



# City of Palo Alto

(ID # 13591)

## Utilities Advisory Commission Staff Report

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**Report Type: New Business**

**Meeting Date: 10/6/2021**

**Title: Discussion of the Fiber Backbone and Palo Alto Fiber Broadband Expansion**

**From: City Manager**

**Lead Department: Utilities**

### **Recommendation**

This item is presented for the Utilities Advisory Commission (UAC) information and discussion. No action is requested.

### **Background**

On May 24, 2021, Council approved staff and UAC recommendations (7-0) to pursue build out of the City fiber backbone in a manner designed to support citywide Fiber-to-the-Home (FTTH), including approval of the near-term 12-month workplan outlined in the report and establishing a City operated Internet Service Provider (ISP) model to offer FTTH service within five years ([Staff Report #12117](#)).

A. Perform the following tasks by March 31, 2022:

- i. Combine Phases 2 and 4 of the Magellan contract (C20176363) to provide detailed engineering design of the City's fiber backbone and FTTH distribution network;
- ii. Complete a detailed City-operated ISP model, to include a combination of insource and outsource functions;
- iii. Complete a residential and commercial broadband survey;
- iv. Complete a risk and mitigation analysis of City-operated ISP model;
- v. Determine the best financing model, including availability of federal and state funding options;

B. Direct Staff to return to Council with a City-operated Internet Service Provider (ISP) model to offer FTTH service within five years; and

C. Per Council prior direction as part of the Community and Economic Recovery work plan, Staff will prioritize and accelerate community education and engagement regarding FTTH.

### **Discussion**

Staff and Magellan will provide the UAC an update of the Palo Alto Fiber community engagement platform and broadband surveys for residents and businesses. In addition, Magellan will provide highlights of the detailed engineering design for the fiber backbone and Palo Alto Fiber broadband network. As part of the Palo Alto Fiber broadband network infrastructure, the City will have to build fiber huts and cabinets to store equipment and serve customers. Staff has identified some potential city-owned sites as fiber hut locations for the UAC's consideration.

**Attachments:**

- Attachment A: Presentation

# CITY OF PALO ALTO

## Fiber Expansion Project Presentation to the UAC

*Oct 6, 2021*



# CURRENT ACTIVITIES

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## **Phase 3b**

- **Community Engagement**
- **Broadband Surveys for Residents & Businesses**

## **Phase 2**

- **Detailed Backbone Engineering Design**
- **Aerial & Underground Design, Standards & Construction Packages**

## **Phase 4**

- **Palo Alto Fiber Broadband Engineering Design (To Homes & Businesses)**
- **Aerial & Underground Design, Standards & Construction Packages**
- **Broadband Business Plan, Grant Opportunities, Regulatory Analysis**

## COMMUNITY ENGAGEMENT

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### Community Engagement Activities Completed

- ✓ **Palo Alto Fiber website established** *(link to landing page)*
- ✓ **FAQ and content complete**
- ✓ **Engagement portal established** *(link to portal)*
- ✓ **Residential and business surveys ready for launch** *(link to surveys)*
- ✓ **Branding completed**

### Community Engagement Next Steps

- **Launch residential and business surveys – November/December**
- **Survey results - January**

# FIBER BACKBONE & BROADBAND ENGINEERING

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## Engineering Activities Completed

- ✓ 30% design completed for the fiber backbone
- ✓ 30% design completed for fiber broadband (To homes and businesses)
- ✓ Running lines and route optimization
- ✓ List of sites to connect
- ✓ Identification of fiber hut sites (for review)

## Engineering Next Steps

- Onsite fielding and constructability survey
- Customer notification plan for any private property access
- Pole loading and make-ready engineering
- Bill of materials and updated cost estimates

## **FIBER BROADBAND OVERVIEW – HUT & CABINET REVIEW**

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### **Fiber Huts (aka Points of Presence)**

