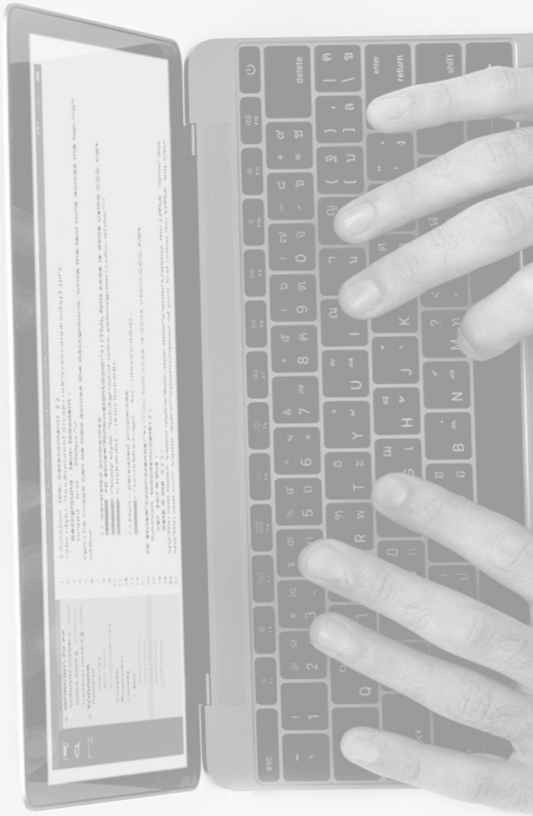

SAN JOAQUIN VALLEY REGIONAL BROADBAND CONSORTIUM (SJVRBC)

Preferred Scenario for Unserved Households
in the San Joaquin Valley
February 20, 2020

SAN JOAQUIN VALLEY REGIONAL
Broadband
CONSORTIUM

CETF
CALIFORNIA EMERGING TECHNOLOGY FUND

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Synopsis

The California Emerging Technology Fund (CETF) sponsored and advocated for the passage of the Internet For All Now Act of 2017 (AB 1665). The legislation established the goal of achieving 98% broadband deployment in each region of California and assigned the responsibility of the goal to the California Public Utilities Commission (CPUC) given their role in administering the California Advanced Services Fund (CASF). AB 1665 also directed CPUC to optimize opportunities to leverage federal funding and other resources to prudently use the CASF. CETF strongly recommended to the CPUC during the AB 1665 rulemaking process to work with the Regional Consortia in order to engage all stakeholders in each region, including Internet Service Providers (ISPs) and local governments to develop a "Preferred Scenario" to achieve the 98% goal. CETF stressed the importance of harnessing the power of "economies of scale" in infrastructure construction in order to accurately determine the percentage of CASF subsidy necessary to achieve the 98% goal and to avoid cherry-picking by ISPs of the most lucrative unserved communities for CASF applications without helping the region find the most cost-effective strategies in attaining the goal.

Fresno State's Office of Community and Economic Development (OCED), which operates the San Joaquin Valley Regional Broadband Consortium (SJVRBC) as an initiative of the California Partnership for the San Joaquin Valley, was awarded a grant by CETF to produce the eight-county region's Preferred Scenario report. The objective of this report is to delineate the challenges the SJVRBC designated area faces in expanding broadband services to the region, the assets its stakeholders have to proliferate broadband access, and what is needed to attain 98% broadband deployment.

Preferred Scenario

In producing this report, Fresno State OCED is expected to meet the following requirements as delineated by CETF:

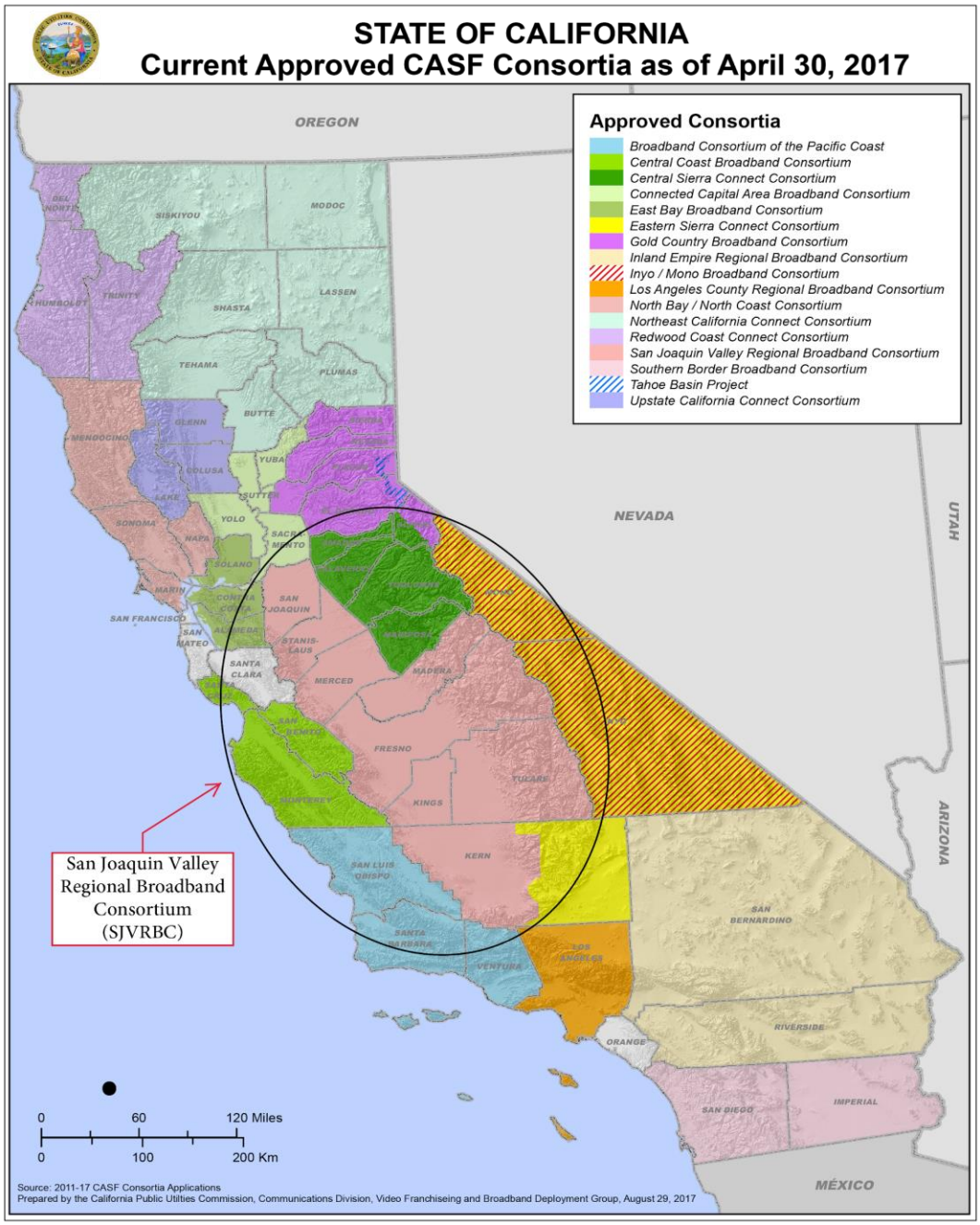
1) The report must address the aim to achieve 98% deployment and be submitted to CEFT by the end of February 2020.

2) In the process of producing the report, OCED must convene stakeholders and ISPs to explore willingness and reach consensus on lead ISPs and/or agencies to build parts of the Preferred Scenario by the end of February 2020.

3) OCED must facilitate and support the development and submission of CASF applications consistent with the Preferred Scenario to the CPUC by the April 1, 2020 deadline.

