California Transportation Commission
January 18, 2017
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CALIFORNIA EMERGING TECHNOLOGY FUND
Mission

CONNECT ✦ COMMUNICATE ✦ COMPETE

Mobilize leadership statewide to close the Digital Divide by accelerating the deployment and adoption of broadband to unserved and underserved communities.

Ensure that California is a global leader in the availability and use of broadband technology.
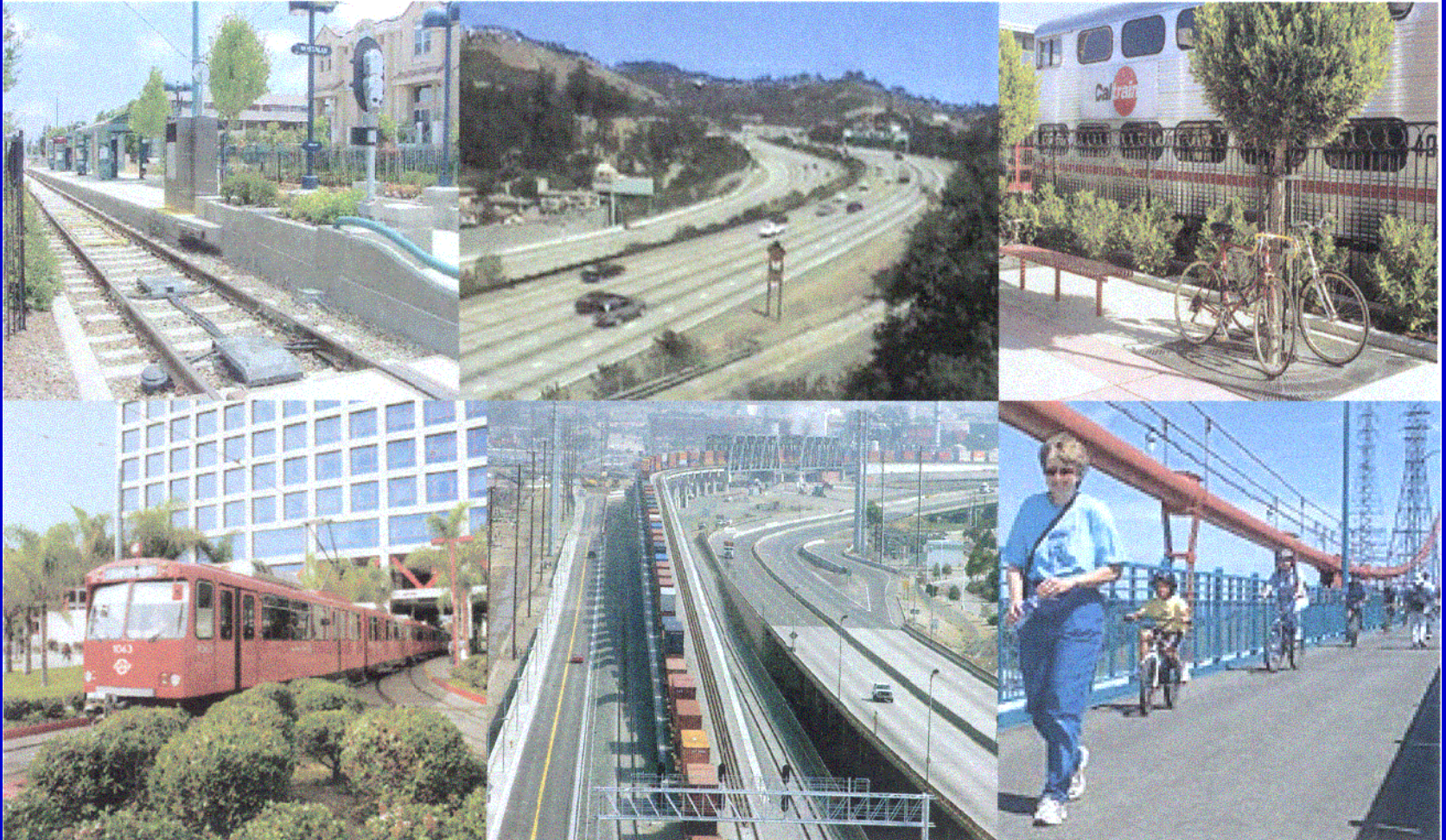
FOCUS ✦ ACTION ✦ RESULTS

