



AGENDA ITEM 20
REPORT

Southern California Association of Governments
Remote Participation Only
September 2, 2021

To: Transportation Committee (TC)
Regional Council (RC)

From: Roland Ok, Regional Planner Specialist
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Subject: Status Update on SCAG's Broadband Program

**EXECUTIVE DIRECTOR'S
APPROVAL**

RECOMMENDED ACTION FOR TC AND RC:
Information Only – No Action Required

STRATEGIC PLAN:

This item supports the following Strategic Plan Goal 1: Produce innovative solutions that improve the quality of life for Southern Californians.

EXECUTIVE SUMMARY:

On February 2, 2021, SCAG's Regional Council (RC) adopted Resolution No. 21-629-2, which pledges SCAG to assist in bridging the digital divide in underserved communities. The resolution directed staff to develop a broadband workplan and/or program. This staff report provides an update on SCAG's current and future work efforts related to broadband.

BACKGROUND:

Digital Divide in the SCAG Region

Broadband is now considered essential infrastructure for the 21st century. Schools, offices, retail and governments all rely on online platforms, offering people significant time savings and a digital avenue for economic prosperity. However, broadband is still far from a universal service across the State. Within the SCAG region alone, approximately 15 percent of all households do not have access to adequate internet speeds or no internet access.¹ These households are disproportionately located in underserved urban communities and rural communities.

Access to universal subscription is attributed to range of factors. Broadband is still considered to be relatively expensive, and studies regularly show prices as a significant barrier to broadband adoption.² Many also lack digital skills – significantly 52% of adults are “relatively hesitant” when it

¹ U.S. Census ACS Survey Data, Household Income in the Last 12 months by Presence and Type of Internet Subscriptions by Household (SCAG Region).

² Monica Anderson, “Mobile Technology and Home Broadband 2019” (Washington: Pew Research Center, 2019)

comes to new technologies and digital skills, meaning they have low levels of digital skills or limited trust in the internet.³ Finally, there are still physical infrastructural gaps that provide another significant barrier for adoption.⁴ Below is an initial assessment of where the SCAG region stands when it comes to the digital divide:

Access to Broadband (See Attachment 1, Broadband Data Analysis for more details⁵)

- 15% of the population in urban areas of the region have no access to internet or computer, compared to 13% in rural areas
- 27% of households earning less than \$50,000/year do not have broadband subscription
- 32% of households earning less than \$35,000/year do not have broadband subscription
- 22% of seniors age 65+ do not have a computer and/or broadband subscription
- 10% of students under age 18 do not have a computer or broadband subscription

Cost and Speed (See Attachment 1, Broadband Data Analysis for more details)

- For those with internet connection, 16% of the region are below the federal threshold for broadband⁶
- In rural areas broadband speed is slower yet cost is higher when compared to urban areas

SCAG's Broadband Resolution

On February 2, 2021, the RC adopted Resolution No. 21-629-2, which pledges SCAG to assist in bridging the digital divide in underserved communities.⁷ The resolution recognizes the digital divide and directs staff to develop a Broadband Action Plan and or Program. Since the adoption of the resolution, SCAG has identified several key items:

- Conduct a broadband survey/interview to local jurisdictions and Internet Service Providers (ISPs) and identify significant barriers.
- Collect and invest in broadband data and develop detailed broadband maps and broadband opportunity zones.
- Assist in securing funding for local jurisdictions and ISPs to invest in broadband infrastructure in underserved communities.

³ John B. Horrigan, "Digital Readiness Gaps" (Washington: Pew Research Center, 2016).

⁴ 2020 Broadband Deployment Report available at: <https://doc.fcc.gov/public/attachments/FCC-20-50A1.pdf>

⁵ ACS 5-Year (2015-2019), Caltrans adjusted urbanized data (2010) and M-Lab/Broadband Now (2021)

⁶ The Federal Threshold for Broadband Speeds is a minimum of 25/3 Mbps

⁷ Available at: <https://scag.ca.gov/sites/main/files/file-attachments/2-resolution-no-21-629-2.pdf>

-
- Conduct studies to develop solutions and strategies to assist in rapid deployment of broadband technology and technical studies which evaluates the benefits of broadband (i.e., VMT reduction).

County-level Resolutions

With input from stakeholders, SCAG also drafted a sample resolution to bring broadband in underserved communities for local jurisdictions to adopt. To date, all six counties within the SCAG region have developed and approved a digital divide resolution of their own.⁸

CURRENT WORK EFFORTS:

Broadband Survey and Interviews

While SCAG promotes local jurisdictions to expedite broadband deployment, we are not aware of current state of broadband implementation across the region. SCAG has developed broadband survey for local jurisdictions within the SCAG region and have conducted interviews with ISPs to determine significant barriers to bringing broadband to underserved communities. Surveys and interviews are still in progress and accurate quantifiable data is not yet available. While staff works towards completing the survey process, some common barriers have been identified. General findings are as follows:

- Staffing and resource constraints for local jurisdictions
- Lack of organized and accessible information on policies and permitting
- Lack of granular data for accurate broadband mapping
- Inconsistencies in permitting and implementation practices between jurisdictions
- Uncertain timelines and cost
- Lack of standards for micro trenching and Dig Once policies
- Inconsistent fair share or cost sharing practices
- NIMBYism

Based on feedback provided by local jurisdictions and ISPs, staff will analyze survey results and produce a report which shows the success rate, barriers, and recommendations for broadband implementation.

GIS Analysis

⁸ Available at: <https://scag.ca.gov/sites/main/files/file-attachments/3-county-level-resolutions.pdf>

SCAG is currently taking this opportunity to bolster our GIS database to accommodate broadband analysis. SCAG has developed a set of high-level regional and county level maps based on available SCAG level, federal, state and open-source data (*See Attachment 2, SCAG Region Maps and Attachment 3, County Level Maps*). While the mapping exercise has provided useful insights on our current situation, granular broadband data is still lacking due to resource constraints at the state and federal levels, and because much of the infrastructure data is proprietary to ISPs. For this work effort, SCAG will continue working with state and federal agencies, local jurisdictions, ISPs (assuming an agreement is achieved) and data driven corporations such as ESRI and Ookla. Detailed mapping would enable communities to advocate proactively, by demonstrating a lack of broadband access and assist in securing state and federal funding. With the combination of existing transportation infrastructure data, broadband data would assist SCAG in determining opportunity zones for middle mile, last mile connections and suitable areas to apply dig once/dig smart strategies. Upon completion SCAG would disseminate data across local jurisdictions, state (such as Caltrans) and federal agencies, ESRI and ISPs.

Broadband Funding

Based on analysis by the California Emerging Technology Fund (CETF), the current cost of connecting a home that has no internet is conservatively estimated at \$5,000 and upgrading a home that has poor internet service is \$1,500. Together, this equates to an investment of approximately \$8 billion needed in Southern California alone (SCAG and SANDAG region). SCAG is currently working with stakeholders to secure federal and state funding to directly implement broadband funding. Over the past few months, SCAG and its digital divide stakeholder group has drafted letters to the state and federal governments for funding. Additionally, with the recent legislative actions, SCAG believes that the primary source of funding would come from California’s Broadband Budget Bill (AB/SB 156), which commits \$6 billion to broadband and the federal infrastructure bill, which commits \$65 billion towards broadband expansion. A breakdown of the two bills are as follows:

Table 1: California’s Broadband Budget Bill (AB/SB 156)

Cost	Need
\$3.25 B	Middle Mile Improvements
\$2 B	Last Mile Improvements (Urban and Rural)
\$750 M	Local Governments and Non-Profits

Table 2: Federal Infrastructure Bill (Broadband)

Cost	Need
\$42.5 B	Direct allocation to States
\$14.2 B	Broadband subsidies for households
\$3.25 B	State-owned Middle Mile network

\$2.75 B	Digital Equity Act
\$2 B	ReConnect Program
\$750 M	Local Governments and Non-Profits to assist in initial financing

SCAG will try help local jurisdictions and other stakeholders secure funding through other sources. Funding sources may include the Coronavirus State and Local Fiscal Recovery Funds and the Connecting Minority Communities (CMC) Pilot Program.⁹

Due to SCAG’s limited authority, it is unlikely that SCAG will control or distribute \$8 billion dollars directly. Instead, SCAG proposes to partner with public and private sector and assist with the grant application process. Additionally, SCAG can conduct studies which would evaluate different distribution models and business practices (i.e, joint public/partner ventures).

To achieve these goals, SCAG and SANDAG are proposing a joint “Request for Partnerships” as a potential vehicle to engage with internet providers, both public and private, as funding opportunities arise. This process could assist in securing funds from current programs and serve as a template for additional funding provided by the state and federal government.

Strategic and Technical Studies

SCAG is working towards developing strategic and technical studies related to broadband infrastructure.

Strategic studies are envisioned to find solutions for the following:

- Drive expansion of middle mile and last mile infrastructure partnerships and prioritize infrastructure improvements in unserved and underserved communities
- Develop regionally consistent broadband policies, planning, and permitting practices; encourage local adoption and implementation of broadband in plans and projects
- Build consensus that broadband is an essential public service; support policy and legislative initiatives that mandate service performance and affordability standards.
- Develop technical assistance and resources to support organization to advance digital equity and inclusion
- Collect and advocate for better public data and funding for digital equity programming and services that increase broadband adoption and advance digital literacy.

Technical studies are envisioned to do the following:

⁹ Available at: <https://scag.ca.gov/sites/main/files/file-attachments/6-matrix-bb-funding.pdf>

- Establish a baseline perspective on the state of broadband in the SCAG area, broadband investment opportunities, and deployment strategies. This approach serves as an initial review of for the SCAG region to address key broadband-related items as follows:
 - Broadband demand center locations and drivers of demand in these areas.
 - Core internet infrastructure and where it exists within the SCAG region.
 - Overall quality of cellular wireless service across and carriers throughout the region.
 - Areas within the SCAG region that may be attractive to telecommunication firms for deploying diverse types of infrastructure.
 - The VMT and GHG impacts of increased broadband adoption, particularly resulting from increased infrastructure opportunities with Caltrans projects.

- Support the development of Connect SoCal (upcoming 2024 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) by establishing a nexus between transportation and broadband infrastructure and how it can drive the scenario planning process by evaluating the following:
 - Equity
 - Telework (Tele-Everything) and its impacts on VMT/GHG
 - Digital Based Trade or Commerce
 - Transportation Safety
 - Goods Movement

NEXT STEPS:

Staff will continue to work on project initiatives stated above and in summary will prioritize the following work efforts:

- Complete broadband survey and interviews
- Expand SCAG’s GIS database, develop detailed maps and disseminate information to interested parties
- Secure funding for local jurisdictions, other public entities, and ISPs
- Conduct strategic and technical Studies.

Staff will also provide periodic updates to the Regional Council and Policy Committees on the progress of SCAG’s broadband program and deliverables listed above.

FISCAL IMPACT:

Work on this project is funded in SCAG’s Fiscal Year 2020-21 Overall Work Program (OWP) under projects 020.0161.04 (Environmental Compliance and Outreach) and 010.1631.02 Transportation Demand Management (TDM) Planning.

ATTACHMENT(S):

1. Broadband_Data_Analysis
 2. SCAG_Region_Broadband_Maps
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3. County_Level_Broadband_Maps
 4. PowerPoint Presentation - SCAG's Broadband Program

Broadband Demographic Analysis for the SCAG Region

	Population under 18		Population 65 Years and Over		Percentage of Ethnicities of Households without an Internet Subscription or No Computer			Households Without an Internet Subscription	Household Without a Broadband Internet Subscription	Percentage of Households without an Internet Subscription or No Computer				
	Percentage of Households without an Internet Subscription or No Computer	Percentage of Pop under 18 in Households	Percentage of Pop under 18 without an Internet Subscription or No Computer	Percentage of Age 65+ in Households	Percentage of Age 65+ in Households without an Internet Subscription or No Computer	Hispanic	Black			Asian	White	Age 25+ With Less Than High School Graduate or Equivalency	Urbanized Area	Rural Area
Imperial County	23%	30%	11%	13%	35%	15%	29%	6%	14%	34%	39%	32%	22%	24%
Los Angeles County	16%	22%	12%	13%	24%	16%	19%	7%	9%	29%	34%	26%	16%	9%
Orange County	9%	23%	6%	14%	15%	10%	9%	5%	6%	20%	24%	18%	9%	5%
Riverside County	14%	26%	8%	14%	18%	13%	11%	5%	8%	24%	29%	22%	14%	13%
San Bernardino County	16%	27%	12%	11%	24%	15%	16%	5%	10%	28%	32%	25%	16%	15%
Ventura County	12%	24%	10%	15%	17%	16%	6%	4%	6%	27%	31%	28%	12%	14%
SCAG Region	15%	23%	10%	13%	22%	15%	17%	6%	8%	27%	32%	24%	15%	13%

Data Source: ACS 5-year (2015-2019), Caltrans adjusted Urbanized Area (2010)

Data Note from the Census:
 Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value.

Internet Service Provider Plan Speed/Cost Summary

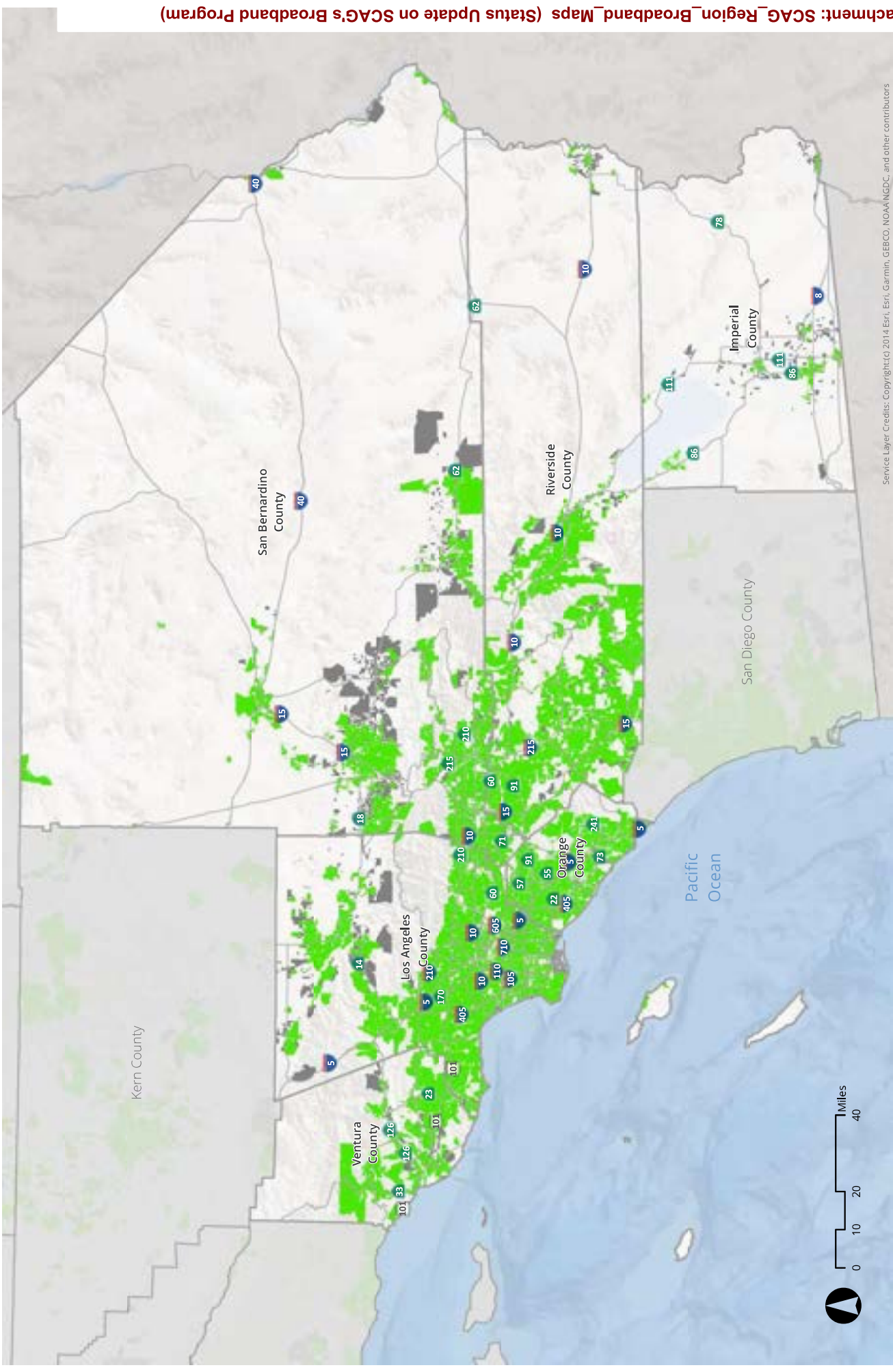
County	Avg. Number of Providers Per Zip Code	Avg. Mbps	Avg. Lowest Price Terrestrial Broadband Plan Per Zip Code
Imperial	10	79	\$ 68.36
Los Angeles	12	237	\$ 35.24
Orange	13	101	\$ 34.94
Riverside	12	78	\$ 35.69
San Bernardino	10	71	\$ 42.49
Ventura	11	98	\$ 36.19
SCAG	11	111	\$ 42.15

Data Source: M-Lab and Broadband Now (2021)

Broadband Speed Test at the Zip Code Level

	Down 25+ / Up 3+	Down 1-25 / Up 3+	Down 1-25 / Up 0-3	No Data	TOTAL
Imperial County	33%	25%	42%	0%	100%
Los Angeles County	80%	9%	1%	10%	100%
Orange County	81%	11%	0%	8%	100%
Riverside County	72%	19%	7%	3%	100%
San Bernardino County	62%	11%	14%	13%	100%
Ventura County	76%	8%	3%	14%	100%
SCAG Region	75%	11%	5%	9%	100%

Data Source: M-Lab Data (Dec 2019 – Oct 2020)



Fixed Broadband

- Meets Federal Threshold
- Below Federal Threshold

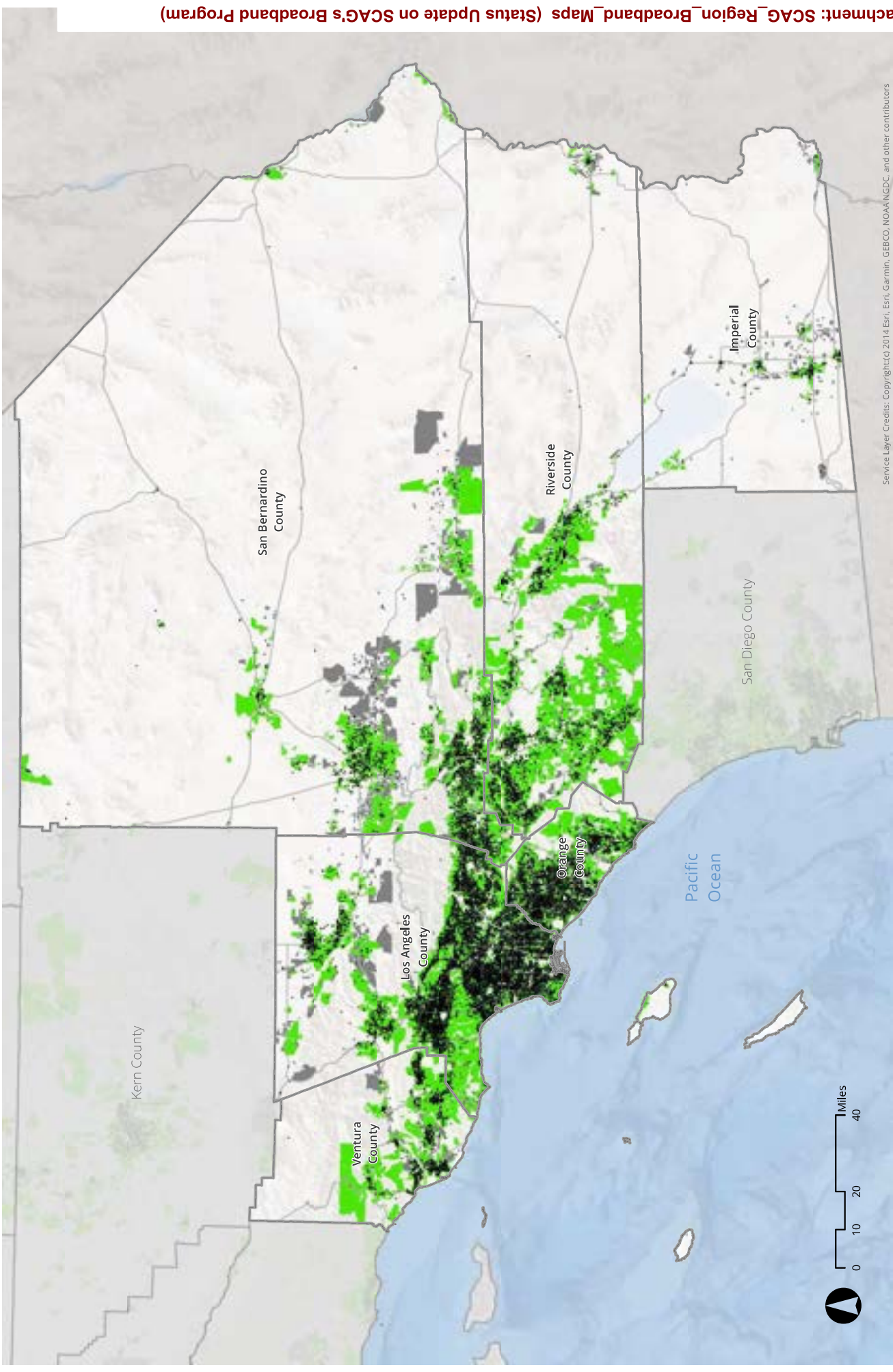
Note: The broadband layer represents the California Public Utilities Commission's (CPUC) State Broadband consumer wireline and/or fixed wireless (fixed) broadband deployment. Federal threshold is 25Mbps download speed/3Mbps upload speed

Fixed Broadband by Census Block for SCAG Region



Source: California Public Utilities Commission

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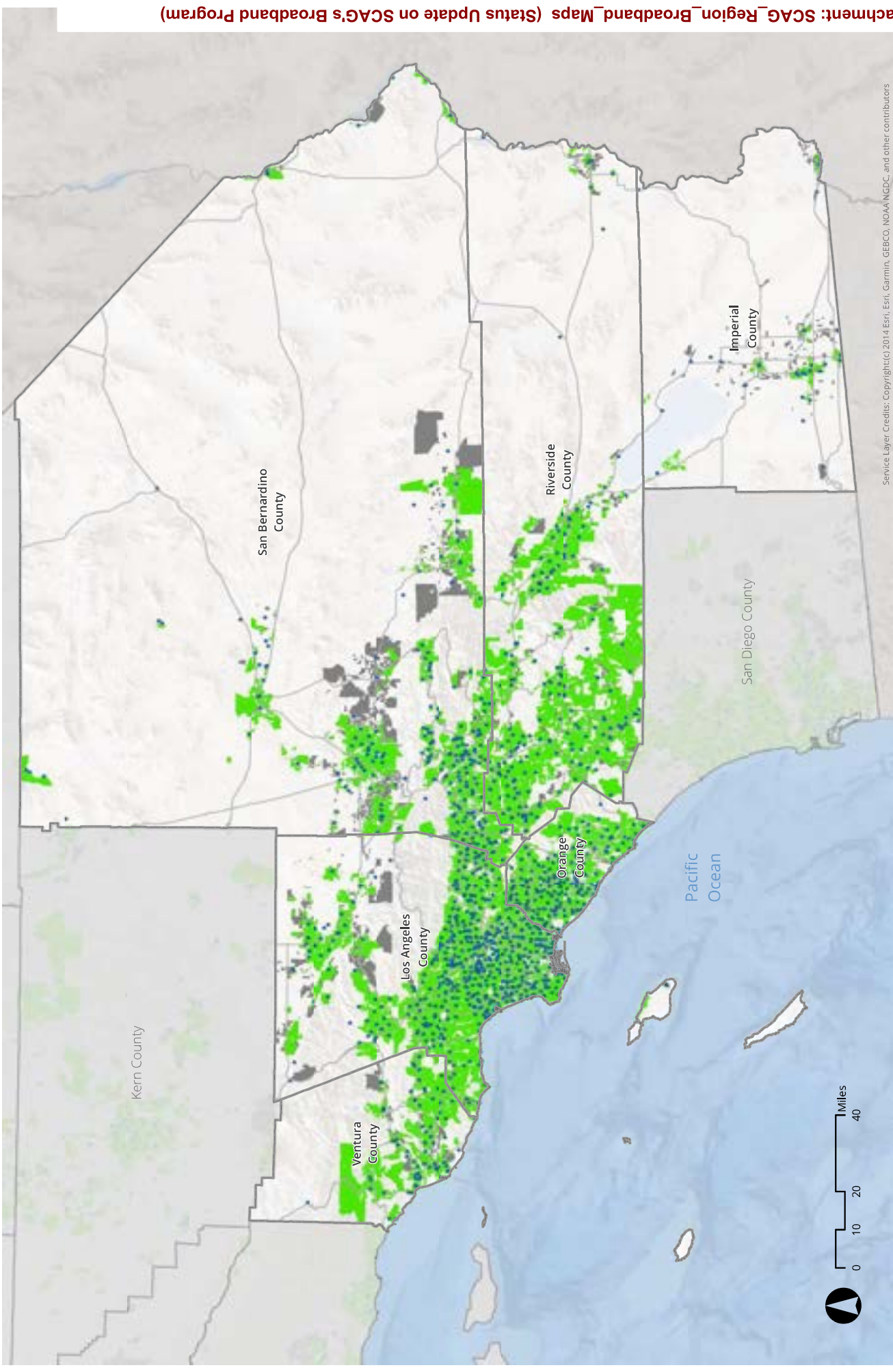
The Community Anchor Institutions Map for SCAG Region

- Community Anchor Institutions
- Fixed Broadband Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Note: The Community Anchor Institution files are a compilation of schools, libraries, health institutions, and public safety facilities in California.



Source: California Public Utilities Commission (CPUC), California Department of Health



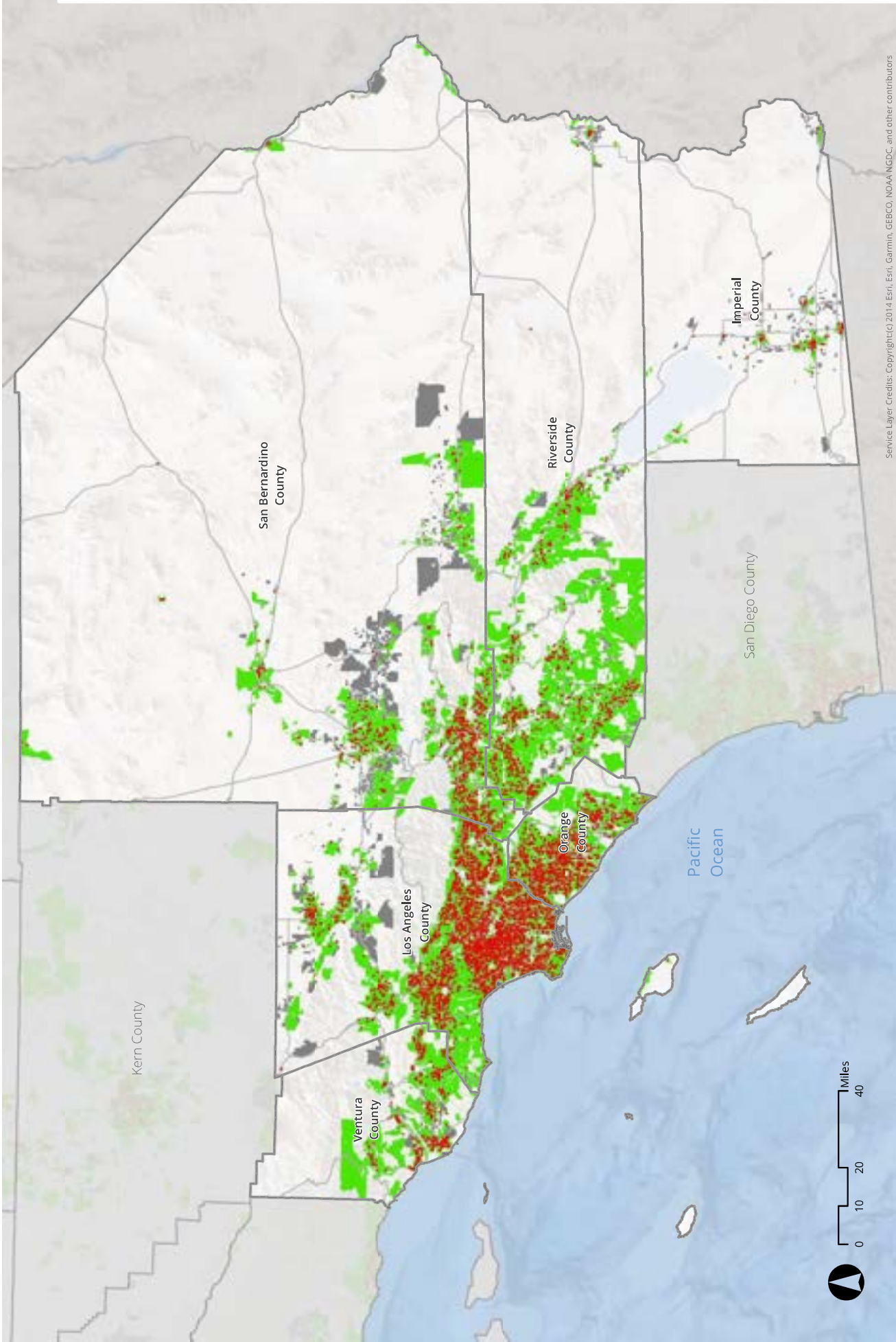
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Public Safety for SCAG Region

- Public Safety Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (2010)



