Central Coast Broadband Consortium

Salinas Valley AgTech Infrastructure
17 November 2016
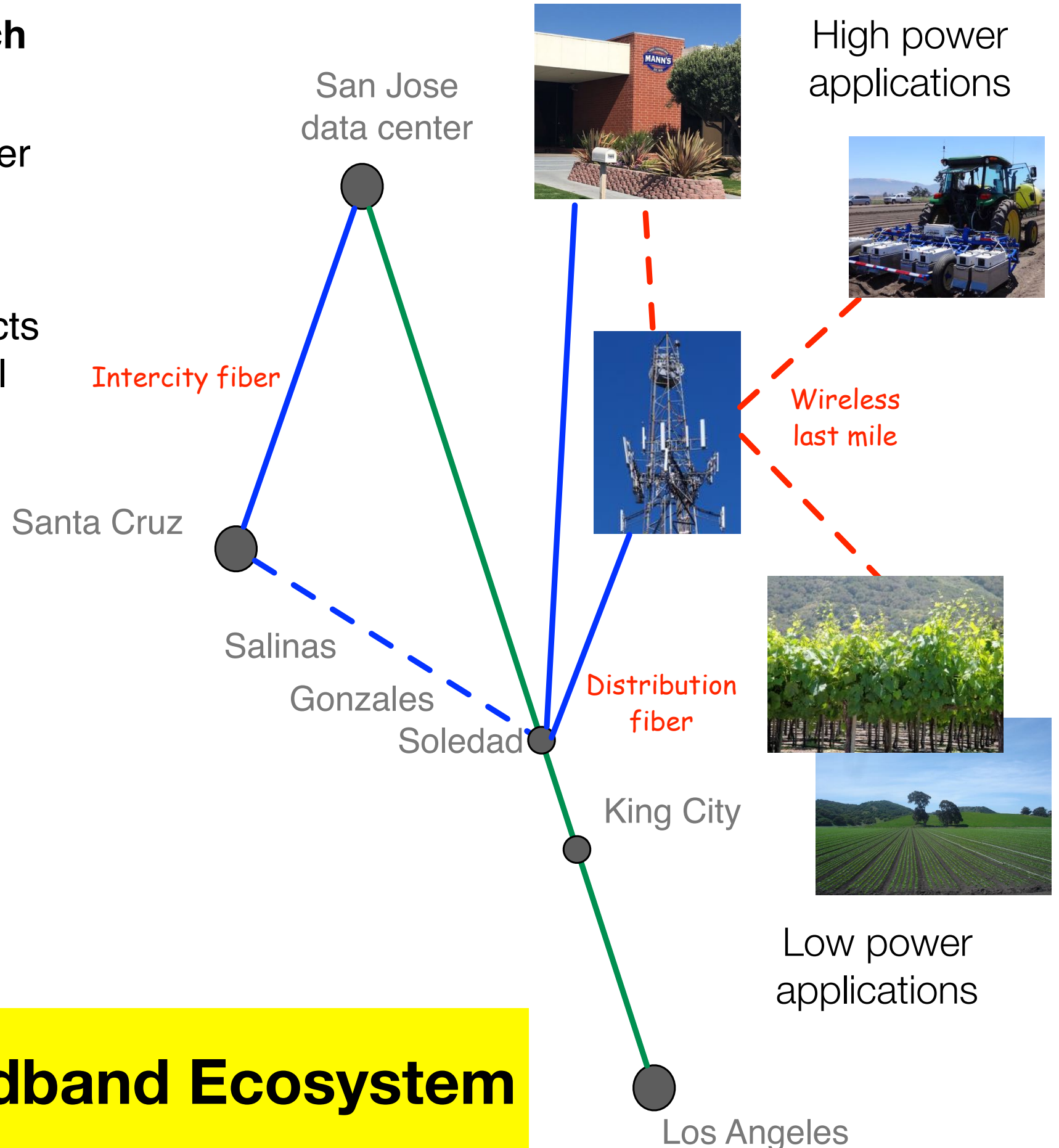
Tellus Venture Associates

Steve Blum
President

Three links in the AgTech broadband chain

- Middle mile, intercity fiber connects to the core of the Internet.

- Distribution fiber connects major users to long haul nodes.

- Last mile wireless connects to people, vehicles and devices in the field.

- Two kinds of last mile wireless:

  - High power

  - Low power

AgTech Broadband Ecosystem

San Jose data center

High power applications

Intercity fiber

Wireless last mile

Santa Cruz

Salinas

Gonzales

Soledad

Distribution fiber

King City

Low power applications

Los Angeles

Wireline Grades

A B C D F

Salinas Valley middle mile connectivity growing

- Plenty of fiber along Union Pacific tracks, but difficult to access.

- Sunesys open access fiber from Santa Cruz to Soledad online in March.
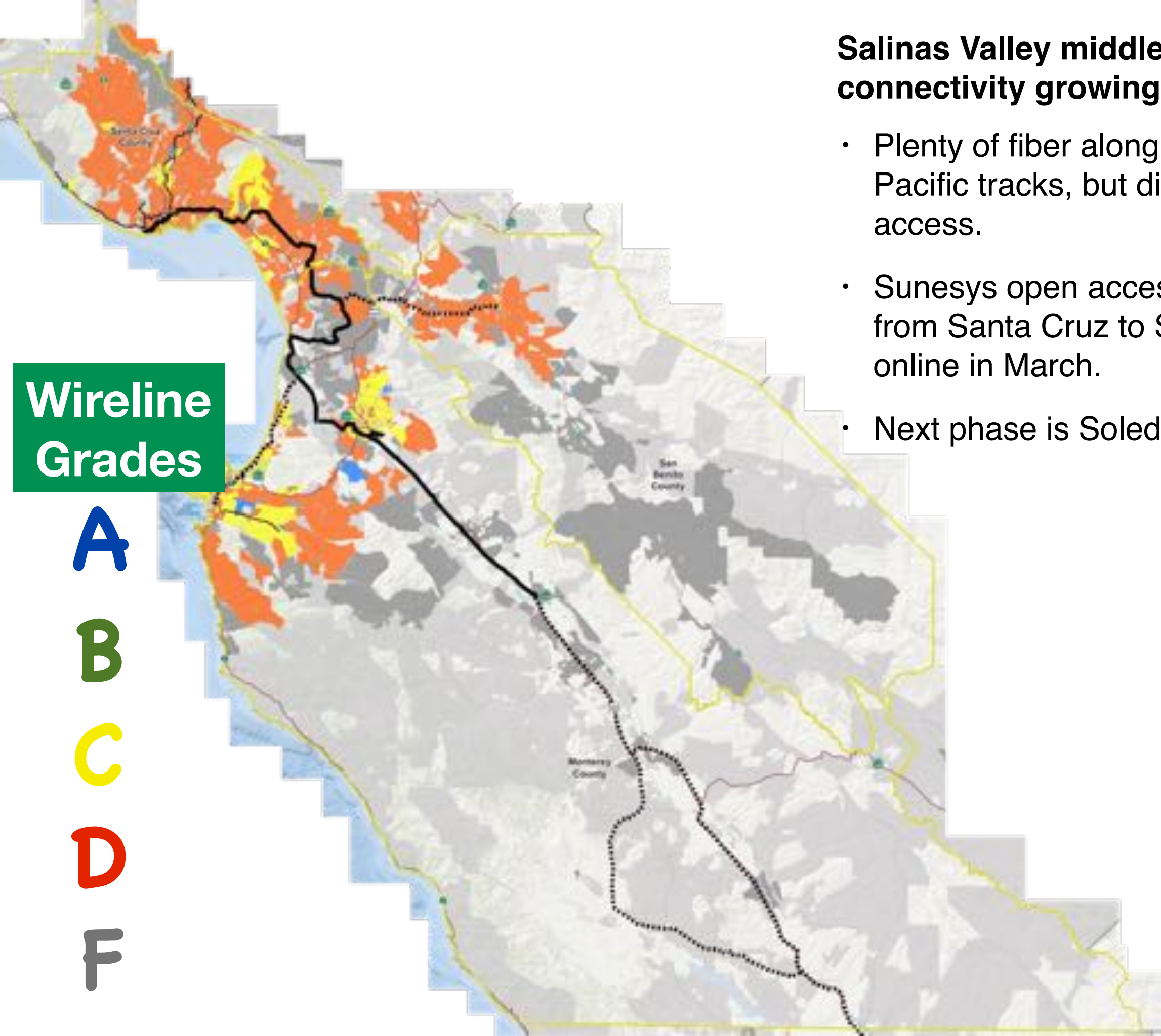
- Next phase is Soledad to SLO.

