

Broadband policy

23 April 2014



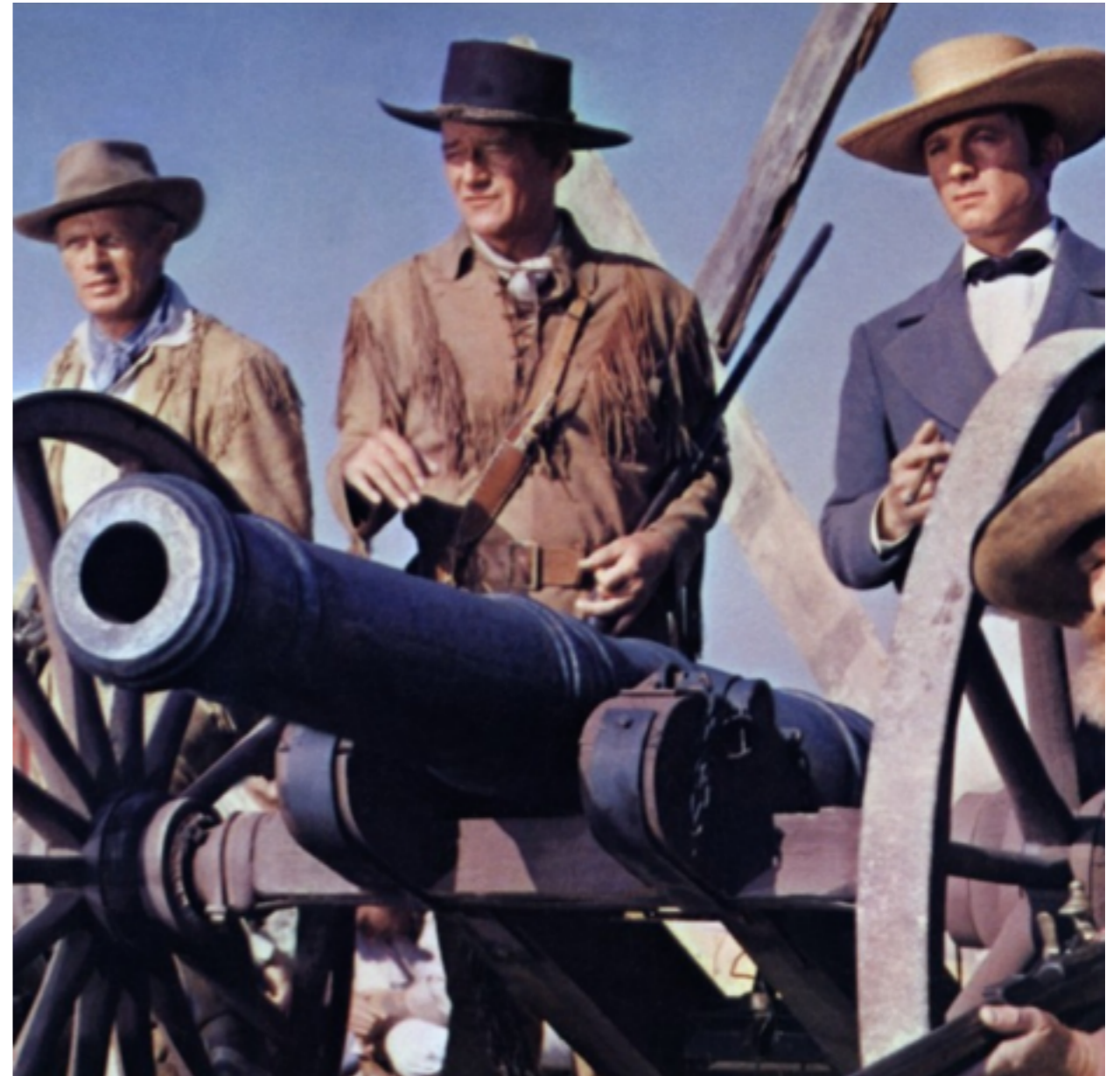
- California
 - Humboldt, Mono, Santa Cruz
 - Loma Linda, San Leandro
- European Union
- South Africa
- ITU study
 - Countries with national broadband policy have better broadband



Broadband policy is
universal

Same elements are
emphasised everywhere

- Major telephone and cable companies focus investments
 - Areas with “high potential”
 - Competitive & growing sectors
- AT&T is typical
 - Few, if any, new Uverse builds
 - Money going to mobile, fiber
 - But fiber to dense commercial areas and cell towers
- Google not spending nearly as much