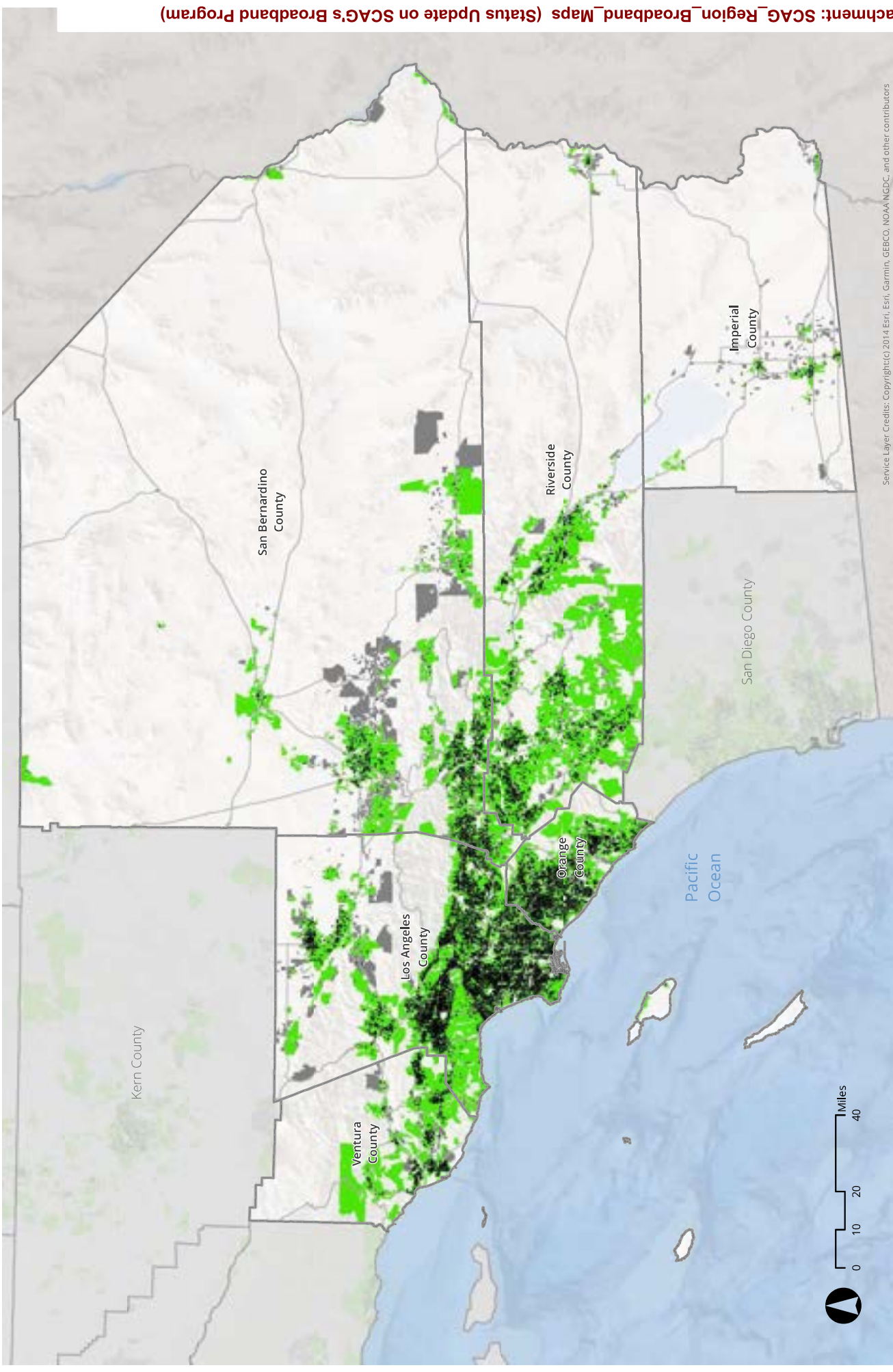
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Education for SCAG Region

- Education Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)



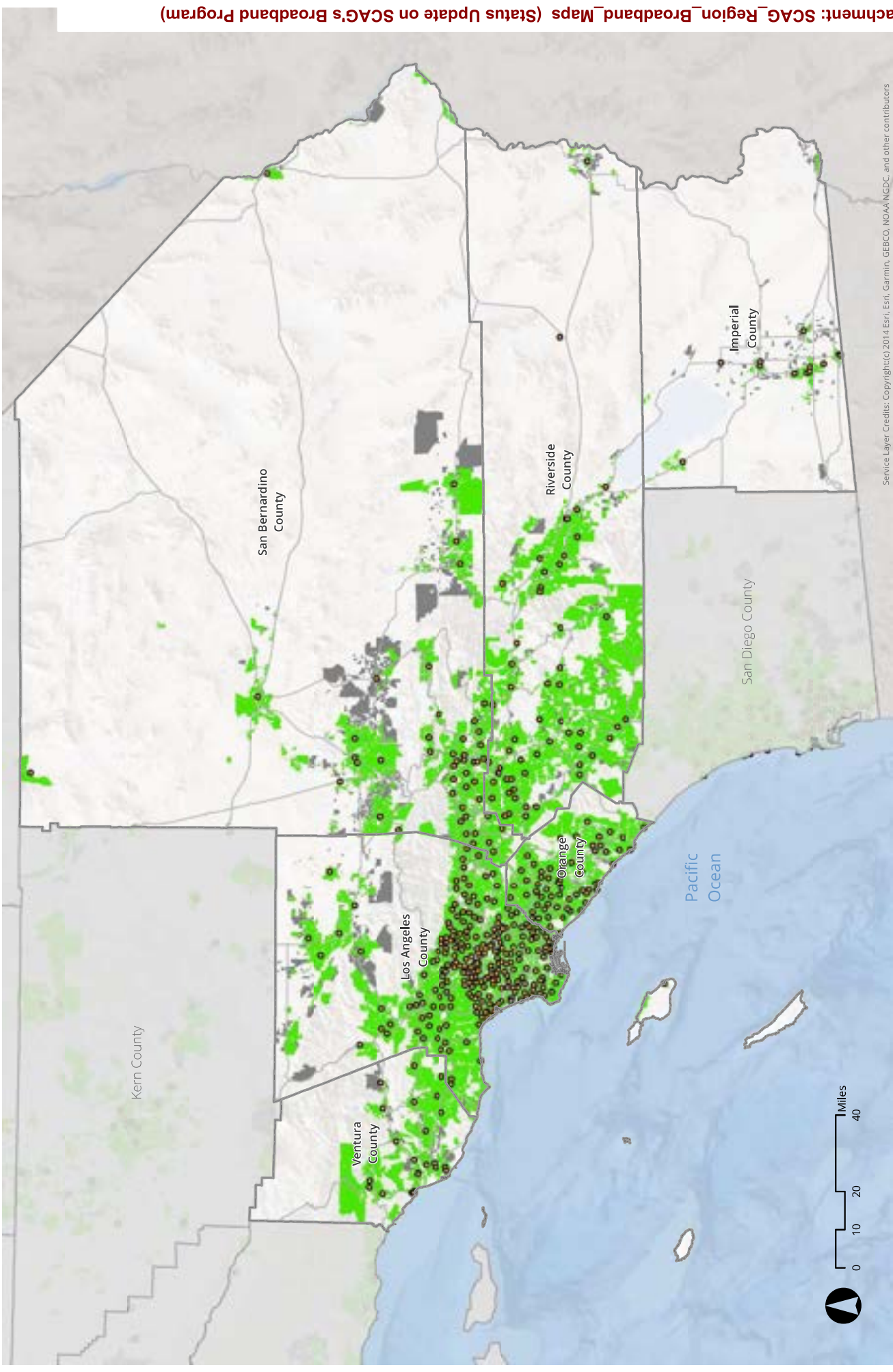
Service Layer Credits: Copyright © 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Healthcare/Social Services for SCAG Region

- Healthcare/Social Services
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC),
California Department of Health Services (CDHS)

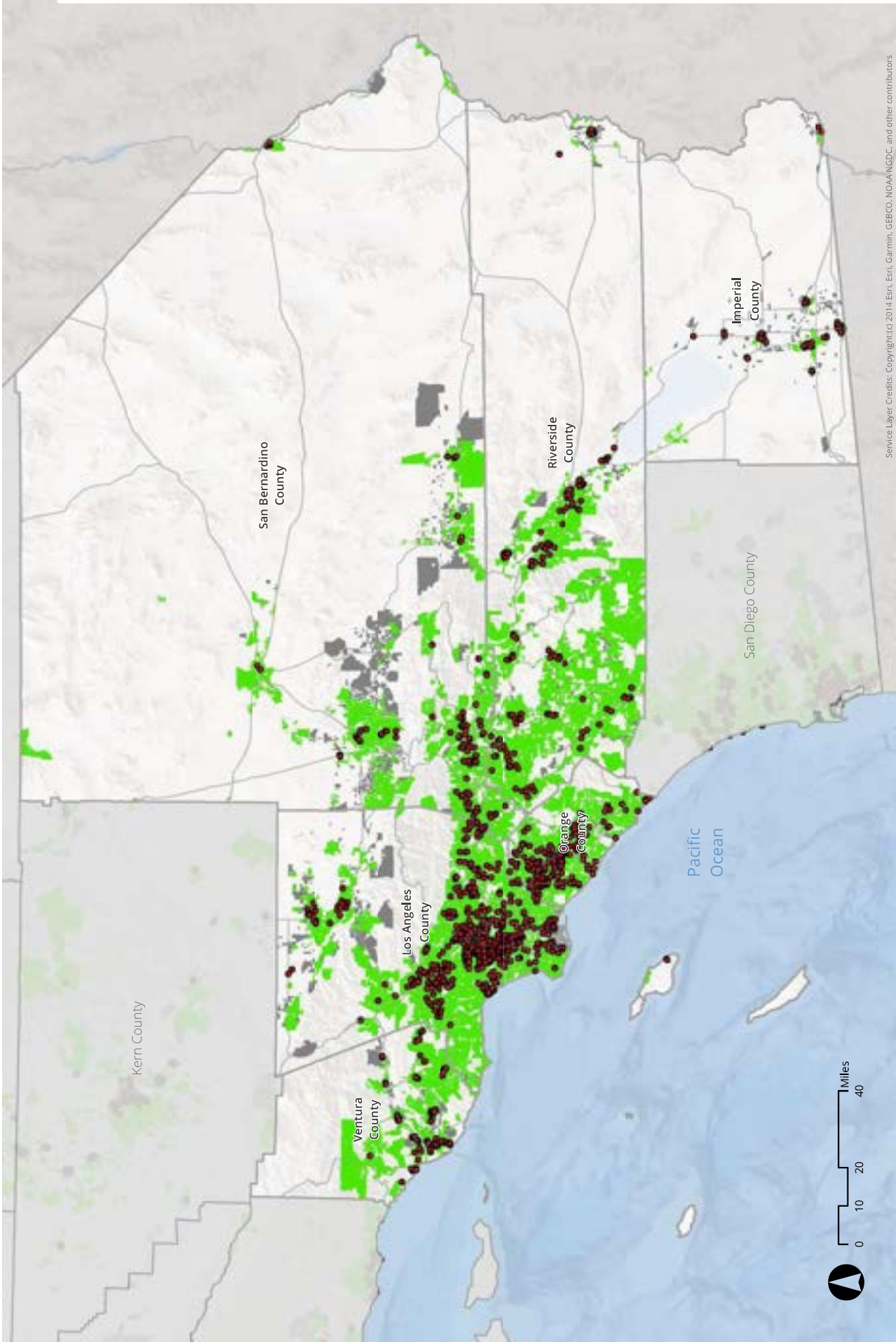


Service Layer Credits: Copyright© 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Libraries for SCAG Region

- Libraries
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold





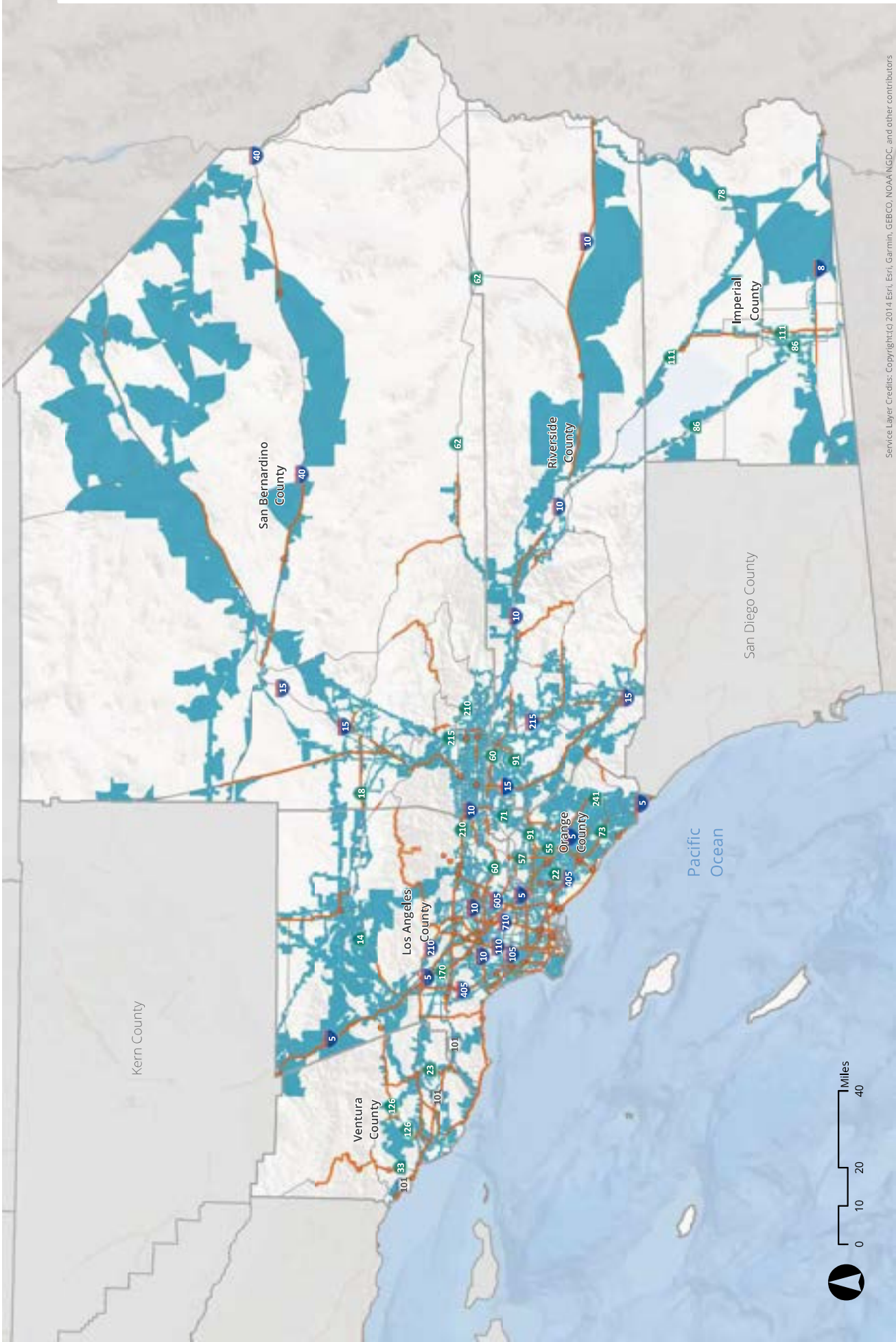
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Public-Subsidized Housings for SCAG Region

- Public-Subsidized Housings
- Fixed Broadband Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Tax Credit Allocation Committee (TCAC)



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Fiber Presence by Census Block for SCAG Region

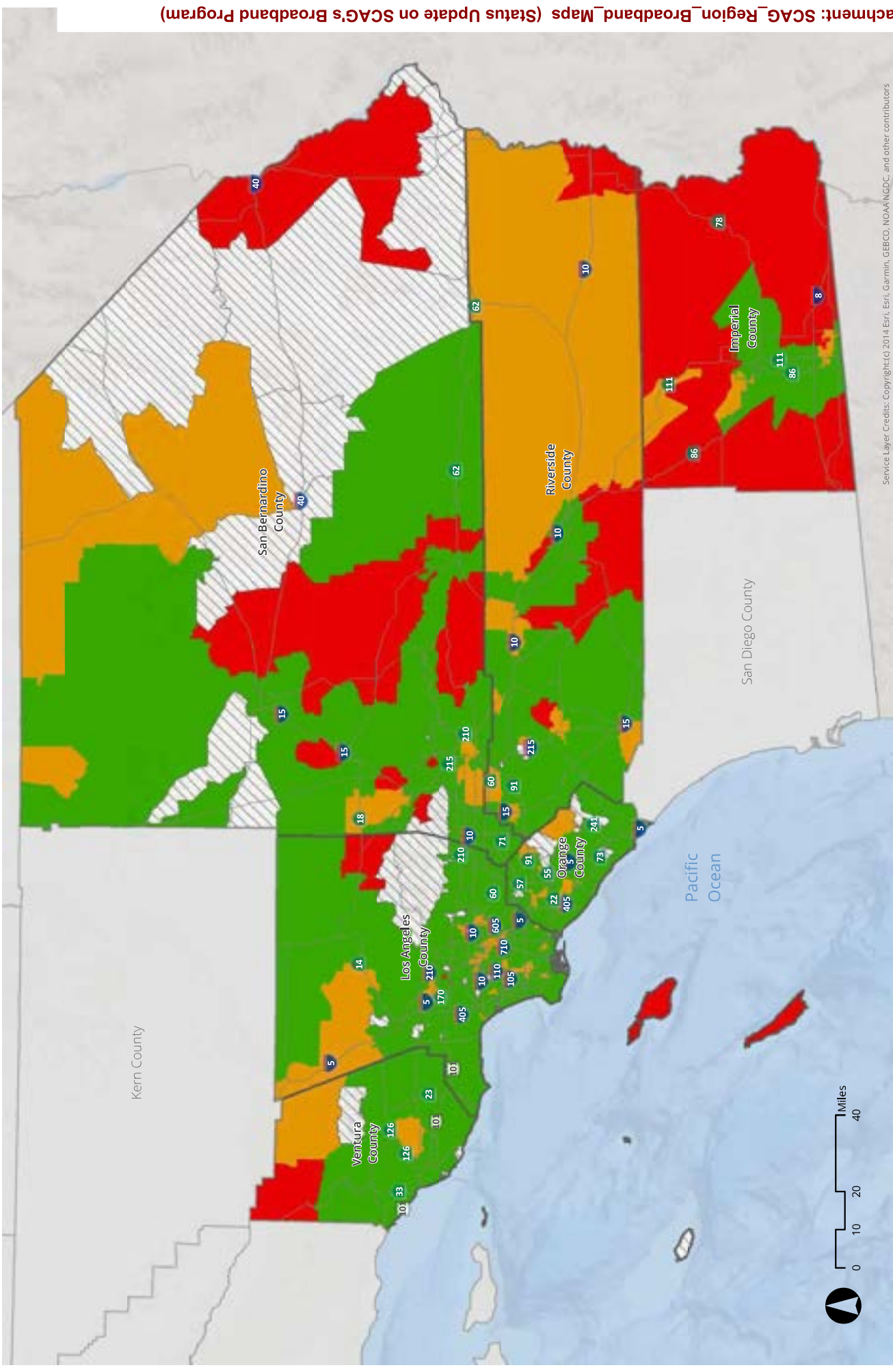
- Fiber Presence
- SHOPP Projects (Lines)
- SHOPP Projects (Points)

Note: Census blocks highlighted on this map contain broadband line infrastructure within their boundaries. The data does not indicate the precise location of lines, only that fiber lines are present somewhere within the Census block area.

Map Title: 5 FiberPresence_Map_Scag



Source: California Public Utilities Commission (CPUC).



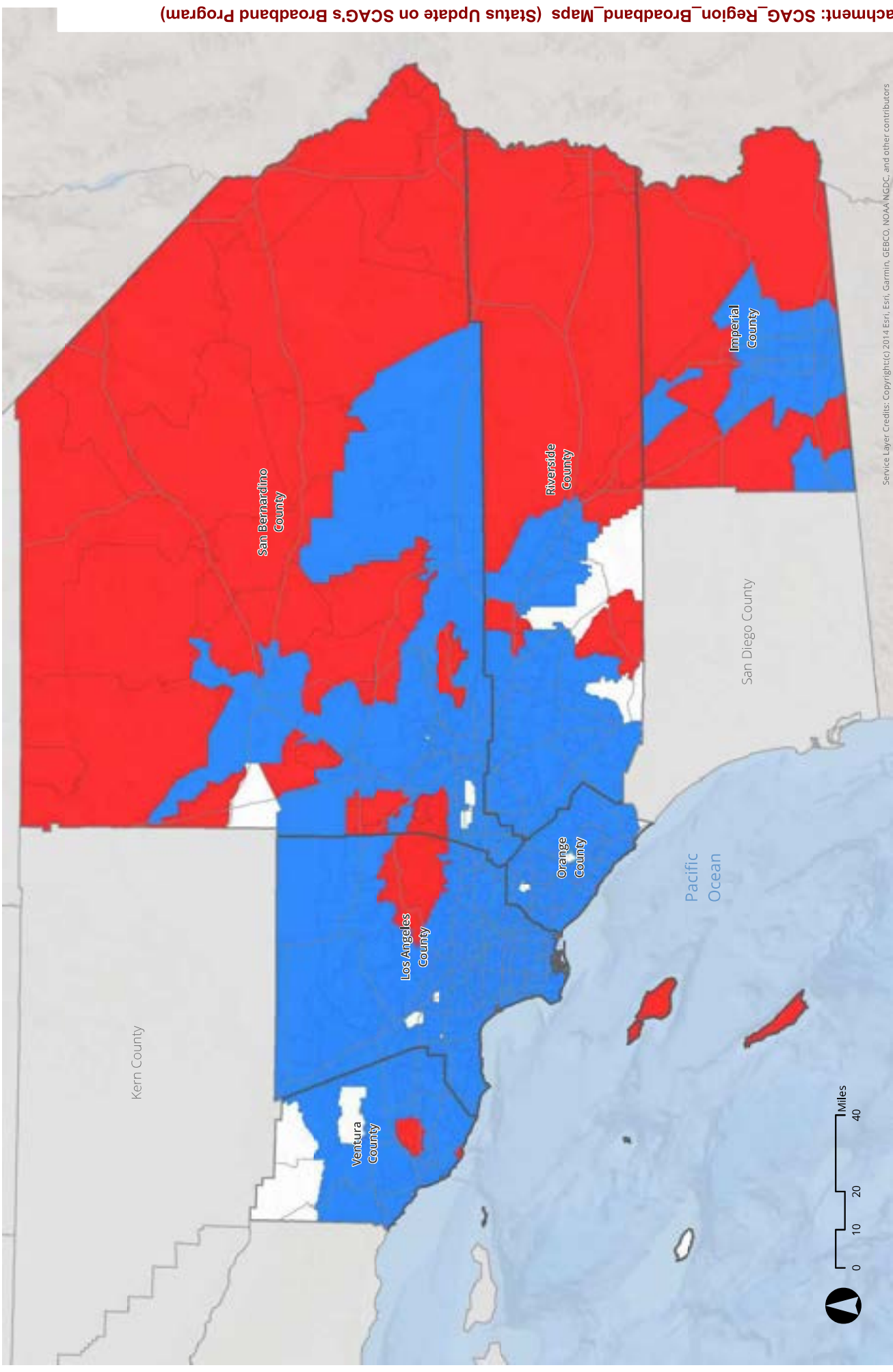
Download/Upload Speeds in Mbps

- Down 25+ / Up 3+
- Down 1-25 / Up 3+
- Down 1-25 / Up 0-3
- No Data

Note: Federal threshold is 25 Mbps download and 3 Mbps upload speeds.

Broadband Speed Test Map by Zip Code for SCAG Region





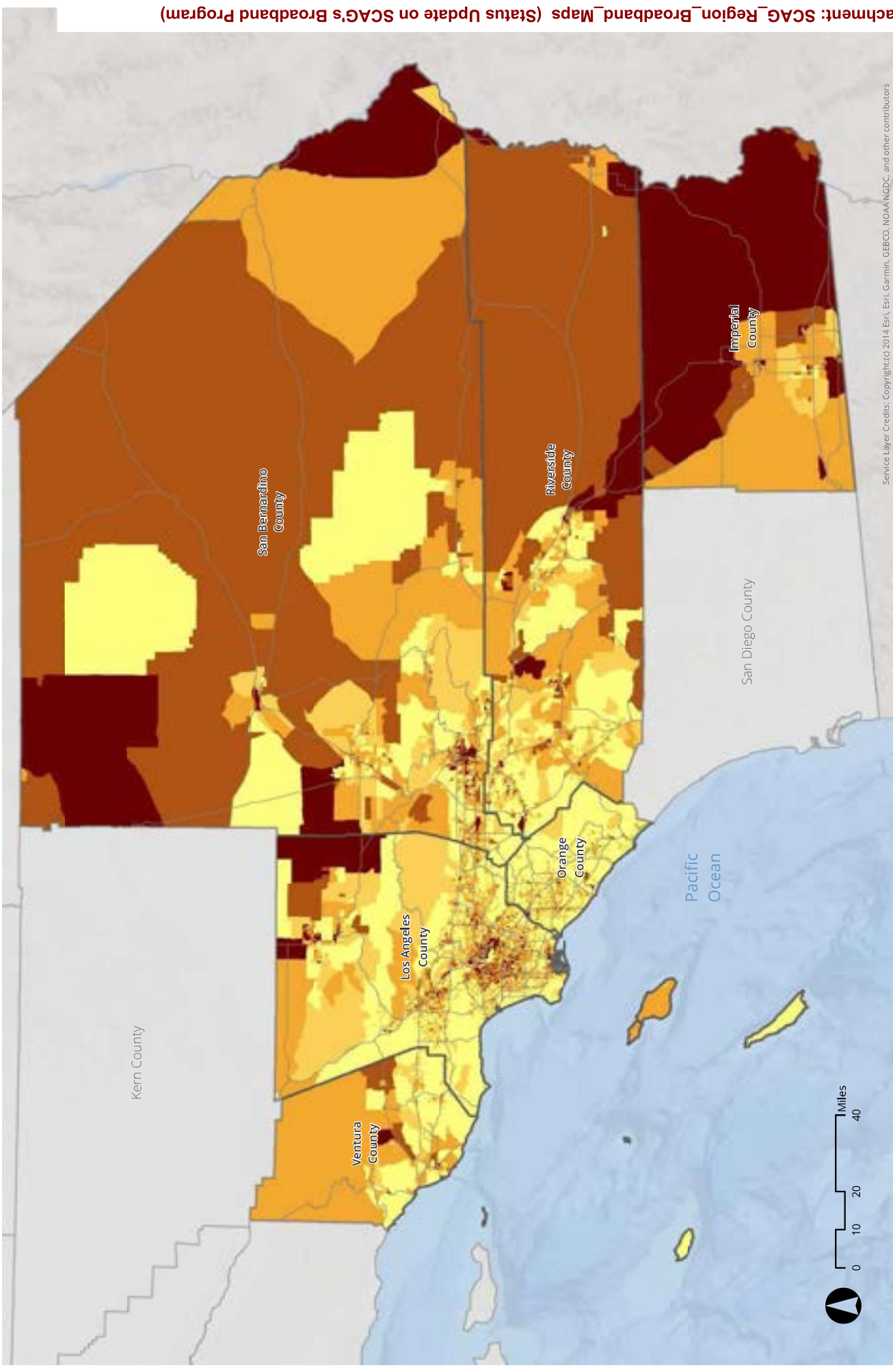
Broadband Low Cost Plans Available by zipcode

Availability of Low Cost Plans for Qualifying Households in SCAG Region

- Available
- Not Available
- No Data

Note: Zipcodes highlighted on this map indicate service areas for ISPs (Spectrum, AT&T, Cox) that offer a low cost plan available for qualifying households it is because the internet service provider is accessible to over 50 percent of residents.





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Low Income Households without Broadband in SCAG Region

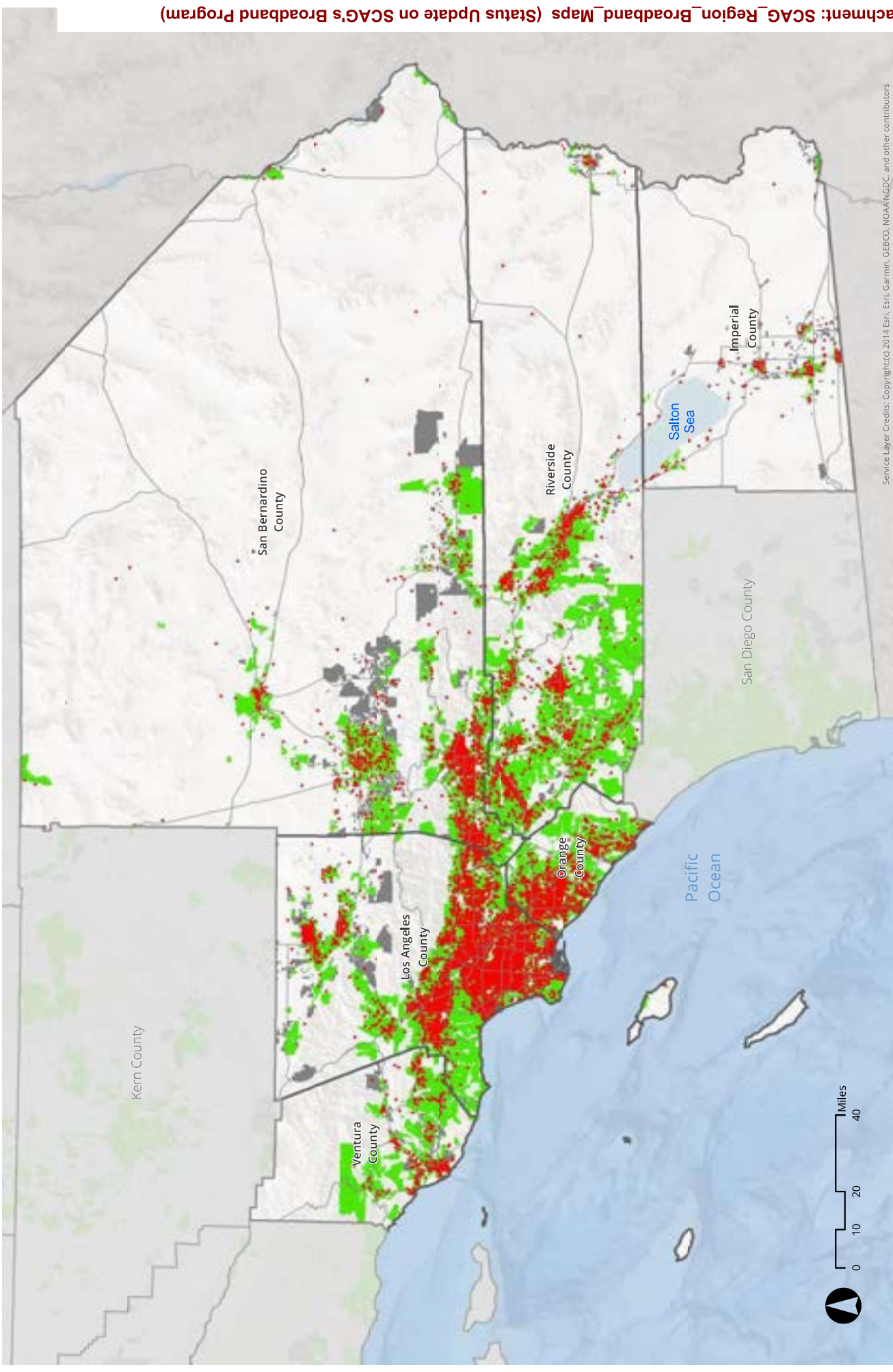
% of Low Income Households without Broadband by Blockgroup*

- Less than 5%
 - 5 - 10%
 - 11 - 20%
 - 21 - 30%
 - More than 30%
- * SCAG region low income households without broadband is 10%.

