



California Department of **Technology**

Middle-Mile Broadband Initiative market
sounding: Results and recommendations for
network operations and maintenance

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Executive Summary

Following a presentation and discussion of the potential challenges of sustainable operations of the Middle-Mile Broadband Network (MMBN), the California Department of Technology (CDT) was asked to proceed with a market sounding to understand better how best to approach the operation of the State's network. In response, CDT conducted a three-part market sounding to explore options for long-term operations and maintenance (O&M) of the MMBN. CDT received market input on a contracting and partner selection approach to achieve the State's policy objectives.

Part A. Public and non-profit networks are successful and sustainable when the following conditions are met: 1) Anchor customers providing committed revenue from day one, 2) Strong government support, and 3) O&M managed to strong industry standards.

Part B. Major industry players expressed optimism in the business case for operating MMBN, openness to a suite of contractual mechanisms for protecting the public interest, and interest in pursuing a risk-sharing arrangement with the State for the role of Operations Third Party Administrator (TPA)

Part C. There is significant customer interest in MMBN for dark fiber Indefeasible Right of Use (IRU) agreements and lit services from a range of entities, including public sector agencies, regional and local internet service providers (ISPs), municipal networks, tribal networks, large private enterprises, hyperscalers, and mobile wireless carriers.

Based on the results of the market sounding and corresponding analysis, CDT recommends the following:

1. Approve the launch of the state procurement process to select an Operations TPA.
2. Initiate a robust program to secure dark fiber IRUs and anchor customers for MMBN prior to the launch of operations.

Background

This report summarizes findings from the Middle-Mile Broadband Initiative market sounding conducted by CDT. It presents a recommended approach to long-term operations and maintenance of the Middle-Mile Broadband Network. CDT gained valuable perspective regarding the spectrum of viewpoints on key aspects of maintenance and operations of MMBN. Analysis of these viewpoints formed the basis for the recommendations in this report. Through the information gained from the Market Sounding, CDT has outlined a potential contracting and partner selection approach that incorporates best practices, minimizes the future fiscal burden on the state, and offers robust public interest protections aligned with the Senate Bill (SB) 156 goals.

Market Sounding Summary

The market sounding included interviews with a wide range of public and private entities, offering MMBI key insights on a sustainable long-term O&M approach that can support the state's objective to bridge the digital divide. The market sounding included three separate tracks: (1) Interviews with operators of public and nonprofit networks, (2) Interviews with industry, and (3) A summary of discussions with potential network customers held over the past two years.

Part A - Public and Nonprofit Network Exploration

CDT conducted interviews with twelve public and nonprofit networks. Many of these networks originated before the commercialization of the Internet in the mid-1990s. Most of those were formed to support higher education needs and have expanded to serve a more extensive customer base as broadband needs grew.

Operations and Maintenance: Operations and maintenance have been outsourced to the industry in most public and non-profit middle-mile and last-mile networks. When networks experimented with bringing O&M in-house, some reported costs increased significantly, jeopardizing network sustainability. Where network sustainability is prioritized, networks continuously expand.

Anchor Customers: Successful nonprofit and public networks have anchor customers with multiple locations covered under a single contract or large bandwidth needs throughout the entire network. This provides a dedicated revenue source from day one.

Good Governance: CDT consistently heard that well-thought-out governance structures that align the interests of important stakeholders with the organization's goals are crucial for long-term success. A network advisory group that extends the organization's reach to stakeholders offers important tactical and strategic insight. Such an advisory group must have a direct communication channel with network operations.

Government Support: Whether direct or indirect, a portion of revenue for such networks is derived from providing services to local, state, and federal agencies. It is important to cultivate relationships throughout government to help ensure that the services and goals of the network align with policy and funding.

Industry Relations: In some states, establishing public sector networks has been challenging due to industry opposition. It is important to be transparent and honest with providers to make the case for public middle-mile networks to industry. The network organization's leadership should anticipate conflict and points of tension to prepare and respond appropriately.

Part B - Industry Exploration

CDT held discussions with twelve commercial entities including network developers, network investors, and internet service providers. Among market sounding participants, there was expressed strong interest in the described role of MMBN "Operations Third-Party Administrator" (Operations TPA). Strong alignment existed between the key scope elements likely required of an Operations TPA and the companies' capabilities and experience.

Business Case: Companies appreciate the magnitude of the public investment that has been made to develop the network thus far and generally expressed optimism about the business case for the network (i.e., the potential for revenues to cover O&M costs and future equipment replacements), acknowledging that the state will not subsidize operations going forward and that any operator would be taking on significant operational and financial risk. While initially, companies were concerned about CDT's existing obligations to pay fiber maintenance costs to its IRU and joint-build partners, those concerns have been primarily mitigated through information sharing of topline O&M cost numbers, further analysis by participants, and discussion about potential revenue share structures. To de-risk the partnership, companies saw the potential "anchor" customers to purchase lit services from the network as a significant opportunity to enhance the business case for the network and de-risk the network's overall

revenue profile. Companies encouraged CDT to incentivize these potential customers to use the MMBN.