Scarcity of capital

Companies will build where barriers are lowest

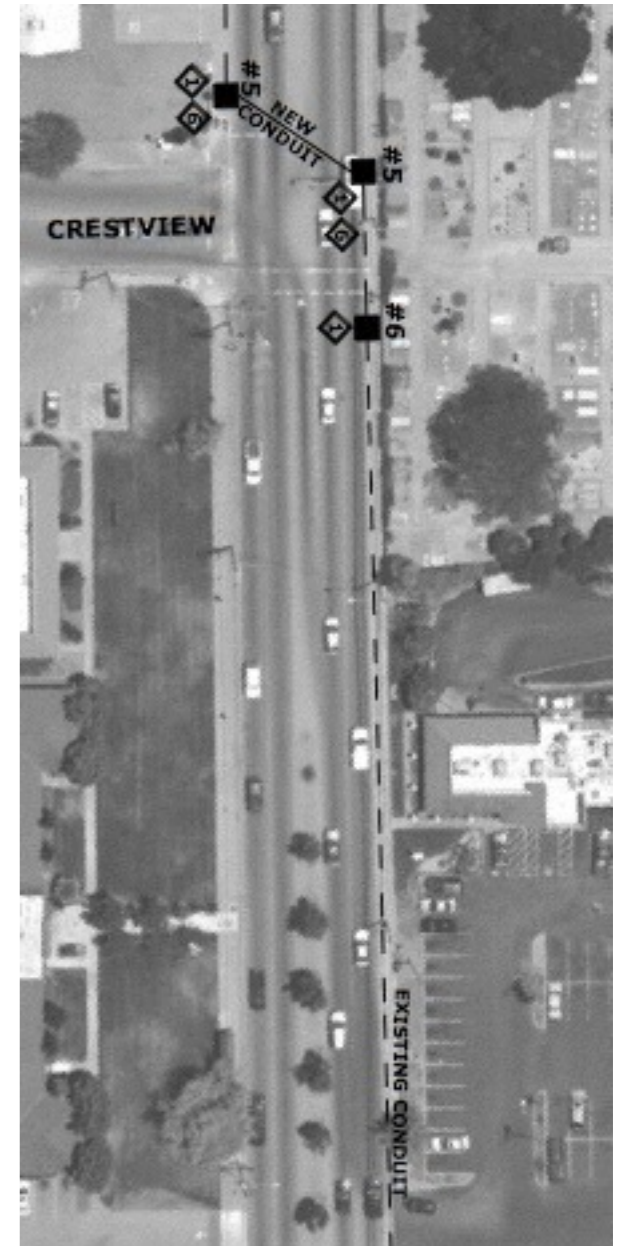
- San Francisco has comprehensive draft policy for notification of potential interested utilities, including broadband
- Santa Cruz requiring inclusion of telecoms facilities in public works projects
 - “All construction, reconstruction or repaving of a County right-of-way will include provisions for the installation of telecommunications cable, conduit and other related equipment wherever practical and feasible. Where appropriate, telecommunications infrastructure shall be installed in or adjacent to County rights-of-way in conformance with current County standards.”



