

**BEFORE THE
NATIONAL INFORMATION AND INFORMATION ADMINISTRATION
DEPARTMENT OF COMMERCE
AND
RURAL UTILITIES SERVICE
DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20230**

In the matter of:

American Recovery and Reinvestment Act
of 2009 Broadband Initiatives;
Broadband Technology Opportunities
Program;
Rural Utilities Service, Distance Learning,
Telemedicine and Broadband Program

Docket No. 090309298-9299-01

**COMMENTS OF CALIFORNIA GOVERNOR ARNOLD
SCHWARZENEGGER AND THE PEOPLE OF THE STATE OF
CALIFORNIA**

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I. INTRODUCTION AND SUMMARY

The State of California files the following comments in response to the National Telecommunications and Information Administration (NTIA) and the Rural Utilities Service (RUS) notice in the Federal Register¹ soliciting comments on specific questions regarding the Broadband Technology Opportunities Program (BTOP) of the American Recovery and Reinvestment Act (ARRA or Recovery Act). The Recovery Act requires NTIA initiate the Broadband Technology Opportunities Program (BTOP) to accelerate broadband deployment to unserved and underserved areas and ensure that institutions strategically placed to create jobs and provide other public benefits have broadband access. BTOP has five overarching purposes: 1) extend broadband access to unserved areas; 2) provide

¹ NTIA and RUS Joint Request for Information, on the American Recovery and Reinvestment Act of 2009 Broadband Initiatives, [Docket No. 090309298-9299-01], Federal Register, Vol. 74, No. 47. March 12, 2009.

improved access in underserved areas; 3) provide education, training, equipment and support to strategic institutions such as at libraries, community organizations and job-creating facilities; 4) improve use of broadband by public safety agencies; and 5) stimulate broadband demand as an engine for economic growth.²

These BTOP goals are consistent with the aggressive broadband strategies in California. In 2006, Governor Arnold Schwarzenegger formed a Broadband Task Force (Task Force) of 21 experts. The Task Force issued two reports on how best to advance broadband in our state, and conducted a voluntary broadband mapping project. Since that time, a broadband infrastructure program to fill unserved and underserved areas was implemented by the California Public Utilities Commission (CPUC). The CPUC also founded the California Emerging Technology Fund (CETF) to close the digital divide, with particular focus on remote/rural, disadvantaged communities and persons with disabilities. A grant from the FCC Rural Healthcare Pilot Program enabled the formation of a statewide California Telehealth Network (CTN), which has been working for over two years to plan a statewide telehealth network with over 1,000 healthcare sites linked through advanced broadband facilities.

California Governor Schwarzenegger has put in place a Federal Economic Stimulus Task Force to oversee all federal stimulus funds flowing to California, ensure those funds are effectively used, and ensure that spending is done with transparency and accountability. He has tasked the Office of the Chief Information Officer (OCIO) with responsibility for the broadband stimulus funding. The Chief Information Officer, Teri Takai, is responsible for overseeing implementation of the recommendations of the California Broadband Task Force and serves on the Governor's Stimulus Task Force. The OCIO has asked the CPUC to assist in gathering and prioritizing applications grants to bring broadband access to unserved or underserved areas of the state. In addition, the CPUC has regulatory authority to map broadband data pursuant to the state video franchise act and carries out the data collection and mapping responsibilities for the state. The OCIO has also asked the CETF to perform a similar gathering and prioritizing role for applications that will stimulate the demand for

² *Id. citing* Section 6001(b) of ARRA, P.L. 111-5.

broadband, economic growth and job creation as CETF has been working at the grassroots level identifying projects and providers for the past four years. Together we are all working together to ensure a comprehensive approach to broadband as it relates to the Recovery Act.

California's comments address the procedures for the NTIA's processing of applications for grants under ARRA, the role of states, the distribution and monitoring of grants, broadband mapping, and expanding broadband adoption rates within California and the nation. The comments are also based on the strong belief that for the nation to close the Digital Divide, California has to close the Digital Divide. Additionally closing the Digital Divide will drive economic recovery and improve the quality of life for all Californians.

II. RECOMMENDATIONS

1. The Purposes of the Grant Program

a. Should a certain percentage of grant funds be apportioned to each category?

California recommends that each purpose be funded but using a certain percentage of grant funds be rigidly applied to each category. California recommends that the first priority be to bring broadband access to unserved and underserved areas, in that priority order. In order to bring broadband infrastructure to a particular area, broadband mapping projects for states which have not conducted mapping must precede project applications for unserved or underserved areas.

California sees programs that increase demand for broadband as critical, and these programs by community-based organizations with a track record should be funded immediately. We recommend the groups for such programs be: (1) rural and remote communities; (2) urban disadvantaged communities; (3) public safety first responders; and (4) persons with disabilities. Appropriate focuses of these types of programs should include telemedicine, tele-education, digital workforce training, teaching digital literacy to youth/seniors/adults; computer refurbishing to bring computers to low income persons. The NTIA should grant programs that enhance digital inclusion. CETF defines Digital Inclusion as "everyone, regardless of who they are or where they live, can participate in and take advantage of the economic, educational, health and civic opportunities offered by broadband technologies. More than just access to the Internet, Digital Inclusion means all

potential users know how to use it to improve their lives through increased access to information and services.”

Similar to the approach taken by CETF, NTIA should look for proven community-based organizations with existing successful technology programs that can be expanded and “taken to the next level” to accomplish digital inclusion in a state.

b. Should applicants be encouraged to address more than one purpose?

Yes. Projects should be assessed on the basis by which they leverage non-NTIA dollars and speak to more than one purpose of the BTOP initiative (e.g., addressing both underserved and unserved, access and adoption).

c. How should the BTOP leverage or respond to the other broadband-related portions of the Recovery Act, including the United States Department of Agriculture (USDA) grants and loans program as well as the portions of the Recovery Act that address smart grids, health information technology, education, and transportation infrastructure?

Where possible, grants should be coordinated with such programs to maximize the impact of Federal dollars. California sees great potential in leveraging the broadband funds with other funds made available to the federal agencies implementing ARRA including the Federal Departments of Transportation, Education, Justice, Housing and Urban Development, Energy and Indian Affairs.

State input can provide the NTIA with information about projects in the state seeking funding for smart grids, health information technology, education and transportation. As further discussed below, by seeking and relying on the input of the states, NTIA can benefit from their extensive knowledge of the communications environment, geography, and demographics along with each state’s incentive to make certain the money is not wasted and is properly targeted. NTIA should also work with other agencies in the federal government to examine their own policies and procedures to remove barriers that will impede broadband deployment and adoption projects. Opportunities include: (1) the Department of Interior can look at policies that they could use to facilitate deployment for Native Americans; (2) the Department of Housing and Urban Development should have policies that facilitate

broadband availability in new and existing housing it supports; and (3) the Department of Labor can facilitate or accelerate digital literacy training for all workers.

In addition, Public Safety Communications present an opportunity for previous Federal grants to be leveraged. Public Safety Interoperability Grants, as well as Public Safety and Homeland Security grants specifically intended to help jurisdictions start to migrate to advanced technology for managing emergency response, communicating critical information to the public, and to enable mutual assistance programs between jurisdictions. Where these grants have not been fully utilized because of the lack of adequate broadband facilities, States' can facilitate the realization of the project in a comprehensive and quick manner because of the federal stimulus funds.

2. The Role of the States

a. How should the grant program consider State priorities in awarding grants?

When a state has a broadband strategy that has been developed with public input and has been accepted by the administration and the legislature, as California has, it should be a very significant indicator that the state has developed consensus which merits serious consideration by the federal government.

California recommends that the NTIA allow California and other states to assist it by reviewing and commenting on applications for broadband grants based on their unique state broadband priorities. Given the thousands of expected applications that NTIA is likely to receive pursuant to ARRA, using the States' resources to assist in application review is not only pragmatic and sensible, but ensures more thorough review by a local entity that has a deeper understanding of the needs of that State. The NTIA should take into account the experience of the State in addressing and deploying broadband, and on the extent of that deployment and adoption within the State in question. We emphasize that NTIA shall make the final decision on all ARRA applications, and that the States desire a consultative role consistent with the statute. NTIA should establish procedures to provide designated state officials with application information in order to facilitate the secure and confidential input of the States.

In California, the State's Chief Information Officer (CIO) has been designated by the Governor's Office as the coordinating authority for reviewing grant applications in accordance with ARRA and NTIA's stated criteria. Given California's deep expertise in the area of broadband deployment, we expect to be helpful to NTIA in reviewing the applications. This does not preclude applications to NTIA directly from entities not coordinating with the CIO or seeking endorsement by California. Grants reviewed and endorsed by states should be given priority over applications not endorsed by states, including those not submitted to the states for review.

As an example of information California has that is relevant to making funding decisions includes the use of a third party research firm to evaluate the progress California, each June, is making toward closing the Digital Divide. The data helps identify which parts of the state should get priority in programs that lead to greater broadband adoption. The demand projects for California must address the barriers of the target populations identified in the annual research. These barriers are reflected in the detailed messages which are attached in Appendix A and briefly described here:

- 1) Broadband high-speed Internet saves time and makes your life easier by giving you instant access to what you need – communication, information, and services.
- 2) Using broadband high-speed Internet helps you stretch your dollars.
- 3) Get ahead in your career and in your life with high-speed Internet.

In addition States can provide feedback on evaluation metrics such as:

- Immediate and long-term impacts
 - How many direct jobs
 - How many indirect jobs using standardized formulas
 - How many people are connected
- Green impacts of broadband
 - Reduction of trips, reduction of impacts on the environment
 - Reduction of greenhouse gas emissions
- Long-term competitiveness - statewide and nationwide
- Increased deployment and access to households
- Increased adoption
- Increased use

- Increased productivity
- Increased computer/Internet literacy by youth and adults (collected separately)
- Jobs obtained after completing training
- Cost per subscriber served by new supply

b. What is the appropriate role for States in selecting projects for funding?

NTIA is the final authority under the ARRA for selecting BTOP projects. NTIA should give weight to State priority lists, however, particularly where a state has deep broadband expertise as in California. The States should be asked to screen and prioritize projects that have been proposed to them or directly to NTIA against the backdrop of their existing broadband programs, their knowledge of broadband deployment and subscribership, and funding needs. Each State may face special challenges. They may include for example, challenging geography, low density of population, special needs populations (i.e. non English speaking, seniors, immigrants, and disabled communities), urban disadvantaged areas, etc.

One of the priorities of ARRA is coordination with governmental agencies and State governments in order to maximize the pace and impact of Recovery Act funding. The States can be of great assistance in this regard, especially states such as California which already have plans and programs in place to encourage broadband mapping deployment and adoption. While only NTIA can formally approve the award of a grant, states should be given a formal review role, and its recommendations should be relevant.

c. How should NTIA resolve differences among groups or constituencies within a State in establishing priorities for funding?