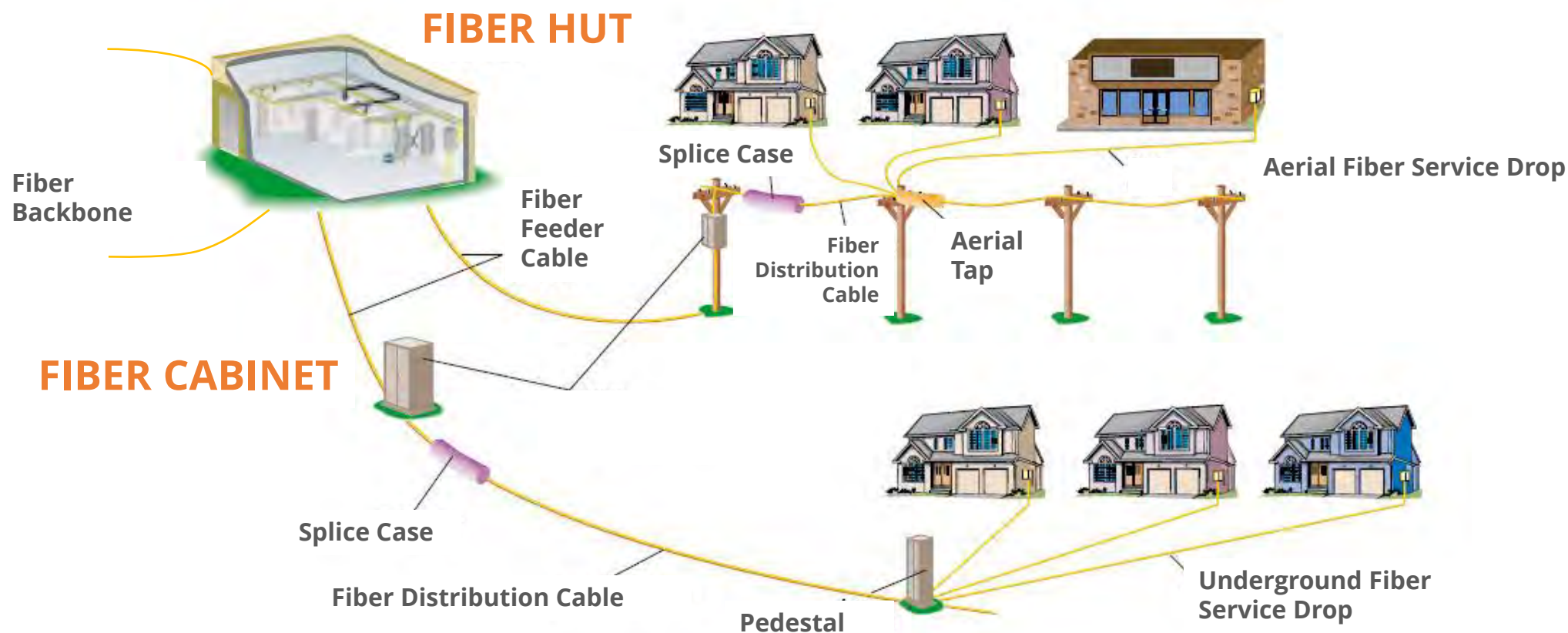
- **Prefabricated buildings purpose-designed for broadband**
- **Centralize all fiber for connections to neighborhoods**
- **Provide electronics and interconnection**
- **Each POP serves 10,000 – 15,000 customers**
- **2-3 huts recommended**

### **Fiber Cabinets**

- **Manufactured steel structures that house fiber connections**
- **Connect each neighborhood back to a fiber hut**
- **Each cabinet serves 250 – 500 customers**
- **Ground-mounted or below-grade for full concealment**
- **About 130 cabinet locations**



# FIBER BROADBAND OVERVIEW – HUT & CABINET REVIEW





# FIBER BROADBAND OVERVIEW – HUT & CABINET REVIEW

**Fiber Hut (Exterior)**



**Fiber Hut (Interior)**



**Fiber Hut (Interior)**



**Fiber Cabinet - Underground**



**Fiber Cabinet – Above Ground**



- **Layout, including landscaping: 20ft x 40ft**
- **Fiber hut size: 11ft x 20ft**

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- **Fiber hut size: 11ft x 20ft**