In addition, the report must address five different elements within the Preferred Scenario. Element A requires an Inventory of public assets that local governments are willing to contribute to the preferred scenario. Such contributions can include the facilitation of coordinated environmental impact assessments, coordination of environmental permitting by federal and state agencies, streamlined and/or centralized permitting by local governments, aggregated demand, and access to public rights-of-ways or other public facilities (pole and building attachments, use of public lands, co-location in equipment vaults). Element B is the identification of known middle-mile back-haul facilities, including public-purpose dedicated networks and dark or excess fiber owned by utilities, with a description of requirements or conditions for utilizing existing middle-mile infrastructure. Element C requires a delineation of the new last-mile and middle-mile infrastructure that must be constructed to achieve connect priority unserved communities, including viable opportunities to leverage existing resources (such as CAFII and other government funding, public-benefit obligations for deployment, and existing middle-mile infrastructure). Element D requires the determination and documentation of the willingness of existing ISPs to participate in building part or all the requisite new infrastructure to complete the preferred scenario, including the ability to leverage existing resources. Lastly, Element E requires an estimate of the amount of CASF funds required to achieve the Preferred Scenario and proposed applicant(s) for CASF grant(s).

San Joaquin Valley Regional Broadband Consortium (SJVRBC)



The San Joaquin Valley Regional Broadband Consortium (SJVRBC) is an initiative of the California Partnership for the San Joaquin Valley (Partnership) and is being administered by the Office of Community and Economic Development at Fresno State (OCED). The SJVRBC is comprised of key stakeholders committed to furthering regional deployment, accessibility, and adoption of broadband

services in the eight-county region of the San Joaquin Valley, California. The SJVRBC received funding from the California Public Utilities Commission (CPUC) to bring broadband infrastructure to unserved and underserved communities in the region, through the network of consortium members who were strategically chosen on the basis of prior experience with delivering networked telecommunications, digital literacy programming, and broadband advocacy.

The SJVRBC is comprised of members of the public and private sectors, including government, telecommunications providers and industry associations, economic development corporations and business development centers, local educational agencies and institutions of higher education; health delivery organizations, community-based and nonprofit organizations; and accessibility advocates. It is the mission of the SJVRBC to enhance the region's quality of life and economic vitality by facilitating the deployment, accessibility, and utilization of broadband and information technology throughout the San Joaquin Valley, integrating it into 21st Century infrastructure.

This goal will be achieved by successfully executing deliverables within the give major activity areas:

• Expedite the provision of broadband access in all areas of the San Joaquin Valley

• Promote accessibility and adoption of broadband in targeted underserved communities and populations

• Expand and replicate successful model programs to increase broadband access and bridge the digital divide.

• Accelerate deployment of broadband infrastructure through telemedicine and telehealth technology

• Work with neighboring regional consortia to ensure the development of a cohesive infrastructure.

STATE OF CALIFORNIA
Wireline + Fixed Wireless Broadband Deployment
Maximum Advertised Speeds as of December 31, 2017

Consortium	All Households (CA DOF 1/1/2018)	Served Households (Speeds are at least 6 Mbps down AND 1 Mbps up)		Unserved Households with Slow Service (Speeds less than 6 Mbps down OR 1 Mbps up)		Unserved Households with No Service (Speeds less than 200 Kbps in both directions, or no service [1])	
		Number	Percent	Number	Percent	Number	Percent
California	13,113,840	12,649,621	96.5%	92,128	0.7%	372,091	2.8%
San Joaquin Valley Regional Broadband Consortium	1,234,029	1,162,998	94.2%	25,014	2.0%	46,017	3.7%

Sources :
Broadband deployment data collected from Internet Service Providers and validated by the California Public Utilities Commission. The CPUC defines "broadband service" as internet connectivity with download/upload speeds of at least 200 Kbps in one direction. Such service is considered "available" if the provider can provision new requests for service within 10 business days.
Household data is based on the California Department of Finance, January 1, 2018 estimate.
[1] Dial-up only service is included in the "No Service" category.
[2] A project of the Gold Country BB Consortium. Not included in the California total. T-17550.
[3] Under Resolution T-17550-ESCRBC maintains a three-county region even though responsibility for broadband development in Inyo and Mono counties is currently being managed by a sub-regional consortium, in the Inyo Mono Broadband Consortium.

The 2019 CASF Annual Report provided an update on the number of served and unserved households within the individual broadband consortia. The data indicated that the SJVRBC area had 94.2% of households that were being served at speeds that were at minimum 6 Mbps down and 1 Mbps up. This was slightly less than the state-wide percentage of 96.5%. 2.0% of households had slow service, with speeds less than 6 Mbps down or 1 Mbps down, and 3.7% of households had no service, defined as less than 200 Kbps in both directions or no service. Both percentages were larger than the current state-wide rates of 0.7% and 2.8% respectively. In order to achieve the goal of attaining 98% residential coverage, there would need to be new infrastructure constructed that would bring new service to 3.8% of households that currently have either slow or no service. New infrastructure would need to connect 46,894 new households in order to attain the 98% goal.

Stakeholder and ISP Engagement

Commencing in the Fall of 2019, meetings were organized to gain insight and suggestions from different stakeholders throughout the San Joaquin Valley. Representatives from Water Districts, Cities, educational institutions, the SJVRBC, and non-profits met to discuss the preferred scenario, more specifically about the challenges their areas face in accessing broadband internet service. The represented organizations were given the opportunity to identify communities and homes that should be considered as priority areas in order to attain 98% household coverage in the San Joaquin Valley, which is reflected in the "Priority Areas" section of this report. Additionally, the organizations were

questioned as to how they would be able to assist ISPs interested in building new infrastructure for broadband expansion.

Generally, the local governments and water districts were receptive to the idea of aiding ISPs through right-of-way access and utilizing current buildings and towers as locations to install new infrastructure for broadband internet. City representatives noted that they could help through facilitating and expediting the permitting process for ISPs. Realizing the power that Water Districts have to offer in agricultural lands and reaching communities in rural portions of the San Joaquin Valley – Particularly as it relates to obtaining rights of way and potential land donation if offered by water district boards. Through the meetings some communities expressed that it would be helpful for ISPs to develop a community plan or strategy in place in order to deal with potential pitfalls of expanding into new communities. This would entail understanding the potential aesthetic preferences that some communities may have. Also providing information to dispel misinformation or clarify the health effects that equipment may or may not have on targeted communities. Some communities expressed the importance of ongoing construction projects that are occurring due to SB 1 funding and other transportation projects that could be leveraged to place new infrastructure that can reach rural communities.

Several non-profits that are associated with aviation and training young students for careers in aviation also participated in the process. Part of their work is in partnership with Boeing and other organizations that are looking to increase the number of ATP pilots in the future while also promoting electric planes as a more sustainable and energy efficient mode of transportation in the future. They highlighted the importance that broadband access for municipal airports will have in the future for autonomous flying craft and other autonomous vehicles. They envision the San Joaquin Valley, with its vast number of municipal airports, level ground, and moderate weather as an ideal location to host pilot programs and be in the forefront of these innovations in aviation.

With ISP engagement, we found that several ISPs were willing to partner and submit CASF grants in order to expand in unserved communities in the San Joaquin Valley. More specifically, Vast Communications expressed their interest. Frontier would likely be willing to partner as they recently were successfully awarded a CASF grant to assist the Taft Cluster, to be further discussed in the “Existing Infrastructure” section of this report.

Household Types

In order to reach broadband access to households in the San Joaquin Valley, it is vital to understand the types of households within the region and the challenges they face in having infrastructure constructed. The first type of households are farm labor housing. Scattered throughout the San Joaquin Valley, these households are sometimes built in clusters and often located in sparse areas of the region that can either be close or distant to broadband infrastructure. Farm labor housing has limited access to amenities. They are sometimes located next to paved roads but can also be in agricultural property and can be accessed either through county roads or private access roads that may or may not be paved. These homes often rely on septic tank systems for black and grey water disposal and they can be in areas where access to healthy food and other resources is limited. Because these homes are not clustered in one area, it is difficult for internet service providers to justify building infrastructure in large part because of the limited number of homes that would be serviced and the cost of expanding broadband service.

The second type of housing are sparse households. These households are in rural settings and often belong to farmers and can sometimes have a small cluster of housing. Like farm labor housing, they are scattered throughout the San Joaquin Valley and have many of the same issues relating to access of resources and limited options in amenities. Because these homes are usually in smaller clusters than farm labor housing, they face the same challenges in having broadband infrastructure built for access.

