Five broadband trends shaping communities

16 May 2013

- Municipal fiber projects in San Leandro, Palo Alto, Benicia.

- Municipal wireless projects in Los Angeles, Oakland, Folsom, Lompoc.

- Broadband policy development in Watsonville, Alameda, Morgan Hill

- Community broadband system planning and implementation at The Villages in San Jose, Rancho Murieta near Sacramento, Corona.

- Private ISP planning & funding in Monterey, Santa Cruz, San Benito, Nevada Counties.

Tellus Venture Associates

Planning, management and business development consulting for community broadband

{Geek}

is the new

Sexy

A tale of two cities | San Leandro & King City

Communities turn conduit into gold

- Lit San Leandro is an 11 mile fiber system through commercial & industrial areas, built with city conduit, $2 million in private capital.

- Palo Alto netting more than $2 million a year with dark fiber on city poles and conduit.

- Dig once, open trench and shadow conduit polices gaining popularity.

City of San Leandro
Advanced Traffic Signal System
Fiber Count Diagram
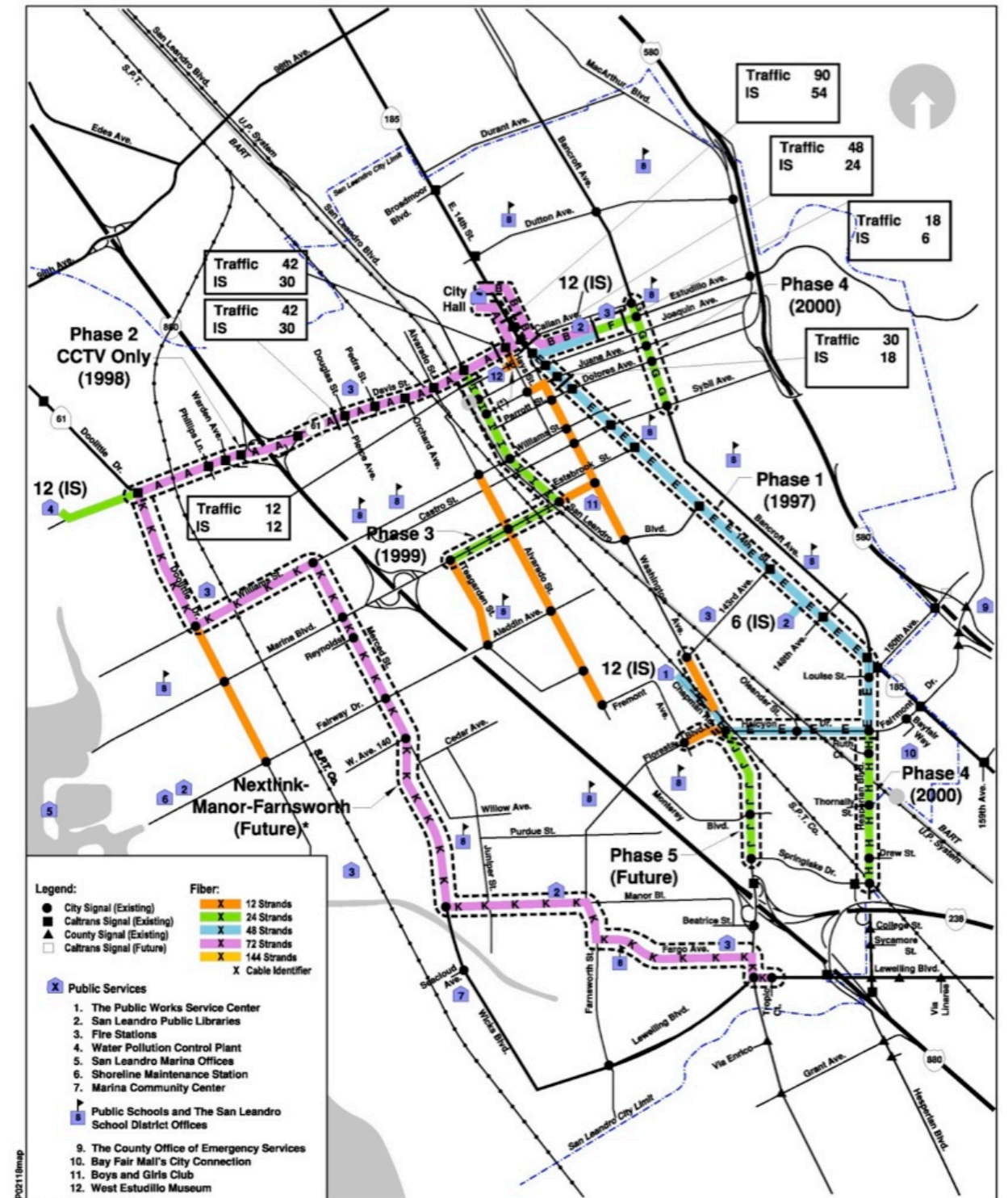
October 23, 2003
DKS Associates

