



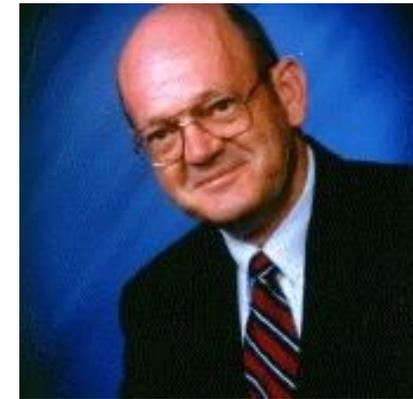
County of El Dorado  
State of Broadband



# State of Broadband in El Dorado County



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SEDCorp



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Gold Country Broadband Consortium  
Technology & GIS Consultant



## Overview

- **References**
- **Availability**
- **Opportunity**
- **Considerations**





## County of El Dorado State of Broadband

# References

– descriptions –

Broadband technology entails an *“Integrated Network”*.

- **Backhaul** - Backbone or core network linking intermediate links and the small subnetworks at the “edge” of the entire hierarchical network. Backhaulers are often telecommunications providers and follow major transportation corridors. (e.g. Hwy50)
- **Middle-Mile** - Intermediate link between Backhaul and the local network plant providing service to an end customer loop.
- **Last-Mile** - Neighborhood level final household connection infrastructure.



*Middle-mile is often times the most expensive component for local non-incumbents*



## County of El Dorado State of Broadband

# References

– definitions –

The FCC defines Broadband as “***High-speed Internet access***” which is always on and faster than the traditional dial-up access.

Technologies include:

- **Broadband over Powerlines (BPL)**
- **Cable Modem**
- **Digital Subscriber Line (DSL)**
- **Fiber**
- **Satellite**
- **Wireless**





## County of El Dorado State of Broadband

# References

– standard –

The CPUC refers to Broadband as “***Fixed, Mobile and Satellite technology***”.

- **Fixed:** Fixed Wireline services use wires or cables direct from the provider to the user. Technology includes xDSL, Cable Modem or Fiber. Fixed Wireless services use radio waves at a particular frequency, (e.g. Wi-Fi) to make a “point-to-point” connection between the provider and user at a fixed location.
- **Mobile:** Mobile Broadband is service delivered by a provider to a user while the user is in motion. Typical technologies include 3G, 4G and LTE.
- **Satellite:** Satellite Broadband is service delivered by a provider via satellite direct to a stationary user.



*The CPUC believes the best solution for any individual depends on availability, speed, whether mobility is required, and a host of other factors, including price.*



The CETF refers to Broadband as ***“Unserved, Underserved and Adoption”***.

- **Unserved:** Areas where the advertised speeds fall below a combination of 200 kilobits per second upstream and 768 kilobits per second downstream.
- **Underserved:** Where Broadband is available, but no wireline or wireless facilities-based provider offers service at advertised speed of at least 6 megabits per second download and 1.5 megabits per second upload time.
- **Adoption:** Areas usually more urban/metropolitan in nature where there is pervasive Broadband. however. purchase rates are below expectations (e.g. 80%)



*The CPUC believes the best solution for any individual depends on availability, speed, whether mobility is required, and price.*