CETF
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GoCalifornia

Vision and Goal

Improve mobility and accessibility for people, goods, services and information through a safe, integrated, multimodal, world-class transportation system that achieves the "3-E's":

- Prosperous Economy
- Quality Environment
- Social Equity

GoCalifornia
MOBILITY FOR CALIFORNIA

Restore the "GO" in Golden State

GoCalifornia
STRATEGIES TO MAXIMIZE MOBILITY

System Completion and Expansion

Operational Improvements

Intelligent Transportation Systems
Traveler Information/ Traffic Control
Incident Management

Smart Land Use
Demand Management/ Value Pricing

Maintenance and Preservation

System Monitoring and Evaluation

Transportation Investments Have More Impact If Built On This Foundation

CALIFORNIA EMERGING TECHNOLOGY FUND

CONNECT ✦ COMMUNICATE ✦ COMPETE

*Broadband
is a Green Strategy to
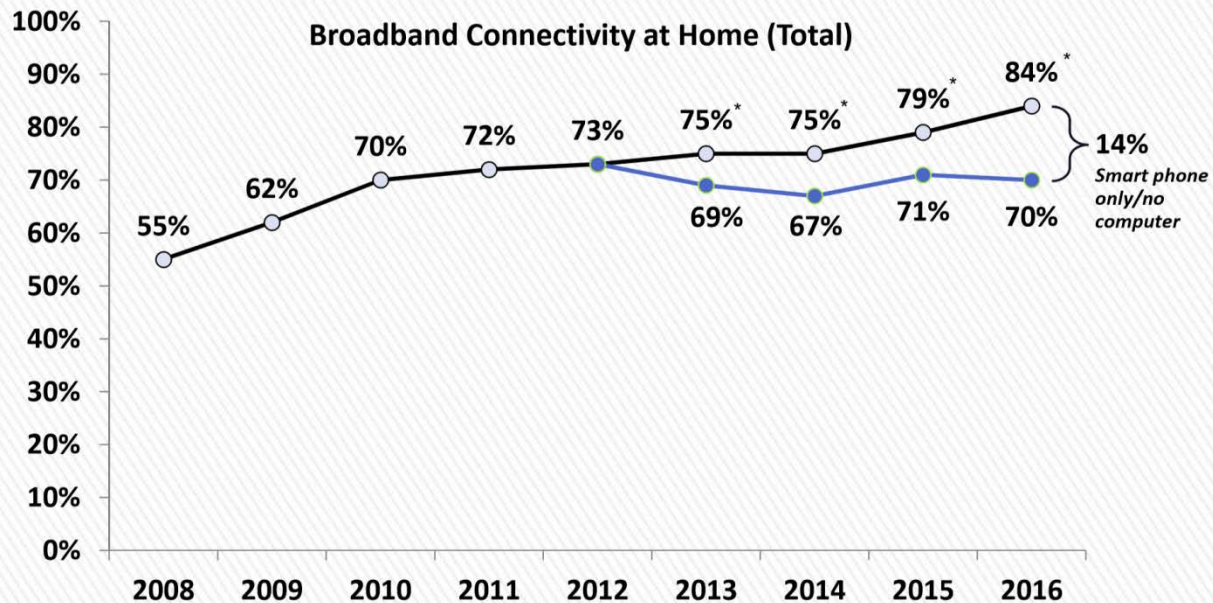Reduce Congestion
and
Improve Mobility*

FOCUS ✦ ACTION ✦ RESULTS

2015 Statewide Survey Results

Table 3
Trend of California Households with Broadband Internet Connectivity *(2008 - 2016)*

Broadband Connectivity at Home (Total)

