BROADBAND FOR ALL

Middle-Mile Advisory Committee Meeting

January 19, 2024

CALIFORNIA ALL

AGENDA

- Executive Report Out
  - Request for Innovative Ideas Update (RFI²)
  - Governor's Budget Proposal
- Project Updates
  - CDT
    - Joint Build & Lease/Purchase Update
    - 2024 Stakeholder Engagement Plan
    - Website Overview
  - Caltrans
    - Delivery Plan
    - Project Momentum
  - Operations Discussion
    - CTC Technology & Energy
    - GoldenStateNet – Business Model
  - CPUC
    - Updates on Last Mile Programs
- Public Comment

CALIFORNIA ALL | Broadband for All

Mark Monroe

Deputy Director

Middle-Mile Broadband Initiative

California Department of Technology

EXECUTIVE REPORT OUT

Request for Innovative Ideas (RFI^2)

November 2023

Release RFI^2 Innovators Conference

January 2024

Innovation Concept Papers Due 1/26/24

February-July 2024

Joint Build & Lease/Purchase Development

EXECUTIVE REPORT OUT

Governor's Budget Proposal

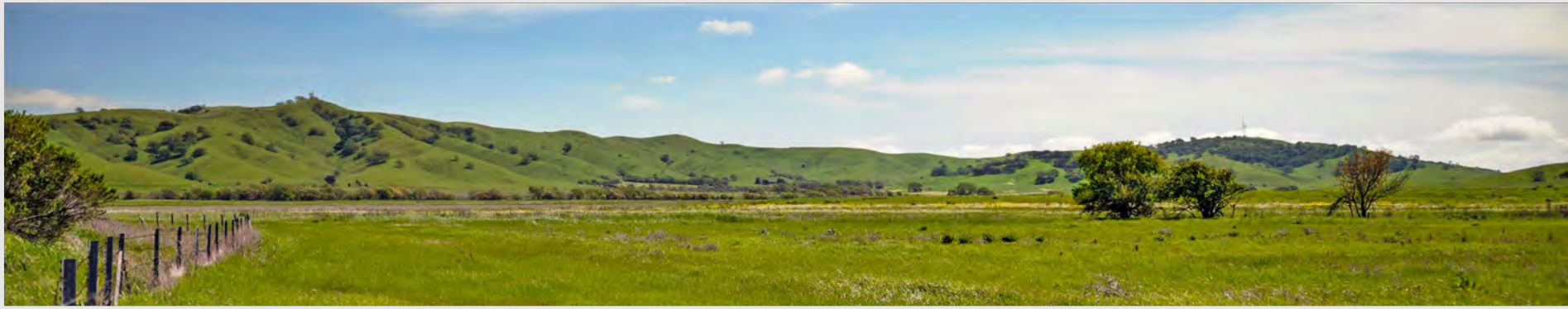
$1.5 billion over two years to complete 10,000+ Middle-Mile Broadband Network

PROJECT SPOTLIGHT

Joint Build Partnerships

LA City Bureau of Lights

City of Vacaville



City of Fort Bragg

PROJECT UPDATE

Joint Build & Lease/Purchase 2024 Milestones (1 of 2)

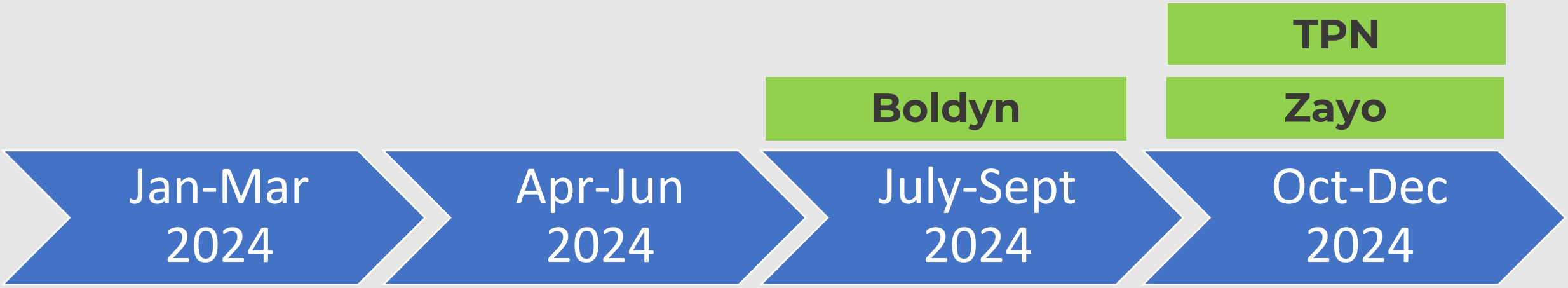
Construction Begins

Oct-Dec 2023	Jan-Mar 2024	Apr-June 2024
Arcadian	**Zayo**	**Vero**
	Lumen	**Siskiyou Tel**

PROJECT UPDATE

Joint Build & Lease/Purchase 2024 Milestones (2 of 2)

Construction Spans Planned for Completion



Completion for purposes of this slide represents the installation of conduit, fiber, and vaults. The network in these areas will be available for connection with Last Mile providers upon installation of hubs and electronics.