## End-user Perspective

Technology	Pros	Cons
<b>Satellite</b>	<ul style="list-style-type: none"><li>• Available almost anywhere</li><li>• Faster than dial up</li><li>• Gen/4 Speeds Meets Stnd</li></ul>	<ul style="list-style-type: none"><li>• Expensive</li><li>• Data Caps</li><li>• Blocked by hills &amp; trees</li></ul>
<b>xDSL/Wire</b>	<ul style="list-style-type: none"><li>• Faster than dial up</li><li>• Easy to Install</li></ul>	<ul style="list-style-type: none"><li>• Limited in rural areas</li><li>• Less than Speed Standards</li></ul>
<b>Fixed Wireless</b>	<ul style="list-style-type: none"><li>• Faster than dial up/DSL</li><li>• Meets Speed Standards</li></ul>	<ul style="list-style-type: none"><li>• Line of Sight</li><li>• Blocked by hills &amp; trees</li></ul>
<b>Fiber Optic Cable</b>	<ul style="list-style-type: none"><li>• Very fast</li><li>• Meets Speed Standards</li></ul>	<ul style="list-style-type: none"><li>• Expensive</li><li>• Available only in urban areas</li></ul>
<b>Mobile Air Card</b>	<ul style="list-style-type: none"><li>• Highly mobile</li><li>• 4G Meets Speed Standards</li></ul>	<ul style="list-style-type: none"><li>• Expensive Data Plans</li><li>• Available Mostly in Urban Areas</li><li>• Speed Depends on Technology</li></ul>



## County of El Dorado State of Broadband

# Availability

– determination –

### Broadband is NOT regulated!

- CPUC leverages voluntary data to map Broadband availability; [www.broadbandmap.ca.gov](http://www.broadbandmap.ca.gov)
- Staff follows a seven step process, based on FCC and third party databases, to validate fixed broadband availability data.

These steps include;

- ISP Input,
- Public input,
- Speed Tests via CalSPEED (Google Play Store), and
- Mobile research.

*Broadband availability data is used to inform consumers, promote digital literacy and usage, support public policy and Broadband deployment funding decisions via the CASF Program. Mapping is not accurate down to the household level. Maps use "census blocks"; the smallest geographic area established by the US Census Bureau.*



## Internet Service Providers (ISP)

EDC Target Communities	Providers								
	Company	ATT	Cal.net	Consolidated	Comcast	CVB	Hughes	Ruralnet	Verizon
	Technology	Fixed Wireline & Mobile	Fixed Wireless	Fixed Wireline	Fixed Wireline	Fixed Wireless	Satellite	Fixed Wireless	Fixed Wireline & Mobile
Hwy 49 North Corridor		10-25Mbps	10-25Mbps		100Mbps-1Gig	10-25Mbps	>15Mbps	3-10Mbps	50Mbps-100Gig
Hwy 49 South Corridor		10-25Mbps	10-25Mbps		100Mbps-1Gig	10-25Mbps	>15Mbps	3-10Mbps	50Mbps-100Gig
Hwy 50 East-West Corridor		10-25Mbps	10-25Mbps	50Mbps	100Mbps-1Gig	10-25Mbps	>15Mbps	3-10Mbps	50Mbps-100Gig
Lake Tahoe Loop		3-10Mbps							50Mbps-100Gig

*Advertised Speeds*



## County of El Dorado State of Broadband

# Availability

– CPUC Recognition –

### Fixed Wireline Service

- **Served Households:** Fixed Broadband is available at speeds of at least 6 Mbps down and 1.5 Mbps up  
**76%** (53,486 households – 41/58 Counties; apx. bottom third percentile)
- **Underserved Households:** Fixed Broadband is available, but speeds lower than 6 Mbps down or 1.5 Mbps up  
**13.7%** (9,675 households – 13/58 counties; top quarter percentile)
- **Unserved Households:** Fixed broadband is either not present, or is slower than 768 Kbps down or 200 Kbps up  
**10.4%** (7,356 households – 21/58 counties; apx. top third percentile)

*CETF aspires to 98% deployment and an 80% adoption rate!*



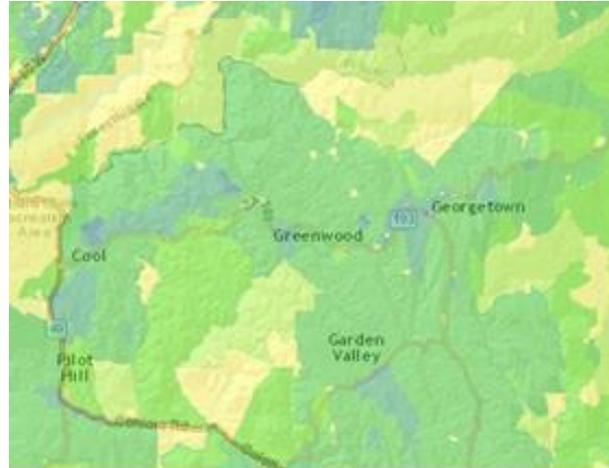
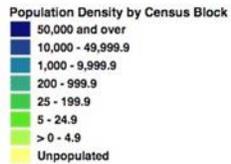


