# CALIFORNIA BROADBAND TASK FORCE

## RECOMMENDED ADMINISTRATIVE ACTIONS THAT CAN IMMEDIATELY PROMOTE BROADBAND ACCESS AND USAGE

PRESENTED TO GOVERNOR ARNOLD SCHWARZENEGGER
CALIFORNIA BROADBAND TASK FORCE

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# Table of Contents

## Executive Summary

Governor Schwarzenegger signed an Executive Order (EO) S-21-06 on October 27, 2006 (amended November 28, 2006 as S-23-06), titled "Twenty-First Century Government: Expanding Broadband Access and Usage in California." In addition to other policies, the EO created the California Broadband Task Force (CBTF) to "bring together public and private stakeholders to remove barriers to broadband access, identify opportunities for increased broadband adoption, and enable the creation and deployment of new advanced communication technologies." The Governor appointed Task Force members on November 30, 2006 and the Task Force held its first meeting on January 18, 2007.

The EO charged the Task Force with developing two reports. This first report is limited in scope to recommendations for "administrative actions that can result in immediate promotion of broadband access and usage." In considering this mandate, the Task Force included administrative actions that could be taken solely by the Office of the Governor, an agency, or department. The final report, to be submitted in October 2007, will recommend a comprehensive set of actions that California can take to eliminate barriers to broadband access and adoption.

The administrative actions presented below address both supply-side and demand-side issues relative to the availability of and adoption of broadband Internet access and adoption rates. In addition, they represent a set of ideas agreed to by the entirety of the Task Force, a diverse set of stakeholders representing the public, private, and non-profit sectors. That the Task Force reached consensus on these ideas is a reflection of their merit and the likelihood that they could increase broadband access and adoption across California. The Task Force recognizes, however, that before these recommendations can be implemented, the State must further assess the potential public and private sector impacts.

Over the coming months, the Task Force will identify comprehensive solutions to the challenges placed before it by the Governor. These solutions will appear in the CBTF's final report.

The CBTF recommends that the Governor consider the following administrative actions:

### 1. Increase Access to Existing State & Federal Resources

1.1 Encourage the University of California system (UC) to work with the Lead Agency of the Broadband Initiative, the Business, Transportation, and Housing Agency (BTH), to develop a plan for the expenditure of Proposition 1D funds in rural and other underserved areas where the campuses will be providing telemedicine services.

1.2 Instruct the Department of Housing and Community Development to work with BTH, within 90 days of the issuance of this report, to develop and begin to implement a Proposition 1C funding plan for enabling the increased deployment and use of broadband within affordable and multifamily housing units.

1.3 Collaborate with the Department of Education (DOE) to publicly report on current training activities provided for schools applying to the E-Rate and California Teleconnect Fund programs. If the training is insufficient, DOE should consider increasing or altering training activities.

1.4 Set specific dates and deployment goals for the Department of General Services (DGS) in regard to meeting its mandate for increasing wireless Internet access in state buildings under Executive Order S-21-06 (Revised: S-23-06).

1.5 Improve compliance with AB 855 (Firebaugh/Levine) by all state agencies.

## 2. Coordinate State Assets

2.1 Establish a Geographic Information Office (GIO) to coordinate the mapping of state and other critical infrastructure.

2.2 Instruct Caltrans, within 90 days of the issuance of this report, to identify ways in which it can leverage new fiber builds to accelerate the deployment of smart highways and more efficient goods movement.

2.3 Instruct state agencies to review their broadband service capabilities to ensure these capabilities are sufficient to operate their own systems appropriately.

2.4 Instruct agencies and departments, particularly those located in rural areas where there is no broadband access today, to consider ways in which they may become an anchor tenant in the community, thereby enabling infrastructure deployment by services providers who will then be able to offer consumer and business broadband services.

2.5 Encourage the Public Utilities Commission (PUC) to coordinate efforts between broadband providers and communities to (i) inventory assets that could be used for broadband deployment and (ii) encourage the development of common standardized agreements for these assets.

2.6 Coordinate with DOE to identify any K-12 schools that do not have sufficient broadband access and to determine the reason for this lack of access. The Department should then provide this information to the Governor and to the general public.

2.7 Coordinate with regional groups of community centers to consolidate maps of public, broadband access points on to one website.

2.8 Support partnerships to provide on-site training of advanced communication technologies in libraries and community centers.

## 3. Improve Emergency Services

3.1 Establish a team within the Executive Branch to investigate the appropriate steps to assure continued emergency network operations in regions that are subject to occasional broadband outages due to lack of redundancy in their broadband systems.

3.2 Require BTH, in collaboration with the CBTF, to coordinate with the California Statewide Interoperability Executive Committee (CALSIEC) and the Public Safety Radio Strategic Planning Committee (PSRPC) to encourage the use of broadband for emergency response.

## 4. Coordinate Conduit Deployment

4.1 Require all state agencies to adopt a single, technology-neutral standard for the type of conduit placed into state rights-of-way. This standard must (i) ensure fair access and equitable usage and (ii) address sizing of conduit and inner-duct.