Google Fiber scares telcos into launching fiber projects in Austin, Omaha

- Serving homes in Kansas City with expansion into suburbs.

- Kansas Internet speeds up 86%.

- Bought a municipal FTTH system in Provo, Utah, with expansion along I-15 corridor possible.

- Plans to build FTTH in Austin.

- But not in California.
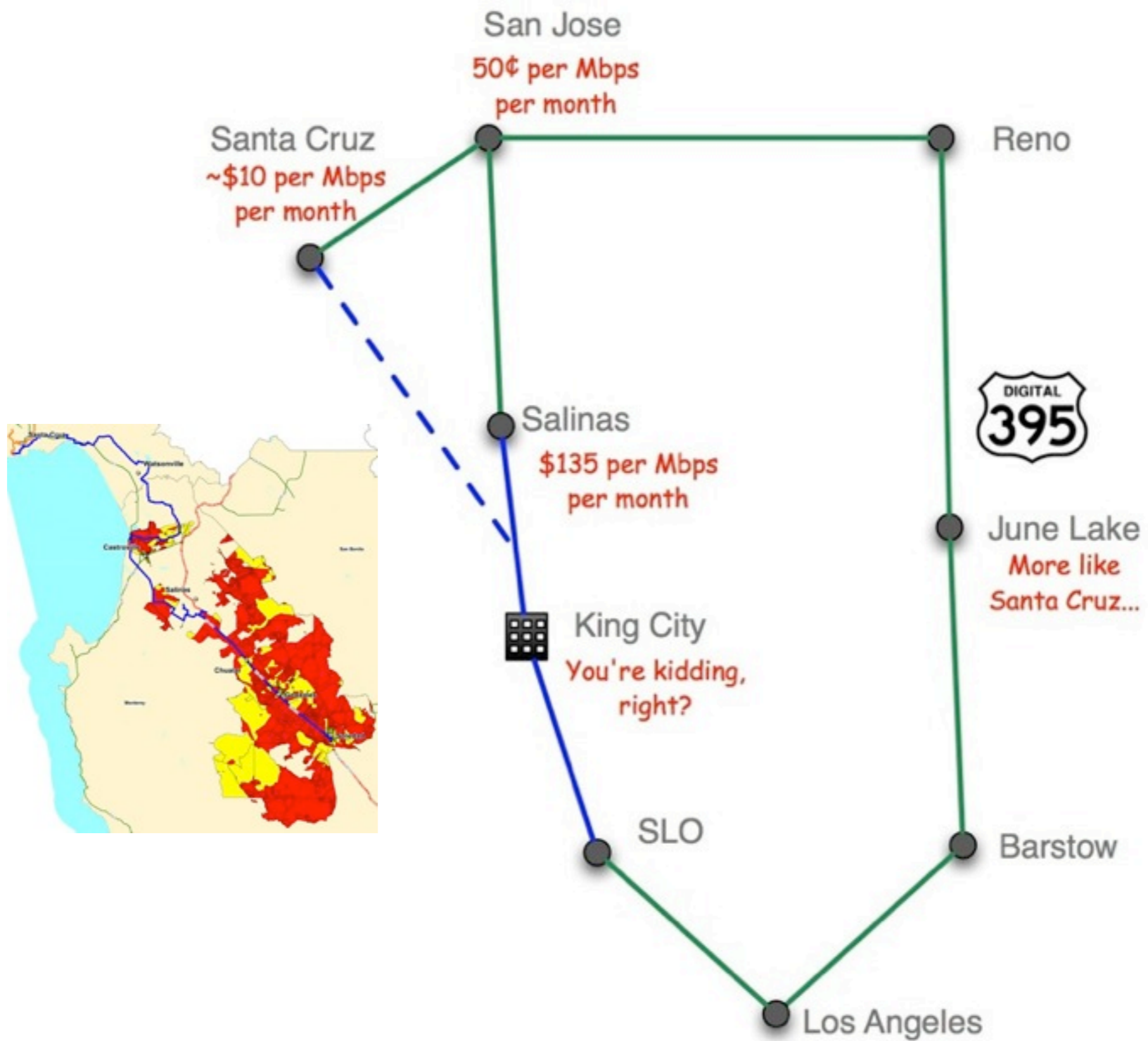
Independent middle mile projects connect remote communities

