Second Report to the Legislature on the Middle-Mile Broadband Initiative

September 14, 2023

Executive Summary

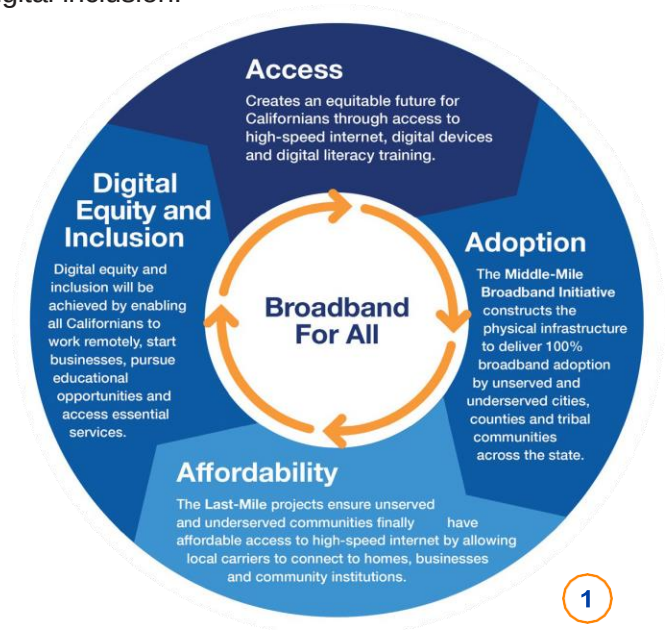
Broadband For All

A reliable and affordable broadband connection is the difference between having access to healthcare, education, and employment or sometimes going without. And yet, many Californians still do not have the broadband service they need. Without closing the digital divide, true equity cannot be achieved. California is bridging the divide by facilitating affordable access to high-speed internet service in unserved and underserved communities in every corner of the state.

In August 2020, Governor Newsom issued Executive Order N-73-20, which is folded into the Broadband For All Action Plan with the understanding that broadband access, adoption, and training are essential to achieve digital equity throughout California. The California Broadband Council developed the Broadband For All Action Plan with extensive engagement and input from stakeholders, including state and local agencies, state legislative leaders, tribal nations, broadband industry leaders, nonprofits, and members of the public. The Action Plan lays out three long-term goals for all Californians:

- High-performance broadband at home, schools, libraries, and businesses.
- Access to affordable broadband and the devices necessary to access the internet.
- Access to training and support to enable digital inclusion.

To achieve these goals, California is leveraging the state's full range of tools, including policy, programs, funding, partnerships, and collaborations with federal, local, and tribal governments.



Middle-Mile Broadband Initiative

In July 2021, Governor Gavin Newsom signed into law Senate Bill 156

to create an open-access middle-mile broadband network to serve unserved and underserved communities by

bringing equitable high-speed internet service to all Californians. The Middle Mile Broadband Initiative (MMBI) program within the California Department of Technology (CDT) has made significant progress toward the implementation of the network by accelerating state and federal permitting and securing contracts for more than half of the network.

Throughout 2022 and 2023, CDT continued to explore the fastest and most cost-effective methods to develop a statewide network, including large-scale construction, purchases, and leases.

The MMBI team achieved the following milestones:

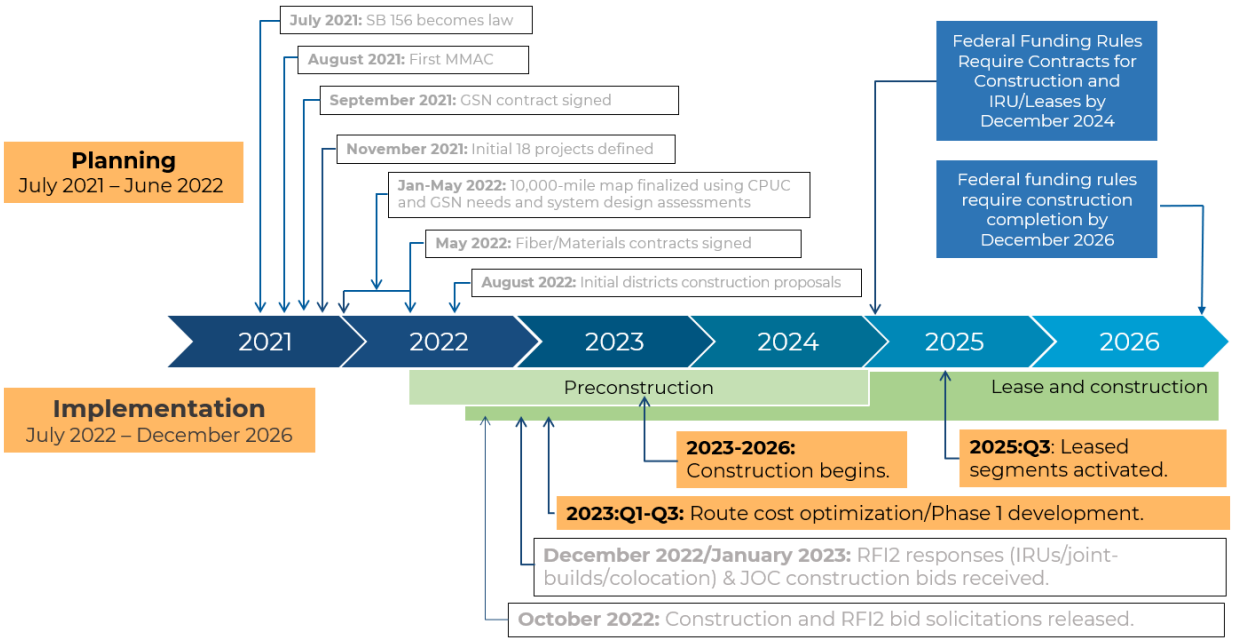
- Updated Map: Released an updated statewide map laying out over 10,000 miles of broadband network infrastructure to connect the state's unserved and underserved communities. This map was larger than the initial 8,100 miles identified by the CPUC. Following CPUC's public proceeding in 2021 and subsequent analysis, Golden State Net (GSN) developed the System Level Design for commercial operability and resiliency. CDT's updated statewide network map incorporated these analyses and updates from CPUC and GSN.
- Materials Procurement: Established contracts for at least 3,000 miles of fiber and related materials for the project to protect against supply disruption and cost increases.
- Permit Streamlining: Introduced a programmatic permitting approach anticipated to significantly reduce permitting timelines from 30 to 17 months using the California Environmental Quality Act improvements in SB 156. Similar efforts are being finalized with state and federal partners for the segments of the MMBI network that will pass through federally-owned land.
- Started Construction: Broke ground on a limited construction segment in Poway, California, one of the 18 initial locations identified as a "dig smart" opportunity, meaning an existing highway construction project was underway in that location. In addition to Poway, dig smart work has kicked off in the Yreka and Gleason Beach areas.
- Construction Bids: Solicited bids to initiate the broader MMBI network construction. Rather than following a conventional design-bid-build process, the MMBI team explored alternative contracting methods to expedite the project. Using alternative contracting methods allows the project to move faster than a traditional design-bid-build approach. These faster contracting tools will help reduce costs due to early mobilization and economies of scale. Caltrans currently has construction contracts signed for approximately 1,800 miles using Job Order Contract (JOC) and Construction Manager/General Contractor (CMGC) contracting vehicles.
- Outreach: Conducted outreach to Small Business and Disabled Veteran Business Enterprises regarding contracting opportunities stemming from the MMBI project.
- Alternative Network Development Bids: Solicited proposals for alternate development methods via Request for Innovative Ideas (RFI^2), a procurement protocol whereby vendors play a bigger role in devising and proposing solutions rather than responding to specific instructions from state officials. Through RFI^2, twenty-two responses were

received from the industry. CDT has reached agreements with several of these partners on alternative development methods such as purchases, joint-builds, and Indefeasibly Rights of Use/leases.