# County of El Dorado State of Broadband

# Opportunity

– Divide –

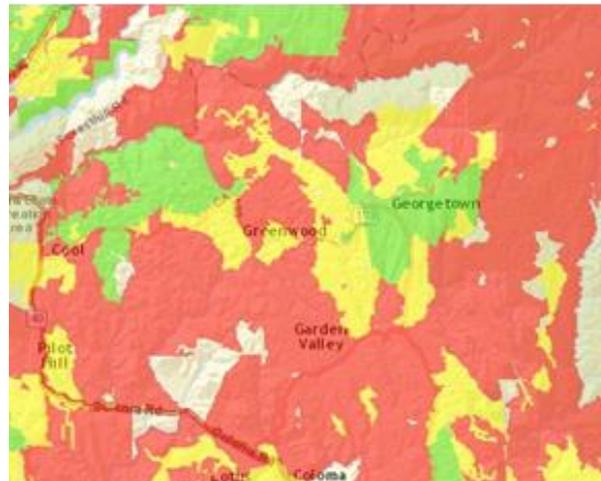
## Population



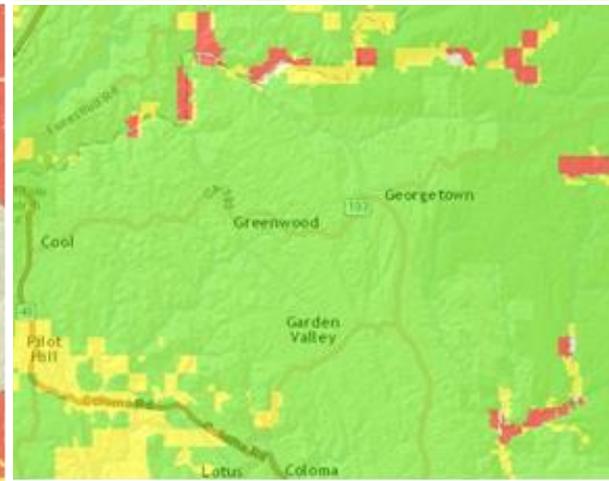
## Fixed Wireless



## Fixed Wireline



## Mobile



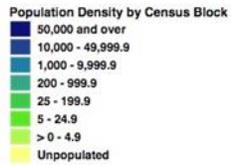


# County of El Dorado State of Broadband

# Opportunity

– EDS/Placerville –

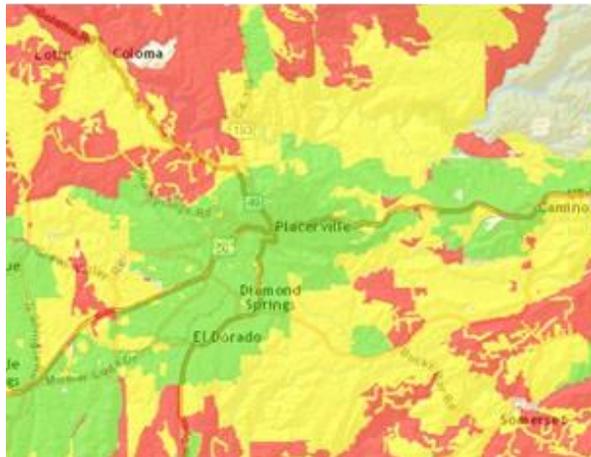
## Population



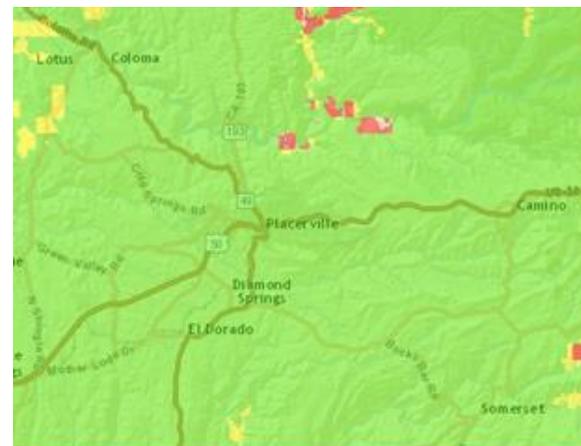
## Fixed Wireless



## Fixed Wireline



## Mobile



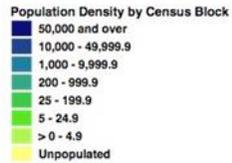


# County of El Dorado State of Broadband

# Opportunity

– Rescue –

