California Department of Technology

Middle-Mile Advisory Committee Meeting

March 18, 2022

AGENDA

Item	Topic	Presenter(s)	Time
1	Welcome / Opening Comments	Russ Nichols, Chair	5 minutes
2	Executive Report Out	Mark Monroe, Deputy Director, MMBI	5 minutes
3	Project Approach Updates	• California Department of Transportation • California Public Utilities Commission • Third Party Administrator • California Department of Technology	50 minutes
4	Public Comment	• Public	30 minutes

Executive Report Out

Program Update

- Update on initial 18 Projects
- Conditional CASF Approval
- Procurement
- Annual Report
- SB 156 Mapping Analysis (PUC)

Caltrans Update

- Preconstruction Work:
  - Environmental clearance
    - Biological and cultural surveys
  - Subsurface utilities investigations
    - Utility location
  - Project design
    - Placement of conduit and vaults
    - Delivery method
  - Field Reviews

Caltrans Update

Engagement with Resource Agencies

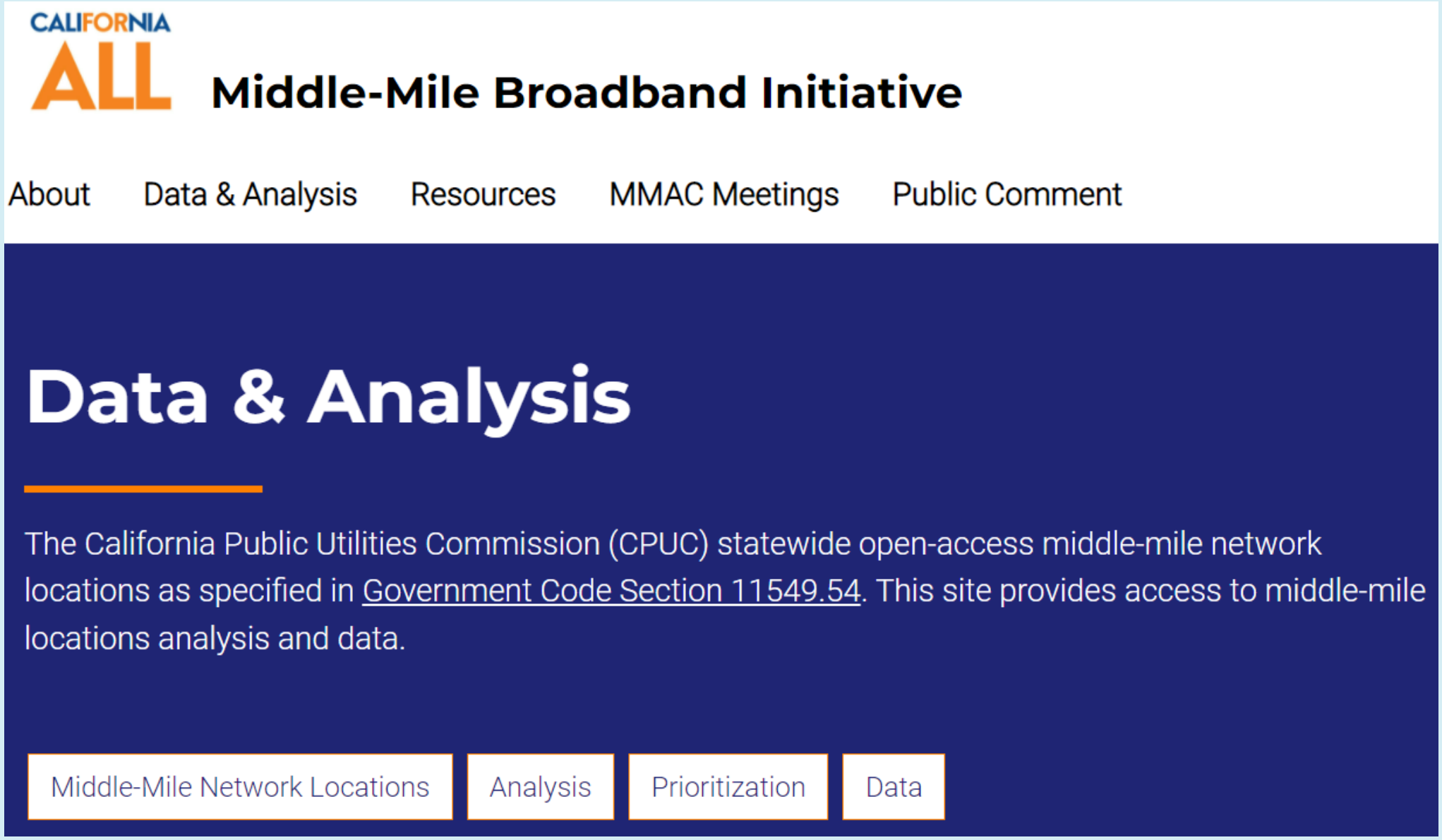
- Strategic Meeting with Environmental Resource Agencies
- Collaboration meetings with each resource agency to streamline and find opportunities for “programmatic” permitting
- Shared understanding of MMBI and prepare resource agencies for increase in permit requests

California Public Utilities Commission Update

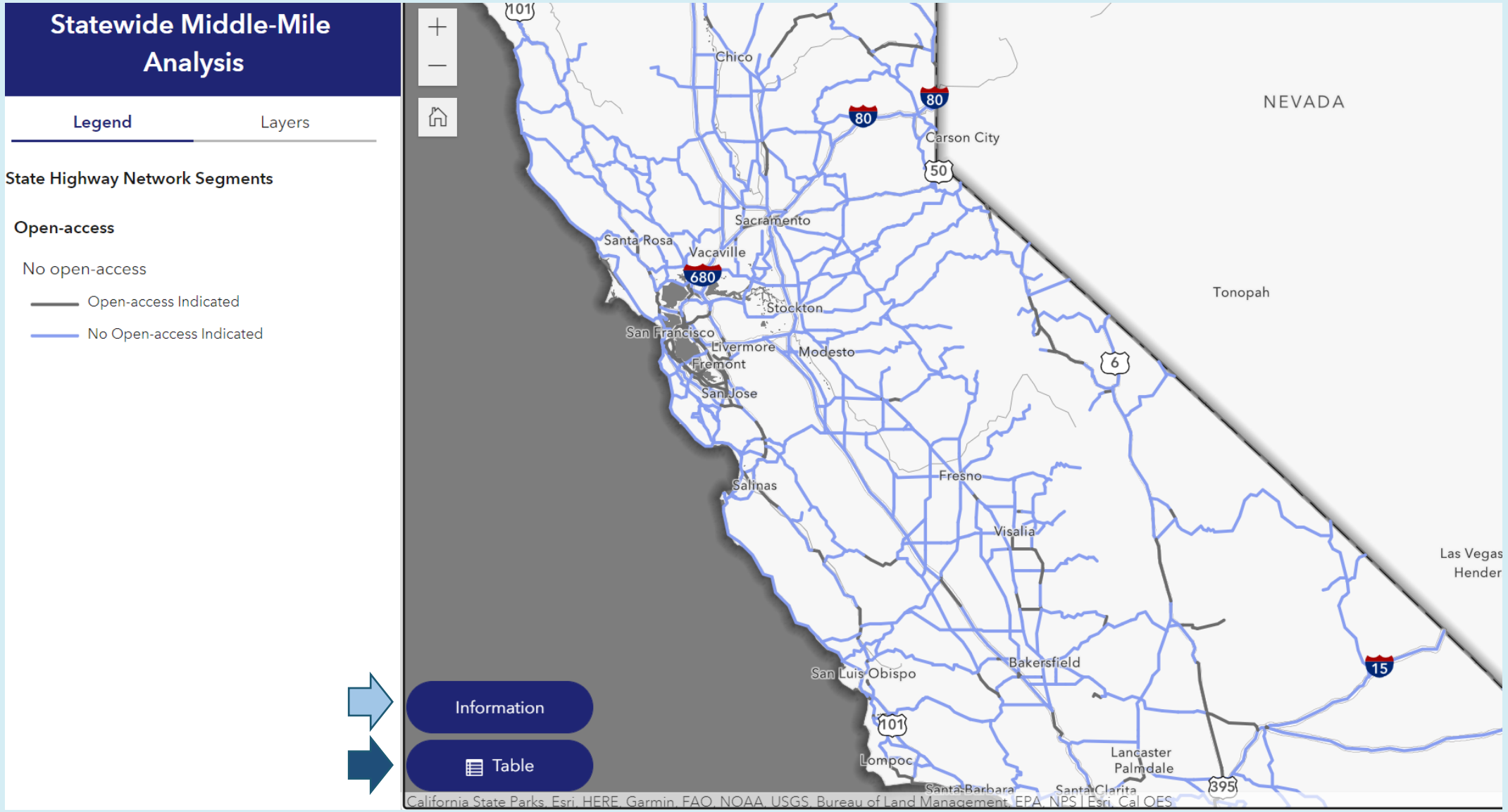
- Analysis and prioritization
  - Government Code section 11549.54(a)-(d) & (f) codified by Senate Bill 156 (Chapter 112, Statutes of 2021)
- Public comment
- Publication and Data

https://middle-mile-broadband-initiative.cdt.ca.gov/pages/data-and-analysis

California Public Utilities Commission Update



California Public Utilities Commission Update



California Public Utilities Commission Update

Communities without Open-Access Middle-Mile

Government Code Section 11549.54(b) "The commission shall identify statewide open-access middle-mile broadband network locations that will enable last-mile service connections and are **in communities where there is no known middle-mile infrastructure that is open-access**, with sufficient capacity, and at affordable rates."