Open trench policies

Two approaches: notification & inclusion

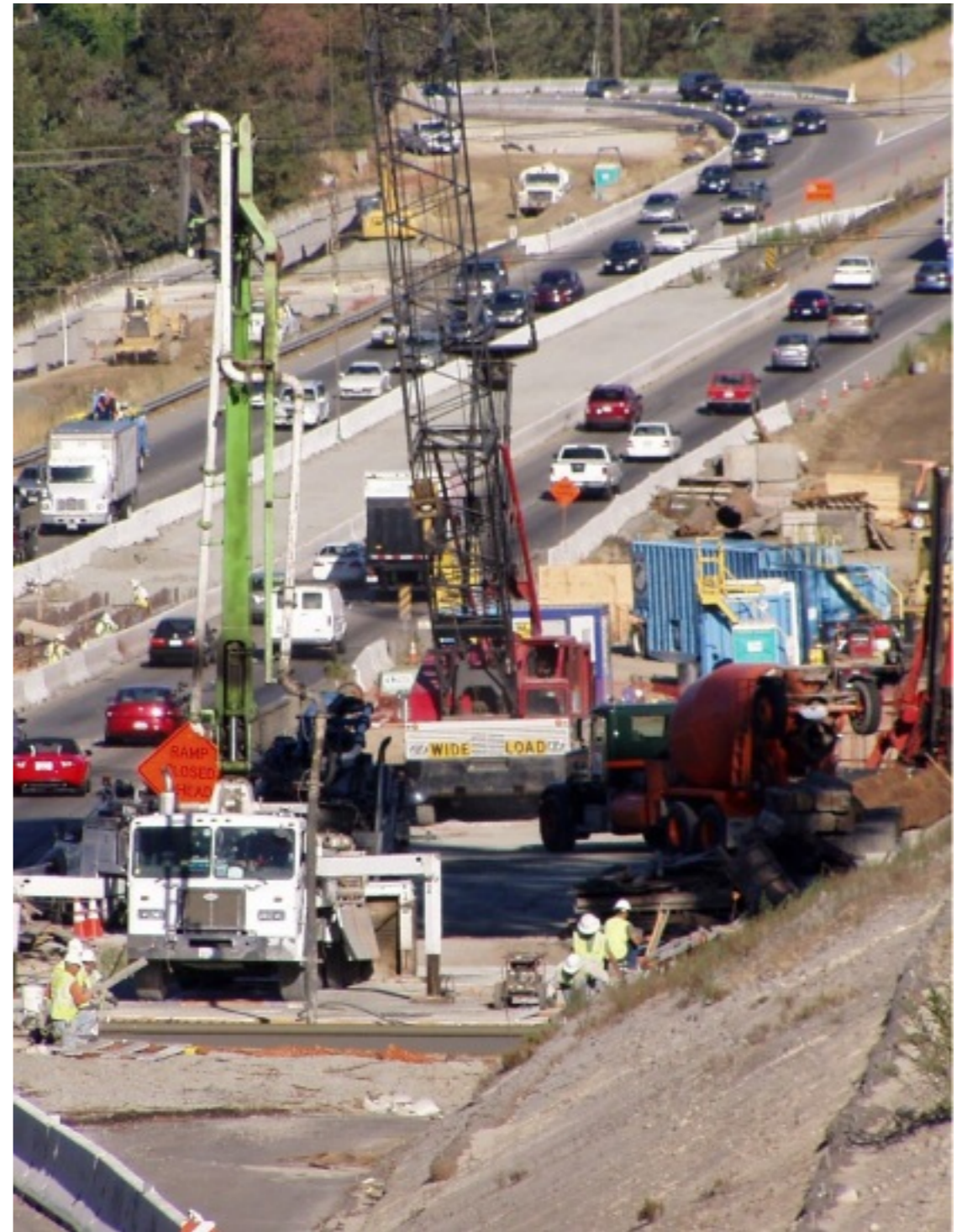
- Representative Anna Eshoo carrying a bill requiring federal highway projects include conduit
- Central Coast Broadband Consortium has developed draft policies for local and state consideration
- Mono County has similar approach
- GIS logging is vital
 - Lots of lost conduit in the ground
 - Watsonville is building a muni fiber network out of bits and pieces
 - Lit San Leandro was sparked by serendipity, but luck is a bad basis for planning
- Require electronic submission of plans & as-builts



Shadow conduit & GIS

Local agency installs conduit prospectively

- The cost of bare, simple conduit placed into an open trench is fairly low (estimated by the US Department of Transportation's Federal Highway Administration at 75-80 cents per foot for 2" HDPE pipe)
- The Federal Highway Administration estimates it is ten times more expensive to dig up and then repair an existing road to lay fiber, than to dig a channel for it when the road is being fixed or built.
- Rule of thumb: cutting into a street reduces its remaining service life by 10%, maybe more in snow country.



Cost implications

It's inexpensive, not free

- Santa Cruz County giving sole control over telecoms projects to public works department, eliminating planning department from process.
- Allow the installation within public right of ways, subject only to 'time, place and manner' of access, through encroachment permit process
 - Conforms to state, federal law
- Work on standards and practice is key to securing buy in from civil engineers
- Engagement of public works people is vital
- Big projects bring permit surges



Permitting

Public works departments starting to take ownership of fiber & conduit projects

- San Francisco fight continues
 - Neighborhood opposition has stalled upgrades by AT&T and Sonic
 - State law doesn't fully pre-empt
- Seattle requires permission of adjacent residents
- Portland doesn't allow at all
- Not just an urban issue
- Changes are in the works but not guaranteed



