



The California State Library's
Broadband Program



REPORT TO THE LEGISLATURE

2022-2023 Fiscal Year



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Report To The Legislature on the Broadband Programs of the California State Library

State of California

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This report covers the 2022-2023 fiscal year.

Additional copies of this report can be obtained at

<https://library.ca.gov/services/to-libraries/broadband/> or from:

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Executive Summary

The California State Library's Broadband Program brings high-speed internet access to California public libraries by connecting them to the California Research and Education Network (CalREN), a world-class internet network built for California's public schools, community colleges, University of California, the state university systems, public schools and libraries. CalREN is operated and maintained by the Corporation for Education Network Initiatives in California (CENIC).

During the program's first 10 years, the State Library and its partners have connected almost 1,000 California libraries to the CalREN network, saved these libraries tens of millions of dollars in technology costs, and allowed millions of Californians free access to high-speed broadband and online resources.

The State Library also provides grant funding to libraries to pay for start-up costs and equipment that enables them to connect to CalREN and create collaborations designed to bring high-speed broadband to hard-to-connect communities.

The Broadband Initiative supports the Governor's Broadband For All push, which is premised on broadband access, adoption, and training being essential components of digital equity. The State Library's work is also an important part of the State Digital Equity Plan, a joint strategy shared by organizations around the state and designed to end the digital divide in California.

The State of California provides ongoing funding to support public libraries' membership to CENIC. It has also provided one-time funds to support grant programs that help libraries connect to broadband.

In the 2022-2023 fiscal year, program staff continued to add libraries to CalREN, awarded over \$500,000 in California Library Connect grant funds which supported network upgrades or refreshments at 69 library locations, and set up the new California Collaborative Connectivity grant program which focuses on expanding broadband access through collaborative partnerships between libraries, local education agencies, and telehealth providers.

In the 2023-2024 fiscal year, program staff renewed agreements with local libraries, awarded 12 California Library Connect grants—which fully expended the funds available to help libraries upgrade and purchase new equipment to support high-speed connectivity, and continued developing the Collaborative Connectivity grant program until the funding was rescinded during the 2024 budget process.

Notably, the California Library Connect grant funds were unable to meet libraries' significant need for new and upgraded broadband equipment. In fall 2023, local libraries' responses to a technology survey issued by the State Library show that they have a substantial and ongoing need for funds to support broadband-related upgrades and maintenance. Seventy-seven of California's 187 public library jurisdictions responded to the survey and reported that between now and June 2026, they need network infrastructure upgrades and replacements with an estimated cost of over \$20 million. Addressing all of California libraries' broadband-related upgrade and maintenance needs will cost much more.

Broadband Program Description

The California State Library Broadband Program includes two main components:

1) The California Library Connect program supports California public libraries by connecting them to high-speed internet through the California Research and Education Network (CalREN), a high-capacity, fiber-optic-based network designed to meet the needs of students, educators, researchers, and others working in California's vital public-serving institutions. The California Library Connect program comprises two elements:

- **Membership for California public libraries in the Corporation for Education Network Initiatives in California (CENIC)**, the non-profit organization that manages CalREN. The State Library partners with a program administrator which manages the requirements for member libraries to access the benefits of CalREN, including very low-cost, reliable, high-speed internet access over fiber optic or microwave, related support services, and assistance ensuring that federal discounts via the E-rate program are correctly applied and disbursed.
- **Grants for start-up costs and equipment**, which help libraries connect to CalREN, afford the first-year connection costs to the network, and fund Local Area Network (LAN) equipment and infrastructure costs to help ensure the library community can use its high-speed broadband access effectively.

2) The California Collaborative Connectivity grant program (Collaborative Connectivity) is designed to fund collaborative partnerships of local and regional libraries, local education agencies, and telehealth providers, and leverage funding available through the Federal Universal Service Program for Schools and Libraries. These collaborations are intended to bring high-speed internet connectivity to hard-to-connect communities, particularly those in rural locations.¹

¹ The funding for this program was rescinded during the 2024 budget process.

2022-23 Fiscal Year Broadband Program Impact

California Library Connect

Since 2014, the California State Library Broadband Program has helped 968 of California's 1,127 public libraries connect to high-speed broadband services.