PROJECT UPDATE

What's Ahead for 2024

Vault installation

Materials Delivery

Micro-trenching

Horizontal drilling

40+

Stakeholder Engagements since Oct 2023

Monica Hernández

Deputy Director

Communications & Stakeholder Relations

California Department of Technology

Hang Liang

MMBI Data & GIS | Office of Digital Services

California Department of Technology

PROJECT UPDATE

Stakeholder Engagement & Communications Plan

Stakeholder Meetings

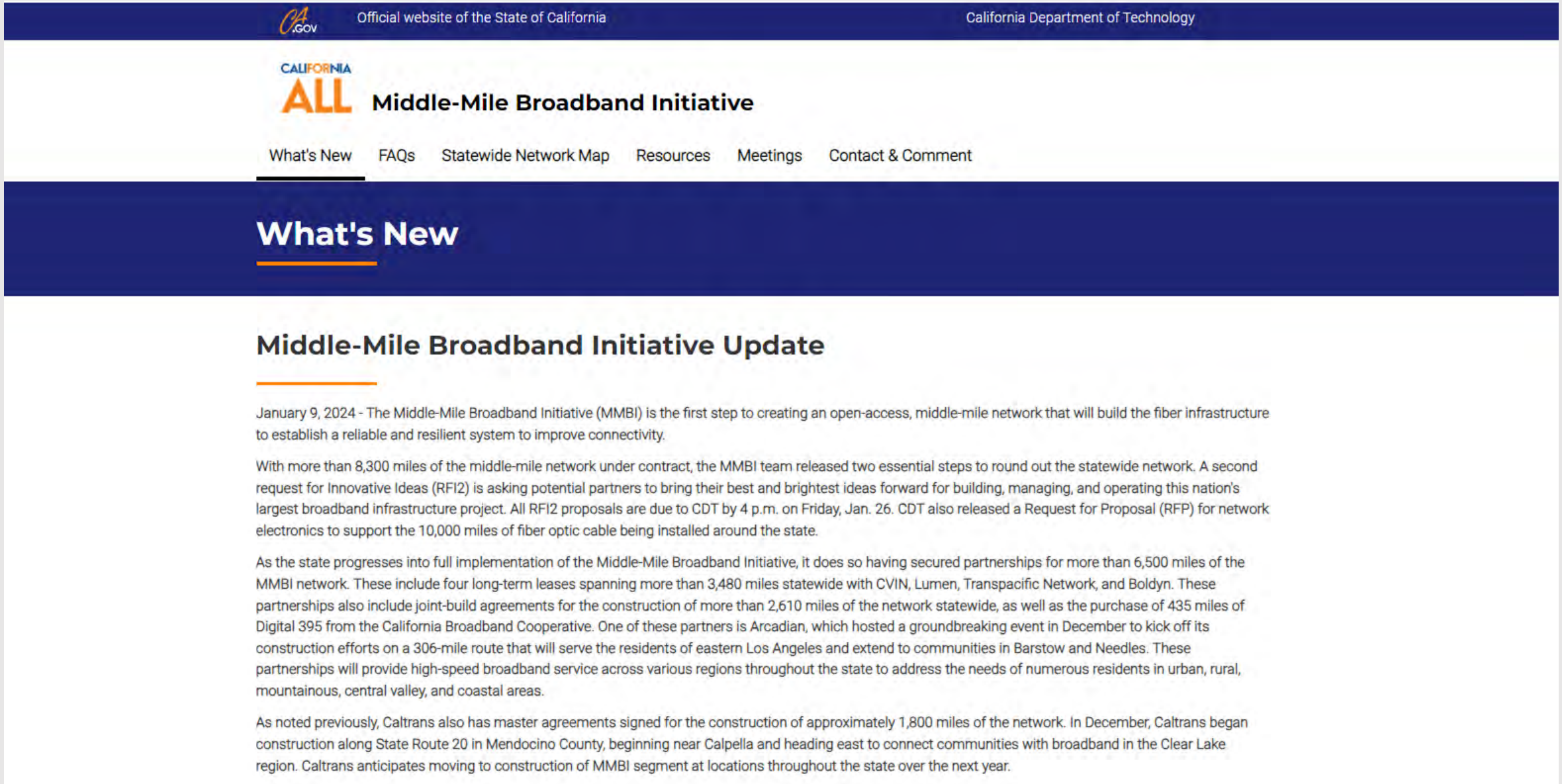
Increased Proactive Electronic Communications

Mapping Data Updates

306-mile segment
Los Angeles to Needles
December 12, 2023

PROJECT UPDATE

Website & Map Updates (1 of 2)



Official website of the State of California

California Department of Technology

CALIFORNIA ALL Middle-Mile Broadband Initiative

What's New | FAQs | Statewide Network Map | Resources | Meetings | Contact & Comment

What's New

Middle-Mile Broadband Initiative Update

January 9, 2024 - The Middle-Mile Broadband Initiative (MMBI) is the first step to creating an open-access, middle-mile network that will build the fiber infrastructure to establish a reliable and resilient system to improve connectivity.

With more than 8,300 miles of the middle-mile network under contract, the MMBI team released two essential steps to round out the statewide network. A second request for Innovative Ideas (RFI2) is asking potential partners to bring their best and brightest ideas forward for building, managing, and operating this nation's largest broadband infrastructure project. All RFI2 proposals are due to CDT by 4 p.m. on Friday, Jan. 26. CDT also released a Request for Proposal (RFP) for network electronics to support the 10,000 miles of fiber optic cable being installed around the state.

As the state progresses into full implementation of the Middle-Mile Broadband Initiative, it does so having secured partnerships for more than 6,500 miles of the MMBI network. These include four long-term leases spanning more than 3,480 miles statewide with CVIN, Lumen, Transpacific Network, and Boldyn. These partnerships also include joint-build agreements for the construction of more than 2,610 miles of the network statewide, as well as the purchase of 435 miles of Digital 395 from the California Broadband Cooperative. One of these partners is Arcadian, which hosted a groundbreaking event in December to kick off its construction efforts on a 306-mile route that will serve the residents of eastern Los Angeles and extend to communities in Barstow and Needles. These partnerships will provide high-speed broadband service across various regions throughout the state to address the needs of numerous residents in urban, rural, mountainous, central valley, and coastal areas.

As noted previously, Caltrans also has master agreements signed for the construction of approximately 1,800 miles of the network. In December, Caltrans began construction along State Route 20 in Mendocino County, beginning near Calpella and heading east to connect communities with broadband in the Clear Lake region. Caltrans anticipates moving to construction of MMBI segment at locations throughout the state over the next year.

PROJECT UPDATE

Website & Map Updates (2 of 2)