Wireline Grades

A
B
C
D
F

Distribution is problematic

- Not much fiber off main routes.

  - Cell tower companies, major ag operations, cities building some fiber & access points.

- Copper wireline infrastructure is substandard.

- Point to point wireless bridges gaps but has limited capacity.

Salinas AgTech Corridor
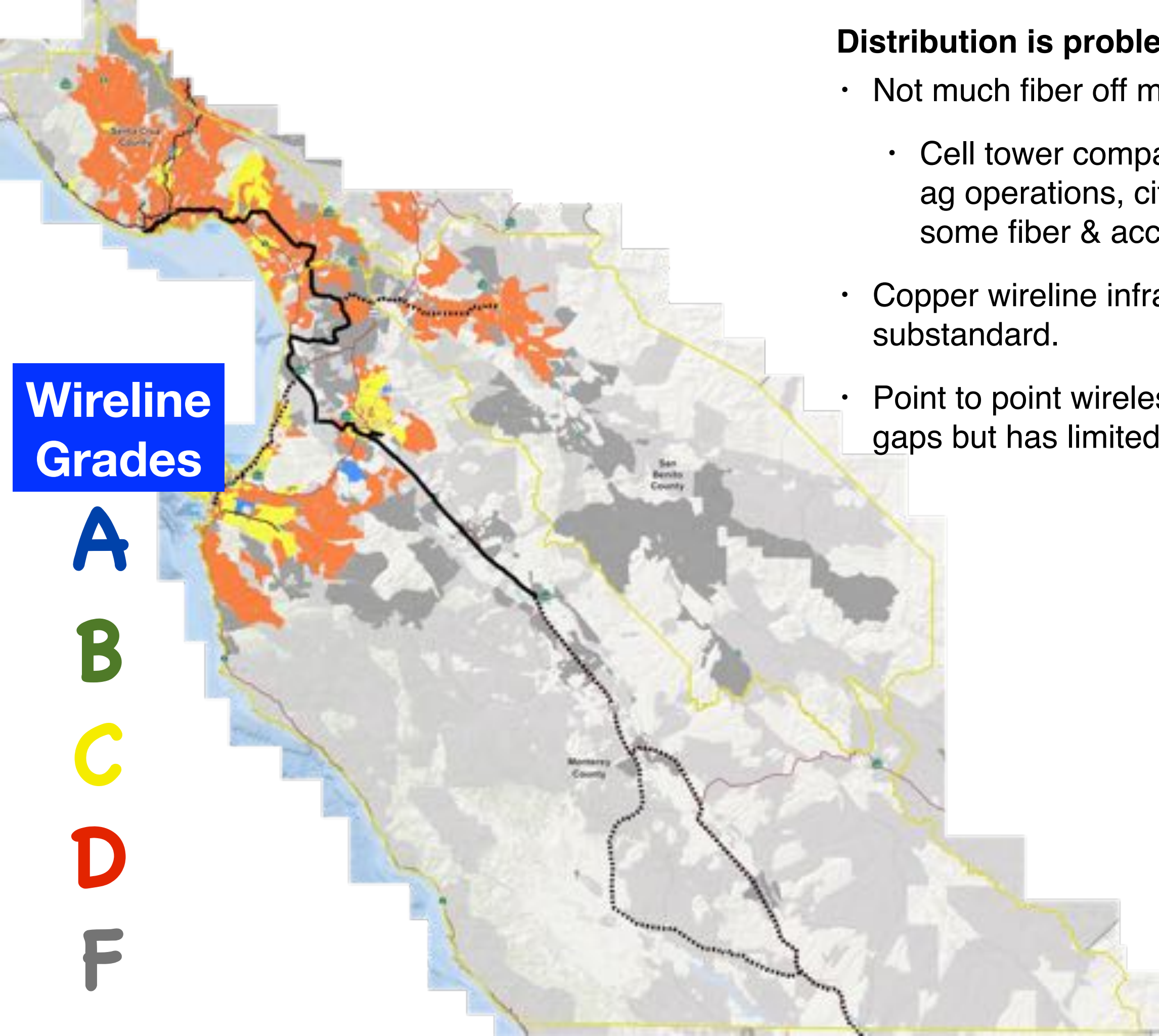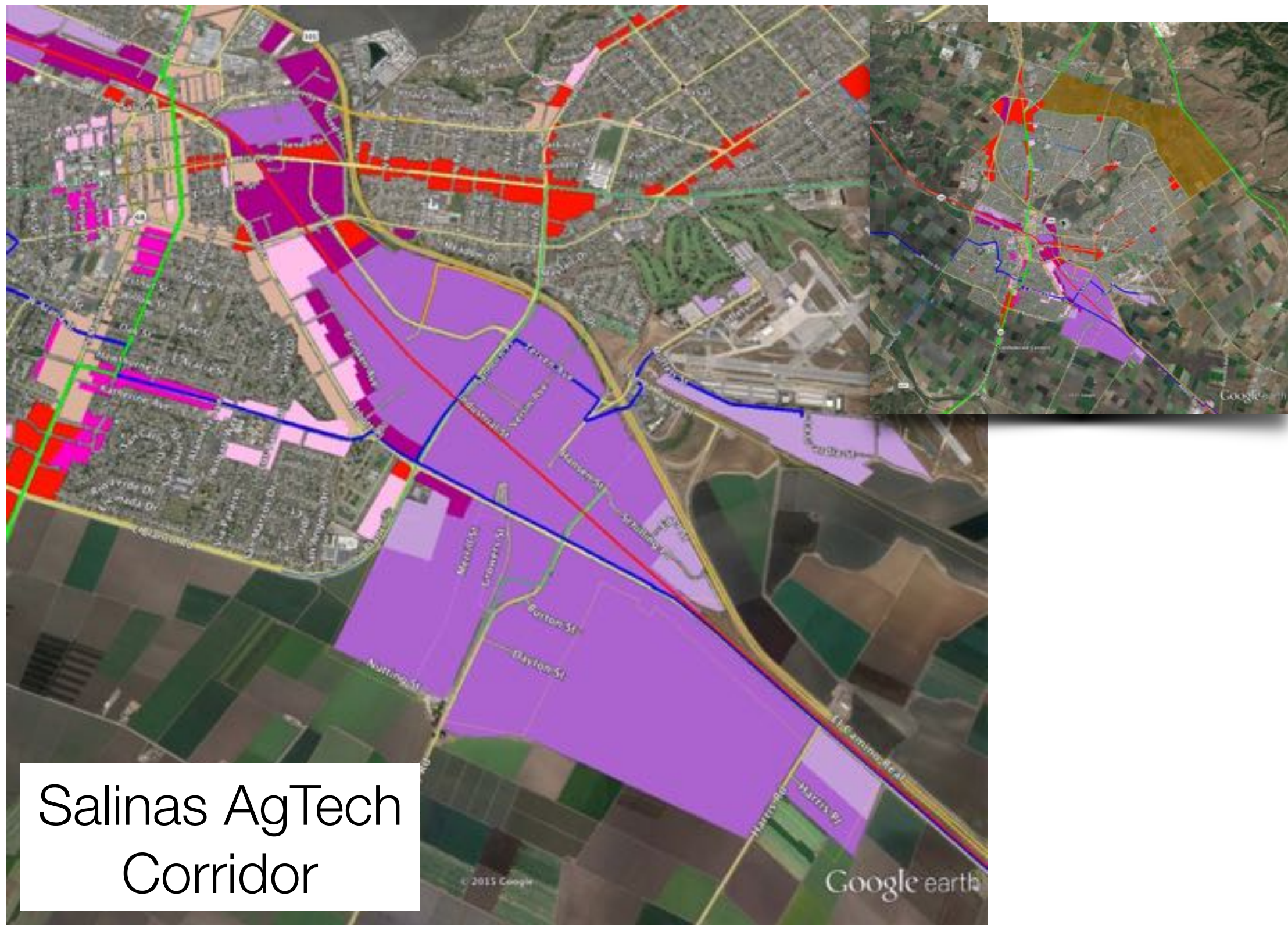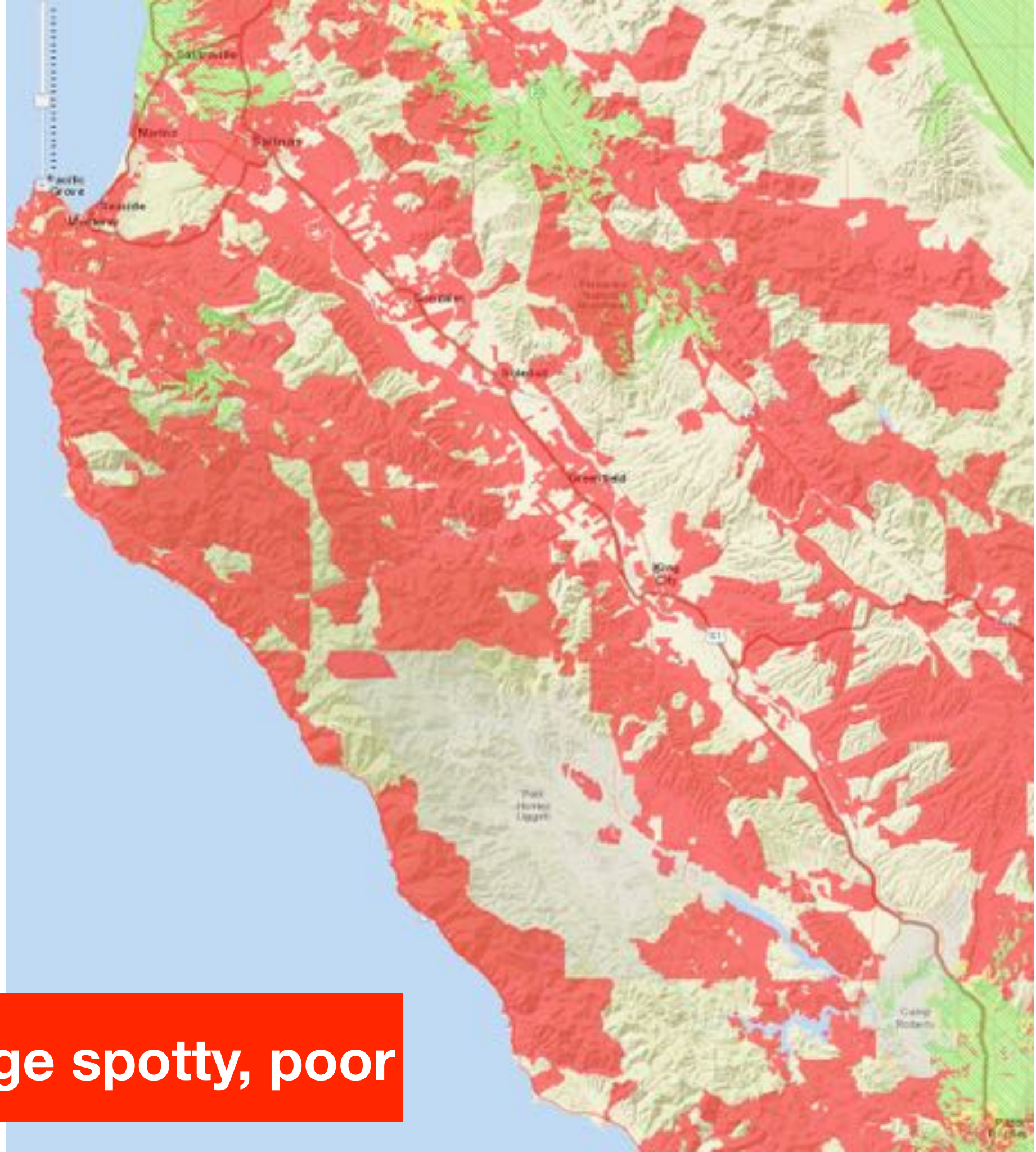
One solution: build on top of fiber routes