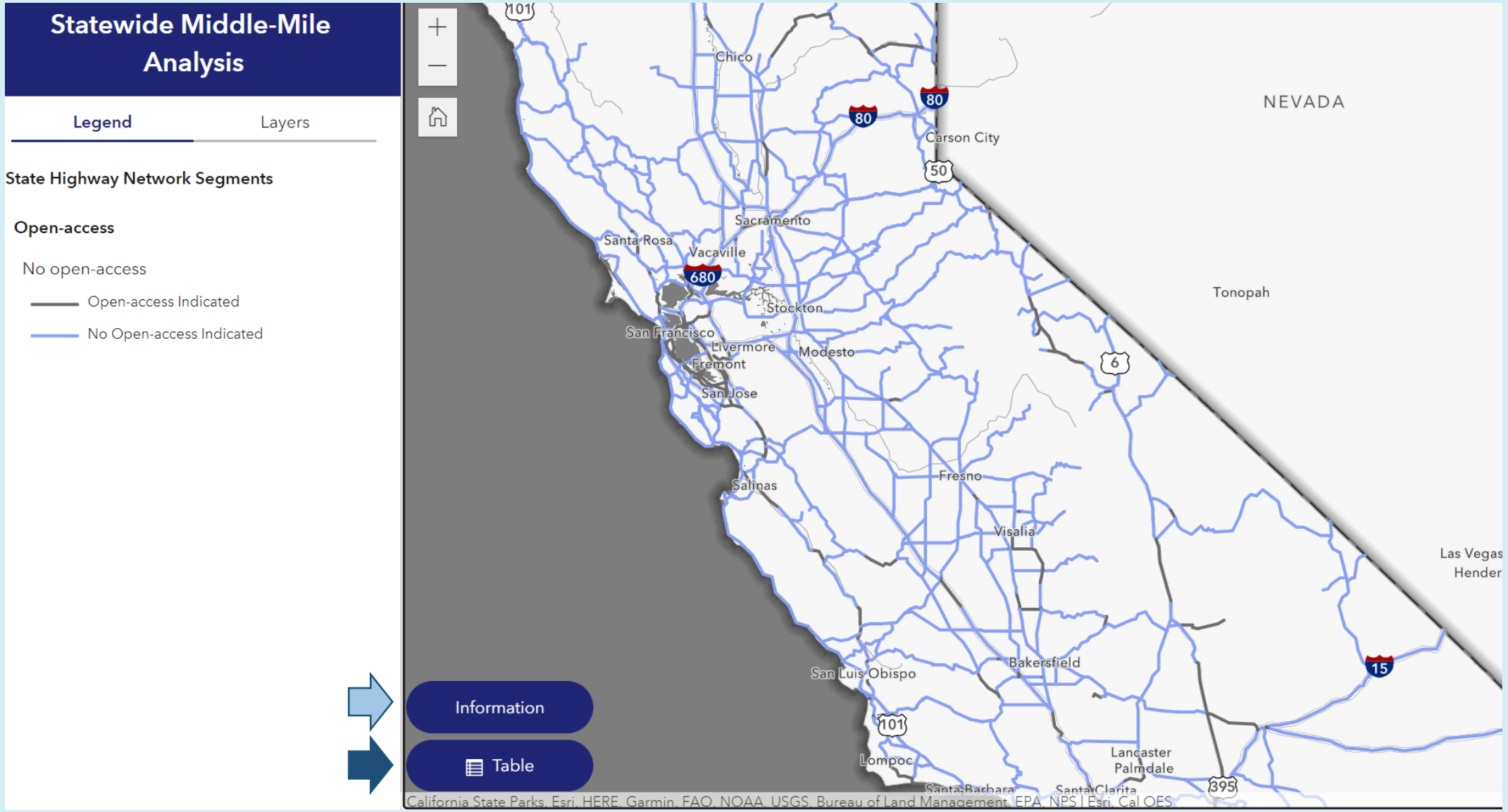
Indicator Criteria

- State Highway Network segments where at least 95% of these segments do not have an open-access point or fiber line within one mile of the State Highway Network center line.

Key Data

- Responses to an October 2021 data request of California telephone corporations and wireless providers for open-access internet points and fiber lines (confidential).
- Planned open-access networks (confidential).
- California Advanced Services Fund middle-mile networks funded by state or federal funding that includes open-access requirements.

California Public Utilities Commission Update



California Public Utilities Commission Update

County Summary

County	Miles with Open-Access
California Total	2,016.555
Alpine	0
Amador	0
Butte	12.717
Calaveras	0
Colusa	0
Contra Costa	26.939
Del Norte	0
El Dorado	0
Fresno	29.45
Glenn	0
Humboldt	0
Imperial	25.346
Inyo	42.348
Kern	86.117

California Public Utilities Commission Update

Data

Browse available data related to the Open-Access-Middle-Mile Initiative. After selecting a specific dataset, the dataset can be downloaded in various formats.

2021 May Revise Locations (Anchor Build Fiber Highways)

Unserved Location Data at 25x3 Mbps (As of Dec 2020)

Caltrans Districts

Strategic Broadband Corridors December 2019

CPUC Data Dictionary (xlsx)

California Public Utilities Commission Update

Last-Mile Initiative Updates

- Broadband Technical Assistance Grants
- Proposed Decision in Rulemaking 20-09-001
  - Last-Mile Initiative / Federal Funding Account Proposed Decision
- Request for Input in Rulemaking 20-08-021
  - California Advanced Services Fund and Loan Loss Reserve ruling requesting comment

Middle Mile Broadband Initiative
TPA Recommendations - Initial 18 Projects

Middle Mile Advisory Committee
March 18, 2022

Initial 18 Projects
TPA Network Route Recommendations

Project 1: Siskiyou

Project 1: Siskiyou - Key Highlights

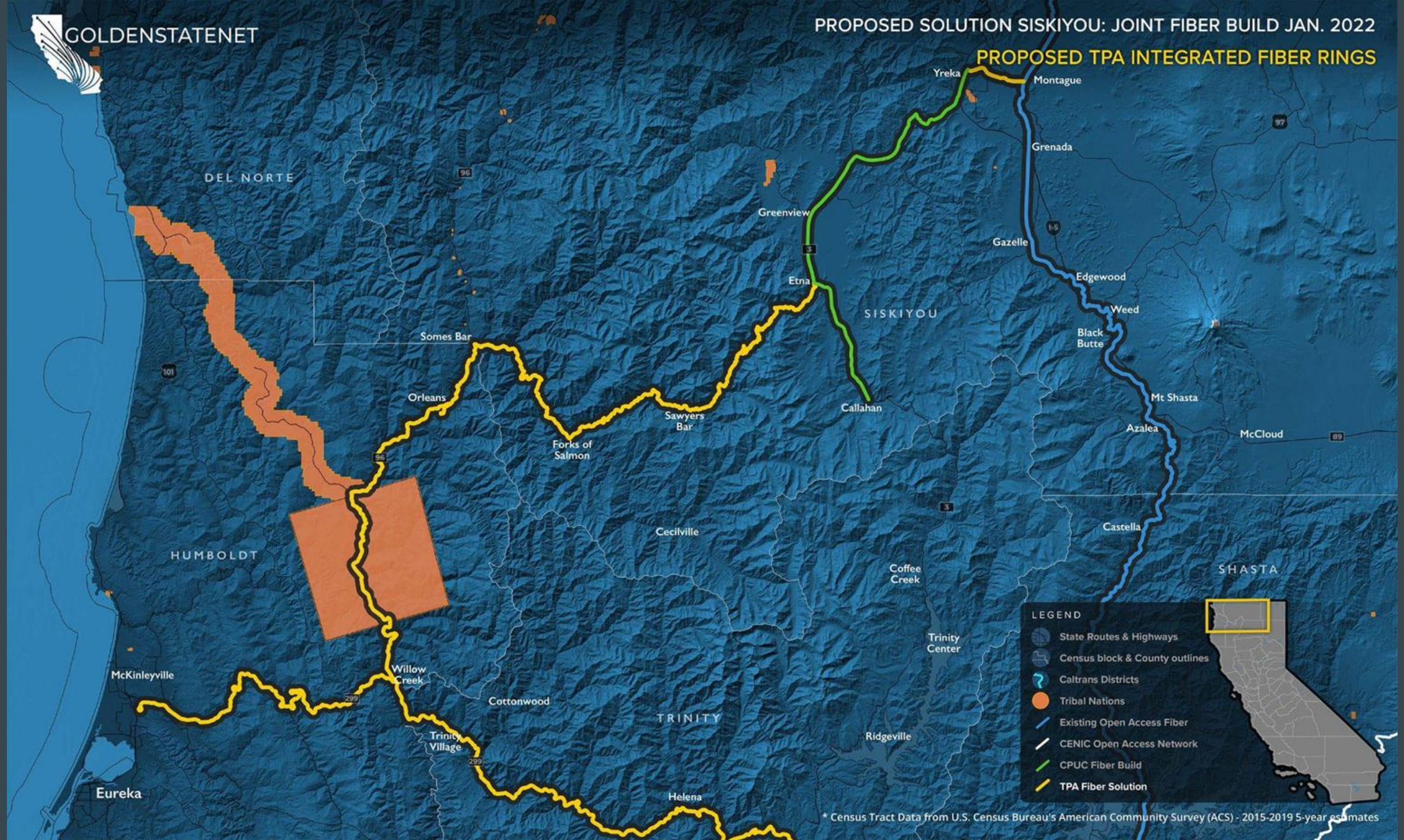
- Vastly underserved area
- Prone to catastrophic outages, fire hazard zone

Benefits:

- Directly benefits Tribal Nations of Hoopa Valley and Yurok, future opportunities possible for three additional Tribal Nations in the region
- Reduces costs for last-mile providers, improves coverage, enables new business development opportunities

Proposed Route Details:

- 181 miles, new build and joint build fiber cable construction
- Improves resiliency with ring topology
- Connects to open-access network in several areas


GOLDENSTATENET
PROPOSED SOLUTION SISKIYOU: JOINT FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
Yreka
Montague
Grenada
Gazelle
Edgewood
Weed
Black Butte
Mt Shasta
Azalea
McCloud
Castella
Greenview
Etna
Callahan
Somes Bar
Orleans
Sawyers Bar
Forks of Salmon
Cecilville
Coffee Creek
Trinity Center
Ridgeville
Willow Creek
McKinleyville
Cottonwood
Trinity Village
Eureka
Helena
DEL NORTE
SISKIYOU
HUMBOLDT
TRINITY
SHASTA
LEGEND
State Routes & Highways
Census block & County outlines
Caltrans Districts
Tribal Nations
Existing Open Access Fiber
CENIC Open Access Network
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 2: Plumas, Tehama

Project 2: Plumas, Tehama - Key Highlights

- Vastly underserved area of the state
- Prone to catastrophic outages, fire hazard zone

Benefits:

- Directly benefits Tribal Nation of Susanville Rancheria, future opportunities for an additional Tribal Nation in the region
- Improves coverage for homes, business, and Tribal Nation businesses and casinos providing additional economic opportunities

Proposed Route Details:

- 159 miles, new build and joint build fiber cable construction
- Improves resiliency with ring topology


GOLDENSTATENET
PROPOSED SOLUTION PLUMAS, TEHAMA & LASSEN: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RING
Shasta
299
Redding
Palo Cedro
273
SHASTA
Anderson
Cottonwood
Shingletown
44
LASSEN
Susanville
395
36
Chester
Westwood
Herlong
Red-Bluff
TEHAMA
Greenville
Tehama
32
I-5
Los Molinos
PLUMAS
Corning
Quincy
99
Chico
Magalia
Orland
Paradise
BUTTE
GLENN
LEGEND
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CENIC Open Access Network
Internet Access & Exchange Nodes
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 3: Lake

Project 3: Lake - Key Highlights

- Vastly underserved area, prone to catastrophic outages, fire hazard zone
- Ecological factors could greatly increase construction time

Benefits:

- Directly benefits Tribal Nations of Manchester-Point Arena, Dry Creek, Coyote Valley, Pinole Valley, Upper Lake, Big Valley, Middletown Rancherias, future opportunities for seven other Tribal Nations in the region
- Area last-mile provider has expressed interest in serving area homes/businesses

Proposed Route Details:

- 173 miles, new build fiber cable construction and IRU dark fiber leases
- Connects to Project 4: Colusa, providing even greater regional impact
- Improves resiliency with ring topology


GOLDENSTATENET
PROPOSED SOLUTION LAKE: FIBER BUILD & DARK FIBER IRU JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
Willits
Ridge
MENDOCINO
Calpella
Witter Springs
Navarro
Reilly Heights
Manchester
Hopland
Yorkville
Preston
Cloverdale
SONOMA
Geyersville
PACIFIC OCEAN
LAKE
Upper Lake
Nice
Lucerne
Lakeport
Kelseyville
Clearlake
Lower Lake
Middletown
COLUSA
Maxwell
Colusa
Delphos
Williams
Arbuckle
20
101
1
128
175
53
16
I-5
45
LEGEND
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Caltrans Districts
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CENIC Open Access Network
Internet Access & Exchange Nodes
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 4: Colusa