NTIA has final authority in approving and awarding grants. NTIA can indicate to applicants that should differences arise among applicants regarding projects and funding priorities for individual projects, NTIA will consult with designated State broadband authorities as designated by the Governor, and then make a decision based on the priorities of the State as consistent with the Recovery Act and any NTIA criteria.

d. How should NTIA ensure that projects proposed by States are well-executed and produce worthwhile and measurable results?

Enlisting the States themselves to help ensure BTOP funds are spent wisely and produce measurable results is the most efficient method available to NTIA for tracking these federal dollars. To ensure this result in California, the Governor has designated the CIO to coordinate ARRA broadband grants to California projects. The CIO has announced it will partner with state agencies and funders with expertise such as the CPUC and CETF to review such applications. In addition, the Governor has created a Federal Economic Stimulus Task Force (Stimulus Task Force) charged with tracking all ARRA funding coming into the State and ensuring that the monies are spent appropriately, efficiently, and effectively. The Stimulus Task Force will maintain a website regularly updated so that Californians and other public members can track how the dollars are spent. The NTIA might look to other States to do the same. California recommends that NTIA require the governor of each state to:

- 1) Designate an officer responsible for coordinating BTOP grants within the state;
- 2) Establish a “task force” or its equivalent to track and audit funding and funded state projects;
- 3) Establish and maintain a publicly available interactive website that is accessible which lists every project funded by BTOP within the state, with the names of the parties responsible for those projects;
- 4) Post the regular progress reports to NTIA from funded projects on the state’s website, and the results of NTIA or State audits for those projects.

3. Eligible Grant Recipients: What standard should NTIA apply to determine whether it is in the public interest that entities other than those described in Section 6001(e)(1)(A) and (B) should be eligible for grant awards?³

California recommends that the NTIA adopt a rule for eligibility that allows for-profit broadband providers to apply for BTOP grants, on a competitively neutral basis. In addition, however, NTIA should recognize the public interest in having both certificated and non-certificated, registered and non-registered, licensed and unlicensed entities being eligible for grants so that, for instance, both licensed and unlicensed spectra are used by providers to offer broadband services and BTOP grants. This flexibility will ensure competitive neutrality, one of the goals of this grant program. Further, it has been the experience of California that, in some situations, customers in sparsely populated, rural areas may best be served by Wireless Interest Service Providers (WISPs) who use unlicensed spectrum bands and are uncertified and unregistered.⁴ This lack of licensed status should not preclude them from accessing BTOP funding. NTIA should consider how to ensure that the BTOP funding is spent appropriately by unlicensed entities.

California also recommends NTIA establish eligibility rules for content providers, technological platforms, and broadband applications to apply for BTOP grants. Innovative applications, such as instant messaging and multi-directional, real-time communications mediums, have had tremendous influence on consumer adoption and the growth in Internet traffic.

Beyond broadband deployment by private sector service providers to unserved and underserved areas, ARRA should promote increased broadband deployment in the public sector for governmental, educational, and other uses. California has several planned projects in the public sector that will not only provide economic stimulus through job creation, but will have the additional public benefit of leveraging public investment by

³ ARRA, Public Law No. 111-5 at § 6001(e)(1)(A) states that “eligible applicants shall (1)(A) Be a State or political subdivision thereof, the District of Columbia, a territory or possession of the United States, an Indian tribe (as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450(b)) or native Hawaiian organization; or (B) a nonprofit—(i) foundation, (ii) corporation, (iii) institution, or (iv) association; or (C) any other entity, including a broadband service or infrastructure provider, that the Assistant Secretary finds by rule to be in the public interest. In establishing such rule, the Assistant Secretary shall to the extent practicable promote the purposes of this section in a technologically neutral manner....”

⁴ Service may also be provided by a satellite voice provider, pursuant to FCC licenses.

improving public services, healthcare opportunities, communications capabilities at schools, universities and libraries, and improved capabilities of public services such as fire and policing.

4. Establishing Selection Criteria, for Grant Awards

a. What factors should NTIA consider in establishing selection criteria for grant awards? How can NTIA determine that a Federal funding need exists and that private investments are not displaced? How should the long-term feasibility of the investment be judged?

It is important to establish baselines for both supply deployment side and the demand adoption side of broadband service to close the Digital Divide. The criteria for deployment and adoption programs deserve distinct criteria. A common methodology as to how Americans are using the technology and who is actually getting online is necessary.

NTIA should:

- Drive accountability and transparency through reporting;
- Have a very clear framework up front;
- Require reporting on a quarterly basis as a way for the recipients to analyze very simply the status of their implementation.

Since June 2008, the CPUC successfully launched a grant program to promote the deployment of broadband in the state. The “California Advanced Services Fund” (CASF) provides matching funds up to 40% for broadband infrastructure projects in unserved and underserved areas if an applicant provides 60% of the funding.⁵ Unserved areas are defined as areas that are not served by any form of facilities-based broadband, or where Internet connectivity is available only through dial-up or satellite service. Underserved areas are defined as areas where broadband is available but no facilities-based provider(s) offers speeds of at least 3 Mbps download and 1 Mbps upload (3/1 speed). The CPUC found that

⁵ The California Advanced Services Fund (CASF) was authorized by the CPUC on December 20, 2007; *Order Instituting Rulemaking into the Review of the California High Cost Fund B Program*, Decision 07-12-054, *Interim Opinion Implementing California Advanced Services Fund* (Cal. P.U.C. June 29, 2006). On June 12, 2008, the CPUC approved [Resolution T-17143](#) which adopts the application requirements, timelines, and scoring criteria for parties to qualify for broadband project funding under the CASF. *See also* Telecommunications: Universal Service: California Advanced Services Fund, Senate Bill 1193 (2008).

the 3/1 speed standard would provide the minimum necessary to effectively work from home. Therefore the CPUC adopted these speeds to help ensure that telecommuting is an option in all areas of the California.⁶ The CPUC recognized that broadband speeds are increasing given current uses for streaming video, audio and more. While higher aspirational goals are advisable, California thinks that for unserved and underserved areas, current generation speeds are acceptable.

California has allocated \$100 million for the CASF program. The program is funded by a 0.25% surcharge on end-user intrastate billings ILECS, CLECs and wireless providers. Through March 2009, the CPUC has awarded approximately \$9.15 million in CASF funds to applicants. The \$9.15 million amount awarded is expected to bring broadband service to or increase broadband speeds for approximately 8,800 households covering an area of over 1,100 square miles in California. The CPUC continues to have pending CASF applications.

Through the CASF program, the CPUC has learned that unserved areas are places that are very high cost for a provider to serve, and it is unserved for reasons that often include the fact that the area is very far from the closest Internet Point of Presence (POP) and so the transport portion (or “middle mile”) would need to be built out at great cost and/or there is no business case to be made due to the scarcity of potential subscribers. In underserved areas, there is typically slow broadband service provided by a rural local exchange company or rural cable provider. The provider does not have incentives to provide faster broadband service due to a lack of competition and the high cost of putting in competitive infrastructure.

California recommends that unserved and underserved areas are by definition suffering from market failure in a competitive broadband market and should be eligible for federal ARRA grants as a high priority. The benefits for an unserved area is obvious; without any broadband service, its residents are excluded from the economic development

⁶ Telecommuting has special significance for residents of remote areas or workers constrained by child or elder care needs. *See*, National Academy of Sciences 2002 Report at 117. Telecommunications can reduce and even eliminate barriers imposed by distance. These distance barriers not only contribute to travel costs but also to the time required to cover even short distances. Telecommuting also eliminates further contributions to air pollution as staying at home consumes three times less energy than commuting to work. *See, Broadband Services: Economic and Environmental Benefits by Joseph P. Fuhr Jr. and Stephen B. Pociask* (rel. Oct. 31, 2007), (if broadband adoption became widespread, there could be a significant reduction in greenhouse gas emissions, equaling 1 billion tons over the course of 10 years.).

and social-economic benefits of broadband, including tele-education, telemedicine, access to health care information, access to government services and benefits, and more. The benefits for an underserved area includes new competition to the incumbent provider, which may spur faster speeds overall and lower prices for consumers. These benefits are consistent with section 706 of the Telecommunications Act of 1996.

The criteria and weighting used in the CASF program is as follows and may be helpful in setting up criteria for the ARRA broadband infrastructure program:

Criterion	Weight (Points)
Funds Requested per Potential Customer	40
Speed	20
Service Area	15
Timeliness of Completion of Project	5
Pricing	10
Guaranteed Pricing Period	5
Low Income Areas	5
Total	100

The CPUC notes that the first criterion “Funds Requested per Potential Customer” looks at effectiveness of funds requested given number of potential subscribers. The second criterion “Speed” recognizes the importance of speed to broadband users. The third criteria “Service Area” gives more weight to projects of larger size than smaller projects. The fourth criterion “Timeliness of Completion of Project” was to reward projects that were completed more swiftly than others on a slower timeframe, to recognize the urgency of bringing fast broadband to these areas more quickly than the normal competitive timeframe. The applicants were given two years from CASF grant to build out their projects, recognizing the typical local permitting time frame in our State. The latter three criteria were particularly important to the consumer groups that participated in the CASF rulemaking, and looked at whether the applicant was willing to commit to a broadband price

for a minimum one year period, and whether it encompassed any low income areas within the proposed service area. These criteria were established after public notice and comment and we attach the Resolution establishing the criteria as Appendix B.

NTIA can further leverage ARRA funds and avoid displacing private investment by giving private investors an opportunity to fund projects before NTIA makes a decision. NTIA can accomplish this by posting on its website a brief project description with the market served, technology utilized, and contact information for each application.

NTIA should also consider a 5-year financial projection that represents a sustainable business plan for the market for which the funds will be used to address the long-term feasibility of deployment projects. NTIA can document the viability of a business by requesting a standard full 5-year rolling (cumulative), yearly and monthly budget spreadsheet, itemizing all income and costs such as a standard financial statement, but with summarized general ledger codes. All base assumptions would need to be included in the spreadsheet, as with all formulas and associated data (used by the spreadsheet). The long term feasibility of adoption projects can also use a 5-year timeframe. Organizations should submit a 5-year strategic plan and 3-year business plan demonstrating sustainability. An annual audit should be part of each proposal. NTIA should include in its evaluation metrics a standard formula for applicants to determine the cost per unit of outcomes.

b. What should the weighting of these criteria be in determining consideration for grant and loan awards?

The CASF scoring criteria is set forth immediately above with the weighting factors used by the CPUC. We have found that these criteria have been effective. California urges the federal government to apply similar factors with appropriate weighting in establishing a similar stimulus grant program consistent with ARRA to promote broadband deployment to unserved and underserved areas of the United States.