Fixed wireless is ad hoc

- CPUC rates Salinas Valley as "unserved" by fixed wireless.

- A few local operators provide limited service.

- Generally low speed, by commercial/industrial standards.

- Not "carrier class".

Wireless coverage spotty, poor
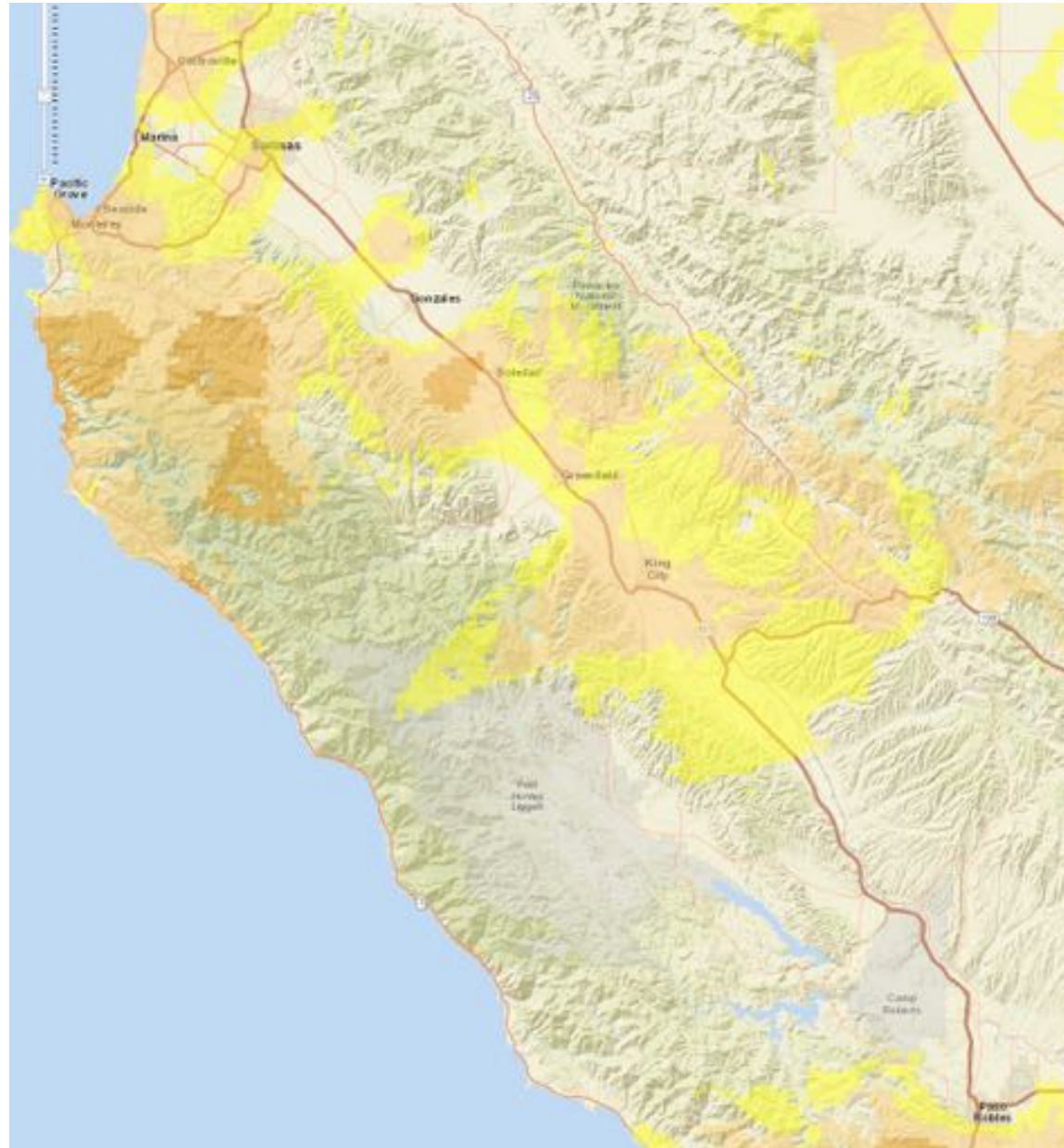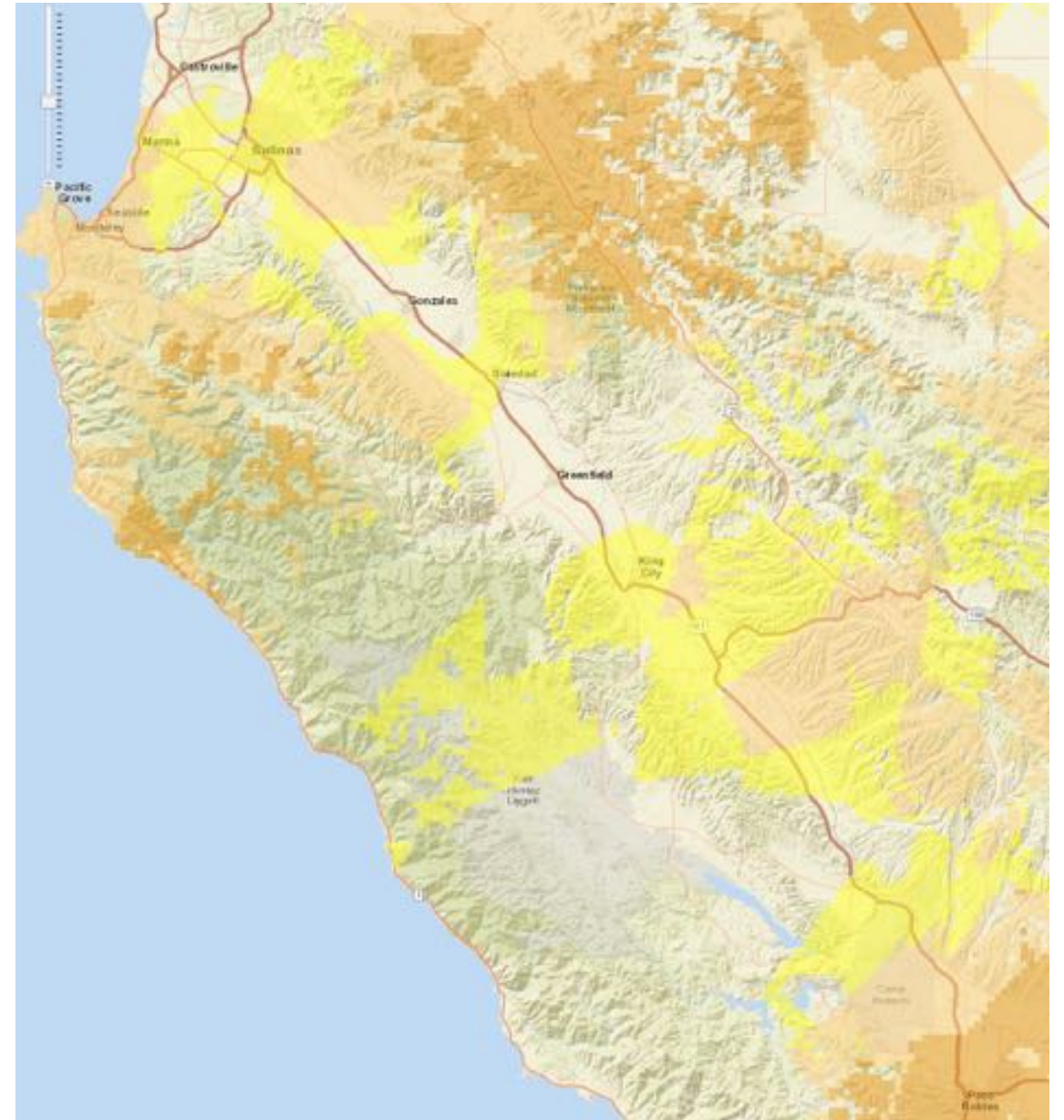
Claimed Cell Company Coverage

