Written Record Only

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California Emerging Technology Fund
Comments on the Cap-and-Trade Auction Proceeds
Draft Third Investment Plan:
Fiscal years 2019-20 through 2021-22

Introduction

The California Emerging Technology Fund (CETF) appreciates this opportunity to submit Comments on the Draft Third Investment Plan for the Cap-and-Trade Auction Proceeds. CETF commends the California Air Resources Board (CARB) for leadership in reducing greenhouse gas (GHG) emissions to meet the State of California's adopted goals. CETF also salutes CARB for acknowledging the importance of access to broadband (a generic term for high-speed Internet service that includes both wireline and wireless technologies) to assist the State in meeting the GHG emission targets and climate change goals. Further, State law on climate change and CARB prioritize disadvantaged communities and low-income households which also are the priority populations for closing the Digital Divide.

For example: (1) The *2014 Climate Change Scoping Plan (Building on the Framework Pursuant to AB32)* references broadband in two success stories to reduce GHG emissions: telehealth on Page 47; and energy efficiencies and agriculture on Page 58. (2) The *Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents (Final Guidance Document dated February 21, 2018)* lists broadband on Page 31 as one of three "awareness barrier" identified through CARB's public process: "Low-income communities in remote areas of the State may lack access to broadband Internet service, leaving residents unable to access information on clean vehicles and consumer incentives, regional maps of public charging stations, information on public transportation, and websites for coordinating car sharing and commuter vanpools." The document further states: "CARB agrees that additional opportunities must be undertaken to expand outreach and education for residents in these communities." (3) The information slides presented at the Public Workshop in Fresno on September 4, 2018 highlighted the need for climate investments to address the needs of disadvantaged communities with tangible public benefits that result in community transformation. Taken together, these CARB findings and commitments establish an imperative to close the Digital Divide for the most disadvantaged residents through the Investment Plan.

Attached is a publication previously submitted to CARB that explains why and how "broadband is a green strategy" for the State in addressing several inter-related challenges (*Can the Internet Help Save the Environment?* YES). This testimony explains how closing the Digital Divide and promoting Digital Inclusion supports and aligns with the priorities in the Draft Third Investment Plan and, therefore, should be recognized as a California Climate Investment Program in the final adopted Investment Plan for Fiscal Years 2019-2020 through 2021-2022.

Fortunately, the Cap-and-Trade Auction Proceeds Draft Third Investment Plan: Fiscal Years 2019-20 through 2021-2022, Executive Summary (Page ES-1) provides the foundation and rationale for incorporating and optimizing Digital Inclusion:

"Californians and our communities need transformative investments now. With potentially billions more in Cap-and-Trade auction proceeds available in the coming years, these incentives must be used deliberately to meet our ambitions 2030 ad 2050 climate targets while spurring economic, equity, community, and environmental advancement. These investment programs, coupled with community leadership and leverage with additional support, can, and must accomplish more."

"First, the incentives provided by California Climate Investments allow individuals, agencies, businesses, and communities to continue to envision and develop a low-carbon, safe, accessible California. Second, these funds and the Climate Investments program can produce even greater GHG emission reductions and other benefits. California Climate Investments programs can improve air quality, fund research needed to further reduce GHG emissions, support jobs that are needed for disadvantaged and low-income communities to transition to a low-carbon future, and prepare for climate change by creating more resilient communities, infrastructure, and natural lands. Third, we know that disadvantaged and low-income communities are disproportionately burdened by climate change. These same communities tend to face greater barriers in accessing these funds and successfully implementing projects. To reach all Californians, we must improve funding equity and provide more investment benefits to these communities."

In addition, the Legislature and Governor enacted the Internet For All Now Act of 2017 (AB1665) authored by Assemblymember and CARB Board Member Eduardo Garcia which finds and declares the following to support incorporation of Digital Inclusion in the Investment Plan:

(1) The availability of high-speed Internet access, referred to generically as "broadband" and including both wired and wireless technologies, is essential 21st century infrastructure for economic competitiveness and quality of life. Economic studies confirm that the use of broadband technologies increases economic productivity as a foundation for increased efficiency in organizational operations and enhanced profitability in business.
(2) Broadband infrastructure is also vital to the operation and management of other critical infrastructure, such as energy generation systems and the electrical grid, water supply systems, and public safety and emergency response networks. There is a need for world-class broadband infrastructure throughout California to support these major infrastructure investments, and thereby to protect lives, property, and the environment.
It is the intent of the Legislature that California be a national leader and globally competitive in the deployment and adoption of broadband technology and in implementing quality universal access for all residents.

The following Comments are organized in 3 sections to explain and describe the rationale and opportunity to link the Cap-and-Trade Third Investment Plan to Digital Inclusion:

- Shared Focus on Disadvantaged Communities and Low-Income Households
- Alignment of Investment Priorities with Digital Inclusion Strategies
- Recommendations to Address Multiple State Goals and Leverage Resources

Shared Focus on Disadvantaged Communities and Low-Income Households

The focus for the Greenhouse Gas Reduction Fund (GGRF) on disadvantaged communities and low-income households are the same priorities for closing the Digital Divide as set forth by the Legislature and Administration, California Public Utilities Commission (CPUC), CETF, Broadband Regional Consortia, and Digital Inclusion community-based organizations (CBOs) throughout California. According to the 2017 Statewide Survey on Broadband Adoption sponsored by CETF and conducted by the University of California, Berkeley Institute of Government Studies (IGS), 31% of California households are "digitally disadvantaged": 13% are unconnected with no home high-speed Internet service and 18% are underconnected with only a smartphone (which limits the ability of students to achieve excellence in education and inhibits the opportunities for adults to acquire workforce skills)—see attached CETF Decade Report on Pages 12-13. These 31% of Californians live in the same rural communities and urban low-income neighborhoods that have been recognized by California Environmental Protection Agency (CalEPA) and identified by CalEnviroScreen as priorities for GGRF (SB535, DeLeon). Page 12-13 Decade Report. A closer look at the research data shows more inequity in that it is the most disadvantaged residents who are unconnected and undersconnected.

The Most Disadvantaged Residents Are Unconnected and Underconnected

Segment of the Population (2017 Statewide Survey)	Connected at Home	Smartphone Only	Not Connected at Home
Statewide	87%	18%	13%
Earning Less Than $20,000 Annually	75%	27%	25%
Spanish-Speakers	70%	38%	30%
People with Disabilities	75%	15%	25%
Adults Age 65 or Older (Seniors)	69%	9%	31%
Non-High School Graduates	67%	28%	33%

Further, there is a growing percentage of the population (more than 98% today) who say they want to be online, including aging residents who realize that if they develop a chronic health condition that Internet access will enable them to remain in their home through telemedicine.

This data quantifying the magnitude of the Digital Divide are compelling evidence to embrace Digital Inclusion to fulfill the quest for equity through the Investment Plan. CARB graphically explained the difference between "equality" and "equity" and eloquently set forth a commitment to achieve equity. However, the unconnected and underconnected residents will continue to be disadvantaged in contributing to and benefiting from GGRF investments without an intentional commitment and intensified focus on Digital Inclusion in the Investment Plan. Getting online all residents is essentially axiomatic to achieving the GHG emission goals: there is a shared focus on disadvantaged communities and low-income households.

Alignment of Investment Priorities with Digital Inclusion Strategies

The Draft Third Investment Plan for the Cap-and-Trade Auction Proceeds and GGRF investment priorities align with Digital Inclusion strategies, as indicated below by an asterisk. For example:

- Transportation: To reduce congestion and improve mobility, the best trip is a "virtual trip" because it has no direct impact on the environment and clearly is low carbon systemically. Internet connectivity between rural and urban medically-underserved communities and medical centers enables telehealth-telemedicine, reducing trips for outpatient follow-up visits by as much as 40%. High-speed Internet connectivity is essential for online college courses and to support long-distance learning, which is especially vital for disadvantaged communities and low-income households who have fewer resources to access education and workforce training. Thus, having all communities connected with high-speed Internet infrastructure advances the investment priorities for transportation.
- Energy: To improve energy efficiency the State and energy utilities promote peek demand management through load dispatch in the built environment, which requires Internet connectivity. However, unconnected and underconnected low-income households are not able to participate in such energy efficiency programs, incentives or rebates. Less than half of low-income households signed up for the CARE programs administered by investor-owned utilities (IOUs) have email addresses and are not able to receive information about energy efficiency programs or pay bills online, often requiring trips to the utility to pay bills with cash. Sacramento Municipal Utility District has fully embraced the concept of getting all of their low-income customers online and has worked with CETF and the California Foundation for Independent Living Centers to reach out to their CARE customers. San Diego Gas and Electric Company and Southern California Gas have cooperated with pilot projects. But, generally, the IOUs have been reluctant to fully embrace this strategy and need encouragement from the CPUC (and their Low Income Oversight Board) and CARB.
- Natural Resources: To optimize management of natural resources, particularly water use, Internet connectivity is required infrastructure. Unconnected and underconnected rural communities and low-income urban neighborhoods cannot participate in water-use efficiency programs managed with information or controls dependent on the Internet.
- Agriculture: To optimize resource use and maximize production for agriculture, emerging "AgTech" requires sensors in the fields with a wireless signal. AgTech holds much promise for conserving water, determining fertilizer needs, increasing crop production, and accessing external markets. Further, many agricultural communities also are disadvantaged communities with high percentages of low-income households. However, most of California's very productive farmlands are not connected to a high-speed Internet network.
- Resiliency: To protect public safety, facilitate quicker recoveries from natural disasters and other emergencies, and support increased resiliency of vulnerable communities and fragile population segments, high-speed Internet networks are required throughout the state. The majority of county fairgrounds (State assets) used for staging emergency responses and evacuations have no permanent high-speed connectivity. Research, communication networks, and data analyses that could better inform fighting wildfires (which cause huge amounts of GHG and other air pollutant emissions) cannot be applied because of the lack of connectivity. And, employers (particularly small businesses) and fragile communities cannot quickly recover because of the lack of ubiquitous broadband.

All of these challenges can be better addressed if there was high-speed Internet infrastructure throughout California, particularly for disadvantaged communities and low-income households. Fortunately, the Draft Third Investment Plan and GGRF priorities and strategies constitute a solid foundation and provide a rational framework to accelerate progress in closing the Digital Divide by aligning resources and "connecting the dots" among State programs. The following indicates opportunities for alignment of Digital Inclusion strategies with GGRF priorities.

**Alignment with Digital Inclusion Strategies*

AB 1532 Original Investment Priorities

1. Energy Efficiency and Renewable Energy*
2. Low Carbon Transportation, Freight, and Advanced Technology Vehicles and Fuels*
3. Natural Resources: Water Use and Supply, Land Conservation, Forestry, and Sustainable Agriculture*
4. Strategic Planning
5. Waste Diversion, Reduction, and Reuse
6. Research, Development, and Deployment of Innovative Technologies and Practices
7. Partnerships for Local and Regional Program Implementation*

AB 398 Priorities for Funding:

1. Air Toxics and Criteria Pollutants
2. Low and Zero Carbon Transportation*
3. Sustainable Agriculture Practices*
4. Health Forests and Urban Greening
5. Short-Lived Climate Pollutants
6. Climate Adaptation and Resiliency
7. Climate and Clean Energy Research

The above alignment of priorities is further supported by other CARB publications. The *California's Fourth Climate Change Assessment – California's Changing Climate 2018: A Summary of Key Findings from California's Fourth Climate Change Assessment* states:

> *Page 8: "This Fourth Assessment report highlights the importance of adaptation efforts to minimize climate impacts to disadvantaged communities, as well as case studies of innovative programs to increase resiliency of vulnerable populations in California. The report identified areas for additional research needed to improve climate adaptation for vulnerable populations and to promote climate justice in California. These include better tools, indices, maps, and metrics for identifying and quantifying resilience in vulnerable communities, research into achieving a just transition to a low carbon economy, and methods for ensuring community involvement in climate adaptation planning."*
> *Page 14: States that agriculture will be impacted by climate change. "Many of these impacts can be lessened through on-farm management practices, technological advances, and incorporation of climate change risks in decision-making."*
> *Page 18: "Climate change is making major disasters more frequent and destructive, and emergency mangers are starting to ensure their capacity matches growing challenges. A Fourth Assessment study found that $1.7 billion of critical facilities for emergency response, like dispatch centers and fire stations, are at risk to wildfire or flood damage by 2100, and researchers developed a tool to assess emergency infrastructure vulnerability.*

The *Assessment Appendix A Page A-1* references investor-owned electric utilities (IOUs) which have the best data base of low-income households in the state and can be a valuable partner in getting online these disadvantaged and vulnerable residents. Assemblymember Chris Holden, Chair of the Utilities and Energy Committee requested information from the IOUs regarding the home connectivity status of their low-income customers and the nature of online communications about energy efficiency programs. The responses from the IOUs revealed additional evidence of low-income residents being disadvantaged because they do not have email addresses on record to receive online communications.

IOU CARE Customers	PG&E	SCE	SDG&E	SoCalGas
IOU Total CARE Customers	1,406,799	1,227,268	282,388	1,557,184
CARE Customers with Email Addresses	488,752	445,807	197,672	761,709
% CARE Customers Online with IOU	35%	36%	70%	49%

It is clear that from enabling smart meters, robust demand response programs, real-time price and usage information, grid stability, cost savings, lower energy demand, and reduced GHG emissions that California's public policy goals are already dependent on ubiquitous access to a high-speed Internet network, and that dependence will only increase over time.

Overall, what is needed is to incorporate Digital Inclusion into every GGRF investment, both for the 4 programs that receive 60% of the funds through continuous appropriation and the 40% allocated through the State budget process pursuant to the Cap-and-Trade Investment Plan. Each of the 4 programs receiving the continuous appropriation should be asked to develop a set of strategies for optimizing broadband deployment in the course of implementing their projects. And, then CARB needs to continue to provide focused leadership to ensure that something actually happens. As examples: (1) While the High-Speed Rail Project (HSR), which goes right through the heart of San Joaquin Valley agriculture, receives 25% of GGRF and is considering incorporating broadband into its construction, years have passed since this concept was first raised and there is still no significant broadband deployment being enabled by HSR. (2) While the Strategic Growth Council receives 20% of GGRF for the Affordable Housing and Sustainable Communities Program, the majority of residents in publicly-subsidized housing in California remain unconnected and Digital Inclusion is not fully embraced as an essential "sustainable" strategy for all funded projects. (3) While the California State Transportation Agency and Department of Transportation (Caltrans) receive 15% of GGRF, Caltrans and the California Transportation Agency are still deliberating on how to advance broadband as a fully-supported mobility strategy, including the designation of strategic corridors for deployment. Further, in order to get disadvantaged communities and low-income households online, there must be in-language and in-culture outreach by "trusted messengers and honest brokers"—community-based organizations (CBOs) who know and understand the priority populations. This requires collaboration between all of the recipients of GGRF funds and grants and CBOs that are experienced in promoting and achieving Digital Inclusion. The Third Investment Plan presents that opportunity to harness the energy and power of collaboration and partnerships by bringing together a broader set of CBOs and stakeholders to explore working together to achieve the shared goals for GHG emission targets and closing the Digital Divide.

Recommendations to Address Multiple State Goals and Leverage Resources

Incorporation and integration of Digital Inclusion into the Cap-and-Trade Third Investment Plan and explicitly authorizing funding for Digital Inclusion projects will both: (a) accelerate progress towards meeting the State's GHG emission reduction targets and climate change goals; and (b) align with other State goals and leverage additional existing resources. The relationship between the climate change goals and closing the Digital Divide per the Internet For All Now Act of 2017 is explained above. However, another current opportunity to align the Third Investment Plan with State goals and leverage existing resources relates to the corridor planning processes being conducted by the California Transportation Commission (CTC) for the Comprehensive Multimodal Corridor Planning Guidelines and the Department of Transportation (Caltrans) for the Corridor Planning Guidebook. Attached is the CETF letter to CTC and Caltrans providing input to fully incorporate broadband as a "mobility" strategy to decrease traffic congestion and reduce impacts on the environment, making the case for "broadband as a green strategy" in transportation. The California Broadband Council is coordinating efforts among State Agencies and stakeholders to facilitate identification of "Strategic Corridors" for broadband deployment. CARB can reinforce the importance of this collaboration among State Agencies and advance implementation by supporting it through the Third Investment Plan.

These strategies are consistent with the *California Climate Investments Cap and Trade Dollars at Work: Funding Guidelines for Agencies that Administer California Climate Investments* delineated on Page 10, Table 2. The Guiding Principles that most align with Digital Inclusion are indicated below with an asterisk although Digital Inclusion is consistent with all of them.

**Alignment with Digital Inclusion Strategies*

Summary of Guiding Principles for California Climate Investments

III.D.1 Facilitate GHG emission reductions and further the purposes of AB32 and related statutes. [Requirement.]*

III.D.2 Target investment in and benefiting priority populations, with a focus on maximizing disadvantaged community benefits. [Requirement]*

III.D.3 Maximize economic, environmental, and public health co-benefits to the State. [Requirement]

III.D.4 Foster job creation and job training, wherever possible. [Requirement]*

III.D.5 Encourage projects that contribute to other State climate goals. [Recommendation]*

III.D.6 Coordinate investments and leverage funds where possible to provide multiple benefits and to maximize benefits. [Recommendation]*

III.D.7 Avoid potential substantial burdens to disadvantaged communities and low-income communities. [Requirement]

III.D.8 Ensure transparency and accountability and provide public access to program information. [Requirement]

III.D.9 Conduct outreach to help potential applicants access funding, particularly for priority populations. [Recommendation]

In summary, ensuring ubiquitous broadband to all communities and getting online all residents has multiple benefits and enables more efficient solutions to address all other challenges facing California: generate jobs, enhance workforce skills, improve transportation mobility, reduce energy costs, and enable more efficient management of natural resources. As stated above, what is needed overall is to incorporate and integrate Digital Inclusion into the 4 programs that receive 60% of the GGRF through continuous appropriation and to authorize other projects to close the Digital Divide as eligible for the 40% of GGRF allocated through the State budget process. There also needs to be facilitation of collaboration between climate change stakeholders and Digital Inclusion champions, particularly CBOs that have experience in reaching disadvantaged communities and low-income households. CETF stands ready to assist CARB in convening stakeholders and forging innovative partnerships.

The following are over-arching recommendations for inclusion in the Third Investment Plan that will require consultation among all the stakeholders to develop and refine implementation actions. However, it is essential to establish the policy and commitment in the Plan.

- Request High-Speed Rail Authority (HSR), Strategic Growth Council, California State Transportation Agency, and Department of Transportation to prepare and implement plans to incorporate Digital Inclusion and facilitation of broadband deployment in their use of GGRF continuous appropriations. Engage the California Department of Food and Agriculture and California State Board of Food and Agriculture, University of California (Agriculture and Natural Resources), U.S. Department of Agriculture, and CENIC (Corporation for Education Network Initiatives in California) to assist HSR.

- Endorse efforts of the California Broadband Council, California Transportation Commission, Department of Transportation, California Public Utilities Commission, Office of Emergency Services, California Emerging Technology Fund, Internet Service Providers, Metropolitan Planning Organizations, Local Transportation Commissions, and other stakeholders to confer and designate "Strategic Corridors" for broadband deployment.

- Encourage all recipients of GGRF to engage with community-base organizations (CBOs) experienced in promoting and achieving Digital Inclusion to become partners in closing the Digital Divide and eligible to receive funding through their GGRF grants. In particular, encourage the Strategic Growth Council to convene a forum with the Broadband Regional Consortia, Digital Inclusion CBOs, and all current recipients of funding from the Affordable Housing and Sustainable Communities Program to explore how to collaborate and partner to get disadvantaged communities and low-income households online. The California Emerging Technology Fund will assist with this convening.

- Engage and urge the California Public Utilities Commission and energy utilities to reach out to all low-income customers to inform them about available affordable offers for Internet service. Encourage planning and funding within the CARE Program for outreach to and assistance to low-income household to subscribe to affordable offers or support expanded legislative authority if needed. Consider providing match funding to CARE from GGRF.

- Authorize Digital Inclusion projects as eligible for GGRF funding, including:
  - — Outreach and assistance to low-income households, especially in disadvantaged communities, to sign up for affordable Internet service offers in conjunction with providing awareness and education about reducing household carbon footprints.
  - — Screening and technical assistance by 2-1-1 Information Services for both home connectivity and opportunities to reduce household carbon footprints coupled with referrals to Digital Inclusion CBOs to assist residents in getting online.
  - — Planning in disadvantaged communities to become "smart sustainable communities" with ubiquitous broadband deployment to ensure access for all residents online, including preparation of policies and ordinances for implementation.
  - — Convening of Local Governments with disadvantaged communities by the California State Association of Counties (CSAC), Rural County Representatives of California (RCRC), and League of California Cities (LCC) in collaboration with Broadband Regional Consortia to develop strategies for broadband deployment and adoption in those areas.
  - — Planning by the Office of Emergency Services and Regional Consortia for deployment of broadband to county fairgrounds frequently used for staging emergency responses and evacuating residents, including installation of research monitoring stations to gather information to inform strategies and tactics to assist with fighting wildfires to reduce GHG emissions.
  - — Technical assistance to farmers regarding AgTech, particularly in disadvantaged communities, coupled with monitoring and data gathering to document results and conduct research on resource efficiency.
  - — Establishment and operations of a robust statewide telehealth-telemedicine network based in California (with all Directors residing in the state) that connects healthcare facilities in all disadvantaged communities to medical centers.
  - — Deployment of infrastructure to ensure that all publicly-subsidized affordable housing units (particularly in older housing authority complexes) have connectivity and digital literacy training (coupled with affordable devices) to get online all residents.
  - — Outreach and technical assistance to small businesses in disadvantaged communities to get them online to reduce their carbon footprint, improve productivity and increase profitability, and assure enhanced resiliency.
  - — Planning, technical assistance and funding to Tribal Governments for broadband deployment powered by renewable energy to homes on Tribal Lands.

The California Emerging Technology Fund thanks you for consideration of these Comments.

<u>Attachments to CETF Comments to CARB on Draft Third Investment Plan</u>

— Summary of CETF Comments on Draft Third Investment Plan
— Brief on "Broadband as a Green Strategy": *Can the Internet Help Save the Environment? YES*
— CETF Decade Report: Catalyst for Action
— 2017 Statewide Survey on Broadband Adoption
— CETF Letter to California Transportation Commission and Department of Transportation

Can the Internet Help Save the Environment? Yes.