Joint Build, Lease, & Purchase Interactive Map Update

Map Route Updates

Walkthrough of Map Updates

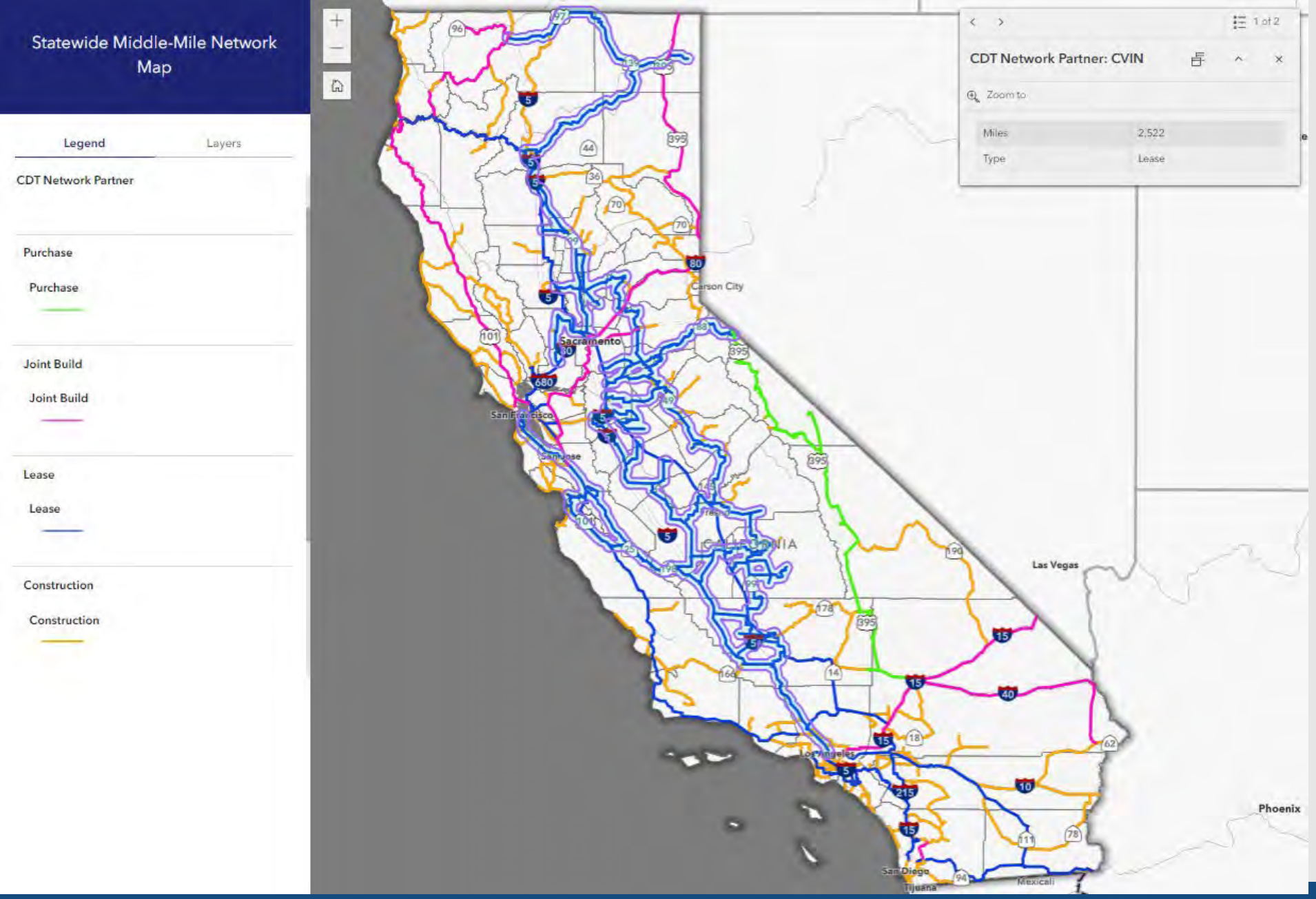
Statewide Middle-Mile Network Map

Legend | Layers

Statewide Middle Mile Network

Statewide Design

County Boundaries



Joint Build & Lease/Purchase Partner Interactive Map Update

Map Update Log

Tracking updates for the Statewide Middle-Mile Network Map.

Home > Statewide Network Map > Map Update Log

The purpose of the Middle-Mile Broadband Initiative (MMBI) conceptual map is to visualize a resilient middle-mile broadband network that will connect communities that are unserved and underserved by broadband services.

The conceptual routes were developed in accordance with SB 156 with the best available data and assumed the use of state-owned right-of-ways for the full network. As the MMBI network develops through specific planning, construction, joint builds, leases, and purchases route refinements will continue to be updated on the MMBI map.

The map update log below tracks and describes updates to the conceptual map beginning in January 2024.

Table Description

County: County location of the map update.

Update Description: Summarized description of the update made to the network map.

Partner: Name of network partner.

Map Update Log for January 29, 2024

County	Update Description	Partner
Alameda	Approximately 1 mile route extension on Warm Spring Blvd in Fremont to reflect the lease agreement accurately	Boldyn
Contra Costa	Approximately half mile route extension near Hillcrest Community Park in Concord to reflect the joint build agreement accurately	Arcadian
El Dorado	Approximately 3 miles of duplicate line removed on Hwy 49, south of Placerville, to reflect the joint build agreement accurately	CVIN

