Middle-Mile Advisory Committee

April 22, 2022
AGENDA

• Welcome/Opening Comments
• Executive Report Out
• Project Approach Updates
  • Third Party Administrator
  • California Department of Technology
  • California Public Utilities Commission
  • California Department of Transportation
• Public Comment
Mark Monroe

Deputy Director, Middle-Mile Broadband Initiative
California Department of Technology
Third Party Administrator

Tony Naughtin
President and CEO
GoldenStateNet
Overview of Design Objectives, Factors, and Process

Presentation of Statewide Middle Mile Network Design

State divided into 5 Development Regions

Overview of topology and highlights for each Region

Support for Optimization Process
Statewide Middle-Mile Network Design

April 22, 2022
Design Process

- Analyzed extensive mapping resources to understand: existing technical and telecom assets, road and highway systems, topological factors, socioeconomic composition by region, broadband speeds (or lack thereof) by region, among other factors.
- Used CPUC middle-mile recommendation routes as anchors for route solutions adding regional rings.
- Engaged with a diverse set of community groups to understand needs, requirements, existing assets, and potential opportunities.
- Engaged service providers (carriers, vendors, ISPs, etc) to examine potential solution sets.
- Integrated proposed 18 projects into the initial statewide network recommendation.
- Identified regions where the unserved population is >50 miles from current design to build fiber paths where feasible.
- Estimated the cost for building proposed routes in preparation for an optimization analysis.
Design Factors

● Primarily utilize new fiber-optic cable construction where feasible (Caltrans Right of Way).
● Seek joint build partnerships to reduce costs to the state and to partners.
● Use long-term IRUs where appropriate to reduce cost, time to service, and to add resiliency.
● Align to organizations with existing regional, state, and federal broadband infrastructure funding to maximize investments, e.g. CASF-funded organizations.
● Aim for “early wins” to meet expectations of residents, policymakers, and other stakeholders.
● Utilize well-established best practices in network design principles, protocols, engineering, and operation.
Support for Optimization Process

Inform CDT to enable partner-based optimization and application of available budget. This includes:

- Providing comprehensive information to drive decision-making for Build vs. Buy vs. Joint Build
- Working with CDT to determine contingency reserve percentage against $3.2B budget (typically 10-20%)

Steps to achieving optimization:

- Show total routes, mileage, and projected cost of statewide Middle Mile Network that would be 100% newly-built fiber, including required equipment and facilities
- Determine newly-built routes that are *no regrets* and most *feasible* within available budget
- Determine routes for dark fiber IRUs within remaining budget
- In addition, determine joint-build portions of MM network within remaining budget

Final CDT decisions for all MM network segments within $3.2B budget (minus contingency):

- 18 Initial Projects
- Newly built fiber routes
- Dark Fiber IRU routes
- Joint build routes
- Equipment and facilities
STATEWIDE MAP

Region 1: Caltrans Districts 1, 2, 3
Region 2: Caltrans Districts 4, 9 (portion), 10
Region 3: Caltrans Districts 5, 6, 9 (portion)
Region 4: Caltrans Districts 7, 12
Region 5: Caltrans Districts 8, 11
STATEWIDE MAP

Region 1: Caltrans Districts 1, 2, 3
Region 2: Caltrans Districts 4, 9 (portion), 10
Region 3: Caltrans Districts 5, 6, 9 (portion)
Region 4: Caltrans Districts 7, 12
Region 5: Caltrans Districts 8, 11
REGION 1

OVERVIEW MAP

- Regions 1 - 5
- TPA Proposed Network
- Tribal Nations
- Initial TPA Projects - 1/31/22
- CalREN Backbone
REGION 1

- TPA Proposed Network
REGION 1

- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line
REGION 1

- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line
- CPUC Anchor Builds
REGION 1

• TPA Proposed Network
REGION 1: KEY HIGHLIGHTS

Geographic/Environmental:
- Vastly underserved area of the state
- Prone to catastrophic outages, fire hazard zone

Population:
- Includes California’s two largest Tribal Nations: Hoopa Valley Tribe and Yurok Tribe