4.2 The GIO, or other entity designated by the Governor, should map state-owned conduit.

4.3 Recommend to the California Transportation Commission (CTC) that it require conduit to be deployed within all Prop 1A through 1D builds, where demand for broadband is identified.

## 5. Promote Broadband Adoption

5.1 Directly promote broadband deployment and adoption through the Governor's website and other executive forums.

5.2 Require all state agencies and departments to deliver services through any Web tool that drives productivity and cost savings.

5.3 Declare a "California Broadband Telework Day" to promote broadband adoption and its associated environmental and quality of life benefits.

5.4 Develop a broadband best practices program that will give awards to California communities that develop innovative practices for the use of advanced communication technologies.

# INTRODUCTION

## BROADBAND IN CALIFORNIA

Broadband technologies have already changed the way people live their lives. Families living in disparate places connect through email, video, and Voice over Internet Protocol (VoIP) services. Youth and adults are writing about their reactions to events or ideas in blogs, arguing and agreeing with their counterparts living thousands of miles away. Students check a classroom website for homework assignments and participate in never-before-available classes over the Internet. Patients remain in their local community during medical consultations, but speak, look, and interact with their doctors, all of whom are located in an entirely different part of the state.

Unfortunately, while these scenes are the reality for many Californians, there are many without broadband Internet connections, particularly among rural, low-income, disabled, and limited-English Speaking populations. While anyone with telephone service can access a dial-up Internet provider, today's applications, and nearly all emerging applications, simply require more bandwidth than dial-up can offer.

A recent survey of the Central Valley, for example, conducted by the Public Policy Institute of California, found that 64 percent of Latinos "never access the internet [dial-up or broadband] or use email" at home, work, or school. This is a 41-point gap with whites, only 23 percent of whom never access the internet. Over 90 percent of college educated residents use the Internet "often" or "sometimes," but that number falls to less than 50 percent when surveying those who have either a high school education or earn less than $40,000 per year. On the whole, 66 percent of those in the Central Valley report going online "often" or "sometimes," using either dial-up or broadband services at home, work, or school.[1]

In a 2004 study of Humboldt County, 74 percent of responders in South Humboldt County were only able to access dial-up Internet services at work. Of these same responders, only five percent had cable Internet at home, while 16 percent had satellite.[2] These statistics are comparable to lower access and usage rates seen across the rural United States. Across the United States, only 25 percent of rural households subscribe to broadband, compared to 44 percent of urban and 46 percent of suburban households.[3] The General Accounting Office recently concluded the reason for low adoption rates in rural areas may lie with the dearth of access: "[W]hen the availability of broadband to households, as well as demographic characteristics, are taken into account, rural households no longer appear less likely than urban households to subscribe to broadband."[4]

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[1] Mark Baldassare, *PPIC Statewide Survey June 2006: Special Survey of the Central Valley,* Public Policy Institute of California with Great Valley Center, (June 2006): 17, *at* http://www.ppic.org/main/publication.asp?i=696

[2] Tina Nerat, *Living in a Networked World: Humboldt County Telecommunications Infrastructure and Usage Assessment,* NERATech , (December 2004): 17

[3] John B. Horrigan, *Home Broadband Adoption 2006,* Pew Internet & American Life Project, (May 28, 2006): 3 *at* https://www.pewinternet.org/PPF/r/184/report_display.asp.

[4] *Broadband Deployment Is Extensive throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas,* United States General Accountability Office, (May 5, 2006): 30 *at:* http://www.gao.gov/docssearch/repandtest.html .

Nationally, some have estimated that universal broadband adoption will provide $500 billion in economic benefits, $300 billion directly to consumers.[5] With over 12 percent (36.1 million) of the nation's population located in California,[6] the State can certainly expect that increased broadband access and usage will result in increased economic benefits to the Golden State.

## THE CALIFORNIA BROADBAND TASK FORCE

The California Broadband Task Force (CBTF) represents an unprecedented effort in California to bring members of the public, private, and non-profit sectors together to address meaningful opportunities that will result in increased broadband access and usage for all communities across the State.

Serving in an advisory role, the CBTF held its first meeting on January 18, 2007. In response to Executive Order S-21-06 (Amended November 28, 2006), the Task Force submits this preliminary report, which "identifies administrative actions that can result in immediate promotion of broadband access and usage." Considering this mandate, the Task Force included as an administrative action any action that could be taken solely by the Office of the Governor, an agency, or department. Before undertaking any of these administrative actions, however, the Office of the Governor should further assess any potential or private sector impacts.

The comprehensive report, as required by the Executive Order, will "make specific recommendations for how California can take advantage of opportunities for and eliminate any related barriers to broadband access and adoption." The CBTF has also developed working groups comprised of CBTF members and other subject matter experts. The working groups focus on the following topics: Build-Out, Economic Development, Education, Emerging Technology and New Applications, Health Care, and Public/Private Partnerships for Community Development. The work product of the working groups will be incorporated into the comprehensive report to the Governor and the Legislature.