Map Route Updates

Types of Map Updates

Lease/Purchase Agreement

Construction
Joint Build/Caltrans

Data Reconciliation

Permitting

Physical Barriers

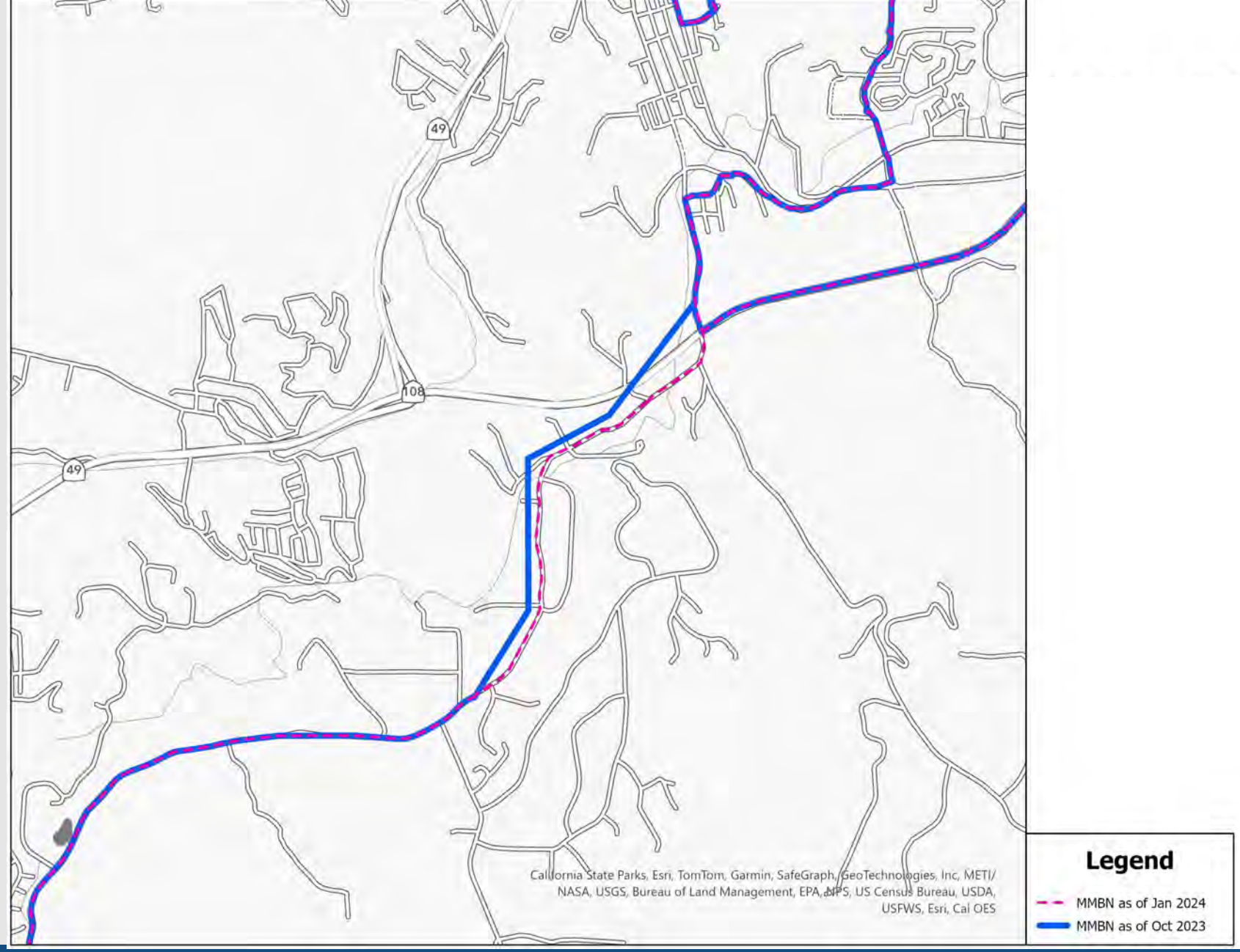
Network Functionality

Map Route Updates

EXAMPLE
Lease/Purchase Agreement

Lease of existing line dictates new alignment

Tuolumne



Map Route Updates

EXAMPLE
Data Reconciliation

October 2023 map data didn't reflect the connection of lines. New data added closed the gap visually on the map.