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-2

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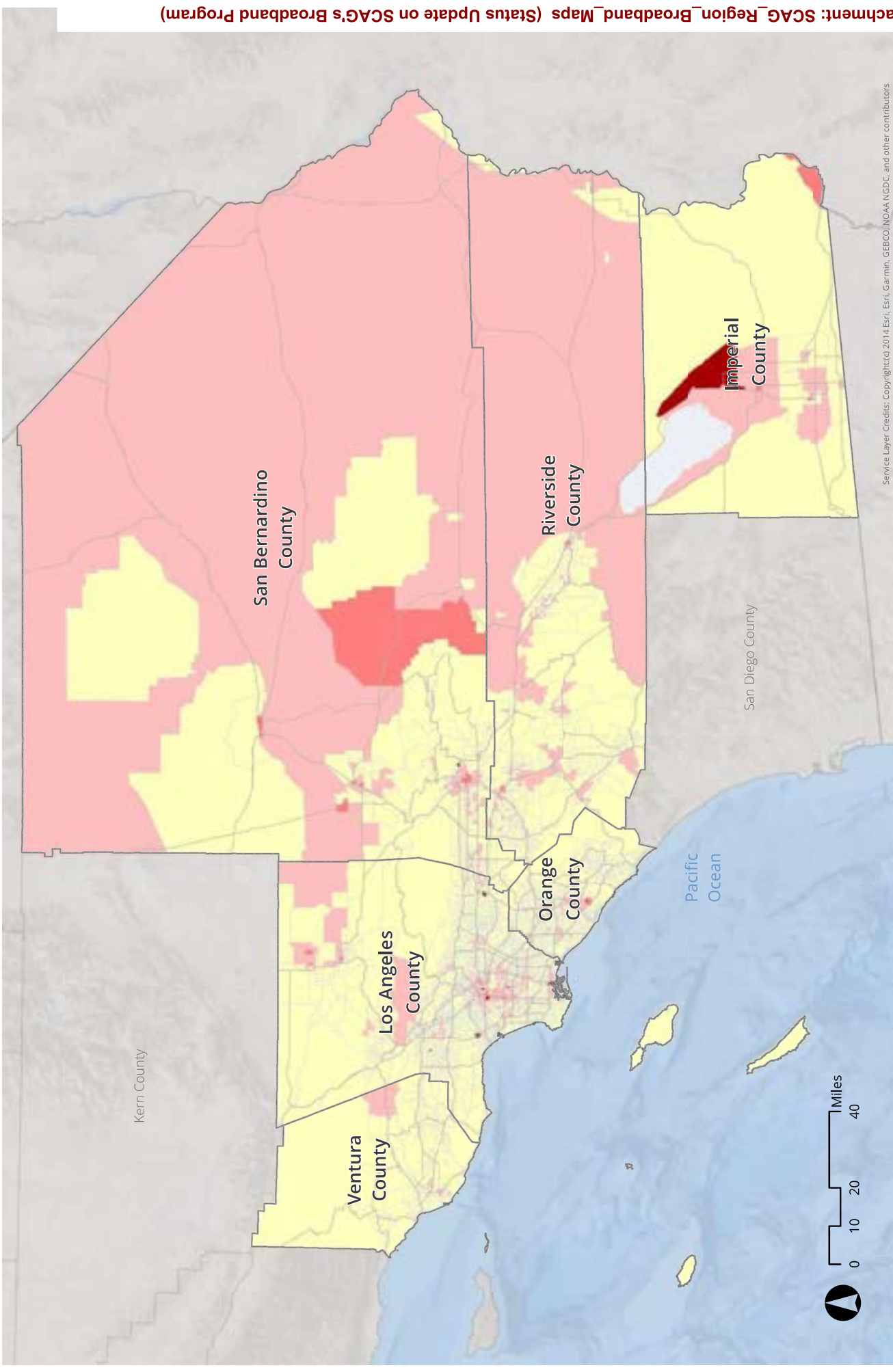
Lower Income Households without Broadband in SCAG Region

- Low Income Households without Broadband by Blockgroup
- 1 Dot = 50
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-2

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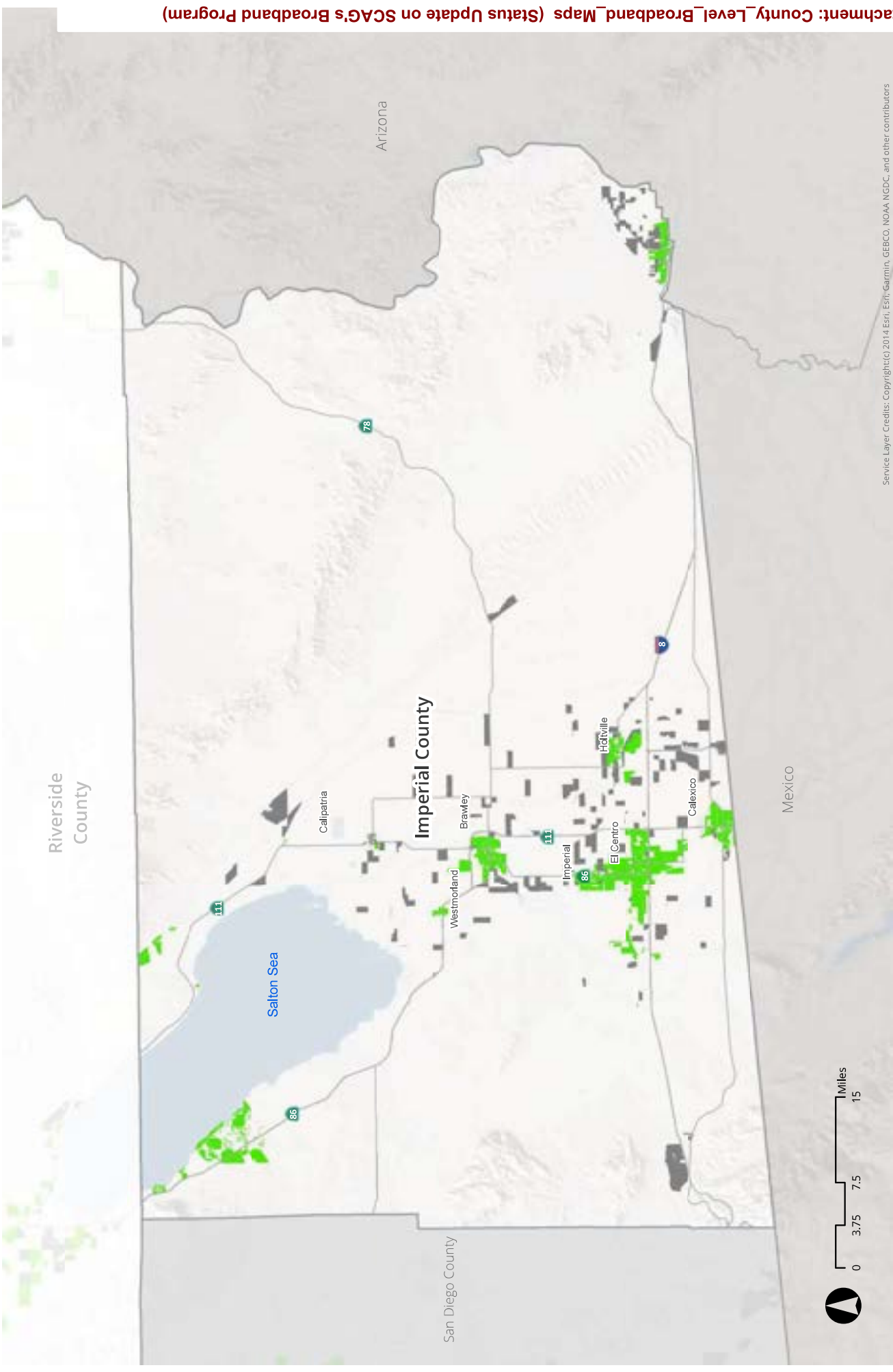


Percentage of Population Whose Income is Below Federal Poverty Level by Tract

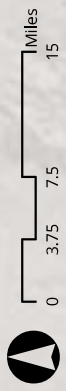
- 20% or less
- 21% - 40%
- 41% - 50%
- 51% - 60%
- 61% - 80%
- 81% or more

Note: Poverty status is based on income in past 12 months of ACS survey

Source: 2015-2019 ACS



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- Meets Federal Threshold
- Below Federal Threshold

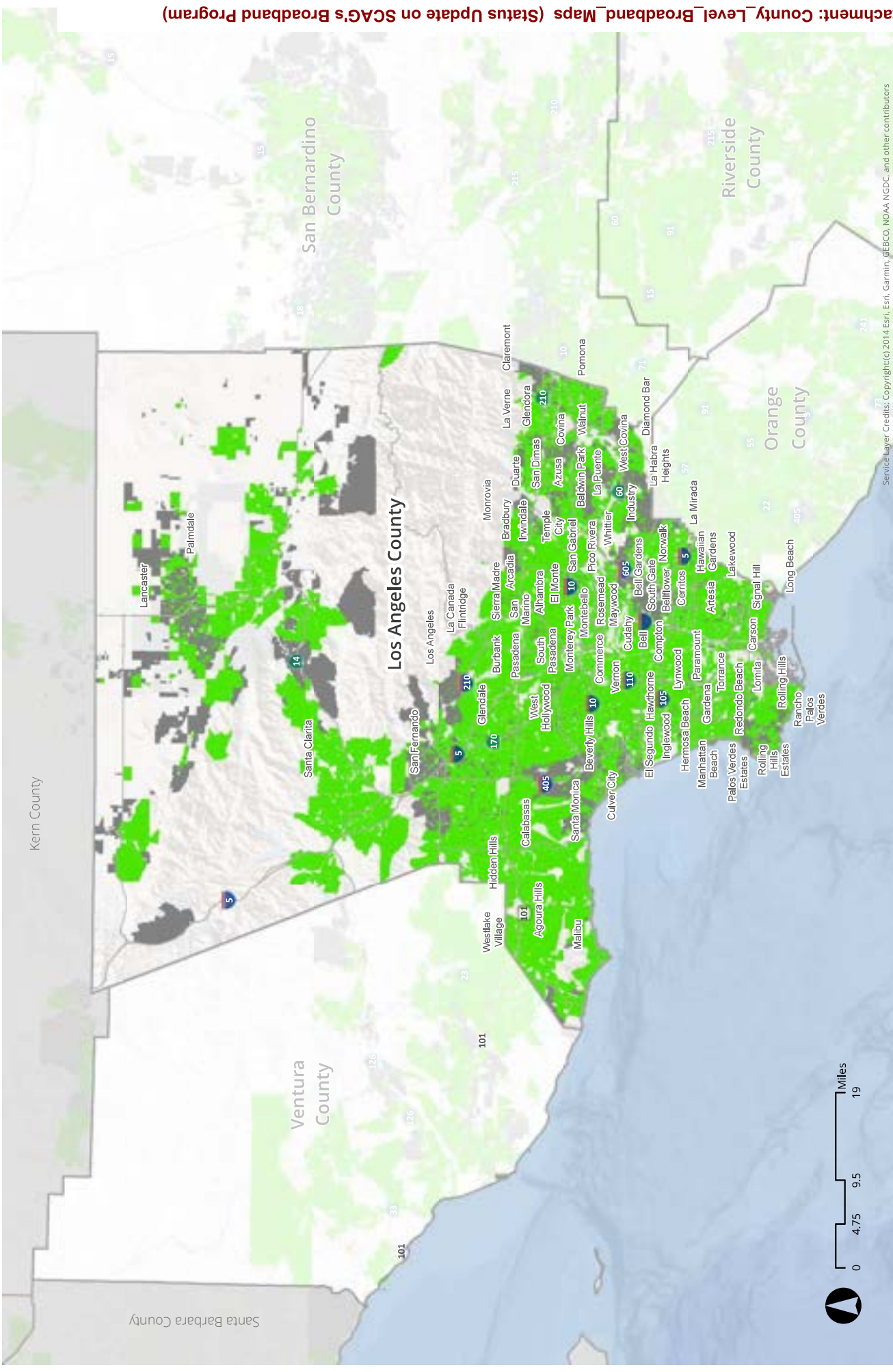
Fixed Broadband by Census Block for Imperial County

Note: The broadband layer represents the California Public Utilities Commission's (CPUC) State Broadband consumer wireline and/or fixed wireless (fixed) broadband deployment. Federal threshold is 25Mbps download speed/3Mbps upload speed



Source: California Public Utilities Commission

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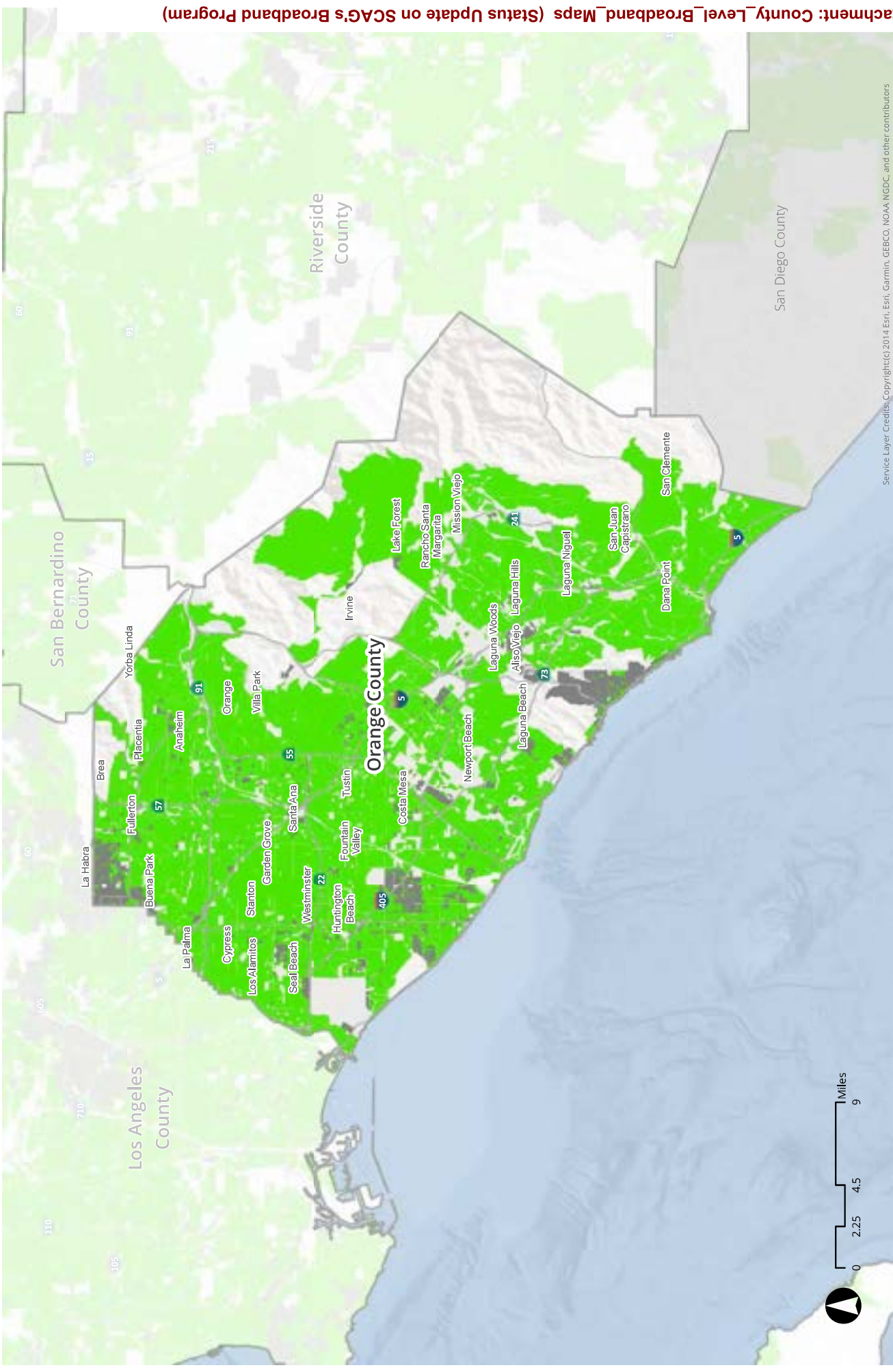
- Meets Federal Threshold
- Below Federal Threshold

Note: The broadband layer represents the California Public Utilities Commission's (CPUC) State Broadband consumer wireline and/or fixed wireless (fixed) broadband deployment. Federal threshold is 25Mbps download speed/3Mbps upload speed

Fixed Broadband by Census Block for Los Angeles County



Source: California Public Utilities Commission



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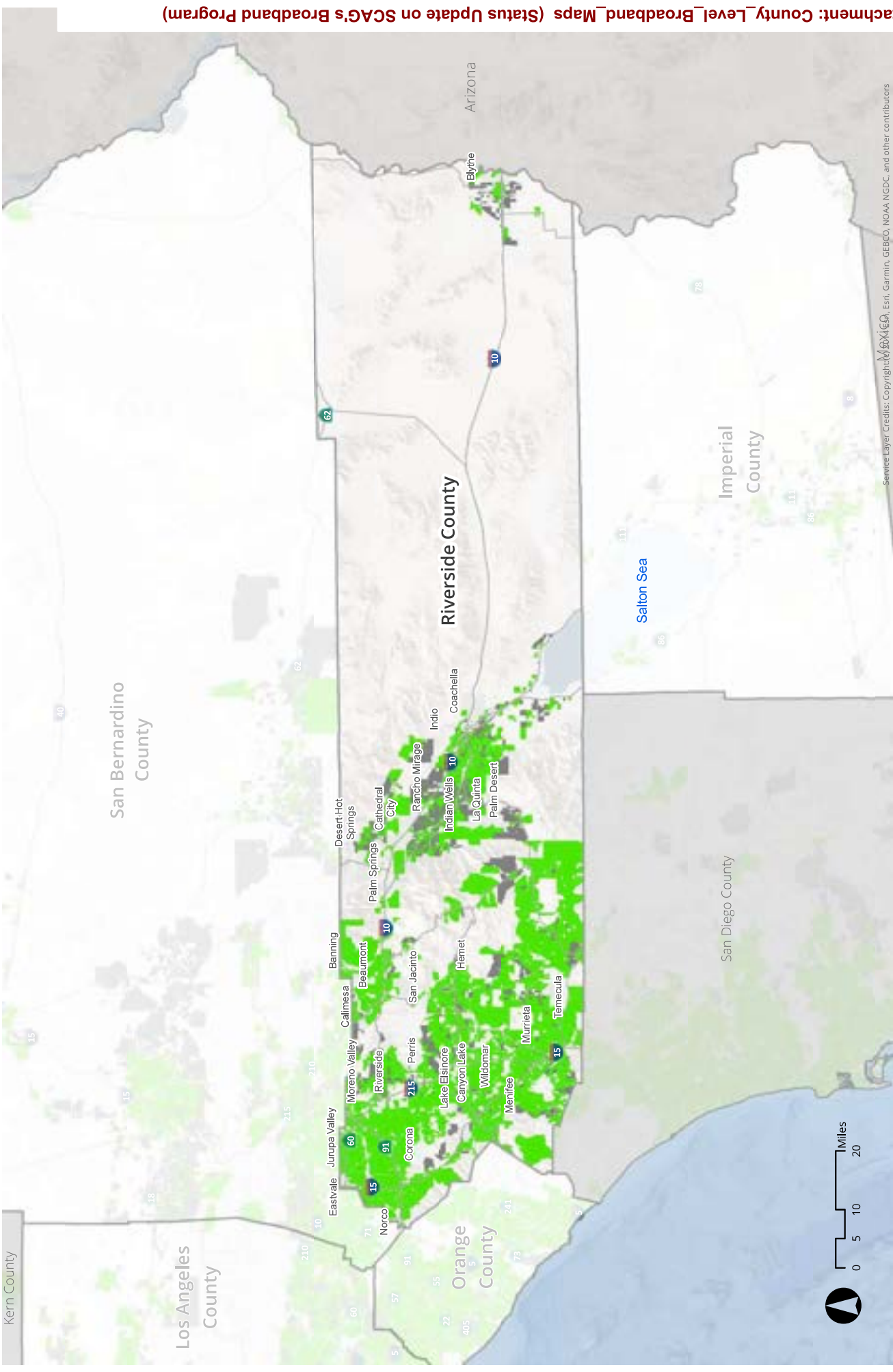
- Meets Federal Threshold
- Below Federal Threshold

Note: The broadband layer represents the California Public Utilities Commission's (CPUC) State Broadband consumer wireline and/or fixed wireless (fixed) broadband deployment. Federal threshold is 25Mbps download speed/3Mbps upload speed

Fixed Broadband by Census Block for Orange County



Source: California Public Utilities Commission



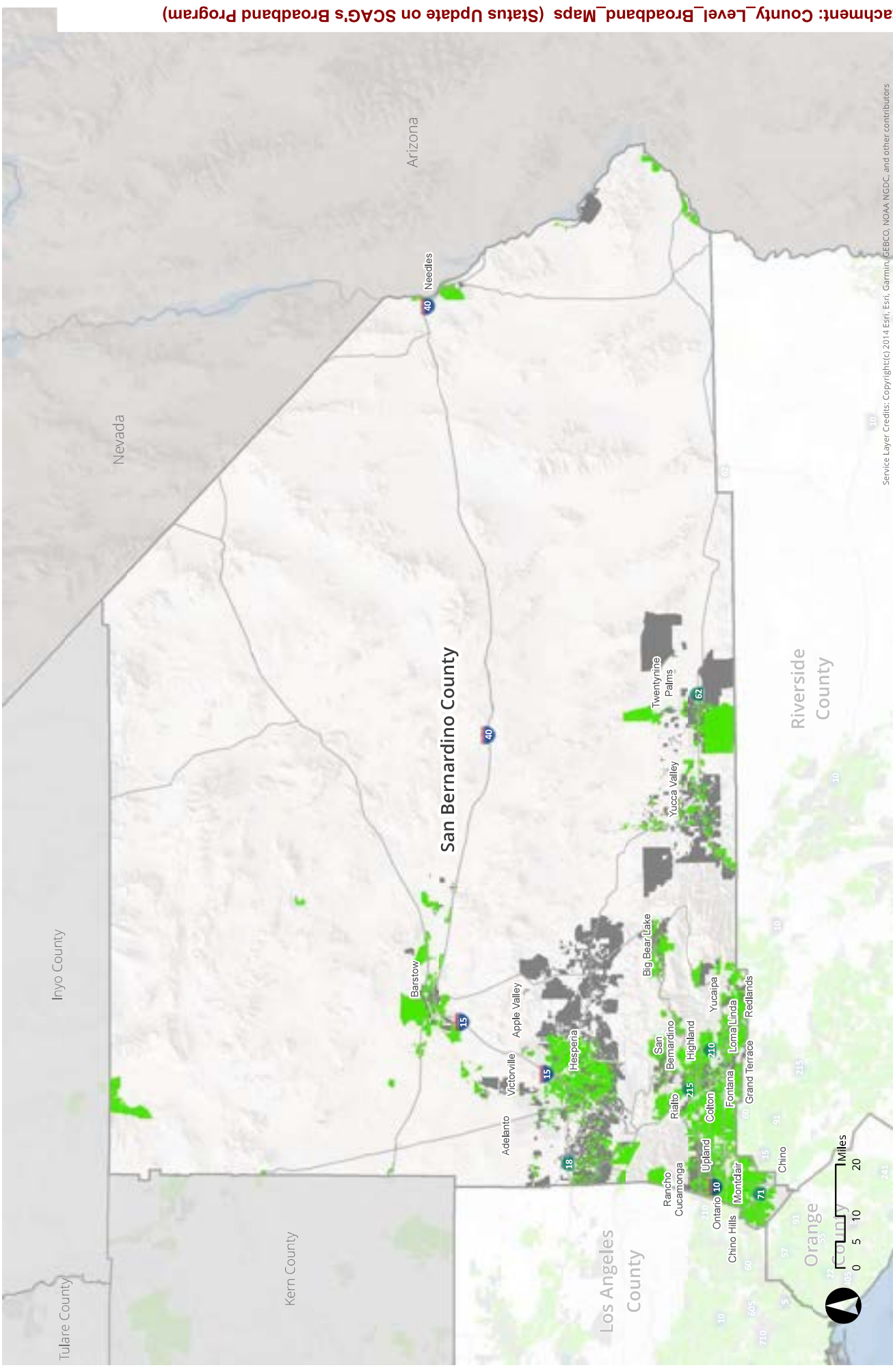
- Meets Federal Threshold
- Below Federal Threshold

Fixed Broadband by Census Block for Riverside County

Note: The broadband layer represents the California Public Utilities Commission's (CPUC) State Broadband consumer wireline and/or fixed wireless (fixed) broadband deployment. Federal threshold is 25Mbps download speed/3Mbps upload speed



Source: California Public Utilities



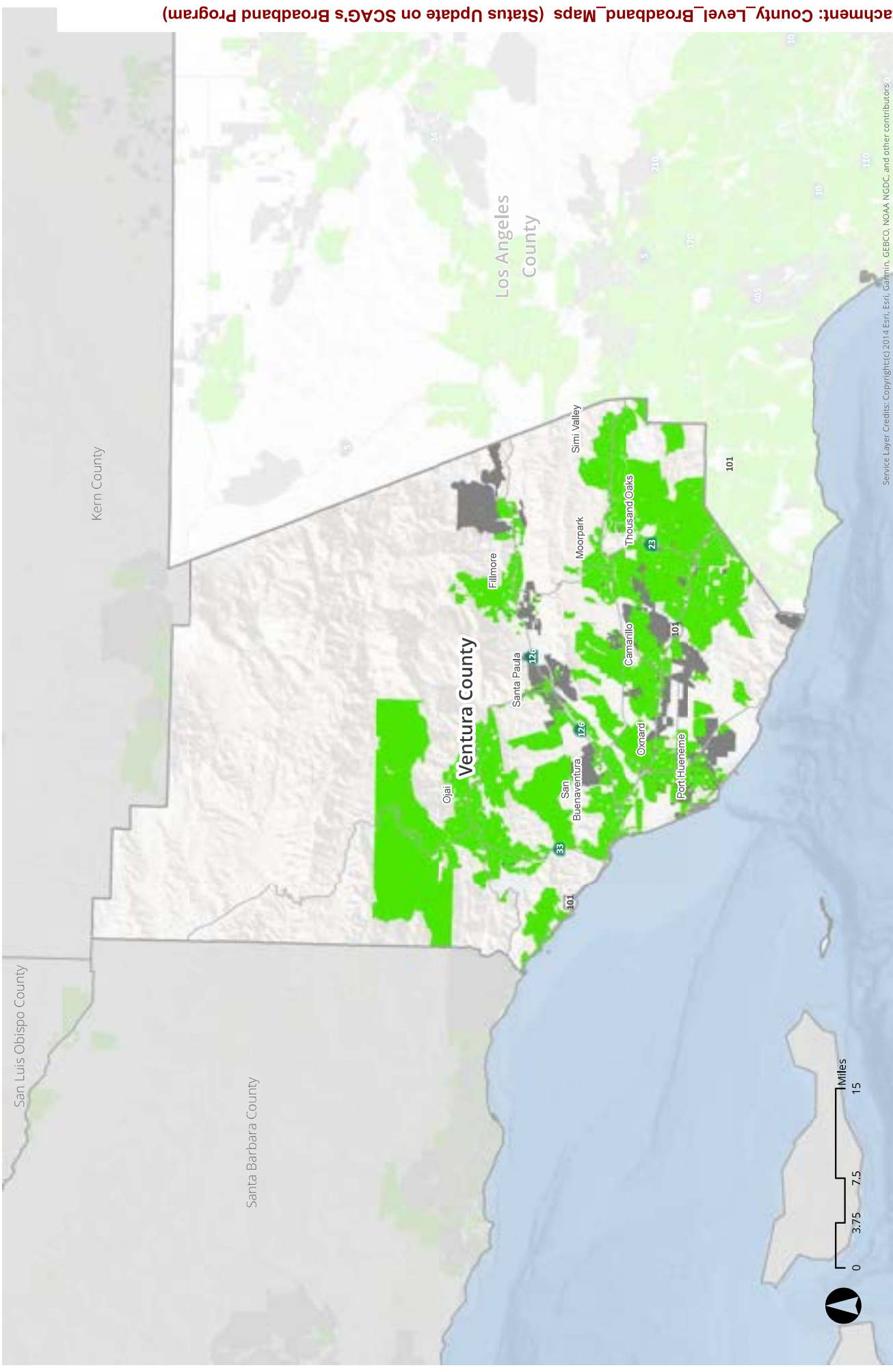
- Meets Federal Threshold
- Below Federal Threshold

Note: The broadband layer represents the California Public Utilities Commission's (CPUC) State Broadband consumer wireline and/or fixed wireless (fixed) broadband deployment. Federal threshold is 25Mbps download speed/3Mbps upload speed