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[5] Robert W. Crandall and Charles. L. Jackson, *The $500 Billion Opportunity: The Potential Economic Benefit of Widespread Diffusion of Broadband Internet Access,* Criterion Economics, L.L.C. (July 2001): 54.

[6] *California QuickFacts,* US Census Bureau¸ *at* http://quickfacts.census.gov/qfd/states/06000.html, (January 12, 2007).

## California Broadband Task Force Recommendations

### 1. Increase Access to Existing State & Federal Resources

#### Recommendation 1.1

Encourage the University of California system (UC) to work with the Lead Agency of the Broadband Initiative, the Business, Transportation, and Housing Agency (BTH), to develop a plan for the expenditure of Proposition 1D funds in rural and other underserved areas where the campuses will be providing telemedicine services.

As part of a longer-term, statewide coordinated effort, developing a plan that utilizes Proposition 1D funds both on and off UC campuses can both improve the educational experience of medical students and increase the viability of an eHealth network. The plan should also indicate where the campuses of the University of California can prototype new modes of broadband telemedicine services, as this will stimulate innovation and lead to more rapid deployment of full-scale telemedicine.

In passing Proposition 1D, the citizens of California voted to authorize $200 million to be used for "capital improvements that expand and enhance medical education programs with an emphasis on telemedicine aimed at developing high-tech approaches to health care."

Through Executive Order S-12-06, the Governor directed the Secretaries of the Health and Human Services Agency and the Business, Transportation and Housing Agency (BTH); the Director of the Department of Managed Care; and the State Chief Information Officer (CIO) to work with public and private sector stakeholders to develop a sustainable business model for an eHealth network. The Governor expects the eHealth network will connect rural health clinics in California to medical centers throughout the state by using telemedicine and other technologies.

In addition, the state has an opportunity to receive funding for a telemedicine pilot project through the Federal Communication Commission's Rural Health Care Pilot Program. Collaboration between the state, the University of California, the Corporation for the Network Initiatives in California (CENIC), and other stakeholders is taking place on this project.

#### Recommendation 1.2

Instruct the Department of Housing and Community Development to work with BTH, within 90 days of the issuance of this report, to develop and begin to implement a Proposition 1C funding plan for enabling the increased deployment and use of broadband within affordable and multifamily housing units.

By passing Proposition 1C, Californians authorized that $1.5 billion be deposited in the Affordable Housing Account. Over the next ten years, $590 million will then be used by the Multiple Housing Program, and $100 million will be used by the Affordable Housing Innovation Fund.

Developing and implementing a plan that expends a portion of the Funds on broadband deployment, in the form of "smart housing,"

will, in conjunction with proper equipment and training, provide access to higher quality education and improved economic opportunities for residents of California's affordable and multifamily housing units. Increased access to broadband may be achieved, for example, by requiring (or encouraging) the placement of broadband infrastructure and/or appropriate conduit(s) in the design and construction of all new affordable housing.

### RECOMMENDATION 1.3

Collaborate with the Department of Education (DOE) to publicly report on current training activities provided for schools applying to the E-Rate and California Teleconnect Fund programs. If the training is insufficient, the Department should consider increasing or altering training activities.

It is important to track the effectiveness of training activities for the E-Rate and California Teleconnect Fund Programs.[7] In doing so, public and private sector stakeholders may be able to increase the quality and quantity of the training.

The Schools and Libraries Division of the Universal Service Administrative Company, a not-for-profit corporation appointed by the Federal Communications Commission, provides affordable access to telecommunications services for all eligible schools and libraries in the United States. Funded at up to $2.25 billion annually, the E-rate Program gives discounts on telecommunications services, Internet access and internal connections.

The California Public Utilities Commission (PUC) maintains the California Teleconnect Fund, a discount program similar to that offered through the E-Rate Program, but funded through California ratepayer dollars. It provides a 50 percent discount on certain telecommunications services to qualifying schools, libraries, government-owned and operated hospitals and health clinics, and community-based organizations, including community technology programs.

### RECOMMENDATION 1.4

Set specific dates and deployment goals for the Department of General Services (DGS) in regard to meeting its mandate for increasing wireless Internet access in state buildings under Executive Order S-21-06 (Revised: S-23-06).

While the Executive Order expects that DGS will develop a proposal for wireless Internet access in the Capitol within 180 days, it does not set additional deployment goals and completion dates for the Phase I, II, and III priorities described in the Implementation Plan. The likelihood for success of this project will be increased if the Governor sets completion dates for (i) a list of potential buildings to be included in each phase, and (ii) dates of deployment and goals for each phase. DGS also should create an implementation plan that includes efforts to educate building managers about the benefits of publicly available wireless Internet access.

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[7] For background on the E-Rate program see: http://www.fcc.gov/Bureaus/Common_Carrier/Public_Notices/1997/da971374.html; For background on the California Teleconnect program see: http://www.cpuc.ca.gov/Static/telco/public+programs/ctf_faq.htm.