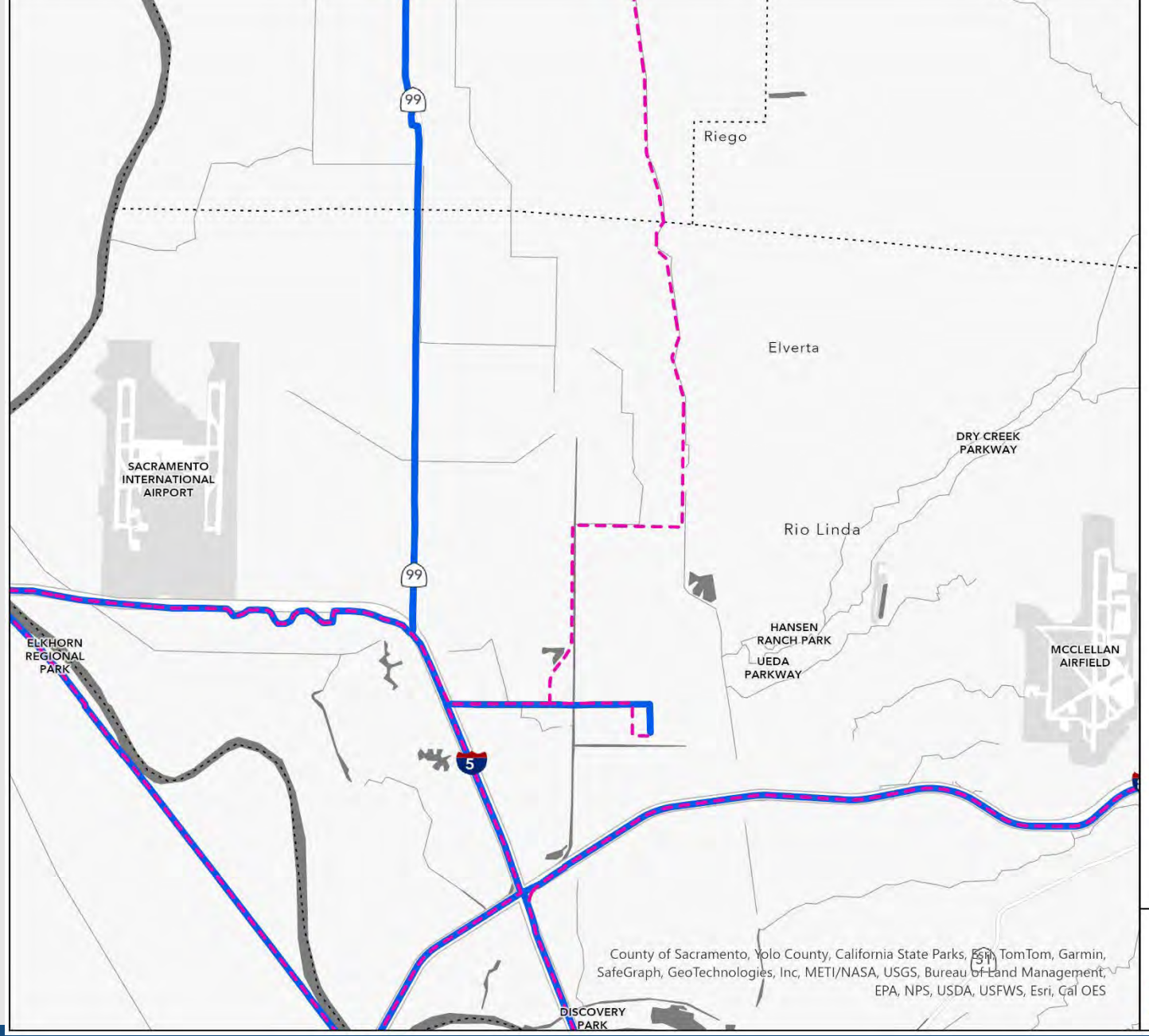
Ventura

Map Route Updates

EXAMPLE
Permitting

Route adjustment to allow for faster permitting

Sacramento

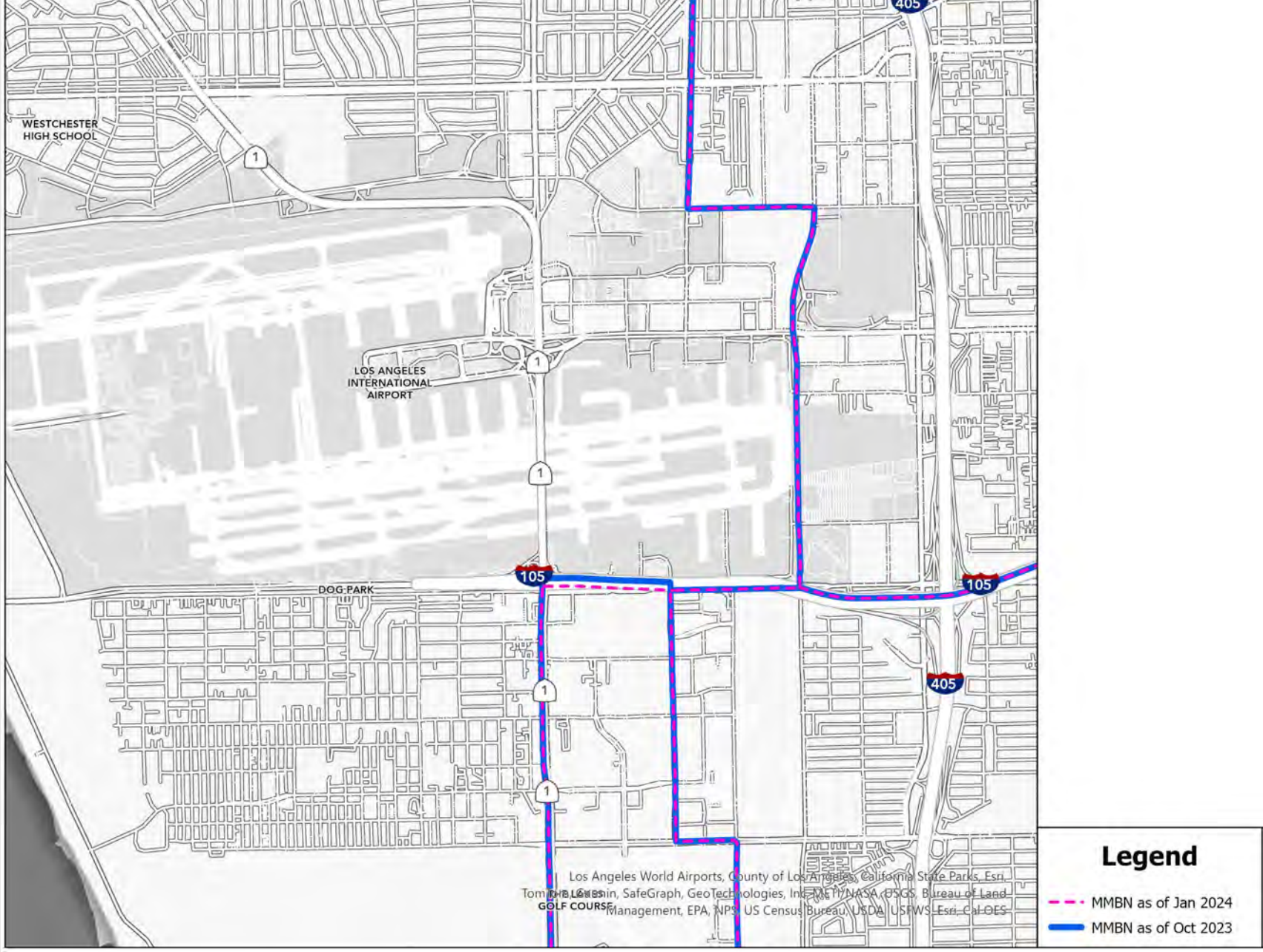


Map Route Updates

EXAMPLE
Physical Barrier

Alignment adjustment because map line went through LAX International Airport

Los Angeles

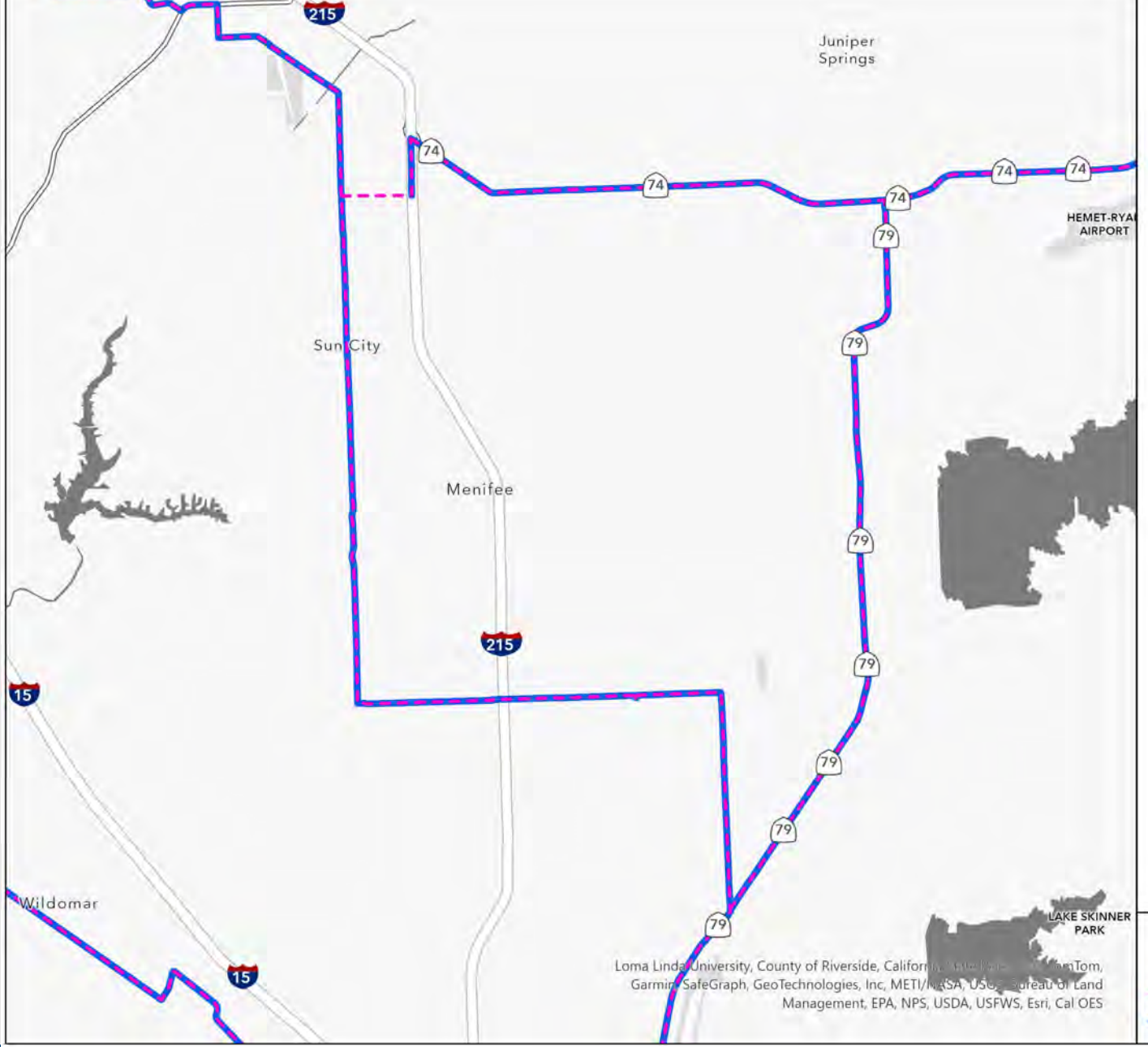


Map Route Updates

EXAMPLE
Network Functionality

Closing a gap discovered in the data update from planned segment to implementation.