Fixed Broadband by Census Block for San Bernardino County



Source: California Public Utilities Commission



- Meets Federal Threshold
- Below Federal Threshold

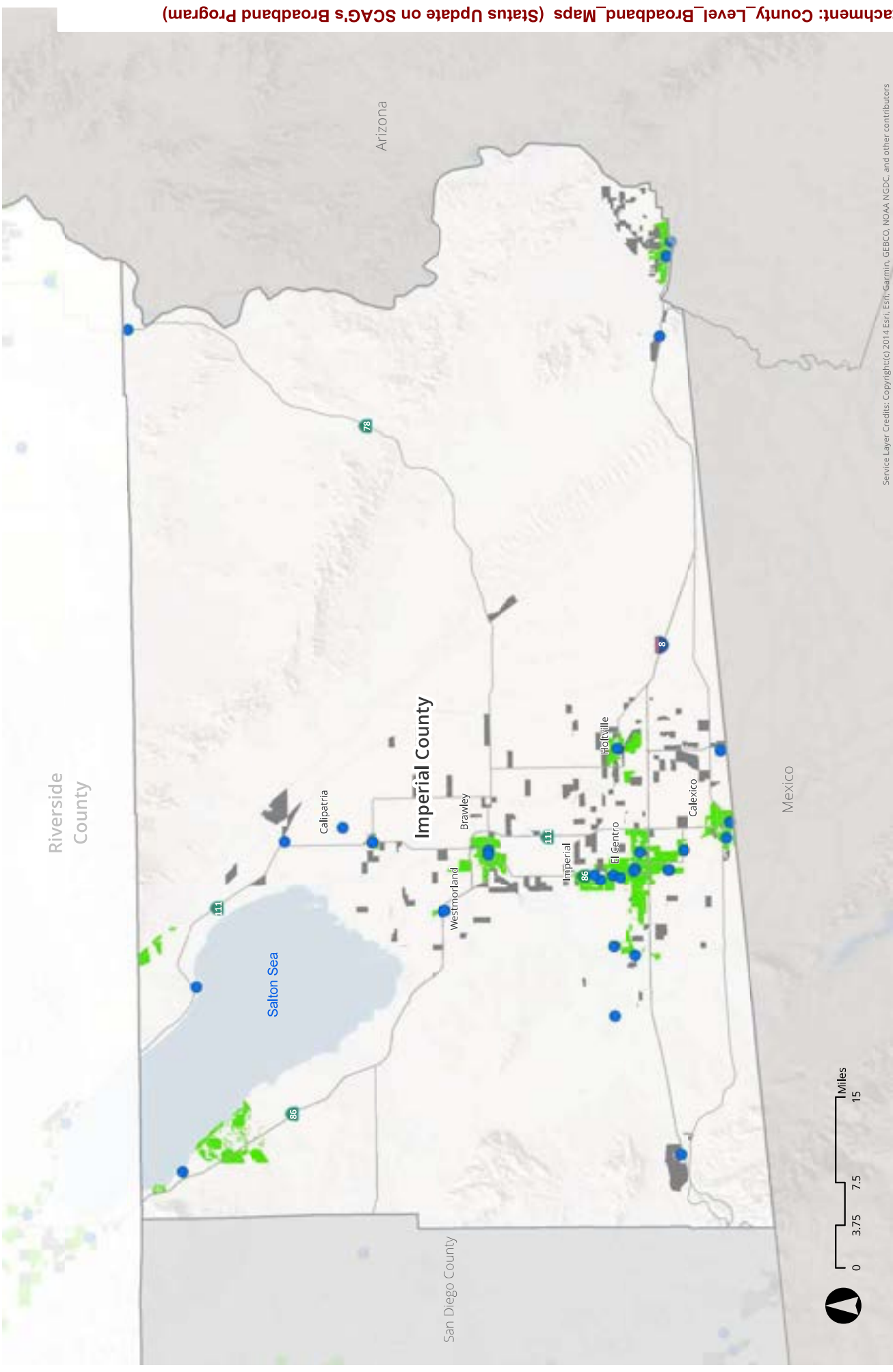
Note: The broadband layer represents the California Public Utilities Commission's (CPUC) State Broadband consumer wireline and/or fixed wireless (fixed) broadband deployment. Federal threshold is 25Mbps download speed/3Mbps upload speed

Fixed Broadband by Census Block for Ventura County



Source: California Public Utilities Commission

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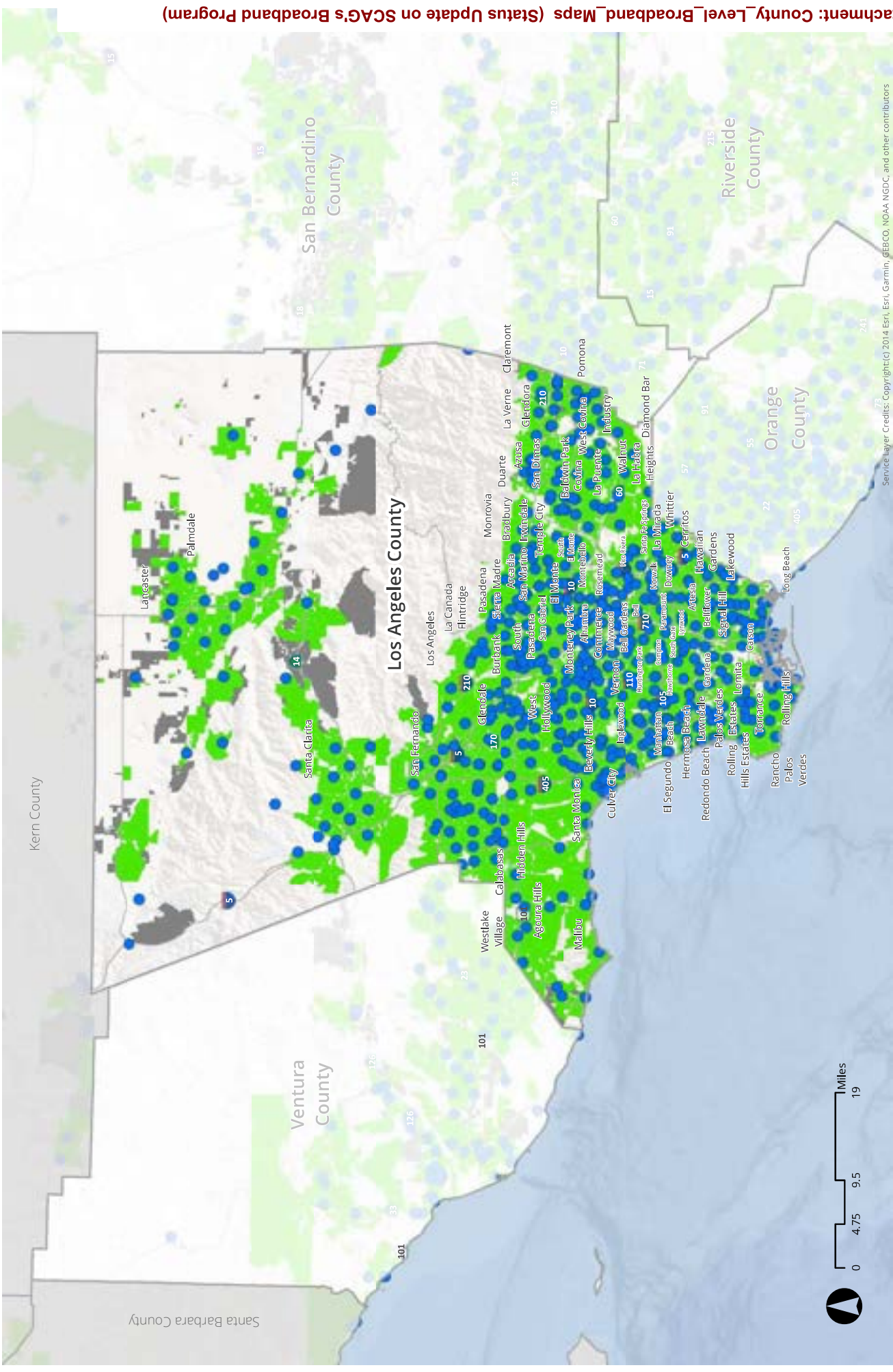
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Community Anchor Institution - Public Safety for Imperial County

- Public Safety Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)

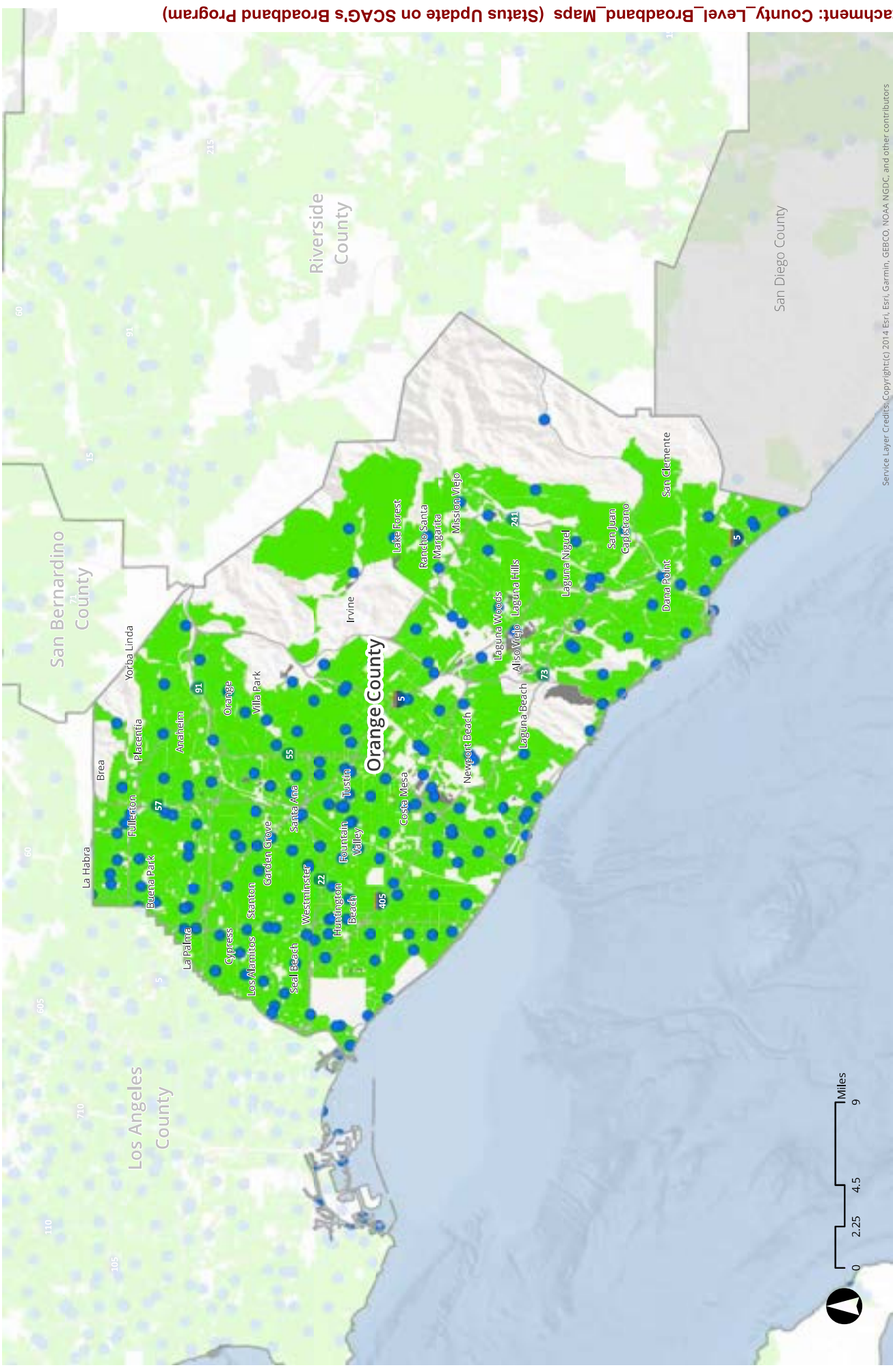


Community Anchor Institution - Public Safety for Los Angeles County

- Public Safety Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services - 2010



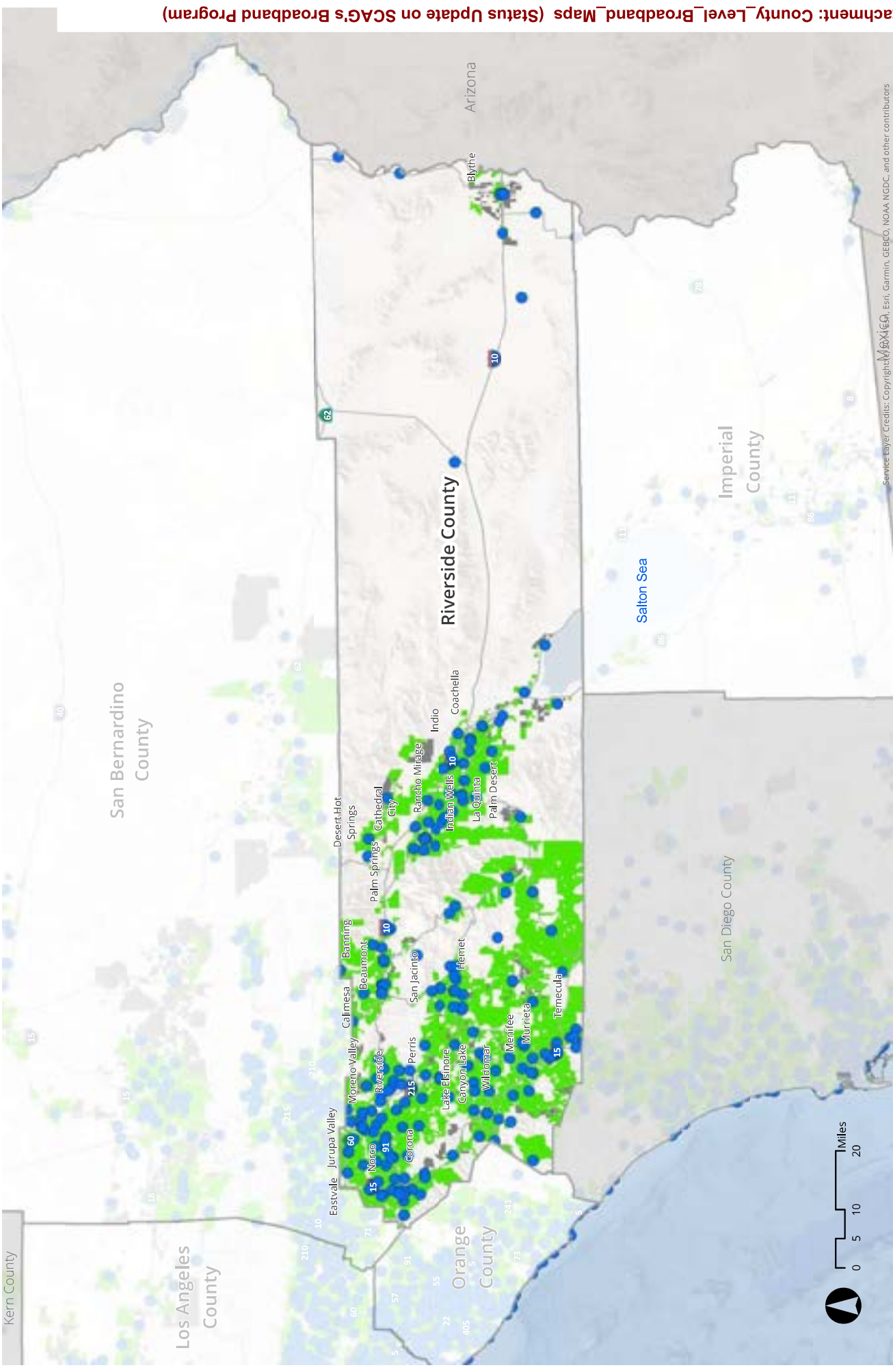
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Community Anchor Institution - Public Safety for Orange County

- Public Safety Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Care Services - 2010

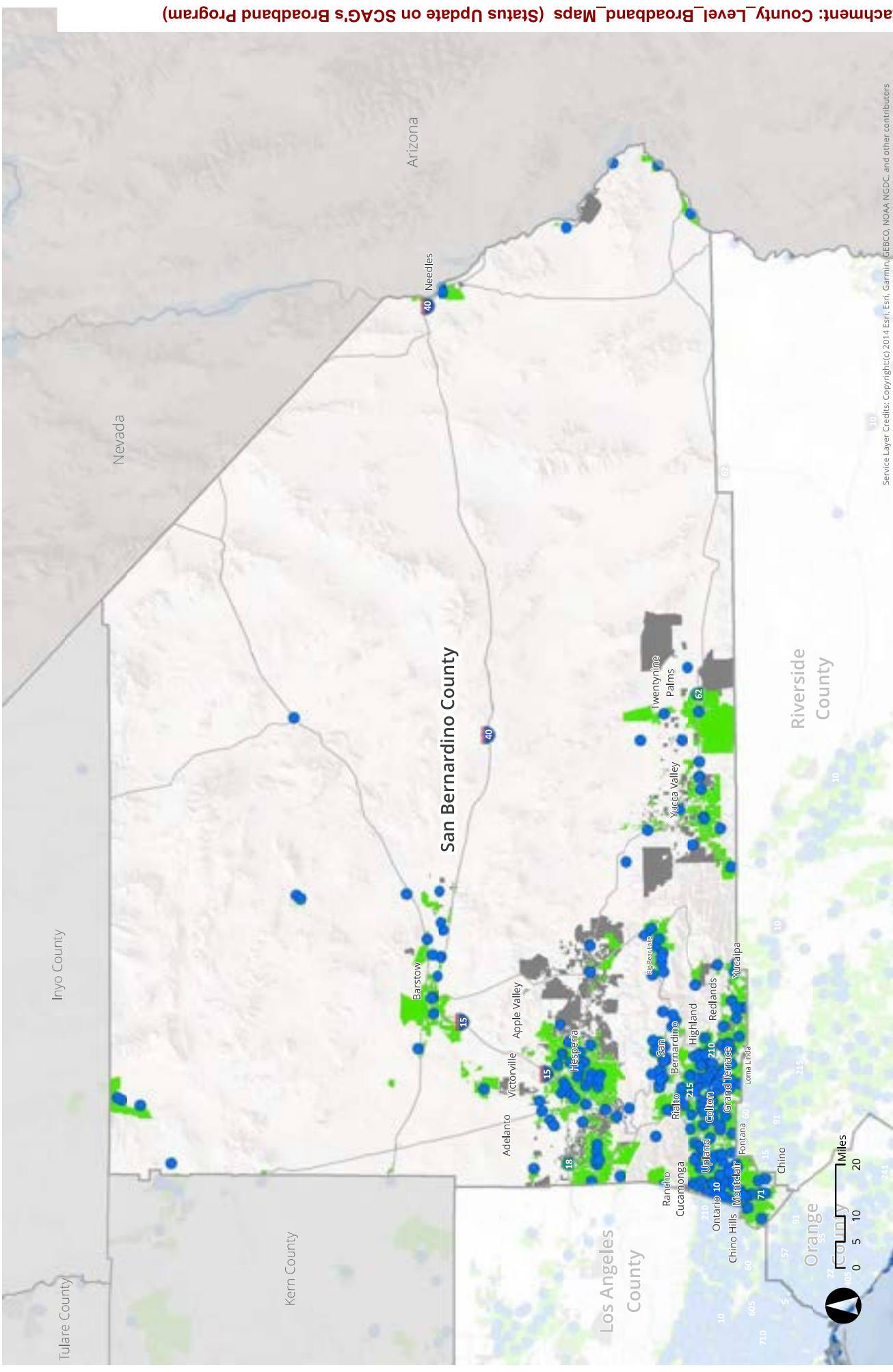


Community Anchor Institution - Public Safety for Riverside County

- Public Safety Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)

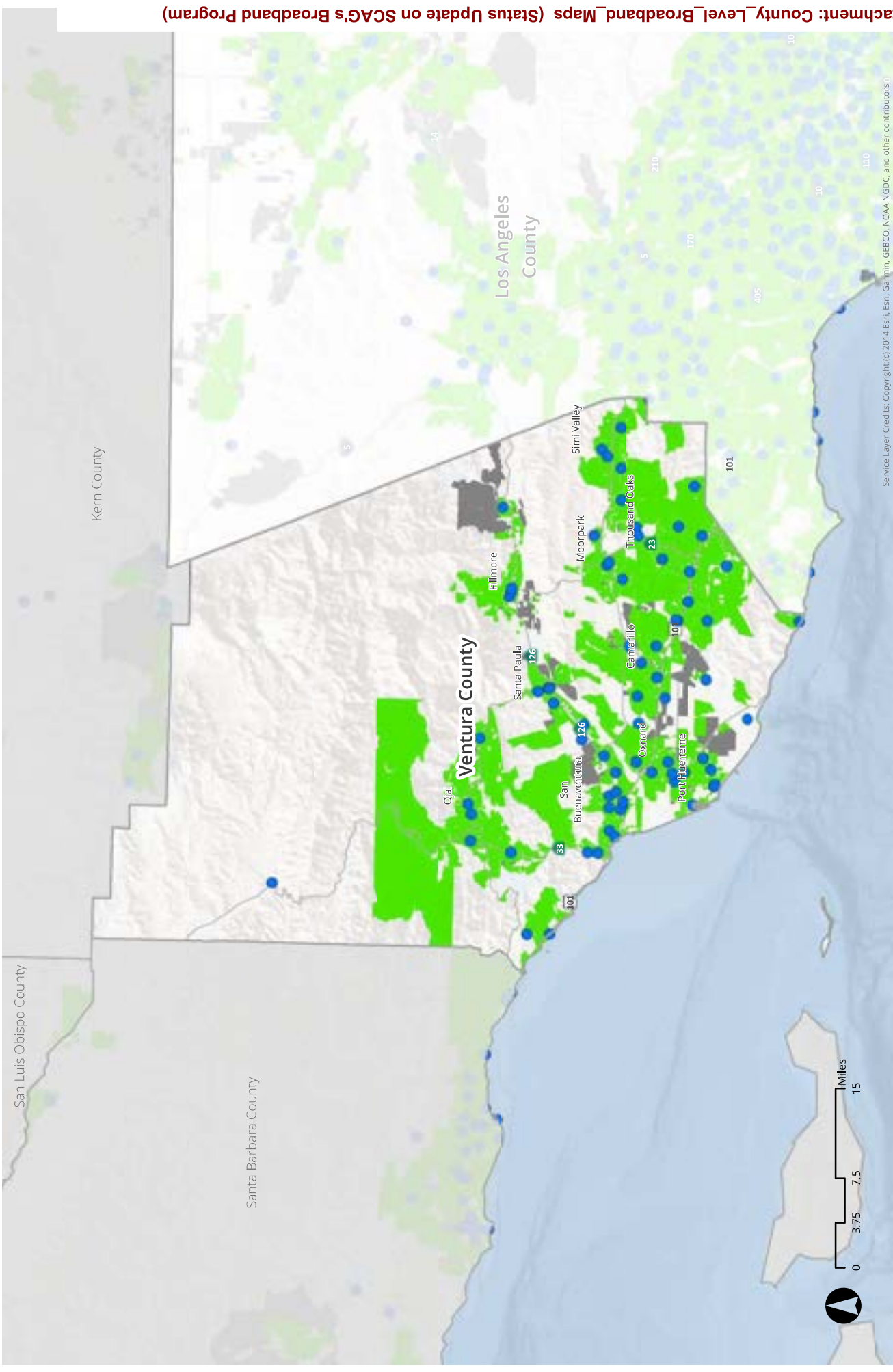


Community Anchor Institution - Public Safety for San Bernardino County

- Public Safety Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC),
California Department of Health Services (CDHS)



Community Anchor Institution - Public Safety for Ventura County

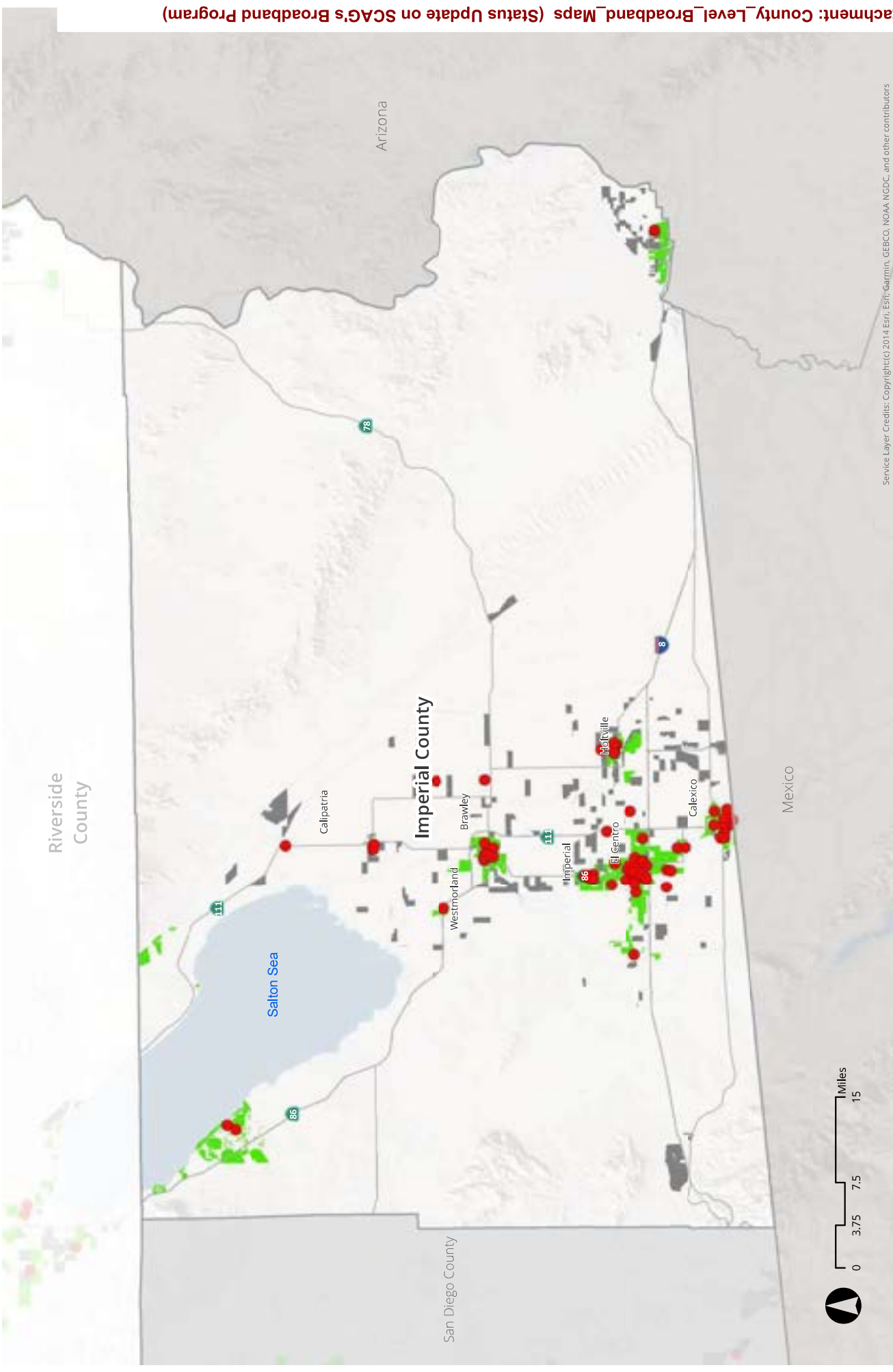
- Public Safety Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)

Packet Pg. 288

Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)



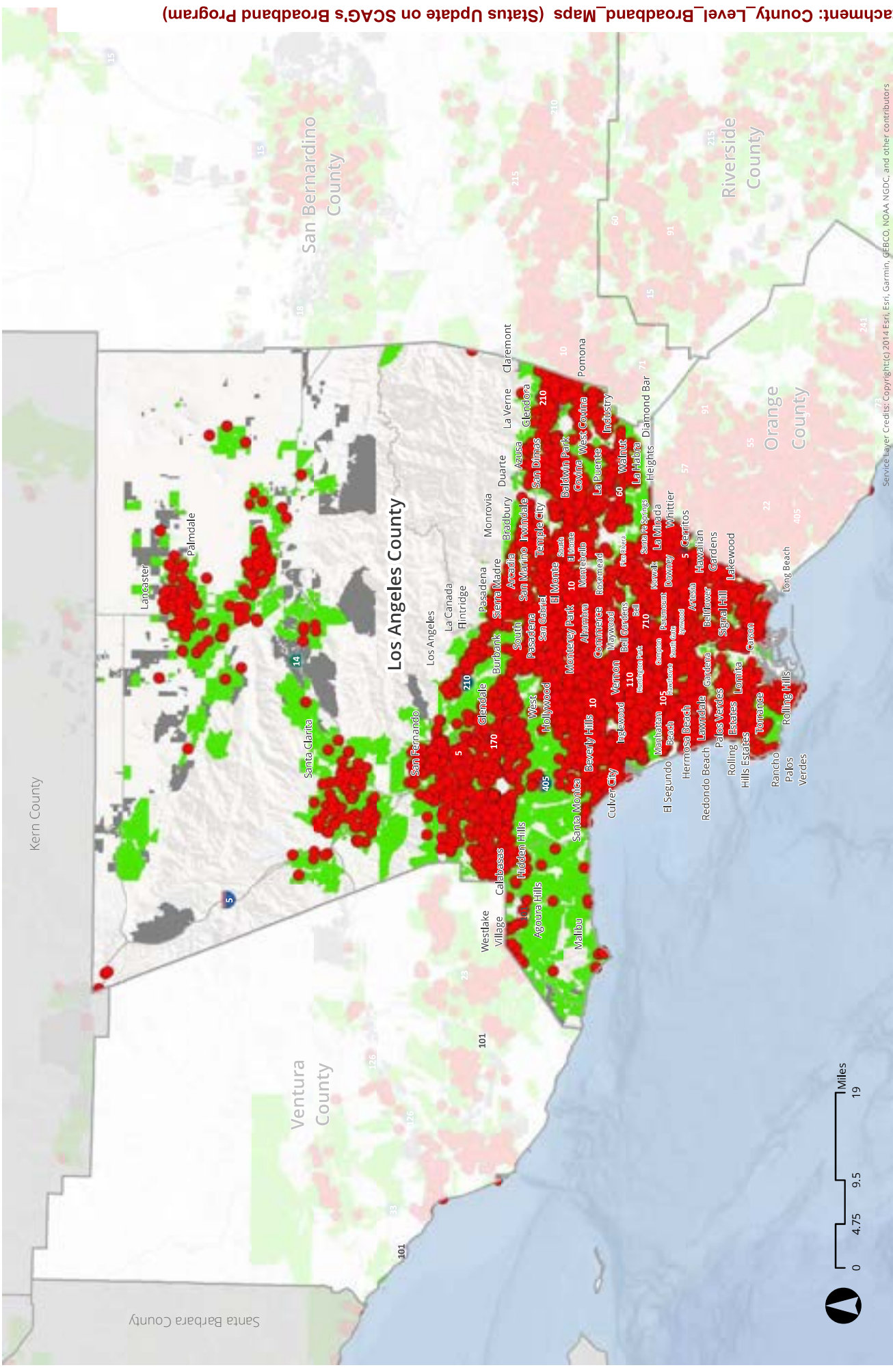
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Education for Imperial County

- Education Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (2010)