## RECOMMENDATION 1.5

**Improve compliance with AB 855 (Firebaugh/Levine) by all state agencies.**

AB 855 (Chapter 820, Statutes of 2003) required the Department of General Services to develop an inventory of state-owned real property that wireless telecommunications providers could lease for "wireless telecommunications facilities."[8] Under AB 855, the director of DGS "may negotiate and enter into an agreement to lease department-managed and state-owned real property to any provider of wireless telecommunications services for location of its facilities."[9] AB 855 also created the Digital Divide Grant Program. This program requires that 15 percent of the revenues from these leases be used for a competitive grant program funding Digital Divide pilot projects. Lease agreements for Department of Transportation land or "lease agreement[s] existing prior to the operative date of the section" were exempted from participation in the Digital Divide Grant Program.

In May 2005, Assemblymember Hector De La Torre sent a request regarding the status of AB 855's implementation. In June 2005, DGS Director Ron Joseph sent a letter in response to this inquiry. This response provided information about the AB 855 inventory, as well as the status of new or renewed leases. At that time, the inventory showed information for only seven departments in all of the Executive Branch. Between January 2004 and May 2006, only eight new lease negotiations had begun.

Accordingly, the CBTF recommends the following:

- Require DGS, by April 15, 2007, to report to the Office of the Governor, the current status of the AB 855 inventory; the extent to which DGS has sought compliance by other agencies to meet the requirements of AB 855;[10] the number of wireless communication lease negotiations entered into since January 1, 2004; and the number of those leases that were negotiated by the director of DGS. In addition, DGS should describe its efforts to educate stakeholders about the existence of AB 855.
- Remind all eligible departments that they must comply with current law and immediately list property that may be leased and used for wireless telecommunications facilities.
- Develop standards for compliance. For example, require all agencies and departments to notify potential wireless telecommunications lessees as to the availability of specific property within 30 days of initial contact.
- To incentivize compliance with AB 855, allow departments and agencies to use the

[8] State-owned real property "excludes property owned or managed by the Department of Transportation and property subject to Section 7901 of the Public Utilities Code." CAL. GOVT. CODE § 14666.8(a).

[9] Id. at § 14666.8(c).

[10] In particular, DGS should also address the extent to which it has encouraged other departments or agencies to promote this principle:, "Use of property owned by the state, local government agencies, and other public entities for location of wireless telecommunications facilities will expedite deployment of wireless telecommunications service and minimize the aesthetic impact of wireless telecommunications towers and, facilities, or other wireless repeaters, amplifiers, regenerative repeaters, or regenerators that have the shape of natural or manmade structures or objects." AB 855 (findings and declarations).

fees collected through this program to be partially credited against lease payments to DGS.
- Ensure that the designated percentage of revenues from renewed wireless telecommunications leases, as well as new leases, are included in the Digital Divide Grant Program.
- Review the legal basis for any existing departmental/agency exemptions to Digital Divide Fund participation.

## 2. Coordinate State Assets

### Recommendation 2.1

Establish a Geographic Information Office (GIO) to coordinate the mapping of state and other critical infrastructure.

The Geographic Information Office (GIO) will create interactive maps that - in conjunction with the use of broadband - enable better interagency coordination in regard to emergency response. The work of the GIO also will serve to accelerate the use of interoperable communication systems, which will significantly improve emergency response statewide.

Legislators have recognized that: (a) geographic information is heavily relied upon and is critical to agencies, public utilities, educational institutions, and private organizations, providing the foundation for assessment and planning of services and actions; (b) quality information is essential to maintain the health, safety, and welfare of the people of California and California's economy and environment, and it is the responsibility of state government to ensure that crucial information is available for effective operation of the public sector; (c) obtaining geographic information is expensive, and public and private organizations must be encouraged to work together to create shared geographic information data bases, thus avoiding redundancy and duplication; and (d) the lack of quality information can impede timely decisions at the state and local levels.[11] All of these findings remain true today.

In order to accelerate the use of interoperable communications, the GIO will work with the state's two interoperability committees: the California Statewide Interoperability Executive Committee (CALSIEC) and the Public Safety Radio Strategic Planning Committee (PSRSPC).

### Recommendation 2.2

Instruct Caltrans, within 90 days of the issuance of this report, to identify ways in which it can leverage new fiber builds to accelerate the deployment of smart highways and more efficient goods movement.

The Goods Movement Action Plan determined that a widespread use of technology can lead to significant goods movement gains in productivity, security, safety, efficiency, public health, and environmental protection. In addition, Caltrans and local transportation authorities are already employing Intelligent Transportation Systems (ITS). These systems are improved by the use of broadband technology.

[11] AB 1293 (Bowen) (Findings and Declarations). Available at: http://www.leginfo.ca.gov/pub/97-98/bill/asm/ab_1251-1300/ab_1293_bill_19970911_enrolled.html.