55% — 62% — 70% — 72% — 73% — 75%* — 75%* — 79%* — 84%*

69% — 67% — 71% — 70%

14% Smart phone only/no computer

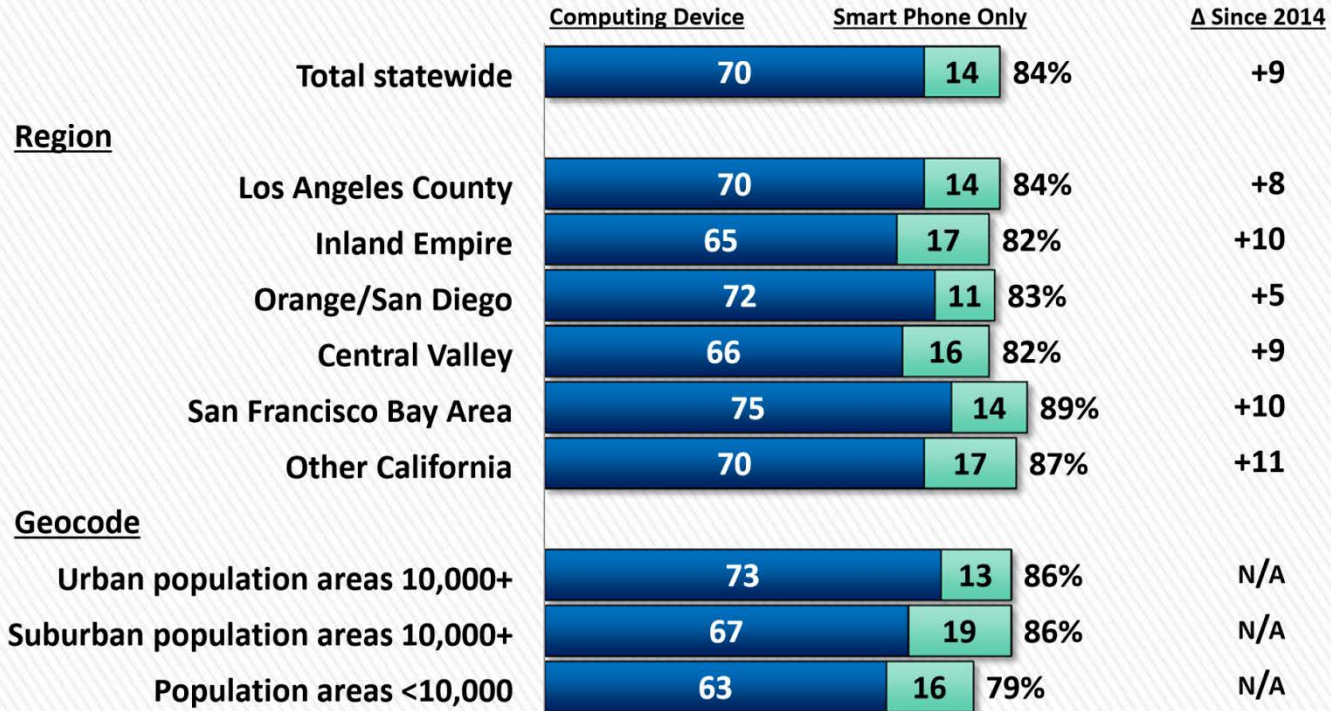2008 2009 2010 2011 2012 2013 2014 2015 2016

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

Source: 2014-2016 surveys conducted for the California Emerging Technology Fund by The Field Poll, while prior years' surveys conducted by the Public Policy Institute of California.

California Emerging Technology Fund   4   *The Field Poll*

2015 Statewide Survey Results

Broadband Internet Connectivity at Home
(by region and geocode)

	Computing Device	Smart Phone Only		Δ Since 2014
Total statewide	70	14	84%	+9
Region				
Los Angeles County	70	14	84%	+8
Inland Empire	65	17	82%	+10
Orange/San Diego	72	11	83%	+5
Central Valley	66	16	82%	+9
San Francisco Bay Area	75	14	89%	+10
Other California	70	17	87%	+11
Geocode				
Urban population areas 10,000+	73	13	86%	N/A
Suburban population areas 10,000+	67	19	86%	N/A
Population areas <10,000	63	16	79%	N/A

N/A = Not measured in 2014 survey.