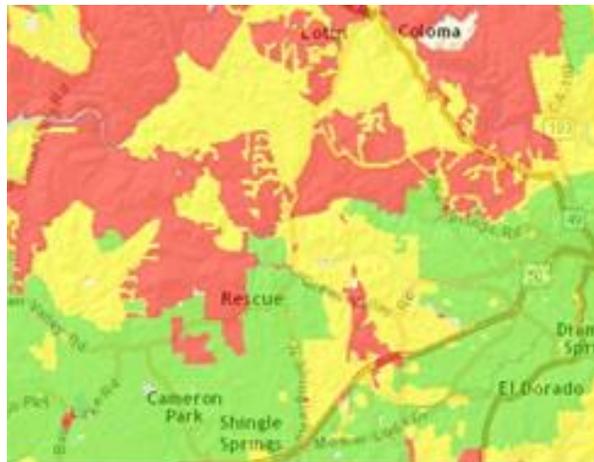
## Population



## Fixed Wireless



## Fixed Wireline



## Mobile



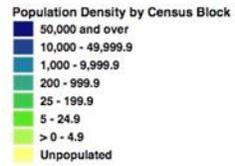


# County of El Dorado State of Broadband

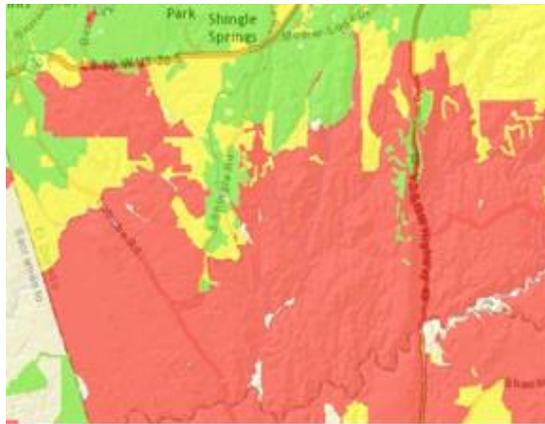
# Opportunity

– Latrobe –

## Population



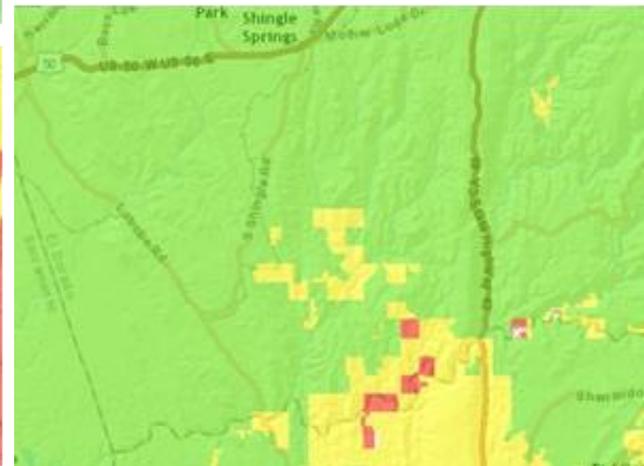
## Fixed Wireline



## Fixed Wireless



## Mobile





## Ground Proofing

Gold Country Broadband Consortium (GCBC) hosted over dozen Community Meetings in 2014 to educate, uncover needs, “ground proof” service and catalyze local community action.