Recognizing the need for technical expertise in this area, the Secretary of BTH and the Director of Caltrans established a Research and Technology Advisory Panel (RTAP). This panel includes seven committees, under the general oversight of an executive committee. A goods movement committee comprised of public, private, and academic experts will provide guidance on the implementation of goods movement-related technologies as part of the implementation of the GMAP. Emphasis will be placed on (i) identifying priority strategies for trade corridors of national significance, and (ii) developing technology-based strategies for funding under the Trade Corridor Improvement Fund or other sources established by Propositions 1A and 1B. RTAP should identify the ways in which broadband can best accelerate the development of smart highways and more efficient goods movement.

### RECOMMENDATION 2.3

Instruct state agencies to review their broadband service capabilities to ensure these capabilities are sufficient to operate their own systems appropriately.

State agencies, including DTS, and universities should inventory their broadband infrastructure, including end points, and identify any inadequacies that may compromise their performance. By June 1, 2007, each agency should provide a map of owned and leased infrastructure throughout the state (i) in print to the Telecommunications Division within DTS and (ii) in a form that will constitute a data layer for the state's Geographic Information Office base map. The state's GIO (see proposal recommended above) will make this information accessible to the CBTF as it is available.

The information on the state's base map will identify where multiple circuits serve the same end address, and where circuits are in areas that have no redundancy or diverse routes and no alternative broadband service. This discovery may suggest opportunities to (i) utilize the state as the anchor broadband tenant in a community, or (ii) make resources available for bolstering broadband demand to local public sector entities such as school district, libraries, hospital districts, and city/county offices.

### RECOMMENDATION 2.4

Instruct agencies and departments, particularly those located in rural areas where there is no fiber broadband access today, to consider ways in which they may become an anchor tenant in the community, thereby enabling infrastructure deployment by service providers who will then be able to offer consumer and business broadband services.

In areas where fiber does not exist today, most notably in rural areas of California, the costs of installation can often only be incurred if sufficient uses can be found to justify the capital expenditure. To the extent the state is willing to lease potential new fiber infrastructure for its own purposes, for example to support networking needs of prisons, the state's networking expenditures can assist in funding the costs of fiber infrastructure in rural and other underserved areas. In doing so, the state would serve as an anchor tenant or a major committed user of fiber infrastructure.

### RECOMMENDATION 2.5

Encourage the Public Utilities Commission (PUC) to coordinate efforts between broadband providers and communities to (i) inventory assets that could be used for broadband deployment and (ii) encourage the development of common standardized agreements for these assets.

Broadband deployment can be achieved through a variety of technologies. The PUC already works with a number of regulated entities that own assets that can be used for broadband deployment. For example, utility companies may own streetlights that can be used to anchor wireless equipment. By inventorying these assets, the PUC will improve the process of using these resources for wireless or other broadband deployments. The PUC may also develop standard agreements that a utility may choose to adopt when allowing wireless broadband providers to use their facilities.

### RECOMMENDATION 2.6

Coordinate with the Department of Education (DOE) to identify any K-12 schools that do not have sufficient broadband access and to determine the reason for this lack of access. The Department should provide this information to the Governor and to the general public.

Ninety-five percent of computers in schools are connected to the Internet and nearly ninety percent of California classrooms have at least one computer connected to the Internet.[12] However, there is no research that explains why this last five percent of computers and ten percent of classrooms are not connected to the Internet.

Understanding why certain California schools are not sufficiently connected to the Internet is important in determining whether more needs to be done to enable schools to take advantage of programs that would assist them. Moreover, analyzing the speeds of these connections and their availability to the student population is critical in understanding the extent to which California's schools can effectively use broadband technologies. Thus, the DOE report will provide a starting point for a thorough evaluation of the status of broadband in K-12 schools.

### RECOMMENDATION 2.7

Coordinate with regional groups of community centers to consolidate maps of public broadband points on to one website.

California's non-profit sector and libraries have long been leaders in providing computer and Internet training and access to communities across the state. In several major areas of the state, regional groups of organizations that provide training and access have collaborated on projects and shared best practices. Many of these groups have been, or are in the process of, developing dynamic maps of community locations that offer broadband access and/or training and support of computer technology. Regional groups engaged in mapping are

[12] Survey, 2006 California School Technology Survey *at*. http://dq.cde.ca.gov/dataquest/ (Accessed: February 14, 2007).

currently located in Greater Los Angeles, San Diego, and San Francisco.

As part of the recommended strategy to educate consumers and businesses about the benefits of broadband, the state should link publicized material in the broadband campaign (described in Recommendation 4.2 below) to maps created by these groups. By linking this information together, residents learning about broadband through the public awareness campaign can quickly find places where they can learn about and use broadband technologies.

These links should include available maps of library locations with training or access, some of which are not included in the lists of these regional groups. Moreover, this information will be useful to local officials and other organizations interested in the work of California's public libraries and community technology programs. The GIO, or another other entity as determined by the Governor, should assess the limitations of the current maps as part of a plan to keep a centralized statewide map of access points. Finally, representatives from BTH, regional groups, libraries, and other stakeholders should meet to discuss best practices for standardizing qualitative information about each map point that will be maximally useful.