"Investment in broadband infrastructure is a fundamental part of sustainable social and economic growth, and is essential to building a greener and more equitable California."

John Gioia, Contra Costa County Supervisor
President of California State Association of Counties
Member of California Air Resources Board

Broadband and the Environment: Technology Strategies for a Greener California

We've all heard of the ways we can help save the planet, such as conserving energy in our homes and driving fewer miles in our cars. Such common environmentally-conscious strategies become a lot easier when technology supports our efforts. It turns out that high-speed Internet—also known as broadband—can do exactly that.

Today, workplaces, government offices, farms, schools, hospitals, and households use broadband to cut costs and carbon emissions. Internet tools and electronic communications allow Californians to use computers and smart devices to work from home, manage irrigation in the fields, apply for a driver's license, get a check-up with a healthcare specialist, and monitor thermostats while away from home. When we use less fuel, water, and electricity, we emit less air pollution into the atmosphere.

These modern-day approaches to managing daily life all depend on having fast, reliable, and affordable Internet service everywhere—from the kitchen table to the tomato field. E-Government, Telehealth, Teleworking, Precision Agriculture, Smart Building, and Smart Grid are key opportunities in which Californians are making progress to conserve resources and promote cleaner, healthier lifestyles.

Affordable, accessible broadband is critical for California to meet its greenhouse gas (GHG) emissions goals, which will reduce impacts on the environment and improve the quality of life for all.
The data proves it. Let's all promote broadband for a greener California!

August 2014

> *"In Northern California alone, the most efficient 481 buildings saved approximately $148 million in annual utility bills and reduced CO_2 equivalent to 50,800 homes."*
>
> **U.S. Environmental Protection Agency**
> April 2014

E-Government

Skip the Trip, Go Online

E-Government services allow Californians to obtain services online, saving time, money, and travel-related pollution. The California Department of Motor Vehicles (DMV) encourages customers to "Save Time, Go Online", and the program has been met with great success. In 2013, nearly one quarter of all California vehicle registrations—over 8 million—were completed electronically.[1] Drivers were able to trim the number of trips to the DMV while keeping fuel costs in their wallets.

Governments at all levels can drive efficiency while improving customer service.[2] The federal government is encouraging the shift to electronic communications, for example, by promoting online tax filings and direct deposit payments. Those activities alone last year saved the federal government $64 million in paper costs.[3]

Telehealth

Bring Quality Healthcare Closer to You

Telehealth brings the healthcare provider and patient together online, ensuring quality and timely care, saving travel headaches, and encouraging better monitoring of health status. Each online health appointment saves 95 percent of GHG emissions that would result from a typical drive to a doctor's office.[4]

Based on the findings at a California hospital serving a large rural area, the California Telehealth Network estimates that the value of each follow-up consultation conducted online saves $300 by eliminating transportation costs and counting wages that would be lost due to time off. In a single year, those savings added up to 288,000 fewer miles driven at a single hospital. Imagine the combined impact of online consultations across all 345 hospitals in the state.

Teleworking

Cut Traffic and Carbon Emissions

Teleworking utilizes alternative worksites and video conferencing while generating cost savings, boosting employee satisfaction, and reducing GHG emissions. Companies that encourage their employees to telework see results both in economic value and in positive impacts on the environment. If an employee works from home one day per week, reducing car travel by 7 percent and air travel by 10 percent, the carbon reduction impact could be as much as 65 megatons of CO_2 with a corresponding national economic value of $25 billion by 2020.[5]

Experts at UC Davis and UC Irvine reviewed available research and discovered similar findings. For home-based workers, they found that work-related miles driven were reduced by 90 percent. For telecommuters working at a central site away from the main office, mileage reductions ranged between 62 and 77 percent.[6]

Precision Agriculture

Save Water and Increase Productivity

Precision Agriculture preserves one of California's most precious resources: water. Water delivery accounts for 20 percent of the state's total energy consumption, and the agricultural sector is a major user.[7,8] Precision Agriculture uses real-time information to help farmers more efficiently irrigate and monitor their crops. Wireless broadband-enabled systems supply satellite observations and data about the plants, soil, atmosphere, and irrigation systems to help farmers manage their fields and livestock.

The results are encouraging: farmers have seen increases in productivity ranging from 20 to 70 percent, and a decrease in water use ranging from 20 to 30 percent[8] (depending on how many water-use efficiencies have been previously implemented on a given farm). More efficient agricultural practices save money and reduce water and delivery-related energy consumption.

Smart Building

Make Buildings More Energy Efficient

Smart Building strategies make for better working environments and lead to significant energy savings. Energy use in buildings ranks as the second highest source of GHG emissions in California.[9] In Northern California alone, the 481 most-efficient buildings saved approximately $148 million in annual utility costs and reduced GHG emissions equivalent to that produced by 50,800 homes.[10]

Modern construction standards are leading to better efficiency, but energy waste persists in older buildings because of inefficient heating and cooling, lighting, and other power systems.[11] Building management systems (BMS) use technology to control and monitor usage patterns, which can lead to major improvement even in older construction. Utilities and technology companies now are providing online services to track daily energy usage for industry, public facilities, and residences.

Smart Grid and Electric Vehicles

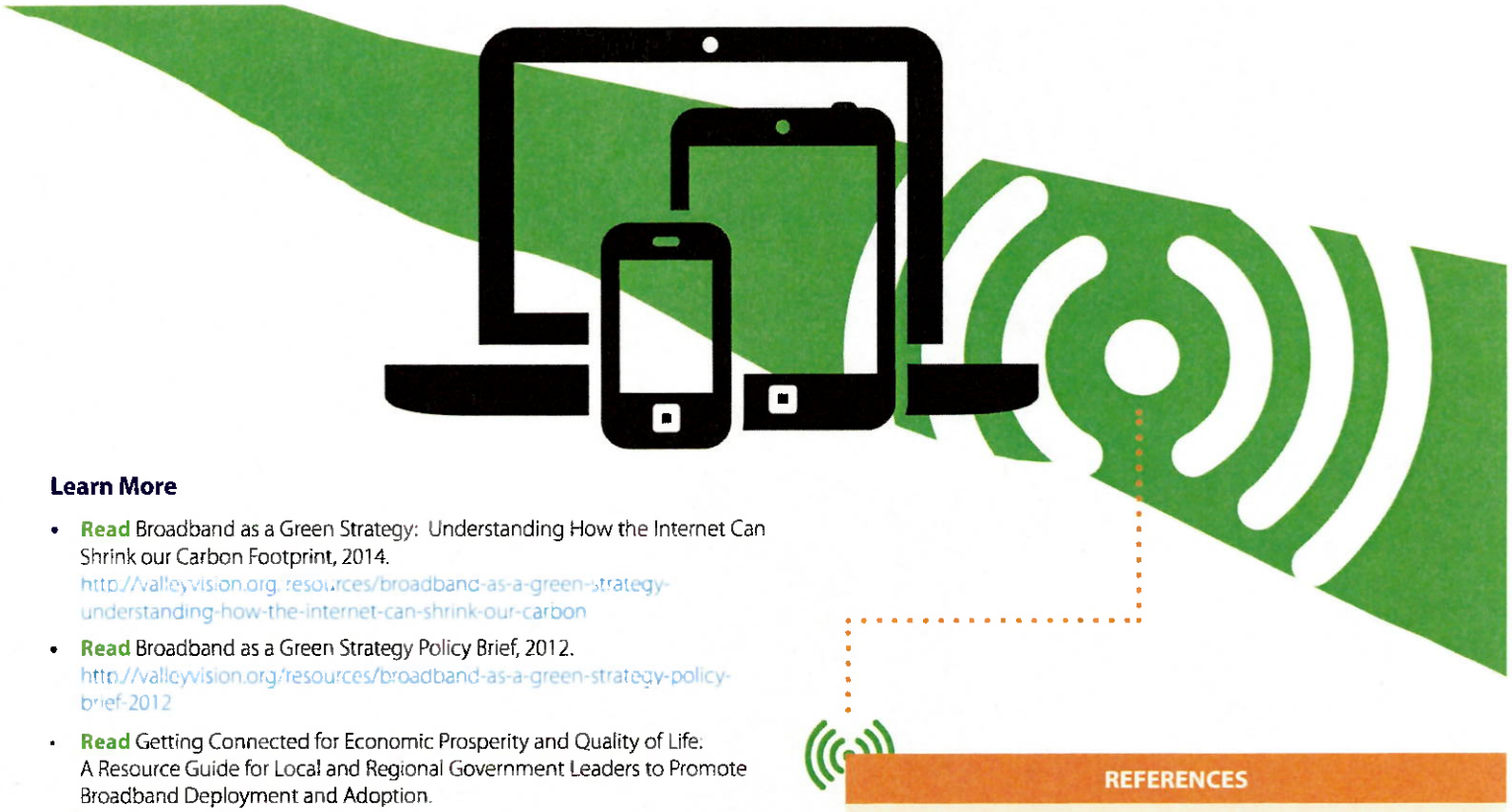
Drive for a Cleaner California

The Smart Grid is an electricity supply network that uses digital communications technology to detect and react to changes in usage. While providing critical information to help Californians conserve at work, at home and on the road, the Smart Grid also allows for easier integration of solar and wind in the power supply.[12]

When the Smart Grid and Electric Vehicles (EVs) operate together seamlessly, large reductions in energy usage and GHG emissions can be achieved. The transportation and power sectors, in fact, have the highest potential for Internet-enabled reductions of GHG pollution— and now account for more than 40 percent of the estimated total reductions in California. EVs are one of the most promising technologies for reducing fuel consumption and air pollution.[12,13]

To reach their highest potential in cutting energy use and resulting emissions, the Smart Grid and EVs must work interdependently. For example, EV owners need online access to obtain real-time information from the Smart Grid to ensure that they plug in when electricity demand—and usually prices—are at their lowest.

Without online monitoring and communications, it is impossible to manage energy demand in 21st century California. The repercussions of poor management are large on the environment as well as the economy. For example, when the electric grid becomes strained, often-dirtier backup generators are fired up to meet peak demand.[13] Carefully coordinated policy, planning, and investment around EV infrastructure and the Smart Grid will go a long way to help Californians realize their largest potential for reducing air pollution and GHG emissions.



Learn More

- **Read** Broadband as a Green Strategy: Understanding How the Internet Can Shrink our Carbon Footprint, 2014. http://valleyvision.org/resources/broadband-as-a-green-strategy-understanding-how-the-internet-can-shrink-our-carbon
- **Read** Broadband as a Green Strategy Policy Brief, 2012. http://valleyvision.org/resources/broadband-as-a-green-strategy-policy-brief-2012
- **Read** Getting Connected for Economic Prosperity and Quality of Life: A Resource Guide for Local and Regional Government Leaders to Promote Broadband Deployment and Adoption. http://www.cetfund.org/resources/information/model-policies-and-ordinances

Act Now

- **Encourage** your jurisdiction to implement the Checklist in the CETF Resource Guide for Local and Regional Government Leaders: Getting Connected for Economic Prosperity and Quality of Life.
- **Champion** policies that support broadband infrastructure investment and include broadband infrastructure in land use and other community plans.
- **Promote** the role that broadband plays in achieving emission reductions when state leaders are developing greenhouse gas reduction policies, goals, and investments.

CETF
CALIFORNIA EMERGING TECHNOLOGY FUND

About the California Emerging Technology Fund

The mission of the California Emerging Technology Fund is to close the Digital Divide in California by promoting high-speed internet access at home. The goal is to reach 98% of all residences with broadband infrastructure and to achieve 80% home adoption by 2017. This statewide goal can only be accomplished if the following specific hard-to-reach target communities achieve at least a 70% adoption rate: low-income populations, Latino households, rural communities, seniors and people with disabilities. For more information, please visit www.cetfund.org.

VALLEY VISION
Connect. Partner. Impact.

About Valley Vision

The mission of Valley Vision is to provide research, collaboration, and leadership services to make California's Capital Region prosperous and sustainable. Valley Vision functions like a social enterprise, combining the rigor of a for-profit business with the passion of a nonprofit to drive large-scale initiatives to success. The goal is to bring individuals and organizations together to find impactful solutions to issues pertaining to social equity, the environment and economic development. For more information, please visit www.valleyvision.org.

REFERENCES

For more information see summary of the current literature related to pollution reduction benefits of broadband-enabled applications at http://valleyvision.org/projects/broadband-as-a-green-strategy

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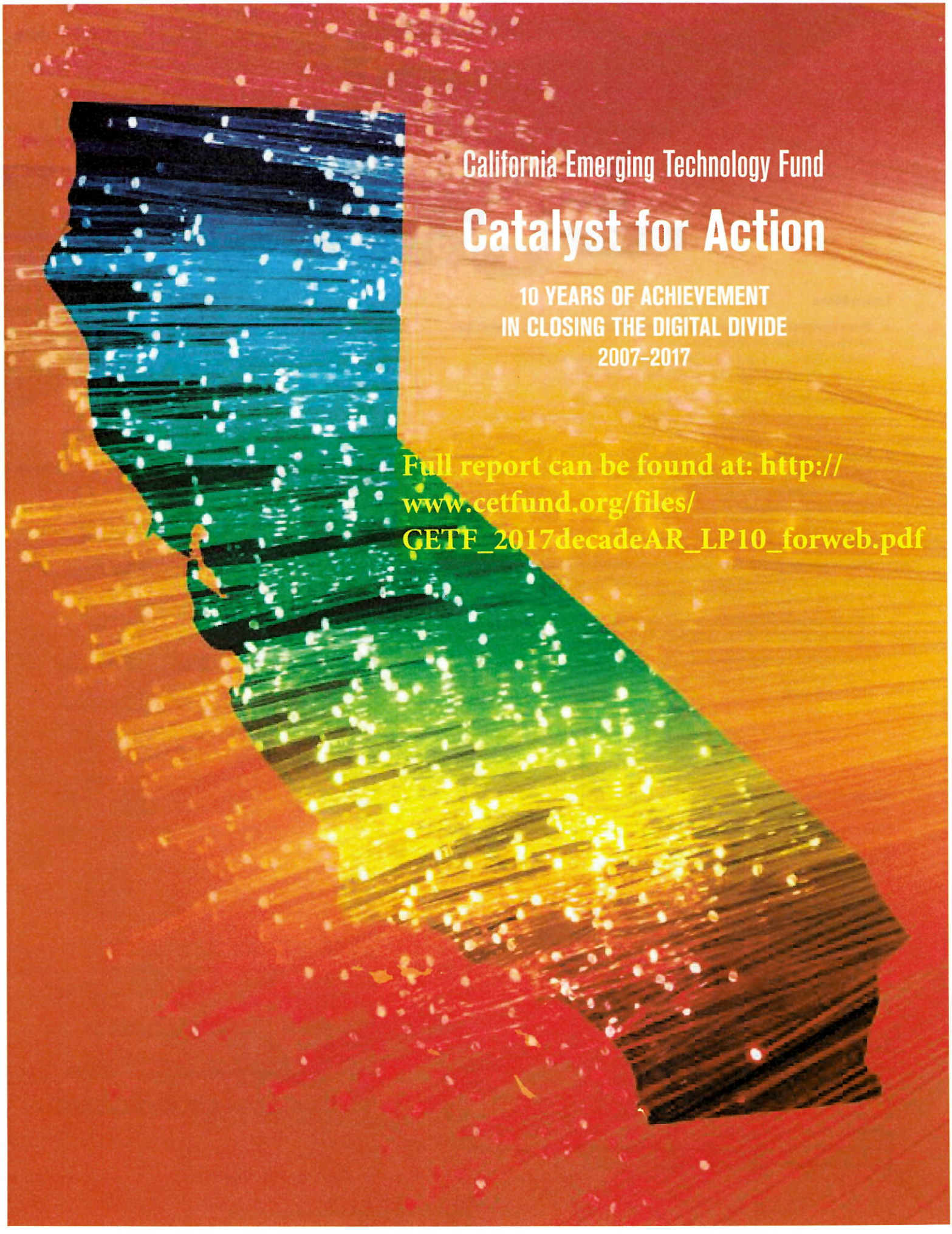
California Emerging Technology Fund
Catalyst for Action
10 YEARS OF ACHIEVEMENT
IN CLOSING THE DIGITAL DIVIDE
2007–2017
Full report can be found at: http://
www.cetfund.org/files/
GETF_2017decadeAR_LP10_forweb.pdf

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Release #2017-12 For Publication: Tuesday, June 27, 2017

Disparities Persist in Californians' Access to Broadband Internet at Home

Poll identifies growing class of "underconnected" households, whose only access to high speed Internet at home is through a smart phone

By Mark DiCamillo, Director, Berkeley IGS Poll (o) 510-642-6835 (c) 415-602-5594

The latest *Berkeley IGS Poll* updated a multi-year tracking survey examining Californians access to high speed Internet at home. The poll finds that 87% of California households report having broadband Internet connectivity at home. This is up from 84% who reported this in a similar poll conducted last year. However, for a growing segment of residents (18%) their only means of connecting to high speed Internet at home is through a smartphone. This is more than double the proportion reporting this two years ago (8%).

Household connectivity to high speed Internet varies considerably by a resident's income, education, age, ethnic background and other demographic characteristics. Least likely to report having broadband Internet connectivity are residents living in households with annual incomes of less than $20,000, non-high school graduates, Spanish-speaking Latinos, first-generation immigrants, adults with a disability, and seniors, especially those age 75 or older. Disparities are also observed by region. For example, residents living in the state's inland counties are less likely to report having access to high speed Internet at their home than those living in California's coastal counties.

These results come from the annual Broadband Adoption Survey of California households sponsored by the California Emerging Technology Fund (CETF), a non-profit foundation that focuses on promoting broadband Internet adoption. This is the tenth year that CETF has commissioned the survey, but the first conducted by the *Berkeley IGS Poll*.

"The Annual Survey details how the lowest-income, least-educated and most-rural Californians are living without an essential tool to access the educational, employment, healthcare and civic engagement opportunities that lead to greater economic opportunities and a better quality of life," said Sunne Wright McPeak, President and CEO of the California Emerging Technology Fund. "We call on the California Legislature to extend the California Advanced Services Fund and to pass the Internet for All Now Act to ensure digital access and digital literacy for all. High-speed Internet access is a 21st century civil right."

About seven in ten households without Internet connectivity (69%) say they don't have access either because of its expense or because they don't have a computing device or smartphone at home. Another 44% offer the reason that it is too difficult for them to set up and learn.

Another question asked the residents in these households whether they felt disadvantaged because of their inability to have Internet access, and significant proportions say they do. For example, 38% say that not being able to gain new career skills or take classes online is a disadvantage for them, and a similar proportion (38%) feels disadvantaged by not being able to get health or medical information online. Greater than one in three also feel disadvantaged by not being able to keep up with the news (36%) or keeping in touch with family and friends (36%).

The survey documents that residential use of the Internet is more limited among the growing proportion of Californians whose only means of broadband connectivity is through a smartphone. For example, in households where a child under age 18 resides, 89% who can access high speed Internet through a computing device go online to assist their child with schoolwork. By contrast, usage is twenty-two points lower (67%) among those whose only access to broadband Internet service at home is through a smartphone.

Even larger differences between the two types of residential users are noted with regard to going online to get health or medical information, or managing money or banking online. In each case, about three in four residents with access to broadband Internet through a computing device go online to do these tasks, while fewer than half report this among those connected through a smartphone only.

Thus, the poll finds that while the proportion of California households reporting broadband connectivity to the Internet continues to expand, increasingly it is being populated by a class of "underconnected" households who use the Internet in more limited ways because their only means of connecting to broadband is through a smartphone.

Note: The attached PowerPoint slides present the findings in graphic form.

About the Survey

The findings in this report come from a telephone survey completed by the Institute of Governmental Studies, at the University of California, Berkeley on behalf of the California Emerging Technology Fund (CETF). This was done by adding CETF's Broadband Adoption Survey questions to the May 2017 *Berkeley IGS Poll,* which conducts periodic surveys of the California public on matters of politics and public policy. The poll is housed with IGS's newly established Jack Citrin Center for Public Opinion Research.

The May 2017 *Berkeley IGS Poll* was conducted by telephone among a statewide sample of 1,628 California adults. To capture the diversity of the state's adult population, the survey was administered in six languages and dialects – English, Spanish, Cantonese, Mandarin, Vietnamese and Korean. Interviewing was completed May 4-29, 2017 by professionally trained and supervised interviewers calling from Davis Research in Calabasas (Los Angeles County), California.

Adults were selected for participation in the poll telephone using a dual frame random digit dial cell and landline sampling methodology. In this survey over 85% of the interviews were conducted with residents on their cell phone. Up to six attempts were made to reach, screen and interview each randomly selected adult on different days and times of day during the interviewing period. After the completion of interviewing, weights were developed to align the statewide sample to a wide range of demographic characteristics of the state's adult population.

The maximum sampling error for results from the overall statewide sample is +/- 2.4 percentage points at the 95% confidence level. Results from the poll's subsamples are subject to somewhat larger margins of sampling error, and depend on its sample size and the percentage distributions being examined.

Questions Asked

Can you or can others in your household connect to the Internet from home? This includes connecting to the Internet from a smart phone or from a desktop, laptop or tablet computer. **(IF YES)** Is that through a smart phone, or through a desktop, laptop, or tablet computer? **(IF COMPUTING DEVICE)** When connecting to the Internet from a computer at home, do you connect through a high speed or broadband connection, such as through DSL, cable, fiber optic, a T-1 line or satellite, or is it through a dial-up modem connection? **(IF SMARTPHONE AND NOT A COMPUTING DEVICE)** Just to confirm, the only way that you (or others in your household) can connect to the Internet at home is through a smartphone. Is that correct?

(IF CONNECTED) Do you or do others in your household use the Internet at home (to learn about or obtain access to government services) (to keep in touch with family or friends) (to find out about job opportunities or to apply for a job) (to manage money, transfer funds or bank online) (to gain new career skills or take a class or training course) (to get health or medical information or communicate with a doctor) (to assist the children in your household to learn or keep up with their schoolwork) (to keep up with the news) (to watch or download TV shows or movies, play games or listen to music) **(EACH ITEM READ ONE AT A TIME IN RANDOM ORDER)**?

(IF NOT CONNECTED) I am going to read some reasons why people do not have Internet service at home. For each, please tell me whether or not this is a reason why your household doesn't have Internet access. (Internet service is too expensive) (don't have a computer or a smart phone) (Internet service is not available or adequate where I live) (not interested) (it's too difficult to set up and learn) (too busy, don't have the time) (can connect to it from another place if needed) (concerns about privacy or computer viruses) **(EACH ITEM READ ONE AT A TIME IN RANDOM ORDER, ASKING:)** Is this a reason why your household doesn't have Internet service? Which of these would you say is the main reason your household doesn't have Internet service?