Between the 2014-2015 and 2022-2023 fiscal years, the program has saved California libraries \$27 million in broadband connectivity costs by facilitating their connection to the CalREN network, assisting with up-front connection costs, and providing access to the CENIC consortium and discounted costs offered through the Federal Universal Service Fund Schools and Libraries Program.

During the 2022-2023 fiscal year, in addition to providing the benefits and savings associated with connecting to CalREN, the program awarded \$571,636 in grant funding to libraries to cover network equipment costs as well as first-year costs associated with newly connecting to CalREN. This alleviated

the sometimes-steep initial connectivity costs, such as installation and equipment, which could deter local libraries with limited funds from participating.

These grants have had a positive impact on library services. The MariNet consortium covers most libraries in Marin County, including underserved populations in Marin City and San Rafael. The consortium received a California Library Connect grant of \$175,211. Lana Adlawan, the director of the Marin County Free Library, reported that the program “will empower all libraries in Marin to modernize and stabilize our networking capabilities, ultimately allowing us to better serve the evolving digital needs of library patrons in Marin County.”

Belvedere Tiburon Library Director Crystal Duran said the grant program ensures the continued commitment of libraries in Marin to serve as vital hubs for internet connectivity within the community.

“Providing internet access at libraries bridges the digital divide in our community, empowering all individuals to explore, learn, connect, and thrive in the digital age,” she reported.

The Peninsula Library System received a \$63,825 California Library Connect grant to replace aging, end-of-life network equipment throughout their network of libraries, which includes San Bruno and Daly City Public Libraries. This initiative aims to guarantee that the System’s extensive patron base, encompassing over 700,000 individuals, continues to have consistent and secure access to the internet and online resources.

The San Bernadino Public Library used California Library Connect grant funds to replace their aging core switch at the Feldheym Central Library. The library is a critical bridge to high-speed broadband access for many lower-income households that lack stable, high-speed internet access at home. The new router maintains a stable, high-speed internet connection, reducing service disruptions and ensuring optimal bandwidth allocation. This allows them to maintain their essential role in ensuring community members can access digital resources that support education and workforce preparedness.

Sonoma County Library replaced their primary network equipment with two California Library Connect grants totaling \$163,266. This allowed Sonoma to fully utilize their fiber connection to the CalREN network. In addition, they were able to connect their facility housing the county’s official historical records, enabling the remote monitoring of environmental and security conditions and protecting valuable records.

California Collaborative Connectivity Grant (Collaborative Connectivity)

The Collaborative Connectivity program began as a partnership between the State Library and CTC Energy and Technology in 2022. The State Library and CTC developed the application portal and guidelines for the program and the application opened in October 2022. The partnership ended when the State Library’s agreement with CTC expired on December 31, 2023.

The program requires local libraries to partner with one or more anchor institutions on collaborative projects to build broadband connections to their locations and utilize any available federal funding or grants; this program is designed to fund the gap between the total cost of the project and federal funding support. Target applicants for Collaborative Connectivity are libraries, local education agencies, and telehealth providers that lack fiber connectivity and are in underserved parts of California.

Prior to applying the applicant must form a purchasing consortium with its partner institution(s), and then together manage a complex procurement and implementation process which takes approximately six months. The application process allows applicants to use their E-rate application materials, as participation in the Federal discount program is required for Collaborative Connectivity eligibility.

Program staff conducted a series of outreach events to promote this opportunity and assist potential applicants in preparing for the 2024-25 Federal E-rate cycle, including multiple webinars, and presentations at events put on by organizations such as the K12 High Speed Network, the Schools, Hospitals & Libraries Broadband Coalition (SHLB), California IT in Education (CITE), and the California Strategic Growth Council. Staff focused on reaching out to organizations in underserved areas and collaborated with the California Departments of Technology and Education to identify and contact potential non-library participants.

In summer and fall 2023, in preparation for awarding the grant funds, the program team conducted discussions with several potential applicants in underserved areas including eastern San Diego County, Shasta County, and Oakland. The complexity of the application process and, in the case of the rural areas, the need to synchronize their projects with the construction of fiber backbone via the California Middle Mile Broadband Initiative (most of which will not be complete prior to 2026) resulted in applicants deciding to delay their application until the 2024-2025 cycle or later.

A coalition of rural counties led by Sutter County submitted an application in late 2023 that showed promise but lacked the detail necessary to determine eligibility and is now on hold.