Mobile home parks and multi-housing facilities are the third type of housing in the San Joaquin Valley. They can be in urban settings but can also be found in small agricultural communities throughout the San Joaquin Valley. Though there are facilities that provide access to broadband in the more affluent regions of the San Joaquin Valley, the socio-economically disadvantaged areas can have limited access depending on whether there is broadband infrastructure that has been constructed or on the willingness of the management or owner of the facility to provide access to services to their tenants.

Small agricultural communities are the fourth type of housing in the San Joaquin Valley. Services to small agricultural communities vary depending on whether there is broadband infrastructure close enough to extend to these communities.

Priority Areas

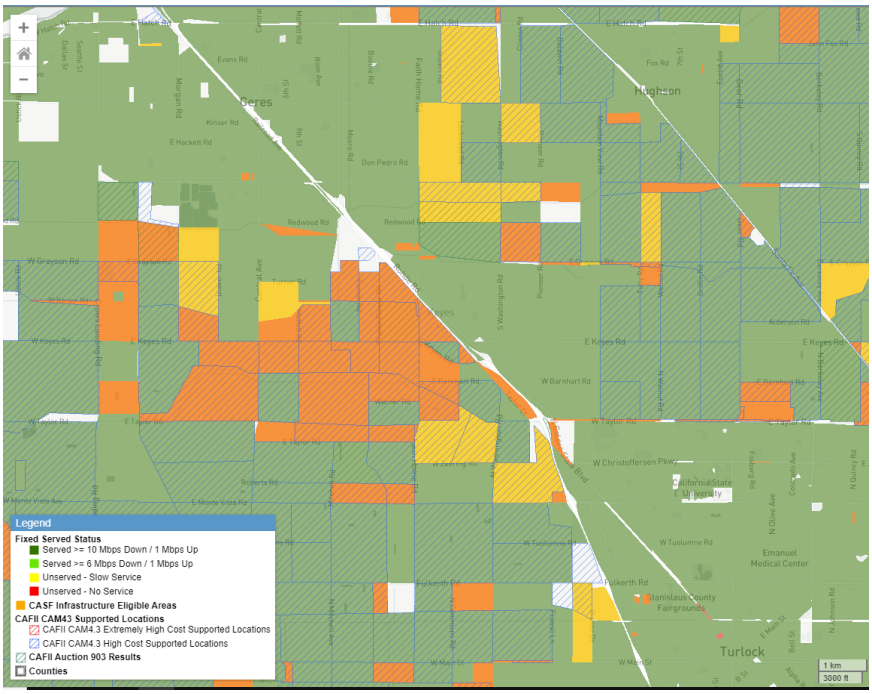
In the process of talking to stakeholders on broadband internet access in the San Joaquin Valley, SJVRBC sought to determine which communities and areas in the region should be considered as priority areas that need broadband service the most. The following maps were produced through the CPUC's California Broadband Interactive Map application. The maps are set to indicate which areas are currently being reported as served. The areas marked dark or light green are deemed as served, yellow is underserved, and red has no service. The orange land are areas that are eligible for CASF funding. CAFII areas are also shown though both the red and blue stripes.