(IF NOT CONNECTED) Do you feel that you or others in your household are at a disadvantage when you (or they) want to do any of the following but cannot because your household is not connected to the Internet? (to learn about or obtain access to government services) (to keep in touch with family or friends) (to find out about job opportunities or to apply for a job) (to manage money, transfer funds or bank online) (to gain new career skills or take a class or training course) (to get health or medical information or communicate with a doctor) (to assist the children in your household to learn or keep up with their schoolwork) (to keep up with the news) (to watch or download TV shows or movies, play games or listen to music)? **(EACH ITEM READ ONE AT A TIME IN RANDOM ORDER)**

Do you or do others in your household ever connect to the Internet through a high speed or broadband connection outside your home, such as at work, at or near a school, at or near a library or other public building or outdoor space, at or near a store like Starbucks, at the home of a friend or family member, or some other place? **(IF YES)** Is that at work, at or near a school, at or near a library, other public building or outdoor space, at or near a store, at the home of a friend or family member, or from some other place?

About the Institute of Governmental Studies

The Institute of Governmental Studies (IGS) is an interdisciplinary organized research unit that pursues a vigorous program of research, education, publication and public service. A component of the University of California (UC) system's flagship Berkeley campus, it is the oldest organized research unit in the UC system and the oldest public policy research center in the state. It conducts periodic surveys of California public opinion on matters of politics, public policy and public issues through its *Berkeley IGS Poll,* housed within IGS's newly established Jack Citrin Center for Public Opinion Research. A listing of poll stories issued by the *Berkeley IGS Poll* can be found at https://igs.berkeley.edu/research/berkeley-igs-poll.

About the California Emerging Technology Fund

The California Emerging Technology Fund (CETF), a non-profit foundation that focuses on promoting broadband Internet adoption in the state of California. It provides leadership to close the "digital divide" by accelerating the deployment and adoption of broadband to unserved and underserved communities and populations and to ensure that California is a global leader in the availability and use of broadband technology. For more information visit www.cetfund.org.

Broadband Internet Connectivity and the "Digital Divide" in California – 2017

- Results from a new statewide survey conducted for -

California Emerging Technology Fund

- by the -

Berkeley IGS Poll

Institute of Governmental Studies

University of California, Berkeley

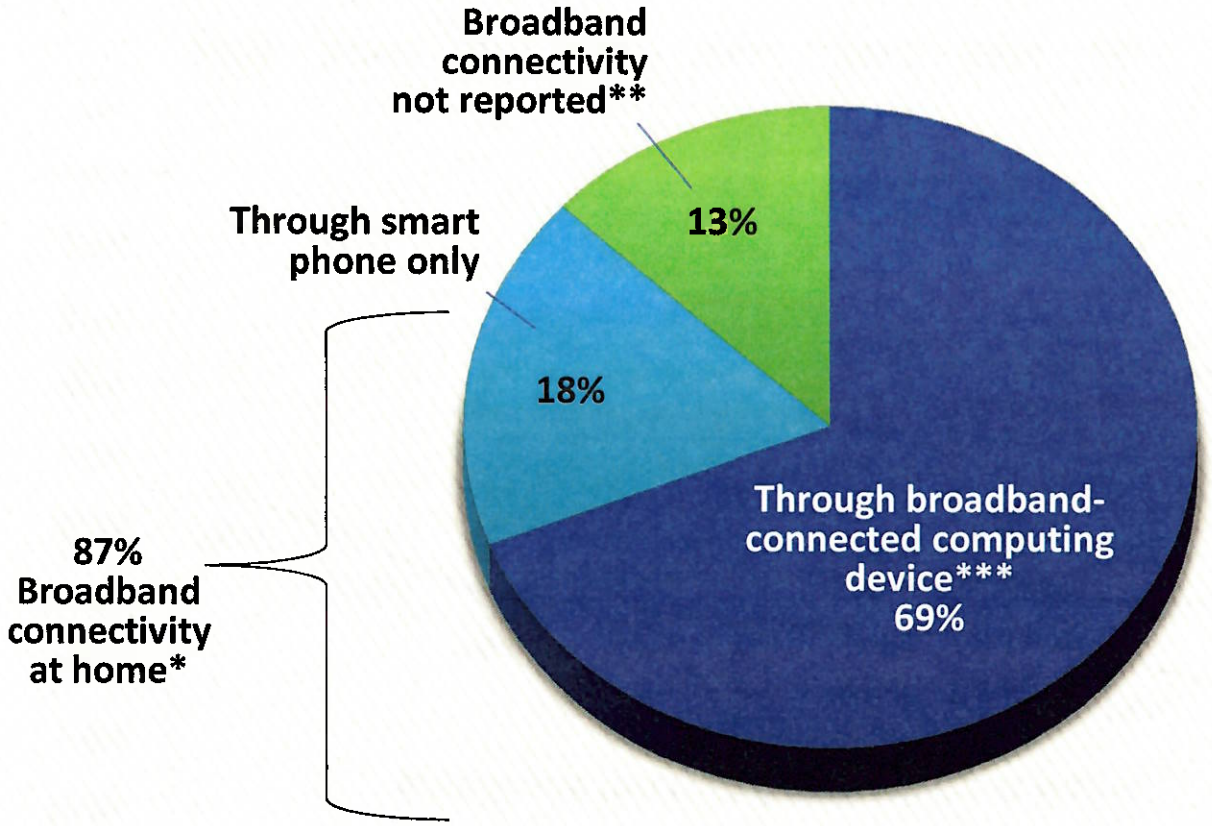
for publication June 27, 2017

About the Survey

Population surveyed:	**California adults age 18 or older**
Method of data collection:	**Administered by cell and landline telephone by live interviewers**
Sampling method:	**Samples of adults developed from dual frame random digit-dial cell and landline telephone listings covering California**
Languages of administration:	**English, Spanish, Cantonese, Mandarin, Korean and Vietnamese**
Sample size:	**1,628**
Interviewing period:	**May 4 – 29, 2017**

Table 1

Broadband Internet Connectivity in California Households 2017



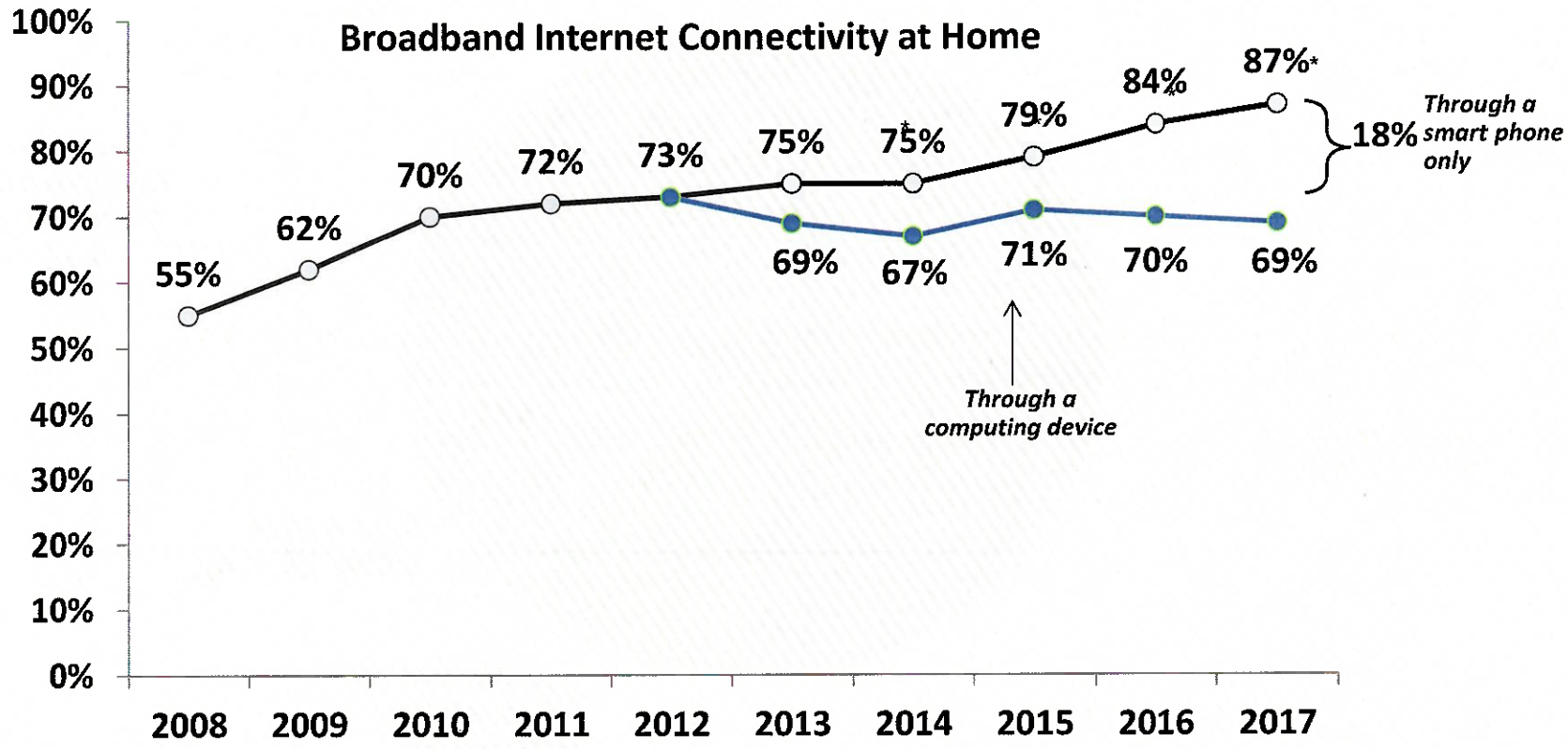
*Includes connectivity through a high speed broadband connection, such as through DSL, cable, fiber optic, satellite, T-1 line, or smart phone only.

**Includes don't knows and others not reporting broadband connectivity.

***Computing devices include a desktop, laptop, or tablet computer.

Table 2

Trend of California Households with Broadband Internet Connectivity *(2008 - 2017)*



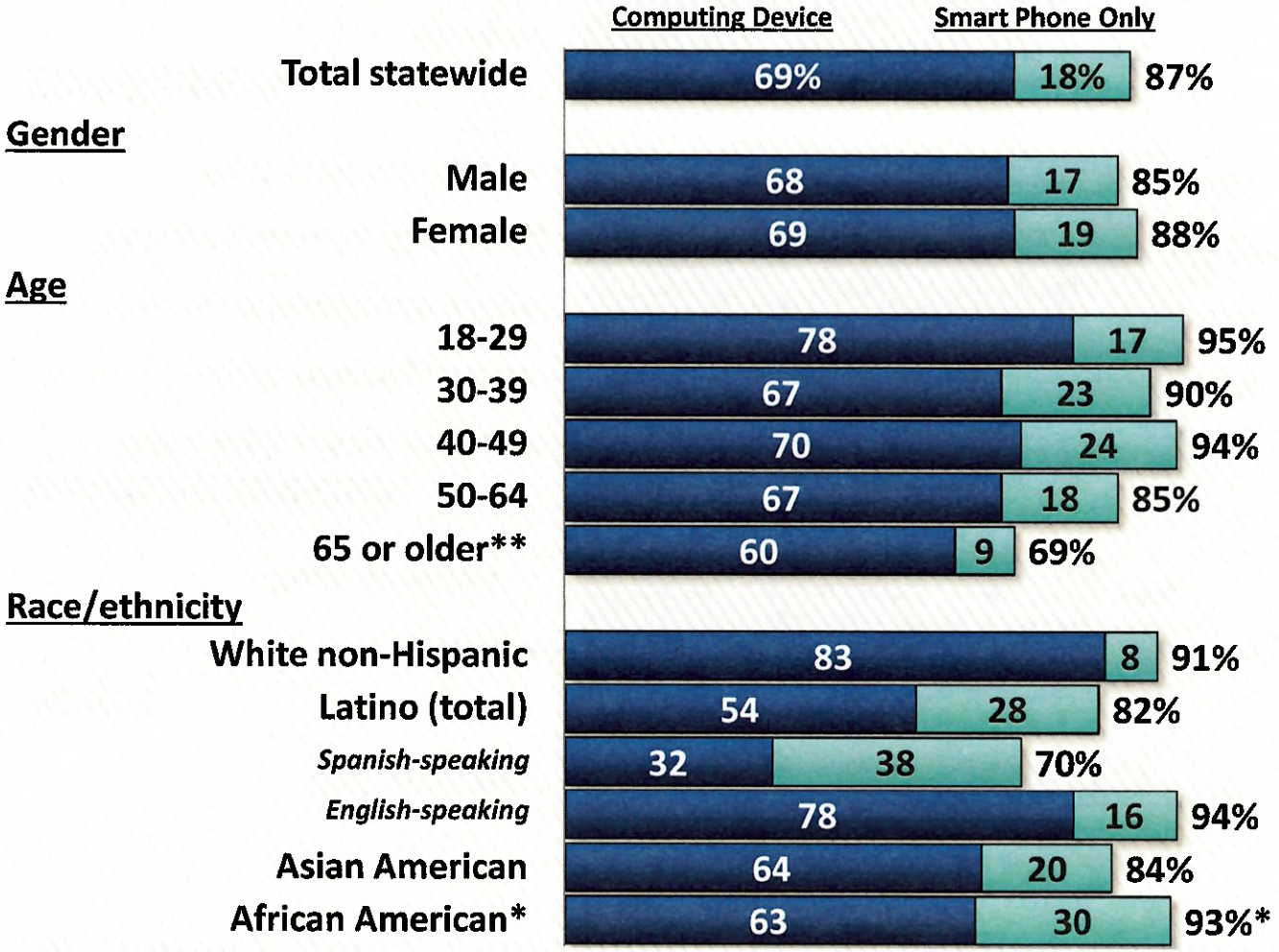
* *For all years prior to 2013, broadband Internet connectivity included those accessing the Internet through DSL, cable, satellite or fiber optic connections to a home desktop, laptop or tablet computer. For 2013 and thereafter, this also includes those connecting to the Internet at home solely through a smart phone.*

Source: 2017 results from Berkeley IGS Poll. Prior year results as reported by CETF from surveys conducted by The Field Poll (2014-2016) and the Public Policy Institute of California (2008-2013).

Table 3a

Broadband Internet Connectivity at Home

(by gender, age and race/ethnicity of householder)



* *Results based on small sample size.*

** *Broadband connectivity among seniors age 75 or older is lower, with 49% connected through a computing device and 9% through a smart phone only, totaling 58%..*

Table 3b

Broadband Internet Connectivity at Home

(by nativity status, educational attainment and disability status)

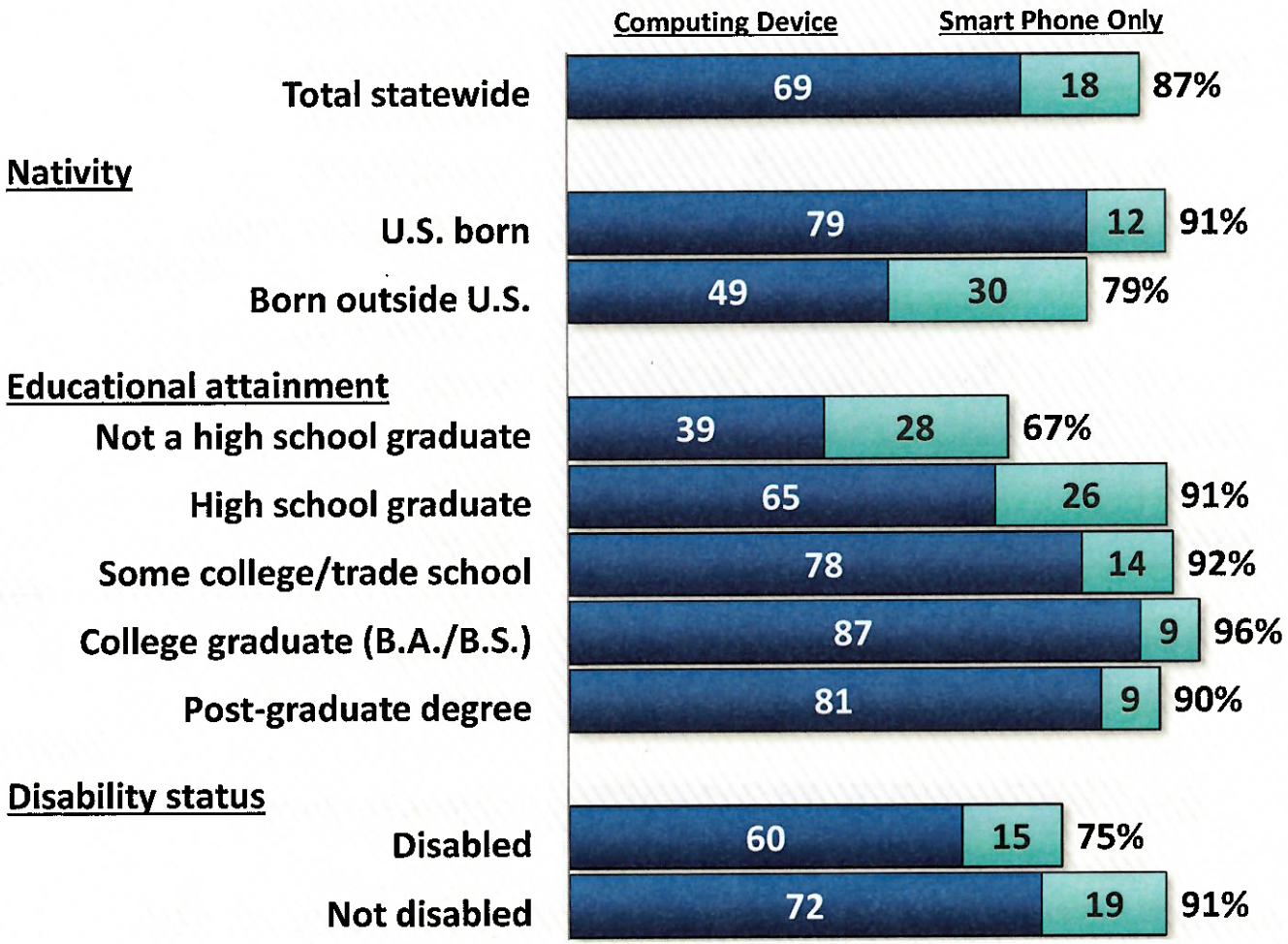


Table 3c

Broadband Internet Connectivity at Home

(by marital and parental status and household income)

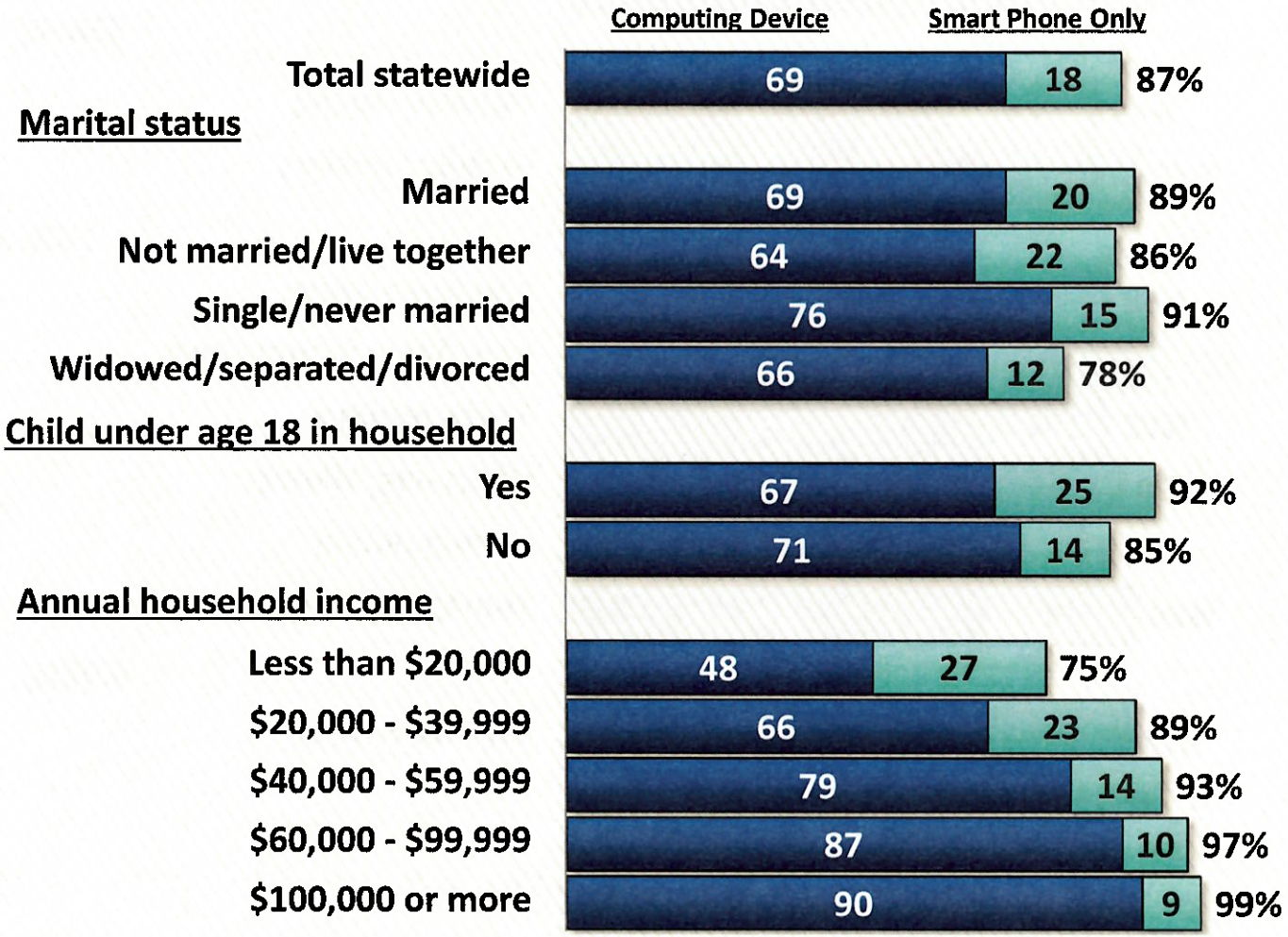


Table 3d

Broadband Internet Connectivity at Home

(by region, area, and tenure)

