

# California Broadband for All Action Plan

DRAFT

## EXECUTIVE SUMMARY

*[Placeholder - This section will provide a concise overview of the Action Plan, including the context, what problems we are solving, unknowns (e.g., RDOF, administration transition), the strategy we will pursue, including specific actions we will take in the next 6 and 18 months, and the impact we expect those actions to have. To be developed following the full draft's completion.]*

## INTRODUCTION

*[Placeholder – This section will provide context behind the problem, vision and this action plan, including the importance of broadband for modern life. To be drafted following the rest of the plan.]*

## VISION

*All Californians must have access, both in their places of business and residence, to affordable, reliable, high-speed internet, devices and skills training to ensure equity – the universal ability to engage in all aspects of social and economic opportunity.*

Access to high speed internet service and digital literacy skills is foundational to economic opportunity, quality of life, and public safety. Ensuring all Californians have access to affordable, reliable, high-speed internet and current devices, paired with the experience and skills to use it is an essential is key to achieving racial, social, and economic equity in California.

We will build on the foundation set legislatively and programmatically across the state, and raise the commitment to reflect the urgency and needs of Californians overall.

### Notes

- Other foundational impacts to consider weaving throughout: critical/essential services and outcomes (e.g., healthcare, education, environmental protection), and everything else in modern life
- Treat broadband access as a “right” to change frame towards actions as obligations (i.e., not just incentives alone, need holistic approach to serving entire communities); also organizing structure to better tap into pots of money – MGA, KR, LP
  - Ensure appropriate Federal frame to leverage appropriate resources

## BROADBAND IN CALIFORNIA TODAY

### ***Insufficient Standards***

Existing broadband threshold speeds do not do justice to how households and businesses use the internet in daily life. For example, AB 1665 indicates that broadband access requires at least 6 mbps download and 1 mbps upload, and permits the CPUC to subsidize broadband infrastructure that provides at least 10 mbps download and 1 mbps upload. There is an urgent need for broadband

infrastructure that supports distance learning, telehealth with a dynamic threshold and performance standard for adequate speeds based on what residents need to participate in these essential functions.

- Federal standard is 25/3 and has latency standards
- Incorporate new EO standard, and address question of standard

To put this in context, a household that had more than one person on a video conference at the same time —e.g., a child attending class and a parent working from home—would exceed this standard and result in significant frustration with dropped calls or inability to participate for a struggling family.

- Consider adding more feedback / input from schools and health systems

When you consider network infrastructure impacts, it's clear that there may not be sufficient bandwidth to cover spiking demand in particular service territories. Moreover, existing definitions do not incorporate additional information that are critical for base level of service quality, such as latency.

Follow up: Bernie to share studies on actual usage data.

### **Limited Data**

This data is in the public interest, and should be in the public hands, especially in the context of the “right” to broadband access. Much of the data exists today, but is classified as confidential data and need to explicitly indicate that this is critical data to enable appropriate public action.

A foundational issue is the lack of sufficient, detailed data to fully understand where we are today, and therefore inform our policy making and investment decisions.

California needs better data to inform its investment and policy decisions. We have anecdotes and incomplete survey data to begin to determine signal from noise, but we lack the robust data and evidence base to inform our policymaking.

California's Data Strategy's first strategic objective is to build “enduring longitudinal datasets” (i.e., data that helps us understand how things change over time) to better understand the relationship between critical services, policies, and subsequent outcomes. Throughout this Action Plan we will leverage the best available data. Where there are gaps, we will triangulate the best available information, and actively welcome suggestions. When it comes to broadband, we are missing several critical elements, including:

- Address-level broadband service data
- Small business broadband needs and existing
- Tribal and agricultural service data
- Actual download and upload usages
- Detailed data on adoption and usage of existing low-income broadband offers
- Comparable price transparency across services available at minimum census block level
- Quality of service
- Data and visualizations that are easily accessible and useful for the public
- Better mechanism(s) to enable feedback and ground-truthing on data

## PRELIMINARY DRAFT

- *Maps of existing, readily accessible middle-mile broadband infrastructure, indicating census blocks with no fiber middle mile interconnection built out*
- *Maps of infrastructure in the public right-of-way that could be used to expand broadband such as utility rights-of-way poles, telecom and transmission towers and conduit*
- *M&O costs for operating network infrastructure across providers and parts of the state*