San Joaquin County

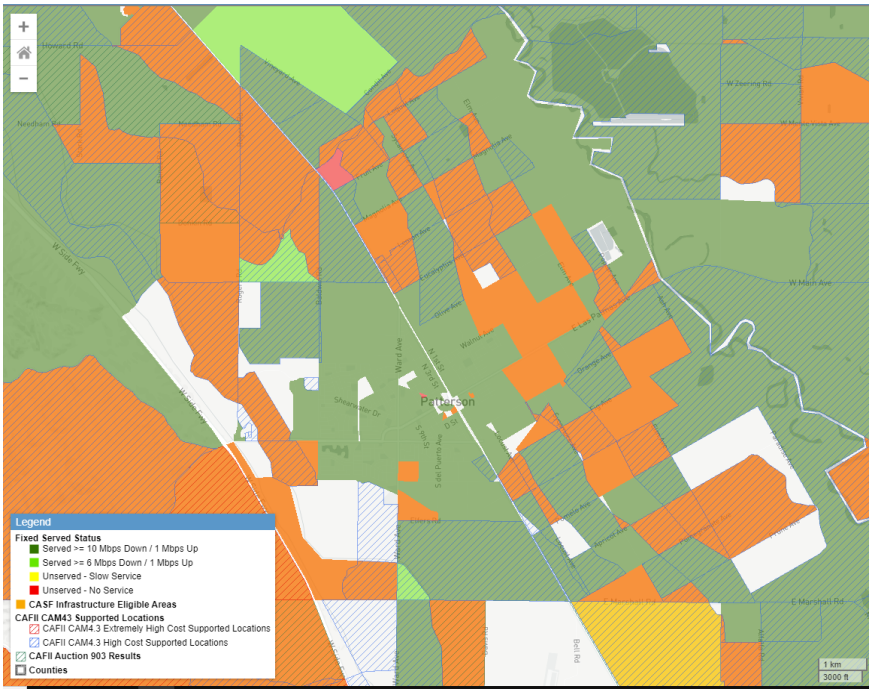
Peters

Stanislaus County

Keyes

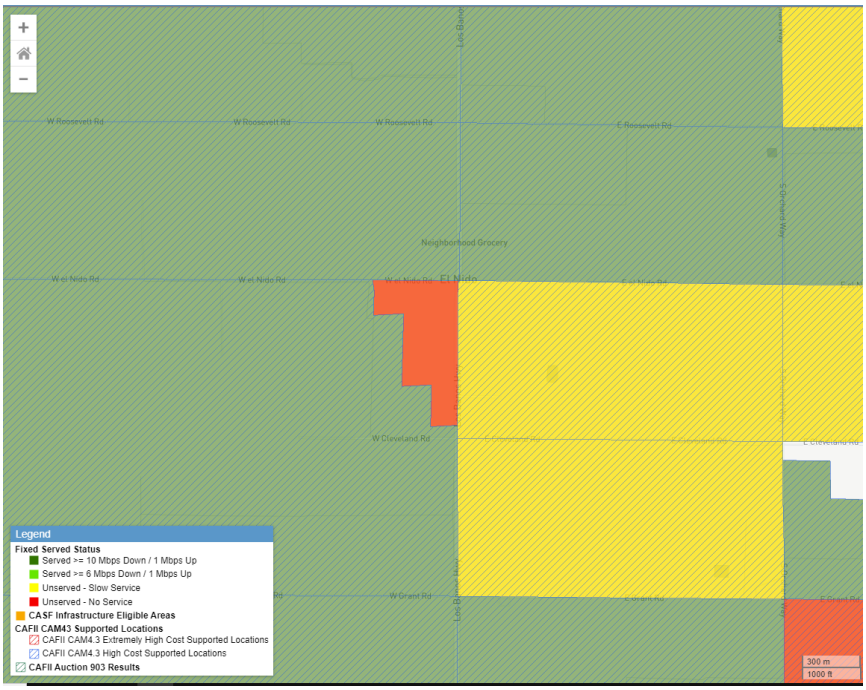


Patterson

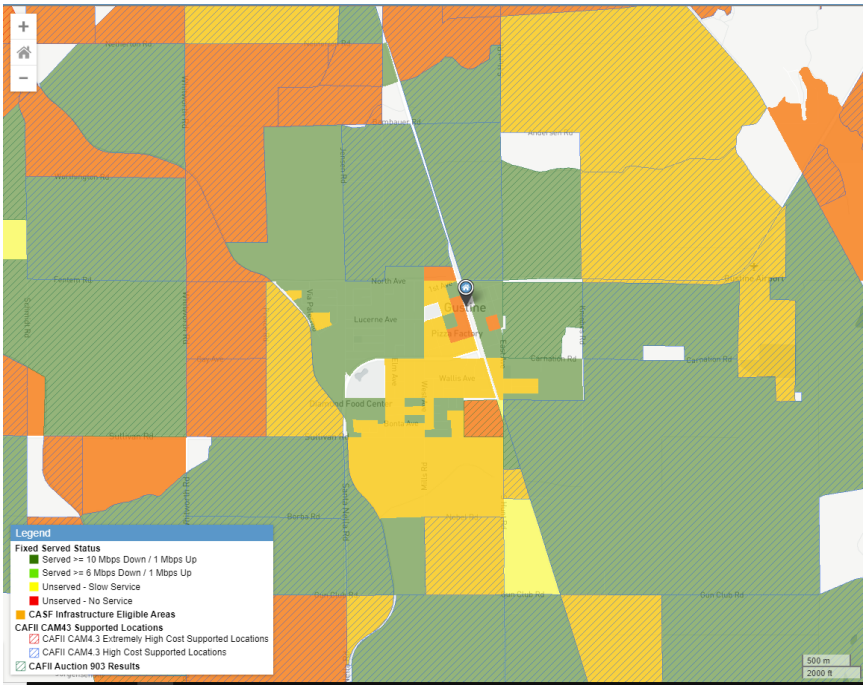


Merced County

El Nido

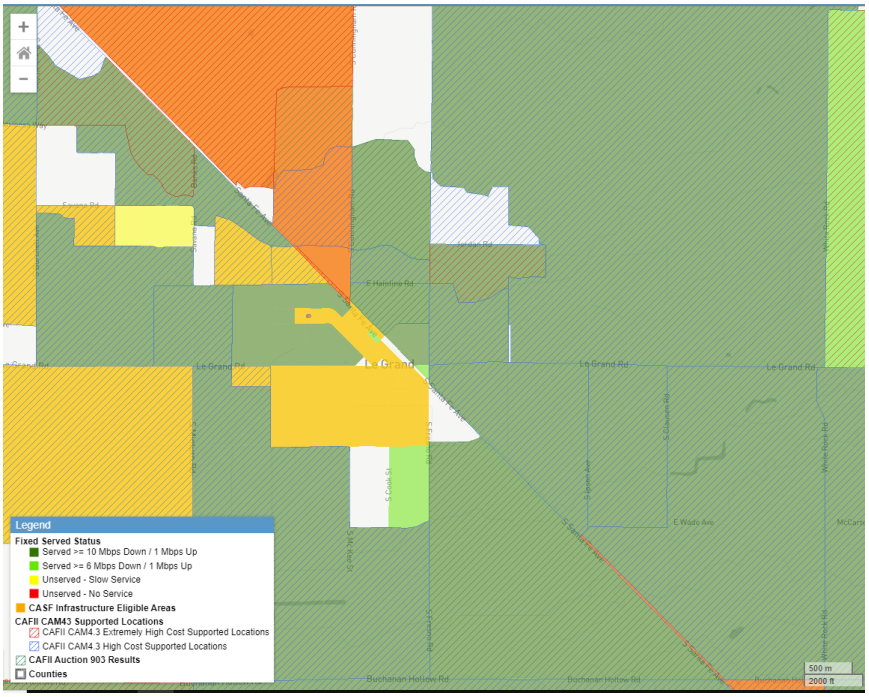


Gustine

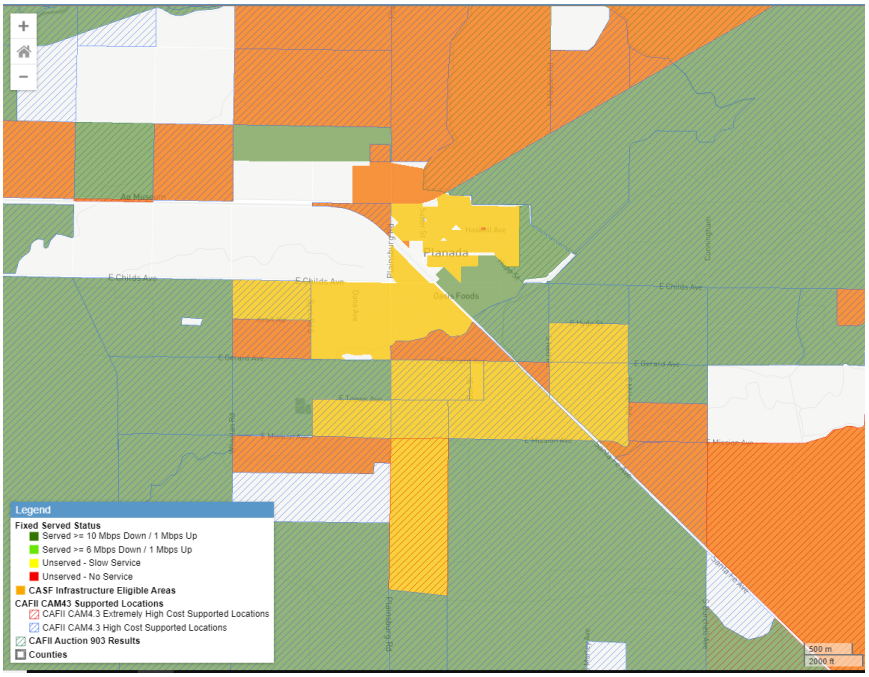


Ingomar

Le Grand

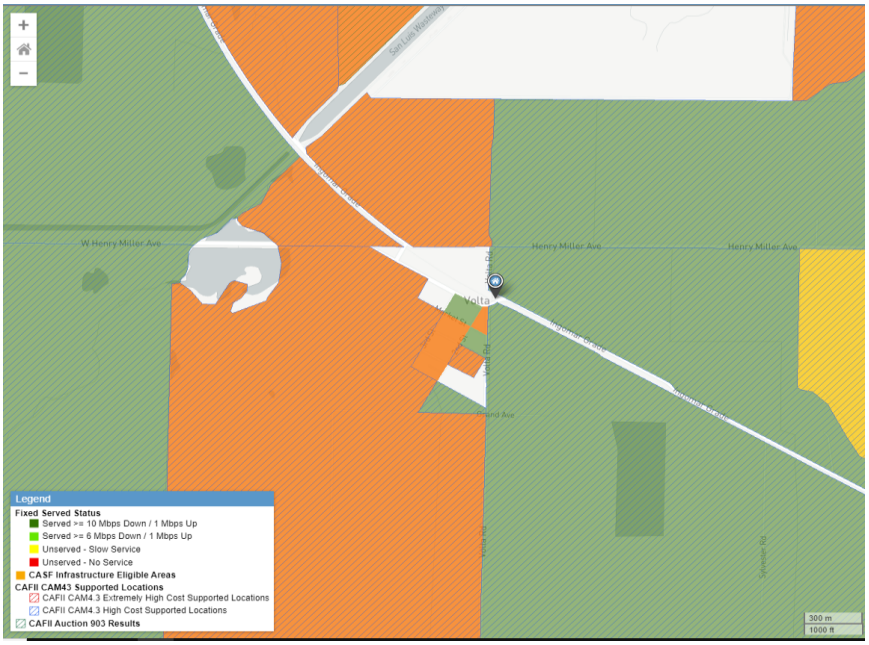


Planada



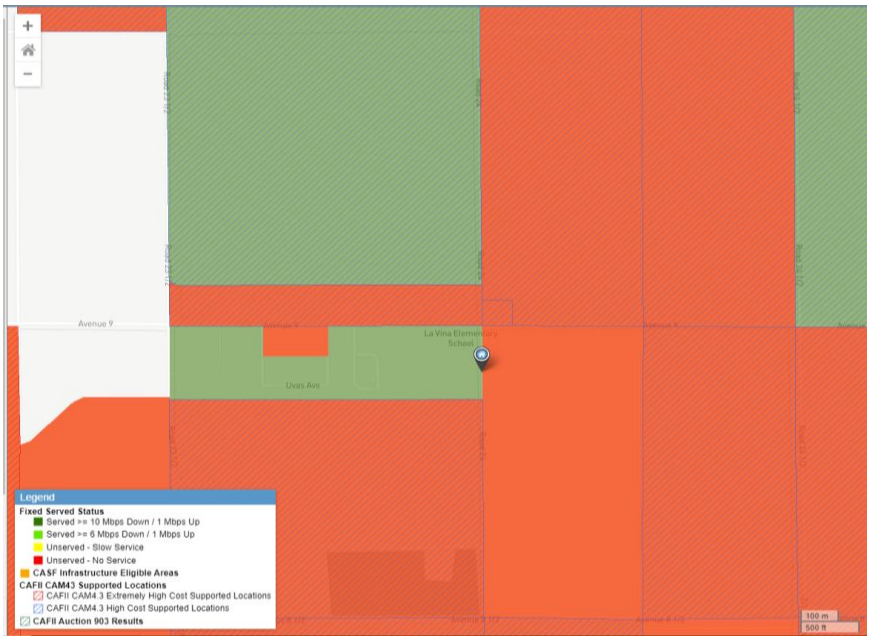
South Dos Palos

Volta


W Henry Miller Ave
Henry Miller Ave
Henry Miller Ave
Volta
Legend
Fixed Served Status
Served >= 10 Mbps Down / 1 Mbps Up
Served >= 6 Mbps Down / 1 Mbps Up
Unserved - Slow Service
Unserved - No Service
CASF Infrastructure Eligible Areas
CAFII CAM43 Supported Locations
CAFII CAM4.3 Extremely High Cost Supported Locations
CAFII CAM4.3 High Cost Supported Locations
CAFII Auction 903 Results
300 m
1000 ft