AT&T

Verizon

Wireless coverage spotty, poor

CPUC Measured Coverage

AT&T

Verizon

Wireless coverage spotty, poor

Salinas Valley AgTech Broadband Ecosystem

Long haul, intercity fiber growing, access improving.

Distribution infrastructure limited, growth will be driven by last mile projects and demand.

Last mile requires many different solutions, depending on application and resources.

Final question: who is responsible for solving it?

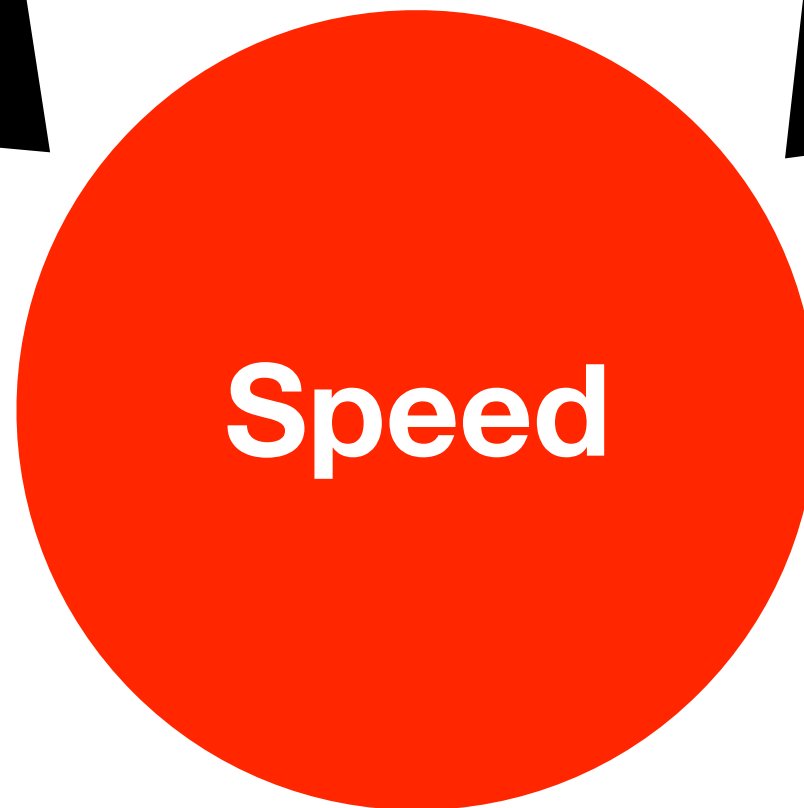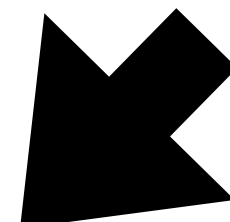# Central Coast Broadband Consortium
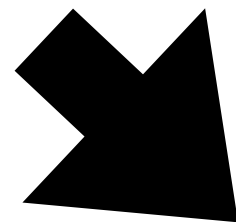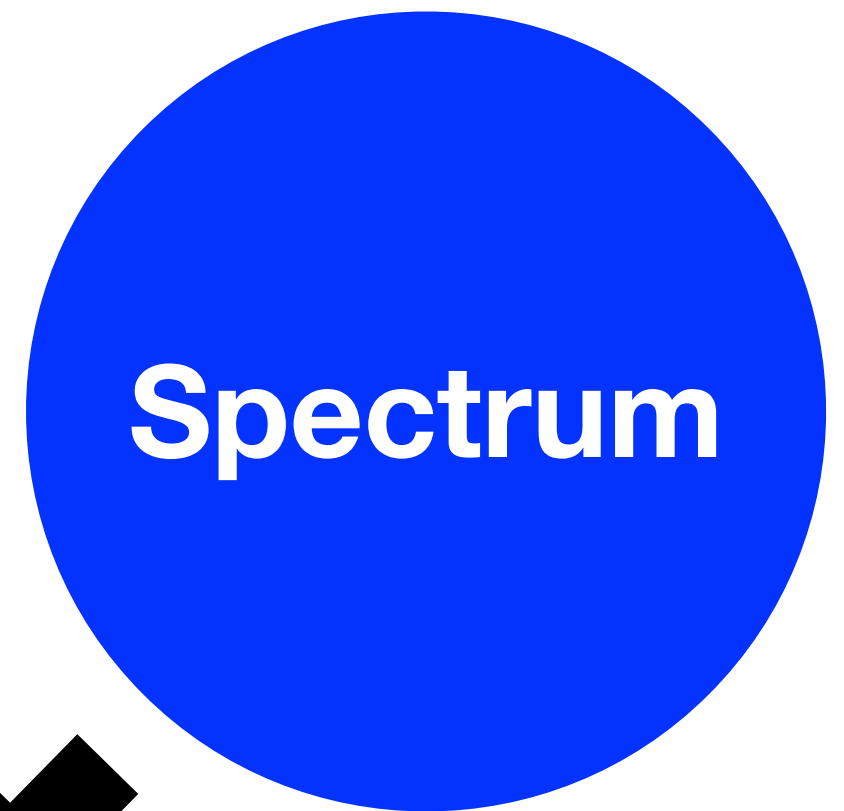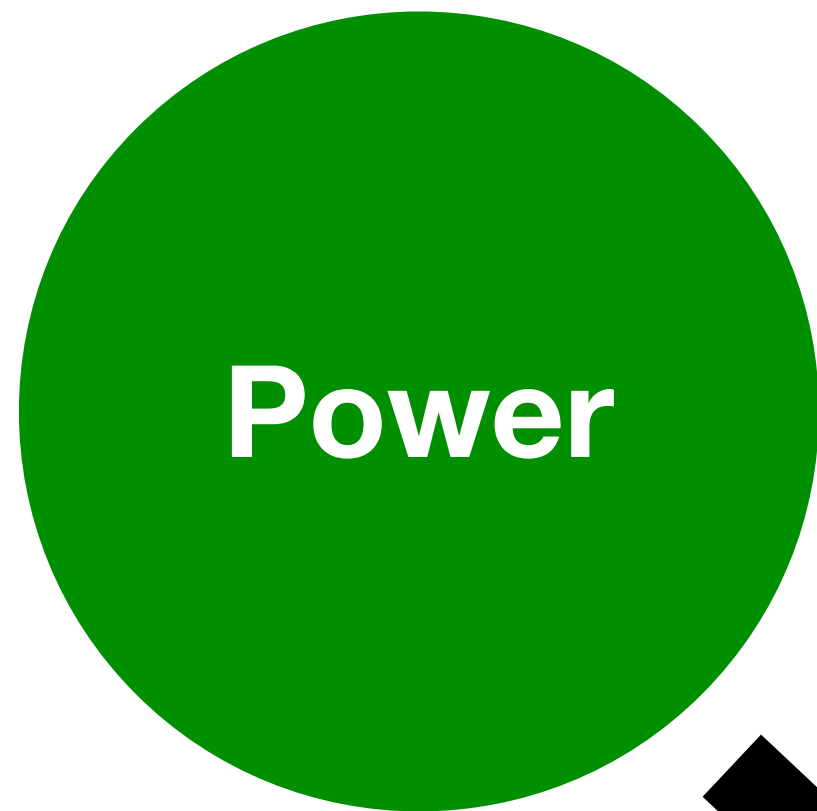
Back up slides