### RECOMMENDATION 2.8

Support partnerships to provide on-site training of advanced communication technologies in libraries and community centers.

Training Californians in technology achieves many important ends. First, it provides an opportunity for those without high-speed Internet access to learn about its value in relation to improving their lives. This in turn, spurs demand, which increases subscribership within the state. As user created content significantly increases on the Internet, the value of the Internet to individuals grows as well. Not only are people communicating, but people are creating content that they then use as a basis for their communication.

Accordingly, the state should support partnerships that facilitate on-site training and support in libraries and community centers. The Governor can achieve these ends through administrative action by:

- Encouraging state IT staff to volunteer at local community technology centers and libraries;
- Requiring DGS to more widely publicize its state surplus auction (http://www.isd.dgs.ca.gov/Surplus/default.htm) and coordinate on one website the notification of sales for surplus computers and peripherals by different state agencies; and
- Advocating for regional partnerships (in which the state is involved) to actively support access and training of advanced communication technologies.

## 3. Improve Emergency Services

### Recommendation 3.1

Establish a team within the Executive Branch to investigate the appropriate steps to assure continued emergency network operations in regions that are subject to occasional broadband outages due to lack of redundancy in their broadband systems.

The team will be composed of members from the Governor's Office of Emergency Services, BTH, and regional leadership relevant to emergency services. Within 60 days of its creation, the team will report back to the Governor's Office with a timetable of actions that will strengthen the ability of the state and regions to provide continued emergency network operations. In its deliberations, the team should consider how broadband can enhance emergency services, the role of technology, and the relevant applications required to provide emergency response.

There are counties in California that have a single broadband connection to the Internet without any redundancy or route diversity. These areas are in need of a coordinated effort with the state to assure continual emergency service response until additional broadband connections and route diversity can be provided. When an outage occurs on the single physical connection, the effects to the businesses and residents in the region can be profound.

For example, two outages recently occurred in Humboldt County. During a portion of this time, air travel was halted and the Sheriff's department had to use a backup 911 system. In addition, retailers could not process credit cards and ATM's were non-operational. Also, there were widespread residential issues in connecting to the Internet for various services and telecommuting.

### Recommendation 3.2

Require BTH, in collaboration with the CBTF, to coordinate with the California Statewide Interoperability Executive Committee (CALSIEC) and the Public Safety Radio Strategic Planning Committee (PSRPC) to encourage the use of broadband for emergency response.

Broadband technologies represent a viable response to the challenge of promoting a common communications network for mutual aid and emergency response. The CBTF, the CALSIEC, and the PSRSPC each has a vested interest in collaborating to meet this need. The CBTF brings knowledge of broadband deployment from the private, public, and non-profit sectors, while CALSIEC and PSRSPC both share technical knowledge and emergency response expertise. These three groups together possess a greater potential to spur the development of a common network than each would alone.

## 4. Coordinate Conduit Deployment

### Recommendation 4.1

Require all state agencies to adopt a single, technology-neutral standard for the type of conduit placed into state rights-of-way. This standard must (i) ensure fair access and equitable usage and (ii) address sizing of conduit and inner-duct.

Conduit placement along state rights-of-way (ROW) will create a faster and more economic rollout of broadband infrastructure. State and municipal installation of conduit reduces the ROW permit process and removes multiple roadway cuts and restorations as each provider installs infrastructure. In addition, it reduces utility cable cuts, and greatly reduces traffic delays related to cable placement. In developing a conduit standard, the state should engage local and regional representatives, and encourage all municipalities to adopt the resulting standard. The adoption and implementation of common standards should be undertaken in such a manner that it does not increase the cost to entities deploying broadband service and does not delay the deployment of broadband service.

For a conduit system to be successful, several factors need to be considered. Conduit sizing, number of ducts, and type are all very important criteria that must be taken into consideration. There will be different solutions for different ROW applications. Consideration of the route and expected cable size and types needs to be addressed. All new conduit needs to be capable of supporting the most common placement techniques: direct pull and CableJet. ROW should be divided into three classes to streamline the decision process. The recommended classes are:

- Major highway/major regional network backbone;
- Metro connector/major intra-city connector; and
- Small to medium roadway/transit, neighborhood connector.

Classifying ROW into one of these three categories will assist in the decision process by setting a standard conduit system that best fits the majority of cases.

For example, major highways and connectors that are most likely to serve as backbone or core network paths will need conduit that is capable of fewer, but larger size cables, with fewer junctions or splice points. Therefore, it is recommended that three, 1.5 inch SDR11 (Standard Diameter Ratio) ducts be placed along these roadways where no duct exists. If there is existing spare duct and it needs reinforcement, it is recommended that two 1.5 inch SDR11 ducts be placed. In addition, hand holes for fiber access and pulling need to be placed approximately every 4,000ft.[13] Manholes are recommended at major interstate intersections and intervals not to exceed 5 miles. The 1.5-inch SDR11 innerduct will provide the ability to pull some of the largest fiber cables (864 fibers/sheath @ ~1inch diameter). Three ducts allow for multiple service provider use and allow for needed redundancy.