Madera County

La Vina



Fresno County

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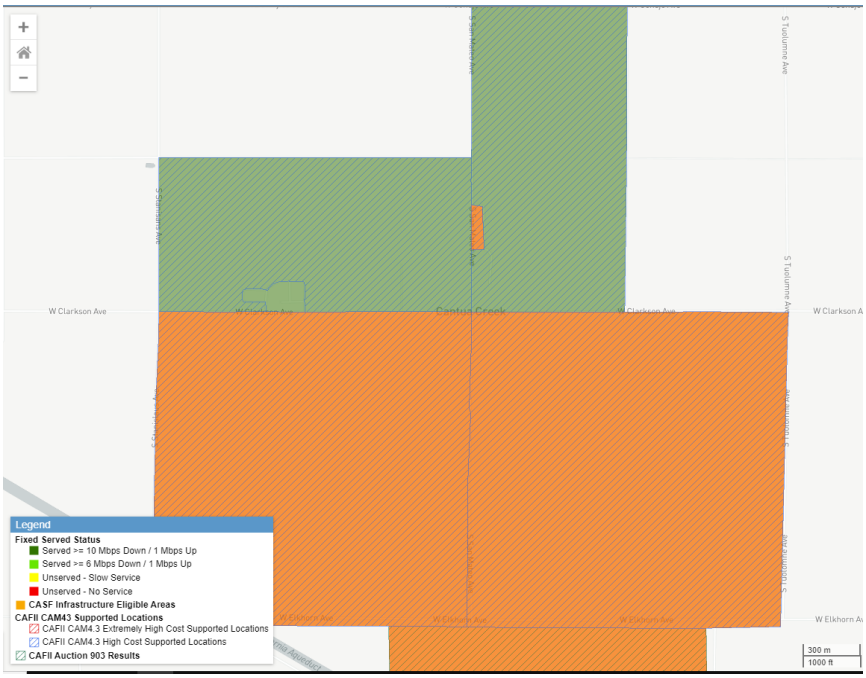

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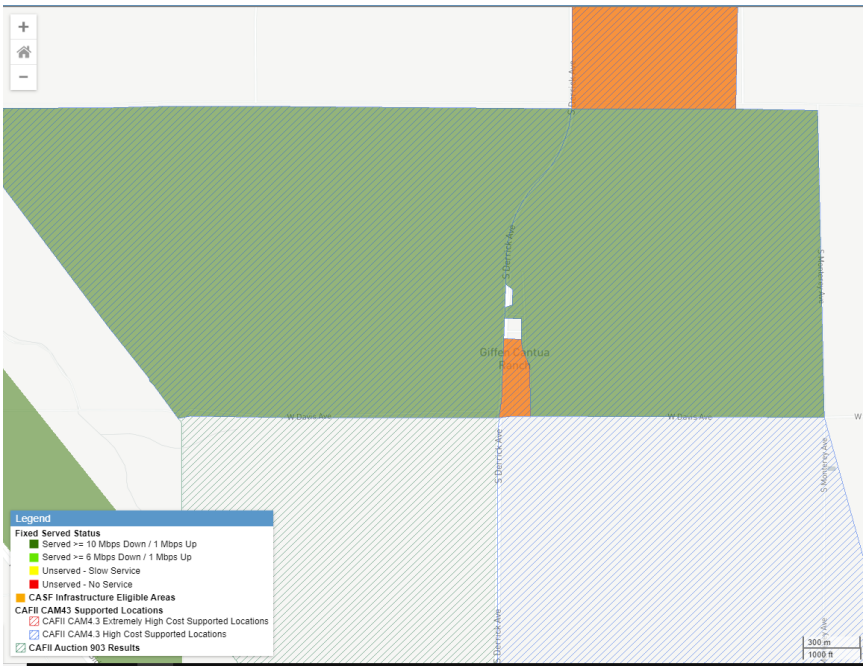
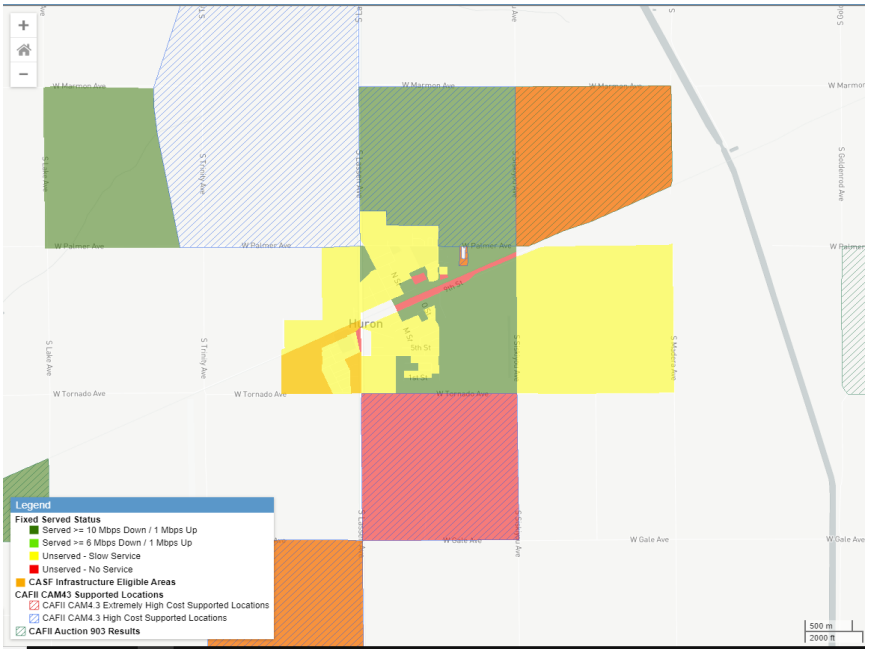
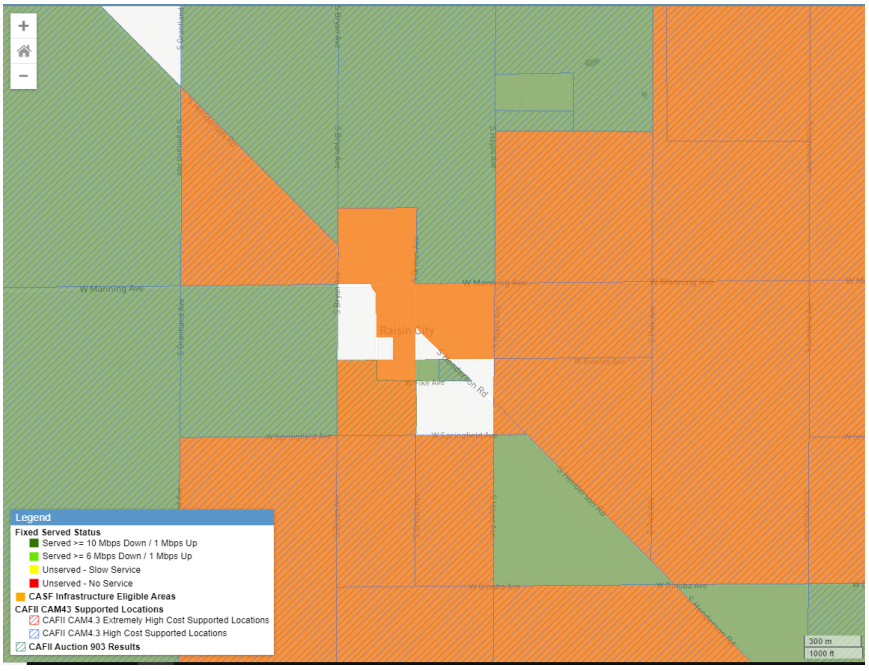