### Access

- Rural areas: At most 2/3 of rural Californian households have broadband available, and this likely overstates availability. For example, [BroadbandNow](#) recently manually checked 11,000+ addresses where the FCC indicated that one or more ISP currently provide service in that census block and used that to revise estimates of actual service. In California, the estimate indicates a revision from 1.17 million Californians who are unserved to 2.35 million Californians.
  - *How has available broadband changed over the last 5 years?*
  - *What percentage of rural / tribal census blocks have access to more than 2 providers at the 25 mbps down / 3 mbps up standard?*
  - *Add definition of Census blocks vs. tracts, and what they mean, either in appendix or as a sidebar in this section*
  - *Actual service availability (e.g., only available for new service if someone disconnects)*
- Urban areas: While there is significant internet provision within urban areas, the quality and speed of the service varies dramatically by the income of the community.
  - *Neighborhoods in urban areas with maximum internet speeds sorted by average household income?*
  - *Analysis of fiber deployment in urban areas overlaid with historical redlining? Where can we find this data?*

### Potential sources of insight

- CPUC to help in showing full picture on this
- Affordability as key driver of expected adoption; could potentially incorporate into Access or Adoption
- Deployment
  - Crown Castle point towards comment on enabling deployment of projects in pipeline

### Adoption

Cable statutory adoption threshold (DIVCA) for low-income customers in the state, run at a community level. Lack an explicit obligation today. Providers have low income programs today, but need to be better – i.e., more affordable, meet performance standard (tbc), and need to address literacy and devices.

We have high-level adoption goals, but lack obligations and goals for specific demographic groups.

- Under-adoption by certain demographic populations: [Pew found](#) that the two most commonly cited reasons nationally for not subscribing to home broadband are: 1) that their smartphone can do everything they need (45%), and 2) that it's too expensive (50%). Delving deeper into specific populations in California using California Emerging Technology Fund (CETF) annual

surveys, the following household types have broadband subscriptions (does not include smartphone only):

- No high school diploma: 2015 = 34%; 2019 = 53%
  - Seniors: 2015 = 56%; 2019 = 71% (note 2019 data is 65-74 years old vs. 65+ for 2015)
  - Disabled: 2015 = 51%; 2019 = 64%
  - Spanish-speaking: 2015 = 42%; 2019 = 57%
  - Less than \$20K p.a.: 2015 = 49%; 2019 = 52%
  - Tribes: = TBD; Change from 2015 to 2019
- **Lack devices:** According to the 2019 CETF survey, 10% of Californian households only have access to broadband at home through smartphones. This percentage remains stable for households with school aged children. This appears to underestimate the extent of the issue. A study conducted by Common Sense Media and the Boston Consulting Group found that 25% of K-12 students lack adequate connection (25 down/3 up) and 17% lack adequate devices at home for distance learning.

#### Additional sources of insight

- **Pew surveys of households with children during COVID. Consumer perspective changed in the context of pandemic, particularly around distance learning and word processing**

Potentially indicate in the standards or goal section that smart phones are not a substitute for broadband access

#### **Affordability**

The cost of broadband subscriptions is one of the largest barriers to adoption, and a critical issue we must grapple with to ensure all Californians can participate in 21<sup>st</sup> century life. Affordability needs to account for other costs such as connection fees, contract obligations and the retail costs for devices and accessories. Unfortunately, there is limited information available currently on broadband pricing across the State of California. We can understand the issue through a few examples and stories, and look at some of the limited available data. We are open and would like to partner to have greater transparency statewide

- *Provide anecdotal illustration of available subscription offer(s) in a low-income urban neighborhood, and put it in context of family economics*
- *Perhaps leverage data from [here](#) to illustrate access to affordable offer?*

#### **Reliability**

Given the increasing centrality of broadband as a utility for modern life, it must be reliable and robust to ensure families, schools, businesses, and governments can expect it to be available in places of business and residence, on demand and 24/7.

## PRELIMINARY DRAFT

- *Lack redundancy for middle mile broadband infrastructure (i.e., the infrastructure that connects local or last mile networks to other network service providers and the greater internet). Criticality for business, essential functions and emergency response.*
  - **Potential action: fiber loop**
- *Highlight issues that have emerged in recent wildfires*
- *Highlight issues that have emerged during COVID, work/learn from home*

During PSPS reliability of VOIP is troubling, need to encourage hardening of services for back-up power in the context of PSPS. Cellular carriers have made progress on this, and broadband has not. OES advised that VOIP systems using 911 have gone down – resilience and redundancy required.

Just because it's a different type of hardware doesn't mean not a telco service. Need to recognize it as a telco service to ensure it has the same type of obligations. Issue at the FCC level.

### **Digital Literacy and Skills:** TBD

- *An essential pillar of adoption, and important to be provided through schools. But need to also address non-school age children, including seniors, homeless populations, etc.*

### **California's current investment approach and funding**

- *How much have we invested in broadband statewide? And in what (e.g., deployment w breakdown of speeds by funding \$\$, adoption etc.)*
- *What is ROI of investments in high speed Internet infrastructure?*
- *What is the performance of regional consortia?*

Funding of public service program comes from voice, those that are voice only pay a greater percentage of their bill towards these programs. Regressive current structure, particularly those with the poorest existing infrastructure. Requires reform to surcharge.