California Emerging Technology Fund   8   *The Field Poll*

CTC Mission - Technology

Emerging Trends, Technology Innovations and the Transportation System

The CTP has a long-range, 20-year planning horizon and should identify emerging trends and technological innovations that are likely to shape the movement of people, freight and services over the long term. The policy framework for the CTP should provide an "overview" not only the current statewide, multimodal transportation system, but also critical factors influencing the planning and operations of transportation systems and an identification of the transportation system needed to achieve the CTP vision…. The overview should include the following system components but not limited to: state highway network, regional roadway network, freight movement (rail, highways and air), interregional rail, high speed rail, local and regional transit networks, bicycle and pedestrian networks, airports and sea ports, international ports of entry, land use and demographics, and tribal transportation system.

CTC Mission – Climate Change

The CTP aims to guide California's vast transportation network into a modern, sustainable, multimodal and efficient system. The framework to achieve that objective should be fully consistent with the State's environmental goals and policies and include appropriate metrics and indicators to help achieve climate change priorities and targets. The state policy framework requires that transportation investment decision making give priority to actions that both reduce greenhouse gas emissions and build climate preparedness.

Environmental Benefits of Broadband

Environmental Benefits of Broadband – Quick Facts

➢ Broadband deployment and adoption has the potential to reduce greenhouse gas emissions by more than 1.1 billion tons over the next 10 years. Of these reductions, 60% was a direct result of telecommuting efficiencies, 18% from electronic commerce simplifying business processes and distribution, 17% from teleconferencing replacing meetings, and 5% from electronic media replacing paper and/or plastic products. The potential greenhouse gas reduction is equivalent in emission savings to a decrease of 11% of U.S. oil imports. [The American Consumer Institute, 2007]

➢ Electronic commerce, as compared to conventional shopping, generates 36% less air pollutants, 23% less hazardous waste, and 9% less greenhouse gases. [Institute of Electrical and Electronics Engineers, 2001 International Symposium on Electronics and the Environment]

➢ Electronic grocery shopping with e-delivery generates 18% to 87% less greenhouse gases than conventional grocery shopping. [Institute of Electrical and Electronics Engineers, 2001 International Symposium on Electronics and the Environment]

CTC Specific Policies

1. Deploy programs and policies that promote, and where possible, provide incentives for employees to telecommute on a frequent basis.

Fact: Telecommuting could reduce greenhouse gas emissions over the next 10 years by approximately 588.2 million tons of which 247.7 million tons is due to less driving, 28.1 million tons is due to reduced office construction, and 312.4 million tons because of less energy usage by businesses. Estimates conclude that if 10% more of the workforce could telecommute full-time, emissions of greenhouse gases would reduce by an additional 42.4M tons of CO_2.[5]

Example: Many larger public and private sector organizations have successfully implemented telecommuting programs. Ideas and resources for implementing a telework program can be found at http://www.teleworkresearchnetwork.com/ or http://www.telework.gov/.

2. Deploy programs and policies that encourage replacement of travel with teleconference and/or videoconference services. (Telework)

Fact: Travel substitution through virtual meetings and consultations, based on videoconferencing, audio-conferencing, and flexible work arrangements, could reduce CO_2 by 70–130 million metric tons (MMT) and save $20–40 billion.[6]

Example: Caltrans offers teleconference options using regional call-in centers to minimize travel for meetings, such as for the Statewide Conformity Working Group.

3. Assist commuters with carpool, vanpool, and ride-matching services, transit solutions, and bicycle routes.

Fact: The San Diego Association of Governments (SANDAG) found through use of their "iCommute" program that commuters avoided 21 million vehicle miles traveled (VMT) in fiscal year 2011.[7]

Example: The SANDAG "iCommute" program[8] is a model that offers assistance and tools to commuters and employers to help coordinate commuting solutions that reduce traffic congestion during peak-times.

