

To: Golden State Net

CC: California Public Utilities Commission  
California Department of Technology  
California Emerging Technology Fund

From: Philip Neufeld, for **Fresno Coalition for Digital Inclusion**  
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Subject: **Priorities and Values for Middle Mile and Last Mile in Fresno County**

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The Fresno Coalition for Digital Inclusion (FCDI) is a cross-sector collaborative working to improve access to digital services for the unserved and underserved in Fresno County. Digital inclusion requires 1) quality, affordable, accessible internet, 2) devices, 3) supports and digital literacy skills that enable all people to better access digital services like education, healthcare, employment, etc. Attached please find the FCDI charter which notes its members.

**This memo outlines our shared values and priorities to guide investment in middle and last-mile internet services.** It encapsulates recent conversations amongst anchor institutions including State Center Community College District, Fresno Unified School District, Fresno County, the City of Fresno, Fresno Superintendent of Schools, Fresno Housing, Valley Children's Hospital, et al.

## Focus on Equity and the Underserved

**California's investment in internet infrastructure should be driven by equity focusing first on the unserved and underserved.** We outlined in a previous memo the **under-representation of unserved and underserved in urban areas of high-poverty, multi-tenant dwellings, and rural areas with smaller population clusters** (memo attached). Previous CPUC Preferred Scenarios for the San Joaquin Valley Regional Broadband Consortium ignored both urban areas of high poverty and the internet access challenge of tenants in multi-tenant dwellings. CPUC maps suggest the City of Fresno has less than 5,000 underserved people. However, based upon data gathered over the past two years, this number could well exceed 50,000 given 1) 10,000+ residents in Fresno Housing multi-tenant complexes within the City of Fresno may not have affordable, accessible access to quality internet, and 2) analytics from Fresno Unified suggest 27,000+ students may not have access to quality internet (Fresno Unified uses the "myQoI" app which tracks quality of internet access on district-issued laptops).

## Leverage and share assets to further the reach of our investments

- This includes assets such as dark fiber, electronics, conduits, vaults, poles, rights of way...
- This includes regional assets that are also owned by the state like water canals and aqueducts.
- Leverage existing pathways from current fiber providers and insist on reciprocal agreements to ensure open access. We understand Golden State is collaborating with providers like CVIN.

- Leverage existing fiber leases already paid for through federal programs like E-Rate. Many of our school districts already pay for dark and/or lit fiber. These fiber assets may serve as pathways to complete rings and/or support last-mile solutions. Exhibit 2 below lists infrastructure from recent Broadband Improvement Grants (BIG).
- Sharing assets is important in its own right and is an exemplar practice for others to follow. We'd ask CENIC and Golden State to innovate with models that leverage private/public multi-party arrangements to deploy and sustain middle and last-mile solutions. For example, there could be asset sharing amongst and with anchor institutions like the City of Fresno, Fresno County, school districts, private fiber providers, and Golden State.

## Aggregation Point available for OE Middle Mile

Business internet costs in the central valley are high partly due to limited access to wholesale internet pricing. This is evidenced by the lack of data centers in Fresno – a region with ready access to power and with low earthquake risks. Fresno County has perhaps 1 commercial co-location facility!

Golden State Net should build an **aggregation point in Fresno** that offers direct peering to internet, cloud and content service providers. This would improve costs, latency, and bandwidth. This would ensure the open-access middle-mile network provides access to content, service, and internet via a Regional Inter-Exchange Point (RXP). This could be located at one of two locations: 99/180 (currently owned by Fresno County) or Van Ness/Inyo (ready infrastructure with available leases on fiber, buildings, and lots).

## Use map layers based upon people's actual internet experience

- Ensure layers of CPUC maps include new measures such as quality of internet experienced by people, both underserved and well served.
- There are new ways to gather information such as myQoI; new massive device deployments such as 1x1 devices assigned to students by school districts; new sources for data including M-Labs, Microsoft, Ookla; and new ways to store and analyze data (e.g., education systems are moving to Open Education Analytics built upon Azure Synapse).