Equipment cabinets

No cabinets, no broadband upgrades

- City of Loma Linda has 70-page spec for structured wiring in new construction and major remodels
 - Requires connections to city's fiber network
 - No requirement to buy service from city
- City of San Leandro considering similar policy for commercial property
- Cat 5 cabling becoming standard for developers
 - Doesn't always mean it's connected to anything

Structured wiring



Treats broadband connections like other utilities

- Local agencies have some leeway in managing tower and antenna sites, but not much power to say “no”
- FCC “shot clock” gives local government three to five months to approve applications.
- FCC rules require local government to approve modifications, within certain limits.
- Local agencies cannot regulate wireless facilities on the basis of tin foil hat fears.
- Clear, written policies are the best foundation for exercising what local control is possible, e.g. environmental, safety and aesthetic issues.

FCC squeezing local role in wireless planning & approval



Best way to increase wireless capacity is to build more fiber

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



Other policy options

Demand-side considerations

- San Francisco WiFi debacle a classic case study
- Piedmont has high barriers and worst broadband in Alameda County
- Google not building in Overland Park

We work with communities that make it easy for us. if you make it hard on us, enjoy your cable connection.

Milo Medin, Google Fiber

Politics as usual is not
business as usual



Conflict, spiffs and nimbys
drive away investment

- 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.
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Planning, management and business development
consulting for community broadband

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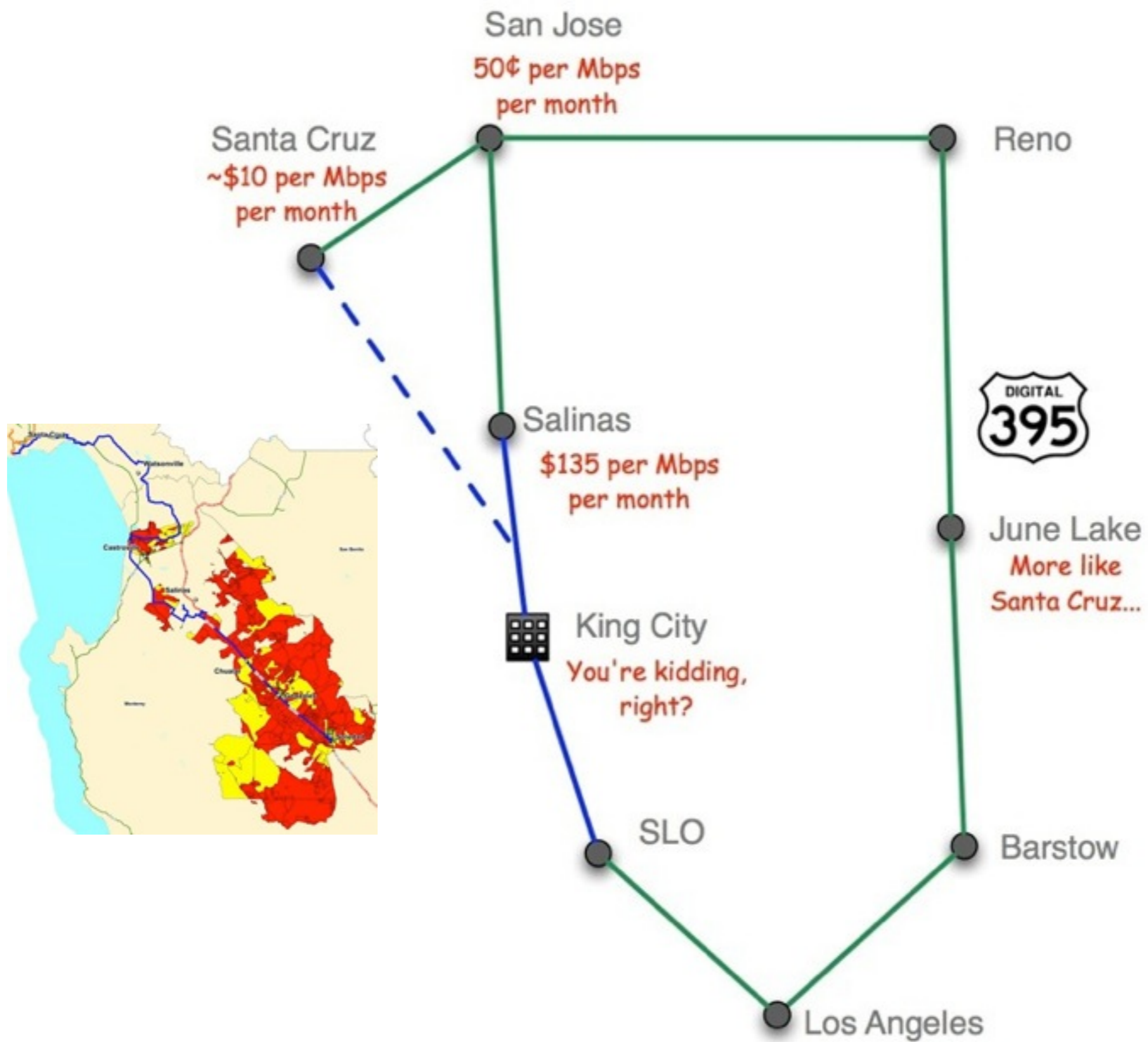
Back-up slides