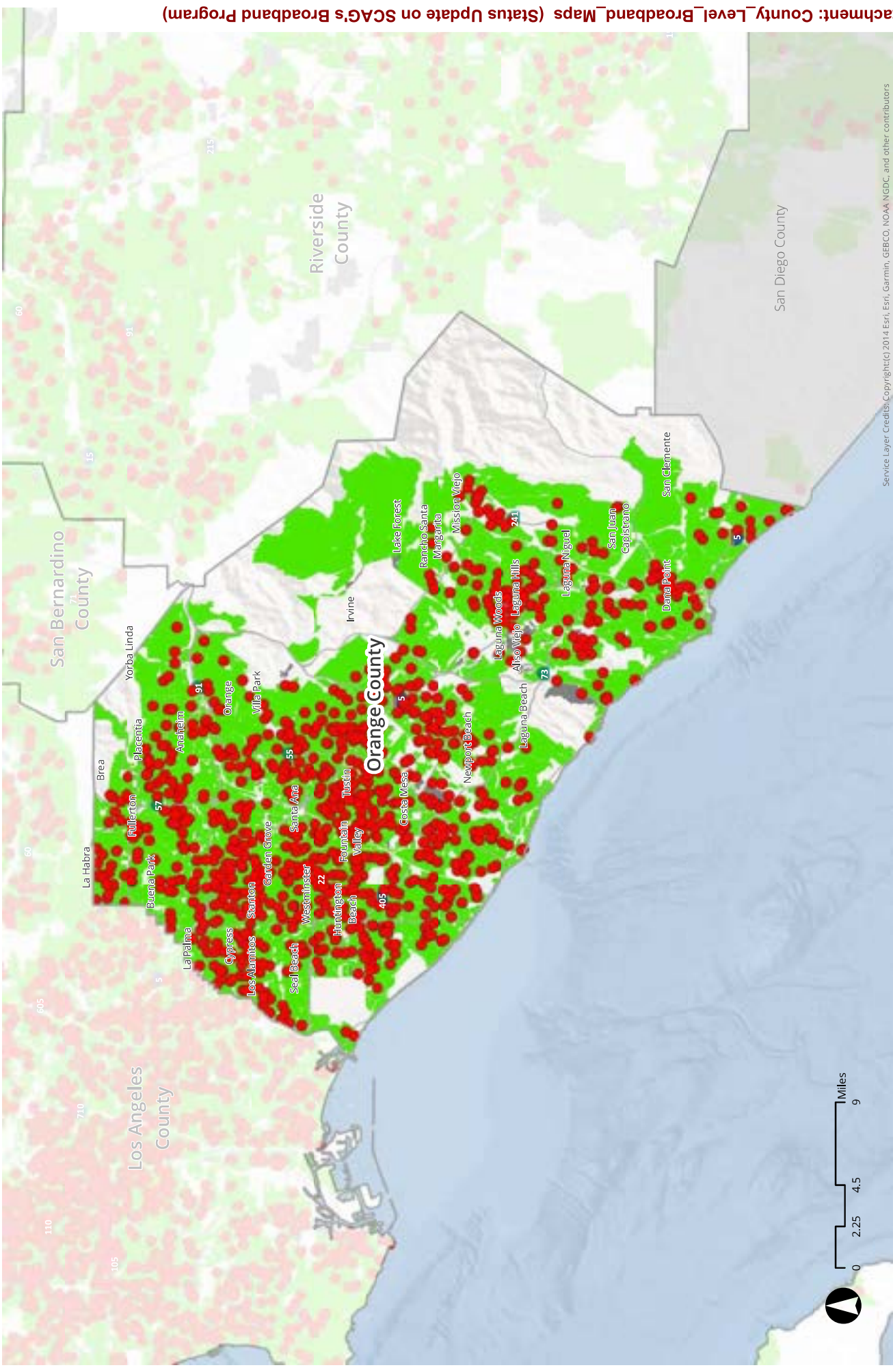
Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)



Community Anchor Institution - Education for Los Angeles County

- Education Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)



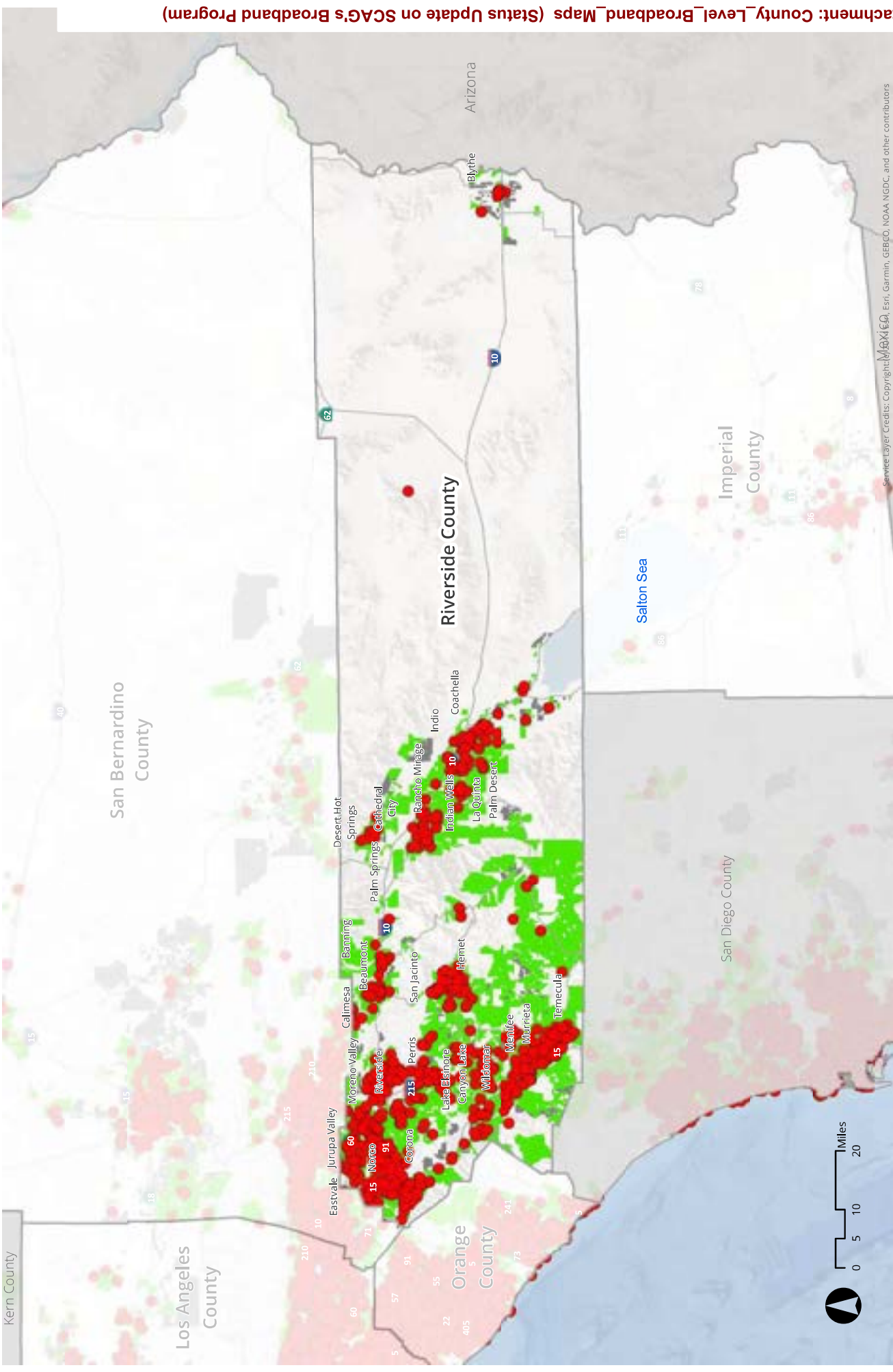
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Education for Orange County

- Education Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)

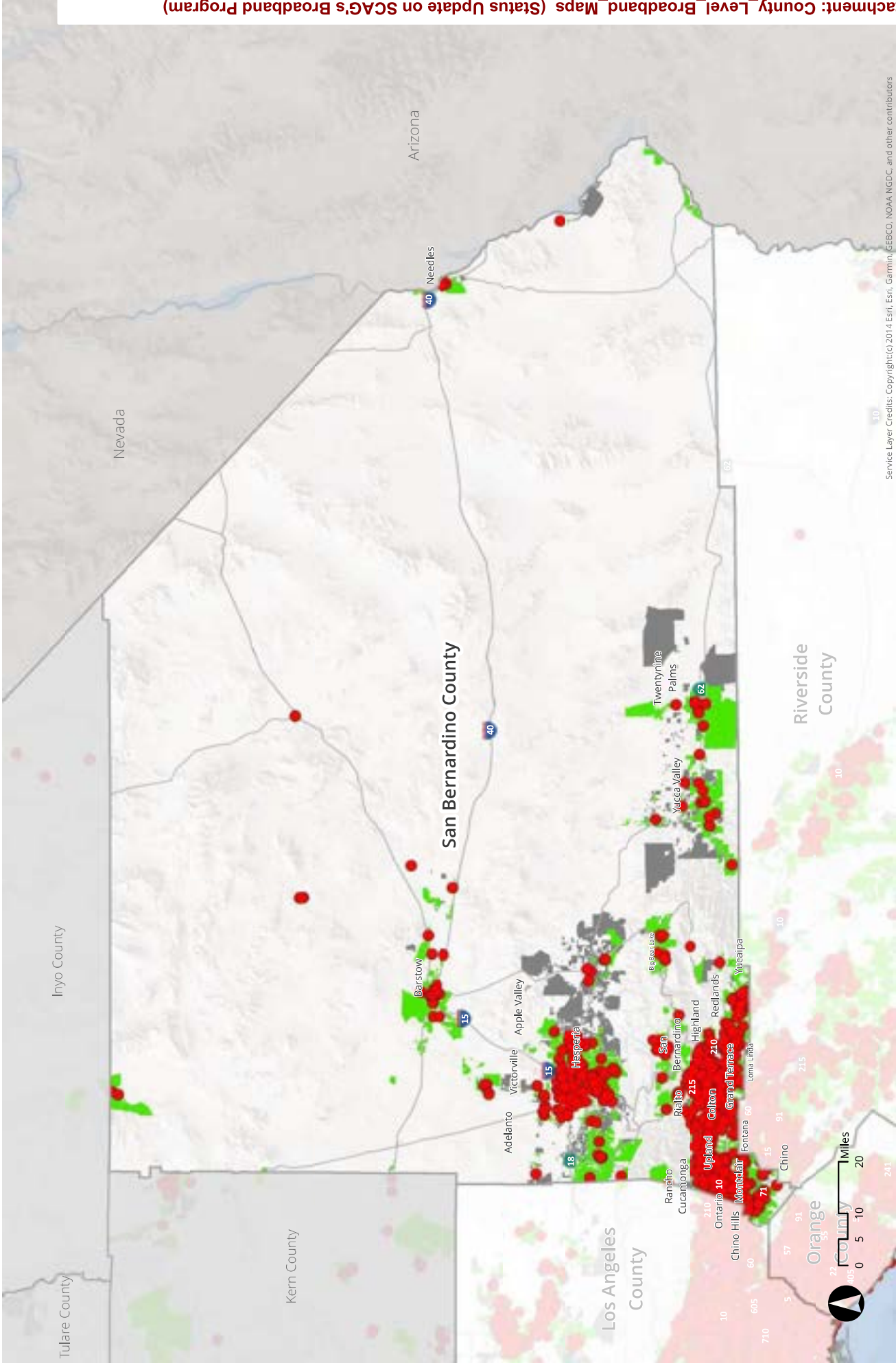


Community Anchor Institution - Education for Riverside County

- Education Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC),
California Department of Health Care Services - 2010



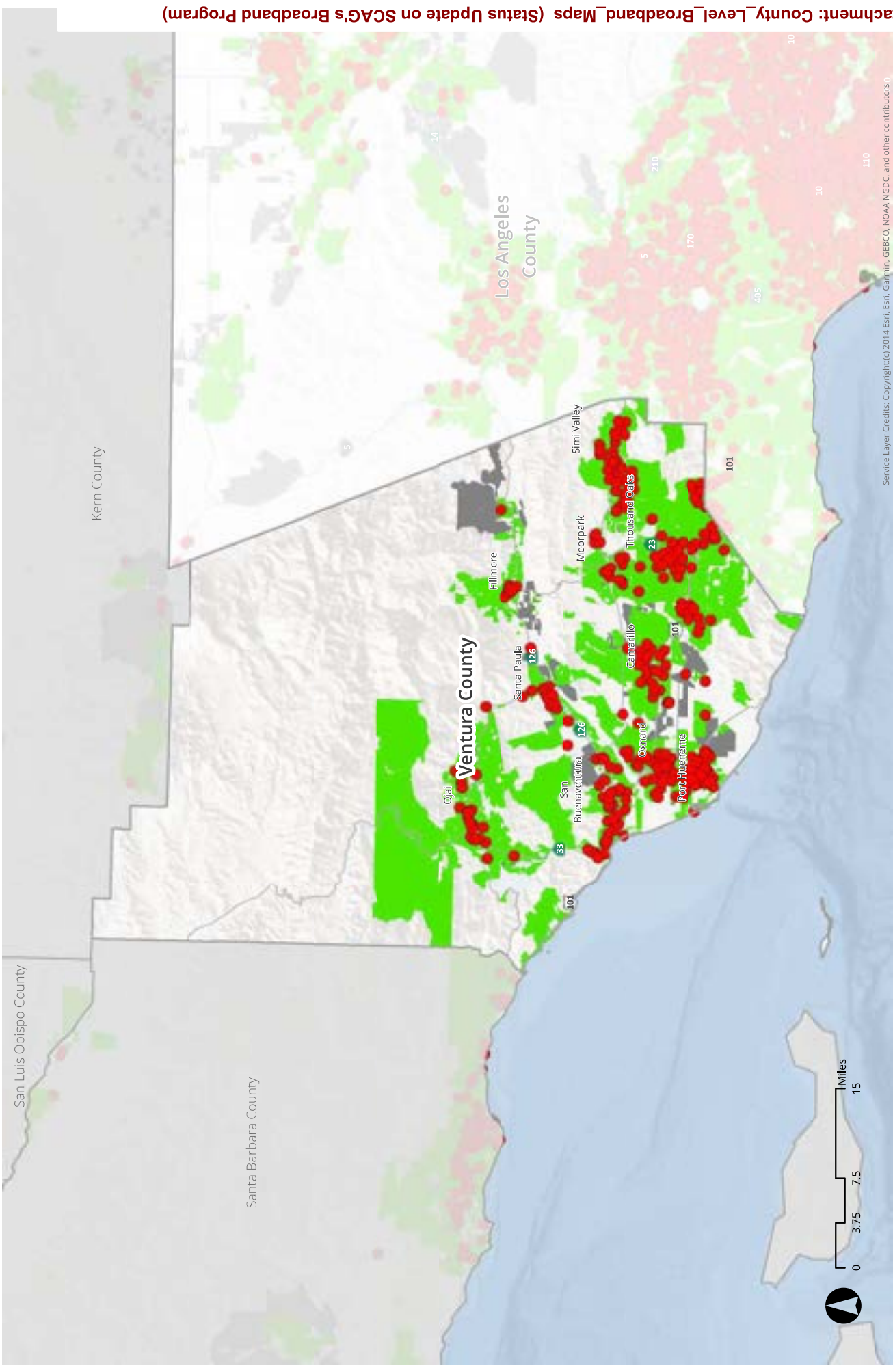
Community Anchor Institution - Education for San Bernardino County

- Education Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC),
California Department of Health Services (CDHS)

Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA, NGDC, and other contributors

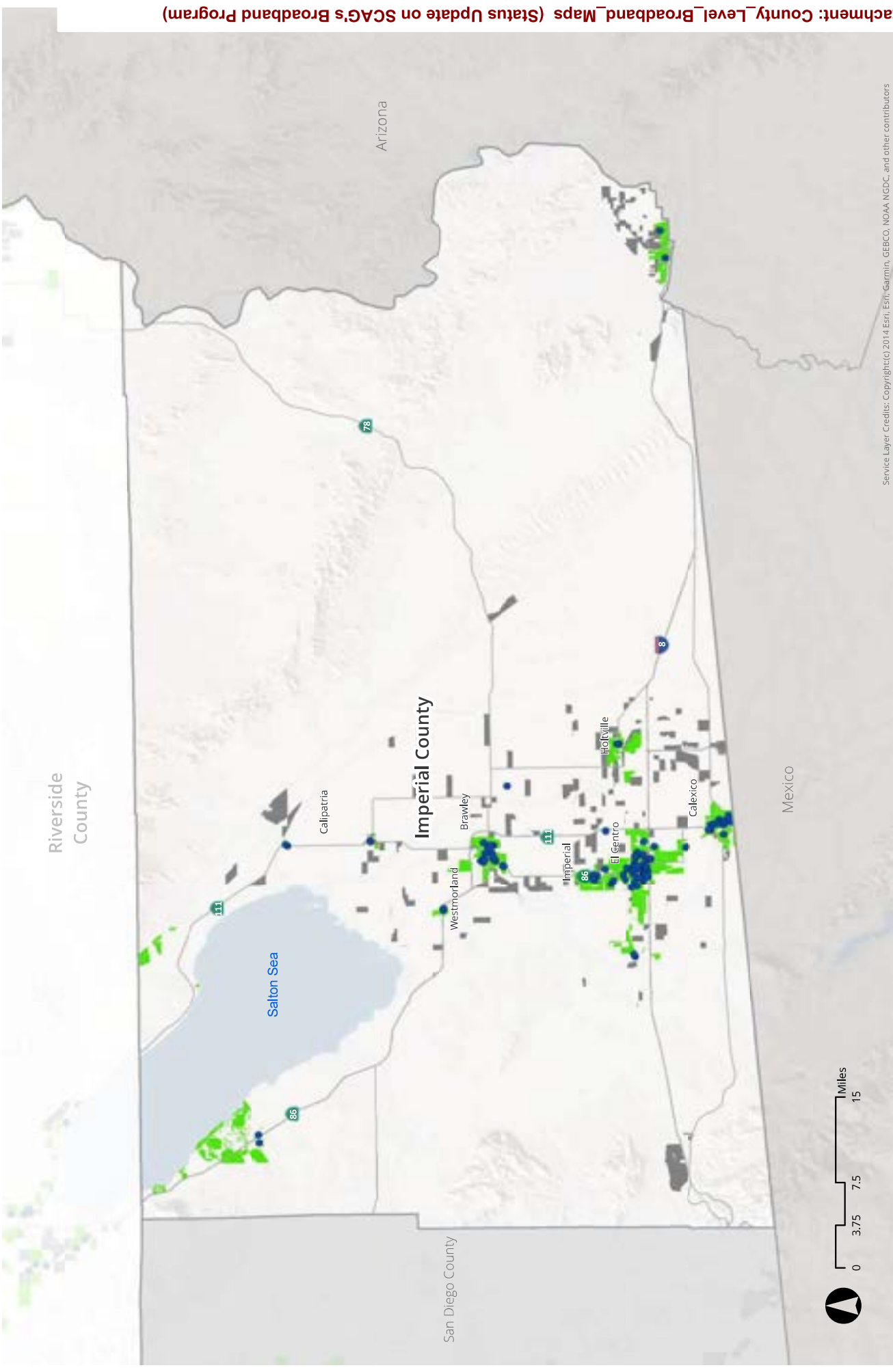


Community Anchor Institution - Education for Ventura County

- Education Institutions
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (2010)



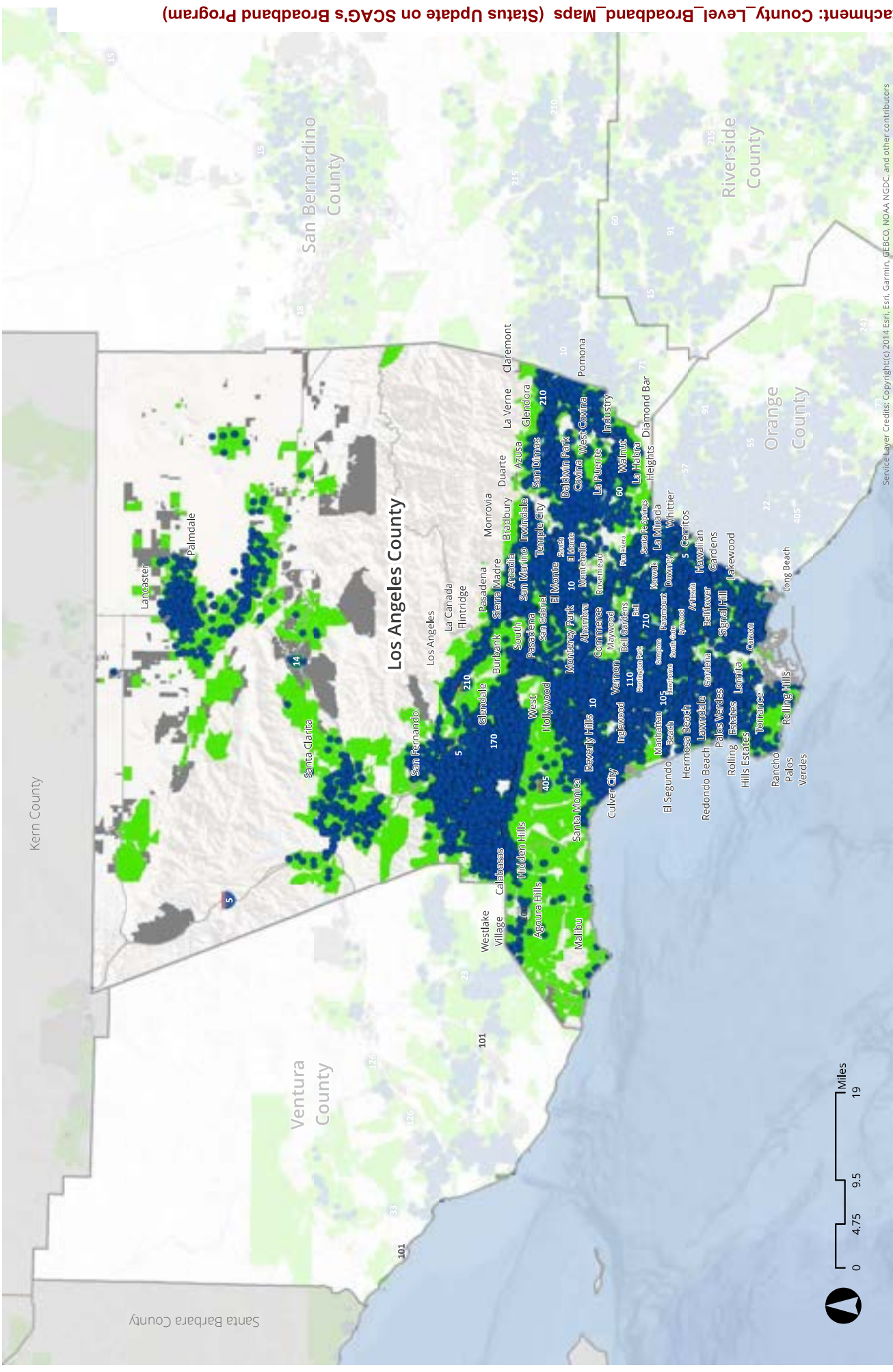
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Healthcare/Social Services for Imperial County

- Healthcare/Social Services
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)

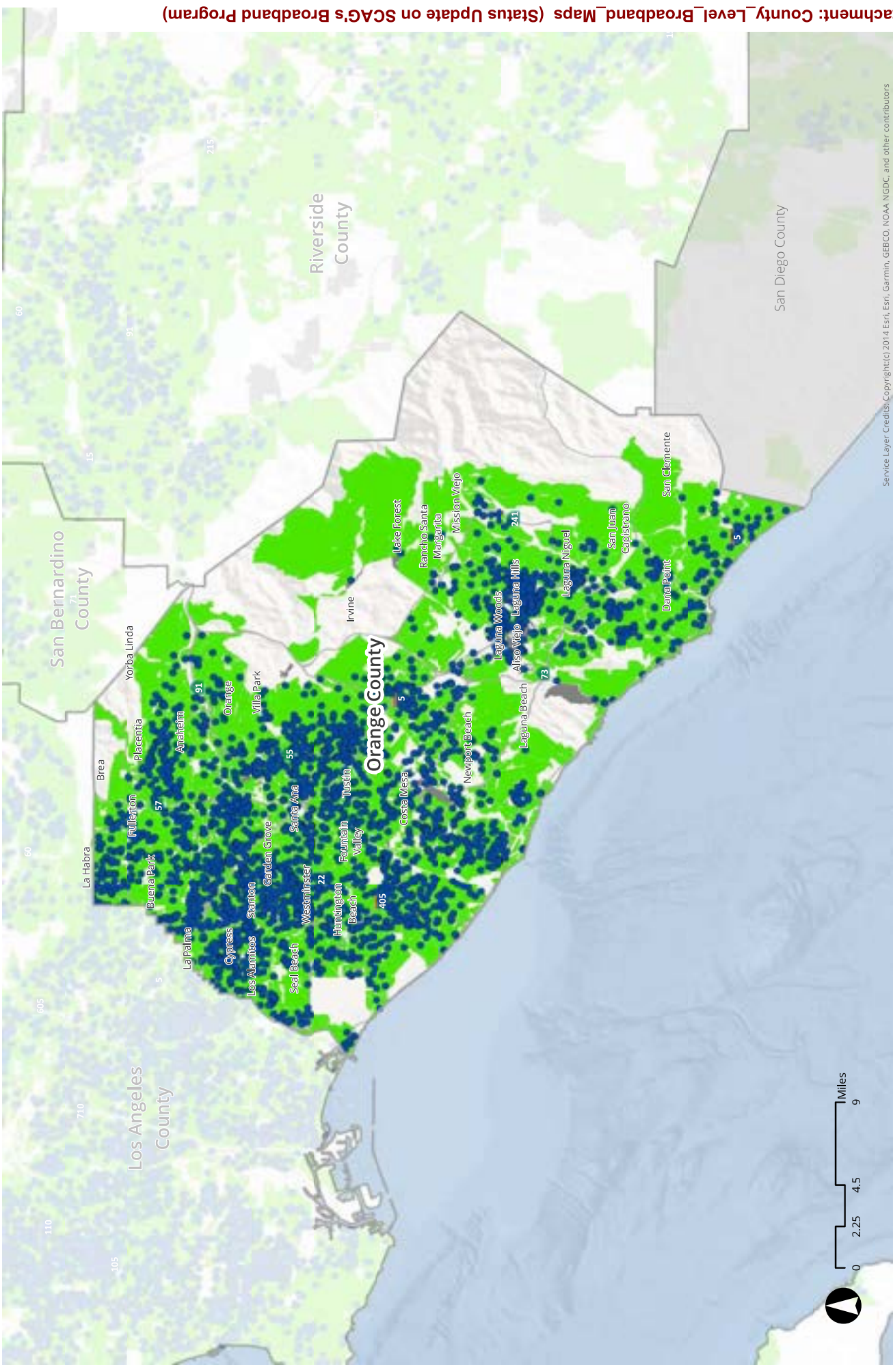


Community Anchor Institution - Healthcare/Social Services for Los Angeles County

- Healthcare/Social Services
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Care Services - 2010



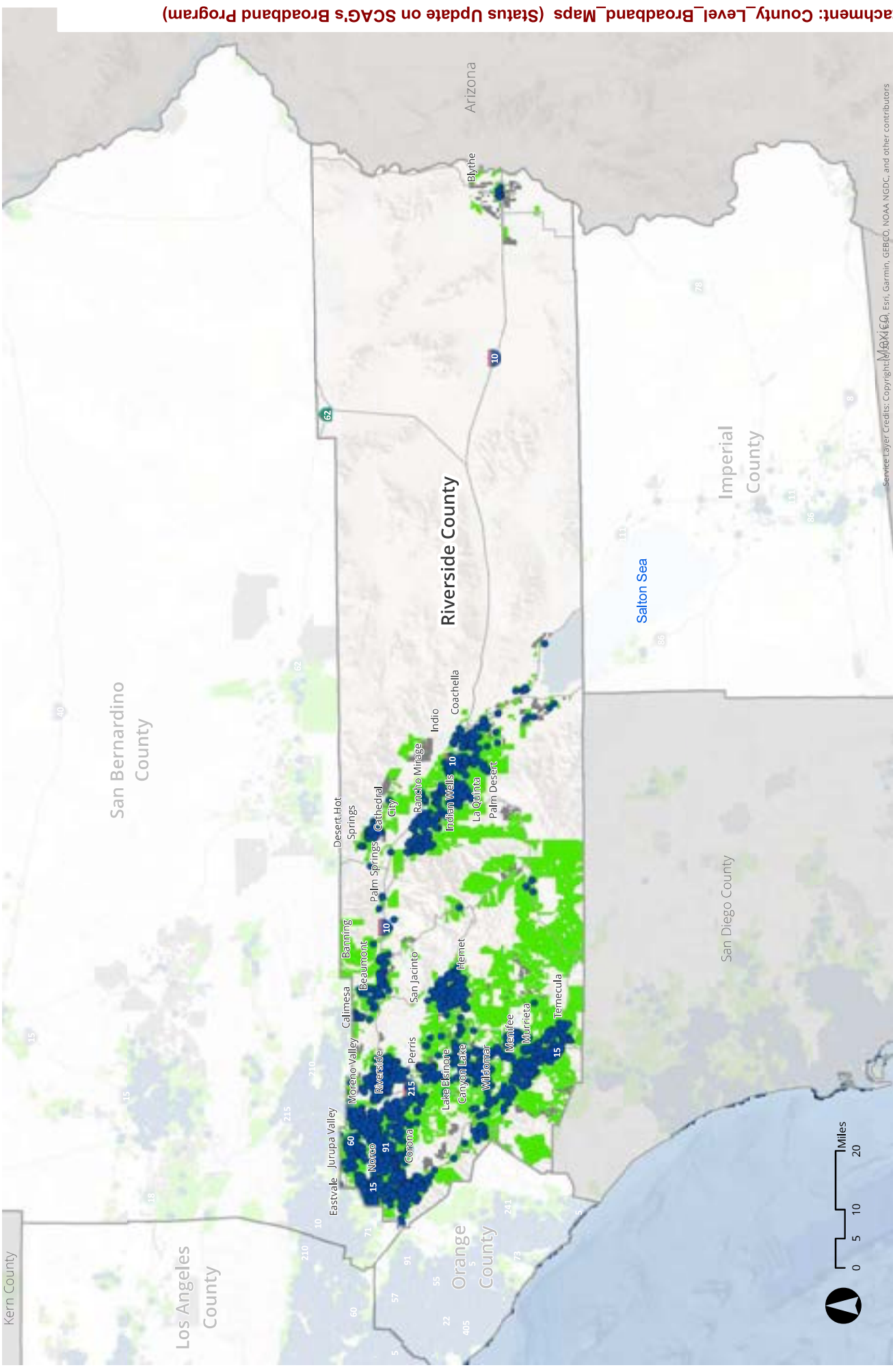
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA, NGDC, and other contributors

Community Anchor Institution - Healthcare/Social Services for Orange County

- Healthcare/Social Services
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Care Services - 2010