## FIBER BROADBAND OVERVIEW – HUT & CABINET REVIEW

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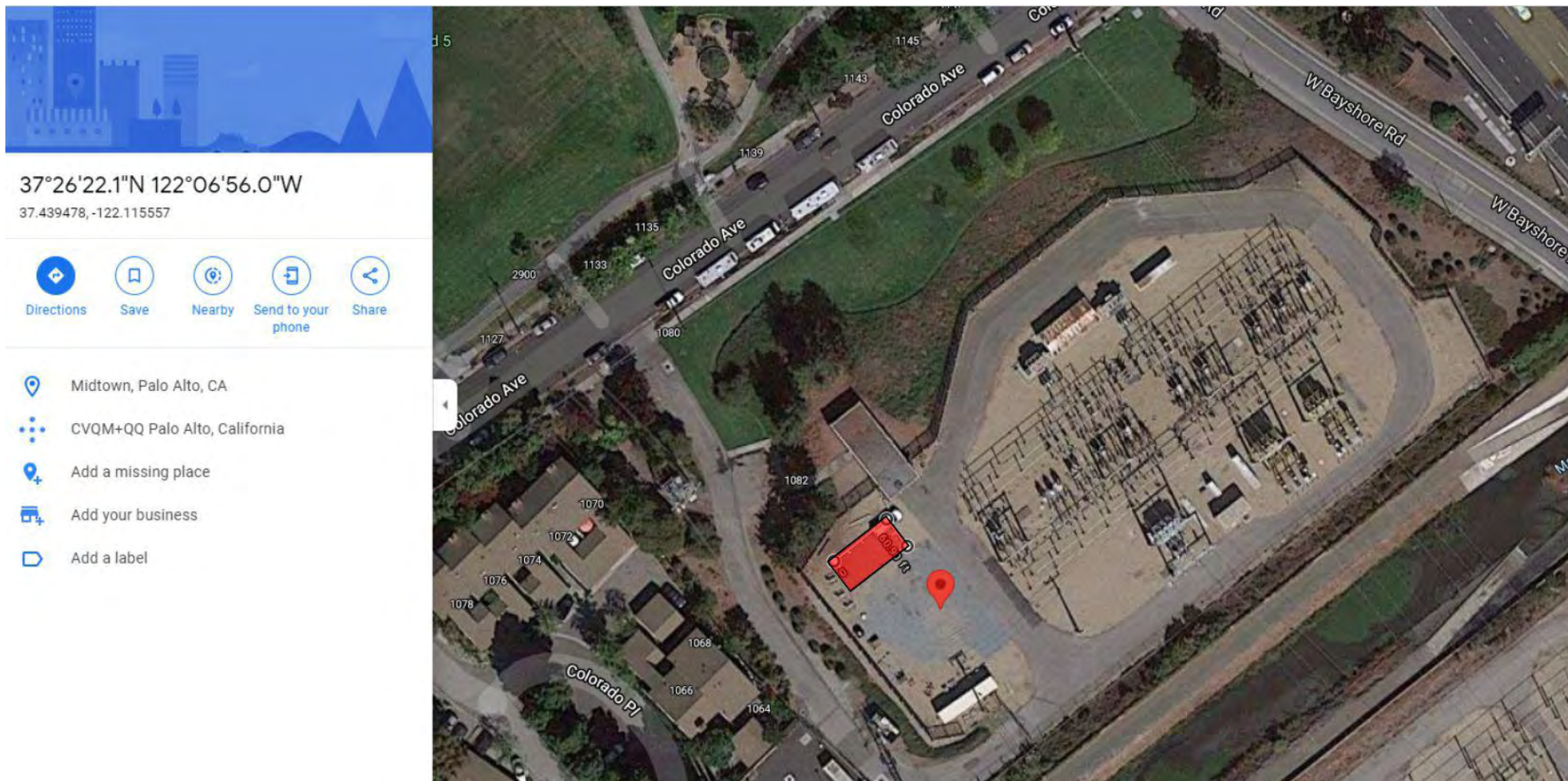
**Hut and cabinet locations should be determined in Q4, 2021**

- **Final location for huts**
  - **Open Space Approval**
  - **Planning / Architectural Review Board approval**
  - **Utilities Engineering Review**
  - **Public Works Permitting process**
  - **Other requirements?**
- **Final locations for cabinets**
  - **Reuse existing cabinet locations**
  - **New cabinet locations**
  - **Use of below-grade cabinets wherever possible**



