichental@cityofpaloalto.org; bobharrington@outlook.com; joshua.wallace@cityofpaloalto.org; dave.yuan@cityofpaloalto.org; eomac.cam@gmail.com; donnlee@gmail.com; akau@waldenintl.com; uac@cityofpaloalto.org; jeff_hoel@yahoo.com
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