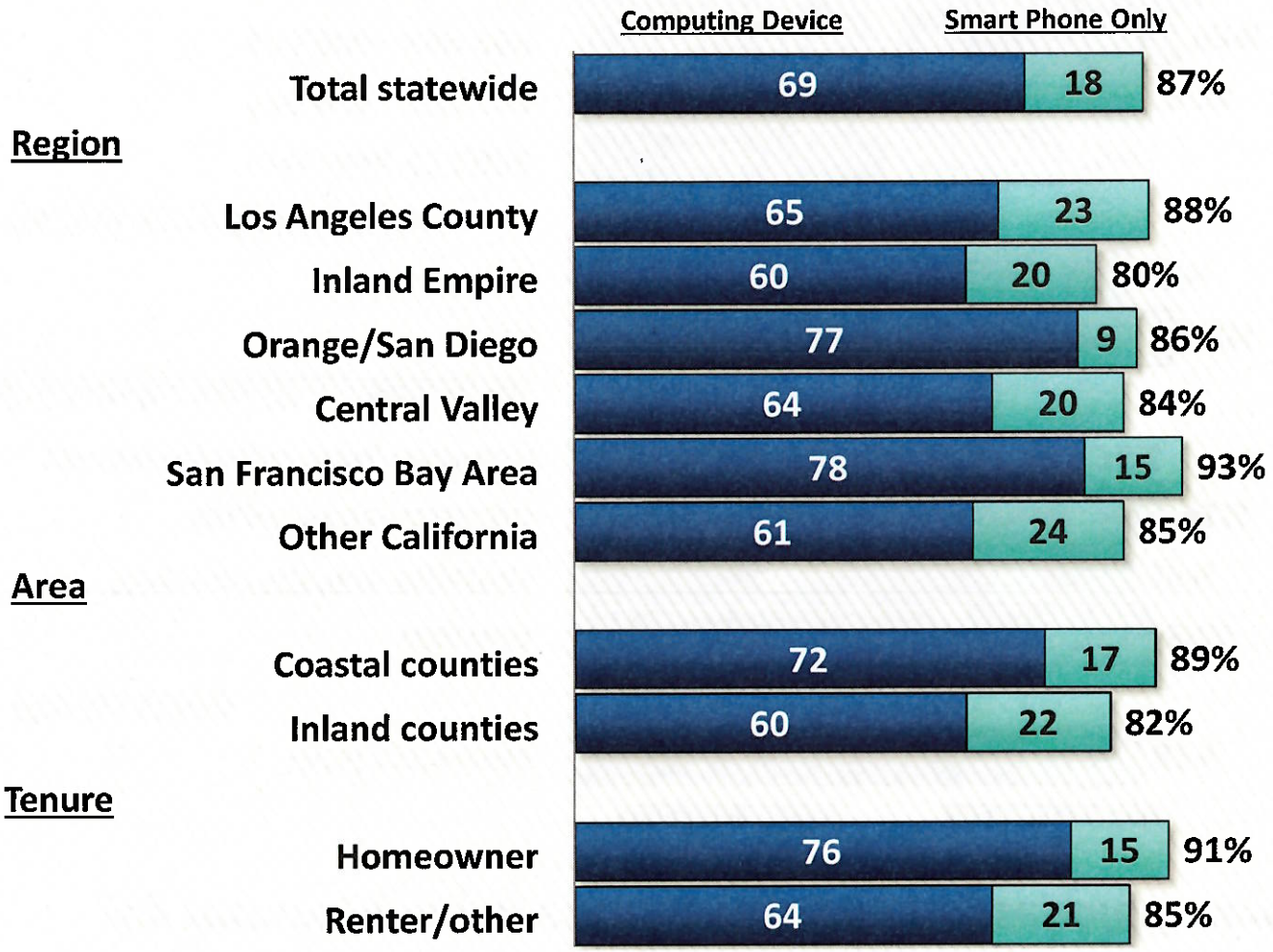
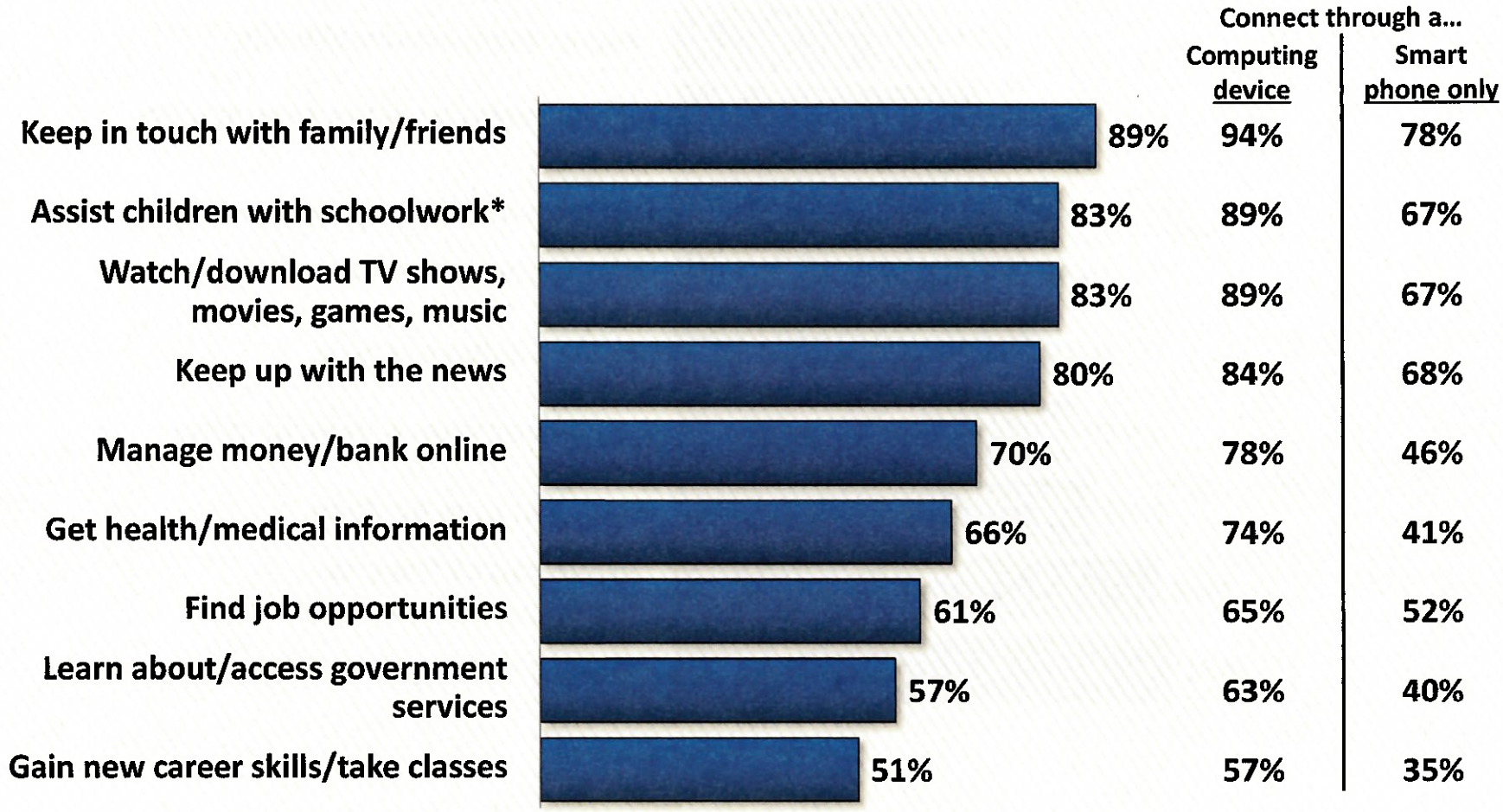


Table 4a

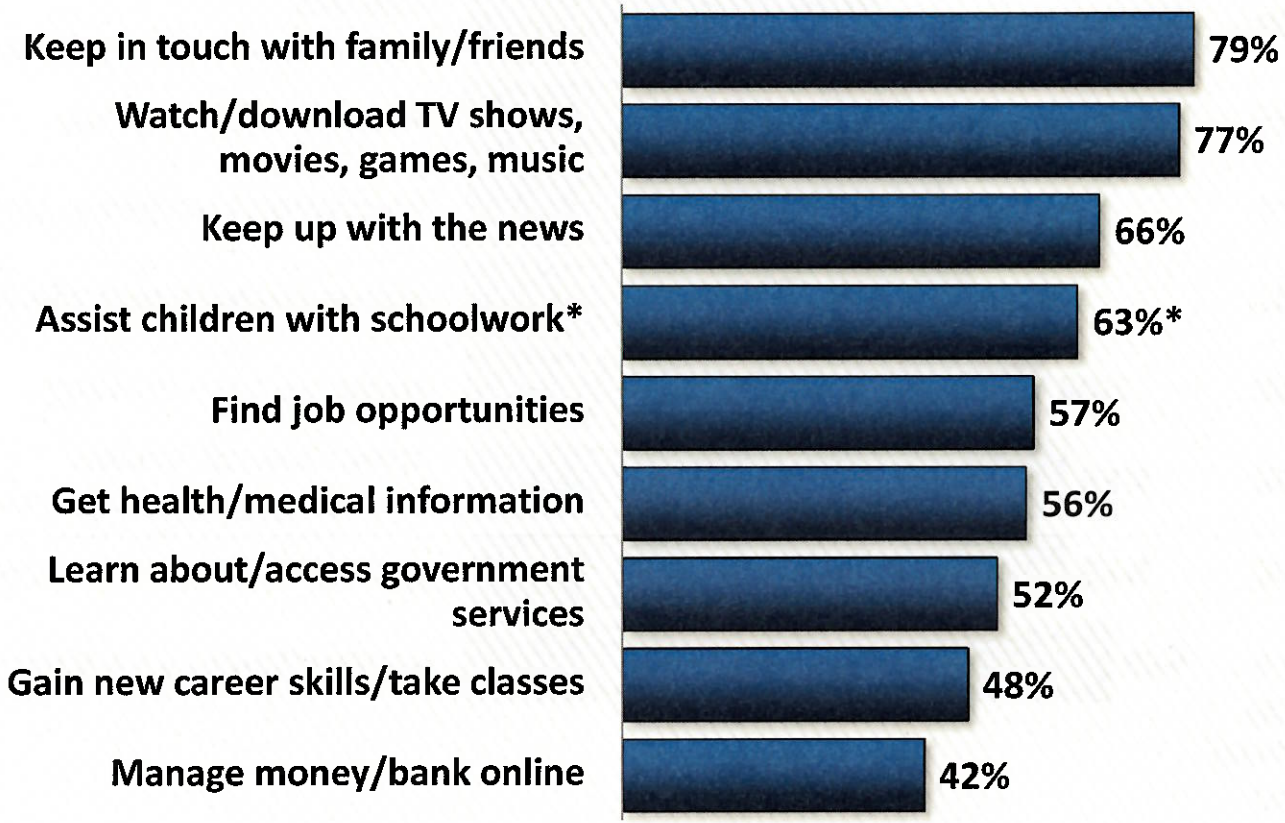
Ways Californians with Broadband Connectivity Use the Internet at Home



* *This item was asked only of those living in households where children under age 18 reside.*

Table 4b

Ways in Which Low Income Adults with Broadband Connectivity Use the Internet at Home

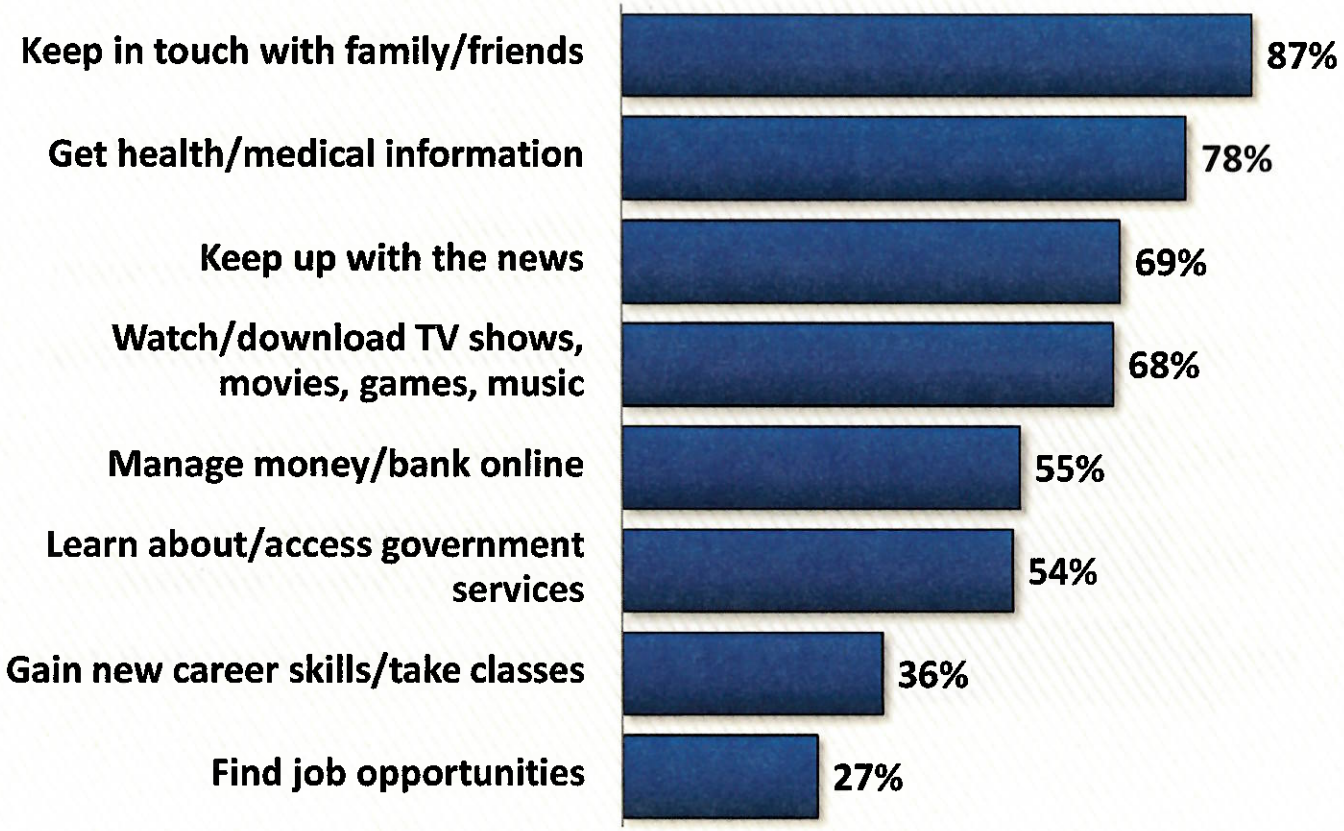


* *This item was asked only of those living in households where children under age 18 reside and is based on a small sample size*

Note: Low-income adults are defined as those whose annual household income is less than $20,000.

Table 4c

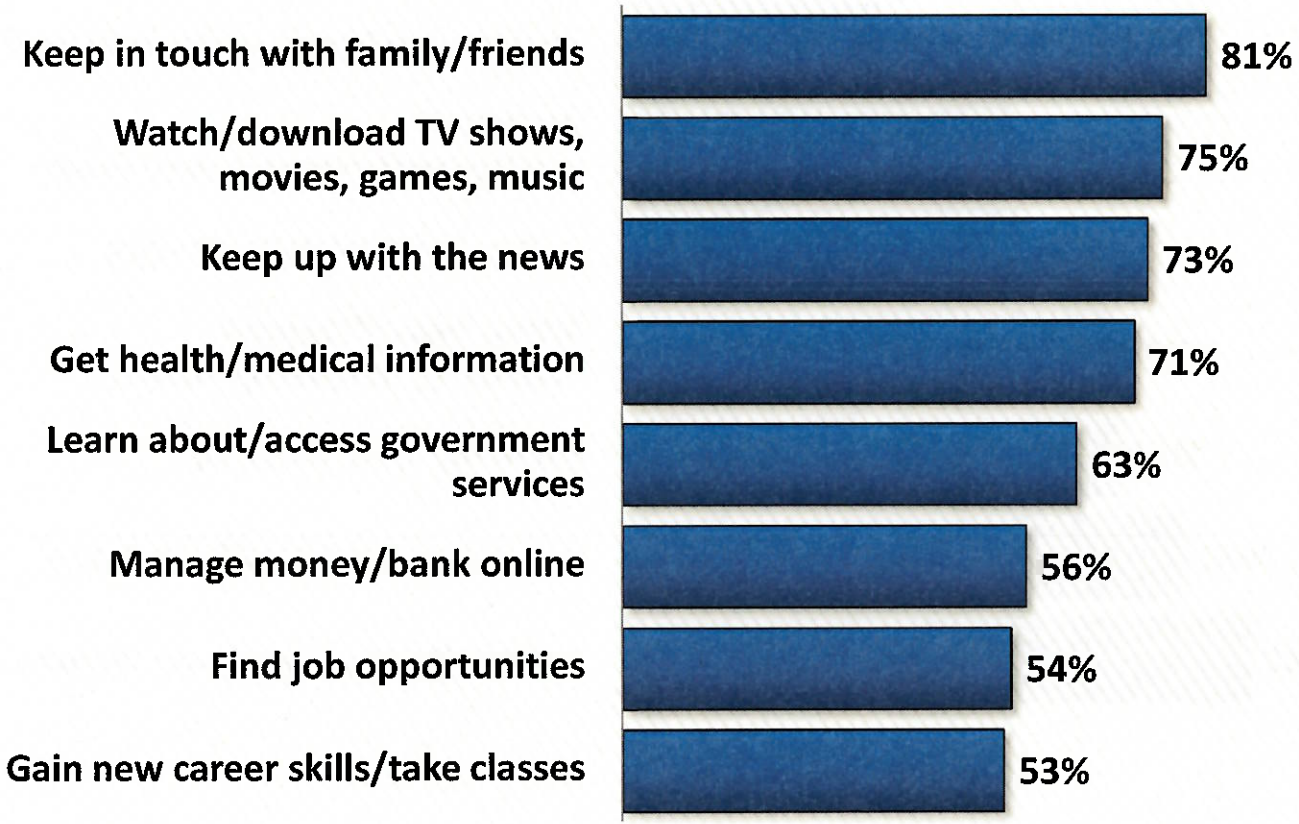
Ways in Which Seniors Age 65 or Older with Broadband Connectivity Use the Internet at Home



Note: "Assisting children with schoolwork" not reported because of its very small sample base among seniors.

Table 4d

Ways in Which Disabled Adults with Broadband Connectivity Use the Internet at Home



Note: "Assisting children with schoolwork" not reported because of its very small sample base among disabled adults.

Table 5a

Reasons Why Californians Without Internet Connectivity Say their Household Doesn't Have It

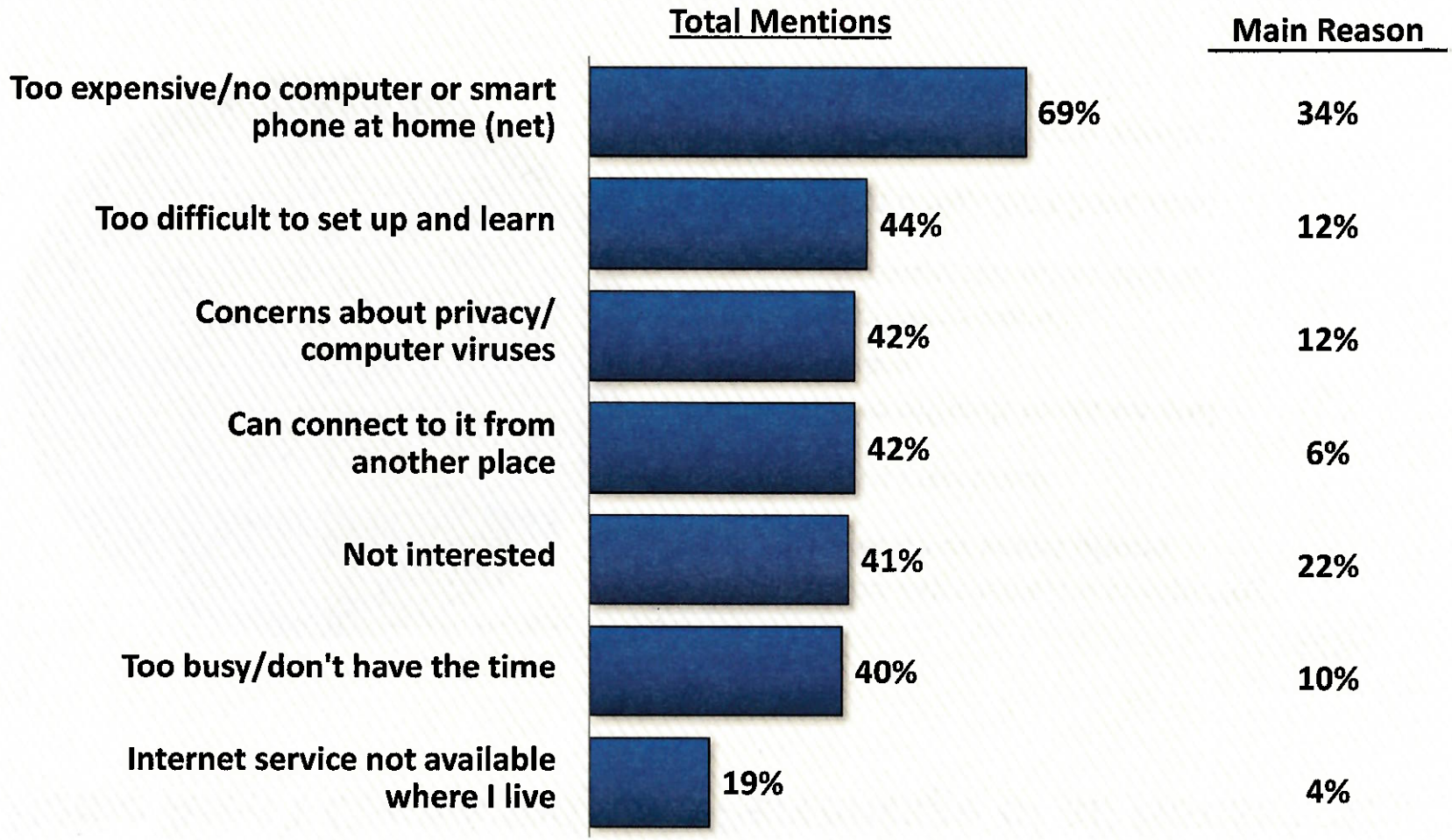
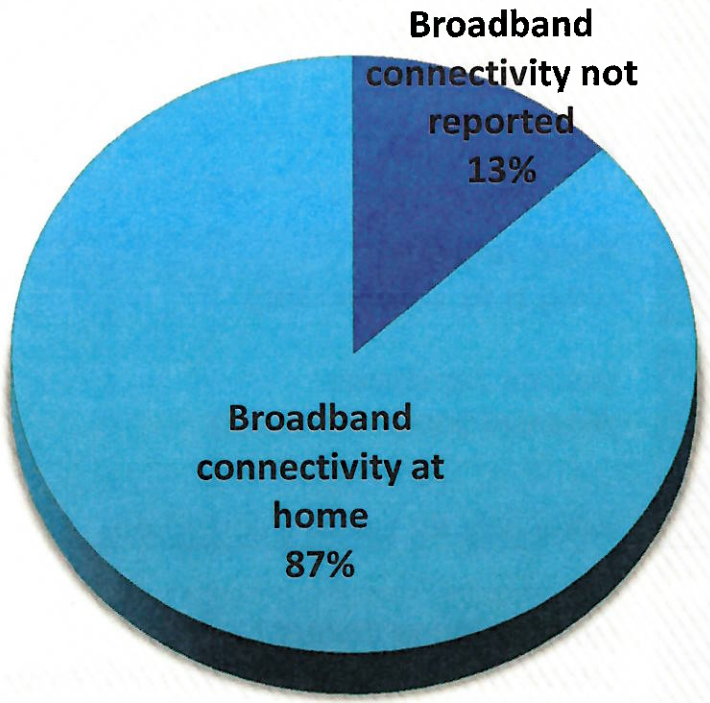