- Chrome Ridge
- Coloma
- Cool
- Garden Valley
- Georgetown
- Greenwood
- Latrobe
- Pleasant Valley
- Rescue

*The majority of attendees had some kind of Internet service and were primarily looking for better reliability, faster speeds and/or lower cost.*



# County of El Dorado State of Broadband

# Considerations

– planning –

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## Principles

- **Understand the Economic Drivers**  
Topography and Demand Density will define opportunity cost and priority (e.g. be data driven).
- **Consider that “one-size” does not fit all!**  
A diversified strategy can ensure the “right solution, at the right cost and the right time”.
- **Catalyze Communities with a “Call-to-Action”**  
Associations (e.g. Business, Homeowner & Roads) are best served when they organize, visualize, engage and partner.



# County of El Dorado State of Broadband

# Considerations

– fun facts –

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## Accessibility

- Over 50% of the global population will have Internet access within three years' time
- 40%+ of the world's people are already online; 77 countries >50%.

## Penetration Standards

- Top 10 countries are European. Korea has highest penetration at 98%. Switzerland highest fixed at 44%
- US ranks 19th in terms of people online and dropped to 24<sup>th</sup> in terms of fixed broadband per capita.
- Annual net U.S. broadband additions in 2014 were 114 percent of the total in 2013.
- Even though 4/5 U.S. households subscribe to broadband, there were more additions in 2014 than in 2013

## Technology Trends

- Mobile broadband over smartphones and tablets is now the fastest growing technology in human history.
- There are three times as many mobile broadband connections as conventional fixed broadband subscriptions.
- Broadband-enabled social media applications popularity continues to soar; 1.9billion active



## Competition

- The most developed metropolitan markets operate in a ***duopoly environment*** -- where one dominant cable company and one telco provider serve a captive customer base that has few, if any, alternative choices.
- Cable companies are growing faster than telephone companies (e.g. 2.4m net new in 2014 compared to 1.7 million more net adds in 2013).
- AT&T U-verse and Verizon FiOS broadband subscribers now account for 53 percent of telco broadband subscribers – that's up from 37 percent at the end of 2012.
- There's little incentive for the two incumbent service providers in each municipality to aspire to better serve their customers with improved broadband performance at a more competitive price.



# County of El Dorado State of Broadband

[Leichtman Research Group.](#)

# Considerations

– perspective –

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## Public Policy

A continued policy focus on Americans that live in remote or rural parts of the country, who often have no wireline broadband provider, is a distraction from the much greater economic development issue -- that being the globally inferior broadband offerings in the nation's primary centers of commerce.

- Global Networked Economy of the 21st Century



# County of El Dorado State of Broadband

# Considerations

– best practices –

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## State-wide Projects

- **Cal.NET CASF Grant Project**
- **I-395 Project**
- **Nevada County IT Plan**
- **Santa Cruz “One-Trench” Ordinance**
- **SpiralInternet “Gigabyte Community”**
- **Yolo County (Valley Vision project)**
- **Public Education & Safety**