Project 4: Colusa - Key Highlights

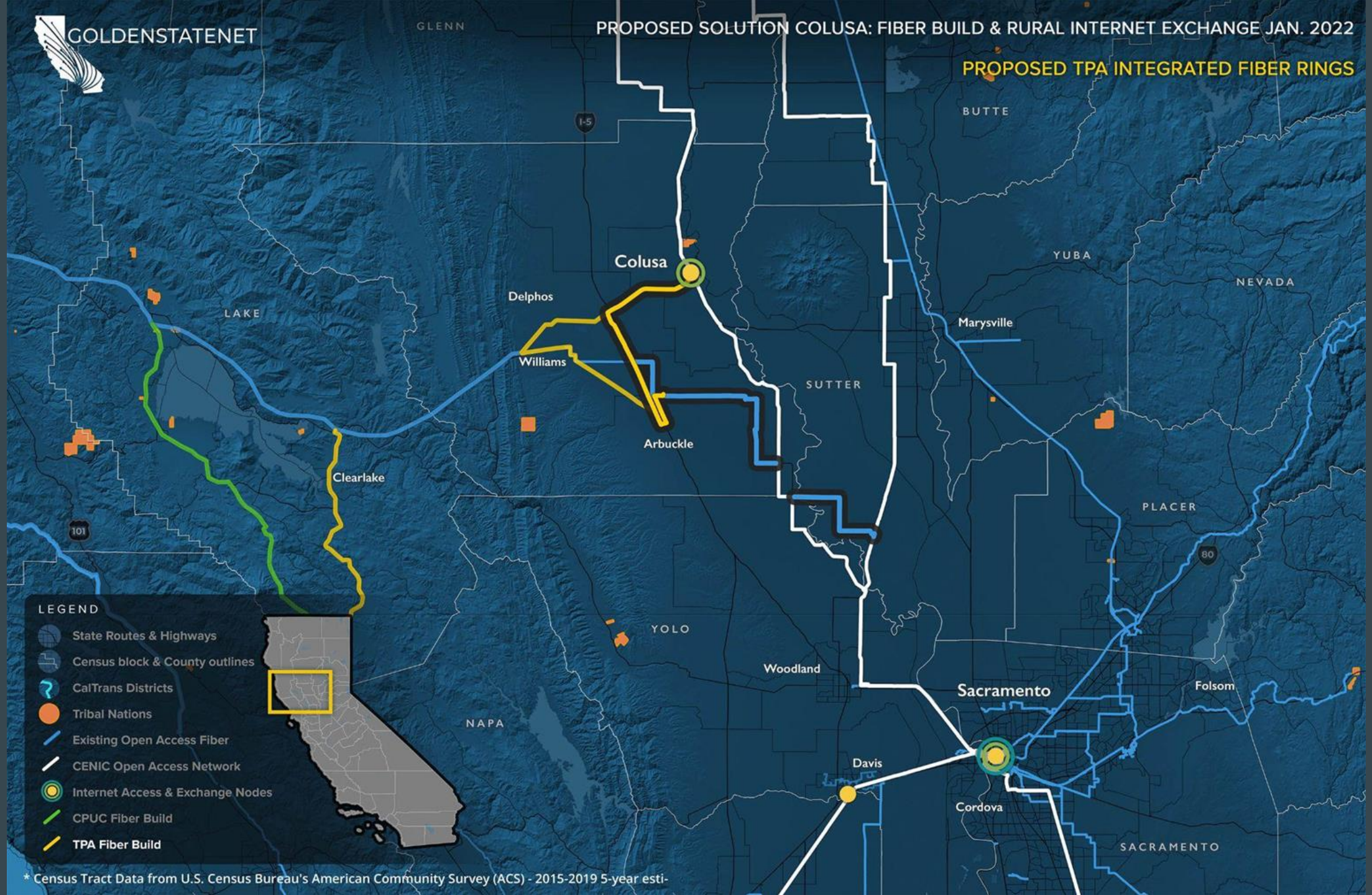
- Underserved area
- Large number of households below poverty line,
- Poor/unpredictable cell/satellite coverage

Benefits:

- Future opportunities for Tribal Nations of Colusa Rancheria and Cortina Rancheria
- Opportunities for new agricultural applications for area farms (ex. soil, weather monitoring)
- Creates access for last-mile providers in Williams and Arbuckle

Proposed Route Details:

- 25 miles, new build fiber cable construction and IRU dark fiber lease
- Connects to existing core infrastructure between Colusa and Sacramento and connects to the Project 3: Lake route recommendation, increasing regional impact
- Improves network resiliency with ring topologies


GOLDENSTATENET
PROPOSED SOLUTION COLUSA: FIBER BUILD & RURAL INTERNET EXCHANGE JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
GLENN
BUTTE
I-5
YUBA
NEVADA
Colusa
Delphos
LAKE
Marysville
Williams
SUTTER
Arbuckle
Clearlake
101
PLACER
80
YOLO
Woodland
Sacramento
Folsom
NAPA
Davis
Cordova
SACRAMENTO
LEGEND
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Internet Access & Exchange Nodes
CPUC Fiber Build
TPA Fiber Build
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year esti-

Project 5: Alpine

Project 5: Alpine - Key Highlights

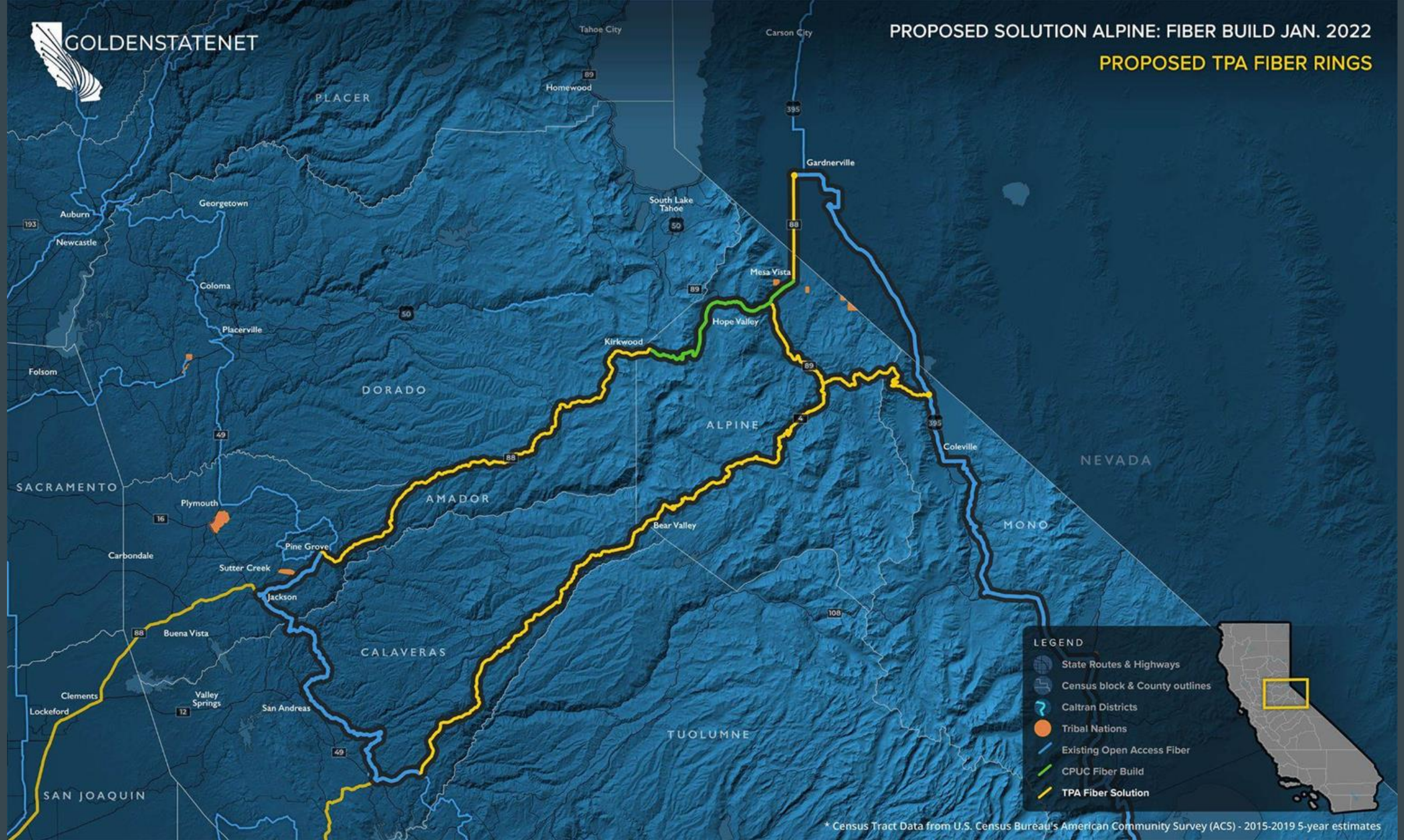
- Sparsely populated, underserved area, rural/mountainous terrain
- Prone to catastrophic outages, fire hazard zone

Benefits:

- Directly benefits Tribal Nation of Woodfords Community, future opportunities for Washoe Ranches Tribal Trusts Land in the region
- Enhances wireless connectivity, telehealth/healthcare, emergency services
- Expands opportunities for ski resorts to increase tourism

Proposed Route Details:

- 165 miles, new build fiber cable construction
- Two northeast-running routes: Pine Grove-Mesa Vista-Garberville and Angels Camp-Coleville
- Connects to Project 6 Amador and Project 4: Colusa increasing the regional impact
- Improves resiliency with ring topologies


GOLDENSTATENET
PROPOSED SOLUTION ALPINE: FIBER BUILD JAN. 2022
PROPOSED TPA FIBER RINGS
Tahoe City
Carson City
Homewood
PLACER
Gardnerville
Georgetown
Auburn
Newcastle
South Lake Tahoe
Mesa Vista
Coloma
Placerville
Hope Valley
Kirkwood
Folsom
DORADO
ALPINE
Coleville
NEVADA
SACRAMENTO
AMADOR
Plymouth
Bear Valley
MONO
Pine Grove
Carbondale
Sutter Creek
Jackson
Buena Vista
CALAVERAS
Clements
Lockeford
Valley Springs
San Andreas
TUOLUMNE
SAN JOAQUIN
LEGEND
State Routes & Highways
Census block & County outlines
Caltran Districts
Tribal Nations
Existing Open Access Fiber
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 6: Amador