Policy Goals: Companies expressed an understanding of and commitment to the federal and state policy goals and demonstrated an openness to work with CDT to define (and refine) mechanisms to achieve the state's policy goals and protect the public interest. Companies were confident in their ability to meet requirements regarding service delivery, customer support, maintenance, and repairs and were open to financial disincentives to enforce such requirements. Companies also expressed a willingness to comply with reasonable transparency and reporting obligations to help CDT monitor and enforce open access and performance requirements.

Legal Structure: Companies were open to exploring using a nonprofit structure to meet the requirements of SB 156. While initially some companies were concerned about their ability to finance operations (and future equipment replacements) under this proposed structure, these concerns were addressed through further discussion about the possibilities and constraints of the structure and CDT's sharing of precedent transactions in other sectors.

Procurement Process: Companies advocated for a two-part competitive procurement process so that shortlisted proposers could spend the necessary resources to conduct thorough due diligence. Furthermore, companies requested a transparent evaluation mechanism to ensure a fair comparison of bids.

Part C - Potential Network Customer Exploration

In partnership with the current Development TPA, Golden State Net, CDT conducted over 200 engagements with potential customers and stakeholders over the past two years, including 38 one-on-one interviews with Broadband Equity, Access, and Deployment (BEAD) workshop attendees. All potential customers are looking for details on network routes (and were referred to the state map), product detail, and interconnection options (i.e., via vaults with the details and reasons for the process) and costs (i.e., price of access to MMBN). The following table provides an overview of the types of potential customers engaged in the market sounding, their current challenges, and their needs regarding the MMBN.

Potential Network Customer Overview

Type	Description	Pains	Services
Advocates	Working on behalf of underserved communities	Cost and access	N/A
Cities/counties/tribes	Building new services	Limited choices	Lit and dark fiber
CPUC Grantees	Cities and counties, many with ISPs	Limited choices	Lit and dark fiber
Hyperscalers	Growing	Limited options for dark fiber	Dark fiber
ISPs	Mostly small medium businesses	Limited budget	Lit services
State agencies	Single contract vehicle	Under contract	Lit services
Wireline carriers/cable	Incumbent Local Exchange Carrier or Rural Local Exchange Carrier + cable companies	Limited choices	Dark fiber or lit Services

The network customer exploration work corroborates what CDT heard from private companies during the industry exploration conversations: That MMBN has a wide range of potential customers.

Recommendations for O&M Contracting and Partner Selection Approach

Based on CDT's synthesis of the key insights from the market sounding, CDT recommends entering into a "Network Stewardship Agreement" with an experienced and well-qualified partner, which will become the MMBN Operations TPA and assume responsibility for O&M through a long-term contract.

Recommended Guiding Principles

The market-sounding conversations provided clear direction on a contracting and partner selection approach that can significantly reduce and potentially eliminate the need for future state funding to support O&M during the contract's life. This approach can also achieve material risk transfer, leverage existing market capabilities to deliver affordable and high-quality services, and provide robust public interest protections.

The market sounding indicated that the agreement should be structured to include the following key elements:

- **Affordability:** The Network Stewardship Agreement should include provisions that govern the maximum prices the Operations TPA can charge customers, especially last-mile ISPs and other public customers. Contract terms should encourage on-network competition while incentivizing the Operations TPA to leverage excess capacity built into the network to ensure affordability for ISPs providing service to unserved and underserved communities.
- **Open access:** The contract terms and corresponding enforcement mechanisms should require the Operations TPA to operate the network following open access principles, thus ensuring non-discriminatory access to middle-mile services on equal service terms.
- **Competition:** In accordance with open access requirements, competing middle-mile service providers should eventually be allowed to compete with the Operations TPA for business.
- **Performance:** The Network Stewardship Agreement should contain robust enforcement mechanisms that link the partner's service delivery

performance to financial incentives to ensure high-quality service and alignment with the state's policy goals. The Network Stewardship Agreement should include provisions that financially disincentivize service outages, delays in service provision, or failure to adhere to minimum service requirements.

- **Protections against windfall profits:** The Network Stewardship Agreement should prevent windfall profits from accruing to the Operations TPA while reducing or eliminating the need for operating subsidies. The market sounding indicated that this can be achieved through an incentive structure that encourages the Operations TPA to fully utilize its sales and service delivery capabilities while requiring upside revenue sharing with the state.
- **Transparency:** The Network Stewardship Agreement should grant CDT access to a register of all the Operations TPA's commercial agreements and audited financial reports, with explicit rights for CDT to audit and contest documentation.
- **Equity:** To ensure equitable access, the Network Stewardship Agreement should consider the impacts on covered populations in unserved and underserved regions.