Riverside



Map Route Updates

MMBI NETWORK MAP UPDATES TAKEAWAYS

With the continued progress of construction, joint builds, and lease and purchase agreements new construction data will be updated on the interactive MMBI map on the last Monday of the month.

Route alignment changes are at the request of the delivery partner

Any adjustment half-mile or greater will be on the update log

Adjustment summaries to be added to ‘What’s New” section of MMBI website

Map Route Updates

Janice Benton

Assistant Deputy Director

Middle-Mile Broadband Initiative

California Department of Transportation

PROJECT DELIVERY

Path to Delivery

Preconstruction Progress

Preconstruction Delivery Plan

Project Momentum

PROJECT DELIVERY

Advancing Preconstruction

Environmental, Permitting and Design progress

January 2024

Completed Project Tasks **Progress Project Tasks**

October 2023

Completed Project Tasks **In Progress Project Tasks**

PROJECT UPDATE

2024 Preconstruction Delivery

2024	January – March	April – June	July – September	October – December
Region 1	125 miles	130 miles	347 miles	576 miles
Region 2	74 miles	15 miles	57 miles	428 miles
Region 3	14 miles	39 miles	13 miles	680 miles
Region 4	75 miles	0 miles	159 miles	152 miles
Region 5	106 miles	51 miles	595 miles	292 miles
Total	**394 miles**	**235 miles**	**1,170 miles**	**2,128 miles**

PROJECT UPDATE

2024 Preconstruction Delivery

Region 1
1,178 miles

Region 2
575 miles

Region 3
746 miles

Region 4
386 miles

Region 5
1,043 miles

Total
3,929 miles

PROJECT DELIVERY

Project Momentum

State Route 74
Riverside County

State Route 20
Mendocino County

Middle-Mile Broadband Network Operations Discussion

BROADBAND FOR ALL

Lessons Learned from Other Networks: Operations Sustainability

MMAC meeting
January 2024

CALIFORNIA ALL

Joanne Hovis

President, CTC Technology & Energy

Broadband Equity Partnership

Questions presented:

1. What does experience suggest regarding the likelihood of self-sustaining operations over a publicly-owned middle-mile network?
2. How is experience from other states analogous to MMBI?
3. What further questions should be investigated?

Summary of Findings

1

Open middle-mile networks have mostly been **self-supporting over time** and have enabled new ISP last-mile operations but have **yet to maximize the value of its fiber** or the open-access mission.

2

Sustained in large part by revenues from **public sector users**, rather than from revenues from ISP users, which are generally insufficient to sustain operations.

3

Networks have **struggled financially**; the underlying problem generally appears to be a **failure of execution rather than a fault in the underlying economic sustainability** of the model.

Key Takeaways

1

Publicly run networks sometimes need help to generate enough revenues to **recover operating costs,** depending on the operating model, capabilities, and market environment. In all cases, a market larger than only last-mile ISPs is necessary for sustainability needs help.

2

Given the inherent differences in key financial feasibility drivers, including potential for operational efficiencies, agility to respond to market dynamics, effective commercial incentives, and existing business relationships, it appears that states are most successful when **providing services both for public sector and private users to meet the state's public policy objectives** and to maximize the value delivered by the state-owned fiber asset.

3

CDT's preliminary assessment indicates that MMBI can be **operated on a self-sustaining basis without ongoing state subsidy**. However, further market analysis and sounding are necessary to understand the full market and develop detailed parameters.

Erik Hunsinger

President & Chief Operating Officer

GoldenStateNet

Operations Characteristics

MMBI Scale

- At 10,000+ miles, CA MMBI is the Largest Public Long Haul Open Access Network in the US
- ~ 20,000 access points for easy connections to last miles providers and for fiber repair
- ~ 180 electronics amplification huts dispersed in all 58 CA counties
- 4,000 + electronic components

Essential Operations Activities

- 7x24 staffed Network Operations Center (NOC) and Customer Support
- Regular statewide inspections and onsite maintenance of all huts
- Statewide fiber repair and restoration all the 10k mile network
- Regular onsite maintenance, upgrades and support (i.e. electronics, generators, power, physical plant, etc.)

MMBI OPERATIONS

Operations Activities

Operational Areas

Service Delivery	Financial Operations	NOC Operations	Inside/Outside Plant Management	Engineering	Development Operations	Sales and Product Operations
Provisioning Network Planning Customer Mgt	Billing Accounts Receivable Contract Compliance	Network monitoring Tech coordination Equipment inventory Spares management	Hut management Fiber repair and relocation Physical provisioning	Method of Procedures for MACDs to network and hardware Capacity planning Product adoption Tech advancement	Licenses Systems coordination Tools management Integration of systems	Go To Market Product Development Product Lifecycle

Systems

Fiber Management Systems	Hut Inventory Management	Network Management Systems	Financial Systems	Sales & CRM database
Fiber routes/quantity Vault locations Splice locations Splice configurations Customer network interconnections Fiber configurations and repair data	Rack Power Cross connects	Network Customer assigned inventory Product monitoring Design records Ticketing systems for outages/ repairs	Accounts receivable Accounts payable Invoicing Customers Vendors	Leads Customers Service orders Contracts Products

Operational Sustainability

We are in the early stages of data gathering and modeling potential revenue sources