In addition to these criteria, California recognizes that new job creation is a major focus of the Recovery Act and that special priority will be accorded projects that can retain or create jobs. To capture this focus, California recommends that the federal government also include a factor for “New Jobs Creation” in the evaluation criteria. This new factor

should consider the total dollar amount of grant fund requested for a proposed broadband project against the number of proposed “new” jobs created as a result of the project being built. This factor should be applied to each project by NTIA to calculate indirect jobs. As part of the application to NTIA, the description of the proposed project should describe how long the new jobs will be sustained (i.e. within a span of “x” number of years) and the source of funding to sustain these jobs after project grant funding is exhausted. This issue of sustainability is very important. The project must be sustainable after federal funding is exhausted, otherwise, the project should be deemed unviable.

c. How should the BTOP prioritize proposals that serve underserved or unserved areas? Should the BTOP consider USDA broadband grant awards and loans in establishing these priorities?

California thinks that proposals that bring broadband infrastructure to unserved areas deserve a high priority, with underserved areas as the next priority. Without any broadband access, people in that area have no chance at benefitting from broadband, and so an onramp must be built to the Information Superhighway. California thinks NTIA and RUS should closely collaborate on anticipated grants to ensure that if a rural area receives an RUS grant, the NTIA does not give a duplicative loan or grant to the same area for the same infrastructure. California can envision however, the RUS loan or grant bringing broadband to an unserved rural area for the first time, and an NTIA grant bringing a community technology center to the same rural community area. This would be an example of a successful collaboration of both NTIA and RUS monies.

However, we think that concurrently to the unserved/underserved projects, projects addressing the Digital Divide are also preeminently grant-worthy because they address critical adoption, affordability, applications, assistance, accessibility issues. California advocates that particular emphasis should go to providing programs for the following groups: (1) rural and remote communities; (2) urban poor and disadvantaged (where the expansion of adoption is especially important for broadband facilities that are already in place); (3) public safety first responders; and 4) people with disabilities. We recommend that NTIA look closely at California’s CETF program, to see the broad types of programs that

were funded and the spectrum of benefits that it brought California's people.⁷ To give an example of the types of CETF benefits that accrue in less than three years, here are CETF's conservative estimates of its outcomes by June 2011, with a \$20 million commitment level:

Telemedicine sites (California Telehealth Network matching funds)	500
Housing units connected to broadband	30,000
People trained for digital workforce	1,300
Youth becoming digitally literate	2,800
Adults becoming digitally literate	5,600
Computers refurbished	22,000
People reached through distance learning	30,000

Thus while some level of broadband is available to most California households, the adoption of broadband service in California is lagging. The vast majority of those not connected are urban poor. CETF conducted significant research and conducted Fact Finding Conversations statewide before setting its priorities based on the best practices within the urban poor segment as follows: Education (School2Home-targeting underperforming middle schools); Smart Housing; Telehealth; Workforce Preparation; Refurbishment Systems and Job Training; and Emerging Markets (minority owned small businesses and community based organizations). A summary of those findings can be found in Appendix E.

The unserved areas need to demonstrate to the state, NTIA and RUS that the proposals are part of regional plans in the community has identified as important. CETF has funded demand aggregation planning processes in unserved areas. The purpose is to implement a rural regional demand aggregation project that engages civic leaders, stakeholders and industry to: (a) quantify individual and aggregated demand by prospective anchor tenants, industry clusters, and residential areas, including price sensitivity; and (b) map infrastructure and other fixed assets that could be used to help deploy broadband service.

⁷ See, California Emerging Technology Fund 2009 Annual Report, available at <http://cetfund.org/annualreports>.

d. Should priority be given to proposals that leverage other Recovery Act projects?

Yes. The CETF has successfully leveraged its seed money by managing its portfolio with other projects, grantees meeting matching requirements and partners jointly funding projects. Every dollar should be leveraged where possible and prudent. It is unrealistic to expect every grantee to raise the same level of match funding. Given the number of departments with broadband components it makes sense to coordinate to leverage the opportunity and to ensure grants avoid duplicating work efforts. We recommend that proposals that leverage other Recovery Act projects be given some priority consideration. California can see many synergies for projects that may involve ARRA funds involving Smart Grid, Health IT records, and more.

e. Should priority be given to proposals that address several purposes, serve several of the populations identified in the Recovery Act, or provide service to different types of areas?

Yes, for the reasons already mentioned above. Additionally, NTIA should maximize ARRA investment for public benefit, such as for public safety communications.⁸ Improved access to, and use of, broadband services by public agencies will provide direct public benefit in improved emergency response and indirect public benefit in improved efficiency and functionality of state and local agencies. Not only will public safety communications investment provide the same job creation benefits as other infrastructure proposals, but all citizens will benefit from improvements in 9-1-1 and first responder systems, where infrastructure improvements have lagged. This is also true of publicly owned educational and healthcare networks.

⁸ ARRA, Public Law No. 111-5 at § 6001(b)(4).

f-h. What factors should be given priority in determining whether proposals will encourage sustainable adoption of broadband service? Should the fact that different technologies can provide different service characteristics, such as speed and use of dedicated or shared links, be considered given the statute's direction that, to the extent practicable, the purposes of the statute should be promoted in a technological neutral fashion? What role, if any should retail price play in the grant program?

California recommends that the following ten factors be considered as part of the criteria for awarding broadband grants under the BTOP. These factors relate both to the provision of access and the improvement of adoption; they are also technologically neutral:

- 1) Funds Requested per Potential Customer – Number of Households Served;
- 2) Funds Requested per Potential Customer – Number of potential users in Schools, Libraries & Healthcare Facilities Served (stated separately);
- 3) Broadband Speed Offering;
- 4) Service Area Size;
- 5) Timeliness of Completion of the Project;
- 6) Average Price of the Service per Megabit;
- 7) Guaranteed Pricing Period (the period during which the initial or promotional prices are to be available);
- 8) Low income Areas Encompassed by the Proposed Project and;
- 9) New Job Creation and Jobs Maintained;
- 10) Sustainability of Project after ARRA Funds Exhausted.

California suggests additional criteria where it is needed to choose among projects:

- *Unserved* areas be given priority over *underserved*;
- Long-term impact and sustainability of the proposal (beyond the two year window of the grant program itself);
- Leverage awards may have in the context of other state and federal purposes, such as increased public safety and emergency response capabilities;
- Positive impact a proposal may have on broadband adoption rates, the mix of technologies promoted and;

- Relationship between retail pricing and the speed of the broadband service to be made available in the proposed deployment – that is, the price per megabit.

6. Grants for Expanding Public Computer Center Capacity

a. What selection criteria should be applied to ensure the success?

California recommends using the above factors, with emphasis on jobs maintained or created, open access to all users and content providers, and bandwidth made available to the public.

California further suggests that as NTIA decides on criteria for its programs, that the CETF program may be helpful as a national model. The criteria that CETF uses in selecting its grantees are as follows:

CETF Criterion	Weighting (points)
Alignment with CETF mission and approach	15
Understanding and incorporation of broadband technology	10
Organization management and leadership capacity	10
Quality and clarity of work plan	15
Quality and clarity of accessibility plan	10
Ability to leverage CETF funds	10
Prudence and transparency of budget and cost effectiveness	10
Quality of monitoring and evaluation component	5
Depth and breadth of collaboration and support	10
Prospects for long term sustainability	5
Total	100 points

Each criterion has more specific attributes that allow consistency across evaluators. Those details are included in Appendix C. We also suggest adding a criterion of “Jobs Maintained and Jobs Created” to this list.

In 2005, the CPUC created the CETF, a non-profit organization with \$60 million in

seed money over five years voluntarily contributed by AT&T and Verizon as a consequence of the decisions approving their acquisitions (SBC acquiring AT&T and Verizon acquiring MCI).⁹ CETF's mission is to close the Digital Divide and ensure that California is a global leader in the deployment and adoption of broadband. CETF has awarded some \$20 million to grantees with a record of success. CETF gives priority to "needle moving" projects to bring digital literacy to three groups: rural populations, urban poor, and people with disabilities. CETF focuses on the Five A's to achieve increased adoption: Access, Applications, Affordability, Accessibility, and Assistance. CETF also gives greater priority to grant request that are part of a community transformation project. CETF uses five strategic approaches to close the Digital Divide:

1. Civic Leader Engagement
2. Venture-Philanthropy Grantmaking
3. Public Policy Promulgation
4. Public Awareness and Education
5. Strategic Partnerships

CETF requires a 3:1 cash match so that grantees have 'skin in the game.' Applicants are asked to demonstrate a track record in the community they would serve, in the technology they would integrate and in the program they plan to implement. Applicants are also expected to show how their ventures will improve accessibility for the disabled. Additional requirements include a proposed budget with a showing of per unit/user cost outcomes, a plan to share 'best practices' and 'lessons learned,' a sustainability plan, quarterly progress report on measurable outcomes and milestones, and a monitoring and evaluation plan.

b. What additional institutions other than community colleges and public libraries should be considered as eligible recipients under this program?

1. Non-profit public hospitals and community-based telehealth programs. CETF has, for instance, contributed \$3.6 million in matching money for the Federal Communications Commission (FCC) rural telehealth pilot project grant of \$22.1 million for the California

⁹ Information about the accomplishments of the CETF is available at <http://cetfund.org/progress/overview>.

Telehealth Network, a statewide project of over 720 sites connected by advanced broadband facilities.

2. Programs reaching underperforming middle schools targeting the teachers, parents, and students. CETF has supported the development of School2Home a project distributing broadband connected devices to low-income middle school students and their parents and training teachers on integrating technology into their course work. Another example is a computer literacy project in an underperforming middle school in a community where the residents are typically migrant workers where English is not their first language.

3. Community-based organizations that provide computer access along with training programs to vulnerable populations. This may be a community-based organization providing computer access or training to a community, an adult education technology center, a computer refurbishing and repair center, a senior center that provides a technology training or computer center to seniors, an after school provider who brings computer classes (basic, computer music, computer animation) to students, or other nonprofit organization dedicated to technology literacy.

4. Smart Housing. Examples include a community technology center in an affordable housing community or an affordable housing unit with build in broadband connections. NTIA should explore leveraging HUD funding for projects in this area.

5. Community-based and faith-based organizations and other entities that advance broadband adoption or computer literacy by redirecting at risk youth and persons reentering the workforce programs that offer positive, creative on-line portals and training with certification requirements that will improve their acquisition of 21st Century competitive skills and improve their workforce readiness.

California notes that this list is based on actual programs currently in progress in California.

7. Innovative programs

a. What selection criteria should be applied to ensure the success of innovative program grants?

Innovative should not be confused with experimental; the funds are not to support demonstrations or research. Innovative projects can be new to a community, population or vendor but has to have been proven effective elsewhere. We would recommend the criteria listed above be supplemented where appropriate to give special emphasis to innovative projects designed to close the Digital Divide and expanding broadband usage beyond current levels. Adoption is driven by applications that satisfy perceived needs of would-be users. Projects that match innovative applications with improved access will lead to higher adoption rates.

b. What measures should be used to determine whether such innovative programs have succeeded in creating sustainable adoption of broadband services?