Table 5b

Main Reason Californians Without Broadband Connectivity at Home Aren't Connected, as a Percentage of all Households*

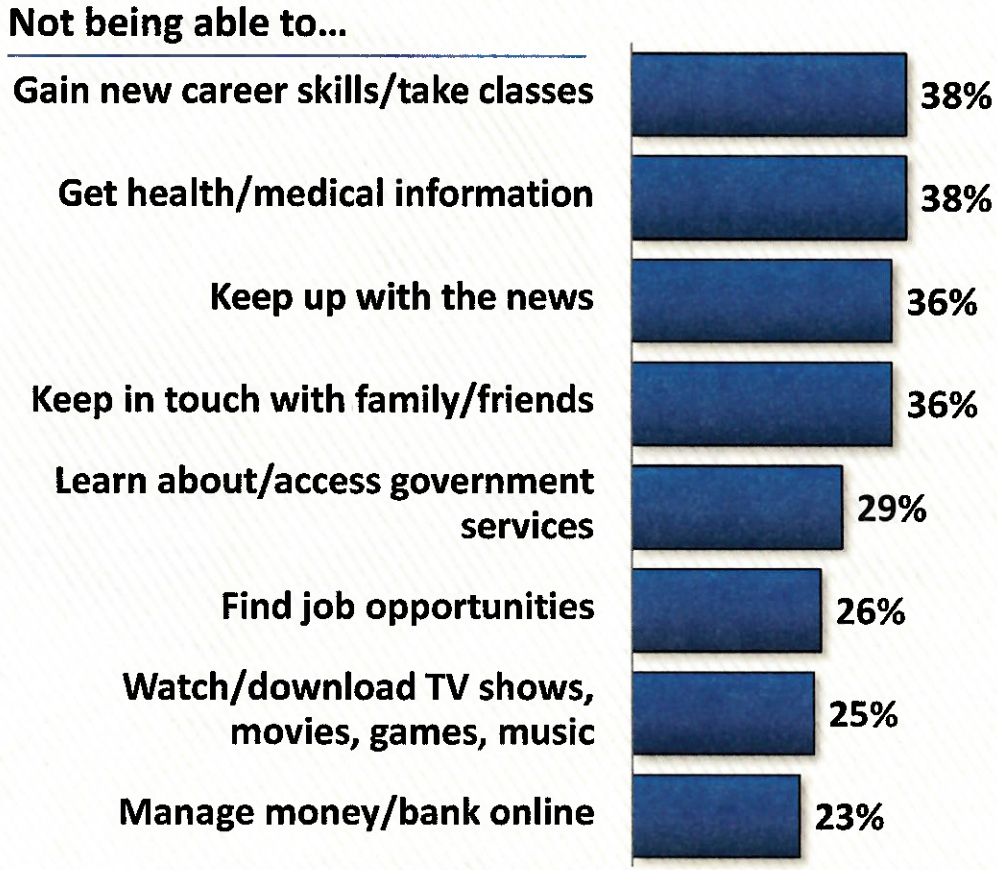


	13%
Too expensive/no computing device or smart phone	4%
Not interested	3
Too difficult to set up and learn	2
Concerns about privacy/computer viruses	2
Too busy/don't have time	1
Can connect from another place	1

* *Calculated by multiplying the main reason percentages reported in Table 5a by the 13% not reporting broadband connectivity at home. Categories with 0.5% or less not shown.*

Table 6

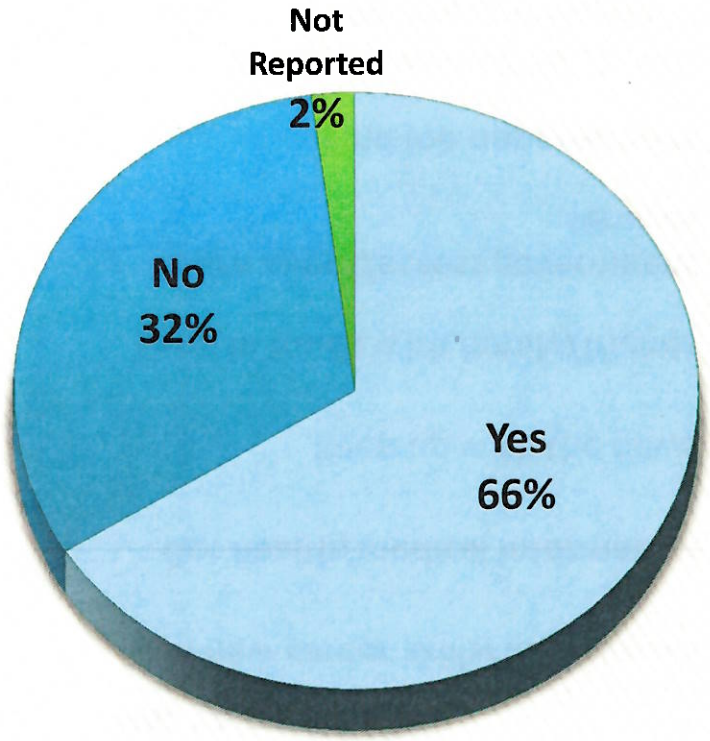
Ways in Which Californians Without Internet Connectivity Feel Disadvantaged Because They are Unable to Access the Internet at Home



Note: "Assisting children with schoolwork" cannot be reliably reported because of small sample sizes.

Table 7

Broadband Internet Connectivity Through a Computing Device Outside the Home



Where?

At work	44%
Home of friend/family	39
At/near a store	32
At/near a school	30
Public building (other than library)	29
At/near a library	24
Other place	5

Note: Sum of places where adults have broadband Internet access outside the home adds to more than 66% subtotal due to multiple mentions.

Table 8

Broadband Internet Connectivity Through a Computing Device Either at Home or Outside the Home

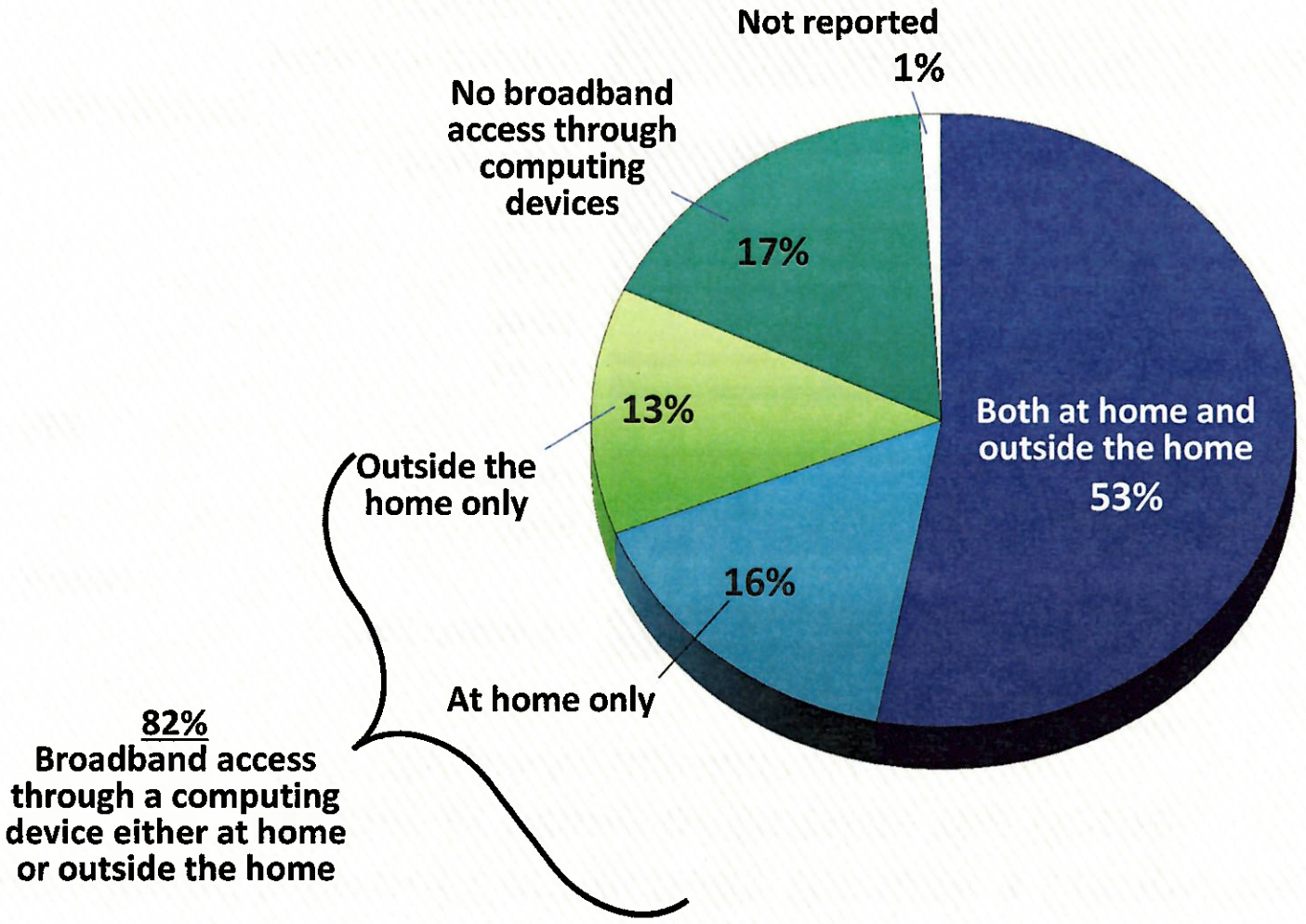
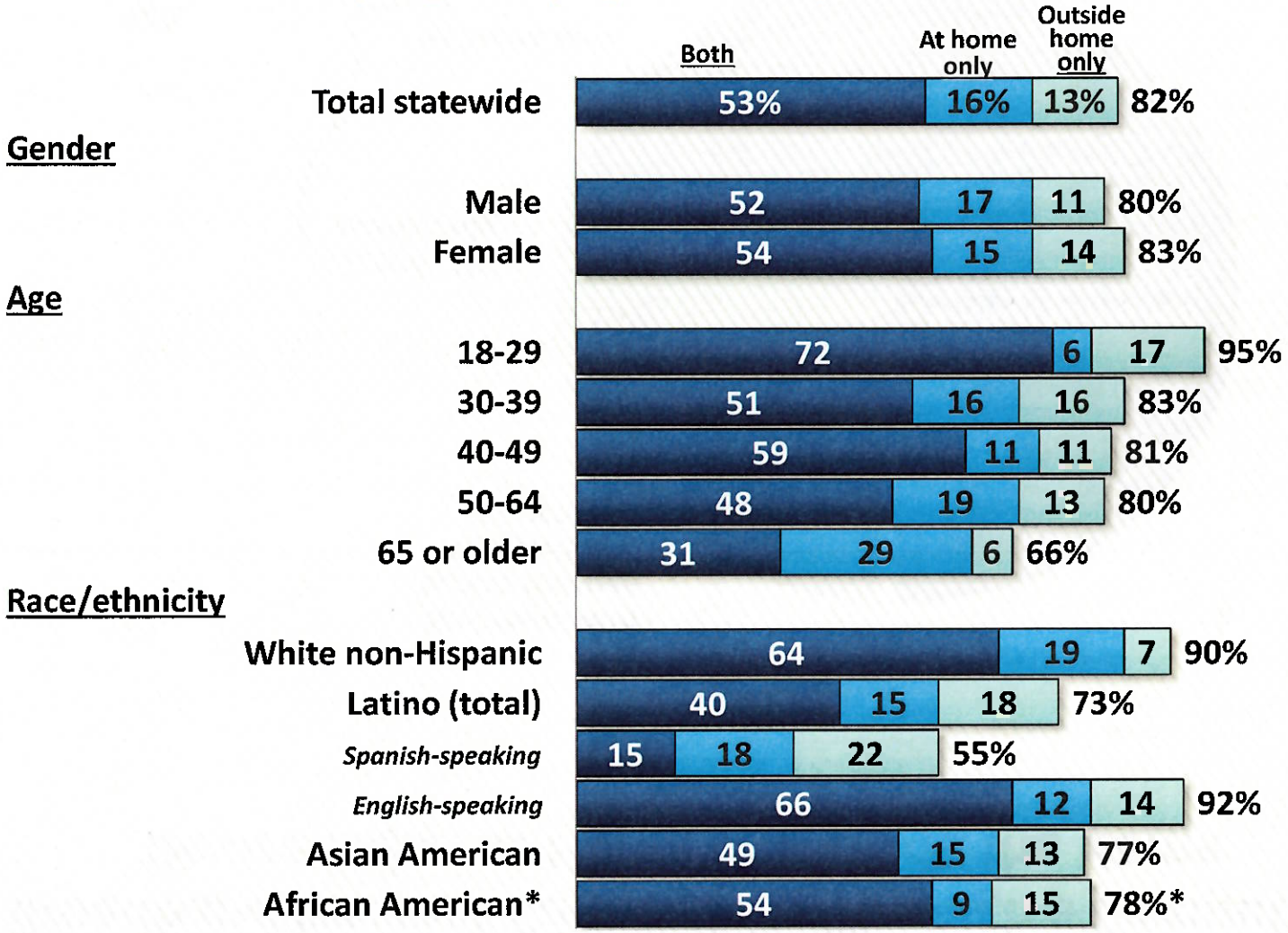


Table 9a

Broadband Internet Connectivity through a Computing Device Either at Home or Outside the Home

(by gender, age and race/ethnicity)



* *Results based on small sample base.*

Table 9b

Broadband Internet Connectivity Through a Computing Device Either at Home or Outside the Home

(by nativity, educational attainment and disability status)

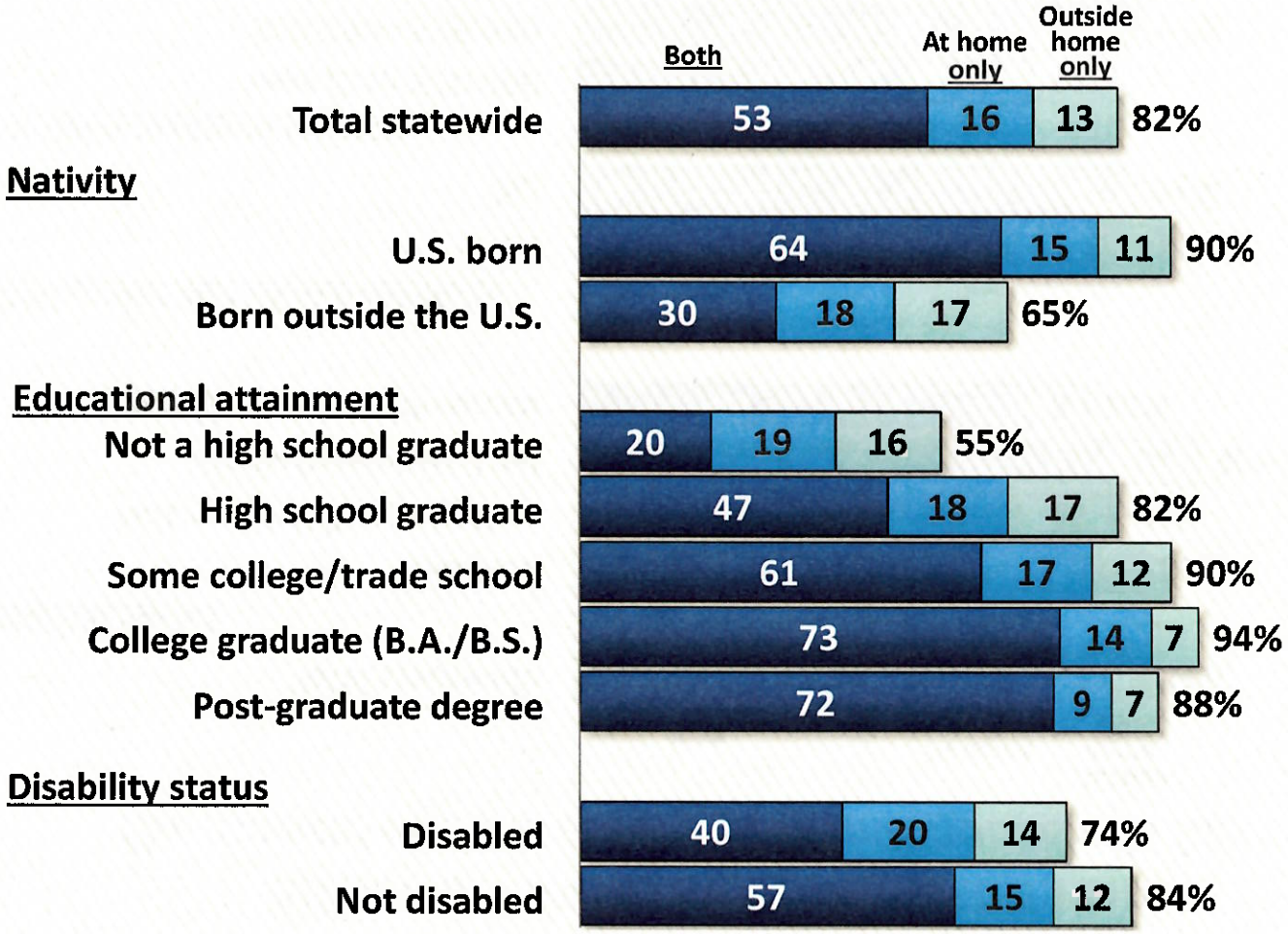


Table 9c

Broadband Internet Connectivity Through a Computing Device Either at Home or Outside the Home

(by marital and parental status and household income)