Tellus Venture Associates

Steve Blum
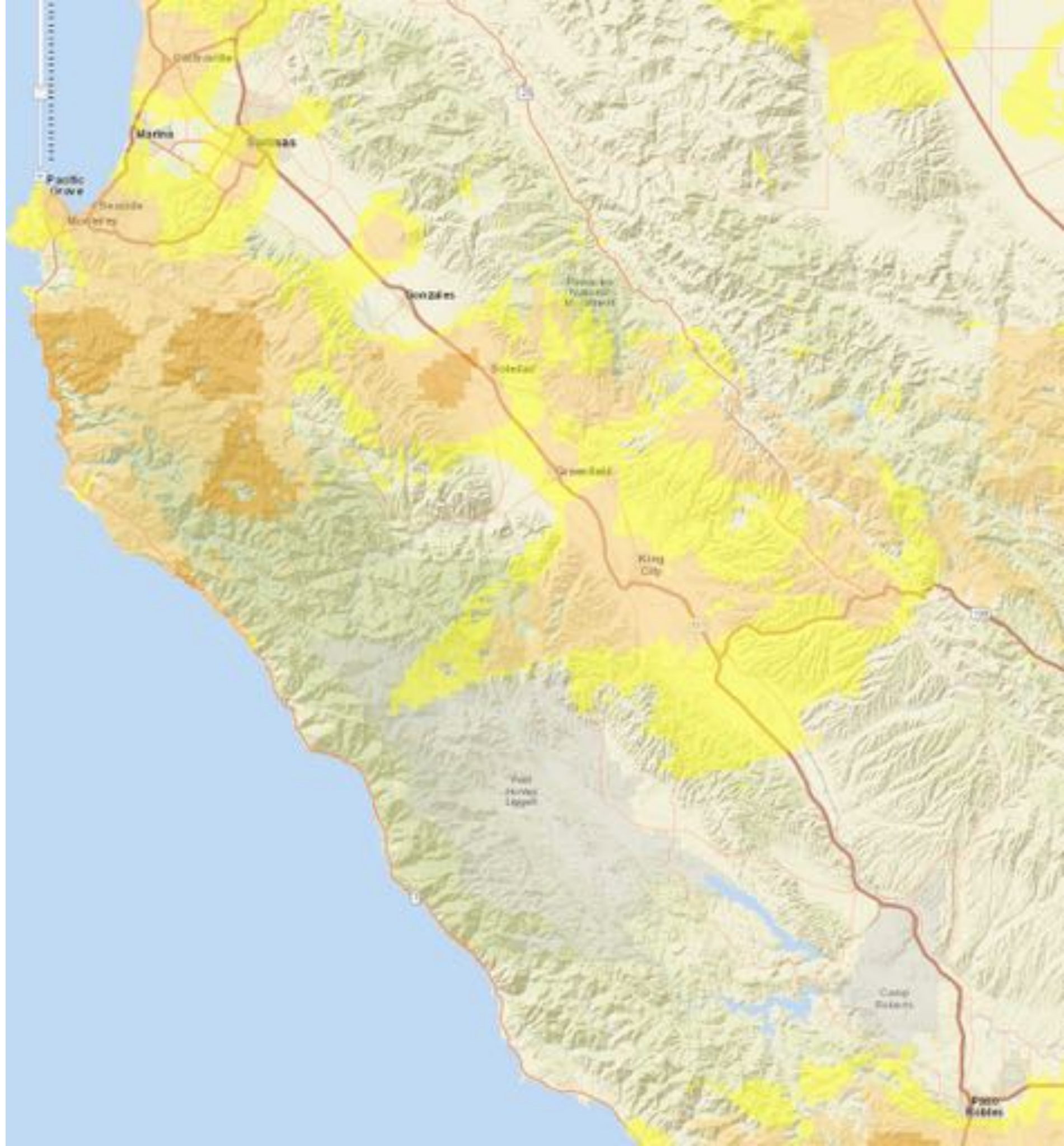President
steveblum@tellusventure.com
www.TellusVenture.com

Power (effective Watts) & spectrum (Hertz) determine wireless bit rates
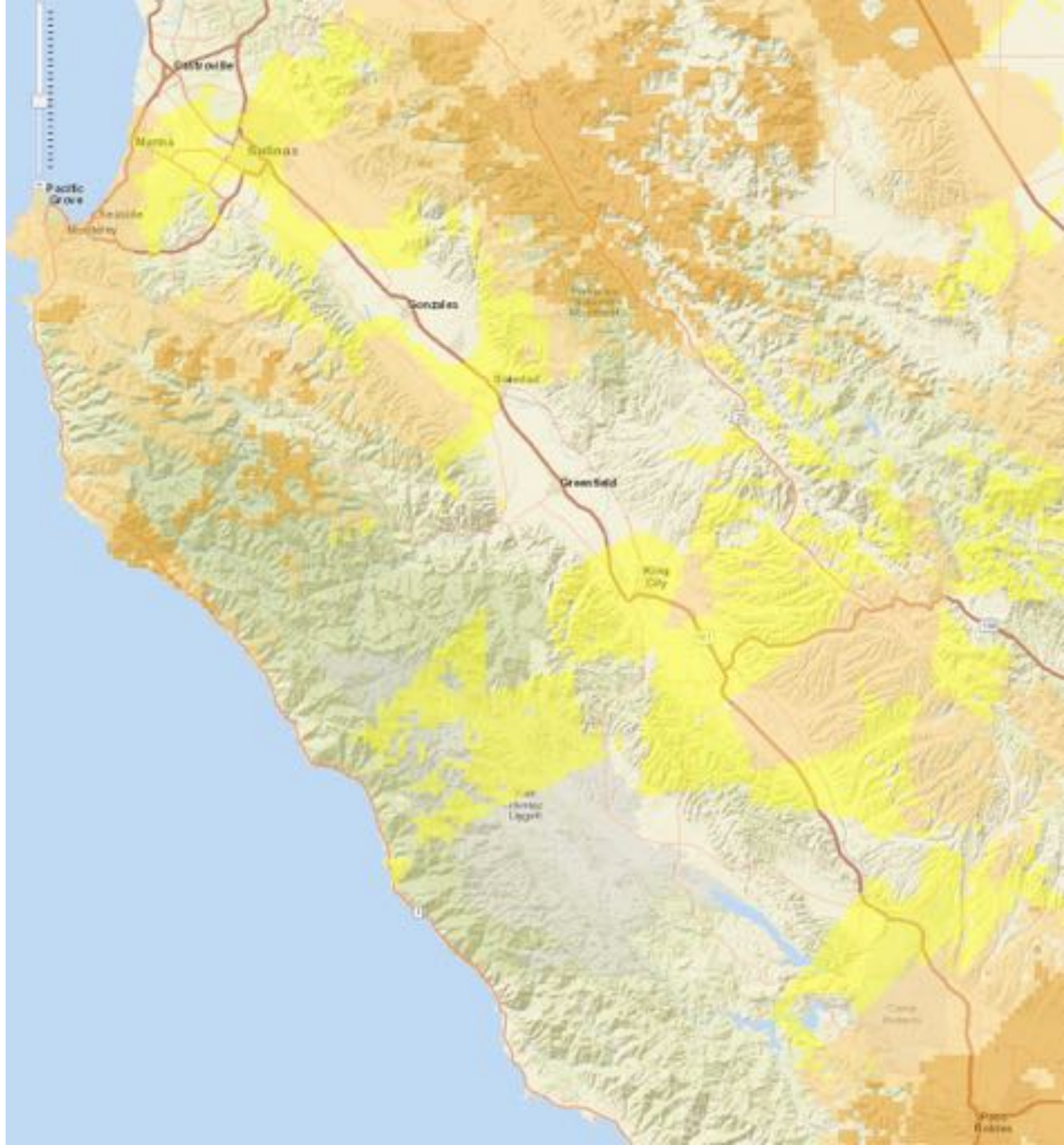
Power is the primary AgTech constraint

AT&T

Source: CPUC Spring 2016
mobile field testing and
analysis.