Metro area connectors and major intra-city ROW needs to accommodate more cables, but

[13] It is possible to space handholes at 5,000 ft intervals; however, this will require that the deployment is a straight run of conduit with no more than two or three 90 degree turns (including the turns into the handholes).

of a smaller size, and containing more splice/junction points. It is recommended that four conduit paths be placed and made available for providers. There are two recommended conduit types for this type of application. First, there is what is called multi-cell conduit. Typical installation includes a 4-inch outer PVC duct with 3-4 innerducts built into the diameter. Multi-cell duct can accommodate four 1.25-inch (nominal) ducts or four 1-inch (nominal) ducts.

The second option is to place four SDR11 ducts together. The four SDR11 ducts are slightly less in cost, but installation may be more difficult. Handholes need to be placed at intersections or potential intersection or pull off points, not to exceed 2500 feet spacing. This sizing and number of conduit will accommodate local competitive providers, cable, and intelligent traffic signal control network needs. Placing infrastructure for four distinct paths is a proactive approach to solving the most dynamic needs of the network.

Small to medium roadway/transit ROW and neighborhood connectors need conduit that supports medium to large distribution/access cables and many junctions/splice points with fewer competitive needs. Therefore, a minimum of two (three are recommended) 1.25-inch SDR 13.5 innerduct should be placed. Handholes should be placed at all major intersections or probable splice points, not to exceed 2500 feet. These are smaller innerducts, thinner walled and more flexible than the SDR11 innerduct. However, they are capable of handling the needs of the most common distribution network systems. Additional duct should be added for state or municipality use as needed.

For all conduit, a pull tape should be installed in each conduit. In addition, all conduit should be placed at a recommended depth of 30 inches, with a minimum of 24 inches. The conduit depth may need to be coordinated with that of other existing utilities, and adherence to cable separation as defined in state and local electrical codes.

Creating these guidelines and infrastructure will greatly accelerate broadband deployment, while also benefiting the state by reducing permitting time and roadway restrictions, and increasing asset tracking for tax purposes. Accordingly, all state agencies should place conduit (of the standard agreed upon above) when other work would facilitate this placement and where demand for broadband is identified.

### RECOMMENDATION 4.2

**The GIO, or other entity designated by the Governor, should map state-owned conduit.**

The Implementation Plan for Executive Order S-21-06 requires the state to map a number of state resources important to broadband deployment. These include ROW owned by the state or subject to state regulation; broadband infrastructure owned or leased by the state; state facilities that have broadband infrastructure; state facilities that do not have broadband infrastructure; and investment projects relating to broadband. It is important that the state also map state-owned conduit, which will provide insight into possible locations for expanded broadband deployment.

### RECOMMENDATION 4.3

Recommend to the California Transportation Commission (CTC) that it require conduit to be deployed within all Prop 1A through 1D builds, where demand for broadband is identified.

As approved by the voters on November 7, 2006, Bond 1B sets forth the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. This new law enacts $19.925 billion in general obligation (GO) bonds to fund repairs, reduce congestion, improve bridge safety, expand public transit, and improve port security statewide. Of the $19.925 billion, $2 billion, to be deposited in the California Ports Infrastructure, Security, and Air Quality Improvement Account, will be transferred to the Trade Corridors Improvement Fund to be allocated by the California Transportation Commission (CTC). The CTC will allocate these funds in a manner that addresses the state's most urgent needs. The new law requires the CTC to consult this Goods Movement Action Plan in determining the projects eligible for funding.

## 5. PROMOTE BROADBAND ADOPTION

### RECOMMENDATION 5.1

Directly promote broadband deployment and adoption through the Governor's website and other executive forums.

Research that has explored the demand-side of broadband has noted that "a lack of knowledge about broadband benefits" among consumers is a primary reason for not adopting the technology.[14] In an effort to increase adoption rates, governments like South Korea have promoted broadband by linking its benefits to "cultural expectations" (in South Korea's case, a cultural "emphasis on education").[15] Here in California, the Governor has an opportunity to highlight the importance of broadband – using the very communications technologies already in use.

A recent San Francisco Chronicle article describes the Governor's use of interactive technology on his website, and cites experts who say that the website and other advanced communications technologies used by the Governor place California ahead of all other states, and even the White House.[16] The Governor can leverage his pioneering efforts to educate Californians about the opportunities broadband brings to individuals and to the state. Many of the applications on the Governor's website are virtually inaccessible to Californians without broadband access, so for those who visit the website and are unable to access all of its features, it is a perfect opportunity for the Governor to explain that these applications – and many education and entertainment-based applications – require high-speed access.

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[14] Jyoti Choudrie, Yogesh K Dwivedi, *Investigating Factors Influencing Adoption of Broadband in the Household,* The Journal of Computer Information Systems, *46*(4),(2006): 25-34.