Project 6: Amador - Key Highlights

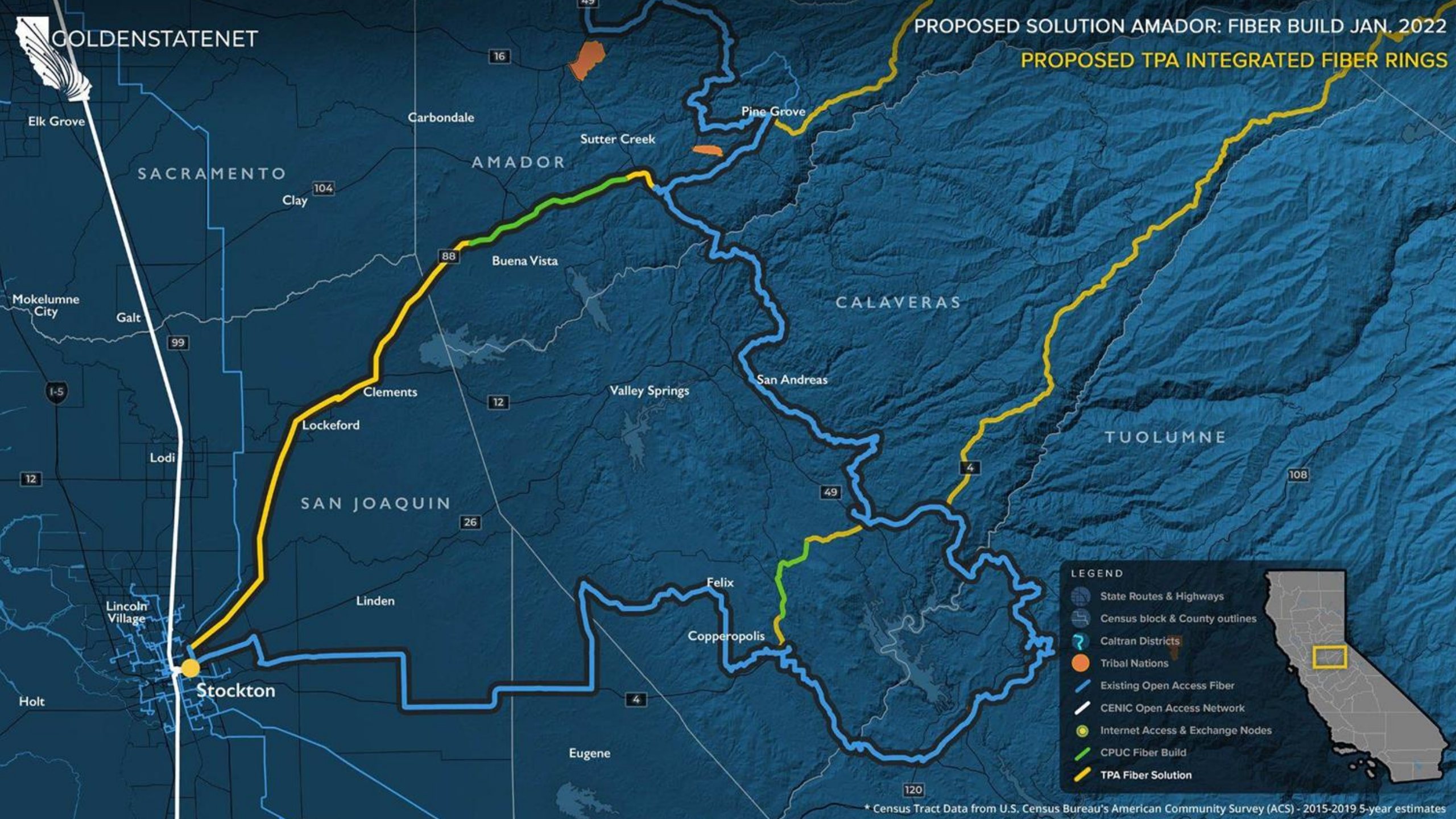
- Underserved area, severe fire hazard zone

Benefits:

- Directly benefits Tribal Nations of Ione Band of Miwok Indians, Jackson Rancheria
- Supports farming communities, enables precision agriculture applications

Proposed Route Details:

- 138 miles, new build fiber cable construction and IRU dark fiber leases
- Connects to Sacramento, Sutter Creek, Stockton Internet Exchange Point
- Improves resiliency with ring topology


GOLDENSTATENET
PROPOSED SOLUTION AMADOR: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
Elk Grove
Carbondale
Pine Grove
Sutter Creek
AMADOR
SACRAMENTO
Clay
104
16
88
Buena Vista
Mokelumne City
Galt
99
CALAVERAS
I-5
Clements
Lockeford
12
Valley Springs
San Andreas
Lodi
TUOLUMNE
4
49
108
SAN JOAQUIN
26
Linden
Felix
Lincoln Village
Copperopolis
Stockton
Holt
Eugene
120
LEGEND
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Census block & County outlines
Caltran Districts
Tribal Nations
Existing Open Access Fiber
CENIC Open Access Network
Internet Access & Exchange Nodes
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 7: Calaveras

Project 7: Calaveras - Key Highlights

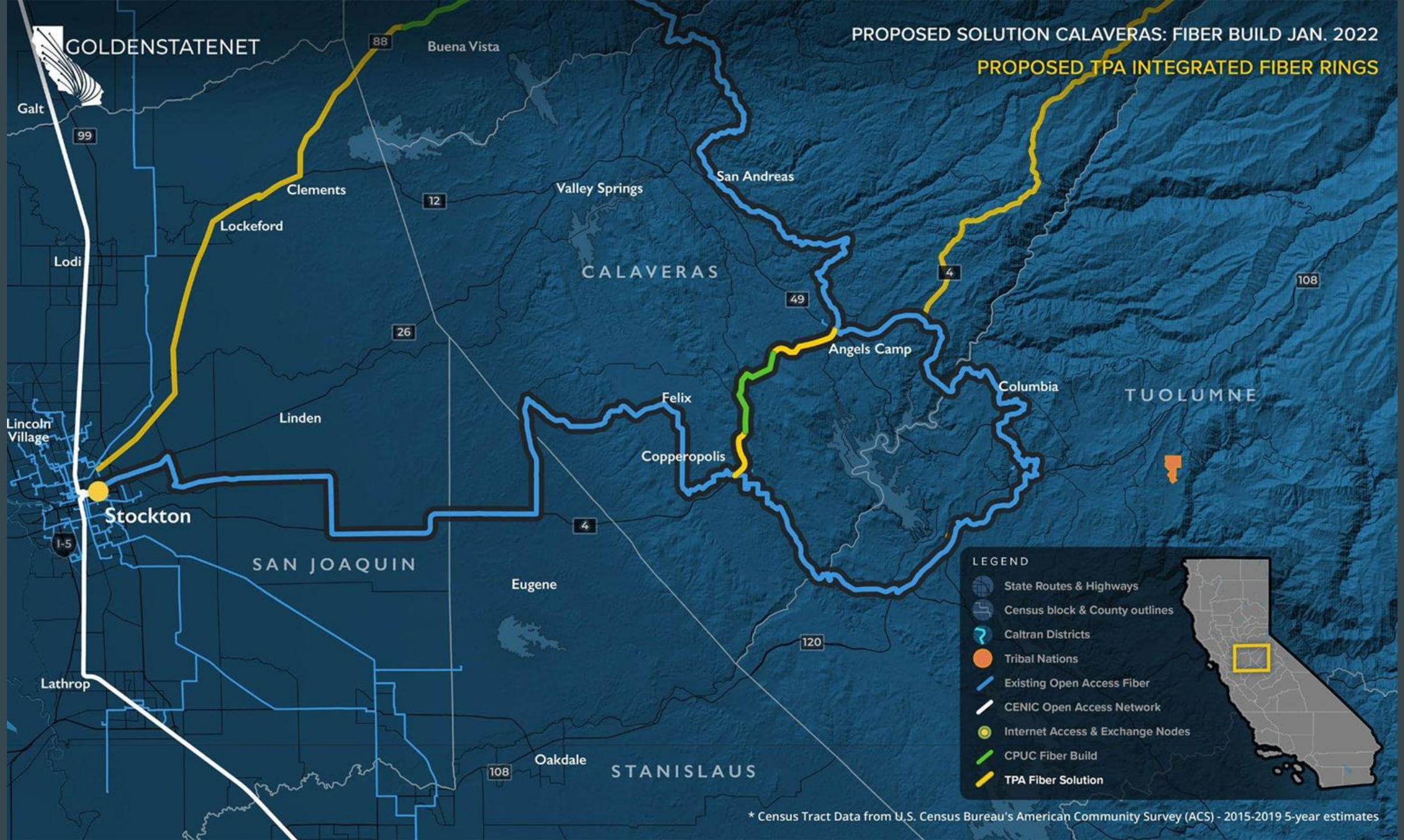
- Underserved area, severe fire hazard zone

Benefits:

- Directly benefits Tribal Nation of Chicken Ranch Rancheria, future opportunities for an additional Tribal Nation in the region
- Improves network service and reliability

Proposed Route Details:

- 28 miles, new build fiber cable construction
- Improves resiliency by completing a regional ring


PROPOSED SOLUTION CALAVERAS: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
GOLDENSTATENET
Galt
99
88
Buena Vista
Clements
Lockeford
Lodi
12
Valley Springs
San Andreas
CALAVERAS
49
4
108
26
Angels Camp
Columbia
TUOLUMNE
Felix
Linden
Lincoln Village
Copperopolis
Stockton
I-5
4
SAN JOAQUIN
Eugene
120
Lathrop
Oakdale
108
STANISLAUS
LEGEND
State Routes & Highways
Census block & County outlines
Caltran Districts
Tribal Nations
Existing Open Access Fiber
CENIC Open Access Network
Internet Access & Exchange Nodes
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 8: Oakland

Project 8: Oakland - Key Highlights

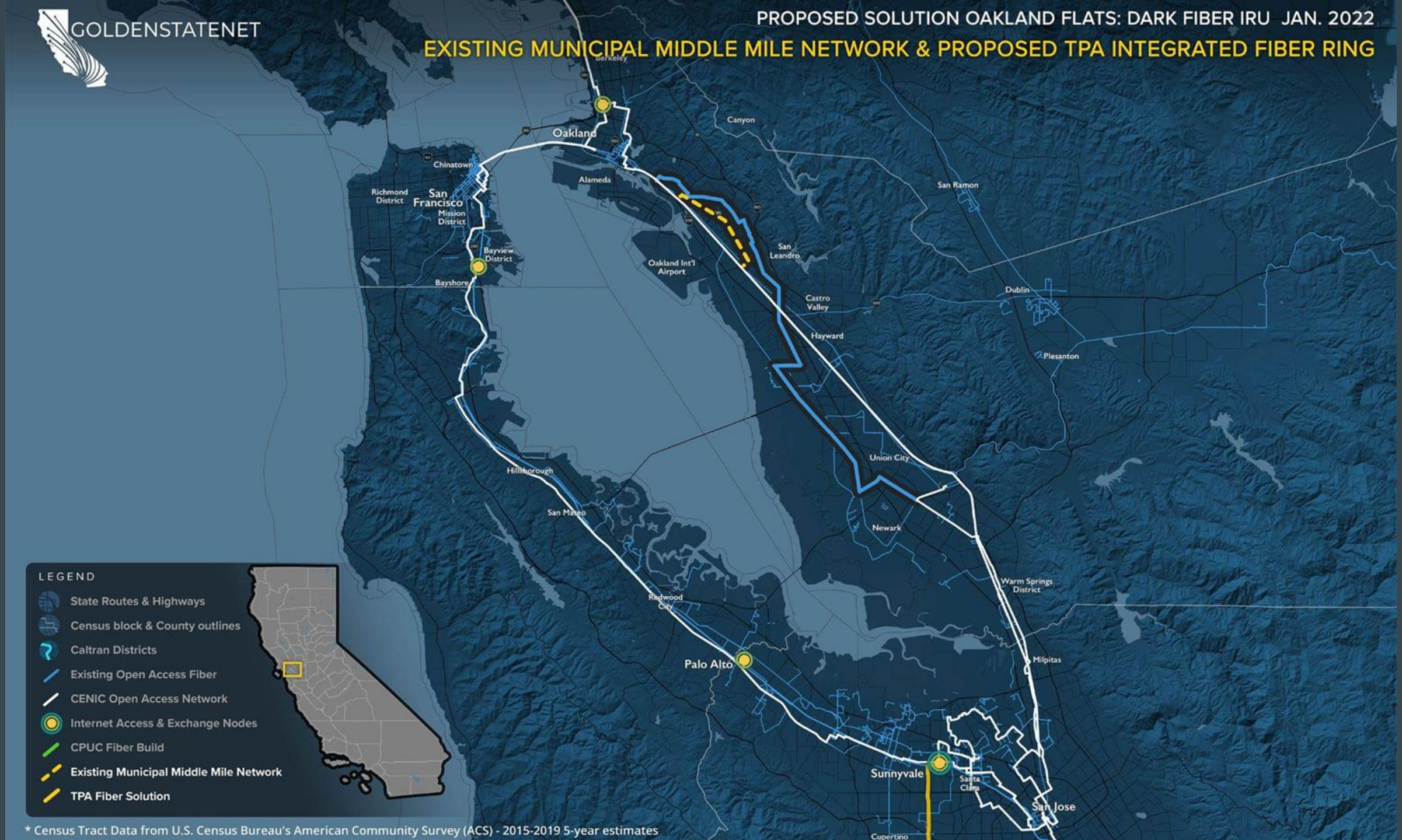
- Socioeconomic factors contribute to challenges of affordability and adoption.
- Existing service (free wifi, last-mile providers) slow/unreliable or unaffordable