The information included in the Governor's January 2024 Budget proposing to pull funding back for this program has become common knowledge in the library community and, as a result, the State Library has not fielded any new inquiries in 2024 about Collaborative Connectivity.

These are critical and complex connectivity projects. For the type of fiber construction projects that were intended to be greenlighted through this program, a substantial amount of funding is required for each project in addition to the federal funds that would be leveraged. Without these projects, underserved communities will be particularly impacted because they will be less likely to undertake costly and complex projects without State funding. The State's digital equity goals will suffer as a result.

Target Areas: Collaborative Connectivity 2024-25 Application Cycle

Target County/Region	Specific Communities	Assembly District	Senate District
Alpine County	Bear Valley, Markleeville	1	4
Amador County	Ione, Pine Grove, Pioneer	1, 9	4
Calaveras County	Copperopolis, Mokelumne, West Point	8, 9	4
Imperial County	Salton Sea area	36	18
Inyo County	Death Valley	8	4
Plumas County	Chester, Downeyville	1	1
San Diego County	Borrego Springs	75	32

Partnerships

CTC Technology & Energy acted as the Broadband Access Administrator and Grants Manager for all State Library broadband programs from January 2022 until their award agreement expired on December 31, 2023. The State Library issued a Request for Applications (RFA) for a new Broadband Access Administrator in November 2023. After a thorough review process, the new Administrator, Imperial County Office of Education, was selected in December 2023 and awarded on January 1, 2024. Imperial County Office of Education has served in a similar role for California's public schools since 2005, and the State Library is looking forward to working with the county office on the important work of expanding reliable broadband access.

2023-24 Fiscal Year Broadband Program Impact

The majority of the 2023-2024 fiscal year was devoted to renewing agreements with local libraries and continuing to develop and implement the California Library Connect and California Collaborative Connectivity grant programs.

Twelve California Library Connect grants were awarded, expending all remaining grant funds. Additionally, in the 2023-2024 fiscal year, staff have:

- Facilitated communications between CENIC and the 116 contracted libraries and library systems to assist with quarterly billing, answer invoice questions, and solicit quotes for equipment and changes to service delivery.
- Conducted a survey of public libraries' future broadband and network needs that received 77 responses. Key results and findings include:
 - The responding libraries need network infrastructure upgrades and replacements with an estimated cost of \$20 million between now and June 30, 2026. Ten respondents indicated a need for over \$500,000 each in equipment upgrades. This clearly demonstrates a need for new California Library Connect grant funds to address libraries' needs.
 - Twenty-four respondents will be building at least one new branch or moving an existing branch between now and 2026, both of which typically involve the costs of adding or moving their broadband connection and installing new network equipment.
 - Thirty-one respondents anticipate the need to upgrade the bandwidth of one or more of their current branches by 2026.
- Published a Request for Applications for a new Statewide Broadband Access Administrator.
- Continued to attend CENIC board meetings, including the annual retreat, at which there were strategic discussions of how the CENIC member institutions can work more closely together for the benefit of their stakeholders.

Policy & Programmatic Considerations

The State Library continues to focus on local libraries' broadband and technology infrastructure needs, including both those already participating in the California Library Connect program and those that are unconnected or poorly connected.

- Based on the results of the technology needs survey described above, there is a clear need for additional funding support for California libraries to maintain, upgrade, and expand their publicly available Internet access, in support of the State Broadband for All initiative and the draft State Digital Equity Plan.
- The ongoing annual cost to maintain existing connections to CalREN is \$4.03 million. This is inclusive of all fees charged by CENIC to connect public libraries. This cost will increase incrementally each year as more sites are added.
- Most of the remaining 159 library branches as yet unconnected to CalREN fall into two categories:
 - Those that are connected to affordable modern broadband through other means (approximately 67 locations as of April 2024), such as municipal broadband, or are required to utilize their city or county services.
 - Those that are not connected to broadband. Some of the libraries in this category are the most difficult to connect due to isolation, terrain, adjacency to tribal, state or federal lands which complicates permitting and rights-of-way, local economic factors, or some combination thereof. While the overall number of new connections remaining to be funded is declining, the cost per connection of remaining projects is significantly higher because of these connectivity challenges. The State Library intended to use the Collaborative Connectivity Grant funds to address some of these unconnected sites, but the Governor's proposed budget includes the return of all but \$750,000 of the original \$35 million in funding for the grant program.
- The state's Middle Mile Broadband Initiative will bring a backbone of fiber broadband to several underserved areas of the state by 2026, which will reduce the cost of connecting libraries in those areas.
- In conjunction with the expansion of middle mile fiber, the utilization of fixed wireless/microwave broadband for last mile connections is a viable, cost-effective alternative for some sites. Current fixed wireless technology can provide up to 1 Gbps of bandwidth under ideal conditions and, while it has limitations, it can often be installed far more quickly and cheaply than fiber. This is a solid solution for libraries in remote areas or where permitting and right of way costs make fiber installation impractical.