Aspen Springs, Chalfant, Crowley Lake, Sunny Slopes in Mono County; Monterey Dunes projects on table
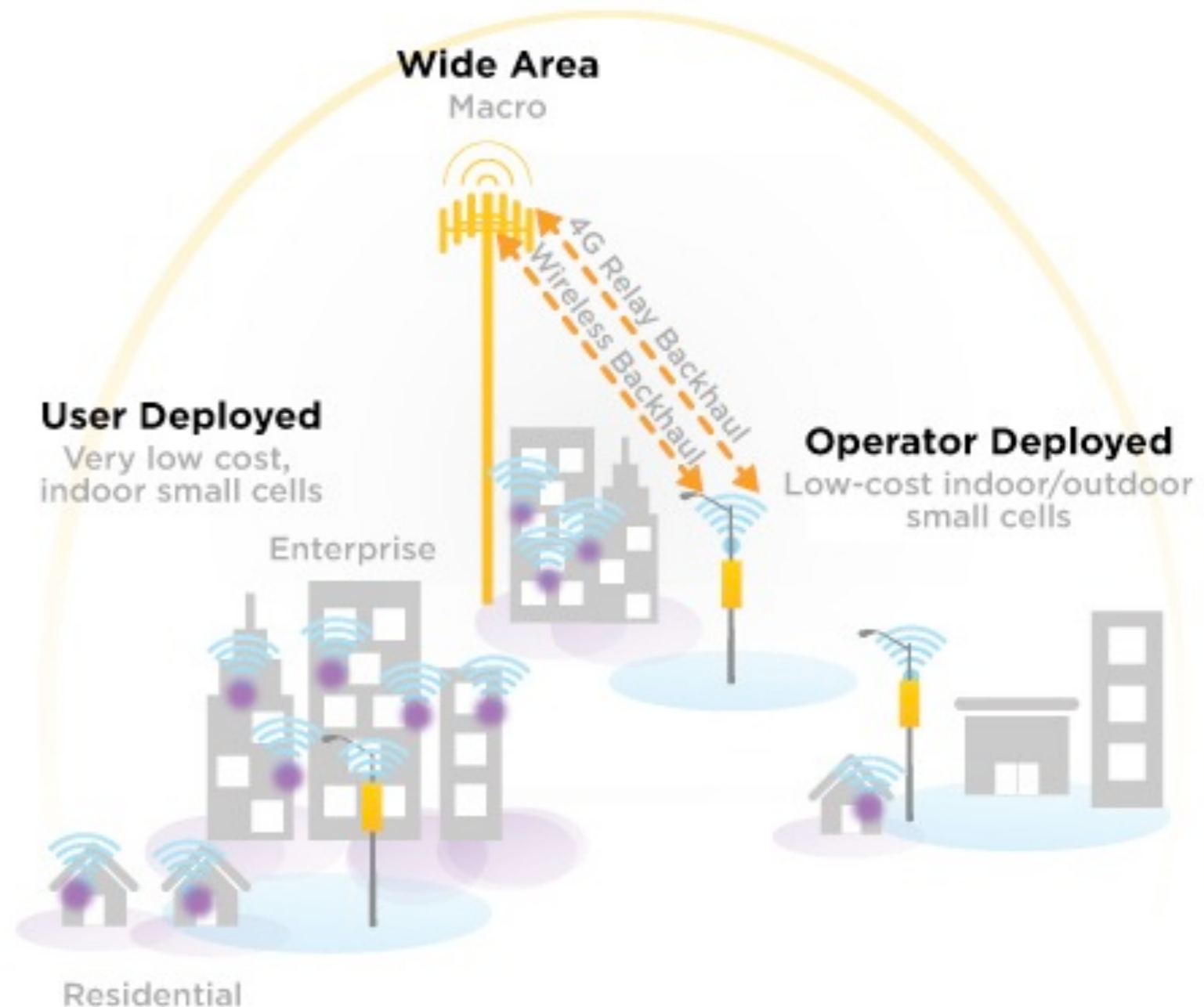
All the comforts of work, where ever you live