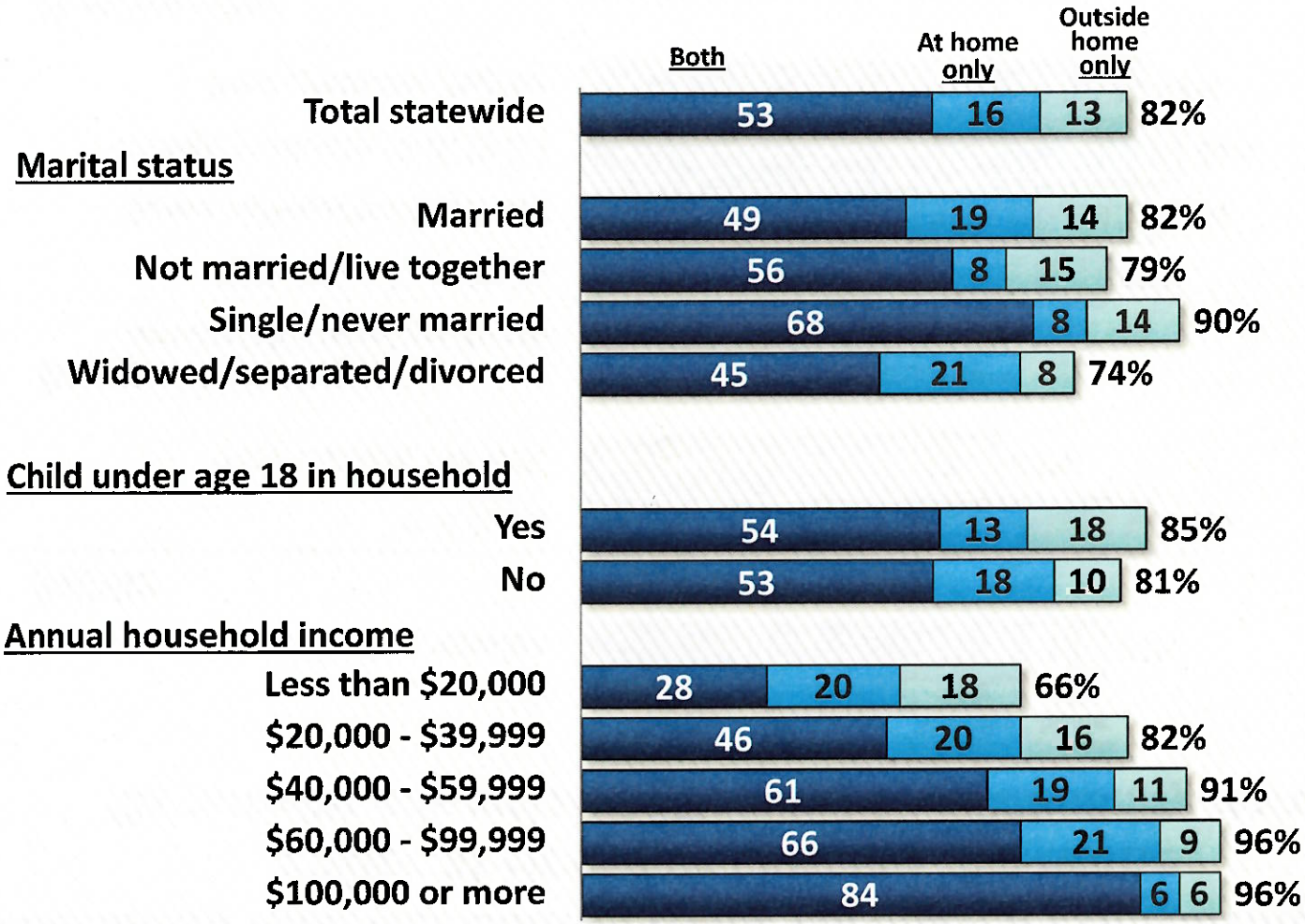
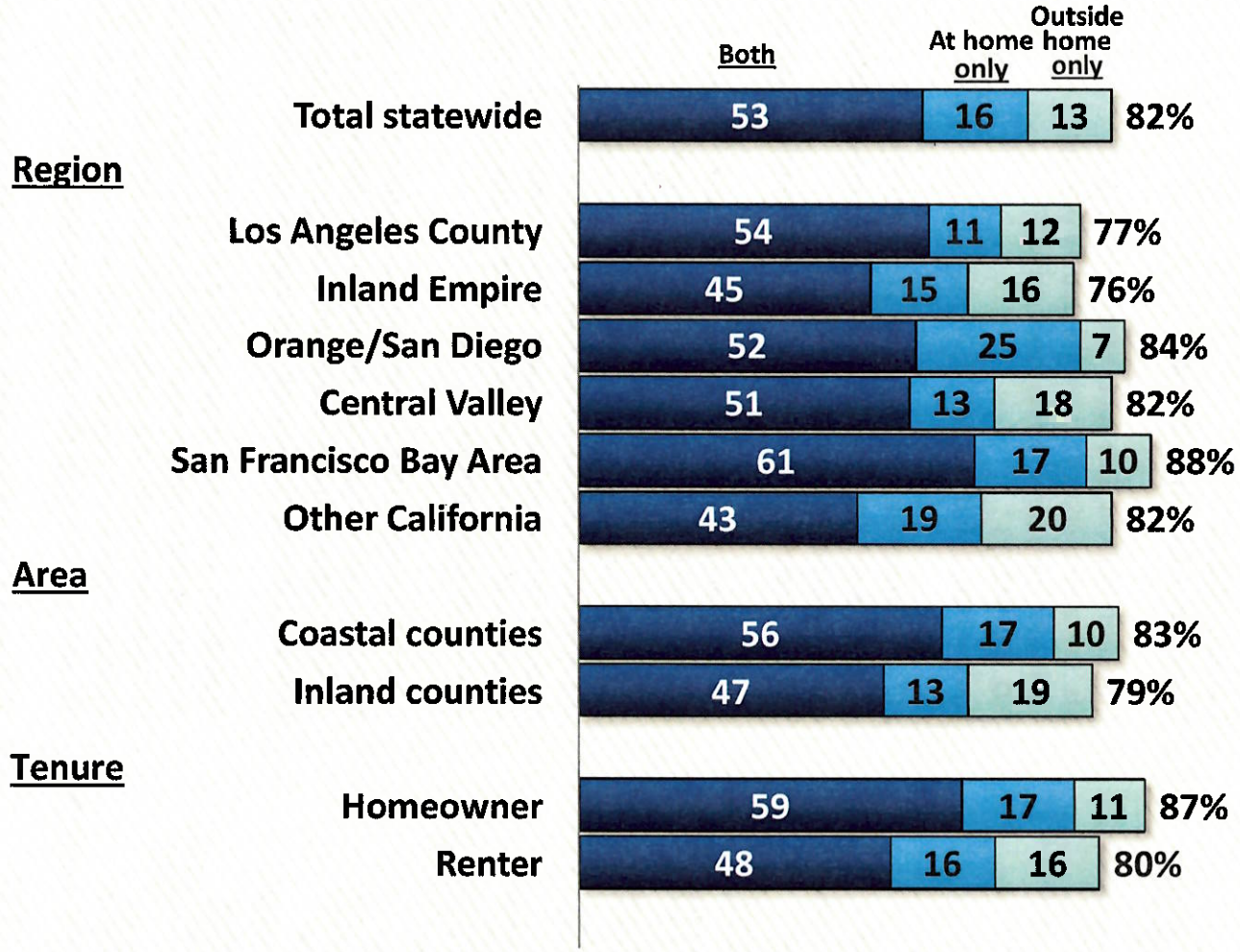


Table 8e

Broadband Internet Connectivity Through a Computing Device Either at Home or Outside the Home

(by region, area, and tenure)



CETF
CALIFORNIA EMERGING TECHNOLOGY FUND

August 8, 2018
Via Email and Postal Service

CALIFORNIA EMERGING TECHNOLOGY FUND
www.cetfund.org

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Mr. Chris Schmidt, Chief, Transportation Planning
Mr. Scott Sauer, Chief, Office of Multimodal System Planning
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Mr. Garth Hopkins, Deputy Director, Planning
Ms. Laura Pennebaker, Associate Deputy Director
California Transportation Commission (CTC)
P.O. Box 942873
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RE: California Emerging Technology Fund (CETF)
Comments on Caltrans and CTC Statewide Corridor Planning:
Caltrans Corridor Planning Guidebook
CTC Comprehensive Multimodal Corridor Planning Guidelines

CETF appreciates the opportunity to participate in and provide input on the Caltrans and CTC corridor planning process now underway. CETF was represented at the recent joint Caltrans and CTC corridor planning workshops on July 16 in Sacramento by CETF consultant Ann Spaulding and on July 20 in Los Angeles by Martha van Rooijen, Executive Director, Inland Empire Regional Broadband Consortium. Both provided verbal comments about the urgency and need for broadband to be considered in CTC and Caltrans corridor planning efforts.

CETF is submitting this written input to encourage your agencies to include broadband as an important and necessary component in the development of the CTC Comprehensive Multimodal Corridor Planning Guidelines, Caltrans Corridor Planning Guidebook, and ongoing statewide transportation planning.

Broadband is a "green strategy" that improves mobility and decreases impacts on the environment. Therefore, CTC and Caltrans should encourage the accommodation of broadband infrastructure deployment in all transportation plans and can start now by including broadband planning in the statewide corridor planning and guidelines process.

CETF is a California non-profit corporation that provides leadership statewide to close the "Digital Divide" by accelerating the deployment and adoption of broadband to unserved and underserved communities and populations, and to ensure that California is a global leader in the availability and use of broadband technology.

CETF facilitates improved broadband deployment through advocating that broadband be included in statewide planning, including the current corridor planning effort. Providing for broadband (high-speed Internet access infrastructure) beyond historic concepts of "telecommunication" lines is important to keep the state moving forward technologically.

CETF has been working on broadband policy with CTC and Caltrans for some time. CETF is a member of the California Broadband Council (CBC), of which the California State Transportation Agency (CalSTA) also is a member. State and other public agencies can accommodate installation and upgrades of high speed Internet access by integrating broadband into the construction of large infrastructure projects, such as transportation, water, education and other community facilities. Proactive planning and prudent management of these kinds of public assets can also lead to joint ventures with the private sector through fair competition that will facilitate and accelerate world-class broadband deployment throughout California.

CETF is pleased with the recent California 2017 General Plan Guidelines identifying broadband planning and "Dig Once" policies as required in the Public Utilities and Facilities Section of General Plan Circulation Elements (Chapter 4) and noting that the provision for access to broadband should be included Healthy Communities Sections (Chapter 6) as it is needed to allow for telemedicine capacity.

CETF supports "Dig Once" policies to advance broadband deployment and followed the progress of the Caltrans Broadband Working Group for the Caltrans Wired Broadband on State Highway ROW "Dig Once" Guidelines released January 2018 in compliance with AB1549. CETF helped inform the need for improved broadband deployment statewide, including the need for proactive identification of strategic corridors and key locations for broadband infrastructure installation.

At the July Caltrans and CTC corridor planning workshops, as well as at the recent Broadband Council Meeting on August 2, CETF emphasized the need for both Caltrans and CTC to include broadband stakeholders in the corridor planning and guideline development process to identify strategic broadband corridors in order to leverage resources and promote sensible broadband deployment solutions statewide. Based on attending the Caltrans and CTC workshops in July, having productive dialogue regarding the inclusion of broadband in the corridor planning process, and the discussion of this topic at the CBC meeting on August 2, CETF recommends the following action: **Caltrans and CTC should coordinate with the California Broadband Council to convene stakeholders in the near future to identify strategic corridors for the deployment of broadband and to standardize the specifications for installation of conduit in conjunction with transportation projects in those strategic corridors** (even if Internet Service Providers (ISPs) do not know if they want to participate in the open trench at the time of construction).

The expected outcomes of this meeting are:

- Convene a collaborative process to promote broadband as a green strategy to improve mobility and decrease environmental impacts. (Attachment A delineates community benefits).

- Identify and prioritize strategic corridors for accommodation of broadband deployment and installation of conduit (even if no ISP notifies Caltrans that they want to participate in an open trench at the time of construction).

- Develop standardized broadband conduit specifications (size and type) of conduit to be planned for and installed in conjunction depending upon the location, geography, cost and type of corridor identified in conjunction with transportation projects.

- Complement or augment "Dig Once Guidelines" and Caltrans notification process for trench opportunities and potential broadband co-location.

- Formulate a check list regarding accommodation of broadband deployment for Caltrans and CTC transportation planning.

CETF recommends that CTC and Caltrans consider and include the following broadband stakeholders to participate in the corridor planning strategy meeting and as part of ongoing corridor planning efforts:

—California Department of Technology
—CBC
—Caltrans
—CTC
—CalSTA
—California Public Utilities Commission (CPUC)
—California Office of Emergency Services (Cal OES)
—ISP's (telecommunications and cable companies): AT&T, Frontier, Charter, Comcast, Cox, Inyo Networks (Praxis), Race, GeoLinks, Sonic, Verizon, Mediacom, Conifer, Fire2Wire, DigitalPath, etc.
—Regional Broadband Consortia (See Attachment B)
—CENIC (California Education Network)
—California K-12 High-Speed Network
—California Telehealth Network (CTN)
—California State Association of Counties (CSAC)
—Rural Counties Representatives of California (RCRC)
—League of California Cities (LCC)
—Tribal Representatives
—CETF

Including broadband stakeholders early in the corridor planning process will enable Caltrans and CTC to accommodate broadband planning at project inception and improve broadband deployment opportunities statewide, helping California close the "Digital Divide." Collaborating with CBC will provide additional momentum to the consultation process and efficiently use professional staff time.

CETF looks forward to working with CBC, Caltrans, CTC and other broadband stakeholders to identify strategic corridors that will advance statewide deployment of broadband and achieve much-needed community benefits.

Sincerely,

Sunne Wright McPeak
President and CEO
California Emerging Technology Fund

Copy:
Amy Tong, California Broadband Council
Cynthia Walker, Director, Communications Division, CPUC
Matthew Yosgott, Associate Deputy Director, CTC
Erik Alm, Senior Transportation Planner, Planning for Operations Branch Chief
Jeanie Ward-Waller, Sustainability Program Manager, Caltrans
Gaylon "Rusty" Thornton, Senior Transportation Planner, Caltrans

ATTACHMENT A

California Emerging Technology Fund (CETF)
Community Benefits of Broadband in Comprehensive Corridor Planning

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Greenhouse Gas Emissions (GHG) Reductions – The best trip is the "virtual trip."

Mobility: Reduce congestion and improve mobility statewide:
Uber, Lyft, commuter trains, light rail, and highway systems rely on online access for real-time traffic data sensor mapping, incident reporting, and on-demand transportation services.
(Note: Mobility planners consider that Uber/Lyft model may replace traditional transit).

Telecommuting/Skyping/Video Conferencing are all "virtual trips" that result in reduced Vehicle Miles Traveled (VMT), improved air quality, and reduction in GHG Emissions

Education: K-12, Community Colleges, Universities, and other education facilities rely on high speed internet and online education reduces VMT, improve air quality and reduce GHG emissions.
- CENIC is key statewide stakeholder that should be consulted (CENIC mission is to connect K-University through dedicated broadband network).

Telehealth: Disadvantaged communities and rural areas need Telehealth which will provide equity and social justice in healthcare service delivery statewide.
- California Telehealth Network is statewide stakeholder that should be consulted.

E-Government: Residents and business rely on online access for government services local to state and federal levels resulting in reduction in VMT, improved air quality and reduced GHG emissions.

Utilities: Conservation, metering and Time of Use (TOU) rates rely on internet availability. Online access provides lowest cost for service and environmental justice for rural and disadvantaged communities.

California Agriculture relies on real-time data and online access to maximize productivity, conserve water and power.

Emergency Services: First responders and virtually all government agencies rely on internet in emergencies for mobilization, resource deployment, communication, news, weather reports, incident updates, evacuations, temporary shelter (Cal OES, State Fairgrounds, schools, etc.) and emergency benefits claims.

Sustainable Communities and Smart Cities include smart buildings, smart grids, and broadband, which provide innovation, power system management and result in improved air quality and reduced GHG emissions.

"Dig Once" Policies substantially reduce costs for providing broadband service to communities and provides more efficient use of resources.

Transportation System Technology Innovation requires online access along strategic corridors (and potentially on all transportation facilities. Autonomous vehicles will require online access for real time data connection.

Public-Private Partnerships (P3) focusing on broadband opportunities with ISP's can leverage transportation resources resulting in reduced costs for building and maintaining the facilities.

ATTACHMENT B

CALIFORNIA ADVANCED SERVICES FUND (CASF)
REGIONAL BROADBAND CONSORTIA

ATTACHMENT B

CALIFORNIA ADVANCED SERVICES FUND (CASF)
REGIONAL BROADBAND CONSORTIA

Regional Broadband Consortia	Contact
Broadband Consortia of the Pacific Coast **Counties Served:** San Luis Obispo Santa Barbara Ventura	Bruce Stenslie President & CEO Economic Development Collaborative of Ventura County 1601 Carmen Dr. Camarillo, CA 93010 805-794-0455 bruce.stenslie@edc-vc.com
Central Coast Broadband Consortium **Counties Served:** Monterey San Benito Santa Cruz	Stephen Blum Principal Tellus Venture Associates 831-582-0700 steveblum@tellusventure.com
Central Sierra Connect Broadband Consortium **Counties Served:** Amador Calaveras Tuolumne Mariposa Alpine	Patrick Kane Central Sierra Connect Manager Amador-Tuolumne Community Action Agency 209-781-0700 pkane@atcaa.org
Connected Capital Area Broadband Consortium **Counties Served:** Sacramento Sutter Yolo Yuba	Trish Kelly Senior Vice President Valley Vision 916-325-1630 Trish.Kelly@valleyvision.org Bill Mueller Valley Vision 2320 Broadway Sacramento, CA 95818 916-325-1630 bill.mueller@valleyvision.org
East Bay Broadband Consortium **Counties Served:** Alameda Contra Costa Solano	Linda Best Former President & CEO Contra Costa Economic Partnership 925-246-1880 linda-best@comcast.net

Regional Broadband Consortia	Contact
Eastern Sierra Connect Regional Broadband Consortium **Counties Served:** Eastern Kern	Judy Hyatt Project Manager ESCRBC 6413 Vienna Place Bakersfield, CA 93306 661-378-6628 judy@hyattconsultinggroup.com
Gold Country Broadband Consortium **Counties Served:** Sierra Nevada Placer El Dorado Alpine	Chelsea Walterscheid Sierra Business Council 10183 Truckee Airport Road, Ste 202 Truckee, CA 96161 530-582-4800 cwalterscheid@sbcouncil.org
Inland Empire Regional Broadband Consortium **Counties Served:** Riverside San Bernardino	Martha van Rooijen Project Manager 951-845-4391 martha@iebroadband.com
Inyo-Mono Broadband Consortium **Counties Served:** Inyo Mono	Nate Greenberg Mono County & Town of Mammoth Lakes PO Box 7657 I452 Old Mammoth Road, Ste 224 Mammoth Lakes, CA 93546 760-924-1819 ngreenberg@mono.ca.gov
Los Angeles County Regional Broadband Consortium **Counties Served:** Los Angeles	Diana Rodriguez Youth Policy Institute 6464 Sunset Boulevard, Ste 650 Los Angeles, CA 90028 213-688-2802 drodriguez@ypiusa.org
North Bay North Coast Consortium **Counties Served:** Mendocino Sonoma Marin Napa	Tom West Program Manager, Broadband 714-220-3436 tom@westfamily.org

Regional Broadband Consortia	Contact
Northeastern California Connect Consortium **Counties Served:** Siskiyou Modoc Shasta Lassen Tehama Butte Plumas	David Espinoza Broadband Specialist Geographical Information Center California State University, Chico Chico, CA 95929-0327 530-898-3945 despinozaaguilar@csuchico.edu
Redwood Coast Connect Consortium **Counties Served:** Del Norte Humboldt Trinity	Connie Stewart California Center for Rural Policy Humboldt State University 1 Harpst St. Arcata, CA 95521 707-826-3402 conniestew@humboldt.edu
Southern Border Broadband Consortium **Counties Served:** San Diego Imperial	Timothy Kelley 3051 N. Imperial Ave., Ste 102 El Centro, CA 892243 760-353-8332 tim@ivedc.com
San Joaquin Valley Regional Broadband Consortium **Counties Served:** Fresno Kern Kings Madera Merced San Joaquin Stanislaus Tulare	Eduardo Gonzalez Director, San Joaquin Valley Rural Development Center California State University, Fresno 559-278-0542 edgonzalez@mail.fresnostate.edu Shelby Gonzales Finance Director, Community & Economic Development California State University, Fresno 4910 N. Chestnut Ave. Fresno, CA 93726-1852 559-278-0517 sagonzales@mail.fresnostate.edu
Tahoe Basin Project	Heidi Hill Drum Tahoe Prosperity Center 948 Incline Way Incline Village, NV 89451 775-298-0265 Heidi@tahoeprosperity.org

Regional Broadband Consortia	Contact
Upstate California Connect Consortium **Counties Served:** Lake Glenn Colusa Sonoma	David Espinoza Broadband Specialist Geographical Information Center California State University, Chico Chico, CA 95929-0327 530-898-3945 despinozaaguilar@csuchico.edu

August 18, 2018

Jesse Torres
Deputy Director, Small Business and Innovation
CA Small Business Advocate
California Governor's Office of Business and Economic Development (GO-Biz)
300 South Spring Street, Suite 16701
Los Angeles, CA 90013

Re: Draft Third Investment Plan for the Cap-and-Trade Auction Proceeds and Greenhouse Gas Reduction Fund (GGRF)

The Southern Border Broadband Consortium (SBBC) supports the comments filed by the California Emerging Technology Fund and urges the California Air Resources Board to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund. Broadband is a green strategy to reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems.

SBBC knows first-hand the importance of closing the Digital Divide. We work to get disadvantaged communities connected and low-income households online. We have been collecting data through CalSPEED, holding and attending community events to gather data regarding current upload/ download speeds and needed speeds and services our community members in Imperial and San Diego counties need. Thus, we commend and endorse your focus on disadvantaged communities and low-income households.

The SBBC has been working with the Imperial Irrigation District, Imperial County Office of Education, AT&T, Spectrum, Frontier, T-Mobile, and many more stakeholders in Imperial and San Diego counties to get the affordable services to our community members and hold workshops with agencies like the Area Agency on Aging and the County Library systems to educate our community members on the importance and various usages affordable high-speed internet can offer them and their businesses.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,

Glenna Barrett
SBBC, Executive Director

Radio Bilingüe supports the Comments filed by the California Emerging Technology Fund and urges the California Air Resources Board to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund. Broadband is a green strategy to reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems.

Radio Bilingüe knows first-hand the importance of closing the Digital Divide. We work to get disadvantaged communities connected and low-income households online. Radio Bilingüe is a noncommercial bilingual Latino public radio network headquartered in Fresno and Oakland, CA, and the major producer of national Spanish news and information in public broadcasting. RB has produced thousands of news and informational campaigns on important consumer topics including broadband access, health, employment, immigration, financial literacy, education and civic participation -- creating forums in Spanish, English and Mixteco on our airwaves that connect listeners with community partners and resources.

Since 2010 Radio Bilingue has been at the center of successful model efforts in California to expand broadband awareness and adoption of low-cost or discounted programs to low-income Latinos, as a consistent partner with other non-profits in the California Emerging Technology Fund's major statewide initiative. In this time, RB has made core to its mission helping Spanish- and Mixteco-speaking communities gain access to broadband through outreach, education and connection to resources, proving that low-income Latinos and language minority groups, when aware of the benefits, DO want to be connected to computers and Internet-related resources to improve their families' education, economic opportunity and quality of life. Still, while there has been good progress, the latest study of internet penetration in households in California finds that half of the Spanish speaking homes in Fresno County do not have broadband at home and thus do not have an even playing field when it comes to many life opportunities. Thus, we commend and endorse your focus on disadvantaged communities and low-income households.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,

Hugo Morales
Executive Director

Comment Log Display

BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.
COMMENT 15 FOR THE INVESTMENT PLAN IDENTIFIES PRIORITY INVESTMENTS TO REDUCE GHG EMISSIONS (3RDINVESTMENTPLAN-WS) - 1ST WORKSHOP.

First Name: Kathy
Last Name: Wylie, M.S. Ed.
Email Address: chairman@mendocinobroadband.org
Affiliation: Mendocino County Broadband Alliance

Subject: Mendocino County Broadband Alliance Comments, Cap & Trade Auction Proceeds 3rd Invest Plan
Comment:
To whom it may concern, (please forward as appropriate)

Here is another example where a useful addition to these measures would include broadband inclusion. The lack of access to Broadband in my rural Northern California community - and across rural Mendocino County - has severely hampered local economic growth and opportunity.

The Mendocino County Broadband Alliance supports the comments filed by the California Emerging Technology fund and urges the California Air Resources Board to optimize digital inclusion in funding from the greenhouse gas read action fund. Broadband is a green strategy to reduce greenhouse gas omissions and shrink the carbon footprint of major infrastructure systems.

Closing the digital divide is of vital economic impact and importance in our own rural Mendocino County communities. Many county residents including my small town of Albion must still access any sort of internet connection possible (dial-up, satellite, a neighbors benevolence),because broadband is STILL only available in limited corridors of this county.

The Mendocino County Broadband Alliance works to get the disadvantaged communities connected online. We command and endorse your focus on disadvantaged communities and especially low income household needs.