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CTC Specific Policies

4. Prioritize funding for Intelligent Transportation Systems to reap both GHG reductions and a high return on investment.

Fact: A paper evaluating the benefits of optimizing traffic signal timing plans, coordinating traffic signal control, and implementing adaptive signal control at locations throughout the State of California found a 17-to-1 benefit-to-cost ratio.[9]
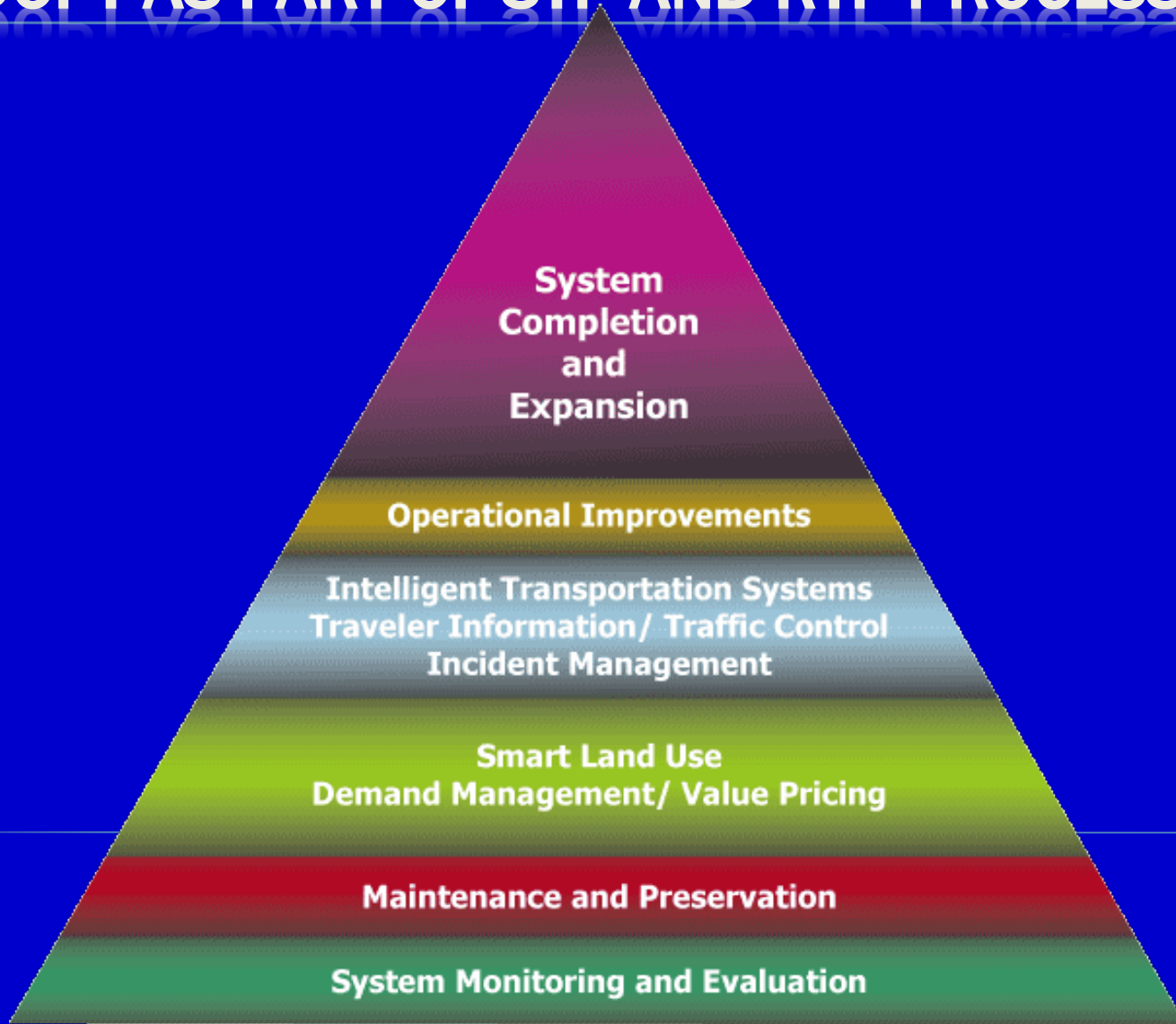
Example: Benefits of ITS technologies employed in the Sacramento region, including the pedestrian countdown timer and Stockton Boulevard Rapid Transit bus, can be found in the *Intelligent Transportation Systems Strategic Development Plan for the Sacramento Region.*[10]