Verizon

Source: CPUC Spring 2016
mobile field testing and
analysis.

Sprint
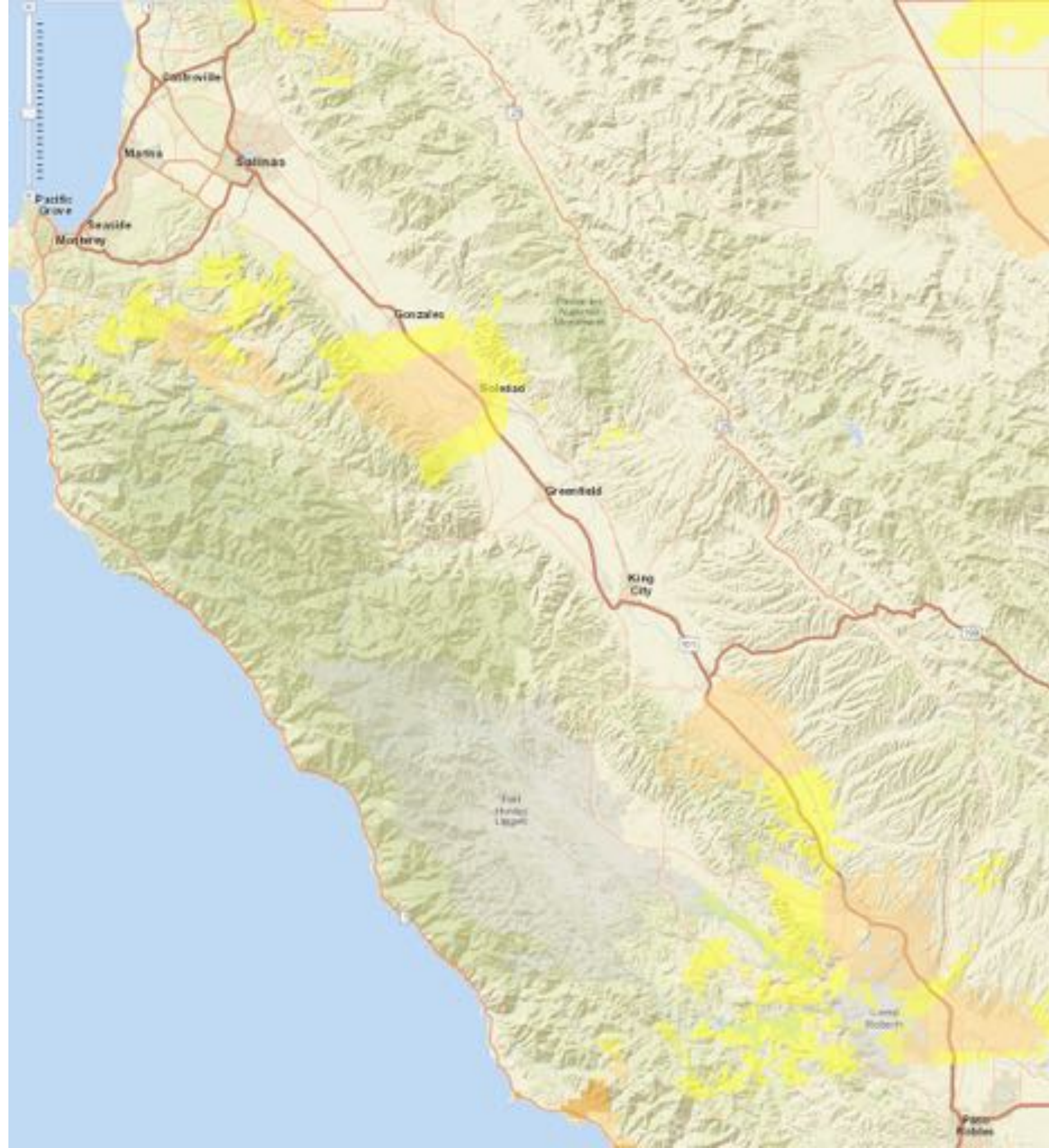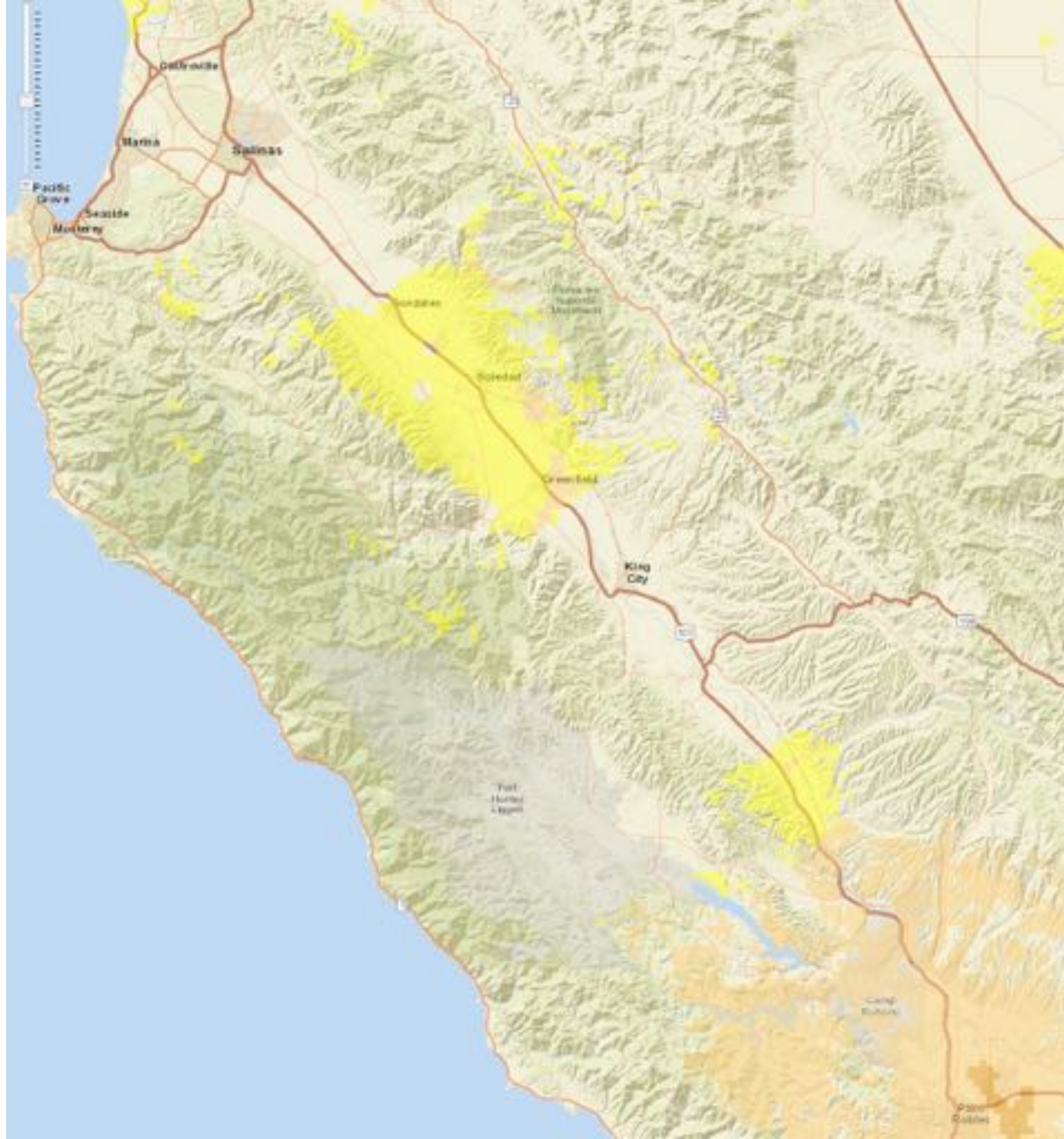
T-Mobile

Infrastructure projects changing the landscape

- Sunesys project will be regional backbone.

- Infrastructure builds by incumbents, independents.