Appendix A: California Library Connect Grants Awarded 2022-23

Library Jurisdiction	Award Amount	Award	Assembly District	Senate District
Alameda County Library	\$50,427.55	Replace obsolete routers with updated equipment at the Fremont Main Library location.	14, 20, 24	5, 7, 9, 10
Palm Springs Public Library	\$99,581.24	Replace outdated network switches.	47	19
Peninsula Library System	\$63,825.08	Replace aging routers to provide reliable, fast broadband Internet to 33 libraries within the consortium.	19, 21, 23	11, 13
Santa Cruz Public Libraries	\$114,956.44	Replace aging servers at 10 branches with new Dell PowerEdge R350's. Replace aging switches at 10 branches with new Cisco C9300-48P-E's. Move existing wiring to the new IT closet at La Selva Beach branch.	28, 30	17
Sonoma County Library	\$80,883.16	Replace aging Aerohive AP230 WAPs with upgraded Cisco Meraki MR46-HW's with 5-year licenses and support contracts at 13 library locations.	2, 4, 12	2, 3
Ventura County Library	\$161,962.80	Upgrade the Foster Library's network wiring and infrastructure.	38, 42	21, 27
Total:	\$571,636.27			

Appendix B: California Library Connect Grants Awarded 2023-24

Library Jurisdiction	Award Amount	Award	Assembly District	Senate District
Monterey County Free Library	\$528,979.73	Upgrade current internet circuit from 1 gigabit to 10 gigabit, replace end-of-life batteries at library locations, upgrade existing access points, and upgrade the network switches at its libraries.	29, 30	17, 25
San Joaquin Valley Library System (Porterville)	\$25,500.00	Special construction funding to re-establish broadband activity at a temporary location for the Porterville Public Library.	33	16
San Joaquin Valley Library System (Firebaugh)	\$33,694.00	Restore a 1 gigabit circuit to the Firebaugh library branch.	27	14
Sonoma County Public Library	\$82,383.37	Replace the existing network switch, which is nearing the end of its service life, with a new Cisco C9407R switch.	2, 4, 12	2, 3

Library Jurisdiction	Award Amount	Award	Assembly District	Senate District
San Bernardino Public Library	\$19,709.06	Replace the existing end-of-life Cisco equipment with a new CENIC-managed router at the Feldheim Central Library.	45	29
Monterey County Free Library (Marina)	\$32,523.00	Install a HVAC unit and replace the technology closet door.	30	17
Ventura County Public Library	\$57,505.15	Upgrade the wireless access points across all Ventura County Library branches.	38, 42	21, 27
Sunnyvale Public Library	\$105,540.00	One router, two firewalls, CENIC equipment, and first-year connectivity costs to upgrade the Sunnyvale Public Library branch's bandwidth from 1 gigabit to 10 gigabits.	26	10
MariNET	\$175,211.52	Replace failing equipment and provide library patrons and staff with a more secure and reliable network.	12	2
San Jose Public Library	\$414,481.68	Replace outdated network and Wi-Fi equipment.	23, 24, 28, 26, 28	10, 15
Black Gold Cooperative Library System	\$102,239.00	Replace end-of-life Juniper switches which are used at all library locations and the Black Gold data center.	30, 31, 37, 38	17, 21
CENIC	\$2,914,802.24	Upgrade equipment at 98 library locations and provide maintenance support.	N/A	N/A
CBI	\$677,322.97	Funds to support backbone connection fees for California public libraries.	N/A	N/A
Total:	\$5,169,891.72			