The same standards and processes for tracking sustainable adoption as all other grants need to apply to innovative approaches. Some ways to measure and track sustainable adoption include: (1) The use of the broadband services by program participants 18-24 months from the start of their involvement in it; (2) The number of logins per month into the broadband application at the program can indicate a base level understanding; and (3) The amount of time spent per visit and in total per month can indicate the level of user comfort with broadband as it should increase over time to reach the standard amount of user time spent per month.

CETF asks applicants to contribute to a standard set of outcomes, which are critical to CETF achieving its mission. For example, as noted above, CETF's estimated outcomes by June 2011 are:

- 500 sites connected to the California Telehealth Network;
- 30,000 Housing Units Connected;
- 1,300 People trained for Digital Workforce;
- 2,800 Youth Becoming Digitally Literate;

- 5,600 Adults Becoming Digitally Literate; and
- 22,000 Computers Refurbished.

NTIA should establish desired outcomes and include them in the application so applicants can discuss how the proposed project will help accomplish the outcomes.

We further urge the NTIA to study the measurements and milestones used by CETF in its program assessments. As noted above, in its criteria, the CETF looks at “quality of monitoring and evaluation component,” “depth and breadth of collaboration and support,” “prospects for long-term sustainability,” “quality and clarity of work plan, and “prudence and transparency of budget and cost effectiveness.” CETF assigns a “coach” to the grantee to ensure the grantee’s workplan, budget and milestones are met on a quarterly basis. In short, accountability is closely tracked.

8. Broadband Mapping

The Recovery Act directs NTIA to establish a comprehensive nationwide inventory map of existing broadband service capability and availability in the United States that depicts the geographic extent to which broadband service capability is deployed and available from a commercial provider or public provider throughout each State.

From California’s perspective, one of the main benefits of a national broadband mapping program would be to provide the uniformity necessary for making state-to-state comparisons. While a handful of states in addition to California may be engaged in broadband mapping efforts, differences in definitions, data collection methodology and granularity would likely prevent an accurate comparison of the status of infrastructure development between and among them. A national approach to mapping by the NTIA would facilitate such a comparison, and help identify the areas of urgent need for infrastructure, and later will help us measure success of various infrastructure policies in the various states.

The State of California is a strong proponent of a national mapping program in light of the success of our state-wide programs. We applaud the NTIA’s dedication to this task and provide the following comments based on our previous experience.

a. What uses should such a map be capable of serving?

The NTIA seeks comments on the uses that should be served from a broadband mapping program. California has realized through our recent experience with broadband mapping that multiple objectives can be served by national broadband maps.

The development of a national broadband map by the NTIA is central to the ability of the NTIA and RUS to manage broadband grants and loans, and for the state and federal governments to implement the national broadband plan to be developed by the FCC. Even though broadband grants, loans, and loan guarantees will have been dispersed by February 2011, when the NTIA is required to post its national, interactive broadband map, the state maps that will be the precursors of NTIA's national map should be available in time to identify unserved and underserved areas and help guide a significant portion of the ARRA's grants and loans.

A properly designed broadband map should provide more information than simply unserved and underserved areas. The FCC's Form 477 process currently collects data relating to broadband subscribership. Such information should be reflected on NTIA's map, although at a more granular level than the census tract data currently being collected by the FCC. Maps combining availability and subscribership data will allow penetration rate of broadband services to be calculated. GIS systems, or other analytical software, can also perform multiple regressions analyses to determine what factors influence broadband penetration. Such information would help target government policies and subsidies, including demand side stimulus money in ARRA. A national map could help determine the point beyond which broadband investment yields diminishing marginal returns; this would be a valuable tool for focusing scarce subsidy resources toward use on demand-side issues, such as training, maintenance, and distribution of personal computer terminals. The national map would provide directions on how to close the Digital Divide.

In order to adequately and efficiently evaluate grant applications, it is imperative that the NTIA know whether the areas included in each proposal fit their definition of unserved or underserved. Broadband maps should show the speeds at which broadband is available. Speed tiers, such as those collected by the FCC via their Form 477 process, can be used to determine underserved areas throughout the country. Further, because all licensed

broadband providers are required to remit Form 477 on a bi-annual basis, using the same speed tiers will ease the administrative tasks associated with data reporting.¹⁰

To determine those areas that are unserved, housing density and the parcels upon which housing is built must be used to explain where territory is unserved due to a lack of potential subscribers and help quantify the “bang for the buck” effect of different grant proposals. This analysis should also include the presence of small businesses. Along these lines, it is also important to determine not only where the broadband is, but how many providers are providing that broadband. By knowing how many providers offer service in a given area, or in a nearby area, the NTIA can determine what areas have no access to service vs. those that have access to service but do not subscribe to it. This will assist in determining where grant money should be focused for broadband deployment projects and where it should be focused for broadband adoption programs. This method can also be used later to evaluate the effectiveness of federal broadband stimulus funds and associated state efforts.

It is imperative that broadband maps be capable of showing levels of broadband service capability and availability in as accurate a method as possible. This requires mapping to a smaller level of granularity than is currently required to avoid “false positives” showing broadband service where there is none as illustrated below. The optimal level of granularity is at the street address level. We discuss the importance and implications of data granularity below as well as specific recommendations for the level of granularity at which data should be collected and mapped.

California also thinks this national broadband map should be regularly updated on an annual basis, and that funding should be provided for such a purpose.

¹⁰ FCC Form 477, available at <http://www.fcc.gov/formpage.html>. The CPUC adopted the same Form 477 reporting requirements for video franchise holders that provide broadband within California. *See Order Instituting Rulemaking to Consider the Adoption of a General Order and Procedures to Implement the Digital Infrastructure and Video Competition Act of 2006*, Decision No. 08-07-007, *Decision Amending General Order 169* (Cal. PUC. July 14, 2008). This was done to ease any administrative burden associated with supplying multiple data sets for the same basic information.

Maps containing Broadband information should be made available to the public

California recommends that the NTIA make the nationwide inventory map proposed under this grant program fully interactive in order to optimize utilization of the data contained therein. Interactive maps provide many opportunities for distributing broadband information to the public via the Internet. They provide a highly scalable framework for mapping, web publishing and analysis using a variety of layers at different geographic scales, including state, county, municipal, congressional and senatorial district, zip code, and census boundaries (tract, block group, block, and place).

Any map created under this grant program should be readable to anyone via the Internet using a standard web browser, and should give the viewer the capability to view specific, selected areas, query specific data sets for those areas, and print the maps generated by any specific query. Further, interactive maps should provide access to the most up-to-date information and use specialized tools, such as layer selection, panning, zooming, and querying features, for retrieving information.

This interactive mapping system should provide:

- 1) 24-hour online interactive mapping, available from one centralized agency website (i.e. NTIA, Dept. of Commerce, etc.);
- 2) Up-to-date broadband information to consumers, providers, government agencies, and other interested parties;
- 3) Interactive maps showing broadband information on a national, state, county, municipal, congressional and senatorial district, zip code, and census geography level (tract, block group, block, and place);
- 4) High quality cartographic capability with elaborate panning and zooming;
- 5) A wide variety of querying options including geographic and governmental boundaries, census data, and specific broadband data;
- 6) The ability to be plot to any size;
- 7) The ability to easily create printer-friendly online maps and to support multiple output formats-JPG, PNG, PDF, EPS, EMF, and AI (Adobe Illustrator); and
- 8) The ability to share data and maps locally, over networks, or the Internet, allowing the public, providers and the government to view and interact with maps simultaneously.

Data collection and analysis would be best accomplished and administered at the state level for the following reasons. First, requisite knowledge, experience, and tools for such an endeavor currently exist at the state level in the form of staff, procedures, and data warehousing. California has recently conducted its own statewide GIS analysis of broadband availability, and maintains its own broadband grant funding program through the CPUC (the California Advanced Services Fund (CASF)). Also, state staff is more likely than NTIA or other federal staff, to possess the knowledge of local geography necessary to correct errors in the geocoding process. Second, data reliability and quality control issues would again be avoided if state staff, rather than other grant applicants, conducts the geocoding and analysis.

b. What specific information should the broadband map contain, and should the map provide different types of information to different users (e.g., consumers versus governmental entities)?

As discussed above, California recommends creation of an interactive mapping system. This requires combining U.S. base map data (including U.S. geography, state boundaries, counties, municipalities, congressional and senatorial districts, zip codes, and census boundaries) with thematic broadband data collected at the census tract (service capability, availability, and subscribership), and standardized census data (as discussed in section h below).

Base map data shows certain fundamental information, used as a base upon which additional data of specialized nature or theme are compiled or overprinted. With respect to base map data, California recommends the following statewide GIS map layers be developed comprehensively:

- Parcel
 - Includes survey and description frameworks such as the Public Land Survey System, as well as parcel-by-parcel surveys and descriptions including geographic extent of past, current, and future right, title and interest in real property, and the framework to support the description of that geographic extent.
- Street Addressing (also known as the Master Street Address File)
 - Street addressing encompasses the individual address locations of all mailing

addresses

- This database houses the location and address of every mailable address in the state.
- Government Units
 - Describing, by a consistent set of rules and semantic definitions, the official boundary of federal, state, local, and tribal governments, as well as political divisions such as congressional and senatorial districts, as reported/certified to the U.S. Census Bureau by responsible officials of each government for purposes of reporting the Nation's official statistics.
- Cultural and Demographic Statistics
 - Describing the characteristics of people, the nature of the structures in which they live and work, the economic and other activities they pursue, the facilities they use to support their health, recreational and other needs, the environmental consequences of their presence, and the boundaries, names and numeric codes of geographic entities used to report the information collected.
- Elevation
 - State Digital Elevation Models (DEMs) from which topography, slope, and aspect can be derived, in order to understand line-of-sight issues.

These base layers are important for broadband mapping and analysis, but have substantial value for other purposes, such as emergency response, E-911, wild land fire protection, health service surveillance, tax collection, and economic development.

Thematic data shows the spatial distribution of one or more specific data themes for standard geographic areas, such as patterns in statistical data. With respect to thematic data needed for this interactive mapping program, California recommends that maps for NTIA contain the following data:

- Broadband Availability data:
 - Broadband availability data detailing the specific areas (addresses) where broadband is currently available and associated speed tiers.
- Broadband Subscribership data:
 - Subscriber data by location (address) and FCC broadband speed tier.
- Infrastructure data:
 - Telecommunications GIS data pertaining to broadband (i.e. current location and supply of network fiber, wireless facilities, etc., to the extent available)
 - Leverage existing public broadband resources (federal or state owned property or

facilities which can be used to deploy broadband hardware and equipment, e.g. buildings, communications towers, forestry towers, etc.)

- Standardized census data (by the smallest census area possible):
 - Per capita income
 - Educational attainment
 - Age
 - Language
 - Housing density
 - Urban/rural classification

Data should be aggregated so that individual provider data cannot be determined from the national map. On publically available maps, street-level data can be “rasterized” to disguise this precision as these data are competitively sensitive. While government entities giving input into grant decisions in unserved areas would need access to street-level data to know if a given location is actually without service, maps available to the general public should rasterize the data to ¼ square kilometer, for example, and mask the identity of the provider(s).