5. Leverage public right-of-ways and existing assets to deploy broadband with all major infrastructure projects.

Fact: The National Broadband Plan found that substantial savings can be captured if fiber builds are coordinated with other infrastructure projects in which the right-of-way (i.e., road, water, sewer, gas, electric, and so forth) is already being dug. Running a strand of fiber through an existing conduit is 3–4 times cheaper than constructing a new aerial build.[11]

Example: The "Lit San Leandro" project is a public-private partnership deploying a state-of-the-art last mile of fiber optic cable as an economic development strategy. By utilizing a network of underground conduits owned by the City of San Leandro and Bay Area Rapid Transit (BART) the project receives a "significant cost advantage and elimination of a major disruption in that street excavation and conduit installation are not required," expanding capacity for local businesses.[12]

STRATEGIES TO MAXIMIZE MOBILITY
ADOPT AS PART OF STP AND RTP PROCESSES

System
Completion
and
Expansion

Operational Improvements

Intelligent Transportation Systems
Traveler Information/ Traffic Control
Incident Management

Smart Land Use
Demand Management/ Value Pricing

Maintenance and Preservation

System Monitoring and Evaluation

Facilitation of broadband deployment optimizes cost-effective mobility.

LEGISLATURE ENACTED "DIG ONCE" POLICY

Assembly Bill 1549 (Chapter 505 Statutes of 2016)

(3) The department, in consultation with stakeholders, on or before January 1, 2018, shall develop guidelines to facilitate the installation of broadband conduit on state highway rights-of-way. The guidelines shall address access to information on existing assets and collaboration on future projects.

CTC should take a major leadership role.

IMPORTANCE OF "DIG ONCE" POLICY

Every time a highway or road is dug up it costs money and presents an inconvenience to business, residents, and commuters.

Coordinated projects and strategic installation is the solution.

Laying conduit when already digging will help reach disconnected areas more quickly, and less expensively. The same is true of technology upgrades, and repairs in urban areas. Caltrans, CTC, and CPUC need to identify "strategic corridors."

CTC LEADERSHIP IS PIVOTAL TO IMPROVE MOBILITY WITH BROADBAND

3 Substantive Opportunities

➢ Incorporate broadband as a green strategy into the processes for State, Inter-Regional, and Regional Plans as a "best practice" to reduce congestion and improve mobility.

➢ Lead on collaboration with Caltrans and CPUC on implementation of "Dig Once" law.

➢ Convene workshops on broadband as a green strategy to reduce congestion and improve mobility and on "dig once" policies and procedures.

EFFECTIVELY IMPLEMENT "DIG ONCE"
CTC – A Key Leadership Role

The CTC should take the lead in setting effective "Dig Once" implementation procedures and standards and incorporate them into State, Inter-Regional, and Regional Plan processes. Once such procedures are established, the CTC should adopt standards as part of the Regional and State Planning documents.

In setting standards, the following items are key:

➢ Standardization: Adopt standards for conduit size, access points, and other technical specifications to ensure appropriate interconnectivity with different agencies and jurisdictions.

➢ Notification: Develop a system of proactive notification and coordination.

➢ Strategic Corridor Identification: Identify strategic corridors (Caltrans, CTC, CPUC) for the State to installs conduit if no entity participates in the project.

➢ Cost Modeling: Determine a fair, defensible methodology for recouping the incremental cost of laying and leasing conduit when providers want access.