Technical/Business-related:
- First collaborative effort with a small local exchange carrier - Siskiyou Telephone
- Opportunity for cooperation and collaboration with Tribal Nations to build resiliency and connectivity within the region.
- Minimal availability of existing fiber to support IRUs.
REGION 2
OVERVIEW MAP

- Regions 1 - 5
- TPA Proposed Network
- Tribal Nations
REGION 2

- State & National Highways
- Tribal Nations
- Caltrans Districts

LEGEND

- State & National Highways
- Tribal Nations
- Caltrans Districts
- Initial 18 TPA Projects
- CalREN Backbone
- Recommended Hut Locations
- TPA Proposed Network
- CPUC Anchor Builds
REGION 2

- TPA Proposed Network
REGION 2

- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line

LEGEND
- State & National Highways
- Tribal Nations
- Caltrans Districts
- Initial 18 TPA Projects
- CalREN Backbone
- Recommended Hut Locations
- TPA Proposed Network
- CPUC Anchor Builds

Census tract data from U.S. Census Bureau's American Community Survey (ACS) - 2019-2021 5-year estimates
REGION 2

- CPUC Anchor Builds
- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line

LEGEND
- State & National Highways
- Tribal Nations
- Caltrans Districts
- Initial 18 TPA Projects
- CalREN Backbone
- Recommended Hub Locations
- TPA Proposed Network
- CPUC Anchor Builds

Census tract data from U.S. Census Bureau’s American Community Survey (ACS) - 2019-2021 5-year estimates.
REGION 2: KEY HIGHLIGHTS

**Geographic/Environmental:**
- Includes densely populated urban areas and sparsely populated mountainous regions.
- Certain areas considered high risk fire hazard zones.

**Population:**
- Service affordability will be key due to socioeconomic factors in parts of the region.

**Technical/Business-related:**
- Significant joint build opportunities.
- May require further analysis with federal partners on some routes.
- Varies from CPUC recommendations in a few locations.
- Eastern parts of the region lack Caltrans ROW and may require further evaluation.
REGION 3

OVERVIEW MAP

- Regions 1 - 5
- TPA Proposed Network
- Tribal Nations
REGION 3

- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line
REGION 3

- Initial TPA Projects - 1/31/22
- CalREN Backbone
REGION 3

- CPUC Anchor Builds
- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line
REGION 3: KEY HIGHLIGHTS

Geographic/Environmental:
- Includes densely populated urban areas and sparsely populated mountainous regions.
- Certain areas considered high risk fire hazard zones.

Population:
- Forthcoming opportunities for Tule River Tribal Nation with ongoing engagement.
- Service affordability will be key due to socioeconomic factors in parts of the region.

Technical/Business-related:
- Significant joint build opportunities.
- Existing commercial infrastructure for IRU potential solutions.
- Eastern parts of the region lack Caltrans ROW and may require further evaluation.
REGION 4
OVERVIEW MAP

- Regions 1 - 5
- TPA Proposed Network
- Tribal Nations
REGION 4
- State & National Highways
- Tribal Nations
- Caltrans Districts

LEGEND
- State & National Highways
- Tribal Nations
- Caltrans Districts
- Initial 18 TPA Projects
- CalREN Backbone
- Recommended Hut Locations
- TPA Proposed Network
- CPUC Anchor Builds
REGION 4

- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line
REGION 4
- Initial TPA Projects - 1/31/22
- CalREN Backbone
REGION 4

- TPA Proposed Network
REGION 4

- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line

LEGEND
- State & National Highways
- Tribal Nations
- Caltrans Districts
- Initial 18 TPA Projects
- CalREN Backbone
- Recommended Hut Locations
- TPA Proposed Network
- CPUC Anchor Builds

Census tract data from U.S. Census Bureau’s American Community Survey (ACS) - 2010-2019 5-year estimates
REGION 4
- CPUC Anchor Builds
- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line

LEGEND
- State & National Highways
- Tribal Nations
- Caltrans Districts
- Initial 18 TPA Projects
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Census tract data from U.S. Census Bureau's American Community Survey (ACS) - 2010-2019 5-year estimates
REGION 4: KEY HIGHLIGHTS

Geographic/Environmental:
- Portions of region are densely populated urban areas.
- Further analysis required for Catalina Island.