## Recognize multiple use cases for internet across peoples' daily journeys

**Recognize the multiple use cases for the internet** including education, healthcare, business, employment, civic services, agronomy, etc. Many of these use cases require internet access throughout a person's daily journey and not just at their place of housing. Therefore, last mile should include Wi-Fi at anchor institutions, agency facilities, buses, businesses, and community centers; LTE or 5G in open spaces; and RF or wireline solutions to the housing unit – especially in areas of higher poverty.

## Middle Mile Priorities

The middle mile priorities are those within the City of Fresno, western Fresno County, eastern Fresno County, and adjoining counties. The visual maps are available in Exhibit 1.

### Middle Mile Priorities: City of Fresno

Fresno Housing's largest 27 multi-dwelling units alone have 10,000 underserved and unserved tenants; and data on underserved students in urban areas of high-poverty.

#### **South-West Fresno**

South-West Fresno includes many disadvantaged urban areas with some of the highest concentrated poverty in all of the United States. Freeways cut off these areas leaving deserts of economic development (e.g., Elm Avenue Revitalization Area is a focus for the City of Fresno where the intent is to invest and revitalize the area that has been marked by disinvestment, leaving many brownfields). There should be a middle mile loop north to the State Route 180 and south to North Ave. connecting east on State Route 99 and west on State Route 41.

#### **South-East Fresno**

South-East Fresno is a growth area with high poverty. There should be a middle mile loop that traverses north/south on Clovis Ave. and east/west on Jensen Ave. along State Route 99 to the west and up to State Route 180 on the north.

#### **West Fresno**

West Fresno is an area without significant last mile options: There should be a middle mile loop south from Shaw Ave, north on State Route 180, and west of State Route 99 on Cornelia Ave.

### Middle Mile Priorities: Fresno County West

There are over 2,500 underserved residents in Fresno Housing multi-tenant complexes. Over half of those 2,500 residents are under 18 and need a strong internet connection to access education. Social vulnerability is high in the communities of Raisin City, Cantua Creek, West Park, Rolinda, Three Rocks, Biola, Laton, Caruthers, Riverdale, Conejo, Monmouth, and Lenare. Social Vulnerability is measured by Households Below Poverty, Unemployed, Median Income, and No High School Diploma. These unincorporated municipalities lack the capacity and governance structure to implement and maintain broadband infrastructure.

Additional priorities exist within the **cities of western Fresno County** where social vulnerability is high; these cities include Coalinga, Huron, San Joaquin, Tranquility, Mendota, Firebaugh, and Kerman.

### Middle Mile Priorities: Fresno County East

There are over 1,600 underserved tenants in Fresno Housing multi-tenant complexes, 50% of which are under 18 years of age.

Priorities among **unincorporated municipalities** include the communities of Auberry, Prather, Tollhouse, Piedra, Centerville, Squaw Valley, Dunlap, Del Rey, Calwa, Malaga, and Minkler. In these communities, social vulnerability is shown to be medium to high. These unincorporated municipalities lack the capacity and governance structure to implement and maintain broadband infrastructure. Additional barriers to broadband deployment are the distance from metropolitan areas and the topography with rugged terrain.

Additional priorities exist within the cities of **east Fresno County**. These cities include Orange Cove, Reedley, Sanger, Parlier, Selma, and Kingsburg, all areas with higher social vulnerability.

## Middle Mile Priorities: Fresno County and neighboring counties

- We recommend loop connecting east Fresno to the north in Madera County, especially areas with new community developments.
- We recommend loop connecting east Fresno to the south of Fresno County to connect areas like Dinuba, Orosi, Sultana, and Cutler.

## Middle Mile Priorities: Tribal Lands

We acknowledge that tribal representation is not yet present within the Fresno Coalition for Digital Inclusion. Our conversations sought to include tribal interests. This effort is reflected on the maps below. One such path would be the 168 from Clovis to Prather and Auberry.

## Last Mile

- Support short-term and sustainable long-term solutions that fit the context of the population, geography, and mix of commercial, single dwelling units, and multi-dwelling units.
- Recognize that anchor institutions may be the hub for last-mile solutions whether these use fiber or RF technologies.

## Contributors

The following anchor institutions were significant contributors to conversations for mapping infrastructure. Each is willing to share current and planned infrastructure.