- Telecommuting is a targeted strategy for communities, cities trying to keep people in town during the day.

- Coworking is a booming commercial real estate play that took off in 2008 in Santa Cruz.

- Companies attracting urban employees to suburban campuses with free, connected transit.

The Internet of Things will optimize our world

- 5G mobile data networks will extend coverage, capacity 1000x.

- Wireless networks will be intertwined with people, homes and communities.

- 50 billion mobile devices by 2020 - Ericsson.

- Sensors, cameras, automation will run the world around us: Smart Cities.

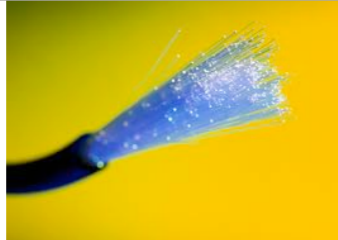

Wide Area
Macro

4G Relay Backhaul
Wireless Backhaul

User Deployed
Very low cost, indoor small cells

Enterprise

Operator Deployed
Low-cost indoor/outdoor small cells

Residential

Conduit is forever

Questions?

Back-up slides

Layer		Revenue	Margin	Competition	Water Analogy
Internet		$1K/ mo and up	Low <10-20%	High	Water
Ethernet/ electronics		Not common	Medium	Make vs. buy	Pump
Fiber optic cable		Local loop $1-5K/mo	Medium	Few to none	Pipe
Conduit		20¢-$2/ft/year	High 100%+	None	Trench/ Right of way