### **California's current statewide broadband approach**

- *Highlight limitations to current state approach to broadband (e.g., council, CPUC, CDE & library grant programs)*

Also needs to include broader non-private role of players in broadband provision and adoption – e.g., regional consortia, CETF, CENIC, and other partners.

### **How we compare to leading US States (e.g., Texas, Arizona, New York, top ten in terms of population)**

- *Benchmark on the indicators above*
- *Compare funding investments vs. return on investment (as possible)*

### **How we compare to leading cities and countries abroad**

- *Benchmark on the indicators above*
- *Compare funding investments vs. return on investment (as possible)*

## **HOW 2020 HAS EXPOSED THE CHALLENGES AND INEQUITIES**

## PRELIMINARY DRAFT

We had been discussing the importance of broadband for regional economic development in 2019 and early 2020. COVID-19 laid bare the criticality of broadband for the remainder of modern life.

- *Families with kids suddenly needed to be on video-conferences while kids are on Zoom doing distance learning*
- *Schools suddenly needed to ensure all of their kids had devices, access to internet, and the ability to use technology*
- *Doctors and therapists suddenly had to shift their visits to more online platforms*
- *Telework – private and public employees*
- *Business now doing more online services which impacts business in rural communities who can't provide online services, and millions of employees used home broadband connections to continue to work and keep businesses operating*
- *Farms needing to sell direct to consumer online as distribution to restaurants disappeared*
- *Isolated seniors*

The inadequacies of the status quo were immediately apparent.

- *Home broadband networks were overloaded and inadequate for simultaneous video conferences*
- *The digital divide was for all to see with poorer families without devices and access to internet*

We met the immediacy of this moment in partnership with companies and organizations from across the state.

- *The State's surplus equipment program led by the Department of General Services (DGS) was immediately tapped to accelerate distribution of refurbished computer equipment to the underserved.*
- *The Recovery Task Force was created to establish a dedicated public and private network to help solve some of the biggest challenges regarding broadband access.*
- *The Department of Education created a Digital Divide Task Force in collaboration with legislators to partner with providers in creating solutions to bridge the digital divide for K-12 students.*
- *The Department of Technology partnered with the Department of Aging to specifically address the broadband needs of California's aging population*
- *Several public-private partnerships catapulted broadband adoption efforts including Google's device donation to K-12 students and the aging population, and Verizon's extended efforts to provide affordable Internet access and devices to 125,000 students in the Los Angeles Unified School District.*
- *The Public Utilities Commission, in cooperation with the Department of Education, made \$30M available to subsidize over 100,000 mobile hotspots for more than 400 school districts and, over 16,000 computing devices for 14 school districts.*

Although many ad-hoc broadband initiatives came to fruition in response to the COVID pandemic, the need for better broadband access, increased broadband adoption and improved computer skills became a matter of survival.

### **AS A RESULT, WE WANT TO RECONSIDER BROADBAND STANDARDS**

We want to reconsider broadband standards according to guiding principles:

1. *At a minimum, technology should be sufficient to meet emergency shelter-in-place orders in response to pandemics and emergencies to ensure protection of public health and safety.*
  - a. *Include the major elements of broadband performance, including speed, latency, outage time, etc.*
2. *New builds should also be future proof to expected demand shifts based on the total cost of ownership TCO over infrastructure lifetime*

Informed by a few data points (that require fleshing out):

1. *Current network usage and performance data for key residential use cases (e.g., telework, telemedicine, distance learning) [e.g., include a table that ties speed and latency requirements to specific residential use cases]*
2. *User feedback on specific network experiences based on technology*
3. *Historical trajectory of usage changes over the last 15 years*
4. *Forecasts of usage changes*
5. *International corollaries to triangulate requirements*
6. *Operational and network upgrade costs of different technologies (e.g., comparative analysis of total cost of ownership of future-proof deployment (fiber) versus shorter-term alternatives)*

As a result, we are proposing the following standards to ensure sufficient performance supporting distance learning, telework, telehealth and public safety:

- *Middle mile = TBD*
- *Last mile with density < X = TBD*
- *Last mile with density > X = TBD*

## **HOW WE CAN ACHIEVE OUR VISION**

We have a long way to go to achieve our vision. Specifically:

- *Insert a “from” / “to” table with baselines and where we want to be in 5 years*
  - *5 years may be necessary for the deployment actions, but can measure other elements in shorter time frames*
- *Synthesize high-level strategy to frame actions below, potentially including high level roles and responsibilities*

## **WHAT IT WILL COST TO GET THERE**

- *Explain assumptions used to build out the network according to proposed standard(s)*
- *Show outputs of cost model from CPUC under different scenarios, using a range to illustrate potential higher costs possible given non-optimal conditions*
  - *California Broadband Cost Model based on Connect America Cost Model*