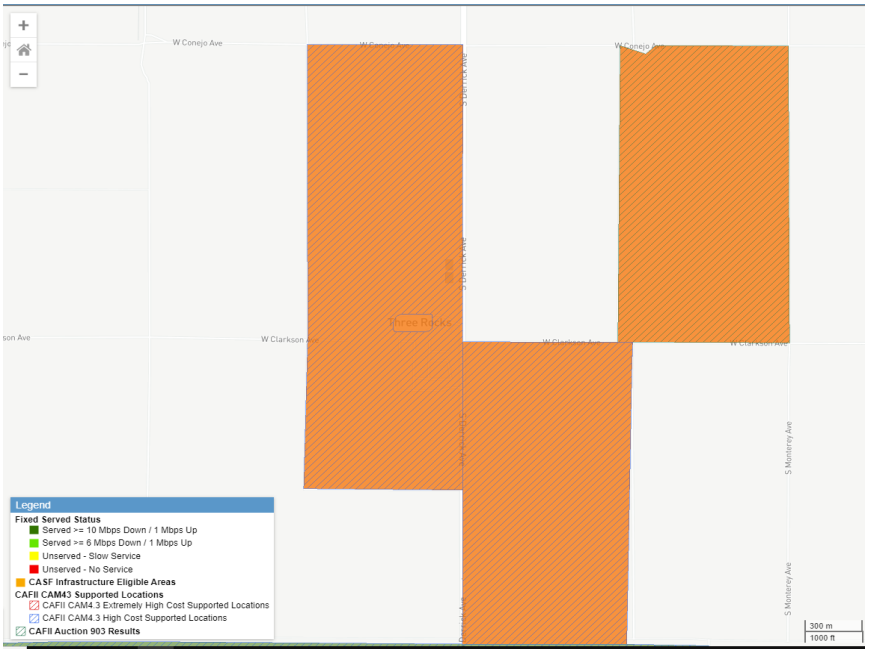
Huron



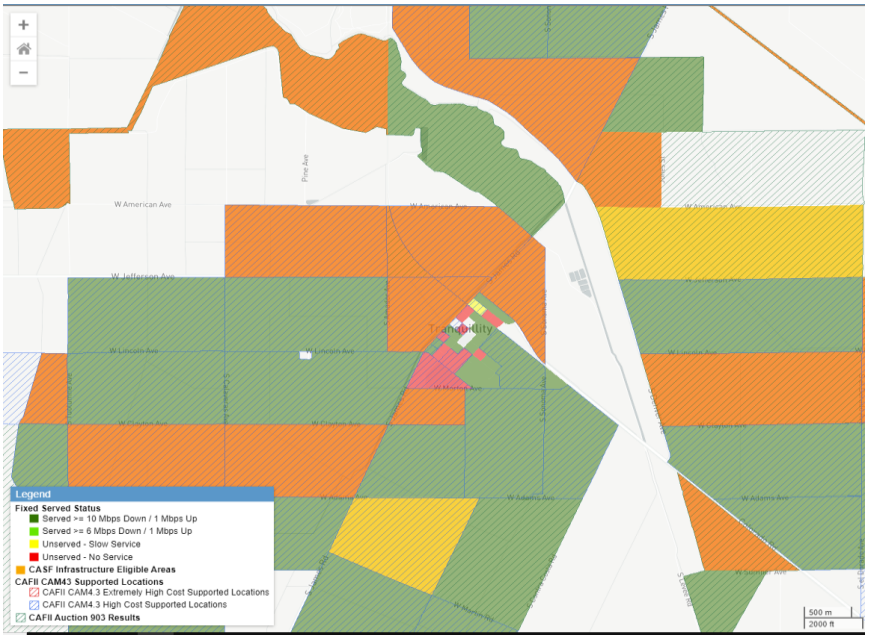
Raisin City



Three Rocks



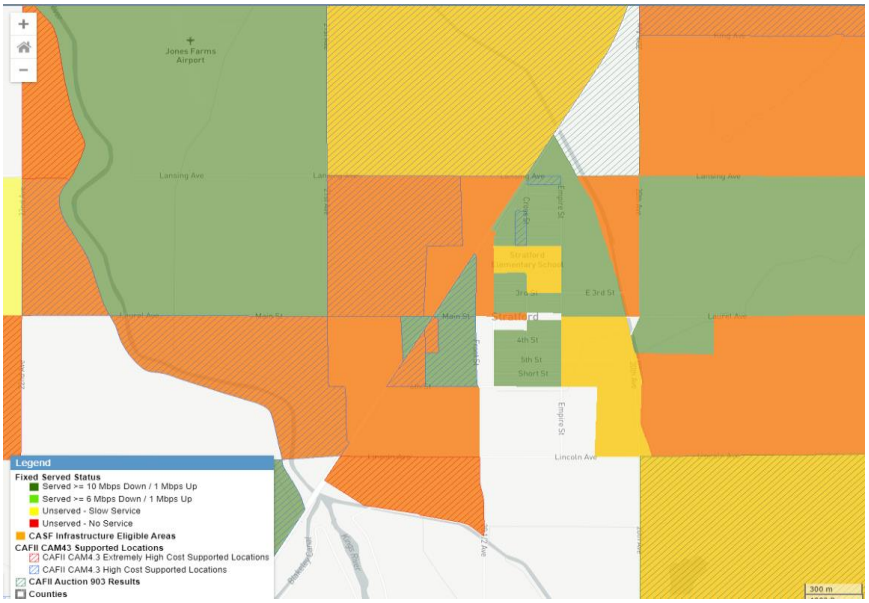
Tranquillity



Biola

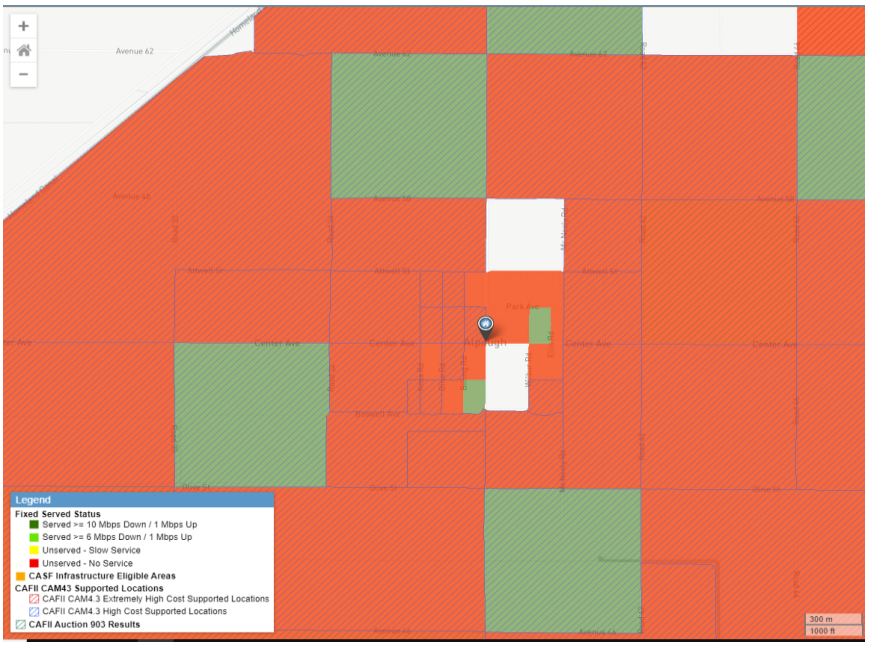
Kings County

Stratford



Tulare County

Alpaugh