- Boring: \$30.00
- Fiber optic cable: \$1.80
- Conduit \$2.75
- Right of way \$1.00
- Environmental \$1.50
- Tax (on goods) 10%
- Management 10%
- Furnish & commissioning 5%
- Engineering 5%
- Documentation 5%

Costs

Based on San Francisco,
Oakland, San Leandro & Palo
Alto figures



Independent middle mile projects
connect remote communities

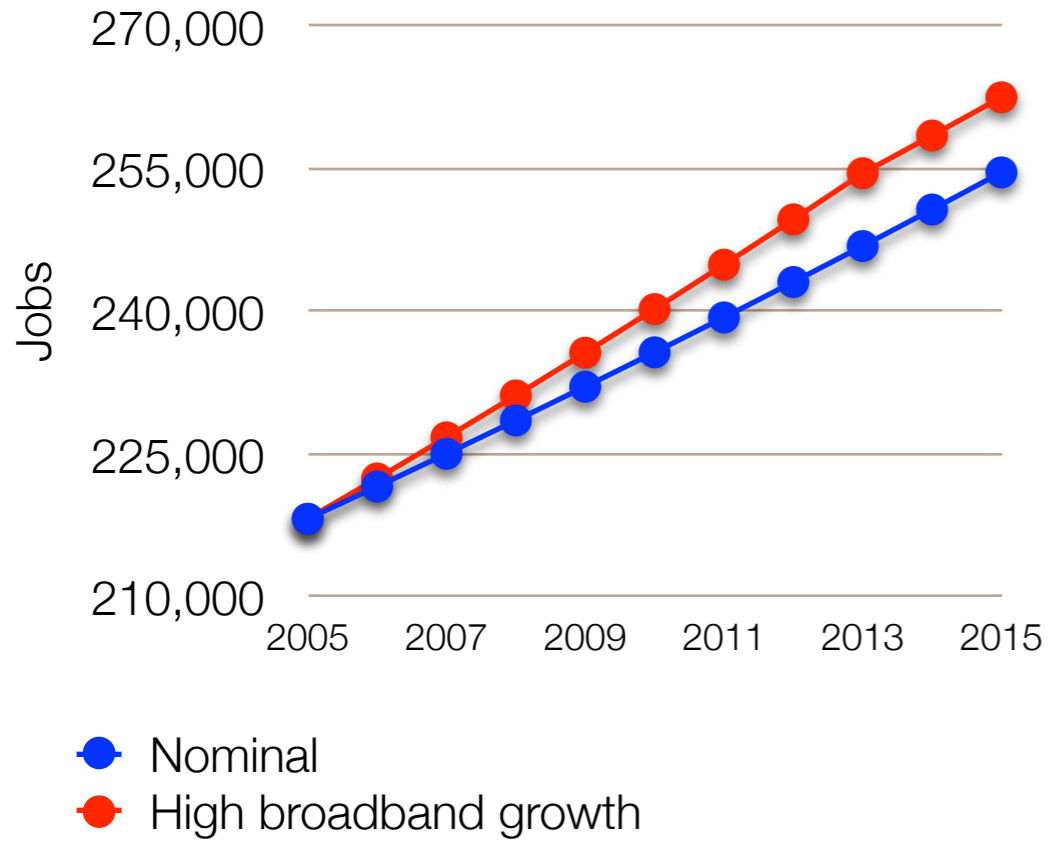
Aspen Springs, Chalfant, Crowley Lake,
Sunny Slopes in Mono County;
Monterey Dunes projects on table

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.



Broadband's Effect on San Joaquin County Employment



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

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