California Broadband for All

Action Plan

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INTRODUCTION
Imagine a family of five, two working parents and three kids, all trying to access online resources required by their school and their jobs, without enough internet bandwidth to keep from knocking each other offline.

Imagine two seniors with medical needs, struggling to find reliable transportation to get to and from weekly medical appointments, losing hours every week and putting themselves at preventable risk, because they can’t afford the broadband service required to access telehealth and they lack the digital skills to feel comfortable going online.

Imagine a couple that wants to open a small business in the Central Valley but can’t make the numbers work without ability to take online orders—and can’t get the reliable Internet access that guarantees it can get online. Consider humanizing to a farmer around getting signal in road to improve optimization of natural resources (e.g., water).

Imagine a twenty-something-year-old, working a full-time minimum wage job by day and attending community college classes at night, trying to stream online learning videos and submit online homework with only a smartphone.

The digital divide reflects and reinforces systemic inequities. Eradicating the digital divide is a foundational step towards making California a place where everyone can thrive regardless of the circumstances of their birth. As individuals, broadband access underlies our ability to work, study, communicate, apply for government services, receive emergency information, access healthcare, and not only survive, but thrive. As a state, broadband is vital for our most critical systems, from our electrical grid, to our water supply systems, public safety and emergency response networks, as well as our ability to attract talent and businesses and compete on the world stage.

Broadband internet access is an essential service. As such, as the state of California, we commit here to a path forward to ensure all people can receive it, regardless of their geography or household income.
BROADBAND TODAY

As the fifth-largest economy in the world—as well as the most concentrated source of the world’s online innovations—California runs on the power of high-speed Internet. Broadband powers our ability to be the number one state in the country for remote work, with [xxx million] people working from home.¹ [Add statistics. Example: In 2019, over 13 million Californians were eligible for reimbursed telemedicine.² Also include public safety.] We use broadband to scale our digital government services and ensure quick delivery of public safety information. For example, more than one million Californians have used the eight-minute online CalFresh signup to receive Supplemental Nutritional Assistance Program (SNAP) benefits.³

High-speed Internet is not a nice-to-have. It is a need-to-have.

Too often, however, our most at-risk Californians face the largest roadblocks to accessing broadband.⁴ Income, age, education, disability status and ethnicity all correlate with lower broadband adoption.⁵ Californians without a high school degree or with only a high school degree are significantly less likely to subscribe to broadband at home with a computing device (53% and 73%, respectively) compared to 97% of households making $100,000 a year or more. Additionally, the following groups are also under-adopting:

- Spanish-speaking (dominant) Latinos – 57%
- Asian-Americans - 73%
- People 65 and older (65-74: 71% and 75 and older = 62%)
- Disabled - 64%
- Income <20K - 52%
- Renter - 71%

In 2020 California—and the country—witnessed how vital reliable, affordable, and accessible Internet is to everyday life. As the COVID-19 pandemic swept the nation, 50 million K-12 public school students saw their schools close and started learning from

³https://www.codeforamerica.org/programs/getcalfresh
⁵Refer to the CPUC’s Broadband Adoption Gap Analysis, June, 2019, which concluded income was the most significant factor contributing to low adoption rates.
https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Communications/Reports_and_Presentations/CDVideoBB/BAGapAnalysis.pdf
Sixty-two percent of employed Americans reported working from home by the end of March, double the 31% of Americans working remotely at the beginning of the month. By April, just one month into the pandemic, nearly half (43.5%) of Medicare primary care visits were provided through telehealth compared with less than one percent (0.1%) in February.

Core Challenges
Californians face several sets of core challenges today when trying to access reliable, affordable, equitable broadband. They include availability (speed and reliability), affordability, devices & digital literacy, and data.

1. Availability: Speed and Reliability

High-performance broadband needs have increased

Broadband usage has changed dramatically over the last twenty-five years. Back in 1996, the FCC defined broadband internet as 200:200 kbps, which was good enough for email. In 2015, when the FCC last updated their definitions to 25:3 mbps, videoconferencing was largely confined to major corporations. Those minimum speeds worked when they were set, when people mainly used broadband to browse the internet, email, and stream movies. But we live in a very different world today, where video conferencing, telemedicine, and other essential applications (e.g., sensors) demand high bandwidth uploads as well. Even the FCC’s next tier of service, 50:5, which they call “baseline,” would be strained to supply the needed bandwidth. And bandwidth needs are increasing exponentially, so the baseline today will be inadequate tomorrow. For example, Cisco forecasted that average fixed broadband speeds in North America will grow from 56.6 mbps in 2018 to 141.8 mbps in 2023, or 20% per annum.