Once data is collected and aggregated, it can be mapped. Users should be able to generate maps of their own; for example, the CPUC produced Map 1 below from a combination of California Governor’s Broadband Task Force (Task Force) and census data to illustrate broadband availability in a particular legislative district. In this way, the CPUC could help identify specific communities to a particular legislator who wanted to know exactly what areas of his district were unserved. Similarly, the NTIA could produce an interactive map that would allow a user to search by a set area such as by a county, zip code or, census block boundary.

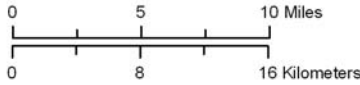
Map 1

BROADBAND SPEED IN STATE SENATE DISTRICT 11



BROADBAND SPEED

	0.5 - 1 Mbps		No Availability
	1 - 5 Mbps		Unpopulated
	5 - 10 Mbps		District 11 Boundary
	10 - 100 Mbps		
	0.1 - 1 Gbps		



Source: California Broadband Task Force. The State of Connectivity: Building Innovation Through Broadband, 2008.
Projection: Lambert Conformal Conic. Coordinate System: California State Plane, Zone 3; North American Datum 1983
Prepared by the California Public Utilities Commission, Communications Division, Video Franchising and Broadband Deployment Group

Many private entities have expressed concern about confidentiality if their data were to be revealed to the public, and prefer instead to only provide data to private groups, pursuant to non-disclosure agreements, that will carry out the mapping associated with these grants. California currently has statutory safeguards in place that assure confidentiality of proprietary information submitted by public and private entities. Just as the FCC shares Form 477 data only with State Commissions certifying that such data will be kept confidential, the Broadband Data Improvement Act (BDIA) provides that mapping grant recipients must collect data pursuant to confidentiality safeguards, paired with data aggregation. These requirements are set forth to assure confidentiality.

Along this line, however, there is a valid concern when it comes to mapping at the street address level. While having this data available on a map would serve the purposes of identifying unserved and underserved areas with specificity, it could potentially disclose information that would otherwise be confidential between the submitting party and the mapping party.

California recognizes that the NTIA has yet to determine the level of granularity at which mapping will be done and data will be submitted. We recommend that the NTIA decide this granularity level as soon as possible, in consultation with the FCC. It is important, however, that maps available to the public be as accurate as possible while maintaining the legitimate interests of the providers in confidentiality. Data submitted at the address level can be rasterized to an appropriate level to keep proprietary information confidential while still disclosing information that the public would consider important. For example, the California Broadband Task Force collected data at the street-address level but rasterized it to one kilometer pixels for the purpose of mapping. They could either provide address information or map-based service area delineations. California thinks that this methodology (attached as Appendix D) could provide a good model for the NTIA.

c. At what level of geographic or other granularity should the broadband map provide information on broadband service?

In order to guarantee accuracy of any maps of broadband service and availability it is imperative that data is collected at the most granular level possible. California recommends, based on previous experience with mapping programs, that data be collected from grant applicants/recipients by street address. This level of granularity will ensure that the NTIA and designated grant ranking entities can accurately pinpoint all areas of interest to the NTIA with respect to deployment of these grants (i.e. unserved and underserved areas, broadband subscribership, etc). The data need not be mapped to this level, however, as explained below.

California has experience mapping broadband service and availability data that has been submitted on both a street address basis and on the larger, less accurate, census tract basis. The data submitted to the Task Force¹¹ was submitted by street address.¹² By contrast, data were submitted to the CPUC under the Digital Infrastructure and Video Competition Act (DIVCA)¹³ by census tract.

The impact of collecting data these two ways is illustrated by the following four maps. Map 2 was produced by the Broadband Task Force based on the street level data which it collected. This map incorporates over twenty million individual records, each of which was geocoded to show individual locations where service is available. By contrast, Map 3 was produced by the CPUC based on the census tract data it collected. The CPUC's map shows a census tract as served if any reporting provider served any location in the tract.¹⁴

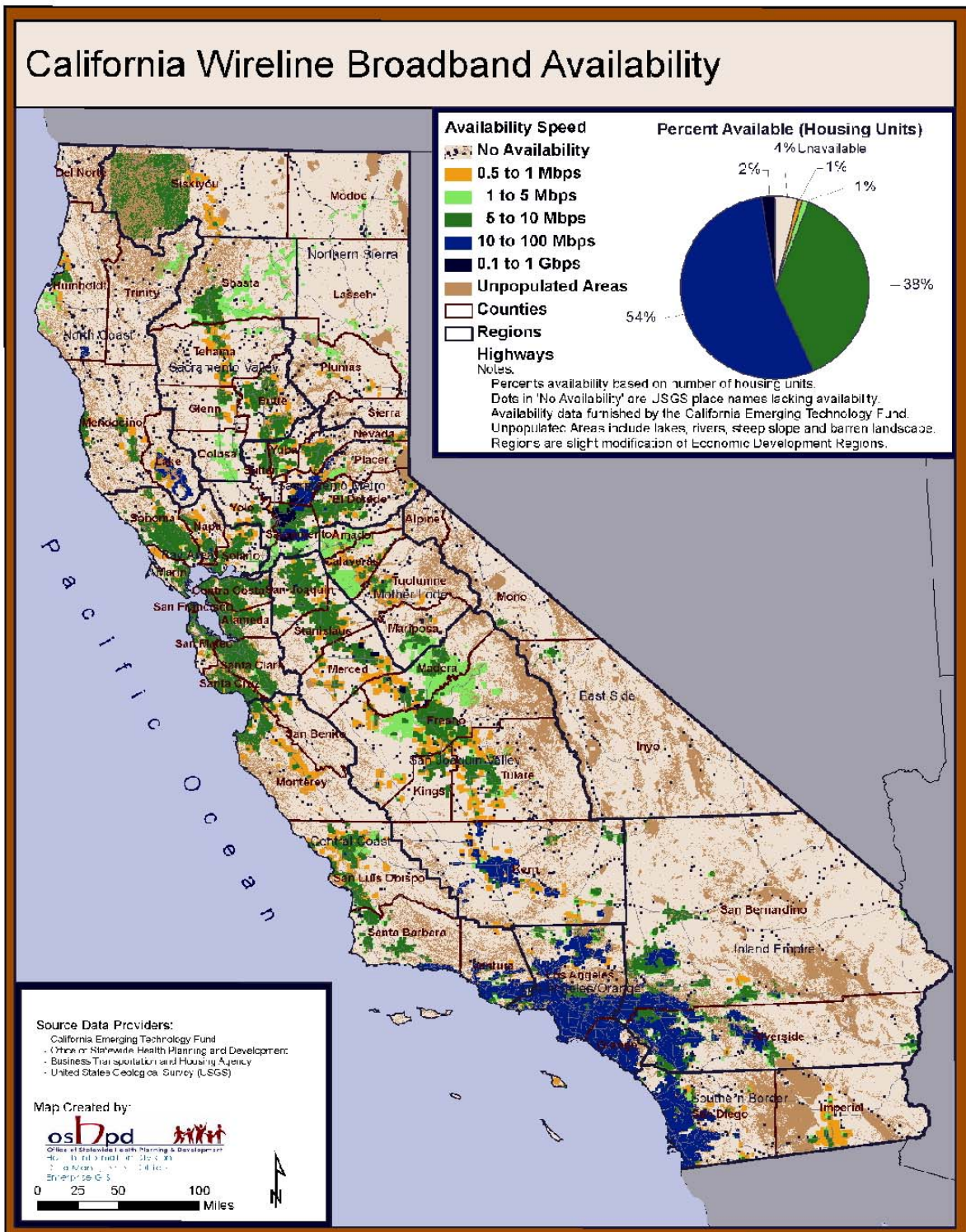
¹¹ Exec. Order No. S-23-06, Expanding Broadband Access and Usage in California (2006).

¹² When that was not possible, providers had other options available, such as submitting shape files denoting areas wherein all households had access to broadband service at the same maximum speed.

¹³ The Digital Infrastructure and Video Competition Act of 2006 (DIVCA) assigns the CPUC the duty to issue video franchises, to gather data from state video franchise holders regarding their video and broadband services, to monitor holders' deployment of infrastructure and services to protect against discrimination and enforce build-out requirements, and to protect against telco-video cross subsidization. Cal. Pub. Util. Code (P.U. Code), Division 2.5 added by, Stats. 2006, ch.700, §3, effective January 1, 2007.

¹⁴ Note that the CPUC's map reflects data current as of March 31, 2008 based on the reporting requirements for DIVCA. The CPUC will soon collect data current as of March 31, 2009 and will create new maps accordingly. See P.U. Code §5960.

Map 2



Map 3



Using census tracts as a Minimum Mapping Unit (MMU) results in an overstatement of the actual households served. Using street address data, the Task Force found that broadband service is available to 96% of California households, while the CPUC census tract data reflected that 99% of California households were located in census tracts within which some broadband service.