Legend

- ⌇ Sunesys Fiber
- ⌇ Sunesys Connected Central Coast
- ⌇ Proposed Extensions
- ▰ Pinnacles Telephone CASF Project
- ▰ Surfnet CASF Projects

CPUC Round 11 Data

- ▰ Charter Video Franchise w/No BB
- ▰ Charter Broadband Service
- ▱ CCBC Project Area
- ▱ County Boundary
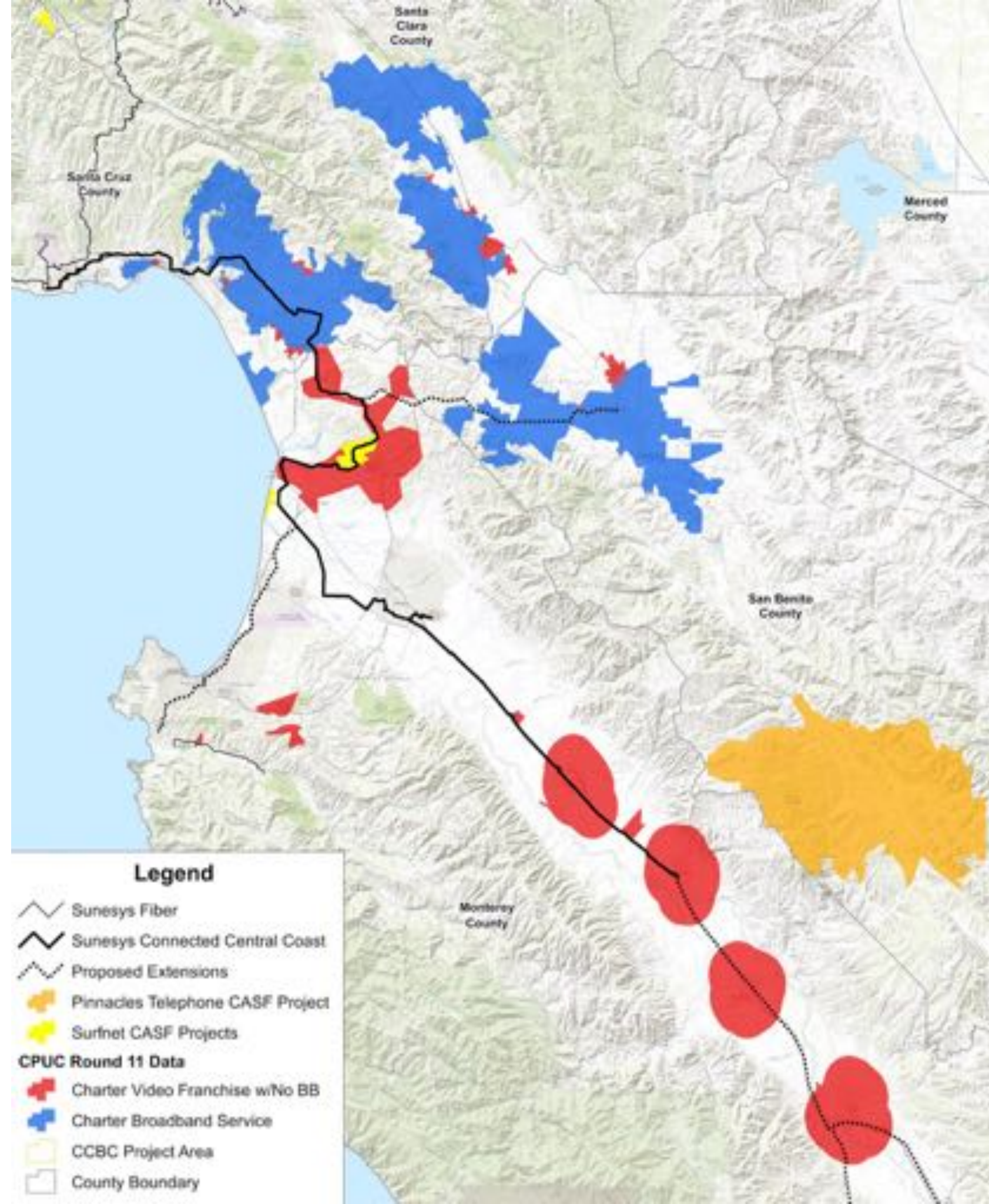
Infrastructure projects changing the landscape

- Sunesys project will be regional backbone.

- Infrastructure builds by incumbents, independents.

- Muni projects in Santa Cruz (city & county), Watsonville, Hollister, Salinas.

Legend

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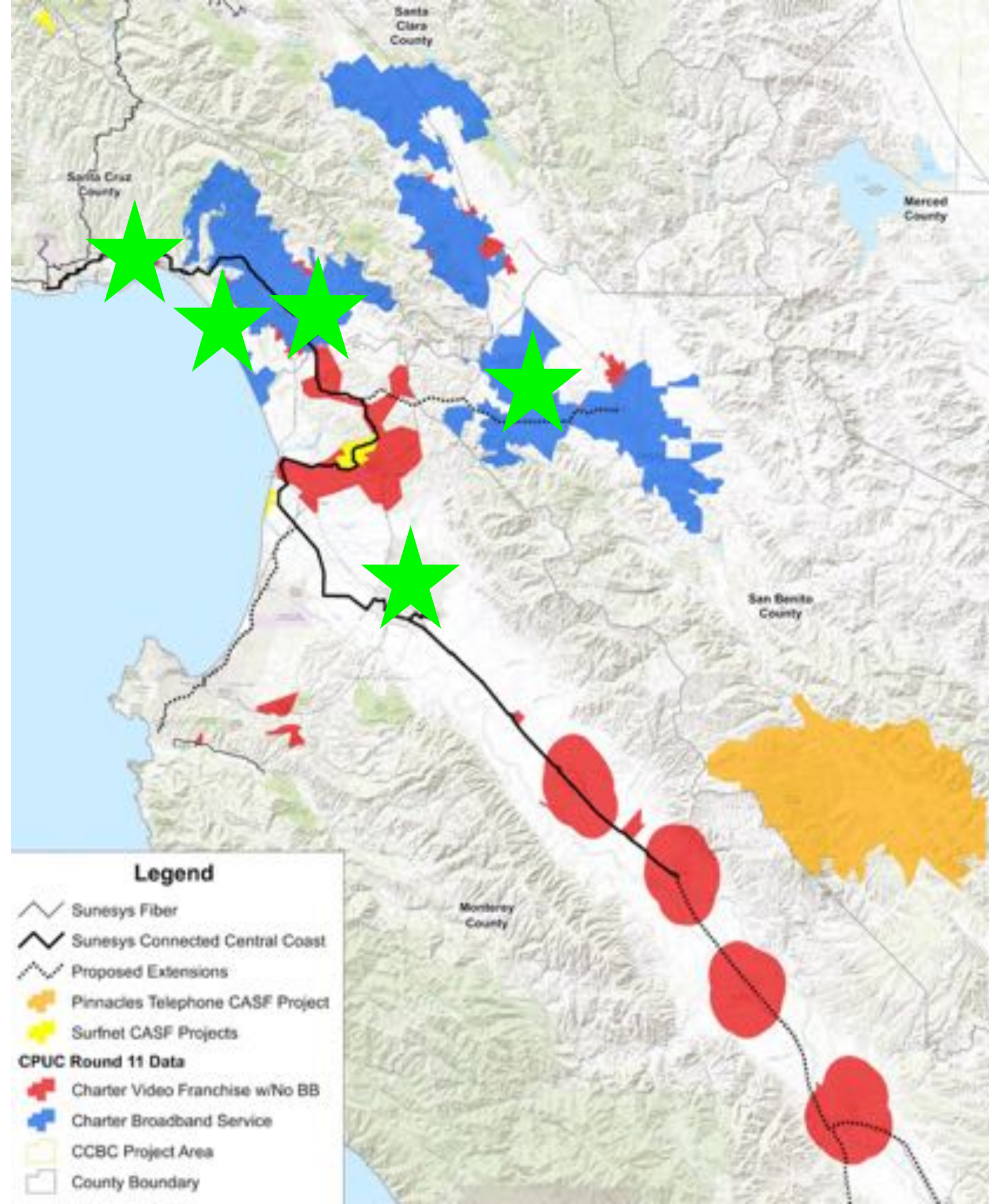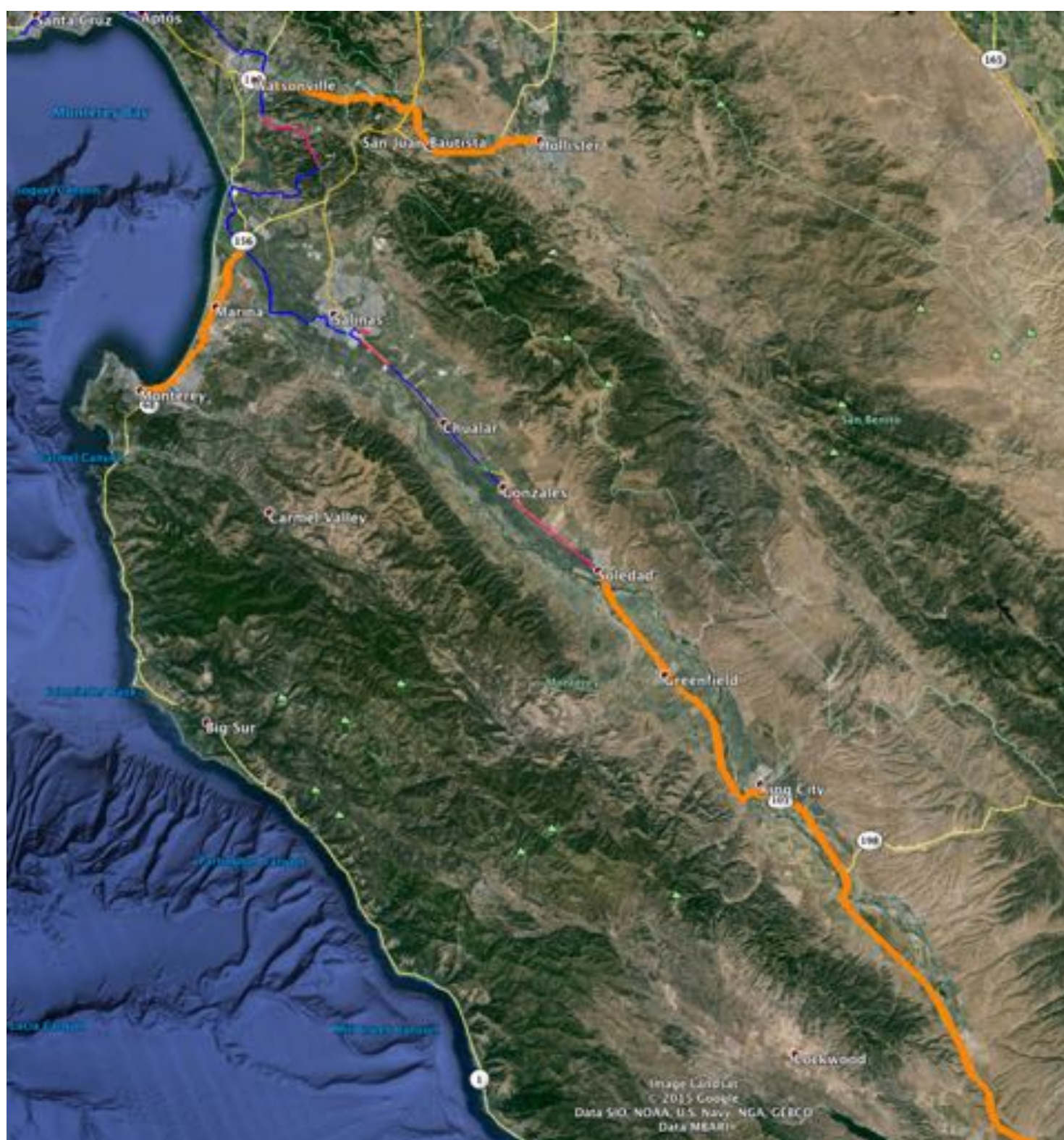
Extend middle mile to King City, SLO, Hollister & Monterey | Current projects show feasibility