California’s broadband standards have not evolved to reflect these new realities. California currently defines broadband service in its core broadband subsidy program, the California Advanced Services Fund (CASF), as 6:1 or higher, and subsidizes build out at 10:1 or higher. This makes California one of [X number of] other states that define service and subsidize build out below the FCC 2015 benchmark of 25:3, and without

any latency standards. The last several months have made it clear that neither the California, nor the Federal, definitions are sufficient.

Example 1: A household of four with two adults attending occasional virtual meetings, sending e-mail, and doing research, and two kids attending school classes using Zoom, the combined required bandwidth could easily exceed the FCC’s minimums. \(^\text{12}\)

<table>
<thead>
<tr>
<th>PEAK BANDWIDTH UTILIZATION</th>
<th>TYPICAL FAMILY OF FOUR</th>
<th>DOWNLOAD / UPLOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(DAYTIME)</td>
<td></td>
</tr>
<tr>
<td>x1</td>
<td>Tele-Work</td>
<td>1.5 Mbps / 1.5 Mbps</td>
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<tr>
<td></td>
<td>Video Conferencing</td>
<td></td>
</tr>
<tr>
<td>x2</td>
<td>Tele-Learning</td>
<td>3.0 Mbps / 3.0 Mbps</td>
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<tr>
<td></td>
<td>Remote Classroom</td>
<td></td>
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<tr>
<td>x1</td>
<td>Streaming Music / Video</td>
<td>2.0 Mbps / 0.1 Mbps</td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>x10</td>
<td>Home Security (Ring, etc.) and other household smart devices (Alexa, Cortona, etc.)</td>
<td>0.3 Mbps / 2.0 Mbps</td>
</tr>
</tbody>
</table>

**TOTAL BANDWIDTH USE (rounded)**: 7 Mbps / 7 Mbps

<table>
<thead>
<tr>
<th>PEAK BANDWIDTH UTILIZATION</th>
<th>TYPICAL FAMILY OF FOUR</th>
<th>DOWNLOAD / UPLOAD</th>
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<tbody>
<tr>
<td></td>
<td>(EVENING)</td>
<td></td>
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<tr>
<td>x1</td>
<td>Online Video Gaming</td>
<td>2.0 Mbps / 1.0 Mbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x2</td>
<td>Streaming Video Applications (Netflix, Prime, etc.)</td>
<td>10 Mbps / 0.2 Mbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x3</td>
<td>Surfing Internet</td>
<td>3 Mbps / 1.0 Mbps</td>
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<tr>
<td>x10</td>
<td>Home Security (Ring, etc.) and other household smart devices (Alexa, Cortona, etc.)</td>
<td>0.3 Mbps / 2.0 Mbps</td>
</tr>
</tbody>
</table>

**TOTAL BANDWIDTH USE (rounded)**: 15 Mbps / 4 Mbps

Example 2: A resident runs a business from their home and needs to use their broadband connection to process financial transactions through e-commerce applications (Square, etc.), perform occasional video meetings with customers, transfer files via online cloud storage providers, and send e-mail. During the pandemic this resident’s spouse is working from home and at least two children are at home requiring additional bandwidth for homework and entertainment needs. During these times the family would need at least 20 Mbps downstream and 17 Mbps upstream.

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Residential availability today

As of December 31, 2018, 96.3% of Californian households had residential access to broadband at speeds of 25:3 or greater, and 94.9% had access to speeds of 100 mbps down or greater, reflecting widespread cable and fiber access in urban population centers. 13

There are three core issues with this picture of availability.

First, too many households still lack access to high performance broadband. 94.9% access to speeds of 100 mbps or higher leaves 673,730 households that do not have access to broadband at those speeds. These are largely concentrated in rural areas. As the Governor’s Wildfires and Climate Change Strike Force report noted in 2019, “the lack of broadband in rural communities and access to cell services makes it difficult to communicate clear emergency evacuation orders to residents or to locate residents when they are in trouble.” 14

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13 2019 CASF Annual Report, p 11
14 “Wildfires and Climate Change: California’s Energy Future,” A Report from Governor Newsom’s Strike Force, April 12, 2020; p 12

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Second, this analysis likely over-represents actual availability of high performance broadband at residential addresses.

Third, the high-performance broadband that is available may be prohibitively expensive for households.

**Insufficient network resilience and redundancy**

Unfortunately, progressively worse fire seasons have shown a spotlight on the limited requirements that broadband providers have to ensure redundancy or hardening in the operations of their infrastructure. Given progressively worsening fire seasons and a changing climate, there is a risk that broadband access may fail due to power shut offs or damage done to fragile, legacy infrastructure.