- City of Fresno: Bryon Horn, Paul Zhou
- Fresno County Superintendent of Schools: Raj Sra, Amber Jacobo
- Fresno County: Brian Burton
- Fresno Housing: Bobby Coulter
- Fresno Unified School District: Philip Neufeld, Bryan Alvarado
- San Joaquin Valley Regional Broadband Consortium: Eduardo Gonzalez
- State Center Community College District: Kevin Miller

## Editorial Process

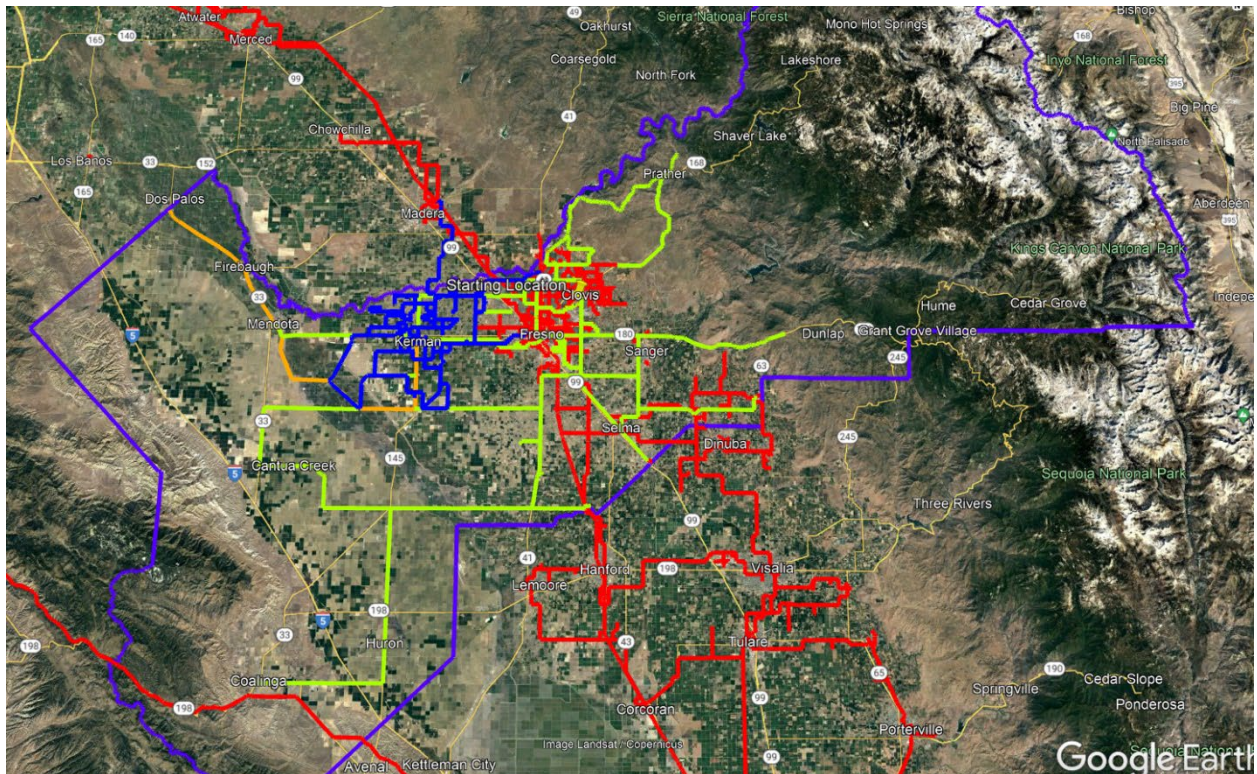
This document is the result of conversations over the past several years among anchor institutions, agencies and community-based organizations. The data gathered included traditional infrastructure mapping, novel ways to better represent the unserved and underserved, representations of experienced internet access along with challenges of affordability, availability and accessibility. See the FCDI charter for list of organizations.