Benefits:

- Improves service for remote learning, telehealth
- Enables incumbent wireless provider to improve performance, expand range, potentially reduce prices

Proposed Route Details:

- 48 miles, IRU dark fiber leases
- Redesign of Oakland Flats wireless broadband network, Oak WiFi
- Partnerships with OAK WiFi, Education Superhighway, NAACP California chapter


GOLDENSTATENET
PROPOSED SOLUTION OAKLAND FLATS: DARK FIBER IRU JAN. 2022
EXISTING MUNICIPAL MIDDLE MILE NETWORK & PROPOSED TPA INTEGRATED FIBER RING
Berkeley
Oakland
Canyon
Chinatown
Alameda
Richmond District
San Francisco
Mission District
Bayview District
Bayshore
Oakland Int'l Airport
San Ramon
San Leandro
Castro Valley
Dublin
Hayward
Pleasanton
Union City
Hillsborough
San Mateo
Newark
Warm Springs District
Redwood City
Palo Alto
Milpitas
Sunnyvale
Santa Clara
San Jose
Cupertino
LEGEND
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Census block & County outlines
Caltran Districts
Existing Open Access Fiber
CENIC Open Access Network
Internet Access & Exchange Nodes
CPUC Fiber Build
Existing Municipal Middle Mile Network
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 9: Central Coast

Project 9: Central Coast - Key Highlights

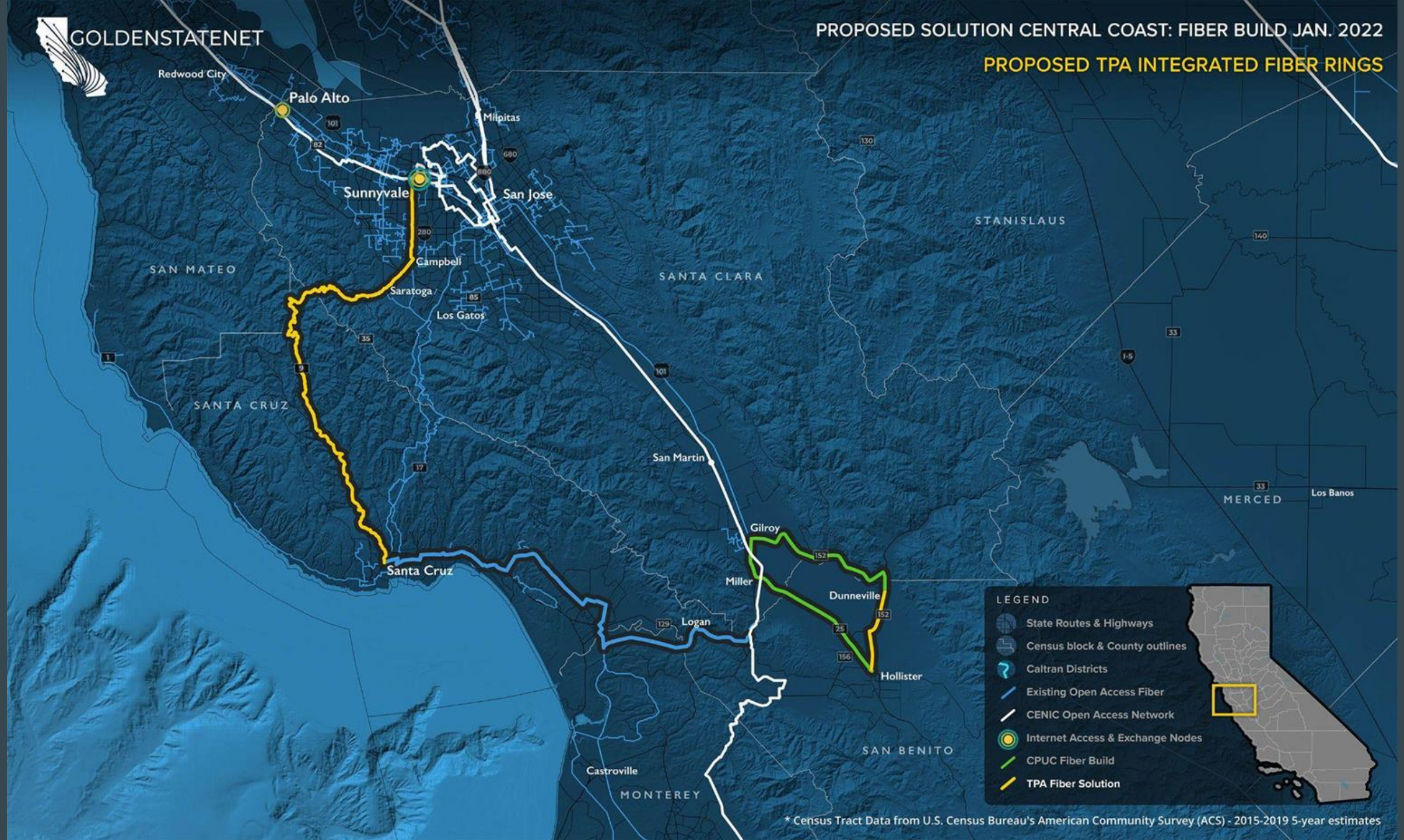
- Mountainous area, severe fire hazard zone
- Elevated by local officials, last-mile providers, residents, community groups

Benefits:

- Potential for new services offering improvements over existing slow, high-cost satellite service
- Supports community rebuilding after 2020 CZU Lightning Complex fire

Proposed Route Details:

- 151 miles, new build fiber cable construction
- Two major routes: Sunnyvale-Santa Cruz and Gilroy-Dunneville-Hollister
- Improves resiliency with ring topology


GOLDENSTATENET
PROPOSED SOLUTION CENTRAL COAST: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
Redwood City
Palo Alto
Milpitas
Sunnyvale
San Jose
Campbell
Saratoga
Los Gatos
SAN MATEO
SANTA CLARA
STANISLAUS
SANTA CRUZ
San Martin
Gilroy
Miller
Dunneville
Logan
Hollister
Santa Cruz
Castroville
SAN BENITO
MONTEREY
MERCED
Los Banos
LEGEND
State Routes & Highways
Census block & County outlines
Caltran Districts
Existing Open Access Fiber
CENIC Open Access Network
Internet Access & Exchange Nodes
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 10: West Fresno

Project 10: West Fresno - Key Highlights

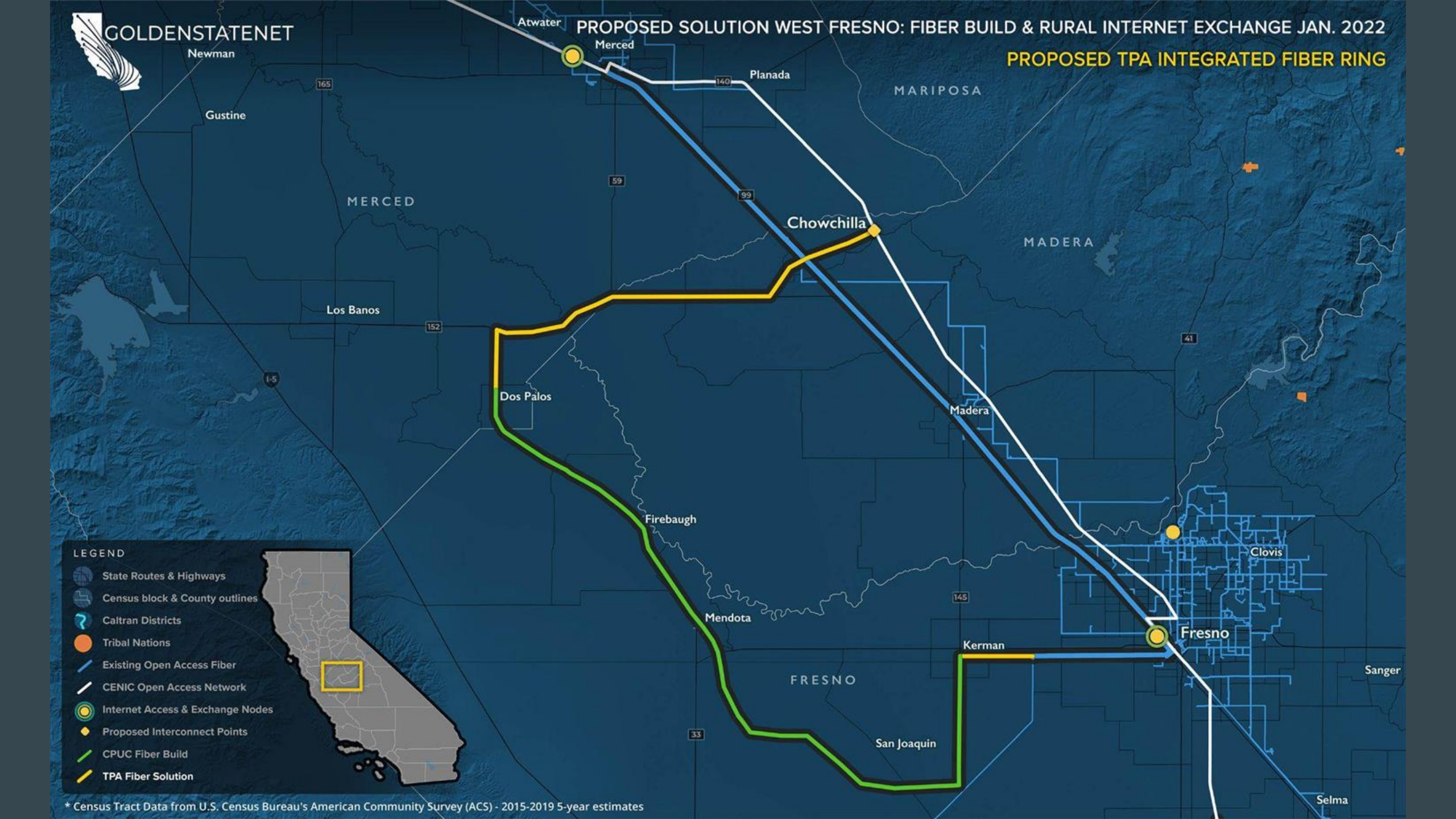
- Near complete lack of open access network infrastructure, considered especially urgent by community leaders, area residents, and businesses

Benefits:

- Supports economic growth in distressed Hispanic communities
- Potential to spur agricultural innovations and enable remote schooling, telehealth, telework, and greater connections to community anchor institutions

Proposed Route Details:

- 95 miles, new build fiber cable construction and IRU dark fiber lease
- Improves resiliency with large ring topology


GOLDENSTATENET
PROPOSED SOLUTION WEST FRESNO: FIBER BUILD & RURAL INTERNET EXCHANGE JAN. 2022
PROPOSED TPA INTEGRATED FIBER RING
Atwater
Merced
Planada
Newman
Gustine
MARIPOSA
MERCED
Chowchilla
MADERA
Los Banos
Dos Palos
Madera
Firebaugh
Clovis
Mendota
Fresno
Kerman
FRESNO
Sanger
San Joaquin
Selma
LEGEND
State Routes & Highways
Census block & County outlines
Caltran Districts
Tribal Nations
Existing Open Access Fiber
CENIC Open Access Network
Internet Access & Exchange Nodes
Proposed Interconnect Points
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 11: Inyo