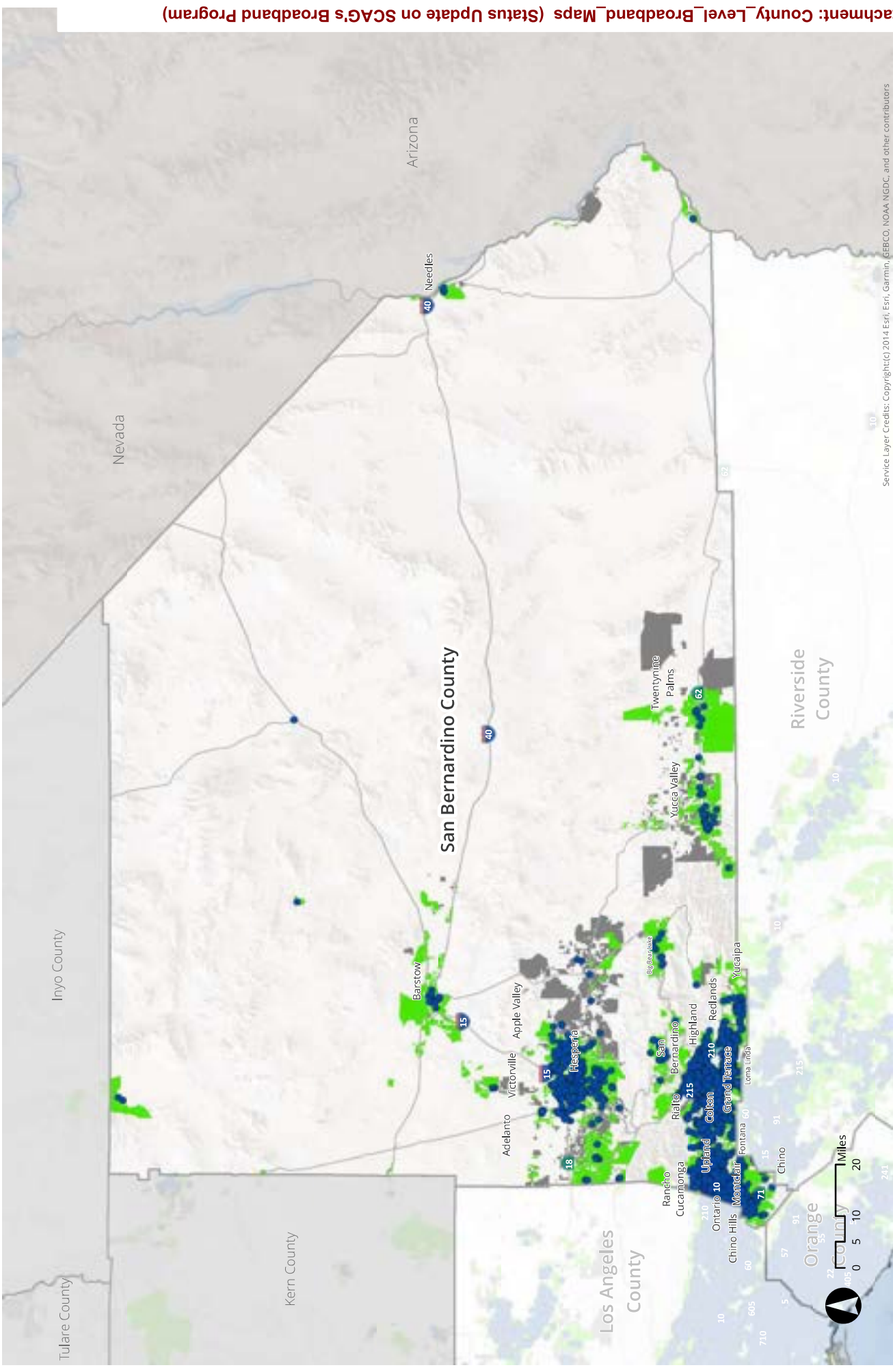


Community Anchor Institution - Healthcare/Social Services for Riverside County

- Healthcare/Social Services
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC),
California Department of Health Care Services - 2010



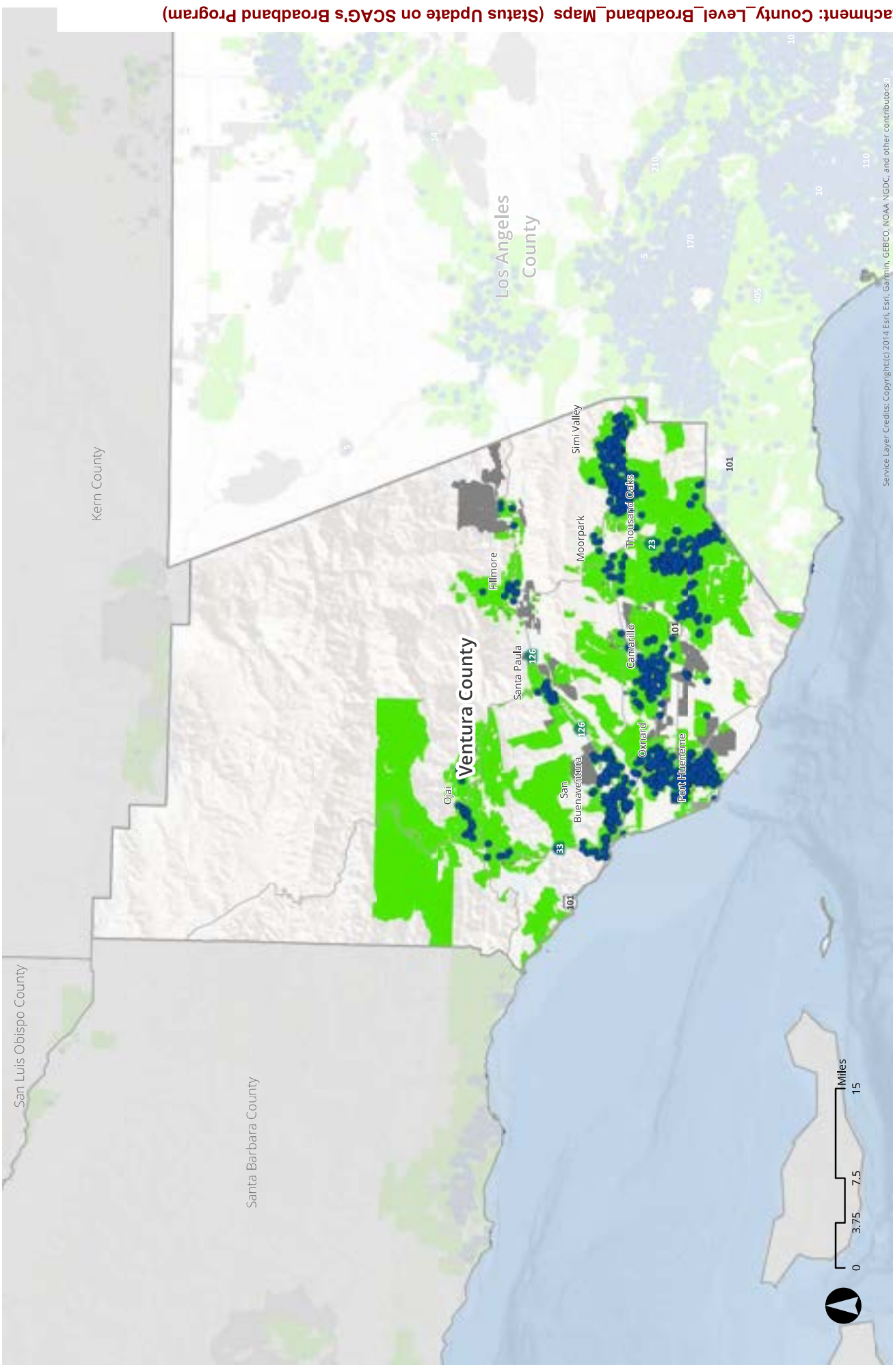
Service Layer Credits: Copyright(C) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



Community Anchor Institution - Healthcare/Social Services for San Bernardino County

- Healthcare/Social Services
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Source: California Public Utilities Commission (CPUC),
California Department of Health Care Services - 2010



Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors (c)

Community Anchor Institution - Healthcare/Social Services for Ventura County

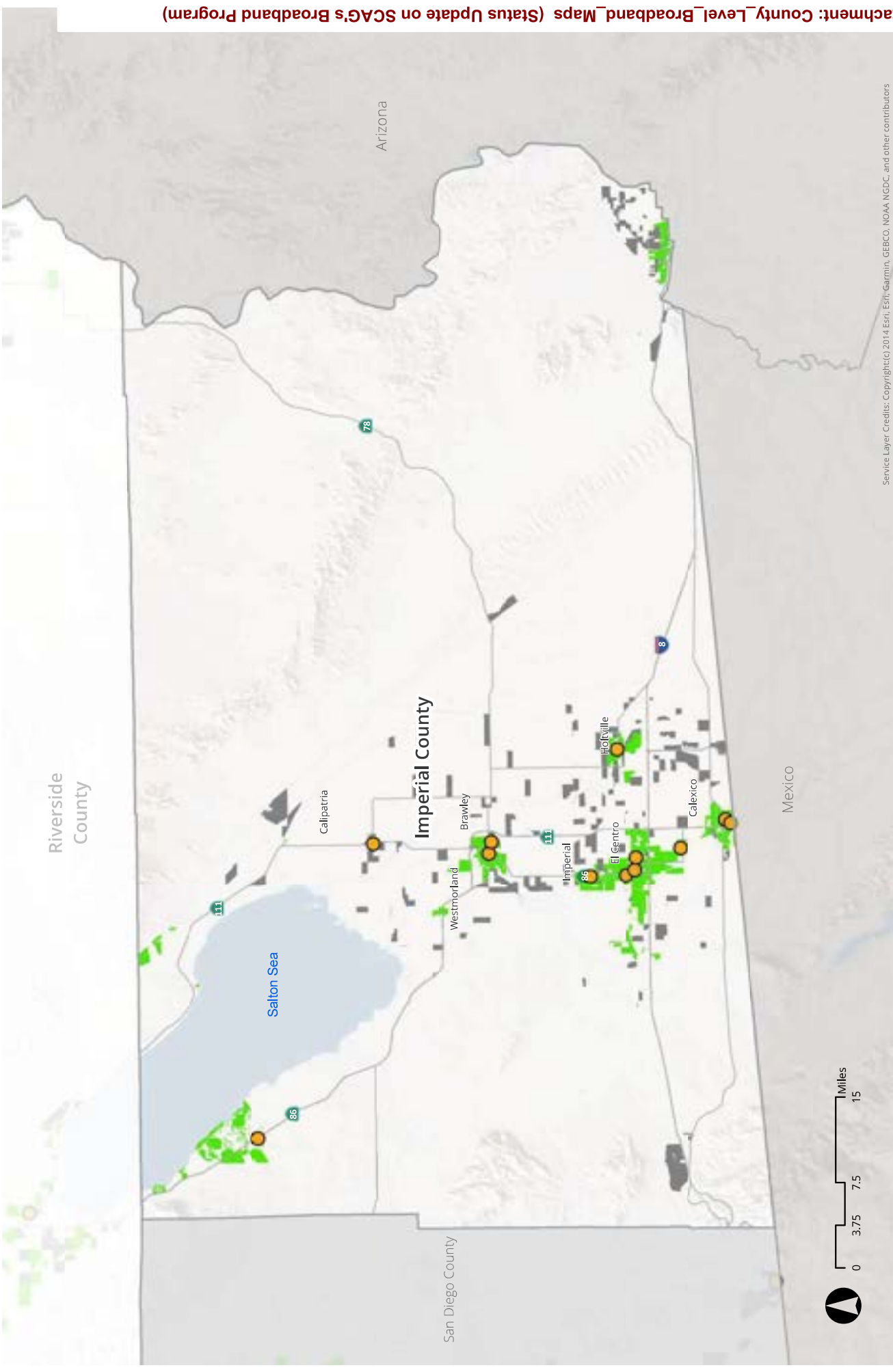
- Healthcare/Social Services
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Care Services - 2010

Packet Pg. 300

Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)



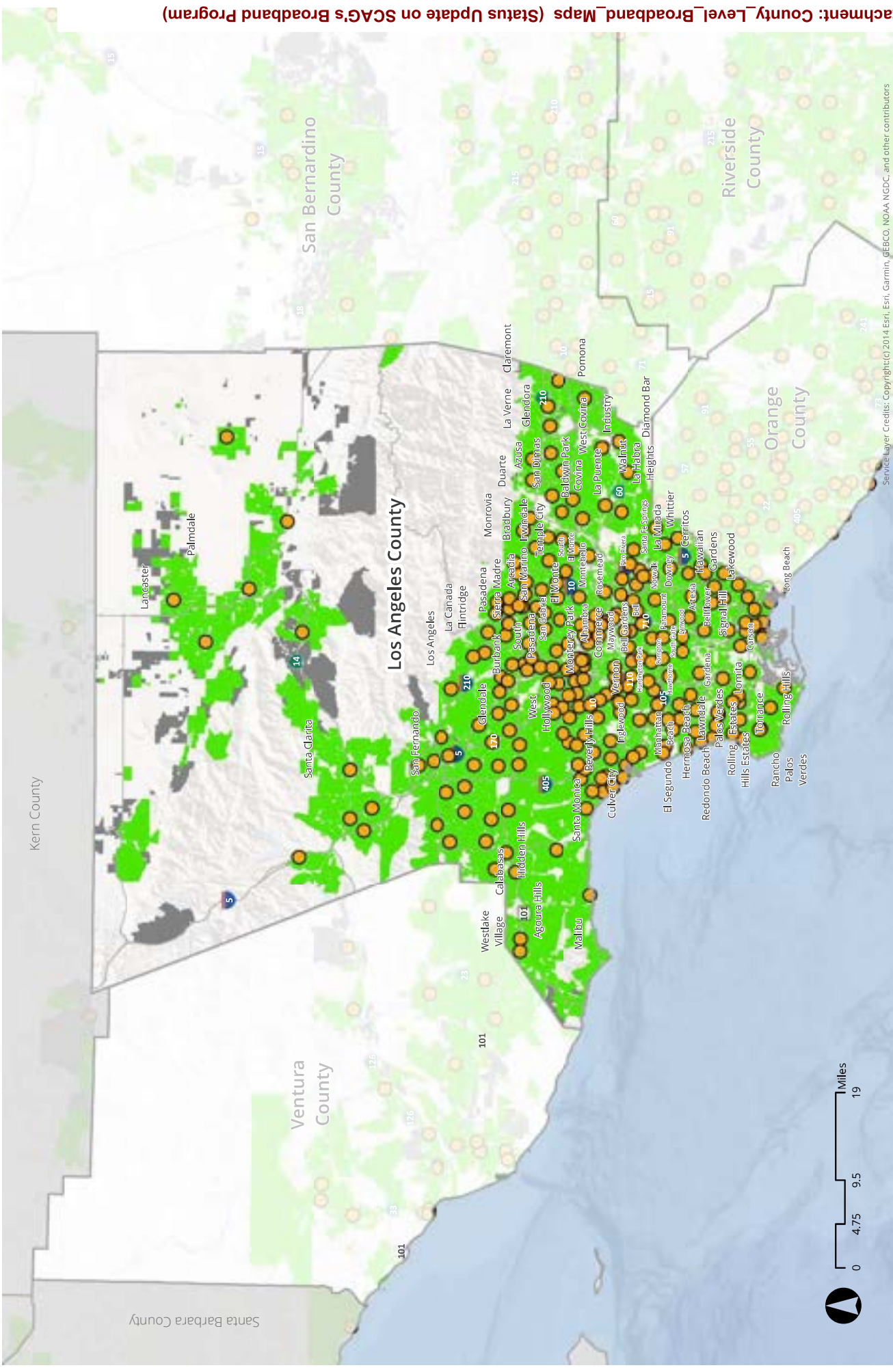
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Libraries for Imperial County

- Libraries
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (2010)

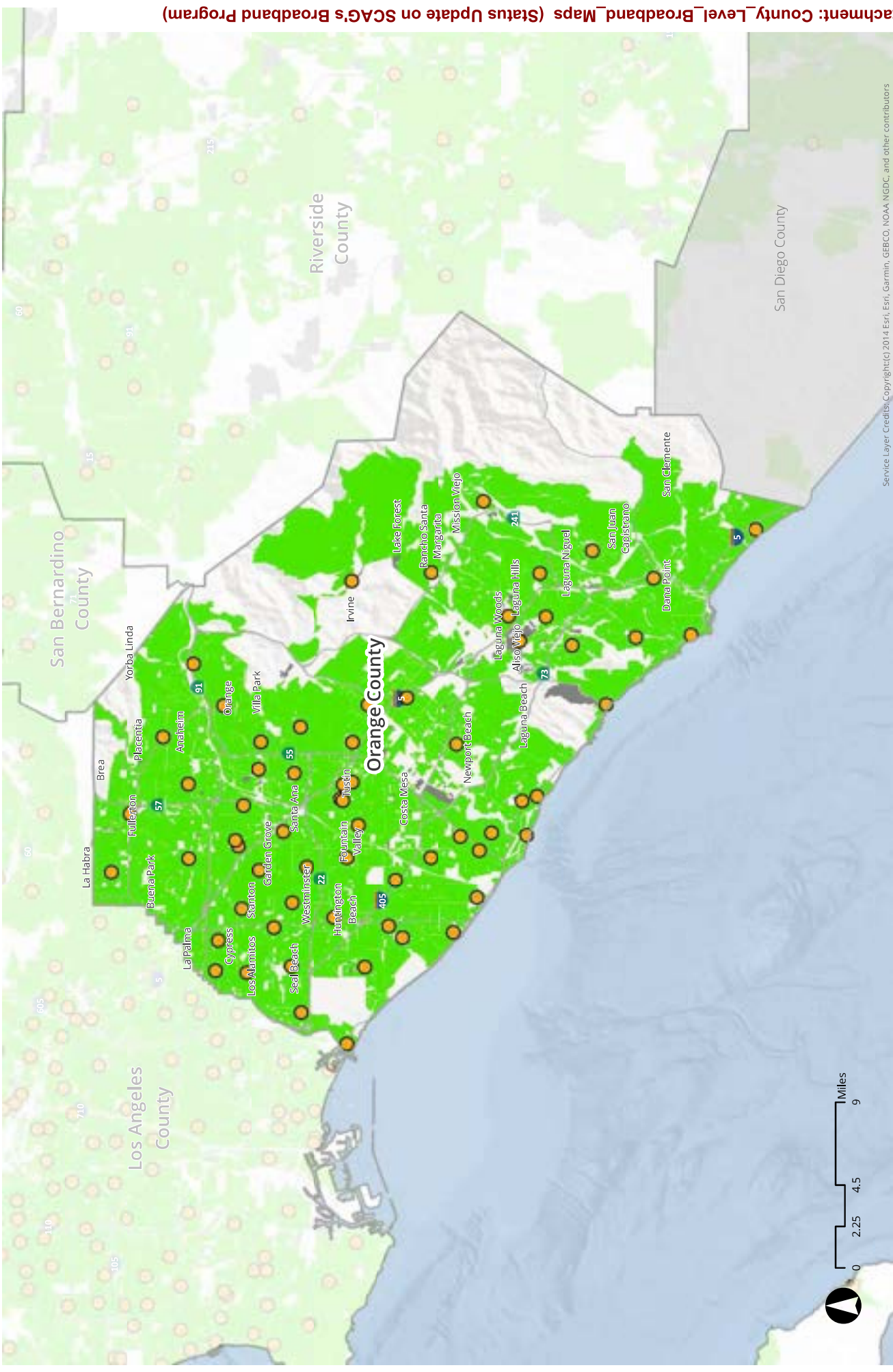


Community Anchor Institution - Libraries for Los Angeles County



- Libraries
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold




Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)



Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA, NGDC, and other contributors

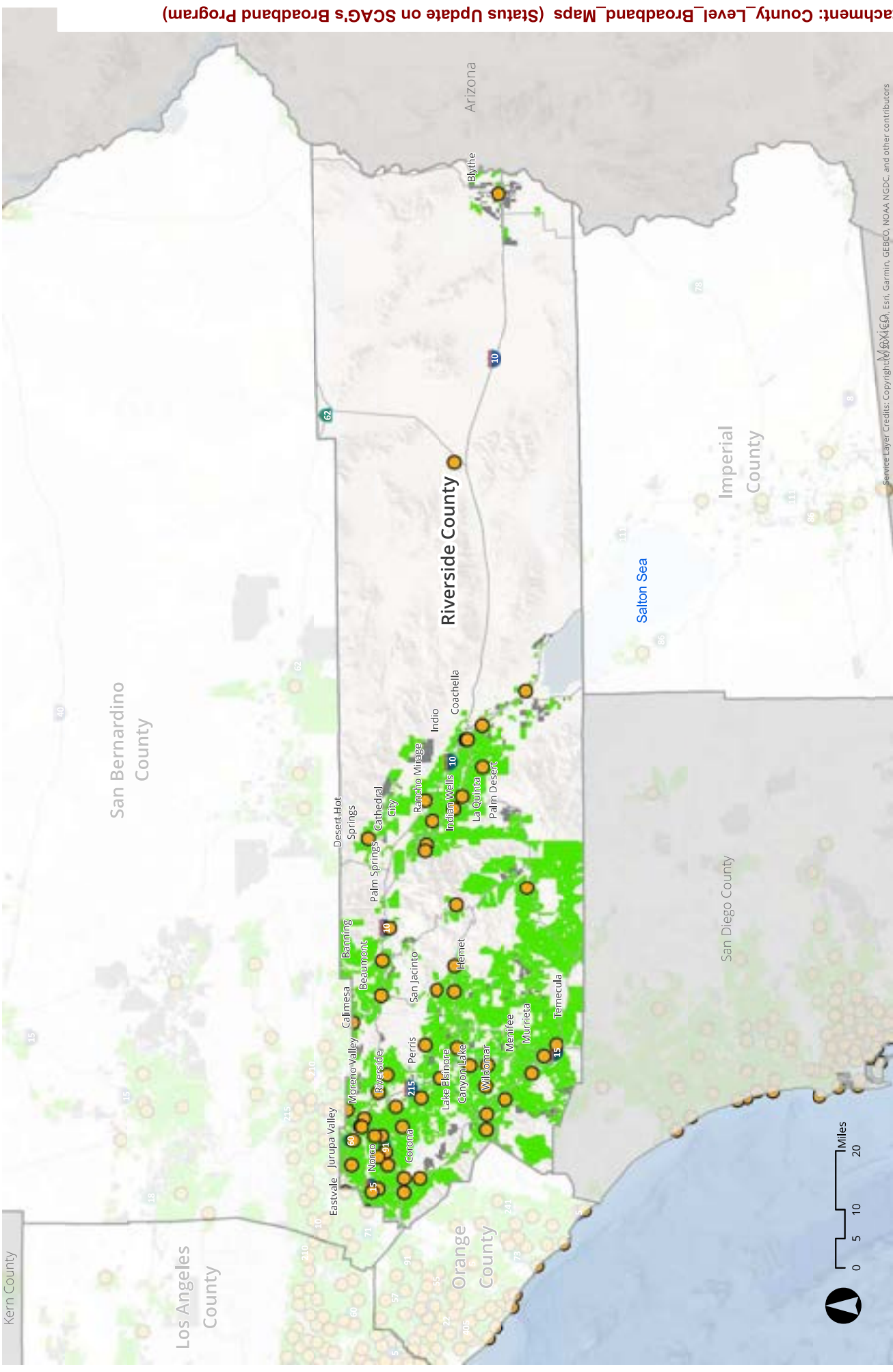


Community Anchor Institution - Libraries for Orange County

-  Libraries
-  Fixed Broadband That Meets Federal Threshold
-  Fixed Broadband Below Federal Threshold

Source: California Public Utilities Commission (CPUC), California Department of Health Services (2010)

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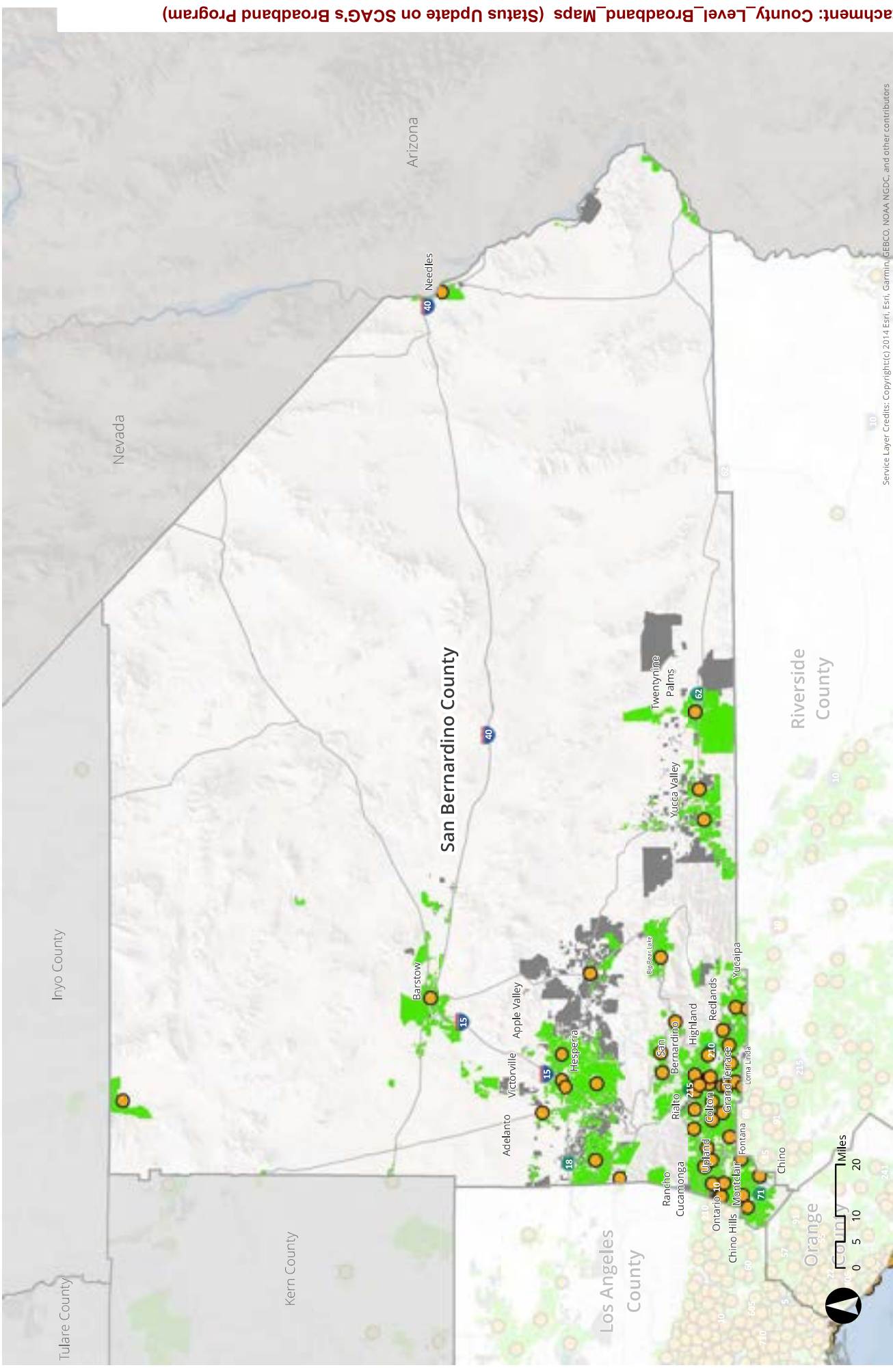


Community Anchor Institution - Libraries for Riverside County

- Libraries
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (CDHS)



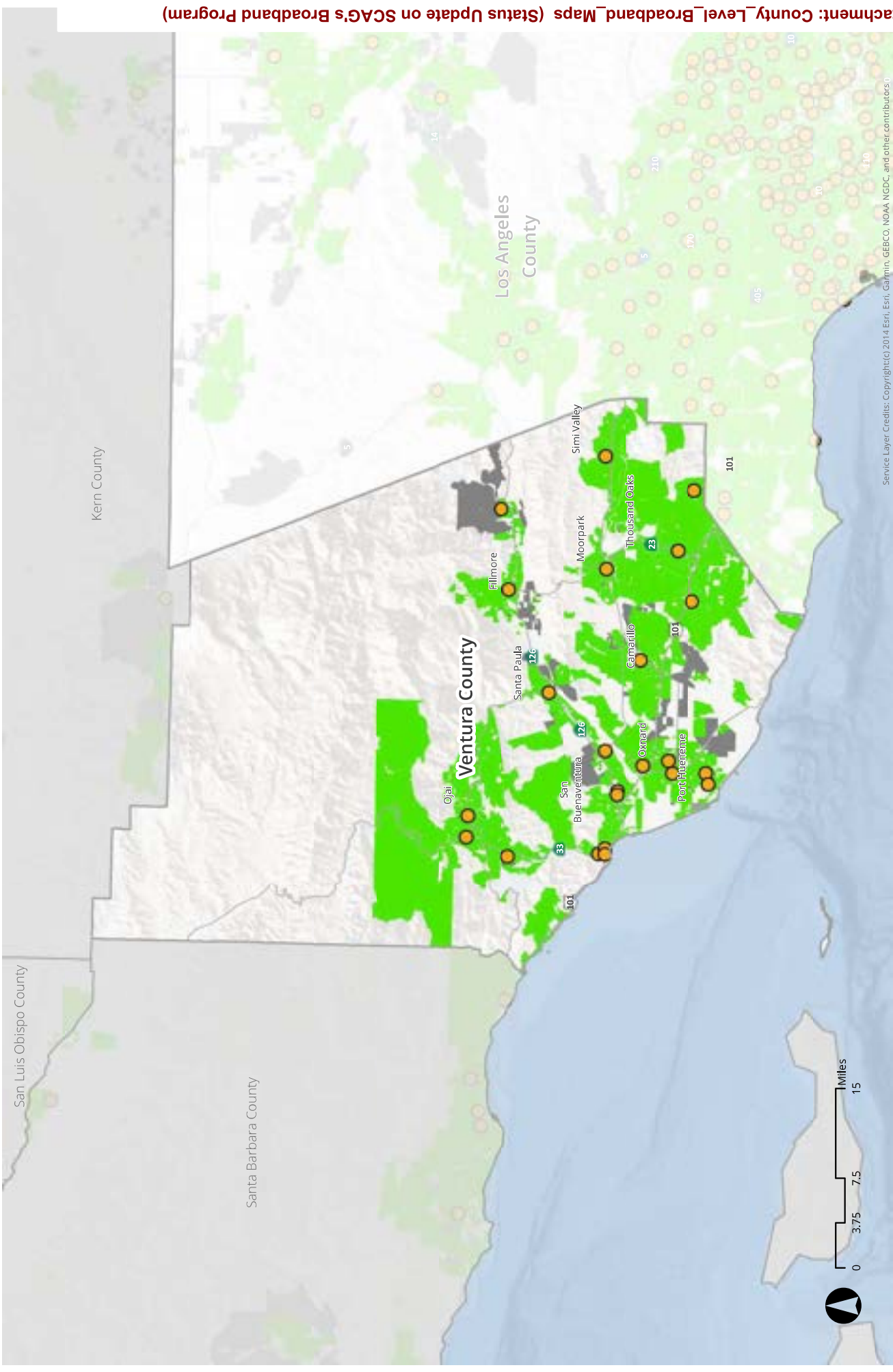
Service Layer Credits: Copyright (c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Community Anchor Institution - Libraries for San Bernardino County