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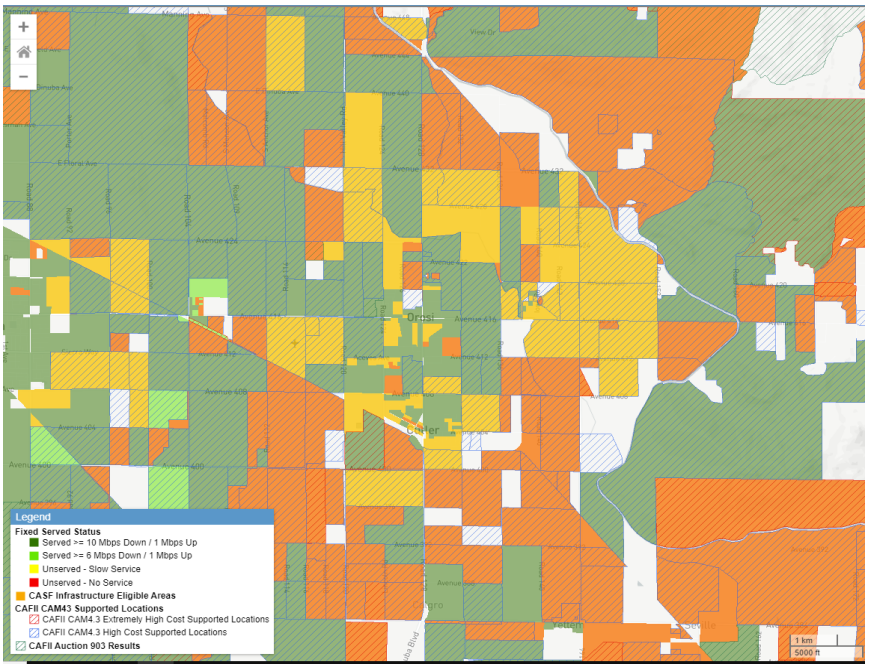
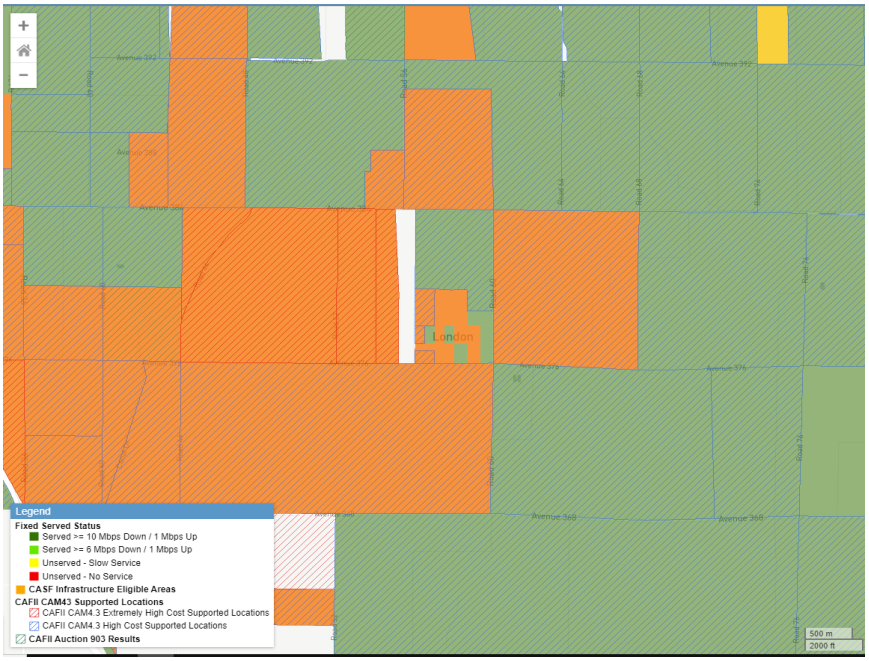


London



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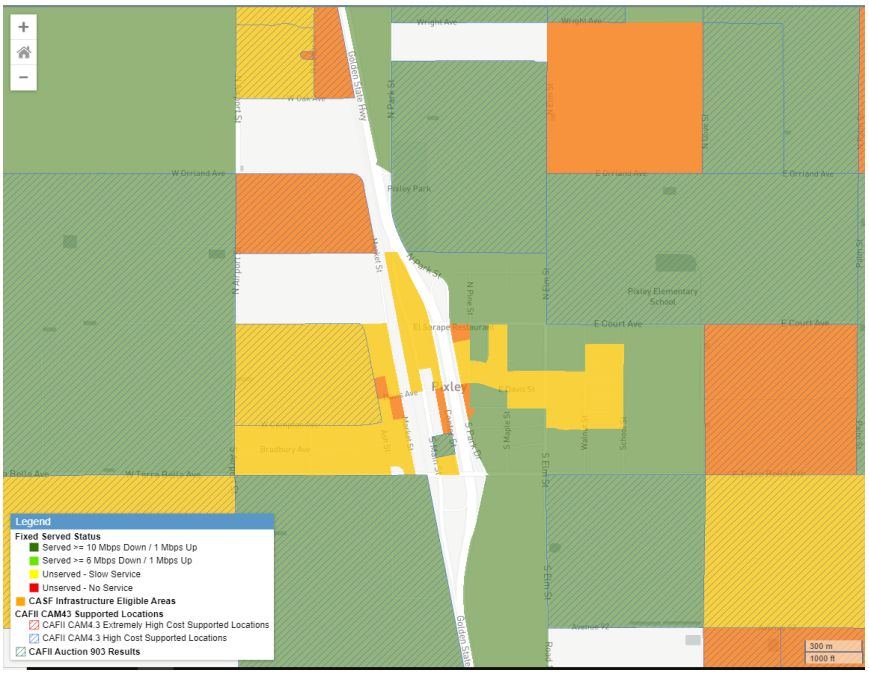
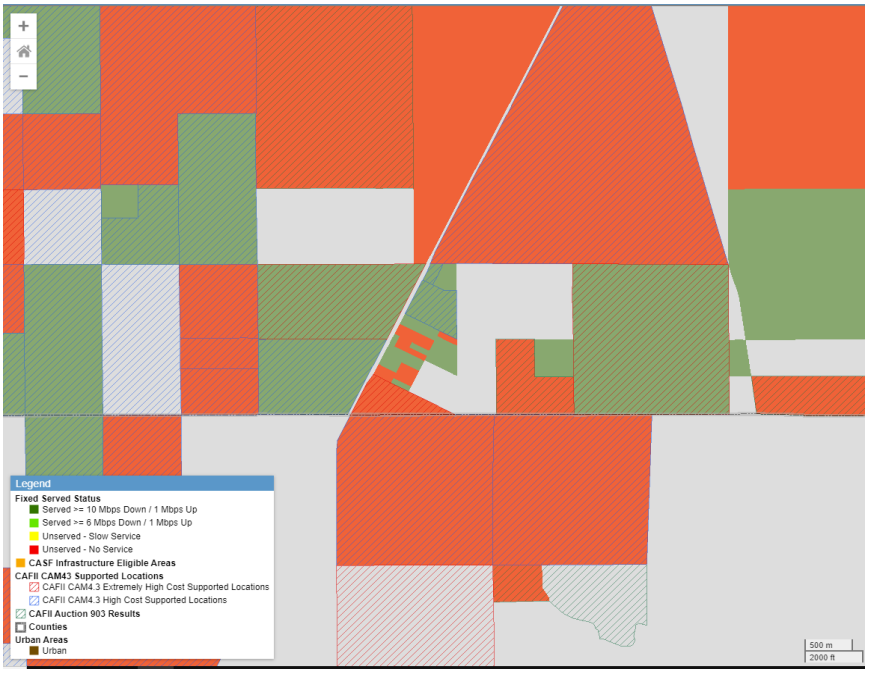
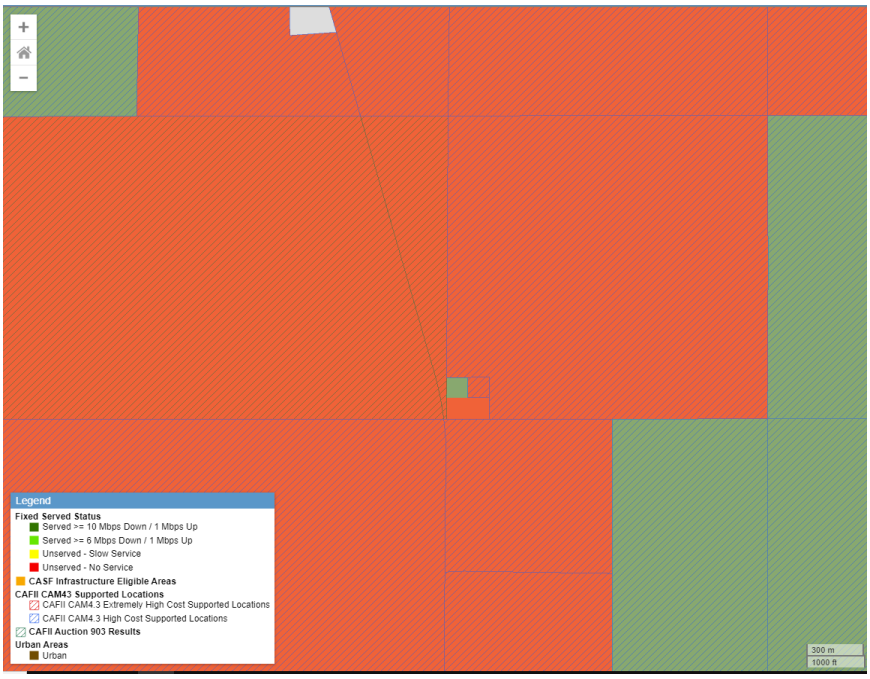