# FIBER BROADBAND OVERVIEW – POTENTIAL HUT LOCATIONS

Colorado Substation(North)  
Colorado & Bayshore, Palo Alto, CA





# FIBER BROADBAND OVERVIEW – POTENTIAL HUT LOCATIONS

Palo Alto Animal Shelter (North)  
3281 E Bayshore Rd, Palo Alto, CA 94303



3281 E Bayshore Rd

Building



Directions



Save



Nearby



Send to your  
phone



Share



3281 E Bayshore Rd, Palo Alto, CA 94303



Suggest an edit on 3281 E Bayshore Rd



Add a missing place

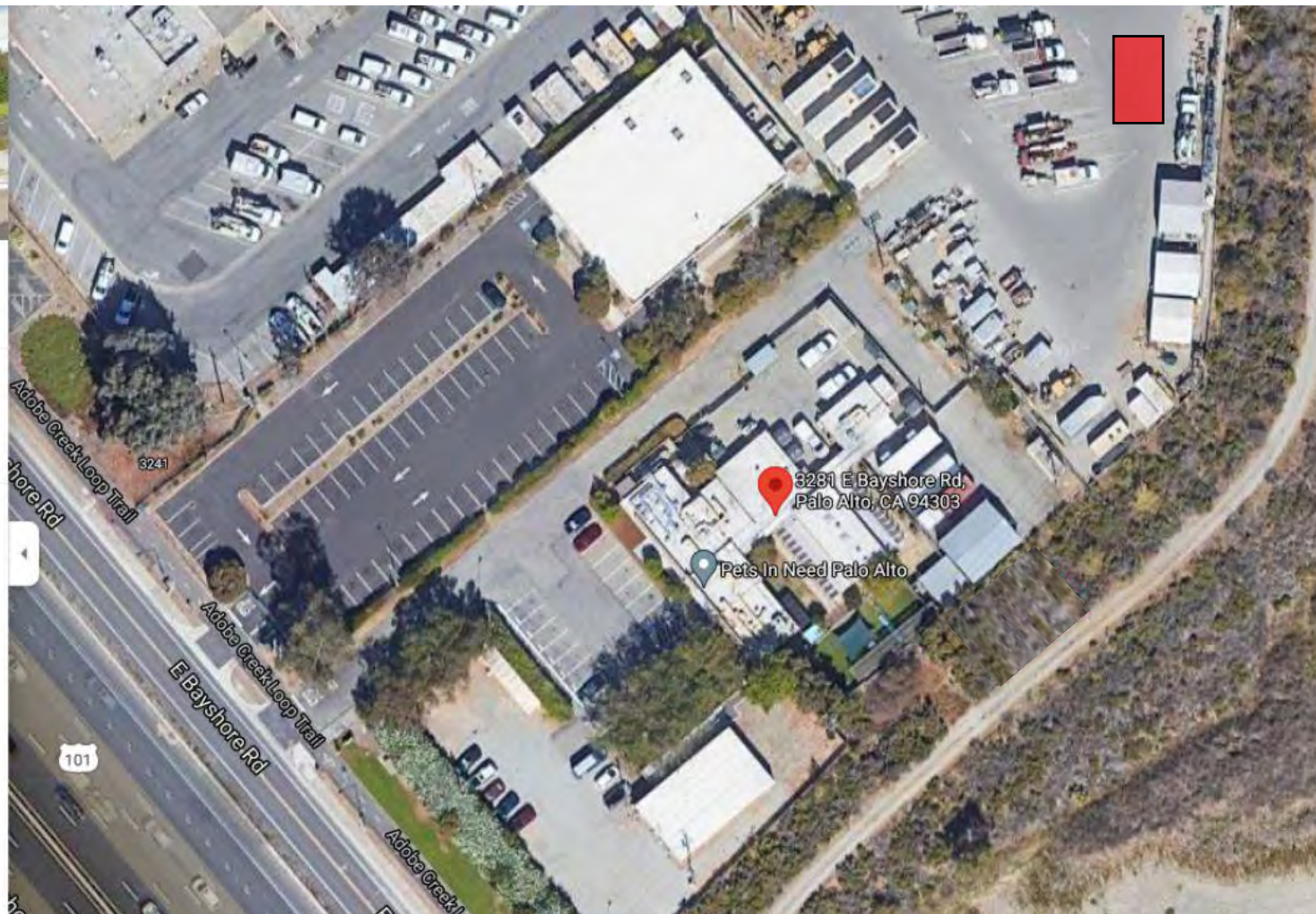


Add your business



Add a label

Photos



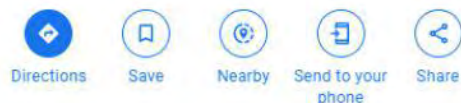


# FIBER BROADBAND OVERVIEW – POTENTIAL HUT LOCATIONS

Fire Station No.5 (South)  
600 Arastradero Rd, Palo Alto, CA 94306



600 Arastradero Rd  
Building



- 600 Arastradero Rd, Palo Alto, CA 94306
- Suggest an edit on 600 Arastradero Rd
- Add a missing place
- Add your business
- Add a label