[15] *Id.*

[16] Carla Marinucci, *Governor Sets Pace for Politics on the Net,* San Francisco Chronicle, (14 January , 2007), *at* http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/01/14/MNGBHNIHQO1.DTL.

To adopt this idea, the CBTF recommends that the Governor develop a campaign to promote broadband and its importance to California's economy and its residents. As part of this campaign, the Office of the Governor should add a tab to www.gov.ca.gov and to www.ca.gov that describes the benefits and importance of broadband for economic development and quality of life for every Californian. As information is gathered, the tab should link to existing databases of training and access sites at libraries and community technology centers.

In addition to underscoring the importance of broadband to California's residents, the campaign should acknowledge the needs of rural and urban areas where access or adoption rates are lower than the state average. The campaign should include statistics about the potential economic benefits of broadband deployment and adoption. Publicly acknowledging the needs of these communities - including reliable access to broadband, training, and affordability of broadband enabled technology (beyond the monthly cost of Internet access) - will draw attention, and perhaps investment, to the needs of these areas.

The Governor should also partner with trusted community organizations to develop a public education campaign that is specifically aimed at low income, limited English communities, seniors, and the disabled. This campaign should focus on educating these communities on community Internet access and training sites; common public services or applications available on the Internet; and the benefits of computer training and Internet access.

Finally, as part of the education campaign, the Governor should hold a summit with local government officials and work with these officials to adopt model policies to facilitate the deployment of broadband. It is imperative that this be done now as the money from Prop 1A-1D is being appropriated.

### RECOMMENDATION 5.2

**Require all state agencies and departments to deliver services through any Web tool that drives productivity and cost savings.**

Require all state agencies and departments to deliver new or substantially updated services, both internally and externally, through Web tools wherever economically feasible. External services, of course, can remain available through traditional means for residents that are not connected to broadband services, and should reflect the diversity of primary languages used in California. The Chief Information Officer or the Cabinet Secretary from each agency should develop a cost-benefit analysis model for determining economic feasibility and provide waivers when necessary. Generally, web tools will drive productivity and lead to cost savings, not only for state government, but also for the citizens who use these tools.

### RECOMMENDATION 5.3

**Declare a "California Broadband Telework Day" to promote broadband adoption and its associated environmental and quality of life benefits.**

An official Telework Day will create the opportunity for businesses, governments,

and employees to experience the benefits of using broadband to telecommute. In many cases, a Telework Day can be the springboard for more formalized policies that could lead to significant increases in teleworking in California.

All California businesses will be encouraged to participate by asking all employees that can telework for the day (using broadband technologies) to do so. The Governor should require all state agencies and departments to participate, and should also support a private sector campaign in support of this policy. To determine whether they could benefit from more comprehensive policies, companies and governments should be encouraged to benchmark their teleworking policies against industry leaders.

Agencies should report the technical barriers to teleworking to DTS, and on policy or other barriers to BTH, including the number of employees unable to participate because they lacked broadband technologies or necessary hardware. BTH should work with the Department of Emergency Operations to determine how teleworking can contribute to the resilience of state government in the event of an emergency and develop policies as appropriate. Internally, BTH should assess the net effect of teleworking policies on CO2 emissions in congested areas.

The Governor should enlist the support of leading environmental advocates; technology and telecommunications industry leaders; local government leaders; and other industry leaders with strong teleworking policies to raise awareness of the benefits of teleworking and to encourage widespread participation in Telework Day and long term teleworking policies. It is also recommended that pollution, traffic loads, roadway accidents and other potential impacted metrics be monitored to demonstrate the potential value of expanded broadband usage.

### Recommendation 5.4

**Develop a broadband best practices program that will give awards to California communities that develop innovative practices for the use of advanced communication technologies.**

The Governor should direct BTH to develop a Broadband Best Practices Program. The Program's goal would be to recognize those communities in California that support broadband and technology for their businesses and residents. The Governor should annually make awards to nominated communities. These awards should be based upon communities' innovative practices to advanced communication technologies to strengthen communities and businesses.

In recognition of their efforts, nominated communities that are not designated with the title of "Broadband Best Practice Community" should be placed on an honor roll. Additionally, the Program will highlight promising practices that foster advanced communication access and use throughout California's communities.

## Conclusion

There are many opportunities to increase broadband access and usage in California, and the administrative actions described here provide an important and substantive first step in that process. Universal broadband access will accelerate California's ability to succeed in the global marketplace through new opportunities to conduct business, implement entrepreneurial ideas, deliver new educational programs, improve health care options, and streamline the delivery of government services.

In October 2007, the California Broadband Task Force will return with a comprehensive report that lays out a vision for California to be the model state where barriers to broadband access and adoption are eliminated. The Task Force is fully aware that there are as many challenges in implementing this vision as there are facets to the State. The Task Force is committed to addressing the needs of all Californians who can benefit from broadband technologies. It is prepared to continue the work it has begun, building on the recommendations in this report, investigating new alternatives, and working together to achieve the Governor's goal of ubiquitous broadband in California.