Project 11: Inyo - Key Highlights

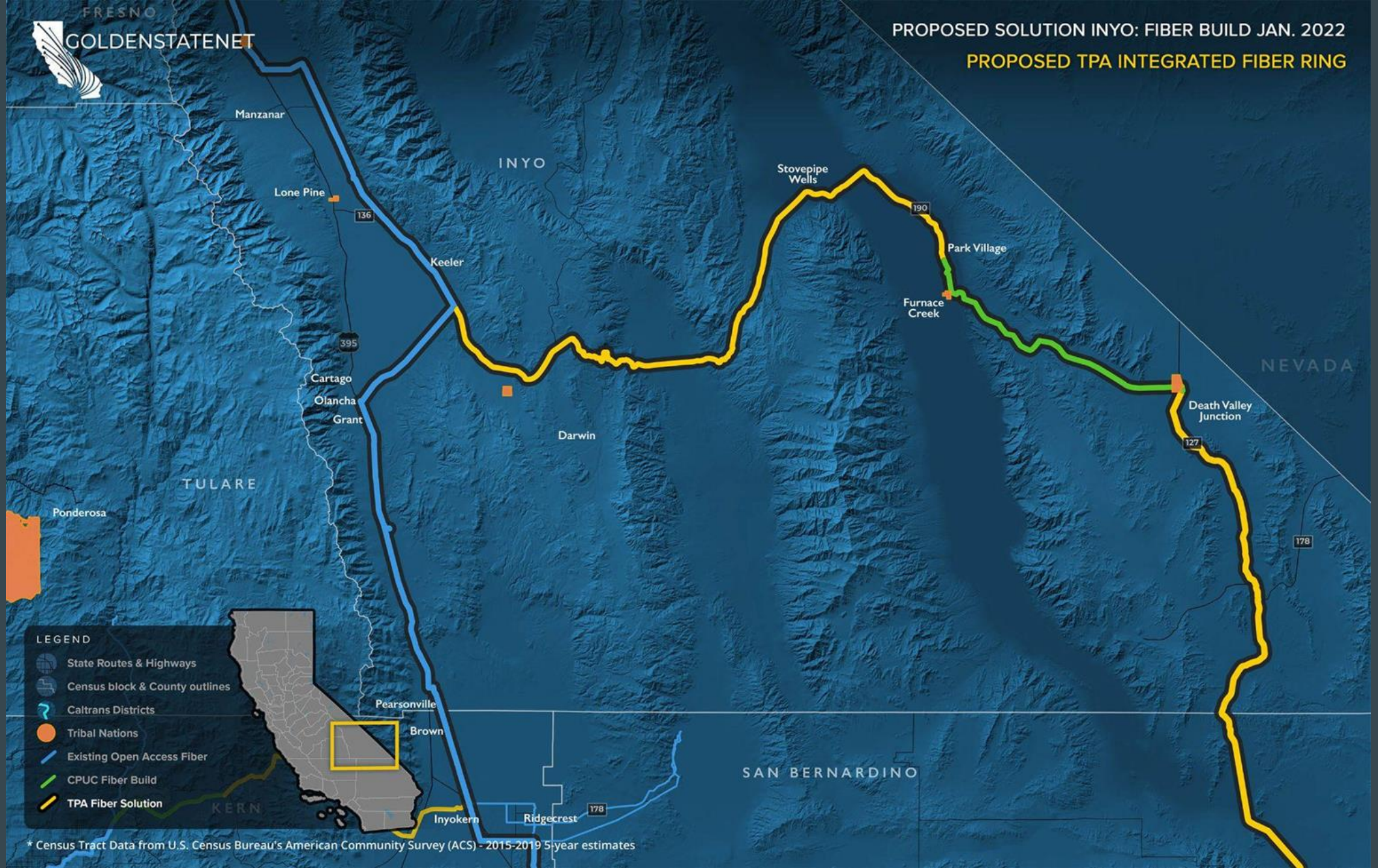
- Sparsely populated area which includes Death Valley National Park, managed by the U.S. National Park Service

Benefits:

- Directly benefits Tribal Nations of Timbi-Sha Shashone, Lone Pine Paiute, Big Pine Paiute, and Tecopa
- Ties to ongoing effort to connect Park Service land to major Los Angeles Internet Exchange Point
- Greatly enhances service in the Death Valley region

Recommended Technical Solution:

- 216 miles, new build fiber cable construction
- Requires coordination with the National Park Service


PROPOSED SOLUTION INYO: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RING
FRESNO
GOLDENSTATENET
Manzanar
INYO
Lone Pine
136
Keeler
Stovepipe Wells
190
Park Village
Furnace Creek
395
Cartago
Olancha
Grant
Darwin
NEVADA
Death Valley Junction
127
178
TULARE
Ponderosa
LEGEND
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Tribal Nations
Existing Open Access Fiber
CPUC Fiber Build
TPA Fiber Solution
Pearsonville
Brown
SAN BERNARDINO
KERN
Inyokern
Ridgecrest
178
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 12: Kern

Project 12: Kern - Key Highlights

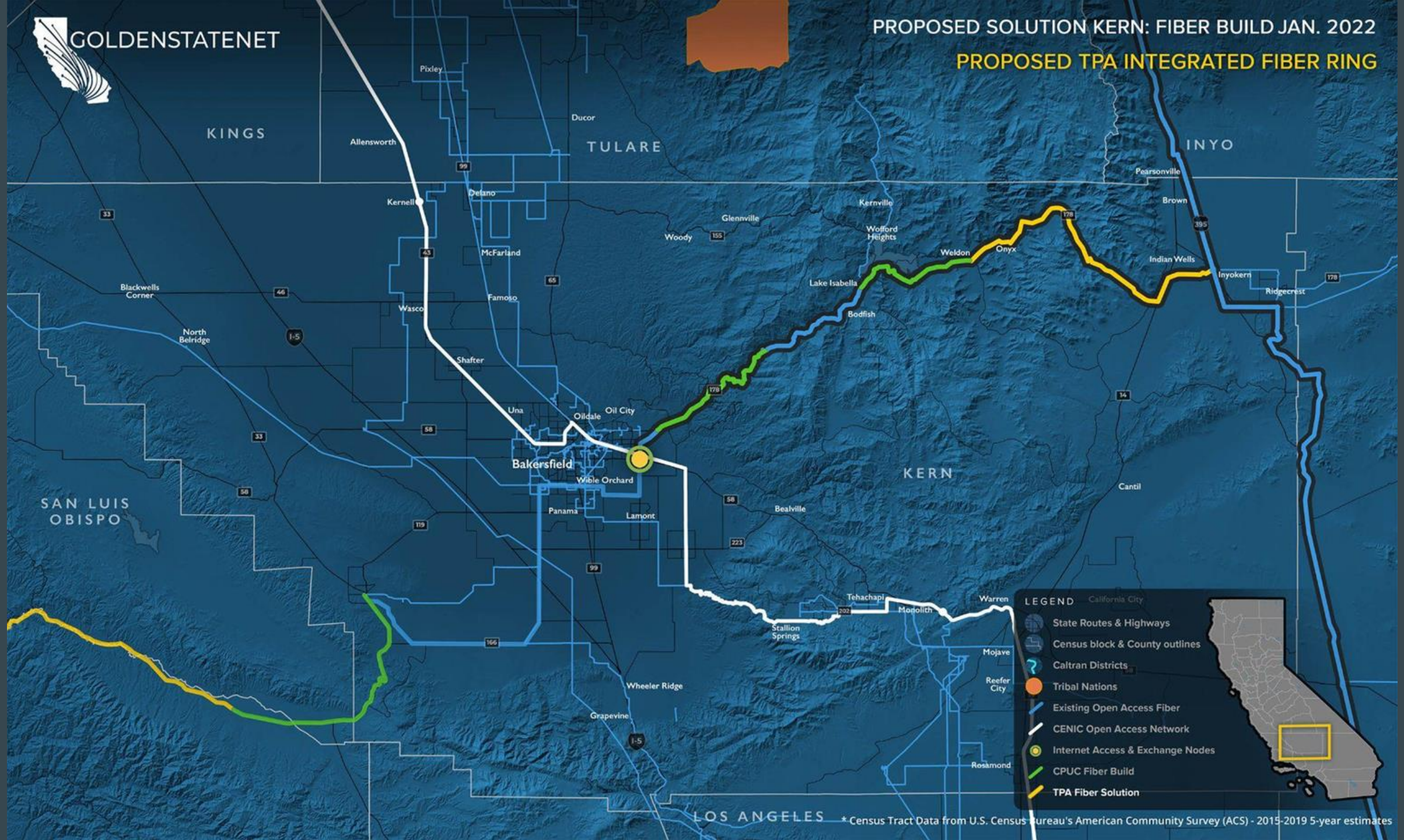
- Underserved, low-income area
- Large percentage of households lacking connectivity, poor cell service

Benefits:

- Improvements for remote learning, healthcare (hospitals and clinics), emergency services

Proposed Route Details:

- 92 miles, new build fiber cable construction and IRU dark fiber leases
- Extends between Bakersfield and Inyo
- East-West route with two North-South routes improves network resiliency


GOLDENSTATENET
PROPOSED SOLUTION KERN: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RING
KINGS
TULARE
INYO
KERN
SAN LUIS OBISPO
LOS ANGELES
Pixley
Ducor
Allensworth
Kernell
Delano
McFarland
Glennville
Woody
Kernville
Wofford Heights
Weldon
Onyx
Lake Isabella
Bodfish
Pearsonville
Brown
Indian Wells
Inyokern
Ridgecrest
Blackwells Corner
North Belridge
Wasco
Famoso
Shafter
Una
Oildale
Oil City
Bakersfield
Wible Orchard
Panama
Lamont
Bealville
Cantil
Tehachapi
Monolith
Warren
Stallion Springs
Mojave
Reefer City
Wheeler Ridge
Grapevine
Rosamond
LEGEND
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Project 13: Kern/San Luis Obispo

Project 13: Kern/San Luis Obispo - Key Highlights

- Large diverse population, considered a CPUC priority around Taft
- Slow, ineffective service, relies heavily on cell coverage
- Mountainous area, severe fire hazards

Benefits:

- Directly benefits Tribal Nation of Santa Ynez Reservation
- Encourages last-mile providers to offer more affordable services, support fire/emergency services

Proposed Route Details:

- 136 miles, new build fiber cable construction
- Connects to existing open-access fiber route at Guadalupe


GOLDENSTATENET
PROPOSED SOLUTION KERN & SAN LUIS OBISPO: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RING
SAN LUIS OBISPO
KERN
SANTA BARBARA
VENTURA
San Luis Obispo
Santa Margarita
Oceano
Avila Beach
Pismo Beach
Arroyo Grande
Nipomo
Guadalupe
Santa Maria
Orcutt
Casmalia
Los Alamos
Los Olivos
Lompoc
Buellton
Santa Ynez
Las Cruces
Isla Vista
Santa Barabara
Buttonwillow
McKittrick
Una
Oildale
Oil City
Bakersfield
Wible Orchard
Panama
Lamont
Bealville
Edmundson Acres
Arvin
Conner
Taft
Maricopa
New Cuyama
Ventucopa
Mettler
Wheeler Ridge
Grapevine
Stallion Springs
Monolith
LEGEND
State Routes & Highways
Census block & County outlines
Caltran Districts
Tribal Nations
Existing Open Access Fiber
CENIC Open Access Network
Internet Access & Exchange Nodes
CPUC Fiber Build
TPA Fiber Solution
* Census Tract Data from U.S. Census Bureau's American Community Survey (ACS) - 2015-2019 5-year estimates