- Libraries
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Department of Health Services (2010)



Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors (

Community Anchor Institution - Libraries for Ventura County

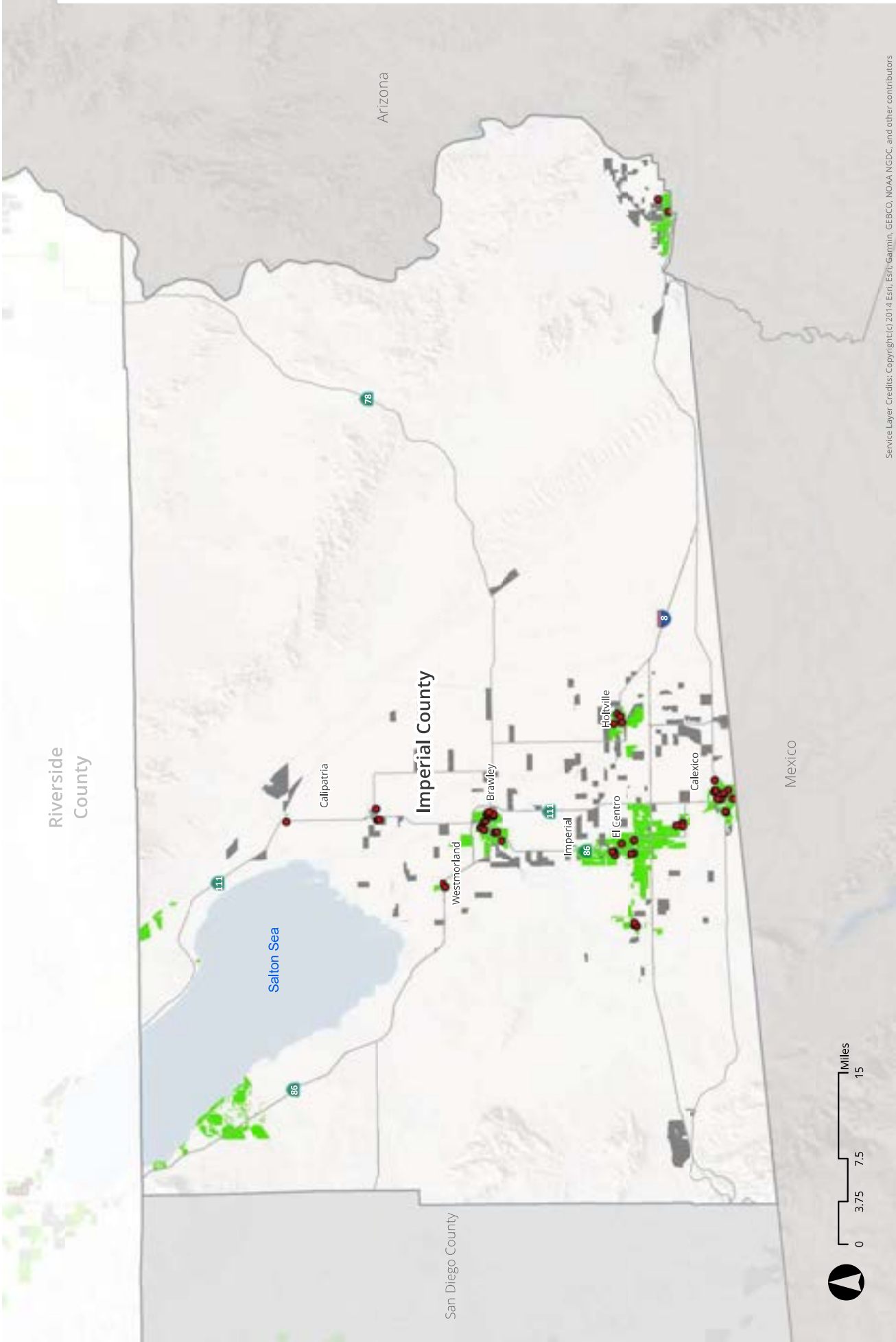


- Libraries
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Source: California Public Utilities Commission (CPUC), California Department of Health Services (2010)

Packet Pg. 306

Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)



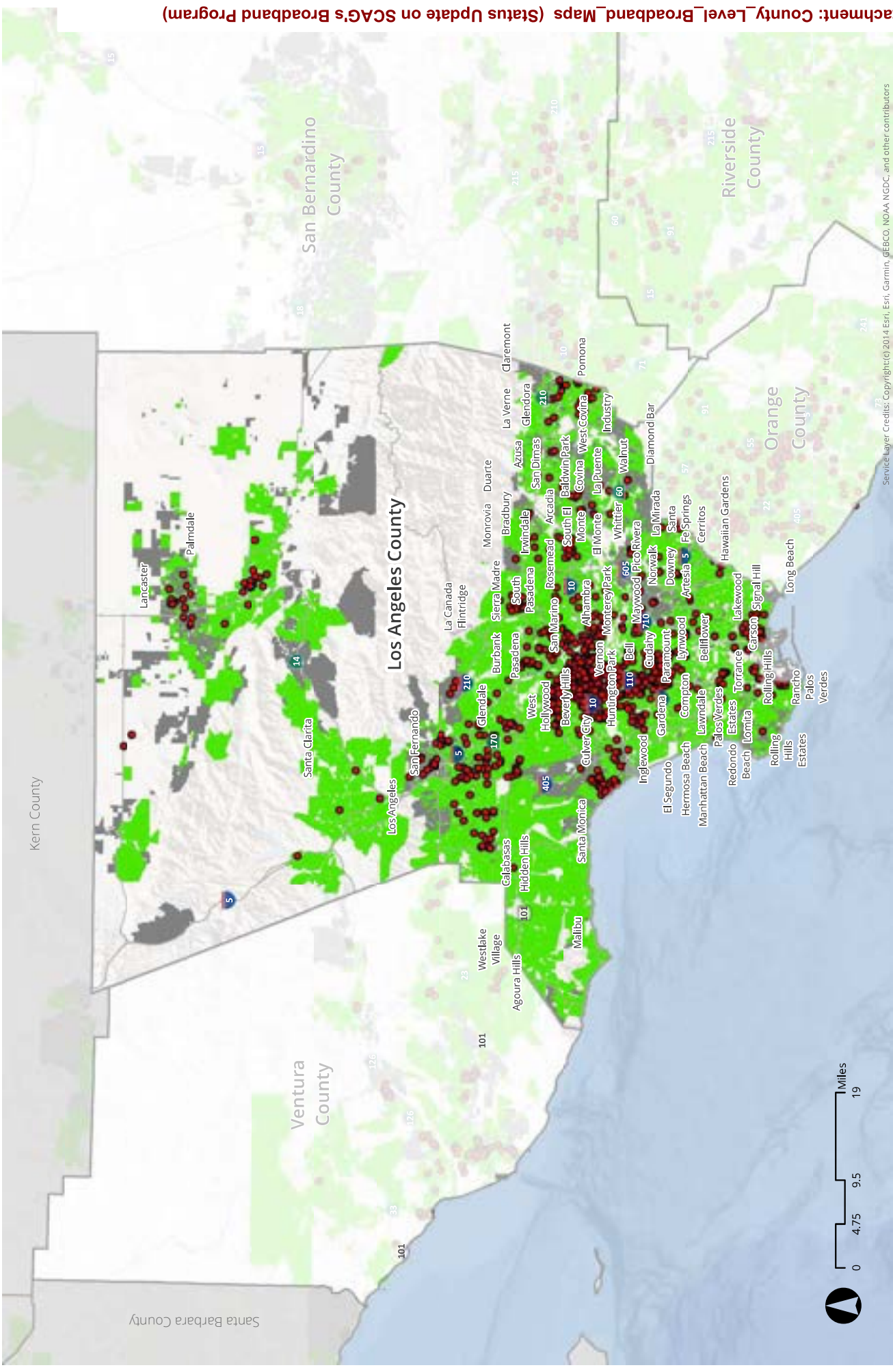
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



Public-Subsidized Housings for Imperial County

- Public-Subsidized Housings
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Source: California Public Utilities Commission (CPUC), California Tax Credit Allocation Committee (TCAC)



Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

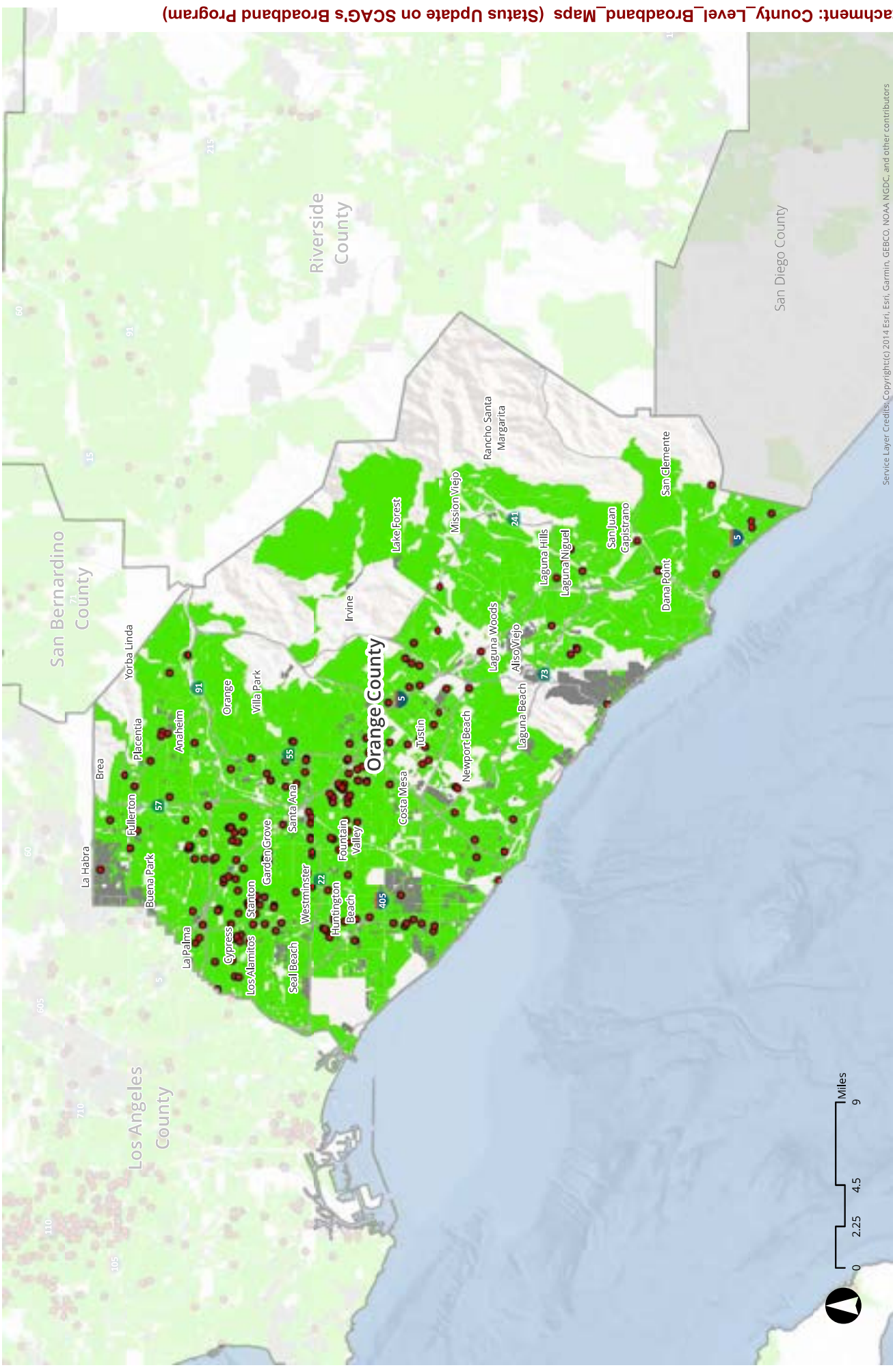
Public-Subsidized Housings for Los Angeles County

- Public-Subsidized Housings
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Tax Credit Allocation Committee (TCAC)

Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)



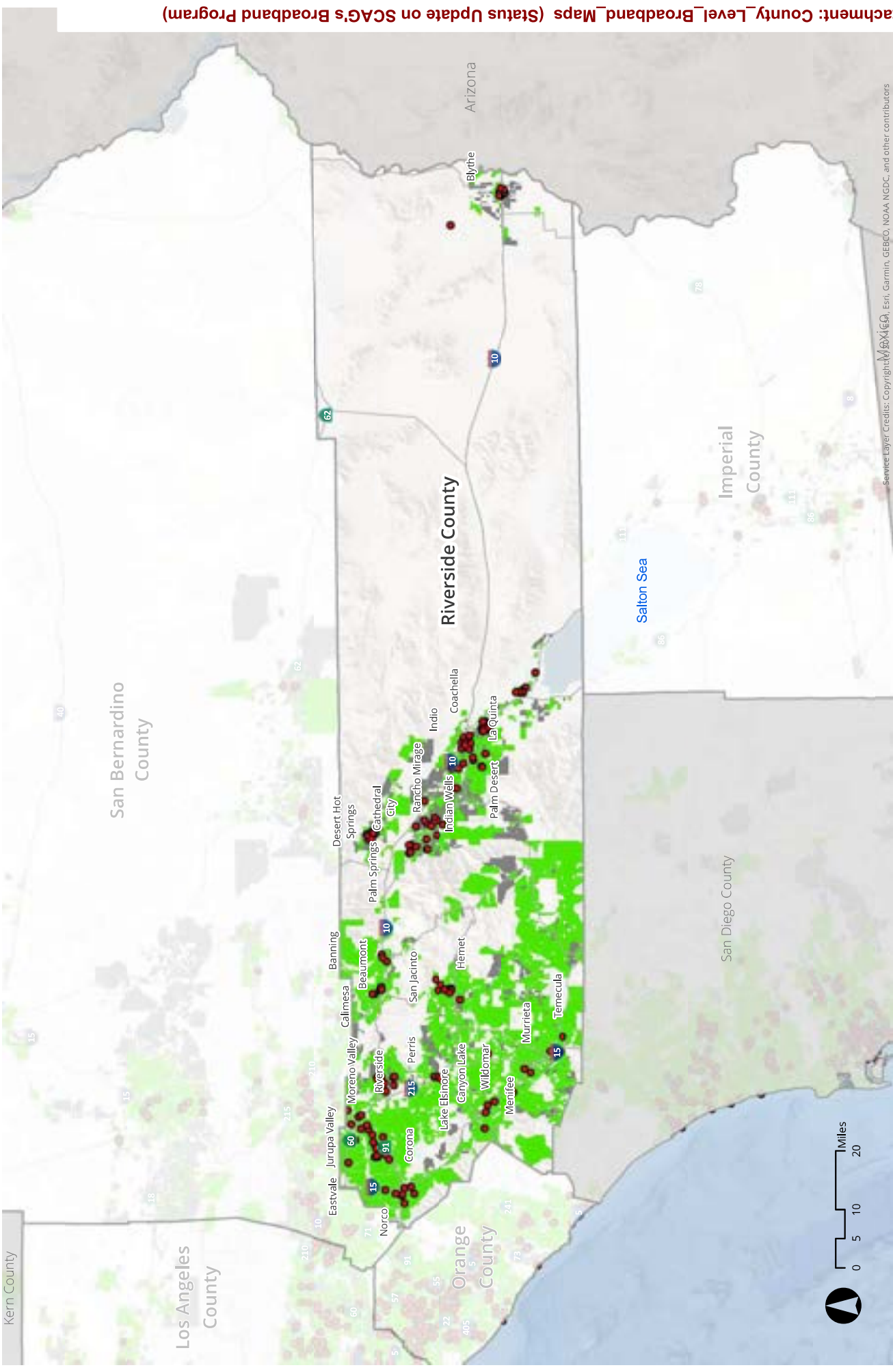
Service Layer Credits: Copyright (c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Public-Subsidized Housings for Orange County

- Public-Subsidized Housings
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

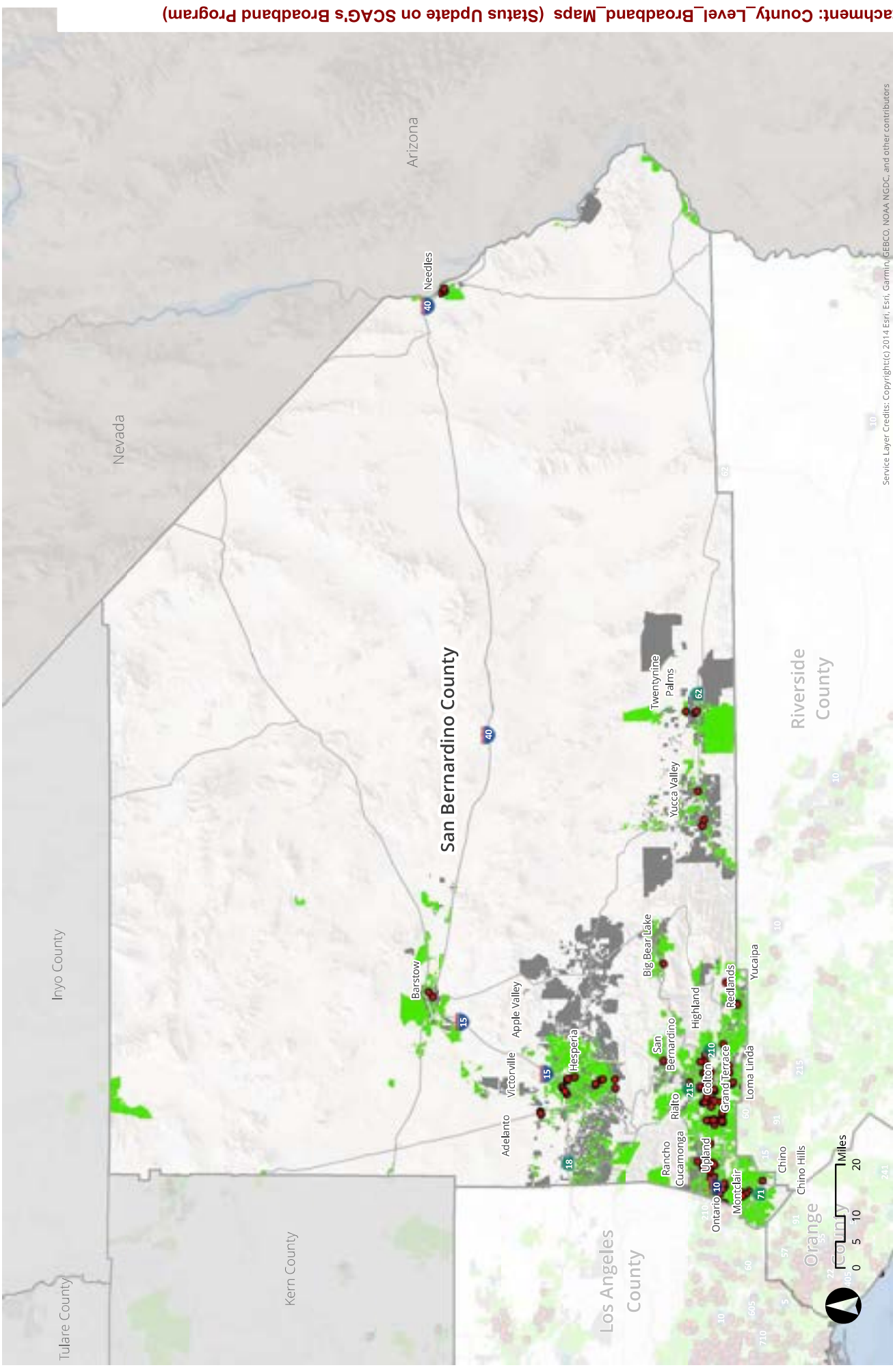


Source: California Public Utilities Commission (CPUC), California Tax Credit Allocation Committee (TCAC)



Public-Subsidized Housings for Riverside County

- Public-Subsidized Housings
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



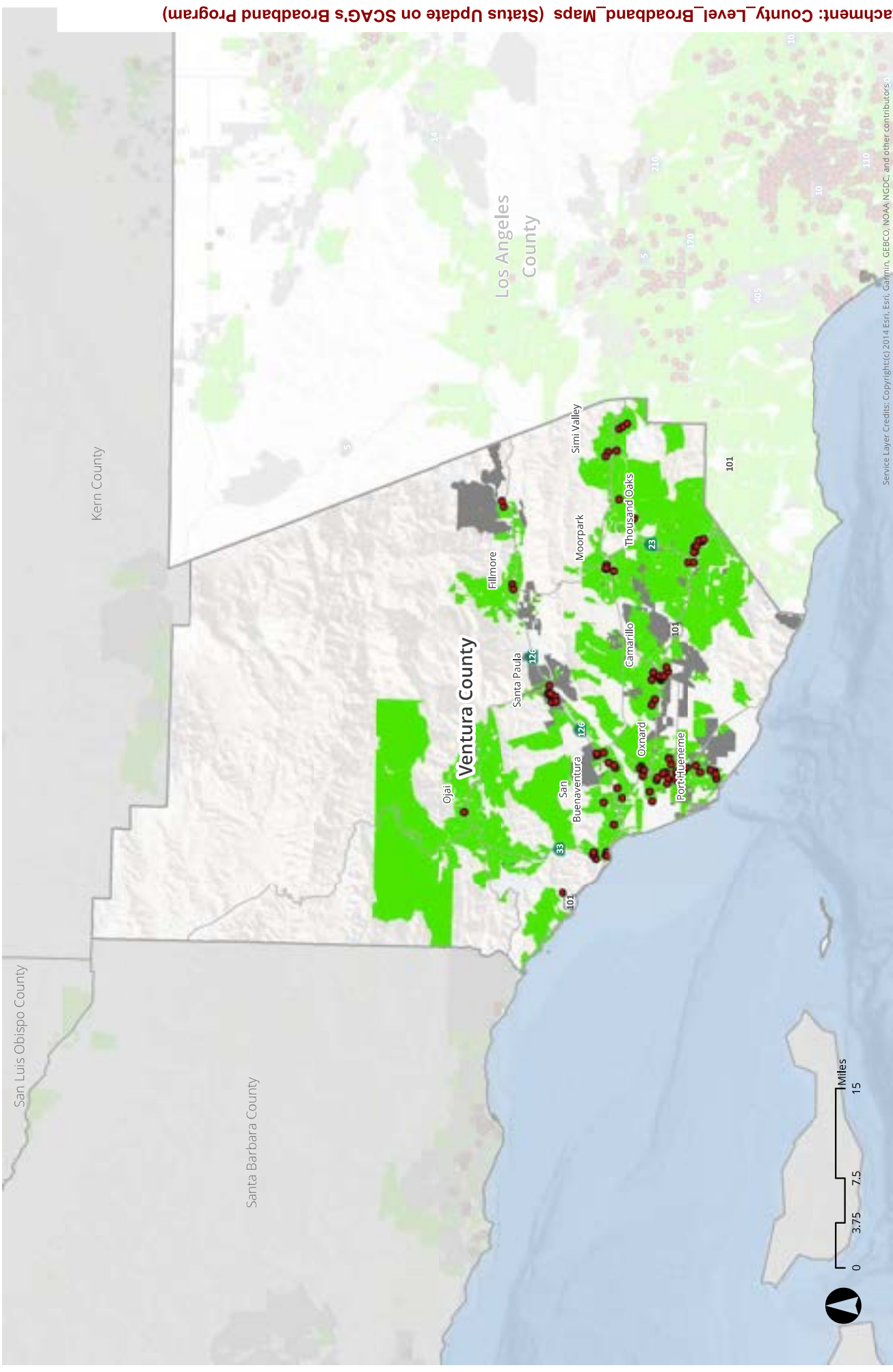
Public-Subsidized Housings for San Bernardino County

- Public-Subsidized Housings
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Tax Credit Allocation Committee (TCAC)

Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)



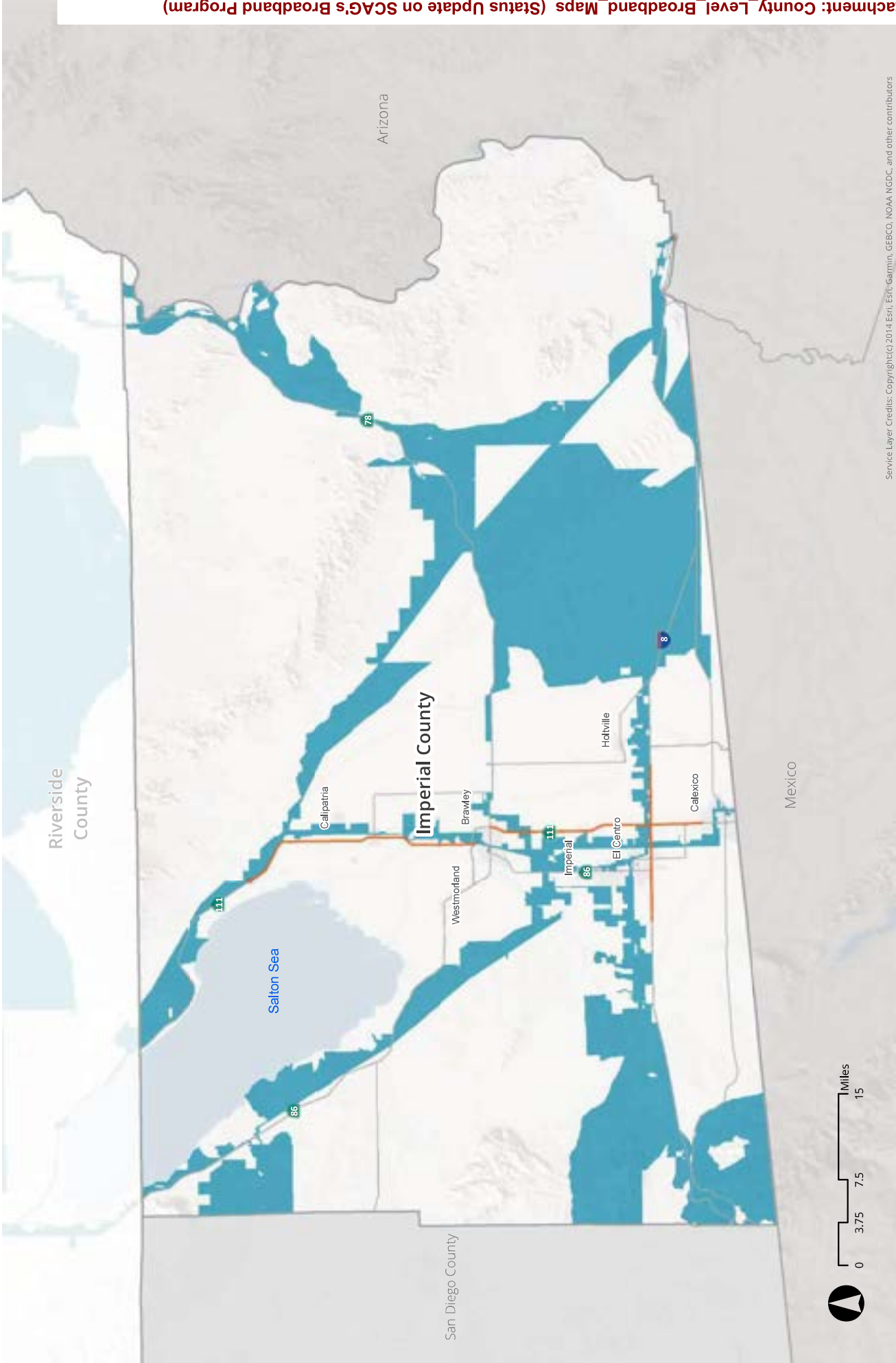
Service Layer Credits: Copyright (c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Public-Subsidized Housings for Ventura County

- Public-Subsidized Housings
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold



Source: California Public Utilities Commission (CPUC), California Tax Credit Allocation Committee (TCAC)

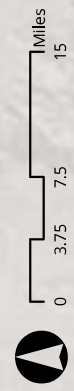


Service Layer Credits: Copyright© 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Fiber Presence by Census Block for Imperial County

- Fiber Presence
- SHOPP Projects (Points)
- SHOPP Projects (Lines)

Note: Census blocks highlighted on this map contain broadband line infrastructure within their boundaries. The data does not indicate the precise location of lines, only that fiber lines are present somewhere within the Census block area.

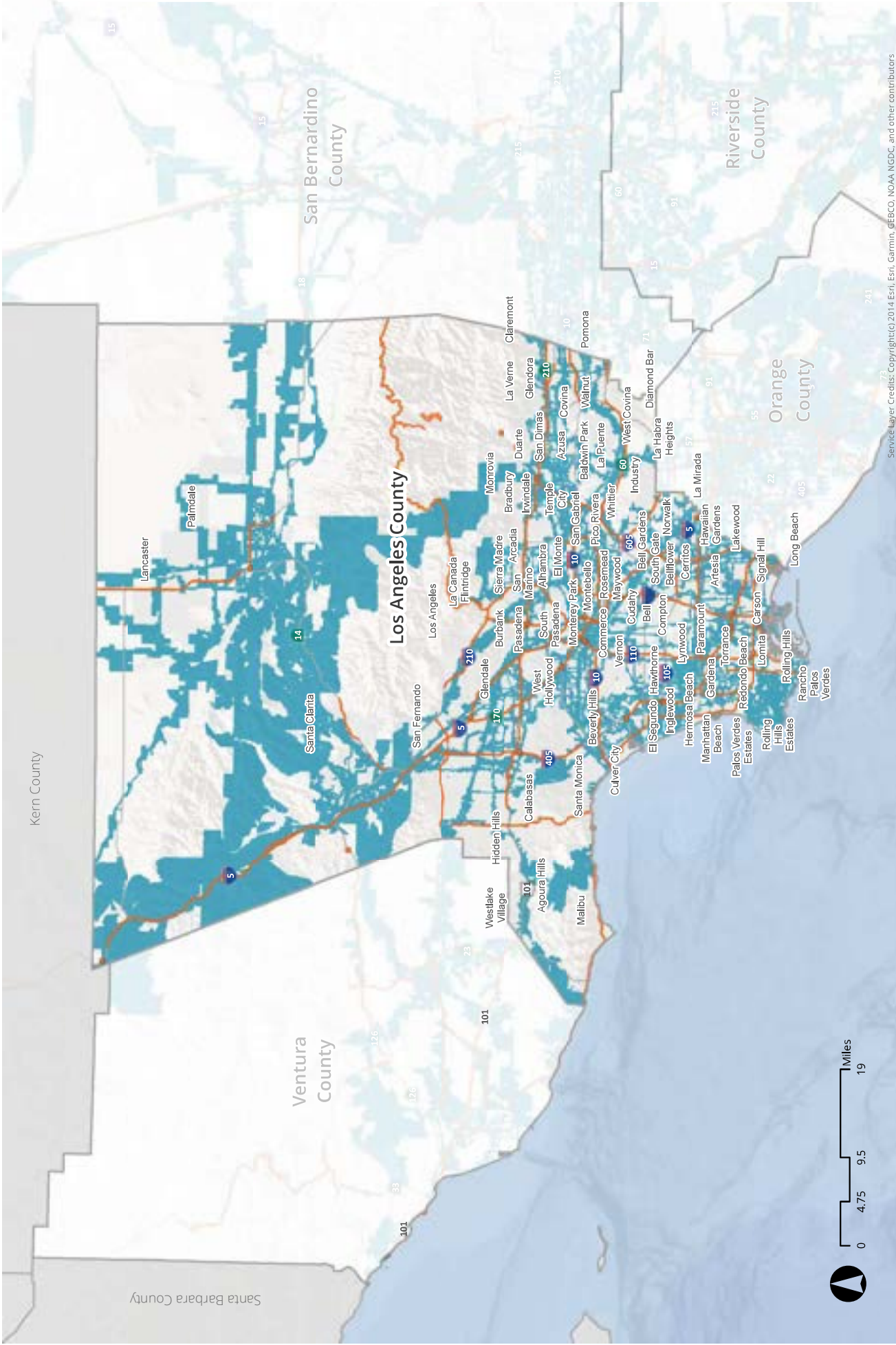


Source: California Public Utilities Commission (CPUC).