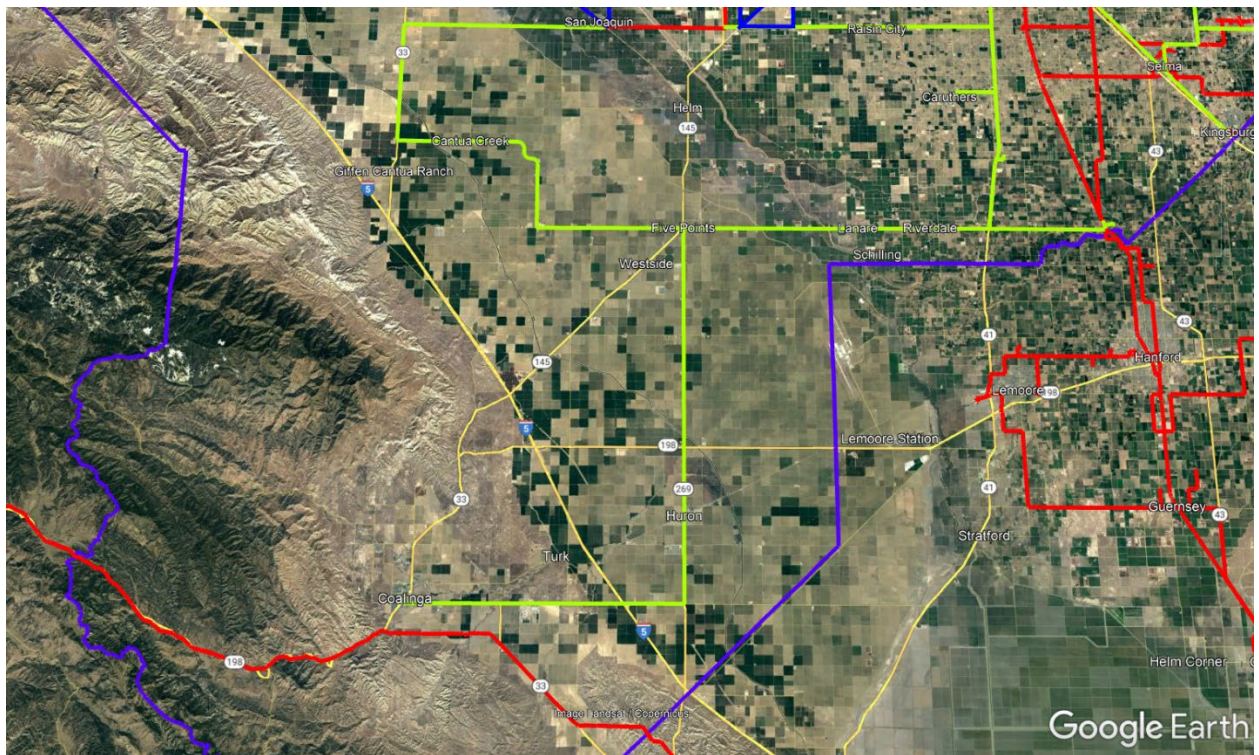
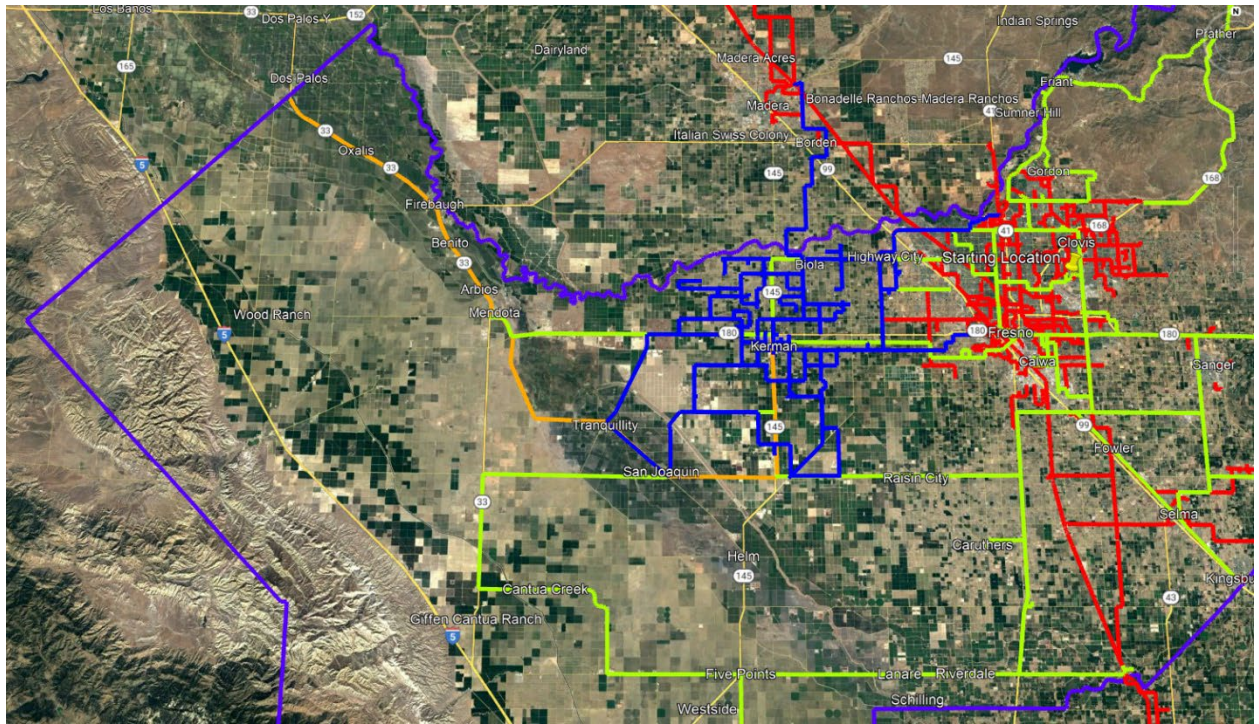
## Exhibit 1: Fresno County Open Access Middle Mile