**The market underserves poor, rural, black and brown communities**

Poor, rural, black and brown communities are more likely to have poor access to high performance broadband internet. The CPUC’s analysis of AT&T and Frontier networks showed a clear inverse relationship between household income and principal service quality metrics such as out of service repair intervals.

There are economic reasons for this. The capital costs are simply too high, and there are too few paying customers to generate a positive return on investment. [EFF - Different economic rationale between dense urban areas can be profitable in aggregate vs. rural areas; question of regulation]

Without public intervention and regulation, for-profit providers do not have a market incentive to provide equivalent service to poor and rural communities. It is unprofitable, and leads to vast inequities in service. This is why California has historically subsidized telephone networks in rural communities, and provided discounts for low-income individuals and continues to do so for broadband networks.

**Tribal areas** [placeholder to address particular issues, including jurisdictional challenges]

Need to incorporate recognition that need to address furthest out parts of the state.

**Multi-billion dollars required to build out statewide fiber**

The California Broadband Cost Model (CBCM) being developed by CPUC will estimate the cost for a fiber to the premises (FTTP) connection to every unserved and underserved location in California, including a scenario that calculates the cost to serve the highest cost parts of the state. The CBCM will help the state to target funding and deployment, and to measure progress.
Served status in the CBCM is based on the most recent, validated, census-block level California Broadband Deployment Data. Key assumptions in the engineering-based model include construction parameters around the reuse of existing broadband infrastructure, construction costs (e.g., pole attachment, network sharing, and labor rates), material costs, and regulatory costs including rights of way access.

### 2. Affordability

Price matters. When we consider what broadband costs for a Californian, we have to account for all of its price tags. The service cost is just one component, with taxes, surcharges, provider fees, rental charges for modems and routers, as well as the cost of actual devices used for getting online – such as laptops and tablets. Each of these is mandatory cost – and barrier – to getting online. There are additional unexpected costs of contractual penalties if a family falls behind and has to catch up, cancel, or switch plans. On a budget where parents work minimum wage jobs, purchasing food take precedence over purchasing Internet services.

More than half of California non-adopters simply can’t afford market prices or don’t own a computer. Many believe they could pay total monthly bills of $10-$15/month. While some affordable broadband programs offered by providers are within this price range, Lifeline programs are limited to people living just above the poverty line, most broadband providers do not participate in the Lifeline program, providers do not provide truly high performance broadband (only at least 15/2), and more than 70 percent of California non-adopters were unaware that these programs existed. The state LifeLine program does not offer standalone broadband, and the state’s five largest Internet service providers, which serve 97% of subscribers in the state, do not participate.

The market price of broadband is high, largely because there is very little fixed-broadband competition, particularly at the speeds and performance required today. Five wireline providers account for more than 90% of the residential broadband subscriptions in the state. Looking at 100:10 is instructive. 8% have no access, the availability problem discussed above. 26% have only one choice. 43% have a duopoly. And only 13% were able to choose between 3 or more providers.

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18 [FCC Broadband Map](https://fetc.org/)

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As a result of this trend, broadband prices not just in California, but nationally, are amongst the highest in the world. This is also an equity issue. Wealthier communities are 2-3x more likely to have more than two choices than lower-than-average household incomes.

Consumers benefit when companies are forced to compete for customers. Research shows that broadband competition reduces prices, and improves service.\textsuperscript{19}

But there are high barriers to entry for prospective internet service providers in California, and they require concerted help to overcome them. This is why we need to adopt new models that don’t rely exclusively on provider-owned infrastructure and employ a service-based competition model where multiple internet services are available over the same cable or wire entering your home. Separating the primary barrier to market entry, last mile infrastructure, from service provisioning, opens up competition based on service quality and price.

3. Devices and Digital Literacy

Access to the internet through only a smartphone is not a substitute for laptop or tablet with high-speed, reliable broadband. According to the 2019 CETF survey, 10% of Californian households only have access to broadband at home through smartphones. However, phones are not a substitute for adoption.\textsuperscript{20} Adoption requires both a device and digital literacy. If people don’t have the skills to use broadband, it doesn’t matter if they have access—they won’t be able to access the Internet and the world of opportunities, benefits, and life-changing support it offers. This takes on added urgency as we reach late adopters, who have missed out on much the last two decades of broadband use, experience, and training.

4. Data

Imagine trying to solve a problem when you don’t know exactly who has it, or where it occurs, or how much it will cost to fix it. That is the work of creating broadband policies that solve lived Californian problems today. Data about the costs, gaps, speeds, and access to broadband in California is disparate and subjective.