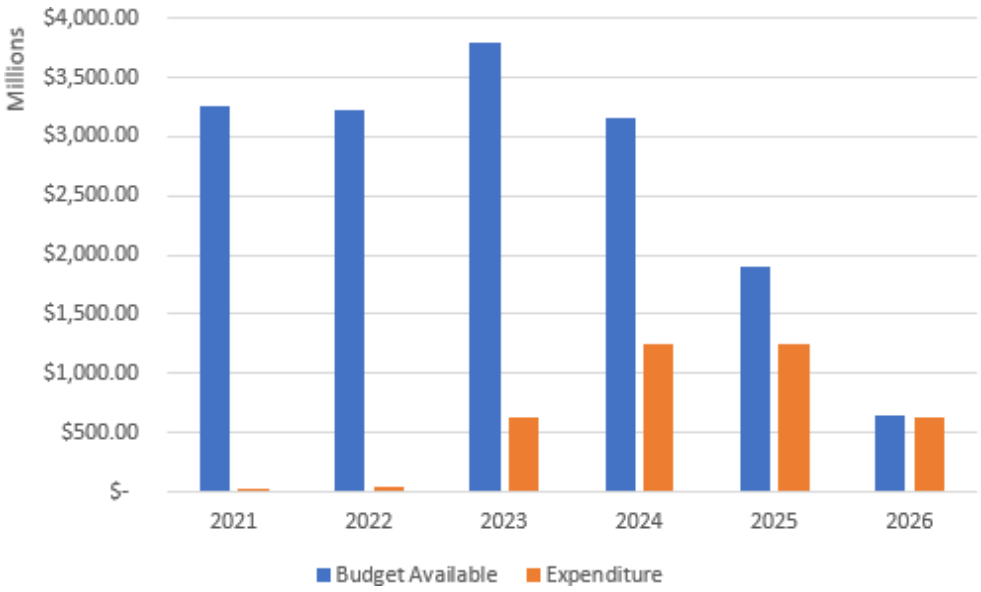
- Optimization: Considering all the bids received for network solutions, CDT developed a plan to optimize the network's reach to serve the maximum number of unserved and underserved communities. The MMBI network will be developed to serve communities in all 58 counties, where there are more than 675,000 households currently lacking any access at all to high-speed internet.
- Cost-Effective Alternatives: CDT secured more than 6,500 miles of the network using alternative development methods, including leases, joint builds, and purchases. This accounts for two-thirds of the overall MMBI network. Private sector partners include companies, such as Arcadian Infracom, Zayo Group, Lumen Technologies, Siskiyou Telephone Company, Hoopa Valley Public Utilities District (HVPUD), Boldyn Networks, Central Valley Independent Network (CVIN), Vero Networks, and the California Broadband Cooperative.
- Tribal Partnership: CDT engaged with tribal nations and local and regional collaborators during events like the Tribal Engagement Series this past January and February. Through these efforts, we successfully initiated the first-in-California joint-build with the Hoopa Valley Tribe.

The Middle-Mile Broadband Initiative webpage enables stakeholders, including members of the Legislature and the public, to learn more about the initiative.

Timeline



Acronyms:
MMAC – Middle Mile Advisory Council Meeting
GSN – GoldenStateNet, Third Party Administrator
CPUC – California Public Utilities Commission
IRU – Indefeasible Rights to Use leases
RFI2 – Request for Innovative Ideas Procurement
JOC - Job Order Contracting Procurement



Middle-Mile Broadband Initiative (MMBI) Cumulative Expenditure Pattern

The 2021 and 2022 funding has been encumbered and will be liquidated across the life of the project.