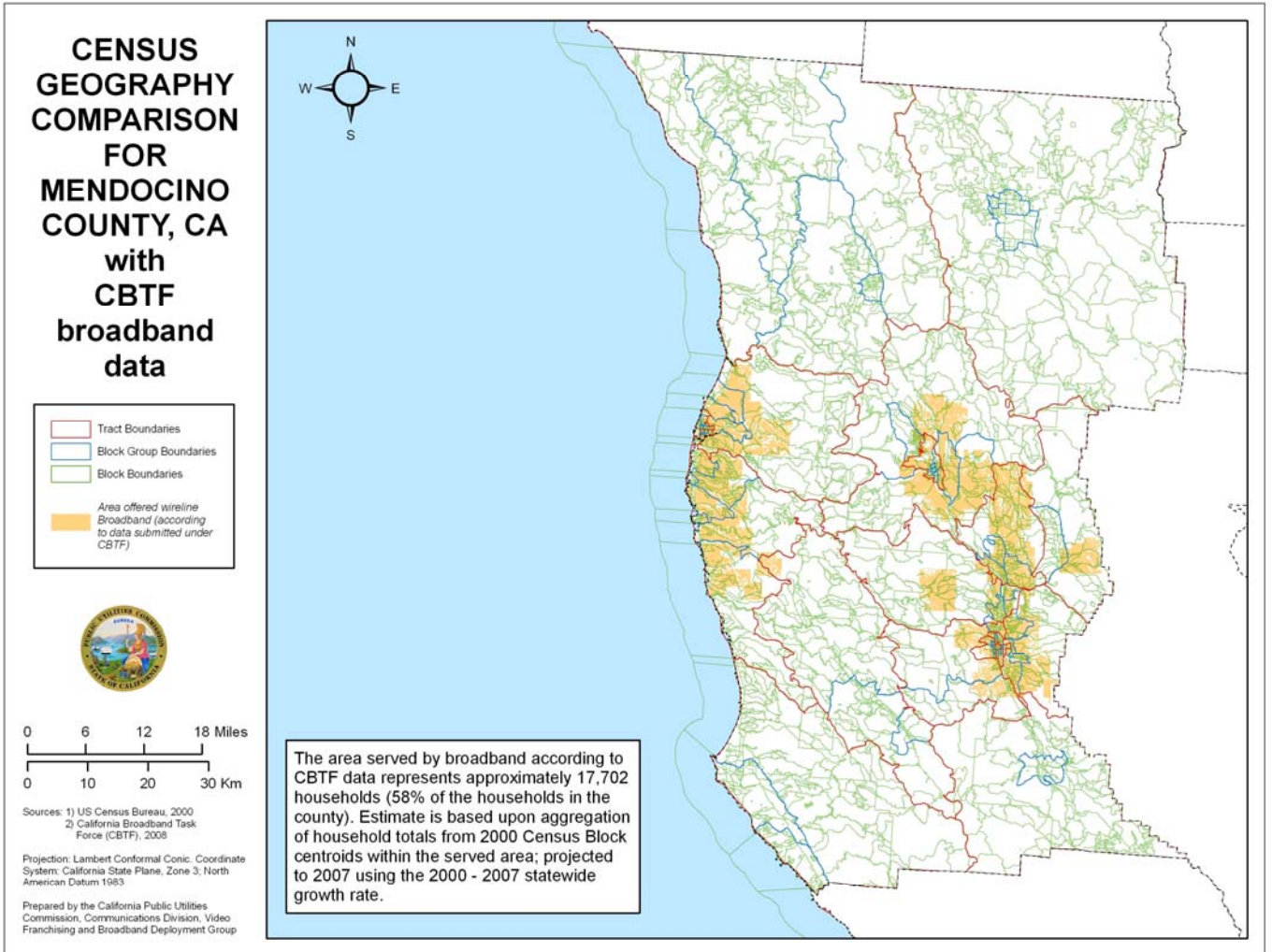
The geographic areas that result in the 3% discrepancy tend to be large, rural, low-income census tracts – precisely where the NTIA and state policymakers want to focus their broadband deployment grant funding. When using census tracts, the CPUC does not know where, within a large rural area, service is available. Even if there are several providers reporting that service is available in a given census tract, there is no way of knowing if those providers are competing in a relatively concentrated area of the tract, or if the areas they serve are dispersed throughout the tract.

Maps 4 through 7 further illustrate the overestimation of data that can occur when mapped by census tract, especially in rural counties. Map 4 shows a census geography comparison of Mendocino County using wireline broadband data available to the Task Force (collected by street address). Map 5 shows the same data when mapped using DIVCA data (collected by census tract). Note the differences between the two maps with respect to areas shown as having broadband availability. According to the data collected by the Task force, approximately 17,702 households are served in this area. According to data collected under DIVCA, approximately 26,058 households are served. Collecting data by census tract rather than address results in overestimating households served by 47%.

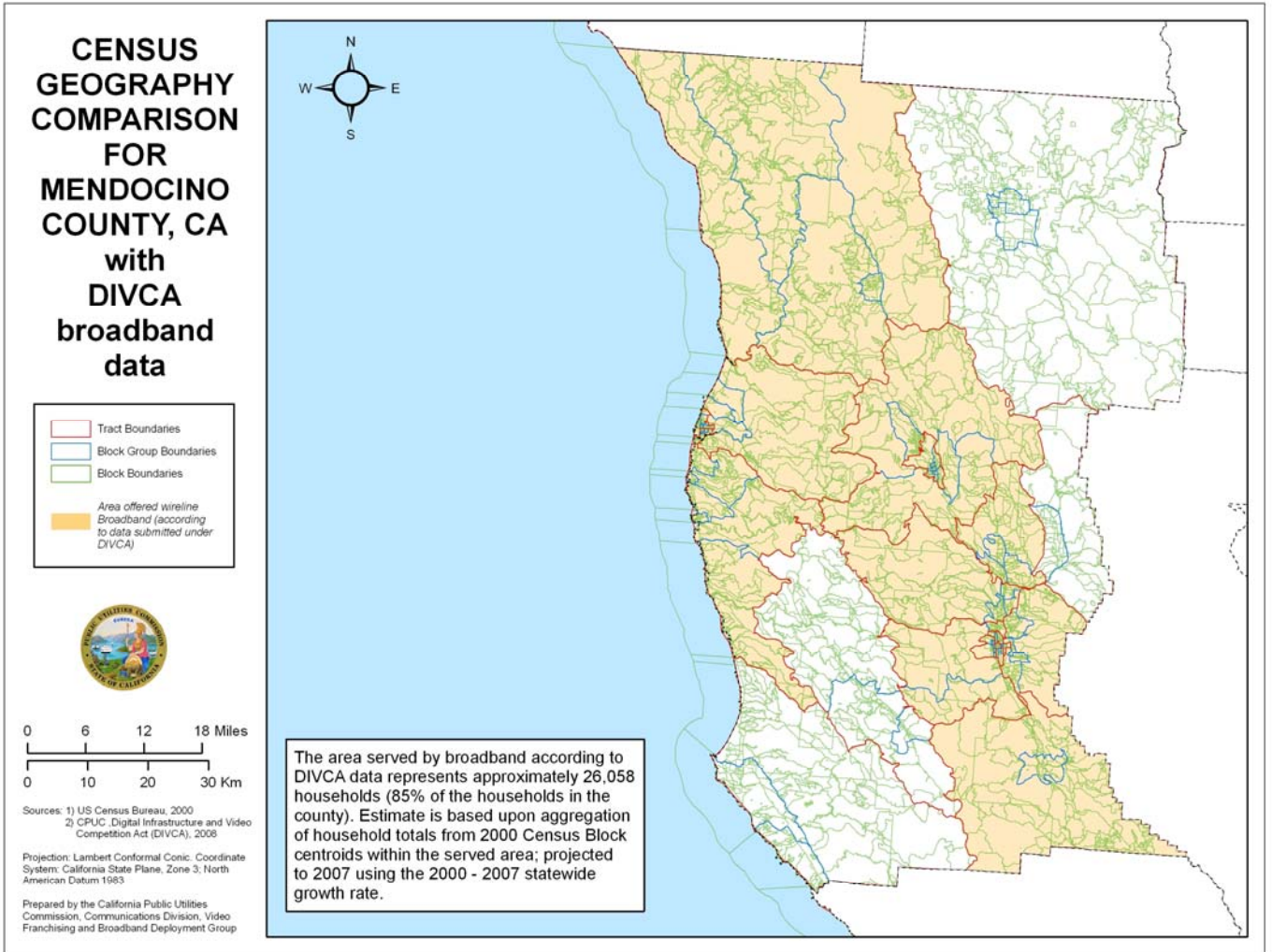
Mendocino County is a rural county in California with sparse population density. This fact is of particular importance because grant funds distributed under the BTOP program are focused on rural counties that have little to no broadband availability. In order to accurately assess whether an area such as a rural county is unserved or underserved, data must be collected at a smaller granular level than census tract. Similarly, Maps 6 and 7 show the same type of comparisons for San Diego County, classified as a non-rural county. According to the data collected by the Task force, approximately 874,302 households are served by wireline broadband in this area. However, according to data collected under DIVCA, approximately 1,065,328 households are served. Collecting data by census tract

rather than address results in overestimating households served by 22%.