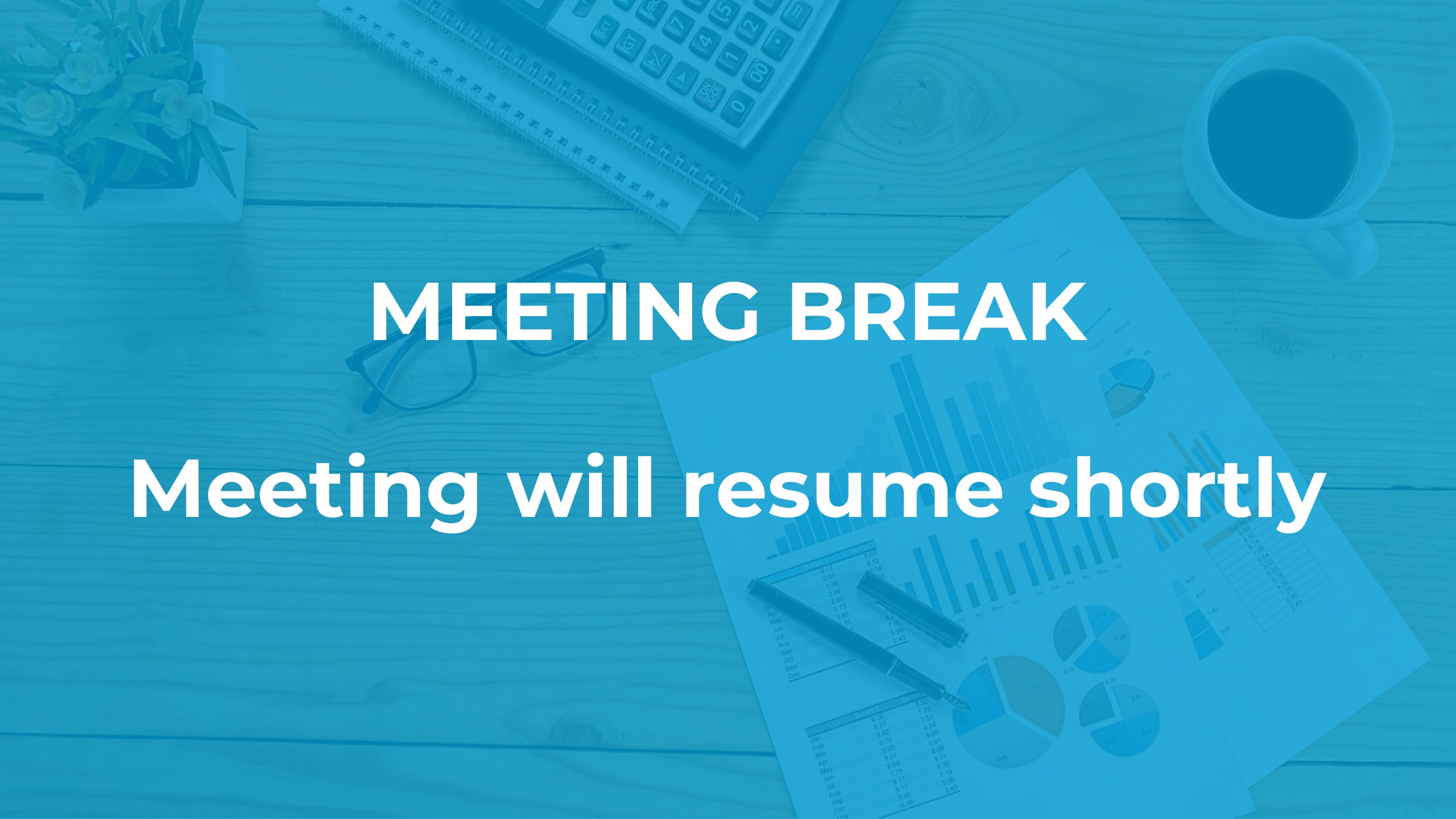
Forecasting revenues extremely challenging
- Never done before at this size and scale
- Unknown demand in currently unserved/underserved areas

Cost is easier to project
- Size and scale are known
- Costs can be more accurately estimated using industry standard costs models

More work is needed to reduce uncertainty around projected revenues
- Additional research for potential client demand
- Continue market soundings
- Research potential risk sharing options

MEETING BREAK
Meeting will resume in
10 minutes

MEETING BREAK
Meeting will resume in
5 minutes


MEETING BREAK
Meeting will resume shortly

WELCOME BACK

Maria Ellis

Deputy Director, Broadband

California Public Utilities Commission

MMBI SUMMARY

2023 Broadband Investment Last Mile Initiative Snapshot

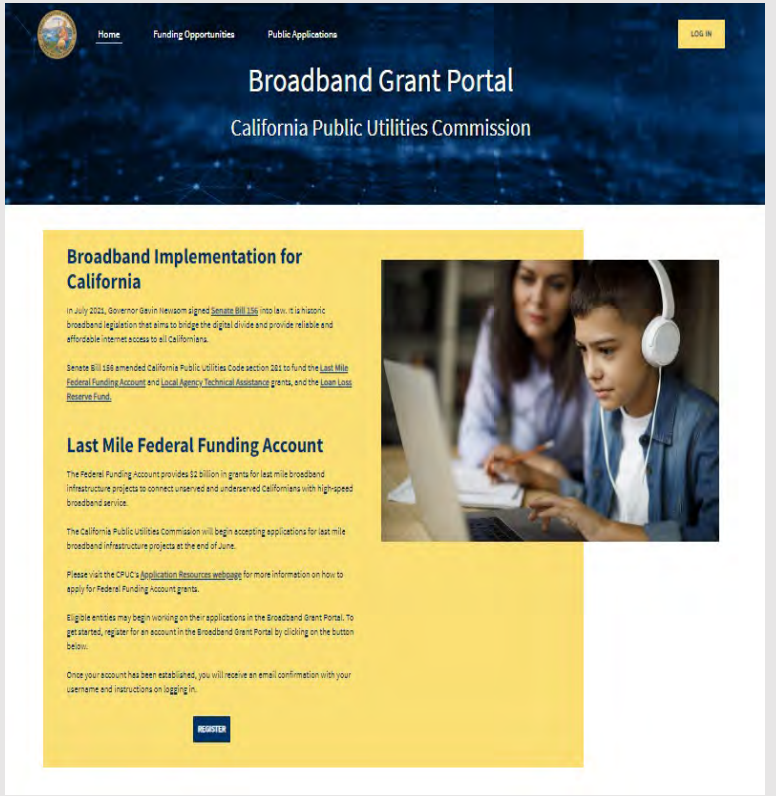
	TECHNICAL ASSISTANCE	LOAN LOSS RESERVE FUND	FEDERAL FUNDING ACCOUNT	CALIFORNIA ADVANCED SERVICES FUND
Amount	**$50 million *(part of Federal Funding Account Total)***	**$500 million proposed *($750 million currently)***	**~$2 billion**	**$73 million for FY23/24**
Summary	**Assist local governments & Tribes to prepare for broadband infrastructure investments.**	**Enable local governments & nonprofits to secure financing for broadband infrastructure.**	**Fund last-mile broadband infrastructure projects in every county.**	**Assist with broadband infrastructure deployment & adoption in public housing, Tribes, & unserved areas.**
Target	**Program Fully Subscribed**	**Watch for Info & Apply 1st and 2nd Quarter 2024**	**Info & Updates on Applications**	**Apply in the next cycle for adoption, public housing, Tribal Technical Assistance & line extension accounts**

LAST-MILE UPDATE

Federal Funding Account Applications

~$2 Billion for Last Mile Infrastructure Projects to deliver reliable broadband to unserved communities

- For projects providing end-user service to unserved locations
- An application received for every county in the state
  - Application, Project Area, Objection, Applicant Responses to Objections are publicly available
  - Objection Process closed December 18, 2023
- To sign up for updates
- For more information