Middle Mile Broadband Initiative Status

The legislation that enacted the Middle Mile Broadband Initiative (SB 156) directs the Administration to provide an annual report that includes the network total length, length of the portion constructed in the preceding year, by quarter, number of internet service providers using the network, number of households projected to connect to the network; total expenditures for each project, by quarter; and the projected goals for each metric.

Length of Middle-Mile Network

The anticipated total length of the proposed statewide open-access middle-mile broadband network is more than 10,000 miles, representing approximately two-thirds of the 15,000-mile California state highway network. The network map was developed with input from third-party administrator GSN, stakeholders, and the CPUC. The planned route can be explored in the interactive maps on the MMBI website.

California's MMBI network will deliver open access, high-speed, and affordable broadband to all communities in the state. In response to inflationary effects on the supply chain and labor, the MMBI team developed a plan to optimize the network's reach to serve the maximum number of unserved and underserved communities in California.

The MMBI will be developed to serve communities in all 58 counties, where there is a combined total of more than 675,000 households currently lacking high-speed internet access. The CPUC has indicated that providers and jurisdictions submitting applications for the Federal Funding Account grants can work with CPUC before or after submission to identify middle-mile connections and to include essential middle-mile segments in their grant applications.

Progress of Network Construction

In October 2022, the MMBI project broke ground at "Location 18" in Poway, California, when approximately 18 miles of fiber were deployed in the segment. Early construction has begun in

three districts, representing approximately 20 miles of fiber optic installation.

In addition to the 6,500 contracted miles, CDT plans for Caltrans to construct more than 3,500 miles of the network using the state's authority for Job Order Contracting (JOC) and Construction Manager/General Contractor (CMGC). JOC procurements permit the state to issue work orders against master contracts, allowing the state to scale work in real-time while ensuring contractors can immediately mobilize labor and equipment on a flow basis and segments are ready to begin construction. CMGC procurements permit the state to partner with contractors during the design phase to target the most efficient and cost-effective construction approaches that will be most efficient and cost-effective for faster construction. Caltrans is continuing preconstruction work on the entire 10,000-mile network as the state works towards the full build-out.

Additionally, CDT received over two dozen proposals for alternative development methods through its RFI^2 process. These include Indefeasible Rights of Use (IRUs), which are long-term, capitalized leases, as well as purchases and joint-build agreements in which construction costs are shared with private sector partners. These alternative approaches are expected to provide more than 6,500 miles of the network at approximately half the cost of standalone construction. In addition to the savings, these alternatives will result in faster time-to-market and decreased environmental impact.

Permitting Progress

Permitting is a critical aspect of enabling the construction of the MMBI network. The process involves obtaining an average of twelve permits from seven agencies at both the state and federal levels. Given the importance of permitting in kickstarting the broadband infrastructure deployment and its impact on all levels of government to capitalize on federal funding, a "State of California Local Permitting Playbook" was produced to guide how local governments can support middle-mile and last-mile broadband deployment in their communities. Following the permitting playbook, a final permitting plan has been developed, which is expected to dramatically shorten the total time to permit broadband projects from 30 months to less than 11 months. The following initiatives made the reduction possible:

- Environmental Review: Application of pathways to completed environmental reviews as provided by law, including the statutory improvements to the California Environmental Quality Act (CEQA) granted by Senate Bill 156 and the application of Caltrans' National Environmental Protection Act (NEPA) delegation for linear fiber optic deployment.
- Other State Permitting: Development of programmatic permitting agreements and resource-sharing agreements with state agencies.
- Other Federal Permitting: Work with the Federal Permitting Improvement Steering Council, the White House Council on Environmental Quality, and the Department of the Interior to develop a collaborative and customized approach to fulfilling the obligations of the NEPA. CDT and Caltrans directly engaged the Biden Administration and its NEPA director, Jomar Maldonado. The Biden Administration assigned a special counsel (Lance Wenger) to work directly with the state. Through a convening of relevant DOI and DOD agencies, CDT and the Biden Administration are implementing a multi-agency programmatic approach to streamline environmental reviews from 2+ year estimate per network segment to a reduced timeline expected to be as short as 6 months in many cases.