Recommended Legal Structure

In addition to collecting inputs on how to meet the state's strategic objectives best and protect the public interest, CDT received market feedback on an appropriate legal structure and performed subsequent analysis to reach the following recommendations:

- The Operations TPA should act as CDT's exclusive agent and have limited power of attorney to exercise its rights (other than certain rights explicitly retained by CDT) under each of the IRU agreements and joint-builds already procured by CDT exclusively for and on behalf of CDT.
- The Operations TPA should be a nonprofit entity organized under the laws of California with its principal place of business in the state.
- The Operations TPA should be required to possess or otherwise procure demonstrated experience serving public libraries, elementary and secondary schools, and institutions of higher learning with broadband

connectivity in satisfaction of California Government Code section 11549.53 (b).

- The Operations TPA should be permitted to subcontract with affiliates and other subcontractors to provide required services.
- The Operations TPA should take on certain obligations in relation to the IRUs and joint-builds that CDT entered into with third parties for the MMBI's development, including all fiber maintenance payment obligations.
- The Operations TPA should operate and maintain the MMBN at its own cost, including funding of equipment replacements and repairs.
- Subject to a revenue-sharing mechanism with CDT, the Operations TPA should be entitled to collect and retain revenues from the MMBN's operations as its sole compensation for service performance.

Recommended Key Terms

The market sounding process provides confidence that the following key contractual terms would be aligned with CDT's objectives and acceptable to entities potentially interested in serving as the Operations TPA:

- **Contract term:** The partnership term should be at least 20 years.
- **Cost recovery and revenue share:** The Operations TPA should pay CDT a share of the realized revenue after a minimum revenue threshold has been met to ensure the financial sustainability of the network. In addition, CDT's contract management cost will need to be recovered from the network's revenue.
- **Minimum product offering:** The Network Stewardship Agreement should specify a minimum list of lit service and dark fiber products that the Operations TPA must offer.
- **Benchmarking and price caps:** CDT will periodically benchmark all lit services included in the minimum product offering using prevailing market prices in well-served urban areas. The minimum lit services product offering price cannot exceed the benchmarked prices. The Network Stewardship Agreement will also specify price caps for certain dark fiber products.

- **Performance:** The Network Stewardship Agreement will contain a robust enforcement mechanism for performance, ensuring that the Operations TPA will be financially incentivized to provide high-quality service, including reliable and responsive customer support, timely maintenance and repairs, and strict adherence to minimum product standards.

Recommended Partner Selection Process

An important component of the market sounding discussions was how to structure the partner selection process to maximize competition and obtain best value. With input from market sounding participants, CDT recommends using a robust competitive solicitation, evaluation, and contract negotiations process to identify a qualified and reliable Operations TPA, borrowing best practices from major infrastructure procurements across sectors. This process should be structured in two parts as follows:

- **Request for Proposals (RFP) Part 1:** The RFP Part 1 should be open to any interested bidder to select three to four highly qualified proposers. RFP Part 1 evaluation criteria will focus on the proposers' capabilities and past experience, as well as the quality and merit of their high-level technical and financial approach.
- **RFP Part 2:** The goal of RFP Part 2 should be to identify which shortlisted proposer can create the most value for California. The technical proposal evaluation criteria should emphasize alignment with the state's public policy objectives and the proposer's overall plan and experience to deliver high-quality service throughout the state cost-effectively. The financial evaluation should focus on the proposer's financial capabilities to support the network without relying on future state funding and the proposed revenue-sharing parameters. The RFP Part 2 process should include individual meetings with shortlisted proposers to negotiate and refine key terms of the Network Stewardship Agreement. This approach would leverage the competitive tension of a multi-bidder environment while minimizing the need for further negotiation following the selection of a preferred proposer.

Timeline and Next Steps

The market sounding process demonstrated healthy market interest for a Network Stewardship Agreement as structured following the recommendations above, and widespread optimism that the network operations and maintenance could be sustained through revenues from a wide group of potential customers while delivering on the state's objective of closing the digital divide.

CDT recommends initiating a procurement process to execute upon this vision for sustainable network operations and maintenance. Given the validation received from these market sounding conversations and the urgency of having an O&M contract in place for operations of network segments that will be made available to CDT in mid-2025, CDT is ready to provide a RFP Part 1 solicitation document and can begin planning for the full two-part procurement process to competitively select an Operations TPA. The full process is estimated to take approximately 11 months from release of the RFP Part 1 to execution of the agreement.