- *Scenarios to address unserved and underserved at different speed scenarios (e.g., all unserved to 100 symmetrical, all underserved to 100 symmetrical)*
- *Geographical map & % of population in CA that live in areas where fiber won't pencil out economically (i.e., the hockey-stick graph, which ideally we'd extract from the model ASAP as already exists)*
- *Assumptions around how we will serve the ~2% (i.e., technology types)*
- *Ranged cost estimates given technologies to provide order of magnitude sense of cost for this 2%*
- *Assumptions around what kind of performance can be expected both in the majority of the state and what's associated with the tech chosen for the 2% (i.e., bandwidth, speeds, latency)*
- *Model will include opex and capex costs*

### **ACTIONS WE WILL TAKE OVER THE NEXT 6 AND 18 MONTHS**

[This section will include actions such as: governance changes, funding opportunities, data collection, etc. that have been noted as problems above. We have shared a separate list of proposed or requested actions that have been surfaced to date to help inform this section. The below includes a high-level set of categories and bullets to generate discussion. ]

**Obligate wholesale leasing of fiber access to other providers to enable last mile service provision**

### **Cross-cutting themes**

- Gather better detailed data to inform policymaking and investment decisions
- Restructure Statewide governance of broadband, including revisiting funding programs
- Collaborate with local governments to facilitate cross-jurisdictional learning
- Make the case for incremental broadband investment (e.g., model socio-economic impacts)

### **How we can deliver more access to high-speed internet**

#### Within 6 months

- *Coordinate/support application for federal funding opportunities*
- *Share list of funding opportunities in simple, easy to use format*
- *Accelerate the availability of public data to facilitate broadband deployment [Q - what specific public data must be available?]*
- *Create programs to provide technical assistance for public entities (local governments, Tribes, school districts, etc.) at the appropriate political level to assist public and private entities to productively deploy broadband infrastructure. [Q - What type of technical assistance is required? Can we illustrate this by adding specificity]*
- *Leverage state contract vehicles to support accelerate broadband deployments*

Within 18 months

- *Adjust existing funding instruments to enable incremental broadband deployment in specific areas (e.g., schools, transportation, water infrastructure)*
- *Review and propose revisions to existing California broadband funding programs, including exploring potential bond issuance in order to more quickly and effectively deploy more*
- *Maximize deployment in state, local, and tribal government agency rights of way to close the middle-mile gap*
- *Implement a policy for state, local, and tribal government agency and service provider coordination to facilitate deployment [Q – what type of policy? What lever(s) do we want to consider / what's the problem we are trying to solve?]*
- *Develop and implement a State of California Dig Smart policy by incorporating broadband into the planning, design, engineering, and construction of all major infrastructure development projects by default, and adjusting based on **appropriateness**, feasibility, and cost considerations*
  - **Need to define major infrastructure projects, and set useful standards to ensure reasonable ROI on the investments**

**How we can drive adoption**

Within 6 months

- *Motivate and involve philanthropy*
- *Leverage key low-income programs (e.g., CalEITC, CalFresh, CalWorks) to promote affordable internet offers*
- *Updates to Lifeline program to support underserved*

Within 18 months

- *Fund detailed user research to understand why people aren't using low-income or free programs, estimate utilization in CA, and run randomized control trial to drive adoption*
  - *This should include reviewing adoption data from free COVID-19 programs*
- *Create anonymous data sharing hub for data on low income programs to be shared w state*
- *Develop consumer-oriented search tool for broadband availability, low-cost programs, devices, etc. Engage ODI and alpha team to build something similar to the food banks.*
- *Create sustained funding mechanism to drive adoption (e.g., devices, training, support for immigrant communities)*
- *Other ideas for local govts? Libraries? etc.*
- *Implement low-income and affordable offer requirements, metrics, accountability, and standards.*

**How we can drive affordability**

Within 6 months

- *Publish pricing data on a per MB basis, including low-income programs*

Within 18 months

- *Analyze and publish essential service broadband affordability data. TBD*

#### **How we can boost reliability**

##### Within 6 months

- *Set reliability and resilience standards based on detailed review of failure during recent disasters*

##### Within 18 months

- *TBD*

#### **How we can improve digital literacy and skills**

##### Within 6 months

- *Support sustained, regular meetings of local governments leading on digital inclusion (and interested parties), publish findings and actively share with other communities*
- *Codify best practices and highlight evidence-based programs at a State level*

##### Within 18 months

- *Support local digital skills training programs (either through funding or other support), as part of broader economic recovery efforts*
- *Date for local broadband infrastructure deployment and digital equity plans.*

#### **IMPLEMENTATION APPROACH**

*This section will include information on:*

- *How we will monitor implementation*
- *How frequently we will revisit these recommendations*