\textsuperscript{19} See Benton’s report for a review of the academic literature
\textsuperscript{20} See also Appendix re: types of broadband
One data problem is granularity and accuracy. Data about availability is provided at the census block level. Blocks in urban areas might be an actual city block, but in rural areas, they might span miles. Additionally, concerns over the accuracy of California and FCC availability data remain, and can affect communities directly by making them eligible or ineligible for state and federal funds.

A second part of the problem is opacity. Some data that would help significantly in evaluating the quality of availability and adoption data is unavailable. For example, for the affordable broadband programs, what is the take-up rate? How quickly do customers cycle-off? How many people that apply are turned away? What are the prices for the same kind of service in different parts of the state? [Note: explore comparisons to other industries that may be useful]

Finally, broadband subscription data is critical to understanding where people actually have internet service, as opposed to where providers merely claim to offer service. Subscription data by address provides sufficient granularity to accurately map broadband affordability and adoption.

Data is not an end to itself. But without accurate, transparent, and updated data, we can't formulate good policies to solve real problems.

**VISION: Digital Equity for All**

For California and Californians to thrive, we envision a future in which all Californians have affordable high-performance broadband available at home with the devices and skills to unlock opportunities through digital inclusion.

Specifically, we want to ensure all Californians:

1. **Have high-performance broadband available at home and in the community:** Broadband must be available everywhere in the state, from the most rural areas, including tribal lands, to the most populated urban areas, including all low-income neighborhoods. For the homeless or those without broadband at home, we will continue to ensure anchor institutions provide broadband to meet people where they are. Speeds must be sufficient to meet the growing demand and reliance for access to education, government, public safety, economic prosperity and healthcare via high-speed access to the Internet.

2. **Can afford broadband and the devices necessary to access the internet:** Internet service plans and devices must be affordable for all Californians, regardless of geographic location or household income.
3. **Can access training and support to enable digital inclusion:** Californians must have access to digital skills training to for job opportunities and to thrive in a digital world.

**HOW WE CAN GET STARTED**

Over a four-month process, the California Broadband Council reviewed hundreds of pieces of public input, reviewed previous plans and goals and spoke with state departments as well subject matter experts across the country. The actions the California Broadband Council proposes exploring fall into four broad categories: policy reviews, program assessments, funding identification, and cross-sector collaboration.

**Twelve-Month Action Plan**

The California Broadband Council will begin each of these actions in calendar year 2021. The Council will evaluate progress toward the plan’s three goals annually, or sooner, in the case of significant state or federal action.

The Office of Broadband and Digital Literacy within the California Department of Technology will continue to support the California Broadband Council in the ongoing assessment and progress of current and future plans.

**GOAL 1: All Californians have Access to High-Performance Broadband at Home**

1. **Modernize speed and performance standards for broadband**
   A. Explore shared standards among all state grant-funded programs:
      a. To define “served” as a census block that is 90% served at the current state broadband performance standard. [Sunne – needs 100% service]
      b. To define “broadband” as, at least, matching the FCC standards of 25/3, if not increasing to reflect demonstrated needs (25/17), [incorporate latency and reliability – Rob Osborn].
      c. To prioritize funding for projects that will deliver at least 100 Mbps down/10 Mbps up (100/10). Annually assess speed targets for infrastructure subsidies or grants, or sooner if national goals change.
      d. To fund last-mile projects with explicit local government involvement to address universality and adoption.
      e. To fund middle-mile only investments in areas with limited infrastructure.
      f. To fund connection to anchor institutions and last-mile connection to small businesses.
      g. [Require fiber backhaul]
      h. [Data caps - Geoff]
B. Adopt essential broadband service and affordability standards, and evaluate those standards relative to other essential service costs\textsuperscript{21}.

C. Explore alternative grant-making models similar to other state models, including additional options to generate competition to serve specific areas.

D. Enable all state grant programs to be leveraged for federal funding matching opportunities prioritizing unserved and underserved areas.

E. Deployments supported by state grant funding should be prioritized in local jurisdictions (county or city or city and county) where the government has streamlined the process for permitting and obtaining land use approvals. [Clarify language to ensure specific to local area receiving grant; don’t predicate on having permits in hand]

F. Explore all financing opportunities by partnering with local governments and philanthropies to establish alternative financing mechanisms for broadband deployments in unserved and underserved areas.

G. Promote existing state contractual vehicles to support cost savings and efficient purchasing of broadband services and equipment by local public entities.

H. Modernize state’s universal service programs to effectively support the deployment and ongoing maintenance of broadband networks.