Monterey County
1. Greenfield
2. King City
3. Gonzales

Regional Wild Cards
1. Soledad
2. Castroville
3. Chualar

Santa Cruz County
1. Pleasure Point/Twin Lakes
2. Soquel
3. Brookdale

San Benito County
1. Aromas area
2. Airport/Northeast area
3. Cienega Road area

CCBC priority areas

100,000 people total
70,000 people CASF eligible
12 feasible projects

Central Coast Region – Charter Redlining

| City	California FTB 2014 Returns	California FTB 2014 AGI total	Average Adjusted Gross Income	Charter broadband?
Capitola	5,237	$322,618,000	$61,604	Yes
San Juan Bautista	1,819	$110,435,000	$60,712	Yes
Hollister	21,970	$1,217,528,000	$55,418	Yes
Watsonville	36,888	$1,602,864,000	$43,452	Yes
Soledad	7,039	$288,544,000	$40,992	NO
Gonzales	4,112	$161,665,000	$39,315	NO
King City	6,942	$265,079,000	$38,185	NO
Greenfield	7,384	$252,549,000	$34,202	NO

Source: California Franchise Tax Board Personal Income Statistics, February 2015

Redlining correlates to income levels | CPUC proceeding best chance for upgrades

CCBC website shows more details | Includes detailed fiber survey
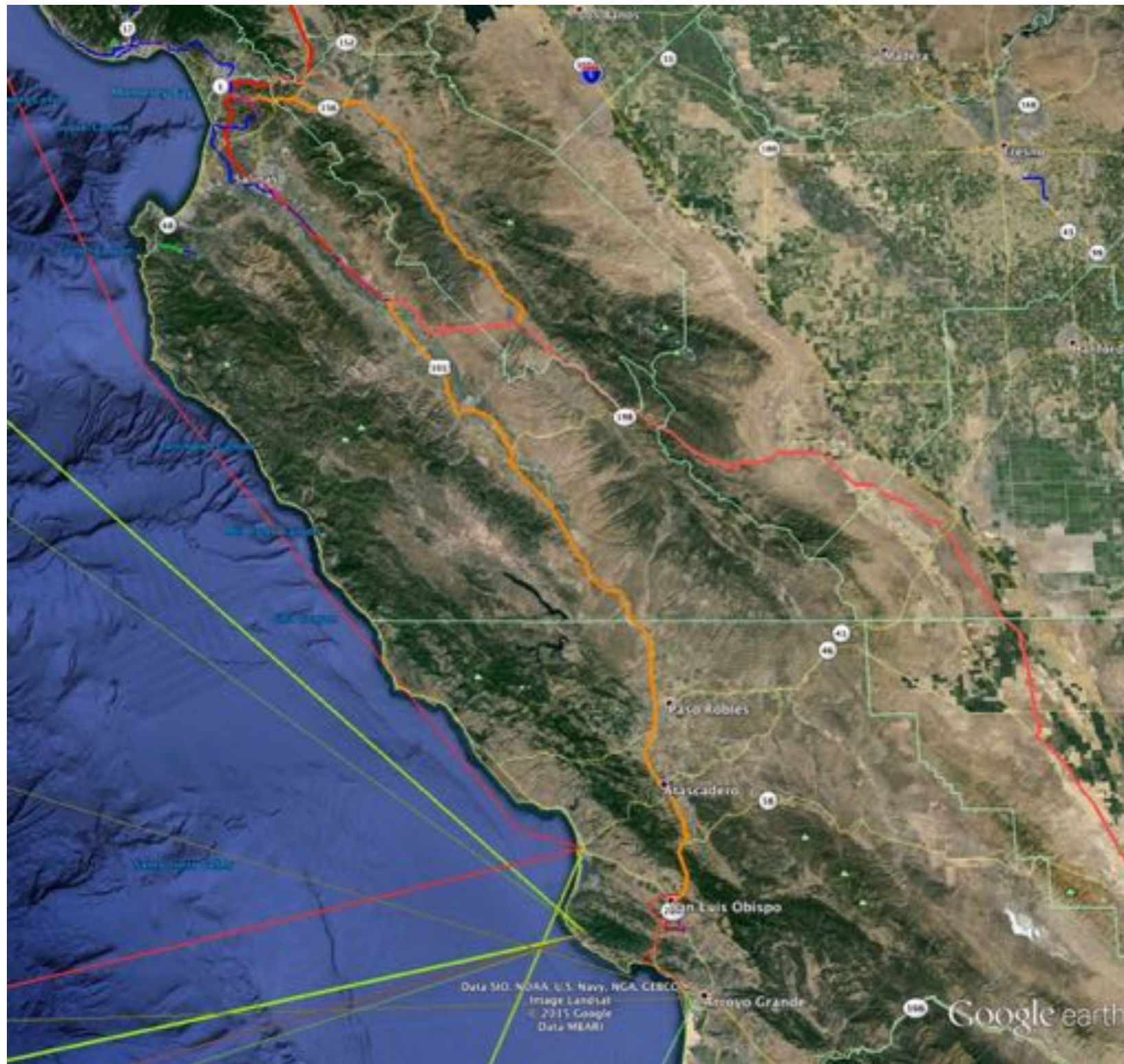
Extend fiber to King City & SLO, complete Hollister loop

Links greater Salinas Valley to major routes