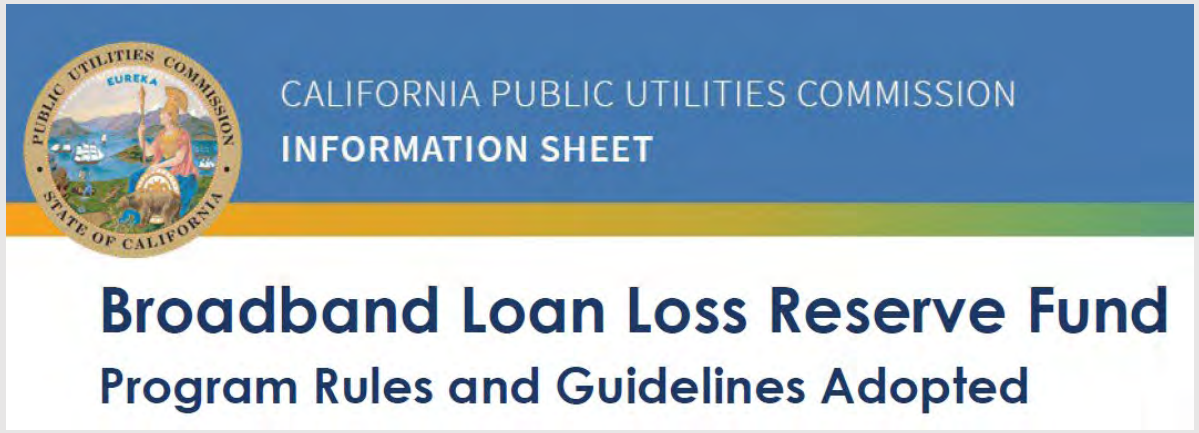


Loan Loss Reserve Program

Loan Loss Reserve Program Proposed Rules

Overview

Funds bonds for deployment of broadband infrastructure by a local government agency or nonprofit organizations.



Timeline

- **Adopted Program Rules and Guidelines Nov 2023**
- **Information Sessions and Outreach**
- **Outreach, application and first awards targeted for ~2Q-3Q 2024**

Rulemaking 20-08-021 for the California Advanced Services Fund

- **Program Information**
- **Proposed Rules Fact Sheet**
- **Program Decision**
- **Program Requirements & Guidelines**

MMBI SUMMARY

California Advanced Services Fund

1 Adoption

Grants for digital literacy and broadband access projects.

- **86 projects | $11.6 million**

2 Public Housing

Grants to build networks offering free service to low-income residents in communities such as public housing developments and farmworker housing.

- **6 projects | $463,000**

3 Infrastructure

Grants to subsidize the cost of middle and last mile infrastructure to expand high quality communications service throughout California.

- **1 project | $688,431**

4 Tribal Technical Assistance

Grants to assist California Tribes in developing market studies, feasibilities studies, and/or business plans, which support Tribes in their pursuit of improved communications.

- **5 projects | $720,000**

LAST-MILE UPDATE

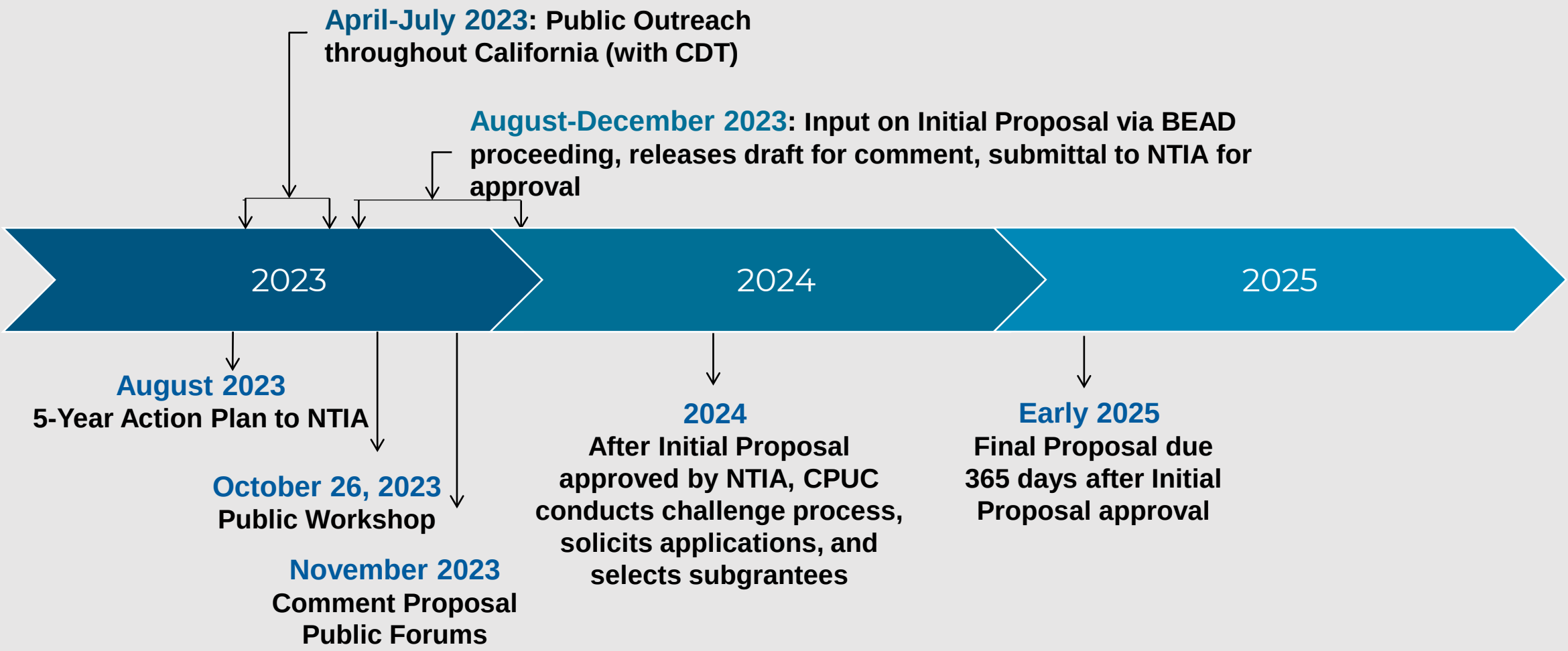
Broadband Equity, Access, and Deployment (BEAD) Update

In June 2023, $1.86 billion was allocated to California to expand broadband access

- **CPUC will:**
  - **Continue outreach and engagement with communities, and other stakeholders**
  - **Conduct a challenge process for eligibility map**
  - **Run a grant application process and propose subgrantees**
  - **Submit Final Proposal**
  - **All actions subject to NTIA review and approval**
- **Primary goal: deploy last-mile service to unserved & underserved**
- **More information and subscribe to updates**

LAST-MILE UPDATE

Broadband Equity, Access, and Deployment (BEAD) Update



Sign up: Broadband for All Newsletter

Public Comment Session

CALIFORNIA ALL Middle-Mile Broadband Initiative

Thank you!

Contact:
MiddleMile@state.ca.gov

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