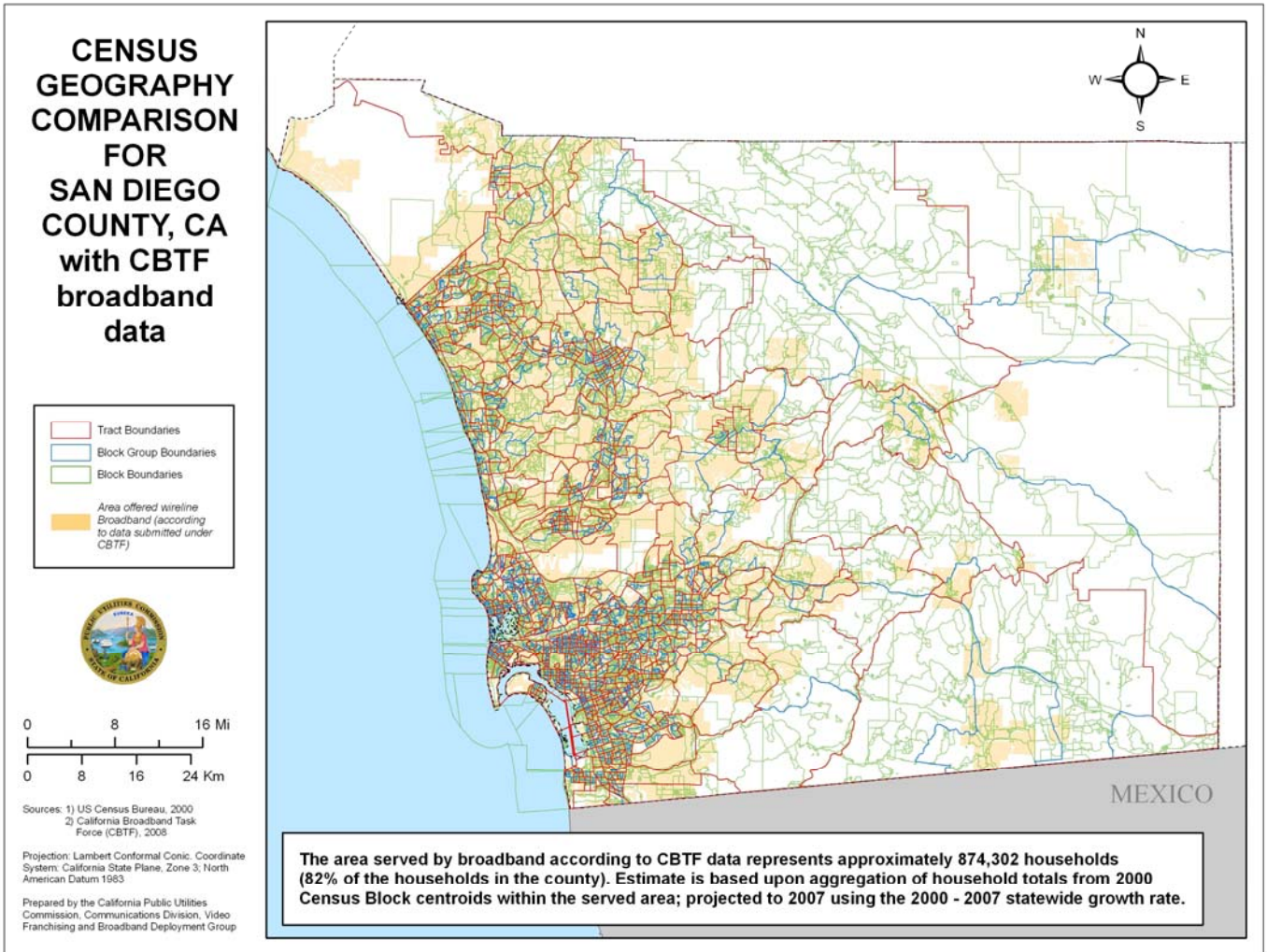
Map 4



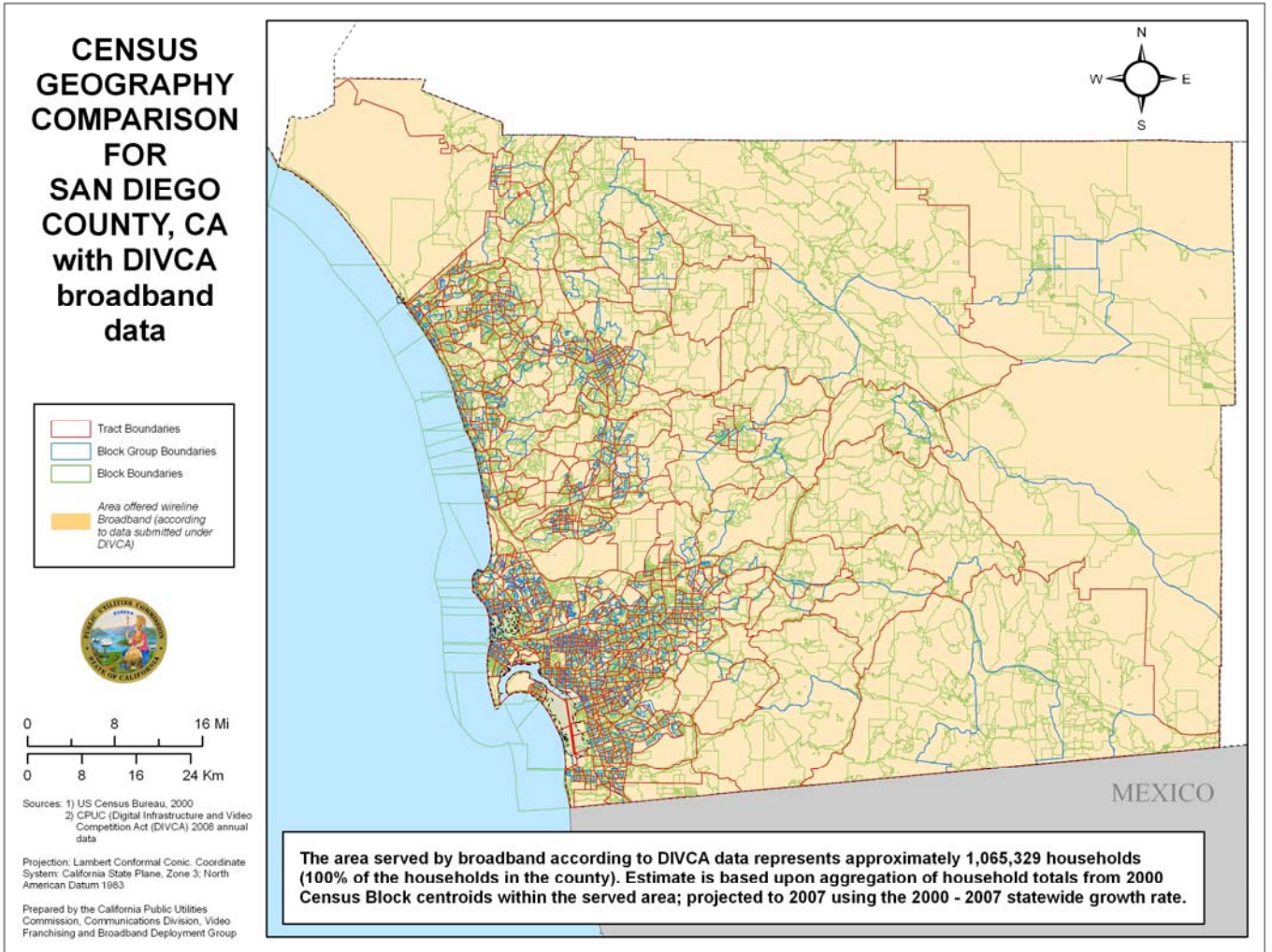
Map 5



Map 6



Map 7



The four maps shown above illustrate the critical importance of collected data at the street address level, especially in rural counties. The best way for the National Inventory Map to display the data would be to rasterize it to ¼ kilometer pixels, similar to the method used by the Task force (square kilometer). This would accomplish two things: 1) it would provide confidentiality to the providers, and 2) it would provide a fairly accurate map of broadband availability, using a standardized mapping unit (pixel).

Collecting data at the address level will give the NTIA the benefit of having the data at the most granular level possible, and aggregating it to any higher level desired. California recommends that NTIA generalize data to the ¼ square kilometer. This will allow for relative accuracy of mapping, while still maintaining proprietary confidentiality, particularly if the identity of the providers is also masked.

For analysis, on the other hand, the data need to be aggregated, or grouped, to a higher level, corresponding to census geography (preferably census block). Provider confidentiality would also be assured by this process, and the broadband data could then be easily compared to socioeconomic or demographic census data.

Further, standardized census data should be available for overlay and display at the level it is made available by the Census Bureau.¹⁵ The map should also contain state, county, political district, zip code, and census geography boundaries as background reference. These layers of data together will paint the most accurate picture possible of all factors surrounding the current state of broadband in a certain area. This method of mapping will assist the NTIA in making informed decisions regarding recipients of these grants.

California urges the NTIA to avoid adopting granularity for data collection purposes larger than the census block. However, whatever level of granularity the NTIA chooses to adopt, it should carefully design a data template to be used by reporting providers that will minimize confusion and maximize the amount of valid data that is reported. If street level data reporting is adopted, the NTIA should require that it be provided in one of the standard

¹⁵ See recommended list of census factors to be included in maps, Section b., *supra*.

geocoding formats in order to minimize the number of records that are rejected and need correction.

d. What other factors should NTIA take into consideration in fulfilling the requirements of the Broadband Data Improvement Act, Public Law 110–385 (2008)?

NTIA sought notice seeking comments on broadband mapping cover a wide range of issues that must be considered in order to fulfill the requirements of the Broadband Data Improvement Act (BDIA). However, in order to assure that the true purpose for the grants made under this Act are met, there is another factor that must be considered—demand-aggregation.

Section 106 of the BDIA states the purposes for mapping grants including; (1) ensuring that all citizens and businesses in a State have access to affordable and reliable broadband service; (2) achieving improved technological literacy, increased computer ownership, and broadband use among such citizens and businesses; (3) establishing and empowering local grassroots technology teams in each State to plan for improved technology use across multiple community sectors; and (4) establishing and sustaining an environment ripe for broadband services and information technology investment.¹⁶

Mapping grants should not require the single eligible entity itself to fulfill all of these purposes. The core need for mapping grants is to collect and produce statewide maps of broadband availability and subscribership. Such mapping efforts, for example, empower local grassroots technical teams by determining where improved technological literacy is needed. The actual establishment of such efforts should be able to be done by other groups who may apply for stimulus funds and carry out their program. The CETF, as discussed above, is one such group.

The CETF uses demand aggregation analysis, a technique useful for identifying areas of demand for broadband in currently unserved or underserved areas. This analysis can take the form of surveys of residences and businesses these areas, identified through analysis of

¹⁶ Broadband Data Improvement Act, Public Law 110–385 (2008) (BDIA), § 106 (a).

supply-side data. This data can then be used to supplement the supply-side analysis (i.e. mapping where broadband service is currently available and at what speed).

Map 8 below is a map that the CPUC has produced combining data on broadband availability gathered by the Task Force with additional information showing broadband usage by schools, libraries and other government facilities in the state. The NTIA's mapping program could similarly include federal government broadband users and foster the federal government's ability to aggregate demand in unserved or underserved areas. The information from these maps will prove invaluable in developing criteria for determining grant recipients in order to reach the goals stated above. Further, it will give the NTIA a better idea of how funds should be allocated to the various states based on not only the availability of service but the interest in actually having it.

Map 8



e. Are there State or other mapping programs that provide models for the statewide inventory grants?

California has pursued a robust broadband mapping effort during the past two years, including engaging in data gathering and broadband map creation as a product of the Task Force and the CPUC's implementation of CASF and DIVCA. As discussed above, the data submitted to the Task Force was submitted on a street address level basis. By contrast, data were submitted to the CPUC under CASF by census block group and under DIVCA by census tract. The Task Force found that broadband service is available to 96% of California households, while the CPUC census tract data reflected that 99% of California households were located in census tracts within which some broadband service.

These mapping programs, though different in the level of granularity used, are similar in many respects and are all solid examples of successful state mapping programs. These mapping programs require private entities to disclose proprietary information. The Task Force used a neutral third party to collect data pursuant to non-disclosure agreements, contingent upon destruction of the data once the mapping was complete. The actual mapping was then completed by a state agency with GIS expertise. CASF and DIVCA require grant applicants and state video franchise holders to file data with the CPUC protected by the CPUC's existing confidentiality safeguards.

Both of these programs created maps that are available to the public and provide a much deeper and detailed understanding of the state of broadband throughout California. This mapping exercise guided the State's decisions in establishing its CASF program to bring broadband service to unserved and underserved communities. The CPUC can now invest its funds knowing that the CASF infrastructure funds are being targeted to the right places. Absent our broadband mapping activities, California may not have accurately spent the broadband infrastructure funds in the right places. This is why California strongly advocates NTIA require broadband mapping for each state before broadband infrastructure funds are granted.

Further, at least in the case of CASF and DIVCA, mapping is an on-going process that only stands to improve as technology and data collection improves. California's mapping effort has also resulted in a clear understanding of broadband availability

statewide, and how programs like CASF can effectively bring broadband to unserved and underserved areas. Our recommendations throughout this document for data collection and use are based on these three successful mapping programs.

f. Specifically what information should states collect as conditions of receiving statewide inventory grants?

California recommends states collect the same data listed in Section b above, to the extent available. California urges the NTIA to have inventory mapping grantees collect broadband data by street address to ensure the most accurate picture of the current state of broadband in each state as possible.

g. What technical specifications should be required of State grantees to ensure that statewide inventory maps can be efficiently rolled up into a searchable national broadband database to be made available on NTIA's Website no later than February 2011?

As mentioned previously (section "b"), broadband data collection and analysis would be best accomplished and administered at the state level using GIS. Therefore California recommends the following technical specifications of State grantees to provide Broadband data to the NTIA:

- The broadband data should be collected and made available to NTIA at the same granularity (preferably by street address);
- Using GIS software, the geoprocessed (geocoded, projected, etc) broadband data should be provided in the same or compatible format (i.e. geodatabase, shapefile, comma separated file, etc.);
- Data fields should use the following data types:
 - Address field (text)
 - Subscribers (integer)
 - Speed (float)
 - Technology (text)
- GIS data should be created in a generic, unprojected coordinate system such as NAD 1983 so that it can be queried into a state plane projection of any state;

- Metadata (data about the data) should be created according to Federal Geospatial Data Content (FGDC) standards and should be generated after geocoding. Data should include the following:
 - Company name
 - Geographic extent of the data
 - Parameters of the speed and technology fields
 - Coordinate system
 - Period for which the data is current
 - Who created the data

The above specifications will assure that all data submitted by grantees can be mapped on both a state-wide and national basis. This will allow for the search functionality discussed in Section a, above. Requiring the above listed data in standardized format will allow for accurate comparisons of data submitted by various grantees both within and across state and county lines.

h. Should other conditions attach to statewide inventory grants?