Population:
- Service affordability will be key due to socioeconomic factors in parts of the region.

Technical/Business-related:
- Significant joint build opportunities.
- Multiple telecom carriers and considerable existing fiber in some areas create opportunities for IRU alternatives.
- Northeast area of the region lacks Caltrans ROW and may require further evaluation.
REGION 5

OVERVIEW MAP

- Regions 1 - 5
- TPA Proposed Network
- Tribal Nations

LEGEND
- State & National Highways
- Tribal Nations
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- CalREN Backbone
- Recommended Hub Locations
- TPA Proposed Network
- CPUC Anchor Builds
REGION 5
- State & National Highways
- Tribal Nations
- Caltrans Districts
REGION 5

- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line

LEGEND
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Census tract data from U.S. Census Bureau's American Community Survey (ACS) - 2010-2019 5-year estimates.
REGION 5

- Initial TPA Projects - 1/31/22
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• TPA Proposed Network
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• Percent Households Below Poverty Line

Unserved Residential & Unserved Non-Residential
- > 2,000 - 5,574
- > 1,500 - 2,000
- > 1,000 - 1,500
- > 500 - 1,000
- > 1 - 500

Percent Households Below Poverty Line
Census tract data from U.S. Census Bureau’s American Community Survey (ACS) 2015-2019 5-year estimates

LEGEND
- State & National Highways
- Tribal Nations
- Caltrans Districts
- Initial 18 TPA Projects
- CalREN Backbone
- Recommended hut locations
- TPA Proposed Network
- CPUC Anchor Builds
REGION 5

- CPUC Anchor Builds
- TPA Proposed Network
- CPUC Unserved Residential & Non-Residential
- Percent Households Below Poverty Line
REGION 5: KEY HIGHLIGHTS

Geographic/Environmental:
● Includes densely populated urban areas as well as desert regions prone to extreme heat.

Population:
● Significant number of Tribal Nations in the region will be positively impacted by suggested routes.
● Service affordability will be key due to socioeconomic factors in parts of the region.

Technical/Business-related:
● Significant opportunities to connect to other major Internet hubs in the West.
● Multiple telecom carriers and considerable existing fiber in some areas create opportunities for IRU alternatives.
Many Thanks to MMBI Partners
Project Approach Updates

Mark Monroe
Deputy Director, Middle-Mile Broadband Initiative
California Department of Technology
Important Next Step

- CDT plans to complete its review and analysis of this map.
- CDT will provide a final initial “build” map to Caltrans to begin its systemwide preconstruction work.

Benefits:

- Caltrans can start the clock on the 18-24 months of preconstruction work needed before construction can begin.
- Caltrans can develop and refine its cost estimates to inform build and lease decisions.

Going forward:

- GSN will continue developing a map of existing infrastructure that can be leased using IRUs.
- CDT will determine how much the state can afford to build and how much will need to be leased.
California Public Utilities Commission

Robert Osborn
Director, Communications Division
California Public Utilities Commission
Federal Funding Account Timeline

July 2021
- Legislature passes & Governor Newsom signs SB 156/AB 164

August-September 2021
- CPUC develops program rules proposal, rescopes Broadband Infrastructure Deployment proceeding & assigns resources to program development & implementation
- Interim Report to U.S. Treasury Dept. & Treasury releases Capital Projects Fund Allocations

October-December 2021
- CPUC releases Ruling with program rules proposal & allocations for public comment
- Stakeholder opening comments due Nov. 15th on program rules
- Stakeholder reply comments due Dec. 15th for funding allocations

January-March 2022
- U.S. Treasury Dept. releases final program spending guidelines
- CPUC reviews stakeholder comments & finalizes program rules & release a Proposed Decision on program rules
- 1st Quarterly Report to U.S. Treasury