Project 14: San Bernardino

Project 14: San Bernardino - Key Highlights

- Densely populated, mountainous area, fire hazard zone
- Sub-standard service impacts households, large commerce centers/businesses

Benefits:

- Improves reliability and speed for residents/businesses
- Provides savings for last-mile providers

Proposed Route Details:

- 69 miles, new build fiber cable construction and IRU dark fiber lease
- Two major routes: Hesperia-Barstow and Barstow-Lucerne Valley-Apple Valley
- Improves resiliency with ring topology


GOLDENSTATENET
PROPOSED SOLUTION SAN BERNARDINO: FIBER BUILD JAN. 2022
PROPOSED TPA INTEGRATED FIBER RING
Mountain Pass
Mars
Ricardo
Randsburg
Apollo
Cantil
Venus
Baker
Mojave
Kramer Junction
58
Hinkley
15
Harvard
Barstow
Yermo
Daggett
Rosamond
KERN
Newberry Springs
395
40
Ludlow
Lancaster
247
SAN BERNARDINO
Palmdale
Adelanto
Victorville
Little Rock
Llano
Apple Valley
18
138
Phelan
Lucerne Valley
Hesperia
LOS ANGELES
2
18
247
LEGEND
State Routes & Highways
Census block & County outlines
Caltran Districts
Existing Open Access Fiber
CENIC Open Access Network
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TPA Fiber Solution
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Project 15: Los Angeles

Project 15: Los Angeles - Key Highlights

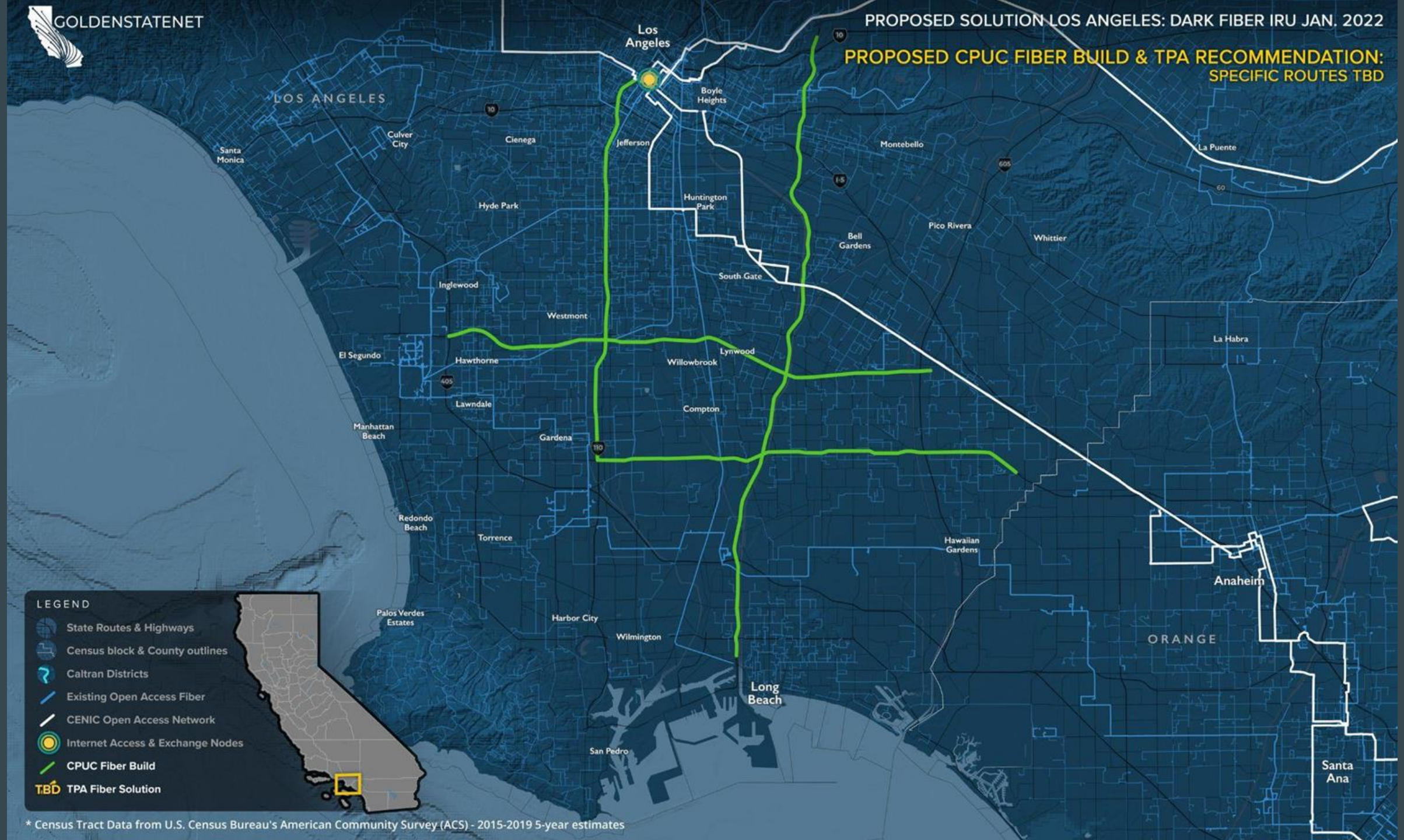
- Very densely populated, urban areas, diverse population
- Lacks affordable options for many households creating so called “service deserts” in certain areas

Benefits:

- Could lead to more affordable service for lower-income, diverse communities
- Savings for last-mile providers, encouraging deployment
- Requires collaboration among last-mile providers, metropolitan planners, local government, others

Proposed Route Details:

- 120 miles, IRU dark fiber leases
- Three CPUC recommended routes from a downtown Internet Exchange Point, one heading south to Long Beach


GOLDENSTATENET
PROPOSED SOLUTION LOS ANGELES: DARK FIBER IRU JAN. 2022
PROPOSED CPUC FIBER BUILD & TPA RECOMMENDATION:
SPECIFIC ROUTES TBD
Los Angeles
LOS ANGELES
Boyle Heights
Culver City
Cienega
Jefferson
Santa Monica
Montebello
La Puente
Hyde Park
Huntington Park
Bell Gardens
Pico Rivera
Whittier
Inglewood
South Gate
Westmont
La Habra
El Segundo
Hawthorne
Lynwood
Willowbrook
Lawndale
Compton
Manhattan Beach
Gardena
Redondo Beach
Torrence
Hawaiian Gardens
Anaheim
Palos Verdes Estates
Harbor City
Wilmington
ORANGE
Long Beach
San Pedro
Santa Ana
LEGEND
State Routes & Highways
Census block & County outlines
Caltran Districts
Existing Open Access Fiber
CENIC Open Access Network
Internet Access & Exchange Nodes
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TBD TPA Fiber Solution
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Project 16: Orange County

Project 16: Orange County - Key Highlights

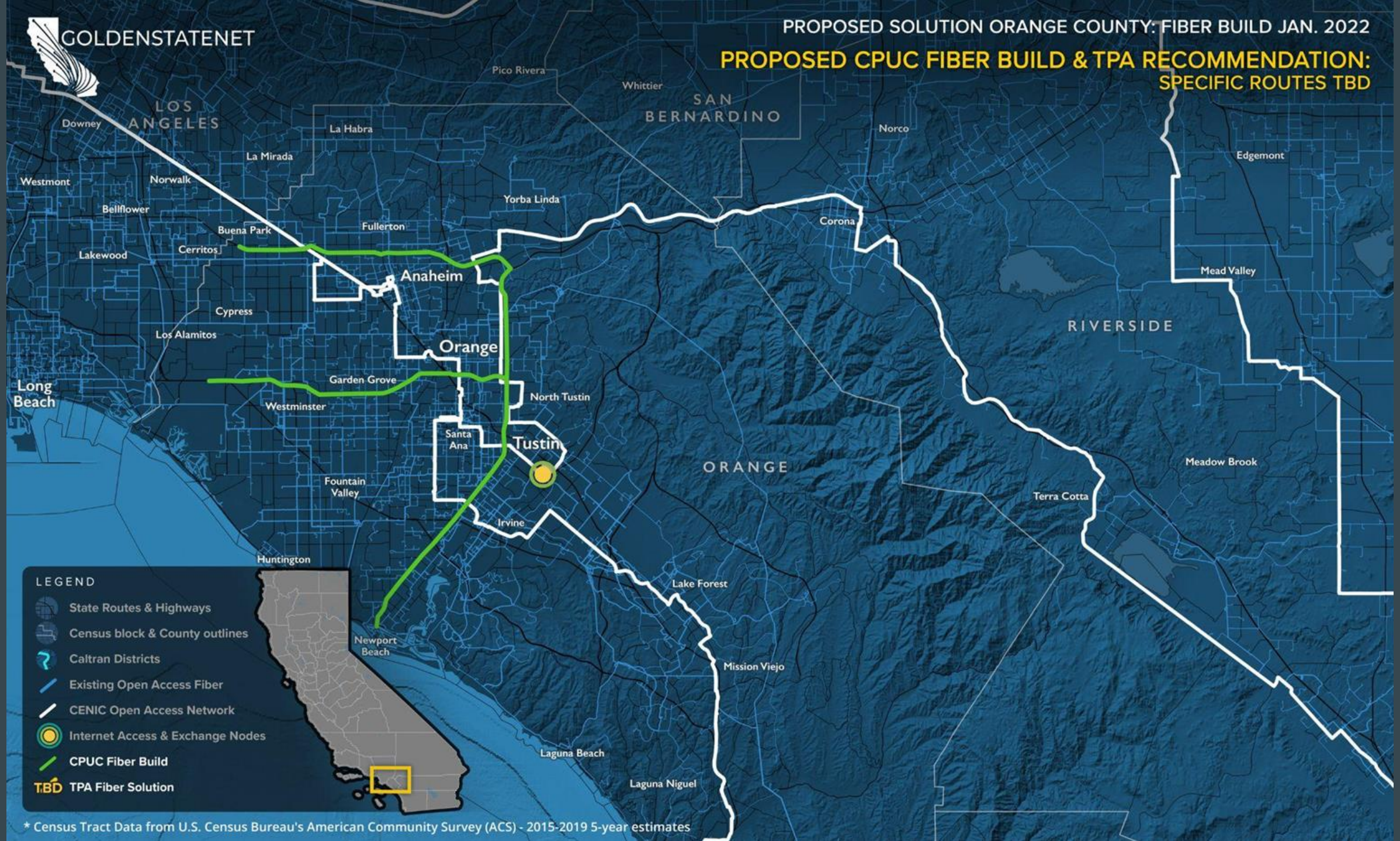
- Densely populated urban areas, very diverse population
- Lacks affordable options for many households creating so called “service deserts” in certain areas

Benefits:

- Could lead to more affordable service for lower-income, diverse communities
- Savings for last-mile providers, encouraging deployment

Proposed Route Details:

- 80 miles, IRU dark fiber lease
- Three routes: Westbound Fullerton-Buena Park, westbound through Garden Grove, southwest from Tustin to Newport Beach
- Will require collaboration among last-mile providers, metropolitan planners, local government, others


GOLDENSTATENET
PROPOSED SOLUTION ORANGE COUNTY: FIBER BUILD JAN. 2022
PROPOSED CPUC FIBER BUILD & TPA RECOMMENDATION:
SPECIFIC ROUTES TBD
LOS ANGELES
SAN BERNARDINO
RIVERSIDE
ORANGE
Pico Rivera
Whittier
Downey
La Habra
La Mirada
Norco
Edgemont
Westmont
Norwalk
Yorba Linda
Bellflower
Buena Park
Fullerton
Corona
Lakewood
Cerritos
Anaheim
Mead Valley
Cypress
Los Alamitos
Orange
Garden Grove
Long Beach
North Tustin
Westminster
Santa Ana
Tustin
Meadow Brook
Fountain Valley
Terra Cotta
Irvine
Huntington
Lake Forest
Newport Beach
Mission Viejo
Laguna Beach
Laguna Niguel
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Project 17: Coachella Valley