Richgrove


Legend
Fixed Served Status
Served >= 10 Mbps Down / 1 Mbps Up
Served >= 6 Mbps Down / 1 Mbps Up
Unserved - Slow Service
Unserved - No Service
CASF Infrastructure Eligible Areas
CAFII CAM43 Supported Locations
CAFII CAM4.3 Extremely High Cost Supported Locations
CAFII CAM4.3 High Cost Supported Locations
CAFII Auction 903 Results
Counties
Urban Areas
Urban
500 m
2000 ft

Kern County

Pond



Existing Infrastructure

Through stakeholder meetings, we were able to determine what type of assistance communities and local governmental organizations would be willing to provide in order to assist in the proliferation of broadband services in the San Joaquin Valley. One of the more common areas of assistance is through facilitating and expediting the permitting process within cities that could be offered to ISPs. In addition, there was a suggestion of utilizing buildings, water towers, and communication towers located within the communities that ISPs could utilize to mount their equipment for broadband services. Another avenue of assistance that communities and water districts noted was through rights-of-way and easements to ISPs. With rights-of-way and easements, ISPs would be able to place infrastructure and provide more ease in expanding broadband services to rural communities and ag land.

On June 19, 2019 CETF and California Forward hosted a Digital Inclusion Roundtable to follow up on a stakeholder meeting that was held the prior year. The purpose of the roundtable was for the regional consortia to determine the top three priority "strategic broadband corridors" in their respective region. This was done in part because of the lack of usefulness of the recommended lists that were given to Caltrans to include in their planning guidelines. In this meeting, SJVRBC recommended three priority corridors within the region. The first priority corridor listed was CA-140. The highway commences at Yosemite Village and proceeds west through the communities of Mariposa and Merced. The highway ends at the I-5 junction. CA-108 was listed as the second priority corridor for the San Joaquin Valley. The highway commences at CA-99 in the city of Modesto. The highway proceeds eastward to CA-49 at Jamestown. Lastly, CA-65 was listed as the third priority corridor. The highway commences at Exeter and goes southward until CA-99 in Bakersfield.

In February 2020, Frontier was given approval for a CASF grant in Kern County. The project is targeted to provide broadband last mile infrastructure in the Taft Cluster. The Taft Cluster includes the communities of Taft, Fellows, Buttonwillow, and McFarland. The grant award of 1,994,710.62 aims to cover approximately 65.1 square miles to provide upgrades in existing facilities that can provide high speed internet and VoIP. The grant award is strictly to make improvements to serve 41 households within the cluster area that are not overlapped with CAFII designation. Another 224 households within the cluster area that will also be served under the project do qualify for CASF funds, however since they also overlap with the CAFII program areas, Frontier has elected to utilize the CAFII funding available for

those households in order to leverage federal funding to assist the area. The federal funds amount to $2,561,883.10 that will service the 224 overlapping households. As such, the CASF funding will help to expand or update broadband internet services in thirteen Census Blocks. The project will help in the goal of achieving the goal of 98% of households that have access to broadband internet service as set forth in AB 1665. It will assist low income communities through the offering of two plans that residents can choose.

In February 13, 2020, a tour was provided by SupplyBank.Org and the Kings County Office of Education of the partnership they have developed in with the aim of closing the digital divide for public students in the participating districts of their project. Though the partnership, they developed an infrastructure system that provides students with access to reliable high-speed internet service for free. The tour provided a showing of one of the tower's the district has in their sites that is used to provide participants access to high-speed internet, and a visit to Avenal High School to demonstrate the paperless learning environment that high-speed internet access is providing to the students. Students are provided with access using hotspots that they can take home and use to access the internet from their household. With this program as a model, other county offices of education could try to work with financial partners and develop similar programs withing their respective counties.

Cost Projections

Though communications did occur with several ISPs, there was low response from most ISPs. In the process, we were able to ascertain that there is interest for ISPs to apply for CASF funds to expand broadband internet service to households in the San Joaquin Valley. Though we were unable to find exact estimates as to the cost of expanding broadband to the priority communities we have listed above, we were given a rough estimate of what the cost would be to expand middle-mile that would allow for other ISPs to leverage and connect households through last mile connections. Exact estimates would take account of potential obstructions and geographic features that would need to be considered for the actual placement of infrastructure. The estimate suggested was $20 per foot. The ISP that provided the most assistance in this question also provided the footage of infrastructure necessary to connect the priority areas noted in this report. Through the mileage provided and cost estimate, we estimated $42.93 million dollars. It must be noted for the purpose of clarity and accuracy that this estimate is based off the infrastructure of one ISP. There are other smaller ISPs that have infrastructure in areas of the San Joaquin Valley, specifically in the westside, that with their

participation would greatly reduce this estimate.

Recommendations

As has been shown in this report, the challenges are great in ensuring access to broadband internet service to 98% of households in the San Joaquin Valley. However, with participation from local governmental entities, special districts, non-profits, and ISPs that are involved and fostering new partnerships with entities that are not yet involved in the effort, we can expect that the goal will be attained and that 98% of the households in the region will have access to the services and benefits that broadband internet provides for users.

SJVRBC recommendations:

- Leveraging CAF II and other funding sources to maximize the impact of CASF funds for building out infrastructure.

- The best cost-effective approach to reaching rural communities and agricultural land is to utilize a hybrid model that uses both fiber and wireless infrastructure to deliver broadband service.

- Utilizing the assistance of water districts whenever possible for easements and rights-of-way to build infrastructure as efficiently as possible.

- That ISPs include stakeholders and local government in their decision-making process to ensure that coverage is maximized to its fullest potential.

- That ISPs develop or adopt best practices when approaching communities about broadband expansion, specifically to have a roll out plan that helps assuage public health concerns related to infrastructure.

- That ISPs work with municipalities that may have an interest in maintaining the aesthetic preferences of the community and ensure that new infrastructure does not make significant alterations.

- Engagement of municipal airports to ensure that they have enough broadband coverage that will enable them the opportunity to accommodate future advances in aviation and transportation such as electric planes and autonomous vehicles.

- Better mapping approach from the CPUC in order to ensure that the most accurate data is collected in order to provide the best broadband coverage possible for disadvantaged communities in the San Joaquin Valley.

- In order to maintain 98% coverage in the valley, there should be an effort by ISPs and governmental entities to ensure that new growth is accounted for and has access to broadband services. New development should not omit the infrastructure needed to provide access to the residence/facility.

- Smaller ISPs should be engaged in the San Joaquin Valley to apply for CASF funds in order to reach smaller communities in the westside of the region and expand infrastructure with cost efficiency.

- Look for potential partnerships with county offices of education to seek unique avenues of delivering broadband internet services to households with school children.

References

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