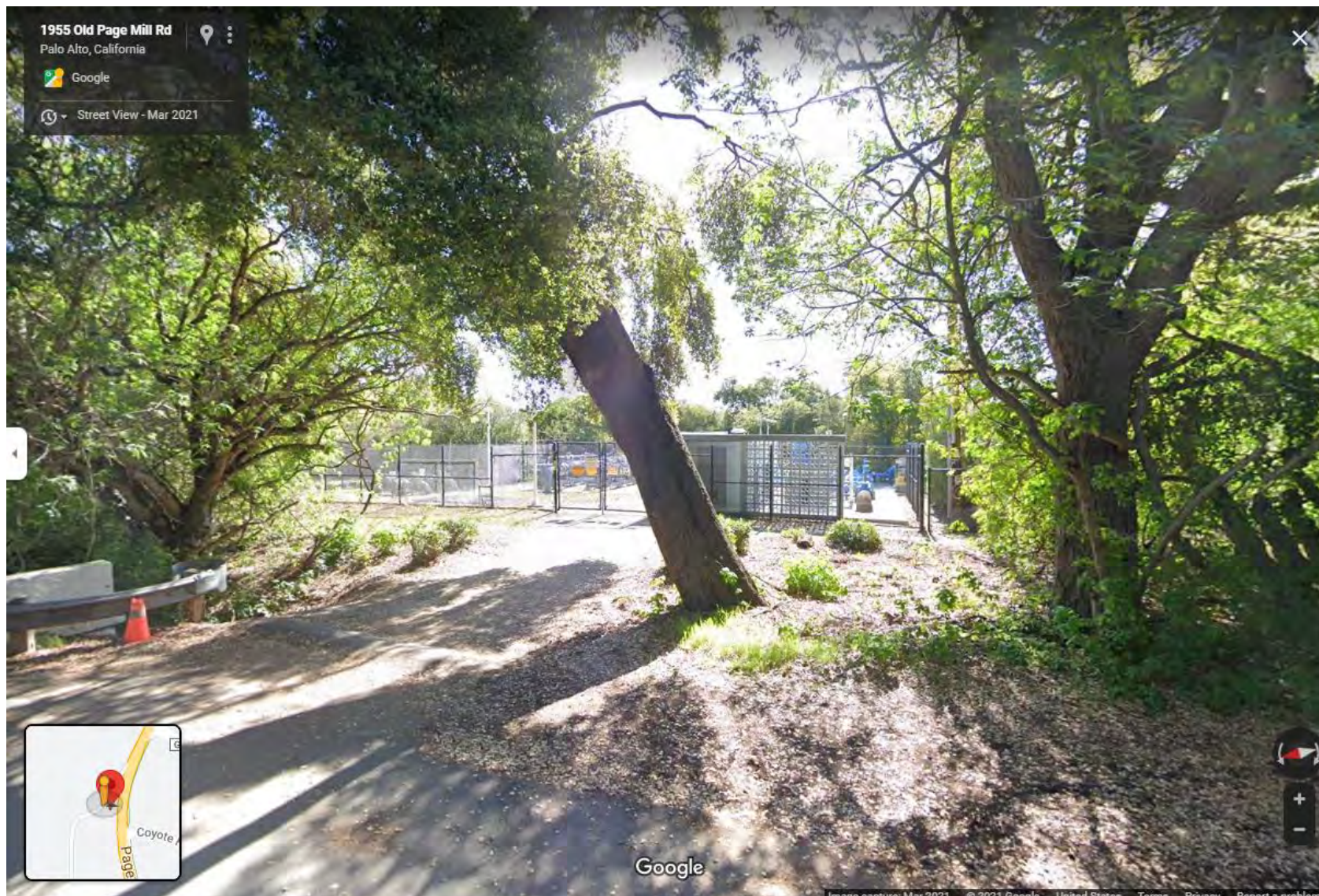
## Photos





# FIBER BROADBAND OVERVIEW – POTENTIAL HUT LOCATIONS

Water Facility (South)  
1955 Old Page Mill Rd





# FIBER BROADBAND OVERVIEW – POTENTIAL HUT LOCATIONS

Hale Well (West)  
998 Palo Alto Ave





# FIBER BROADBAND OVERVIEW – POTENTIAL HUT LOCATIONS

City Hall  
PD Parking (West)  
668 Ramona St