2. Simplify and leverage existing assets and construction

A. Implement a Dig Smart policy to install conduit or fiber as part of any appropriate and feasible transportation project in strategic corridors supported by state funding as an incentive for buildouts with priority for middle mile, open access deployments. [Need to define scope of policy – include non-transport infrastructure such as waterways (CNRA); element of posting offer for broadband fiber deployment]

B. Identify how to streamline state permitting processes and rights-of-way management to accelerate broadband deployment giving priority to ISPs who build in unconnected rural communities and high-need under-connected low-income neighborhoods.

C. Begin the process to identify critical assets including state assets (fiber, conduit, and towers) and utility poles available to municipal, tribal, and private partners for lease.

D. Regularly convene broadband providers and local governments to support permitting processes that support the construction of broadband infrastructure and the needs of local governments.

E. Communicate with federal agencies to support prioritization of permits for broadband construction through federal land and when permit holders are experiencing delays.

\textsuperscript{21} See CPUC Framework to Assess Affordability of Utility Services, https://www.cpuc.ca.gov/affordability/
3. Set reliability standards  
   A. Explore standards around middle mile and/or backhaul resilience / reliability and penalties informed by CalOES recent experiences during wildfires.  
   B. Ensure consumer protection and that all consumers are served equitably by providers.

GOAL 2: All Californians can Afford Broadband and the Devices necessary to Access the Internet

1. Promote affordable broadband offers  
   A. Partner with providers to promote and track the adoption of affordable Internet offers. Request providers to create multi-language marketing materials for distribution to under-adopting communities by leveraging existing private go to market campaigns and existing public programs, such as: CalFresh, DMV, Cal Works, Covered California, and the National School Lunch Program (NSLP).  
   B. Improve the California LifeLine Program through offering high-capacity, stand-alone broadband services, and ensuring all broadband providers participate in the program.

[Devices – include routers and other non-computer devices that are critical for affordable access.

GOAL 3: All Californians can Access Training and Support to Enable Digital Inclusion

1. Provide technical assistance and support  
   A. Identify opportunities for technical assistance to include support for local governments, tribes, nonprofits, and their partners to best leverage local, state, federal, and private funding opportunities.  
   B. Provide state-level support and coordination for federal and national philanthropic grant applications increasing California’s federal and philanthropic broadband funding.

2. Drive synergies across adoption and deployment initiatives through state programs  
   A. Explore shared standards among state grant programs to prioritize joint infrastructure and adoption projects.  
   B. Convene broadband adoption stakeholders semi-annually to innovate and create new digital literacy tools, curriculum and training programs to meet the needs of the workforce, community and students.

3. Strengthen partnerships and coordinate initiatives
A. Leverage California Broadband Council meetings and the GoBiz broadband funding identification initiative to strengthen partnerships among anchor organizations such as schools, libraries, workforce development boards, county social service departments.
   a. E.g., organizing and leveraging programs and best practices across libraries

B. Convene local government broadband coordinators and managers quarterly to identify barriers to local programming, new actions undertaken and tools developed at the local level and to support intra-state collaboration.

Cross-Cutting Actions that Support All Goals

1. Strengthen broadband data and mapping transparency and usability
   A. Collect more granular and accurate broadband data, build out and public broadband deployment maps with explicit focus on low-income urban neighborhoods, and use provider specific data to drive accountability and measure progress.
   B. Use feedback from businesses, local governments, tribes, nonprofits and every day Californians, to establish a Broadband for All portal to ensure easy access and navigation of state broadband information to include:
      i. A page to aggregate feedback from the field to validate data in the California Interactive Broadband Map such as broadband speeds, access, easements and rights of way;
      ii. A central repository for resources and toolkits for specific to broadband planning and implementation;
      iii. A central repository of digital inclusion plans, initiatives and best practices;
      iv. Information on affordable Internet Broadband offers, devices and training;
      v. A central repository for state-level broadband funding opportunities using the grants.ca.gov site.
   C. Expand California data availability to assist stakeholders by including the following data and visualizations:
      i. Existing assets, asset ownership, geographic boundaries, roads, anchor institutions, fairgrounds and public rights of way.
      ii. Broadband availability and use throughout the state.

2. Leverage the State’s convening power
A. Convene local governments and private sector representatives semi-annually to understand broadband goals, priorities, and roadblocks resulting in documentation of priorities and recommendations to integrate into Broadband for All metrics and action plan updates.

B. Require executive branch entities and request constitutional agencies to incorporate broadband into their strategic plans, and submit broadband priorities to the California Broadband Council annually for review and recommendations to ensure effective interagency collaboration.

Conclusion

[ADD WHEN DRAFT IS COMPLETE]