In the wake of recent tragic fires in the region, the need has

become more apparent than ever. It is attention to details like this proposed broadband inclusionary statement, in this and future legislation, which will make the difference in our rural economies and opportunities.
Ultimately this type of responsible legislation strengthens California's present and future economic vitality on the global stage. We support meeting the goals of greenhouse emission goals for California.

Sincerely,

Kathy Wylie
Chair
Mendocino County Broadband Alliance

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2018-09-14 11:06:51

Comment Log Display

BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.
COMMENT 18 FOR THE INVESTMENT PLAN IDENTIFIES PRIORITY INVESTMENTS TO REDUCE GHG EMISSIONS (3RDINVESTMENTPLAN-WS) - 1ST WORKSHOP.

First Name: Kristin
Last Name: Connelly
Email Address: kconnelly@eblcmail.org
Affiliation: Contra Costa Economic Partnership

Subject: Comments: Draft Third Investment Plan for the Cap-and-Trade Auction Proceeds
Comment:

The Contra Costa Economic Partnership (CCEP) supports the comments filed by the California Emerging Technology Fund (CETF) and urges the California Air Resources Board to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund. Broadband is a green strategy to reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems.

The CCEP knows first-hand the importance of closing the Digital Divide. We work to get disadvantaged communities connected and low-income households online through our service as fiscal agent for the East Bay Broadband Consortium (EBBC) and strategic partner to CETF. We recommend and endorse your focus on disadvantaged communities and low-income households.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,

Kristin Connelly
Executive Director
Contra Costa Economic Partnership

Attachment:

Original File Name:

Inland Empire
Regional Broadband Consortium

September 13, 2018

California Air Resources Board (CARB)

Subject: Input for the Cap-and-Trade Auction Proceeds Third Investment Plan

The Inland Empire Regional Broadband Consortium (IERBC) supports the Comments filed by the California Emerging Technology Fund (CETF) and urges the California Air Resources Board (CARB) to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund. Broadband is a green strategy to reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems.

IERBC knows first-hand the importance of closing the Digital Divide. We work to get disadvantaged and unserved and underserved communities connected, as well as low-income households online.

IERBC was created through the California Public Utilities Commission (CPUC) and our consortium includes the Counties of Riverside and San Bernardino, cities, regional transportation, planning and economic development organizations, engineers, technology providers, non-profits, community-based organizations, health care providers, educators and businesses committed to improving broadband access and technology opportunities in San Bernardino and Riverside Counties.

Our Consortium brings regional leadership together and provides technical assistance to help improve broadband infrastructure and access in the Inland Empire. This includes advocating and recommending policy at the local, regional, statewide and national level that will promote broadband as a "green strategy." Telecommuting, online conferencing/webinars, and online learning at all levels of education can significantly reduce Greenhouse Gas Emissions and Vehicle Miles Traveled (VMT) in our region and throughout California.

Closing the digital divide improves our environment and helps create a more sustainable community.

We commend and endorse your focus on disadvantaged communities and low-income households.

IERBC supports and encourages that Cap-and-Trade Auction Proceeds and the Greenhouse Gas Reduction Fund (GGRF) should be used for Digital Inclusion projects and programs.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,

Martha Van Rooijen

Martha van Rooijen
Executive Director
Inland Empire Regional Broadband Consortium
www.iebroadband.com

ACCESS SONOMA broadband

September 14, 2018

California Air Resources Board

To Whom It May Concern:

Access Sonoma Broadband supports the Comments filed by the California Emerging Technology Fund and urges the California Air Resources Board to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund. Broadband is a green strategy to reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems.

Access Sonoma Broadband knows first-hand the importance of closing the Digital Divide. We work to get disadvantaged communities connected and low-income households online. ASB operates under the auspices of the Sonoma County Economic Development Board, and prioritizes the mission to extend affordable, high-speed broadband to our rural unserved areas within the county. We partner with the North Bay/North Coast Broadband Consortium in this effort. Thus, we commend and endorse your focus on disadvantaged communities and low-income households.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,

Michael C Nicholls, Co-Founder
Access Sonoma Broadband
141 Stony Circle -- Ste 110
Santa Rosa CA 95401

Comment Log Display

BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.
COMMENT 8 FOR THE INVESTMENT PLAN IDENTIFIES PRIORITY INVESTMENTS TO REDUCE GHG EMISSIONS (3RDINVESTMENTPLAN-WS) - 1ST WORKSHOP.

First Name: Michael
Last Name: Ort
Email Address: mort@digital395.com
Affiliation: California Broadband Cooperative

Subject: Digital Inclusion Projects By GGRF
Comment:

These comments are in support of funding greater digital infrastructure and Digital Inclusion by the California Air Resources Board (CARB) in the Draft Third Investment Plan for the Cap-and-Trade Auction Proceeds and Greenhouse Gas Reduction Fund (GGRF).

In 2014 California Broadband Cooperative completed development of the Digital 395 project in the Eastern Sierra region of California. This broadband network has significantly changed education, healthcare, tourism, and entertainment efficiencies in the region, reduced travel by government entities and the traveling public, and has seen substantial adoption of energy-saving technologies in residential and commercial buildings with (Smart Home technologies), in agriculture and forest management.

As networks are deployed elsewhere to bring the benefits of the digital economy, we continue to witness rapid adoption of highly efficient digital applications in agriculture, manufacturing, transportation, education and healthcare that reduce carbon emissions. The associated efficiencies from broadband have substantial long-term promise to improve factors contributing to pollution and global warning.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2018-09-13 20:09:08

Comment Log Display

BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.
COMMENT 21 FOR THE INVESTMENT PLAN IDENTIFIES PRIORITY INVESTMENTS TO REDUCE GHG EMISSIONS (3RDINVESTMENTPLAN-WS) - 1ST WORKSHOP.

First Name: Ortensia
Last Name: Lopez
Email Address: or10sia@el-concilio.com
Affiliation:

Subject: El Concilio Support for California Air Resources Board
Comment:
September 14, 2018

Re; Support for California Air Resources Board (CARB) on the Draft Third Investment Plan
El Concilio of San Mateo County (ECSMC) supports the Comments filed by the California Emerging Technology Fund and urges the California Air Resources Board to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund. Broadband is a green strategy to reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems.

El Concilio of San Mateo County knows first-hand the importance of closing the Digital Divide. We work to get disadvantaged communities connected and low-income households online. El Concilio of San Mateo County, Inc. (ECSMC) is a 501(c)(3) community based organization committed to increasing education, employment and access to quality of life services for underserved communities of San Mateo County. As part of our services, beginning in 2008 our Wi-Fi 101 program focused on closing the gap in access to technology among low income/underserved residents. Most recently, in January 2018 we advocated and got San Mateo County Board of Supervisors to adopt a resolution to address the digital divide.

Over a 3 year period, this program: 1) registered 4, 375 home for internet service, 2)connected 3,000 home with broadband internet service, and 3) trained 112 individuals to become East Palo Alto Technicians. The program also provided 550 laptops to 6th and 7th grades students. Our long range goal was to create a sustainable social enterprise by training East Palo Alto Techs to refurbish

computers and provide technical support to local non-profits on a sliding fee scale.
Thus, we commend and endorse your focus on disadvantaged communities and low-income households.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,

Ortensia Lopez
Executive Director

Attachment: www.arb.ca.gov/lists/com-attach/30-3rdinvestmentplan-ws-Wz5cNgBeUGBQOVQ6.pdf

Original File Name: El Concilio Support Ltr CARB.pdf

Date and Time Comment Was Submitted: 2018-09-14 12:06:38

Comment Log Display

BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.
COMMENT 7 FOR THE INVESTMENT PLAN IDENTIFIES PRIORITY INVESTMENTS TO REDUCE GHG EMISSIONS (3RDINVESTMENTPLAN-WS) - 1ST WORKSHOP.

First Name: Patrick
Last Name: Kane
Email Address: PKane@atcaa.org
Affiliation: ATCAA

Subject: Investment Plans Comments
Comment:

Central Sierra Connect Regional Broadband Consortium supports the Comments filed by the California Emerging Technology Fund and urges the California Air Resources Board to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund. Broadband is a green strategy to reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems.

Central Sierra Connect knows first-hand the importance of closing the Digital Divide. We work to get disadvantaged communities connected and low-income households online. Over the course of our work in the Central Sierra region, we see how the lack of broadband availability in this rural area holds residents back from success. They are unable to access educational and economic opportunities other California residents have access to, merely because of where they live. They face dangers due to the lack of access to broadband internet - putting them at greater risk in medical emergencies and disasters with fewer ways of being able to reach help. Thus, we commend and endorse your focus on disadvantaged communities and low-income households.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,
Patrick Kane
Program Manager

14 September 2018
Comments to California Air Resources Board CARB

Broadband access and adoption is a green strategy that will reduce greenhouse gas emissions and shrink the carbon footprint of major infrastructure systems including water, electricity and transportation. This is particularly true for remote and rural communities that lack high population densities.

In addition to efficiency and utility, many benefits of broadband access and adoption are evident in the services provided through community anchor institutions including schools, libraries, health clinics, local non-commercial media, and a wide range of cultural organizations and civic agencies, not least of which are public safety, public works and others involved in disaster response and recovery. (Attached is a one page summary of rural interests in broadband access.)

Resilient connected communities have smaller carbon footprints too!

Access Humboldt supports the Comments filed by the California Emerging Technology Fund and urges the California Air Resources Board to optimize Digital Inclusion in funding from the Greenhouse Gas Reduction Fund.

Access Humboldt is a non-profit, community media & broadband access organization serving the residents and local jurisdictions of Humboldt County on the North Coast of California USA, managing resources that include: cable access TV channels; KZZH FM 96.7 community radio; a wide area broadband network with dedicated optic fiber connections to twenty locations serving local jurisdictions and community anchor institutions; broadband access wireless networks; a Community Media Center with studio and other production equipment and training on the Eureka High School campus; and ongoing operational support for public, educational and governmental access media services.

Our work focuses on getting "least served" and disadvantaged communities connected in meaningful ways with more low-income households engaged online. Thus, we commend and endorse your focus on disadvantaged communities and low-income households.

We also know that collaboration among stakeholders can produce powerful partnerships. We stand ready to assist you in implementing the Third Investment Plan and helping meet the greenhouse gas emission reduction goals for the State of California.

Sincerely,

- signed -

Sean Taketa McLaughlin
Executive Director, Access Humboldt
P.O. Box 157, Eureka, CA 95502
tel: 707-476-1798, cel: 707-616-2381
e: sean@accesshumboldt.net

RURAL COMMUNITIES NEED REAL CONNECTIONS - FAST, OPEN INTERNET

For the public, for education and for local government purposes:

Public Health, Safety and Community Resilience

Diverse geography and long distances give rural communities unique challenges to meet basic needs for social services including health care, police, fire and emergency responders. Where resources are thin there is a special need for community-wide response to recover from natural disasters. Open networks allow people to connect directly with agencies that provide local services, information and products. Closed networks restrict and monetize those connections.

Education and Training - Lifelong Learning

Access to education opportunities is increasingly linked to fast internet access. Open, unrestricted broadband connections empower local experts to share their knowledge across the community and beyond. Local knowledge and unique digital archives of historic and cultural significance can be hosted and shared with robust and open connections. Closed networks allow providers to restrict and further monetize access. Local information resources become less available and more costly to deliver, favoring distant owners and only profitable, funded ideas.

Economic Opportunity- Marketplace of Ideas and Transactions

Rural economies include most of our natural resources and management of those resources increasingly relies upon fast connections to support diverse economic activity and public uses.

Just like big box retail outlets impact locally owned businesses, a closed internet (without Net Neutrality) will bias traffic away from rural services and products, concentrating the market power in corporate centers tied to the network owner. Open Internet supports open markets.

Culture and Arts - Past, Present, Future

Open access, privacy and security are particularly vital for the creative economies of rural and remote communities where innovation and diverse cultures thrive. Many artist inventors are rural. Closed networks monetize scarcity and reduce diversity by creating barriers to enter the marketplace of ideas. Rural areas have less access to all forms of media, not just broadband.

Secure and unfiltered access to all information online is vitally important for rural communities.

Civic Engagement - Liberty and Justice

Lacking net neutrality protections, private network providers become the gatekeepers between consumers, businesses, nonprofits and public agencies and the people they serve. Closed networks direct people to advertising or whatever content most benefits the network owner. Open networks support freedom of information and expression, essential human rights.

November 6, 2018

Chair Mary D. Nichols
Vice Chair Sandra Berg
Dr. John R. Balmes
The Honorable Hector De La Torre
Mr. John Eisenhut
The Honorable Dean Florez
Assemblymember Eduardo Garcia
Supervisor John Gioia
Senator Ricardo Lara
Councilmember Judy Mitchell
The Honorable Barbara Riordan
Supervisor Ron Roberts
Supervisor Phil Serna
Dr. Alexander Sherriffs
Dr. Daniel Sperling
Ms. Diane Takvorian
California Air Resources Board
California Environmental Protection Agency
1001 I Street
Sacramento, California 95814

Dear Chair Nichols and Members of the California Air Resources Board:

On behalf of the California Emerging Technology Fund (CETF) and our regional and community partners, thank you for the opportunity to submit Comments on the Cap-and-Trade Auction Proceeds Third Investment Plan regarding the how broadband (a generic term for high-speed Internet access infrastructure) and Digital Inclusion (getting all residents online) are essential as a "green strategy" to help the State achieve its goals for reducing greenhouse gas (GHG) emissions in implementing the priorities for the Greenhouse Gas Reduction Fund (GGRF). We were pleased that 10 civic leadership and community organizations also submitted Comments in support of the CETF testimony and Recommendations which were acknowledged in Appendix C of the Revised Draft. However, we were disappointed that that the proposed Response doesn't support the power of a "Connected California" to reduce GHG emissions and reach Disadvantaged Communities:

> *"The evolving structure of California Climate Investments and the emphasis on GHG emission reductions and other benefits give agencies the flexibility to expand their suite of project types, as long as programs achieve GHG emission reductions. The Revised Draft recommends avoiding establishing new programs because they increase the administrative costs to California Climate Investments as a whole."*

Digital Inclusion should be an integral strategy in the Investment Plan, not viewed as an additional demand on GGRF or added burden for staff. Ubiquitous broadband is axiomatic to achieving GHG reduction goals.

You are to be commended for the focus on Disadvantaged Communities, but the Third Investment Plan is silent on how to achieve the fundamental equity it seeks in light of the alarming reality of the Digital Divide:

— 31% are unconnected (13%) or underconnected (18%) (smartphone only).
— 43% of rural communities have unreliable broadband.
— Energy utilities (IOUs) have email addresses for less than half of their low-income households (CARE customers).

However, these data beg the question: What is the plan for reaching residents in Disadvantaged Communities and achieving equity so they are able to receive climate change information online, participate in energy demand management programs, or reduce vehicle trips? It is not possible to achieve the equity objective in the Investment Plan without Digital Inclusion.

The Third Investment Plan should embrace the "Connected California" concept as central to reaching Disadvantaged Communities and reducing GHG emissions. The CETF Comments set forth 5 common-sense Recommendations that should be incorporated into the Third Investment Plan which also will significantly align and integrate other State goals and priorities:

1. Request HSRA to integrate broadband expeditiously.
2. Endorse incorporation of broadband strategic corridors into transportation planning by CTC and Caltrans.
3. Encourage GGRF grantees to collaborate with Digital Inclusion CBOs.
4. Urge energy utilities to get all low-income households online.
5. Authorize Digital Inclusion projects as eligible for GGRF funding.

Internet infrastructure is foundational for all the GGRF investment priorities:

— Transportation: Given that half of overall energy use is in the transportation sector, GHG reductions must involve strategies to decrease vehicle trips. For both traffic congestion relief and GHG mission reductions, the best trip is a "virtual trip." If low-income residents are not online, they often do transactions in person, generating GHG, such as going to the DMV or energy utility to pay (40% DMV payments are in cash). Paper bills must be printed and mailed, instead of sent by email. Telehealth can reduce 40% of follow-up visits.
— Energy: Energy utilities need encouragement to get online all low-income households, an inescapable requisite to achieve equity in access for all customers.
— Natural Resources: Management of water systems requires a reliable Internet network as well as the electricity grid, which is managed over the Internet. Efficient resource use is managed through broadband connections.
— Agriculture: Broadband signals into farms are required to reduce resources applications for agriculture. The AgTech Pilot Projects showed water use can be reduced 10%-20% (with increased production) depending on the crop.
— Resiliency: Protection of natural resources and Disadvantaged Communities (particularly in rural areas) is enhanced with availability of broadband infrastructure (such as remote monitoring of wildfires and real-time information to ground forces). In addition, recovery is accelerated with the access to broadband, especially critical for small businesses. And, the unfortunate experiences with wildfires and emergencies show that the locations used for staging responses and evacuations are not permanently connected.

The GGRF Third Investment Plan is the moment in time to advance a vital vision and provide the leadership to accelerate progress in meeting the State's goals for reducing GHG emissions while ensuring inclusion of Disadvantaged Communities.

Sincerely,

Sunne Wright McPeak
President and CEO

C: Richard Corey, Executive Officer

California
BROADBAND COUNCIL

California
DEPARTMENT OF TECHNOLOGY
STRATEGY INNOVATION DELIVERY

Stakeholders Meeting on Strategic Corridors
Thursday, September 27, 2018
1:00PM – 4:00PM
California Department of Technology
1325 J Street, Suite 1600, Sacramento, California

SUMMARY REPORT

Purpose of the Stakeholder Meeting

The California Broadband Council (CBC), chaired by the Department of Technology Director Amy Tong, is following implementation of the statutory "Dig Once" policy to facilitate the deployment of broadband. On August 2, 2018 the CBC authorized convening State Agencies and stakeholders to explore the concept of "strategic corridors" to support broadband deployment, in which conduit would be installed in conjunction with transportation projects even if no Internet Service Provider (ISP) or public agency want to be in the trench at the time of construction. The purpose of the Stakeholder Meeting on Strategic Corridors was to:

- Bring together State Agencies, Internet Service Providers (ISPs), Broadband Regional Consortia, transportation organizations, and other stakeholders to develop approaches that will build upon and advance "Dig Once" policies to inform the California Transportation Commission (CTC) Draft Comprehensive Multimodal Corridor Planning Guidelines and Department of Transportation (Caltrans) Draft Corridor Planning Guidebook.
- Identify "strategic corridors" to support broadband deployment and delineate conduit specifications for strategic corridors where no ISP or public agency is prepared for an installation at the time of construction of a transportation project.
- Develop a plan of action among State Agencies and stakeholders to address issues, provide input on pending policy and guidelines, and improve communication and collaboration on strategic corridors throughout the state.

Welcome and Introduction

Amy Tong, State CIO, Director, Department of Technology, and Chair, California Broadband Council
Director Amy Tong welcomed everyone to the Stakeholder Meeting and introduced Department of Technology leaders: Chief Information Officer Chris Cruz; Stephanie Tom, Deputy Director Broadband and Digital Literacy; and Laura Askins, Broadband and Digital Literacy and Legislation. She said the California Broadband Council (CBC) and Department of Technology support the purpose and intent of the Stakeholder Meeting and commend all participants for attending and being willing to engage in the conversation regarding strategic corridors. She said it is vital that all parties work together. She introduced CBC Members George Akiyama, Chief Information Officer for the State Transportation Agency (for Secretary Brian Annis) and Sunne Wright McPeak, President and CEO of the California Emerging Technology Fund (CETF), whom she asked to help facilitate the Meeting. She kicked off the forum by inviting everyone to introduce themselves (see attached Attendee List)

Sunne Wright McPeak, President and CEO, California Emerging Technology Fund (CETF)

- CETF appreciates the opportunity to partner with the CBC and Department of Technology to convene the Stakeholder Meeting to advance the "Dig Once" policy, identify strategic corridors for broadband deployment, and determine conduit specifications for transportation projects.
- CETF promotes broadband as a "green strategy" to reduce traffic congestion and decrease impacts on the environment impacts—in the transportation management the best trip is a "virtual trip". CETF has submitted testimony to CTC and Caltrans recommending that broadband be incorporated into planning for transportation corridors as a tool to reduce congestion and decrease impacts on the environment. CTC and Caltrans have responded positively and are referencing broadband in their current corridor planning processes. The Stakeholder Meeting will provide additional input.
- CETF is grateful for the contribution of time and expertise by all participants to engage in a sincere conversation about how work together to meet the State's goals for broadband deployment.

Presentations and Reports by State Agencies and USDA

Garth Hopkins, Deputy Director, Planning, California Transportation Commission (CTC)

- CTC supports good transportation planning. It is critical that ISPs and Broadband Regional Consortia (RCs) work together with State and regional transportation agencies to address strategic corridor needs early in the planning processes and are included in Regional Transportation Plans.
- $5 billion annually is slated in SB1 to fund the Solutions for Congested Corridors Program. CTC has a 3-year grants cycle; the first cycle is completed. The CTC Comprehensive Multimodal Corridor Planning Guidelines will be used for the second and third grant cycles. CTC will review the Draft Guidelines at the October 17-18, 2018 meeting and is scheduled to adopt them on December 5-6. The second grant cycle will commence following adoption of the CTC Guidelines.
- Broadband has been included in the final draft CTC Comprehensive Multimodal Corridor Planning Guidelines. CTC and Caltrans held four workshops from July to September to receive input about the both the CTC Corridor Guidelines and the Caltrans Draft Corridor Planning Guidebook. CETF provided comments that led to broadband being included in the CTC Guidelines which are now in final draft (see 2nd Draft Comprehensive Multimodal Corridor Plan Guidelines 9-28-1.). The intent is for Caltrans to incorporate the CTC Guidelines into its Corridor Planning Guidebook.

Chris Schmidt, Chief, Transportation Planning, California Department of Transportation (Caltrans)
Brian Simi, Chief, Office of Technology, Innovation and Deployment, Caltrans
(See Caltrans PowerPoint Presentation)

- AB1549 ("Dig Once" legislation) required Caltrans to develop guidance by January 1, 2018 to facilitate deployment of wired broadband in State rights-of-ways (ROW). Caltrans updated the Wired Broadband Guidelines May 25, 2018. Caltrans Corridor Planning Guidebook will be informed by the Wired Broadband Guidelines and will capture the intent of the CTC Comprehensive Multimodal Corridor Planning Guidelines.
- Each of the Caltrans Districts has designated a single point of contact to facilitate inquiries regarding wired broadband facilities within ROWs. Guidelines address two kinds of encroachment permits: (1) Stand-Alone Encroachment Permit; and (2) Planned Partnering Project Permit. Locally-funded State highway projects are referred to the local agency sponsor or project administrator.
- The next steps in the Caltrans process includes coordination with the CPUC on corridor gaps and identification of future Caltrans needs in the Transportation Corridor Planning Guidebook. Caltrans welcomes input from broadband stakeholders and encourages industry to reach consensus on conduit specifications.