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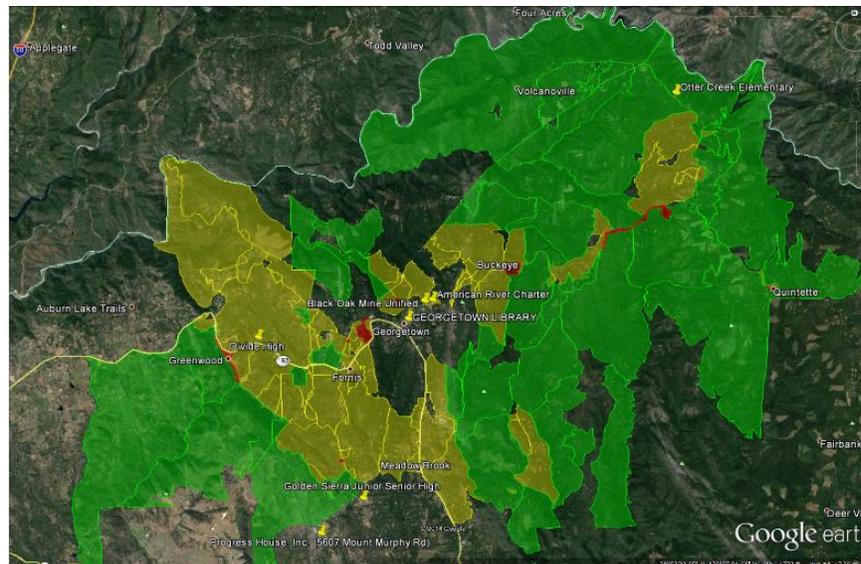
# Considerations

– current project –

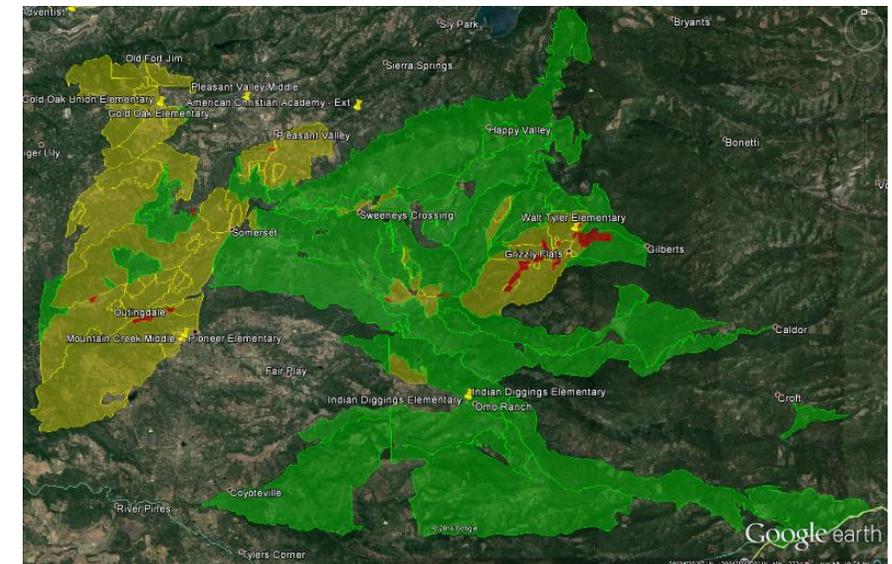
## Cal.net CASF Grant Proposal

- **5 year project** (2015 to mid-2020 completion)
- **Highway 49 North**
- **Highway 49 South**
- **4000 households**
- **12 new jobs**

North  
Divide/Georgetown



South  
Pleasant Valley, Grizzly Flats, Outingdale, Somerset, etc.





## Key Partners

Technologists		
Company	Name	Title
ATT	Mark Blakeman	VP
Cal.net	John Lane	CEO
Comcast	Philip Arndt	Director
CVB	William Lawver	Owner
CVIN	Michael Stewart	Director
Exwire	Devin Koch	Owner
Ruralnet	Lance Cummings	Owner
Verizon	Margaret Hallbach	VP



# County of El Dorado State of Broadband

## Wrap-up

- Thank You -

### Questions?

### Contact Information:

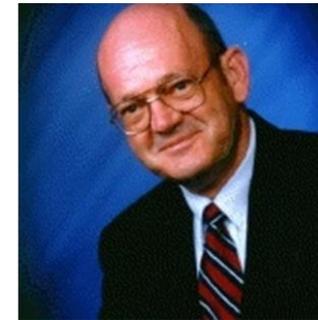
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