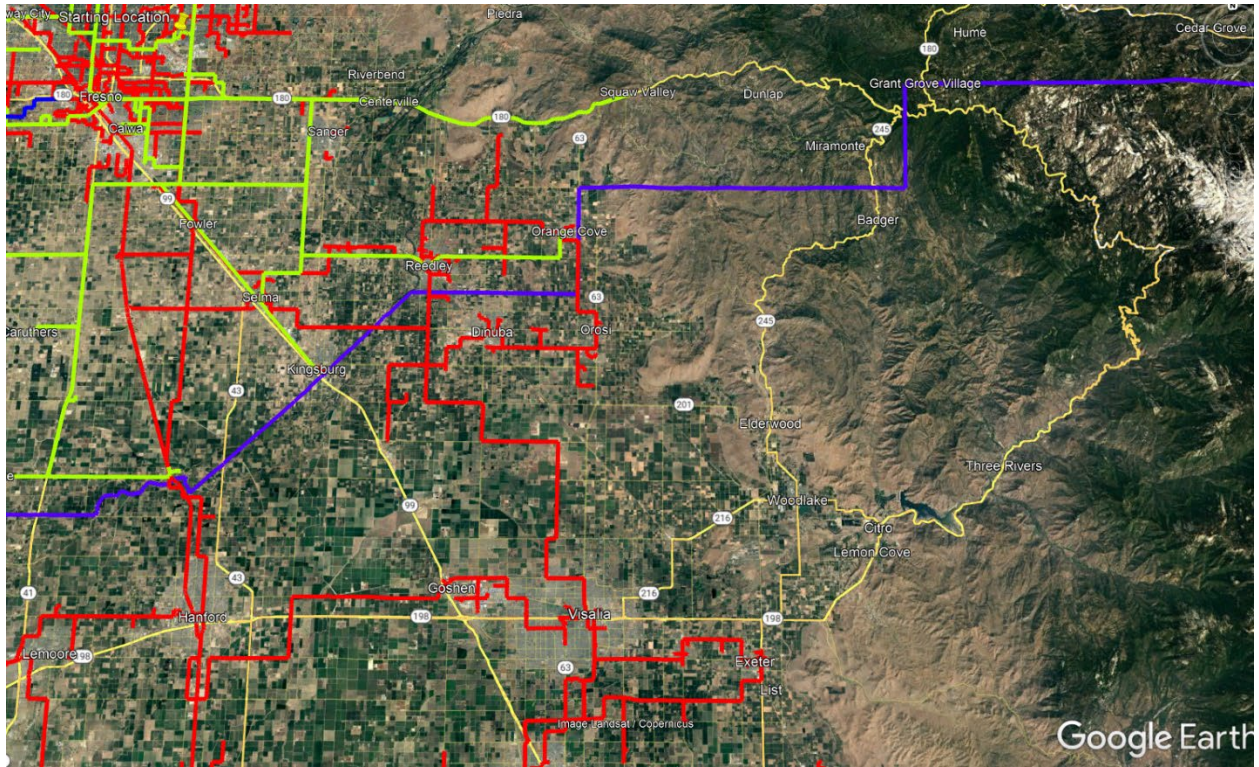
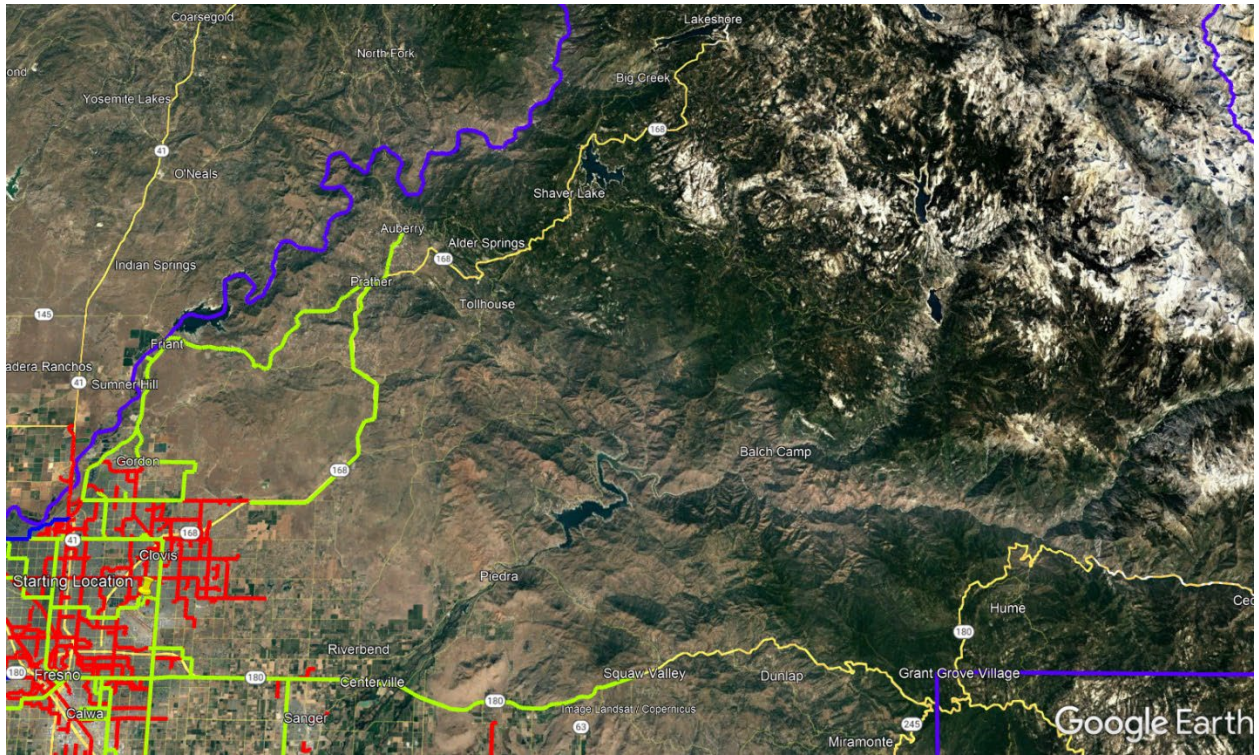
To provide Broadband accessibility to unserved and underserved residents of Fresno County the following expansion of open access Middle Mile is proposed.

Map Legend:

- Green: Proposed Open Access Middle Mile
- Red: Existing CVIN Broadband infrastructure, available for Leasing of Dark Fiber
- Blue: Existing Sebastian Broadband Infrastructure, availability for the lease of Lit Fiber
- Orange: State Broadband Phase 1 Project 10







# Social Vulnerability Index