- Caltrans has a website with an interactive GIS Map: "Proposed Highway Improvement and Repair Projects" http://www.dot.ca.gov/wiredbroadband/ The GIS Map could be used to identify strategic corridors and add overlay information. Additional Caltrans maps include:
  - California Highway System Map
  - California Road System Maps
- The response to the Wired Broadband Guidelines has been minimal to date probably because transportation planning and ISP business cycles have different time-frames.

Comments and Questions from Participants

- ISPs stated that the Encroachment Permit process could be improved if Caltrans would approve industry-accepted conduit specifications, and if approvals were consistent throughout all 12 Caltrans Districts. Some participants expressed concern that that State Agencies be aware that It also was suggested that an "e-permitting" system be established to save time, cost and resources to deploy broadband more quickly to serve communities, especially unserved areas.
- Tom West, North Bay North Coast RC, stated that there needs to be open access to conduit and corridors, and there needs to be ongoing accessibility and affordability.
- Chris Schmidt replied that planned partnering offers the biggest opportunity because conduit can be included early in the transportation planning and design process. Other partnering opportunities include Caltrans communications projects (Brian Simi is contact) and maintenance operations. Caltrans invites ISPs, RCs and other stakeholder to communicate their needs regarding strategic corridors. He observed that fiber deployment has been primarily in urban areas and suggested that stakeholders not look only at highways, but also consider "travel sheds" when identifying strategic corridors for broadband deployment.
- Some participants expressed concern that the State Agencies may not be aware that although conduit and/or fiber may be installed in a ROW, it may not be available for use by ISPs. A planner may think that because there is a conduit that no further broadband planning is needed, but a given ISP may not be able to access it and has to install additional conduit and fiber.
- Bernie Orozco, California Cable and Telecommunications Association (CCTA), suggested that Caltrans conduct a webinar on using the Wired Broadband Guidelines and their Interactive GIS Map. ISPs agreed with recommendation and said training was needed. ISPs further requested that Caltrans have each Caltrans District outreach in their regions to ISPs, transportation planners, engineers and RCs regarding the Wired Broadband Guidelines and GIS Map.

Cynthia Walker, Director, Communications Division, California Public Utilities Commission (CPUC)
Tom Glegola, Supervisor, Communications Division, CASF Infrastructure and Market Analysis, CPUC

- The CPUC provides regulatory oversight and implementation for broadband deployment. The CPUC Communications Department (CD) administers the California Advanced Services Fund (CASF) Broadband Infrastructure and Adoption Grant Program. It also manages the State's Interactive Broadband Map.
- CPUC CD is willing to be involved in identifying strategic corridors for broadband deployment, However, the State needs to determine which Agency should have the lead responsibility. CPUC CD is available to provide input to other State Agencies and meet with ISPs and welcomes the opportunity to meet and confer.
- Access to Caltrans State Highway System GIS Map would allow CPUC to overlay the California Interactive Broadband GIS Map information which would help identify gaps in broadband service related to state highway features that may be obstacles such as bridges, rivers, and difficult terrain. The overlaying of GIS information could provide the ability to identify strategic corridors where broadband deployment is most needed.

Comments and Questions from Participants

- Participants noted that CPUC cannot identify strategic corridors alone and that end-users, ISPs and Regional Consortia must work with Caltrans. Some noted that the Legislature's CASF standard for broadband service of 6 Mbps download and 1 Mbps upload is relatively slow, and that a higher threshold speed (such as the FCC 25/3 Mbps) would be more appropriate for identifying strategic corridors for future deployment needs.
- Matthew Rantanen, Southern California Tribal Digital Village, also mentioned that power companies need to be involved in broadband discussions because they have extensive conduit and fiber networks (including excess dark fiber), sometimes installed in aerial rights-of-way on utility poles. As an example, it was noted that Southern California Edison had a published rate sheet for access to its dark fiber and was included in the Riverside County "Request for Partners" last year.
- Sunne Wright McPeak commented that CETF will work CBC, Caltrans, CPUC, ISPs, RCs and other stakeholders on the next stage conversations regarding identification of strategic corridors.

Budge Currier, 9-1-1 Communications Branch Manager, Office of Emergency Services (Cal OES)

- CalOES appreciates being included in the deliberations on strategic corridors. There is a need for more robust high-speed Internet infrastructure to better respond to emergencies.
- Wireline broadband service generally provides good communications in 9-1-1 outages. Cellular service is fairly good and cable VoIP can work. However, overhead fiber on poles can be a problem during emergencies. Wildfire-prone areas, especially on the North Coast and in the Sierras, need wireline broadband.
- Emergency response needs redundant communications paths which should be considered in identifying strategic corridors for broadband deployment.

Comments and Questions from Participants

- Lexie Smith, GeoLinks, said that fixed wireless may be appropriate for use in emergencies, as it can provide 2-3 gigabit service. Companies that provide fixed wireless should be part of the emergency response and 9-1-1 systems.
- Matthew Rantanen commented that there are over 100 tribal organizations throughout the state, and that casinos, in addition to fairgrounds, should be considered by CalOES for emergency response and evacuation centers: casinos have large parking lots, protected structures and Internet connectivity. He also stated that tribal relationships are important in broadband deployment and assistance during emergency and 9-1-1 events.
- Participants generally noted that fiber wireline connections have multiple public benefits.
- Michael Ort, CEO, Inyo Networks, said that once fiber wireline is installed that service that can be "turned up" to reach gigabit speeds very quickly, which is important for emergency response. He suggested that fiber be deployed permanently in high-response areas for public safety purposes.

Ken Anater, Marketing Division, Fairs and Expositions, California Department of Food and Agriculture (CFDA)

- CDFA appreciates being consulted in identifying strategic corridors.
- Maps are needed with overlays to include highways, fairgrounds, and broadband access. County fairgrounds, which are State assets, host a range of events and activities that would benefit from high-speed Internet access. Several fairgrounds also serve as economic incubators and could better serve rural California with broadband infrastructure.
- Agriculture remains a major industry for California and technology can significantly assist resource application efficiency, crop productivity, and access to external markets.

Comments and Questions from Participants

- Michael Ort, CEO, Inyo Networks, and David Espinoza, Broadband Specialist, CSU Chico, which manages the Northeastern California Connect and Upland California Connect Regional Consortia, presented a map showing the State Highway System overlaid with all of the fairgrounds in the state, and a map showing fairgrounds overlaid with unserved and served areas using 25/3 mbps as a threshold. Using the 25/3 definition for broadband service, there are 10 fairgrounds with no Internet service, 24 fairgrounds that are considered unserved, and 43 that have acceptable service.
- Budge Currier and Ken Anater concurred that more capacity is needed at fairgrounds and high-speed Internet connectivity to these facilities would be a great asset for public safety.

Robert Tse, Office of the Assistant Administrator, Telecommunications Program, Rural Development, U.S. Department of Agriculture (USDA)

(See PowerPoint Presentation)

- Agriculture is vital to California's economy and broadband connectivity is central to increased efficiency and productivity. AgTech is an emerging focus for policymakers. Dig-Once policies are needed for corridors that reach major farming area and fairgrounds. When any road improvements or paving is done near a fairground, there should be planning and budgeting for installation of conduit and fiber to avoid future digging in the ROW. Currently, when a fair is active, the amount of broadband that is used often impacts Internet service for area residents. This is an issue that needs to be addressed. Improving broadband service by utilizing strategic corridors is a good idea.
- There are partnering models for broadband at fairgrounds. For example, fairgrounds in Pennsylvania host the fair, provide emergency staging and response, and also house distributed manufacturing to boost economy. Installing broadband at the fairgrounds not only provides the essential bandwidth for emergency response, but also stimulates economic development. He also noted that fairgrounds allow pets, so people ho hesitate to evacuate without pets can be moved more quickly if that information could be communicated more effectively.
- Water and irrigation districts also should be involved in the strategic broadband corridor discussion because they have linear rights-of-way to farms in rural area, and they use broadband for moisture sensing and other farming applications.

Comments and Questions from Participants

- Tom Glegola asked those advocating for connectivity to fairgrounds to further delineate the needs and inventory the status of their current known conduit access and fiber connectivity. Knowing there is a broadband conduit ready to go and available is the key.
- Robert Tse replied that when fiber is not available at fairgrounds during emergencies, first responders often order work-around temporary solutions that can take more time and money than if the connectivity had been installed permanently.
- Sunne Wright McPeak noted that more information needs to be gathered regarding broadband access to fairgrounds to provide input to the identification of strategic corridors.

Kim Lewis, Legislative Advocate, CENIC (Corporation for Education Network Initiatives in California)

- CENIC network serves over 20 million users across California, including the vast majority of K-20 students along with educators, researchers, and individuals at other vital public-serving institutions. Anchor institutions served by CENIC, such as schools and libraries, also are used for staging emergency response and temporarily housing people during evacuations.
- CENIC sites need "diversity" (also referred to as "redundancy" by others) to describe the advantage of a variety of types of broadband service and multiple paths to ensure continuity of service during emergencies and other unexpected circumstances.

- CENIC identified the following routes to be considered as strategic corridors for broadband planning:
  - US Hwy 40
  - US Hwy 101
  - SR 3 (Trinity and Siskiyou Counties)
  - SR 36 (Humboldt and Lassen Counties)
  - SR 49 (11 Counties, especially Gold Country: Amador, Calaveras, Tuolumne, Mariposa Counties)
  - SR 58 (Kern County)
  - SR 59 (Merced County)
  - SR 104 (Amador County)
  - SR 155 (Kern County in Lake Isabella Area)
  - SR 178 (Kern and San Bernardino Counties)
  - SR 180 (Fresno County)
  - SR 211 (Humboldt County)
  - SR 243 (Riverside County)
  - SR 247 (San Bernardino County)
  - SR 299 (Humboldt, Trinity, Shasta and Modoc Counties)

Comments and Questions from Participants

- David Espinoza added the following routes to be considered for strategic corridors:
  - I-5
  - SR 44 (Shasta and Lassen Counties)
  - SR 172 (Tehama County)

Summary Report on Input from ISPs Regarding Strategic Corridors and Conduit Specifications

Ann Spaulding, CETF Consultant and Member, East Bay Broadband Consortium
Martha van Rooijen, MVR Consulting and Executive Director, Inland Empire Broadband Consortium
Ann Spaulding and Martha van Rooijen thanked the ISPs for input and referenced the Summary Report.

Input from Internet Service Providers: Discussion of Strategic Corridors and Conduit Specifications

Alice Perez, External Affairs, Victoria Kneer, Network Process and Quality Manager, and Clem Cole, Network Construction & Engineering, AT&T

- There is an overall concern about consistency in interpretation of Caltrans guidelines across the 12 Caltrans Districts that impact the time involved in planning and permitting broadband deployment. It appears that District engineers have more influence than District Directors or Headquarters. Leadership from Caltrans Headquarters is needed to achieve consistency in guidelines and specifications interpretation and to achieve more collaboration in working with ISPs.
- AT&T utilizes conduits that are specific to their company and requested that Caltrans be open to conduit specifications preferred by ISPs rather than the current standards in Caltrans guidelines. Conduit Specification Note in the Wired Guidelines states "Conduit Duct Size and Quantity May Vary" is typically ignored by the Districts. For example, Guidelines specify 4" conduit with four (4) 1" ducts inside, but this specification is not possible as four (4) 1" ducts do not fit in 4" conduit; so, the ISP is left to either put 3 ducts in the 4" conduit or propose a different specification which usually means that permitting takes many submittals and an excessive amount of time for approvals.

- Existing and emerging technologies for high-speed Internet connectivity need a supportive environment for effective and efficient deployment, including revising and accepting new standards and specifications. It is important to have sustained interaction between leadership from the State Agencies and ISPs to be prepared and open when funding is available. Caltrans should implement an E-Permit program so that application progress, milestones, and outstanding items can be viewed online and be consistent across all Districts.

Comments and Questions from Participants

- Chris Schmidt and Brian Simi commented that although Caltrans has some software applications used for project management, that a robust E-Permit system would have to be developed and there is no funding available for that kind of a project. However, Caltrans is willing to meet with the ISPs to review permitting issues and discuss ideas for improving the process.
- Sunne Wright McPeak expressed sympathy with Caltrans not having authorized budget for development of an E-Permit system but suggested that it could be funded through a surcharge on permits for broadband encroachments. ISPs generally agreed with exploring that concept provided it would result in saving time and accelerating broadband deployment. She said CETF would work with the stakeholders to further discuss the potential for developing an E-Permit system.

Bernie Orozco, Vice President Government Affairs, California Cable and Telecommunications Association (CCTA)

- Progress is being made by in implementing the Dig Once policy and Caltrans deserves credit for finding some common ground with ISPs to improve the process. More consistency on policies and procedures is needed across the Caltrans Districts.
- More user-friendly Caltrans GIS Maps with training on the Dig Once procedures would go a long ways to increasing use of the process established by Caltrans. Caltrans should conduct a seminar or webinar for ISPs and District personnel to foster more collaboration.
- E-permitting would be welcomed and CCTA is willing to work with the State Agencies and stakeholders to continue the discussion.

Charlie Born, Director, Governmental & External Affairs, and Mike Riley, AVP-OSP Engineering-California, Frontier Communications

- The Stakeholder Meeting is a positive step forward and the conversation should continue. Frontier welcomes the opportunity to participate. Coordination among State Agencies and across Caltrans Districts would be very helpful.
- Caltrans did have an expedited permitting process for broadband deployment ROW encroachments during the housing boom, particularly in conjunction with new development, but that faded away during the recession. The process takes longer now. There needs to be a better way for the ISPs.
- Direct conversation with Caltrans management to explain the permitting needs and issues helps get a more timely resolution.

Michael Ort, CEO, Inyo Networks and Praxis (Digital 395 and Digital 299)

- Transportation should be redefined to include information, not just goods and people.
- There are good alternatives to the Guidelines specifications, such as the conduit sample shown to the participants, which fits inside a 4" conduit and contains a total of five (5) ducts of varying sizes, costs approximately $2 per foot, comes in 1,200-foot reels (an added benefit because contractors only need one type of conduit reel rather than varying sizes that deplete at different intervals as they are pulled), and can accommodate future needs at a lower cost if installed in strategic corridors. Stakeholders were very interested in considering the sample conduit for the future.

- The sample conduit also could be a good candidate for Caltrans and other transportation agencies to deploy for their own Intelligent Transportation Systems (ITS) projects.

Carlos Alcantar, Vice President, Engineering, Race Communications

- The conduit shown by Michael Ort would be a good candidate for installation in strategic corridors if no ISP or other partners are participating in a transportation project at the time of construction. It would save time and resources for everyone and be an appropriate way for Caltrans to advance the Dig Once Policy. Caltrans and transportation agencies would find this useful for their future needs.
- The process of working with Caltrans is difficult and there are examples of existing condult to which ISPs cannot access for a variety of reasons. These situations need to be examined to see if there can be resolutions and a better process.
- Education and training such as a webinar for ISPs on the Caltrans GIS mapping tools is a good idea.

Lexie Smith, VP of Business Development, GeoLinks

- In many cases fixed wireless broadband is a better solution than fiber in that it can be installed in difficult areas with less permitting and time. GeoLinks wants to close the Digital Divide now and is committed to using fixed wireless to deploy broadband as quickly as possible.
- GeoLinks could provide broadband to every part of the State without laying anymore fiber because there is so much fiber in the ground. Fixed wireless can deploy high-speed broadband service nearly anywhere in California.
- Medium-sized companies have fewer constraints than some of the larger ISPs, so companies such as GeoLinks should be considered as an option to deploy broadband quickly. They should also be considered for deployment and use during 9-1-1- emergency events.

Comments and Questions from Participants

- Cynthia Walker said it was becoming clear that a technology hybrid approach is needed to achieve the State's goal of 98% deployment: a combination of wireline and fixed wireless infrastructure are needed to support broadband access and adoption throughout the state. She invited a direct conversation with GeoLinks and other ISPs to explore strategies and solutions.

Ross Shapiro, General Manager and Director, US West, Verizon

- Verizon appreciates the opportunity to attend the Stakeholder Meeting and is willing to participate in future discussions.
- Broadband deployment is based upon a business model and that overall a project needs to be a good value proposition. Whether it is private investment, government grants, or a public-private partnership, a business case must be made for deployment.
- Policymakers and planners should consider using service objectives and theory-of-constraints modeling, such as the Six Sigma approach that focuses on looking at constraints in achieving measurable and quantifiable results. This kind of analysis and methodology also could be used to identify and prioritize strategic corridors for broadband deployment.

Yolanda Benson, Advocate, Government Strategies, California Communications Association (CCA)

- CCA appreciates being invited to the Stakeholder Meeting and consulted in these policy matters.
- CCA members, smaller rural telecommunications companies, primarily use wireline broadband technology, which provides advantages over other types of broadband delivery methods.
- Rural telcos definitely need to be consulted and engaged in the conversation to determine strategic corridors because the CCA members can help bring broadband service to unserved areas.

Pamela Loomis, Loomis Advocacy Solutions, California Communications Association (CCA)

- CCA members have small service areas, so it is very difficult to imagine who is going to pay for and build broadband infrastructure and provide service. There are regulatory constraints as to where CCA members can build and extend service
- CCA wants to be involved in continuing stakeholder dialogue on broadband deployment in rural areas and identification of strategic corridors.
- CCA members will be asked again about middle-mile access and/or backhaul to their service areas to determine if there are strategic corridors to be considered for conduit installation for future use.

David Nelson, CEO, Vast Networks (formerly CVIN)

- Broadband corridors won't get built unless Caltrans modifies its standards. More needs to be done in partnership with Caltrans.
- Conduit could be deployed when roads are repaired or replaced along strategic corridors, not just in conjunction with major new transportation projects.
- SR 20 and SR 49 are good candidates for strategic corridors.

Comments and Questions from Participants

- Chris Schmidt underscored that a large part of the Caltrans budget is devoted to maintenance and repair of the State highway system and that there should be more conversation about whether not these kinds of projects presented opportunities for facilitating broadband deployment. He again offered to meet with ISPs to continue the conversation.

Input from Transportation Stakeholders

Bill Higgins, Executive Director, California Council of Governments (CalCOG)

- CalCOG agencies are concerned about trenches under roads, yet the future of transportation and autonomous vehicles need connectivity. Caltrans and CTC should be considering these needs as part of the broadband deployment process, especially in strategic corridors.
- It is important that the identification and prioritization of strategic corridors for broadband deployment be included in Regional Transportation Plans. Metropolitan Planning Organizations (MPO's) and County Transportation Authorities develop their own regional plans to receive approval from CTC and receive funding for transportation improvements.
- CalCOG will host a meeting regarding strategic corridors with Regional Consortia, ISPs, MPOs and County Transportation Authorities, Councils of Governments (COGs), and State Agencies to ensure a substantive conversation about how to identify strategic corridors and foster collaboration within each region as well as statewide.

Comments and Questions from Participants

- Sunne Wright McPeak thanked Bill Higgins and commended CalCOG for being willing to host a meeting that involves the regional transportation organizations and Regional Consortia and said CETF is willing to assist with the convening of those stakeholders. She also acknowledged that the California State Association of Counties (CSAC) and Rural County Representatives of California (RCRC) had attended the Stakeholder Meeting and need to be involved in all the conversations regarding strategic corridors in the future because several are key county arterials and roads.
- Tom West offered to take responsibility to reach out to all the Regional Consortia to get more input on strategic corridors and work with David Espinoza to map the results that can be used for presentation to CTC in October. That offer was accepted by participants.

Summary of Agreements and Next Steps

Sunne Wright McPeak summarized "Next Steps" at the end of the Stakeholder Meeting (which was distributed by the Department of Technology on behalf of the California Broadband Council on Friday, September 28, 2018) along with the PowerPoint Presentations and List of Attendees.

- Prepare and distribute a Summary Report on the Stakeholder Meeting presentations and discussion and submit to the California Broadband Council (Chair Amy Tong and Members). Submit the Summary Report to the California Transportation Commission (CTC) and Department of Transportation (Caltrans) for their corridor planning processes.

- Prepare and distribute to participants "user friendly" maps with overlays of all vital information, including unserved and underserved areas, county fairgrounds and other anchor institutions, and Tribal Lands for identification of Strategic Corridors.

- Distribute to participants a List of the Caltrans 12 District Contacts for facilitation of broadband deployment.

- Request Caltrans to convene a webinar or forum to brief Internet Service Providers (ISPs) about how to use the "Dig Once" tools.

- Request Broadband Regional Consortia (RCs) to identify Strategic Corridors in their regions for consideration by Caltrans and CTC. (Acknowledge that North Bay North Coast RC Executive Officer Tom West volunteered to assist with this effort, CENIC will submit their specific recommendations, and OES 9-1-1 Manager Budge Currier and CDFA Fairs Marketing Manager Ken Anater will contribute as appropriate. Recognize that it is important to seek input from CSAC and RCRC regarding county roads.)

- Acknowledge that Caltrans (Chris Schmidt and Brian Simi) agreed to meet with ISPs with major projects and responsible District lead personnel to address requests for the companies' preferred conduit specifications and to identify ways to streamline the process. Recognize that Caltrans invites ISP input for standard specifications for conduit installation on Strategic Corridors in conjunction with transportation projects when no ISP or other public agency has requested participation in the trench at the time of construction.

- Request Caltrans and other State Agencies to consider developing an E-permit process which can be funded as part of the Cap-and-Trade allocation or by a fee on permits (which ISPs indicated would be a good value proposition if completed on a reasonable timeframe).

- Accept offer from California Public Utilities Commission (CPUC) leaders (Communications Division Director Cynthia Walker, CASF Supervisor Tom Glegola, and Clover Sellden) to provide input to other State Agencies and meet with ISPs.

- Accept offer of CalCOG (Bill Higgins) to convene a meeting of regional transportation leaders with RCs.

Attendee List
Strategic Corridors Stakeholders Meeting
September 27, 2018
Department of Technology
1325 J Street, Suite 1600, Sacramento, CA

Name	Representing	Email
Alice Perez	AT&T	ap826x@att.com
Ann Spaulding	CETF	annbspaulding@gmail.com
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Strategic Corridors Stakeholders Meeting
September 27, 2018
Department of Technology
1325 J Street, Suite 1600, Sacramento, CA

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