Broadband value chain

The higher up the chain, the greater the competition and the lower the margins

Broadband's Effect on San Joaquin County Employment

Jobs

Year	
270,000	
255,000	
240,000	
225,000	
210,000	

2005 2007 2009 2011 2013 2015

- **Nominal** (blue)
- **High broadband growth** (red)
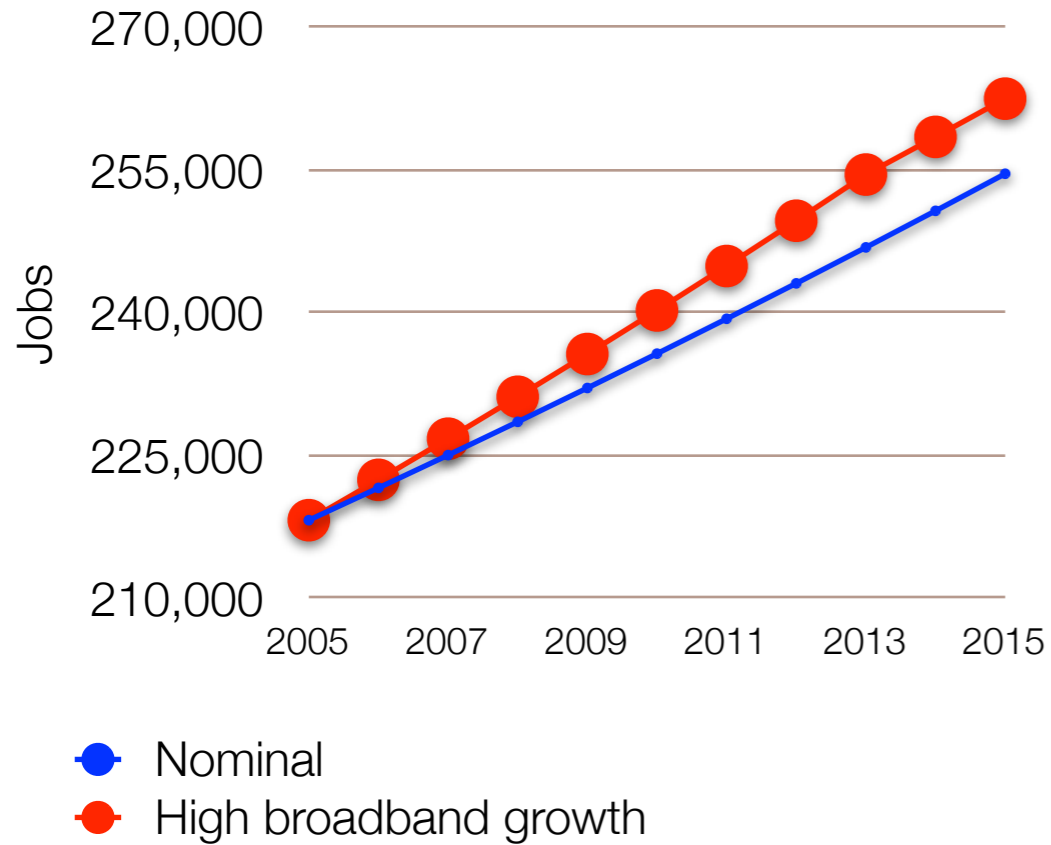
Source: Sacramento Regional Research Institute

Almost 50K job-years created by improved broadband access

Top U.S. Cities
Average Measured Connection Speed

Rank	City	2Q11 Ave. Mbps
1	San Jose, CA	13.7
2	Fredericksburg, VA	8.5
3	Monterey Park, CA	8.2
4	Fremont, CA	8.2
5	Staten Island, NY	7.6
6	Columbia, MD	7.5
7	Jersey City, NJ	7.5
8	Riverside, CA	7.5
9	Oakland, CA	7.5
10	Fairfield, CA	7.3

Source: Akamai

Broadband attracts business, drives growth

Bandwidth is a basic requirement for business location decisions

- Broadband requirements for new development, renovations
- Prioritizing broadband as a planning criterion
- Commercial/industrial vs. residential
- Anticipating and accommodating future needs

- Broadband conduit in CIP, public works, transportation projects
- Open trench policies
- Right of way and encroachment policies
- Conduit, pole, site leasing
- GIS integration

- Telecommuting
- Public services and digital inclusion
- Digital literacy and workforce development
- Systems interoperability, open data programs

- Wireless site, towers and antenna policies
- Environmental and aesthetic issues

Core policies, practices identified and evaluated

Goal is to make broadband a routine policy consideration and planning element

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