April-June 2022
- CPUC plans to adopt final Decision & begin accepting applications from providers to review for alignment with program rules & policy objectives
- 2nd Quarterly Report to U.S. Treasury

July-December 2022
- CPUC plans to award funding to applicants
- Ongoing U.S. Treasury Reporting

CPUC Broadband Infrastructure Deployment Proceeding (R. 20-09-001)
- Formal public process and venue for developing and updating middle-mile mapping analysis and data
- Also serves as the public forum for developing rules for the last-mile program
Local Agency Technical Assistance Timeline

**Legislature passes & Governor Newsom signs SB 156/AB 164**

**July 2021**
- Staff proposal with program rules released Sept. 17th
- Opening stakeholder comments due Sept. 30th
- Stakeholder reply comments due Oct. 13th

**September-October 2021**
- CPUC analyzes stakeholder comments & drafts a Proposed Decision (PD) with program rules
- Technical Assistance PD released Jan. 21st
- Stakeholder comments due Feb. 15th

**November-January 2022**
- CPUC meets with local government & tribes to conduct program outreach

**February 2022**
- CPUC adopts final program rules by Decision on Feb. 24th

**March-April 2022**
- CPUC expects to accept applications & begin awarding funds

**May-December 2022**

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**CPUC California Advanced Services Fund (CASF) Proceeding (R. 20-08-021)**

- Formal public process and venue for CASF Public Housing, Infrastructure, Consortia, and Adoption Accounts as well as Technical Assistance and Loan Loss Reserve Account.
Loan Loss Reserve Timeline

Legislature passes & Governor Newsom signs SB 156/AB 164

July 2021
CPUC conducts stakeholder outreach, develops program rules & assigns resources to program development & implementation

July 2021-July 2022
CPUC plans to release draft Loan Loss Reserve program rules for stakeholder comment

CPUC compiles & analyzes stakeholders comments & plans to release Proposed Decision on Loan Loss Reserve program rules

October-December 2022
CPUC expects to vote on & adopt final Loan Loss Reserve program rules

January-March 2023
CPUC expects to open funding cycles for the Loan Loss Reserve program

April-June 2023

CPUC California Advanced Services Fund (CASF) Proceeding (R. 20-08-021)
- Formal public process and venue for CASF Public Housing, Infrastructure, Consortia, and Adoption Accounts as well as Technical Assistance and Loan Loss Reserve Account.
California Advanced Service Fund Timeline

Legislature passes & Governor Newsom signs SB 156/AB 164, AB 14 & SB 4

CPUC acts on all pending May 2020 CASF Infrastructure Applications

CPUC develops draft program rules, proposal for legacy CASF subaccounts, develops subaccount allocations assigns resources to program development & implementation

CPUC plans to adopt final program rules & subaccount allocations

CPUC plans to open new funding rounds of both Adoption & Public Housing

July-October 2021
December 2021
January-February 2021
March 2022
April-June 2022
July 2022

CPUC California Advanced Services Fund (CASF) Proceeding (R. 20-08-021)
- Formal public process and venue for CASF Public Housing, Infrastructure, Consortia, and Adoption Accounts as well as Technical Assistance and Loan Loss Reserve Account.
California Department of Transportation

Hardeep Takhar
Broadband Middle-Mile Network Director
California Department of Transportation
INITIAL 18 LOCATIONS
- Environmental Clearance
- Subsurface Utilities Investigations
- Field Reviews
- Project Design

POTENTIALLY Viable Projects
- 74 project opportunities under evaluation

STATUS
- Environmental Clearance - Studies initiated to identify Biological and Cultural Resources impacts
- Subsurface utilities investigation - Identifying existing underground Utilities
- Field reviews - Conducting site reviews to determine constructability
- Project Design –
  - Developed plan and details for placement of Conduit, Vaults and Fiber
  - Modified Design and Encroachment Policy to accommodate Middle-Mile Network Infrastructure within the State Highway System right of way
PUBLIC COMMENT
Q&A
THANK YOU!