Please refer to the comments above regarding selection criteria for grant recipients.

i. What information, other than statewide inventory information, should populate the comprehensive nationwide map?

In addition to those layers listed in Section “b” above, California recommends that the following information be used when populating the comprehensive map:

- Broadband penetration rates by state, county, municipality, political district, zip code, and census geography (down to the block level)
- Availability, technology, and speed, at all levels (down to the census block level)
- National Map layers – this should include as many of the following as possible:
 - Region, state, county, municipality, political district, zip code, and census boundaries (tract, block group, block, place).
 - Federal, state, and local highways, federal and state lands, Indian lands, military bases, etc.
 - Topography, hydrography, urban areas, etc.

- Leverage existing public broadband resources (federal or state owned property or facilities which can be used to deploy broadband hardware and equipment, e.g. buildings, communications towers, forestry towers, etc.)
- Other existing infrastructure
 - FCC commercial fixed wireless other tower locations

j. The Recovery Act and the Broadband Data Improvement Act (BDIA) imposes duties on both NTIA and FCC concerning the collection of broadband data. Given the statutory requirements of the Recovery Act and the BDIA, how should NTIA and FCC best work together to meet these requirements?

It is critically important that NTIA and FCC work together to determine a single set of mapping methodology so that future broadband mapping is consistent so a national map may be achieved. We think that this methodology decision should proceed extremely quickly and be announced within 90 days so that States who have not mapped their broadband infrastructure can get right to work and finish their mapping within 5-6 months of the methodology being announced. In this manner, States who have not mapped could achieve their mapping in nine months, and apply for broadband infrastructure grants by mid-2010.

As discussed in Section “b” above, California recommends using census data when mapping broadband service capability and availability in order to get a complete picture of the state of broadband and what factors affect broadband deployment and subscribership. In order to assure that data reported by individual entities and states is collected and analyzed on a uniform basis, it is imperative that the NTIA develop standardized set of census projection data.

Census data will not be collected again until 2010. Therefore, any census data used in the interim of those two collection periods must be projected in order to reflect the current year’s situation. This process of projecting current census data, however, is subject to variations. These variations, based on various methods of projecting, error, underestimation, etc., can affect the accuracy of any broadband mapping the NTIA or state acting for the NTIA might perform.

California recommends that the NTIA perform calculations to project census data for each census area throughout the country as of 2009. This uniformly projected data will eliminate discrepancies. Census data is meant to be a constant factor against which collected data should be compared. Therefore, it must be a constant.

9. *Financial Contributions by Grant Applicants*

a. What factors should an applicant show to establish the “financial need” necessary to receive more than 80 percent of a project's cost in grant funds?

NTIA should consider more than 80 percent deployment projects that can demonstrate they lost financing as a result of the financial crisis. Projects in communities with extenuating circumstances exist and the project can demonstrate that they have exhausted resources at the state and local levels or where the local community or region is distressed so financial assistance is considered highly unlikely.

b. What factors should the NTIA apply in deciding that a particular proposal should receive less than an 80 percent Federal share?

Projects should receive less than 80 percent if private money is available. If a project receives a reasonable offer from investors (see discussion under 4A) it should supplant the ARRA funding by an equal amount. Projects should receive less than 80 percent if public money has been received, in particular from other federal departments or states.

c. What showing should be necessary to demonstrate that the proposal would not have been implemented without Federal assistance?

To demonstrate that the proposal would not have been implemented without Federal assistance projects need to show one or more of the following:

- Letters from funders decreasing or canceling a grant or loan.
- Execute an affidavit affirming the project would not have happened without federal funds.
- Letters from funders showing when an existing project ended if it coincides with the beginning of funding from ARRA.

13. Definitions

a. For purposes of the BTOP, how should NTIA, in consultation with the FCC, define the terms “unserved area” and “underserved area”?

In its CASF program, the CPUC defined “**unserved**” as an area that is not served in any form by a facilities-based broadband provider, or where internet connectivity is available only through dial up service or satellite. The CPUC defined “**underserved**” as an area in which broadband is available but no facilities-based provider offers service at speeds of at least 3 Mbps download and 1 Mbps upload. While this “current generation” broadband definition is currently being reviewed by the CPUC, we think that it provides a minimum speed and service provider requirement for NTIA. Our definition of *broadband* references these speeds and we recommend that the definition of “underserved” recognize, at least for the immediate future, the 3/1 ratio as a baseline or minimal requirement for broadband projects. The broadband definition should also be updated routinely, as speeds are rapidly increasing as Internet uses demand bandwidth capable of dealing with streaming video and audio for example.

b. How should the BTOP define ‘broadband service’?

Please see the above as to how the CPUC grappled with the definition of unserved and underserved for its CASF program. California recognizes that the definition of broadband is in flux. The FCC has recently modified its definition of broadband and adopted speed tiers to rank broadband speeds for reporting purposes. Moreover, the Broadband Data Improvement Act explicitly requires the FCC to compare U.S. broadband speeds to those available in other countries.

(1) Should the BTOP establish threshold transmission speeds for purposes of analyzing whether an area is ‘unserved’ or ‘underserved’ and prioritizing grant awards? Should thresholds be rigid or flexible?

‘Unserved’ for California is no broadband at all; ‘underserved’ there has been flexibility on the assumption that *some* broadband is better than no broadband service at all. See comments above. “Some” in this instance might be tied to the lowest speed tier the

FCC recognizes for reporting purposes, recognizing that this will change over time.

(2) Should the BTOP establish different threshold speeds for different technology platforms?

The threshold speeds should be the same for all technology platforms and medium utilized – that is, they should be technology neutral.

(3) What should any such threshold speed(s) be, and how should they be measured and evaluated (e.g., advertised speed, average speed, typical speed, maximum speed)?

Under ideal situations, traffic metrics should be based on actual end user sustained transmission rates and not product definitions or service provisioning parameters. However, since broadband speeds are often a combination of factors, only one of which is the speed of the broadband transmission facility from the provider to the customer, speeds will vary from any single advertised amount. Be cautious about using third-party services such as www.speedtest.net, www.2wire.com, etc. to measure and evaluate threshold speeds. It is very difficult to measure actual speeds experienced by customers using such third-party services with accuracy, as such measurement is influenced by congestion in the Internet “cloud,” the capacity of third-parties’ servers, the number of people accessing these services at any given time and the third-party’s own broadband connection speed. Accordingly, broadband speeds should be evaluated by a combination of advertised speed and the “overbooking” ratio engineered into each provider’s network. Overbooking involves the relationship between the advertised speed of the broadband service offered and the number of broadband customers, compared to the size of the pipe between the broadband provider and the Internet. That pipe is a resource shared among all of the providers’ customers, and its capacity influences the actual speeds experienced by customers using a provider’s broadband service. The overbooking ratio is under control of the broadband provider, who makes a conscious choice about the actual speed experienced by its customers by engineering a higher or lower overbooking rate.¹⁷

(4) Should the threshold speeds be symmetrical or asymmetrical?

¹⁷ California recognizes that delving deeply into the engineering of broadband providers to measure speed may not be a useful exercise. For this reason the CPUC adopted advertised speed as a reasonable indicator of the actual speed. See CPUC [Resolution T-17143](#) (adopted June 12, 2008).

California, as noted, uses the asymmetrical 3/1 ratio. California recognizes, however, that when users more frequently generate their own content, including personal and family videos, as they are beginning to do, the demand for symmetrical bandwidth will increase. The definition of broadband is dynamic because it hinges on the applications used to exploit it, which are themselves dynamic and usually come from the 'edge' of the network, not from the facilities-centric core.

(5) How should the BTOP consider the impacts of the use of shared facilities by service providers and of network congestion? See the response to (3) above.

Looking forward, the California Broadband Task Force set a state goal for 2015 of 50 Mbps. While it is our opinion that any broadband speed, even the prior and much discredited FCC definition of 200 Kbps in one direction, is better than no broadband service at all, California thinks NTIA should be mindful of changes in broadband requirements that will inevitably occur in the future and judge physical infrastructure needs accordingly. Two considerations should be borne in mind: the definition of what constitutes acceptable broadband speeds will be driven by the demand for applications, especially for entertainment applications such as movies on demand over broadband facilities and business applications such as health related applications (telemedicine); second, the migration of entertainment and business services to the Internet and therefore to broadband will drive demand and demand will drive adoption. If adoption rates are to be improved across all demographics, the broadband facilities deployed must supply the bandwidth wherewithal to satisfy the needs of applications that allow users to access the Internet on their own terms. Such considerations should factor into the ranking of grant applicants.

c. How should the BTOP define the nondiscrimination and network interconnection obligations that will be contractual conditions of grants awarded under Section 6001?

(1) In defining nondiscrimination obligations, what elements of network management techniques to be used by grantees, if any, should be described and permitted as a condition of any grant?

The FCC's principles from 2005, as the Recovery Act requires, should be the

minimum for determining nondiscrimination obligations.¹⁸ An obligation imposed should be carefully crafted to not discourage broadband providers from applying for grants, particularly those who could serve the unserved and underserved areas.

e. What role, if any, should retail price play in these definitions?

If price is a component of the project's planned deployment of infrastructure, then a price guarantee should be required for a stated period after the completion of the project and/or the beginning of service to the public. See comment above on CASF program criteria.

14. Measuring Success

a. What measurements can be used to determine whether an individual proposal has successfully complied with the statutory obligations and project timelines?

See comments on CETF measurements for success above. Broadband mapping to the granularity described above would be an additional auditing and compliance tool.

b. Should applicants be required to report on a set of common data elements so that the relative success of individual proposals may be measured? If so, what should those elements be?

Yes for all areas: mapping, broadband deployment and adoption. See the section above on broadband mapping.

The broadband deployment projects can report:

- cost per household newly passed
- cost per customer served (new subscribers)

The adoption project measures are discussed under question 4A.

¹⁸ Policy Statement, FCC 05-151, adopted August 5, 2005, released September 23, 2005, at 3.

III. CONCLUSION

Today, the ability to be “connected” instantly through the Internet to information, services and digital tools is increasingly critical for access to and success in education, jobs and economic opportunity. High-speed Internet networks are essential 21st Century infrastructure—as vital to commerce, economic competitiveness and quality of life as the transportation system was to the last century. In addition, broadband is a “green technology” that can significantly reduce impacts on the environment by offsetting vehicle trips, decreasing the use of resources, and saving energy. The magnitude of California’s Digital Divide is unacceptable for global competitiveness and we look forward to working with our national partners to address this problem.

Respectfully submitted,

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