Project 17: Coachella Valley - Key Highlights

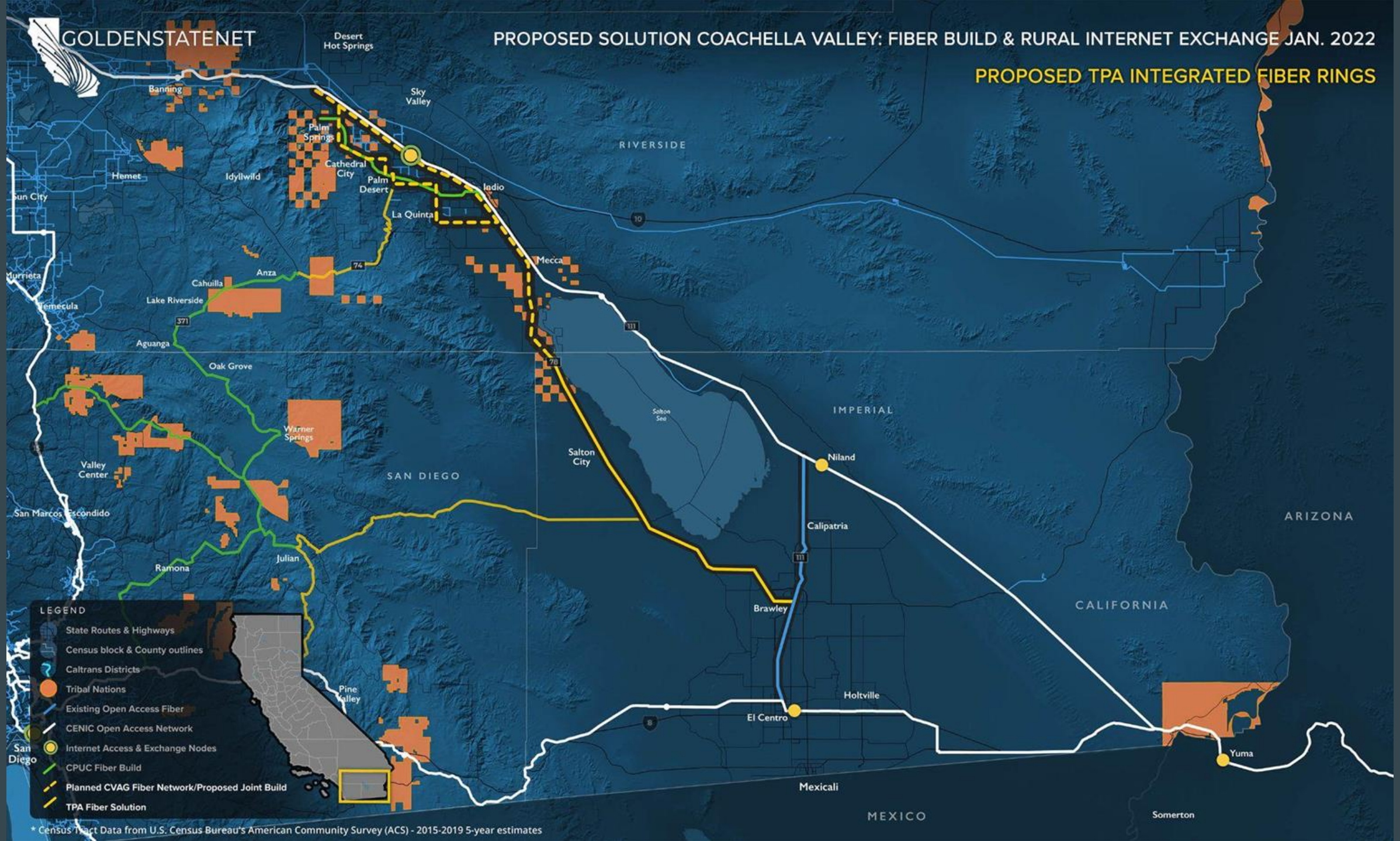
- Densely populated as well as a remote desert region, prone to extreme heat

Benefits:

- Directly benefits Tribal Nations of Torres Martinez, Augustine, Cabazon, Morongo, Agua Caliente, Twenty-Nine Palms Reservations, future opportunities for five additional Tribal Nations in the region
- Improves wireless and other connectivity for community anchor institutions, underserved communities
- Potential growth of Lithium Valley, overall economic development

Proposed Route Details:

- 175 miles, joint build fiber cable construction and IRU dark fiber leases
- Extensive resilient ring architecture, leverages CVAG's 2022 plan to upgrade traffic lights system
- Connects to Project 18: Riverside, San Diego leading to greater regional impact


GOLDENSTATENET
PROPOSED SOLUTION COACHELLA VALLEY: FIBER BUILD & RURAL INTERNET EXCHANGE JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
Desert Hot Springs
Banning
Sky Valley
Palm Springs
Cathedral City
Palm Desert
Indio
La Quinta
RIVERSIDE
Hemet
Idyllwild
Sun City
Mecca
Anza
Cahuilla
Lake Riverside
Murrieta
Temecula
Aguanga
Oak Grove
Warner Springs
Valley Center
SAN DIEGO
Salton Sea
Salton City
IMPERIAL
Niland
Calipatria
Brawley
San Marcos
Escondido
Julian
Ramona
ARIZONA
CALIFORNIA
Holtville
El Centro
Pine Valley
Yuma
Mexicali
MEXICO
Somerton
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Project 18: Riverside/San Diego

Project 18: Riverside/San Diego - Key Highlights

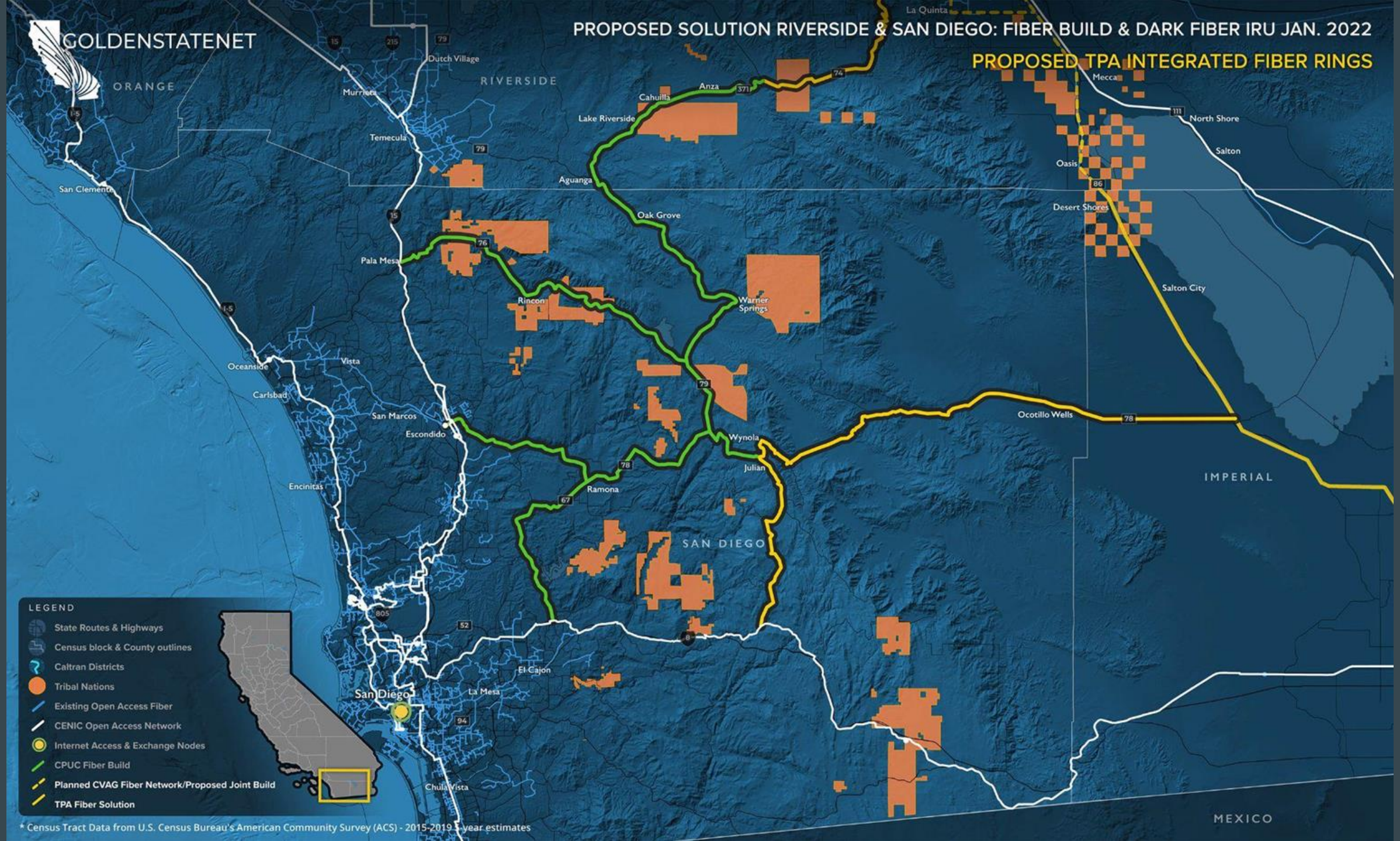
- Densely populated urban areas as well as mountainous areas of severe fire hazard zones

Benefits:

- Route directly benefits Tribal Nations of Santa Rosa, Cahuilla, Pala Band of Mission Indians, Pauma and Yuima, Los Coyotes, La Jolla Indian, Rincon, and Santa Ysabel Reservations, future opportunities for four additional tribes in the region.
- Services to extend to wind farms, lithium mining projects, fire and emergency services

Proposed Route Details:

- 178 miles, new build fiber cable construction
- May require aerial cable lines across mountains
- Requires collaboration among last-mile providers, metropolitan planners, local government, others


GOLDENSTATENET
PROPOSED SOLUTION RIVERSIDE & SAN DIEGO: FIBER BUILD & DARK FIBER IRU JAN. 2022
PROPOSED TPA INTEGRATED FIBER RINGS
ORANGE
RIVERSIDE
SAN DIEGO
IMPERIAL
MEXICO
La Quinta
Mecca
North Shore
Salton
Salton City
Oasis
Desert Shores
Ocotillo Wells
Dutch Village
Murrieta
Temecula
Lake Riverside
Cahuilla
Anza
Aguanga
Oak Grove
Warner Springs
Rincon
Pala Mesa
San Clemente
Oceanside
Vista
Carlsbad
San Marcos
Escondido
Encinitas
Ramona
Julian
Wynola
El Cajon
La Mesa
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Initial 18 Projects TPA Network Route Recommendations

Many Thanks to MMBI Partners

CALIFORNIA ALL

California Department of Technology
STRATEGY INNOVATION DELIVERY

Caltrans

CENIC

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California Department of Technology Update

Expanded Construction Approval

- The 18 initial project recommendations proposed in November totaled about 885 miles.
- GSN just presented its broader recommendations for these 18 projects totaling about 2,230 miles.
- Of this amount, 1,437 miles is recommended for construction.
- CDT has asked Caltrans to expand its preconstruction activities to include this higher construction amount.

Next Steps:

- GSN will work with CDT in finalizing the broader statewide system, including potential IRU locations.
- As Caltrans construction cost estimates are refined, IRU alternatives will be further evaluated.

Thank You