Number of ISPs on Middle-Mile Network

Per SB 156, any of the more than 200 Internet Service Providers (ISP) currently operating in the state of California, and other eligible entities including local and tribal governments, may connect to the open-access middle-mile network to deliver last mile service to customers. The legislation supports the construction and development of last-mile infrastructure to provide Californians with access to high-speed broadband service through processes administered by the CPUC.

Number of Households Connected to Middle-Mile Network

Each project provides the potential to enable last-mile connection to other customers and entities far beyond the immediate region and increases reliability, affordability, and competition in these areas. This allows for greater access for more Californians at a more reasonable cost. Completion of the construction of the middle-mile network is projected by December 2026. At the same time the MMBI network is being developed, the CPUC is distributing more than $2 billion in last-mile funding for projects that can connect to the state's MMBI network.

Working together, the middle-mile and last-mile networks will extend affordable and reliable high-speed broadband to approximately 2 million unserved and underserved Californians, or one in five California households. These numbers are based on published CPUC estimates.

Middle-Mile Broadband Initiative Estimated Costs

Over the past 18 months, the telecom industry has seen inflation and competition for supplies and labor drive up costs. Therefore, the per mile cost of construction has increased. Caltrans originally estimated that it would cost an average of $455,000 per route mile to build the MMBI network. By soliciting bids earlier this year, the State learned that costs had increased by more than 40% to an average of $641,000 per route mile. The alternative development agreements that CDT is finalizing will cost less than half the cost of standalone construction, which will help mitigate some of inflationary cost pressures.

Given the identified cost increases, CDT projects that the current budget will be insufficient to deliver the full 10,000-mile map. As such, CDT plans on including a proposal for additional funding in the 2024-25 Governor's Budget. Additionally, CDT will complete an additional Request for Innovative Ideas (RFI2) to identify additional private and public sector partners for the project, with an eye towards further accelerating project completion and reducing construction costs.

Moving Forward: The Next 18 Months

The Middle-Mile Broadband Initiative is an important component in a larger strategy to bring broadband access, affordability, equity, and inclusion to every unserved and underserved Californian.

The following progress is expected to take place over the next 18 months:

- Execution of a federal permitting plan with federal land management agencies.
- Augmentation of CDT's MMBI program with project delivery and customer-facing teams.
- Augmentation of project budget to fund necessary construction activities.
- Completion of an additional RFI2 to identify potential private and public sector partners for the project.

- Completion of a business model, essential to MMBI business planning, that integrates cost modeling, revenue modeling, and development of a go-to-market plan.
- Focus on construction and alternative development of the entire network.
- Continuation of consultations and collaboration with Tribal Nations and local communities to address access and connectivity needs.

Closing

It is a high priority for the Administration and the Legislature that the state move quickly in developing the state's middle mile broadband network, not only to meet federal funding deadlines, but to provide much needed relief for unserved and underserved communities to support employment, education, and access to medical services. Significant progress has been made towards the realization of the middle-mile broadband network, including developing streamlined permitting processes to reduce average state permitting times by 35%; breaking ground on the first dig smart location; securing contracts for standalone construction of more than 18% of the network by Caltrans and another 14% by private partners. While these achievements in project acceleration are helping the state to speed up the project and meet the federal American Rescue Plan Act deadlines, there is still much more to do. Construction is ramping up with the network starting new construction in the last quarter of 2023 and moving into full construction mode in 2024, 2025 and 2026. At this pace, the state is projected to meet the goal of completing the MMBI network by the federal deadline of December 2026, providing the state's unserved and underserved communities with the infrastructure that will provide the high-speed, low-cost connections necessary for education, employment, and access to online medical services for all Californians.