Packet Pg. 313

PA=GIS_Request\workspace\028_Broadband_Project\mxd\5.1 FiberPresence_Map_scag by County.mxd | Date: 6/7/2021

Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)



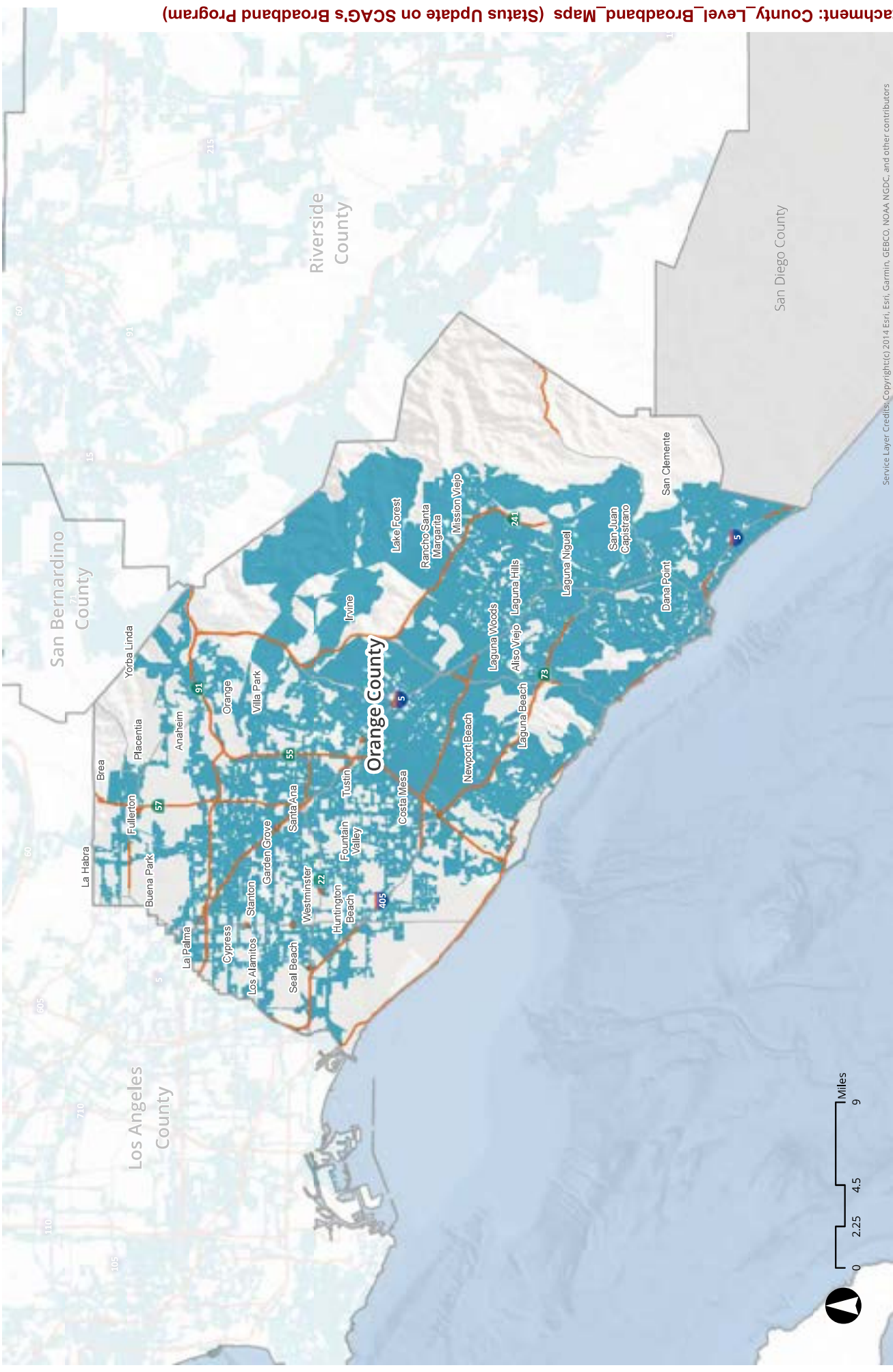
- Fiber Presence
- SHOPP Projects (Points)
- SHOPP Projects (Lines)

Note: Census blocks highlighted on this map contain broadband line infrastructure within their boundaries. The data does not indicate the precise location of lines, only that fiber lines are present somewhere within the census block area.



Fiber Presence by Census Block for Los Angeles County





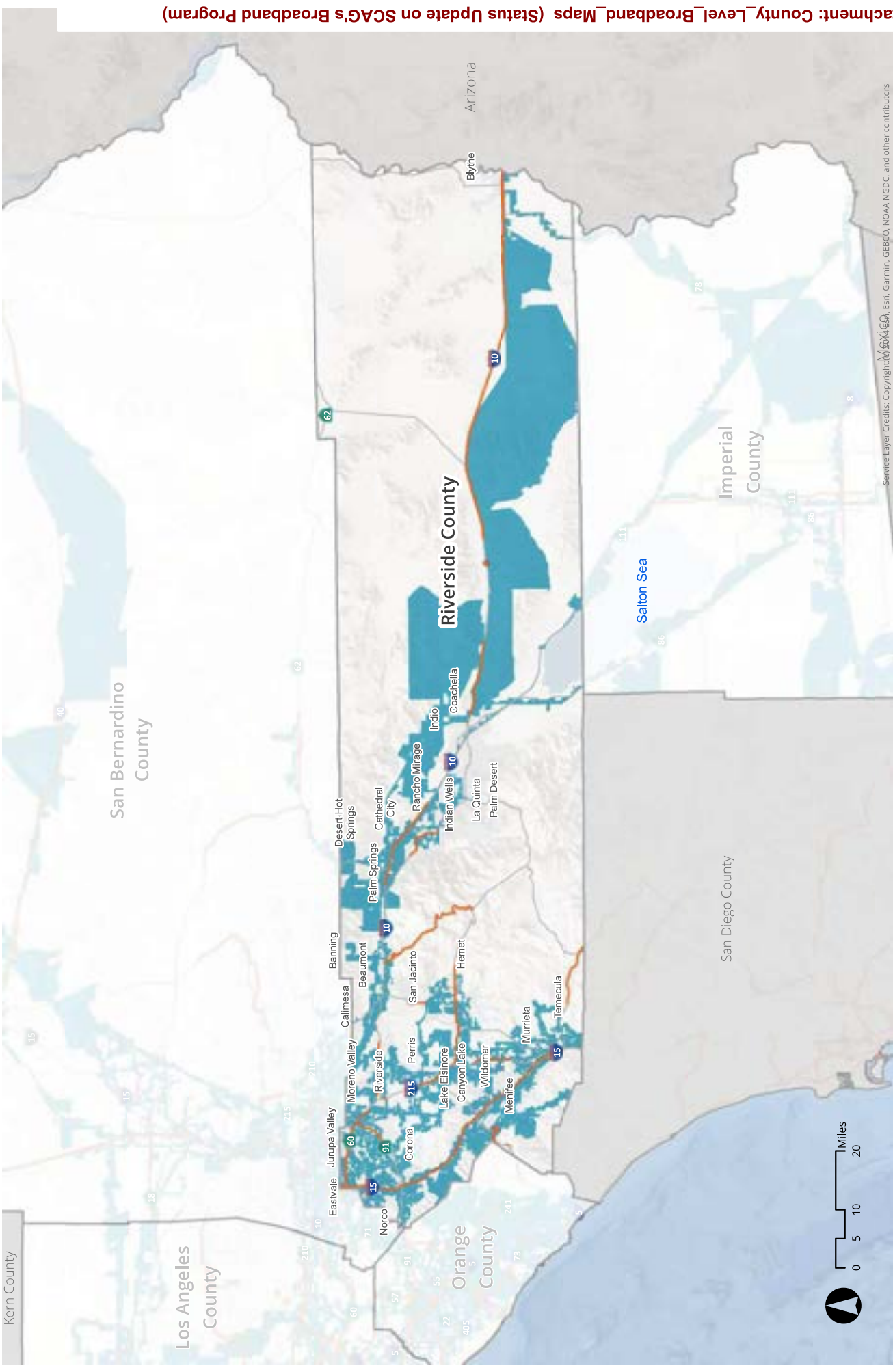
Service Layer Credits: Copyright (c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Fiber Presence by Census Block for Orange County

- Fiber Presence
- SHOPP Projects (Points)
- SHOPP Projects (Lines)

Note: Census blocks highlighted on this map contain broadband line infrastructure within their boundaries. The data does not indicate the precise location of lines, only that fiber lines are present somewhere within the Census block area.





Fiber Presence by Census Block for Riverside County

- Fiber Presence
- SHOPP Projects (Points)
- SHOPP Projects (Lines)

Note: Census blocks highlighted on this map contain broadband line infrastructure within their boundaries. The data does not indicate the precise location of lines, only that fiber lines are present somewhere within the Census block area.

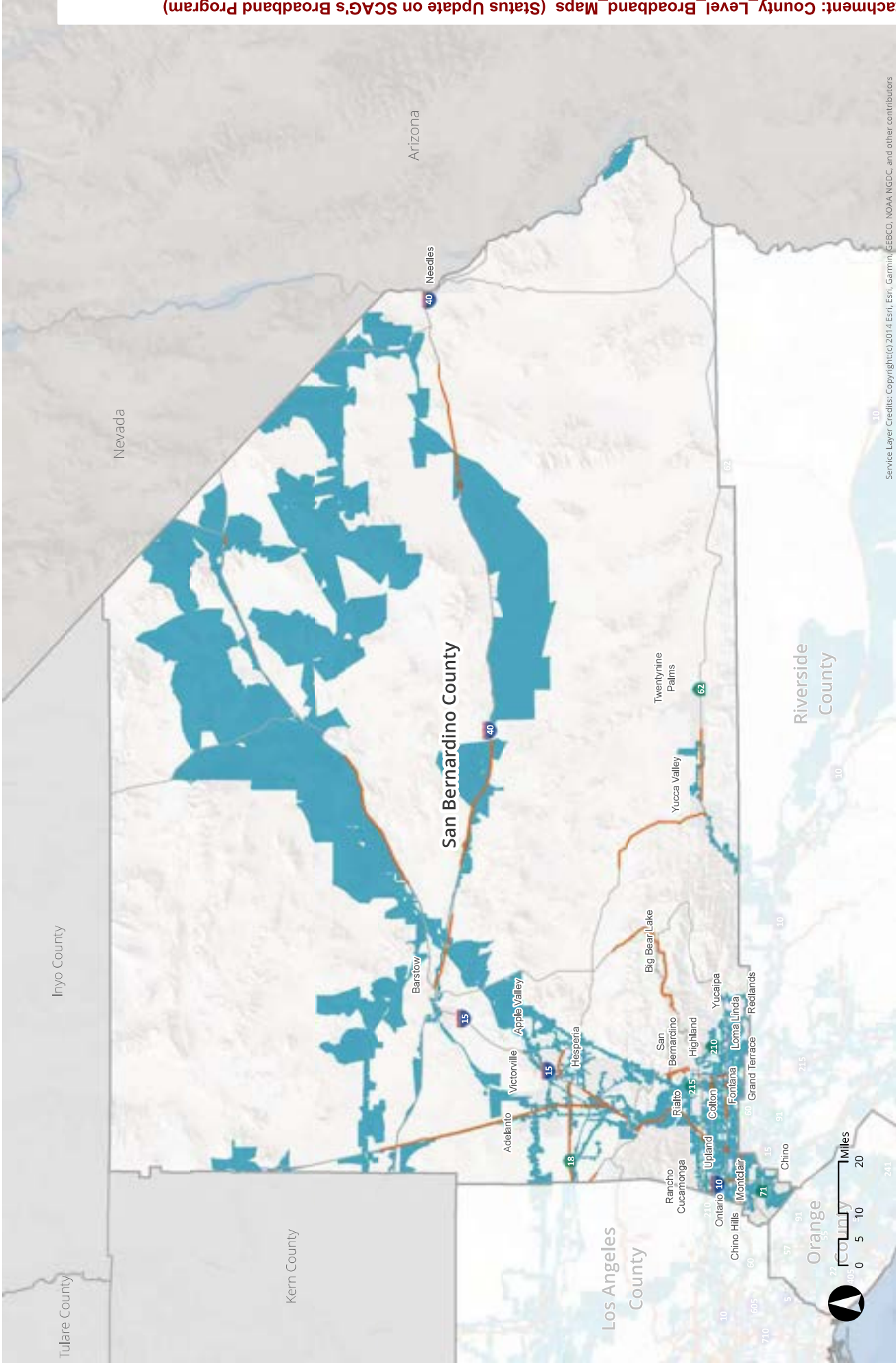
Map Title: 5.1 FiberPresence Map_Scag by County



Source: California Public Utilities Commission (CPUC).

Packet Pg. 316

PA=GIS_RequestWorkspace\028_Broadband_Project\mxd\5.1 FiberPresence Map_Scag by County.mxd | Date: 6/7/2021



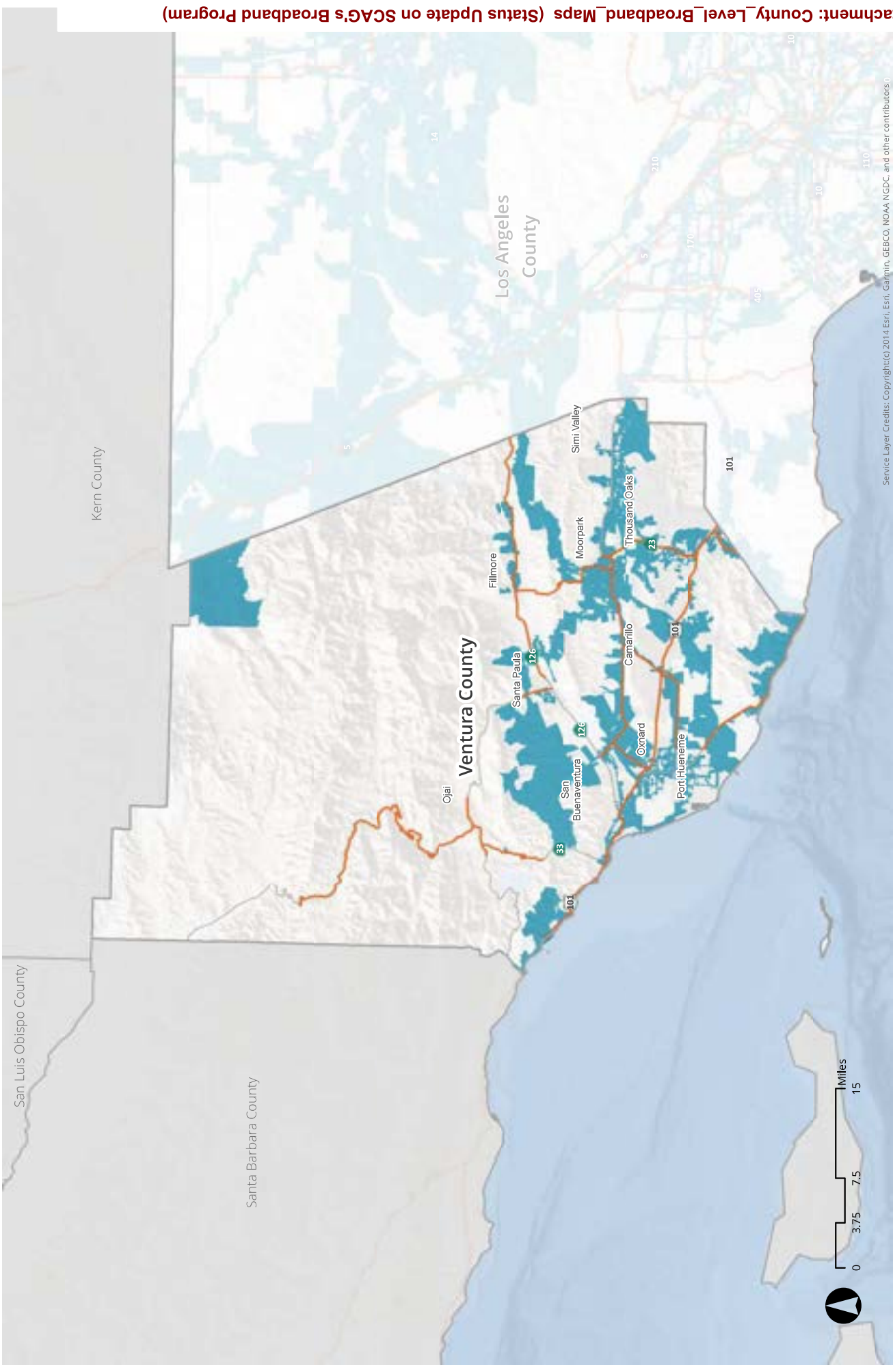
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA, NGDC, and other contributors

Fiber Presence by Census Block for San Bernardino County

- Fiber Presence
- SHOPP Projects (Points)
- SHOPP Projects (Lines)

Note: Census blocks highlighted on this map contain broadband line infrastructure within their boundaries. The data does not indicate the precise location of lines, only that fiber lines are present somewhere within the Census block area.





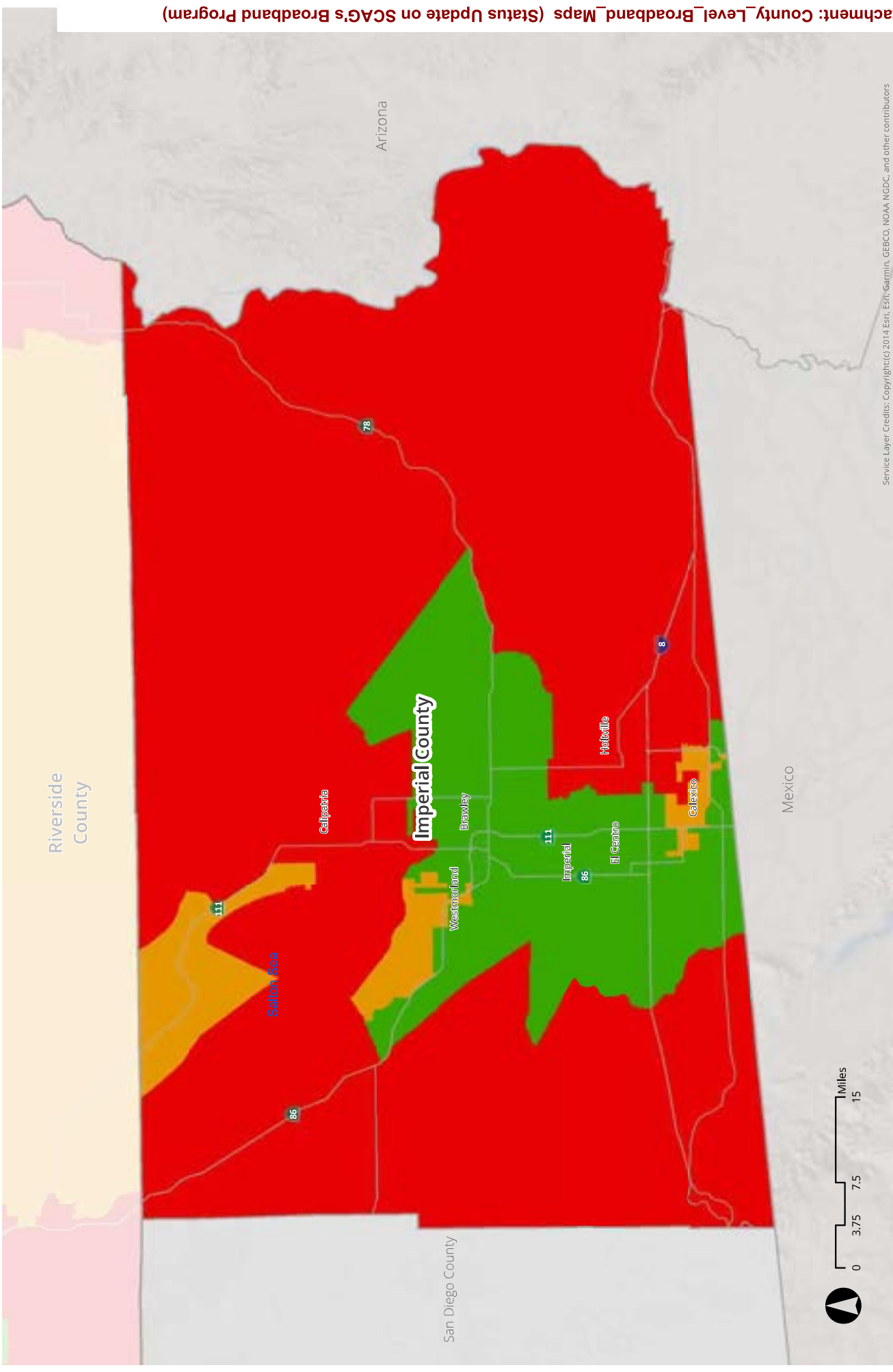
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors (

Fiber Presence by Census Block for Ventura County

- Fiber Presence
- SHOPP Projects (Points)
- SHOPP Projects (Lines)

Note: Census blocks highlighted on this map contain broadband line infrastructure within their boundaries. The data does not indicate the precise location of lines, only that fiber lines are present somewhere within the Census block area.





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Broadband Speed Test Map by Zip Code for Imperial County

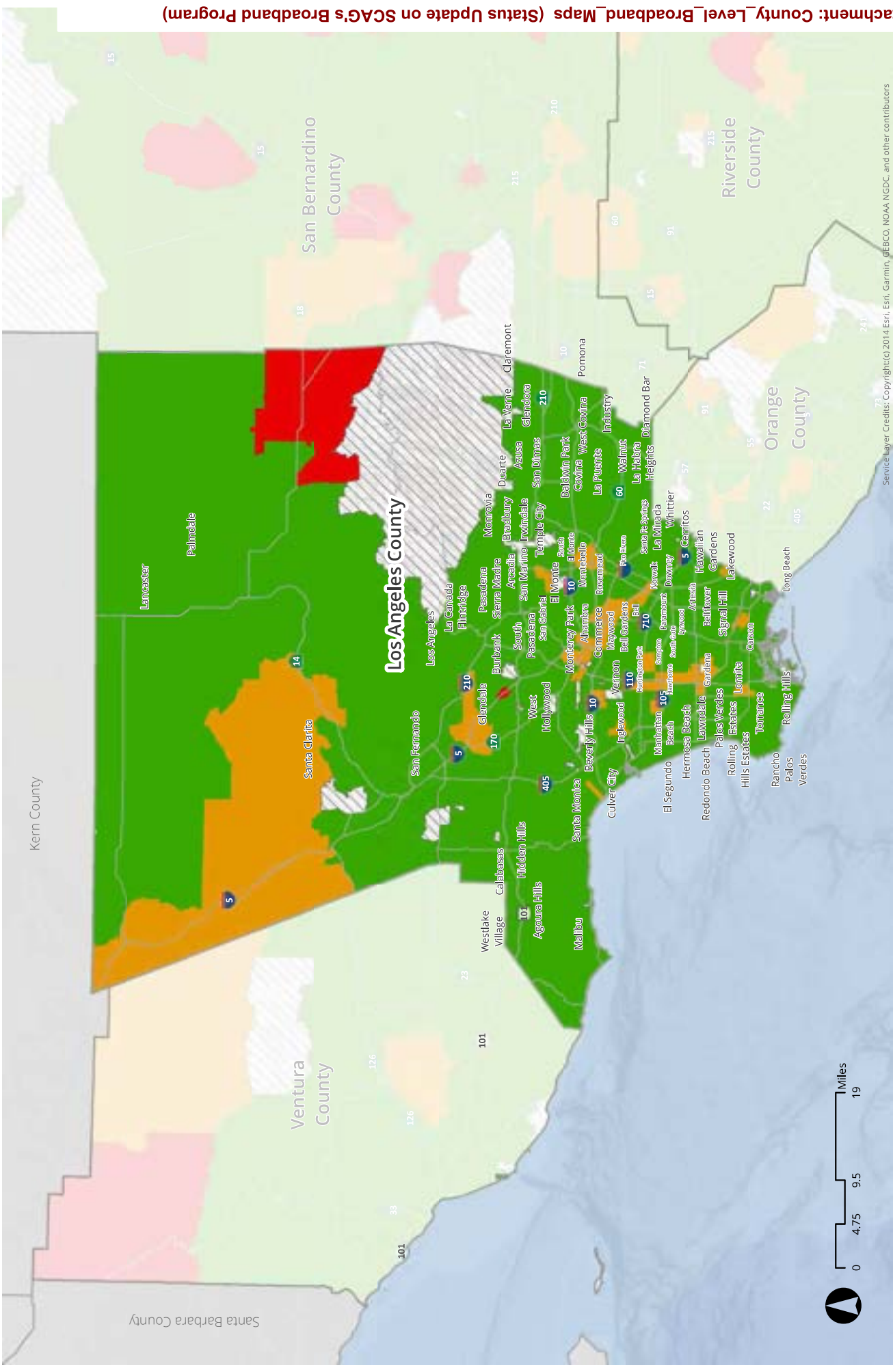
Download/Upload Speeds in Mbps

- Down 25+ / Up 3+
- Down 1-25 / Up 3+
- Down 1-25 / Up 0-3
- No Data

Note: Federal threshold is 25 Mbps download and 3 Mbps upload speeds.



Source: M-Lab speed



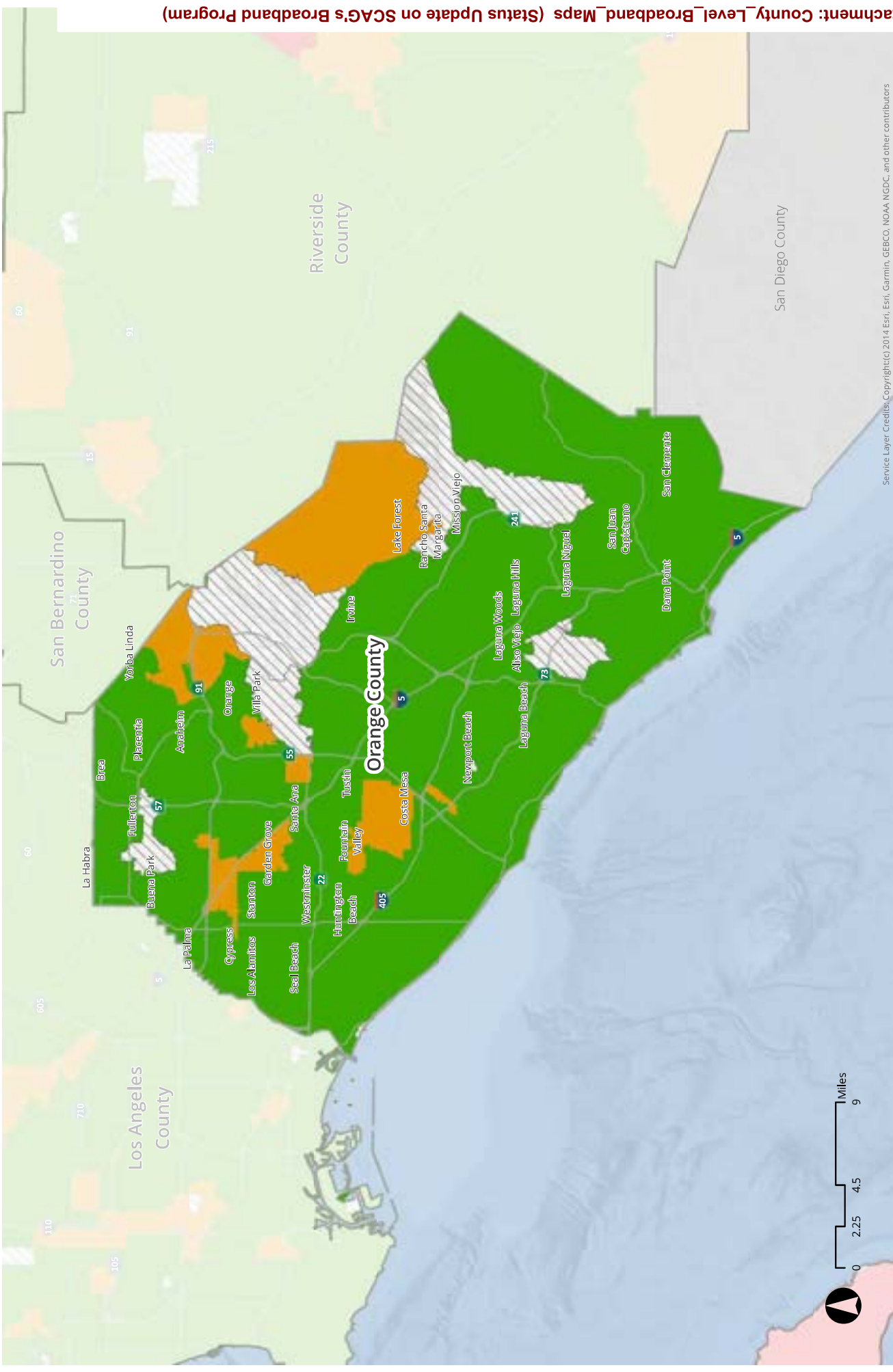
- Download/Upload Speeds in Mbps**
- Down 25+ / Up 3+
 - Down 1-25 / Up 3+
 - Down 1-25 / Up 0-3
 - No Data

Note: Federal threshold is 25 Mbps download and 3 Mbps upload speeds.

Broadband Speed Test Map by Zip Code for Los Angeles County



Source: M-Lab speed



- Download/Upload Speeds in Mbps**
- Down 25+ / Up 3+
 - Down 1-25 / Up 3+
 - Down 1-25 / Up 0-3
 - No Data

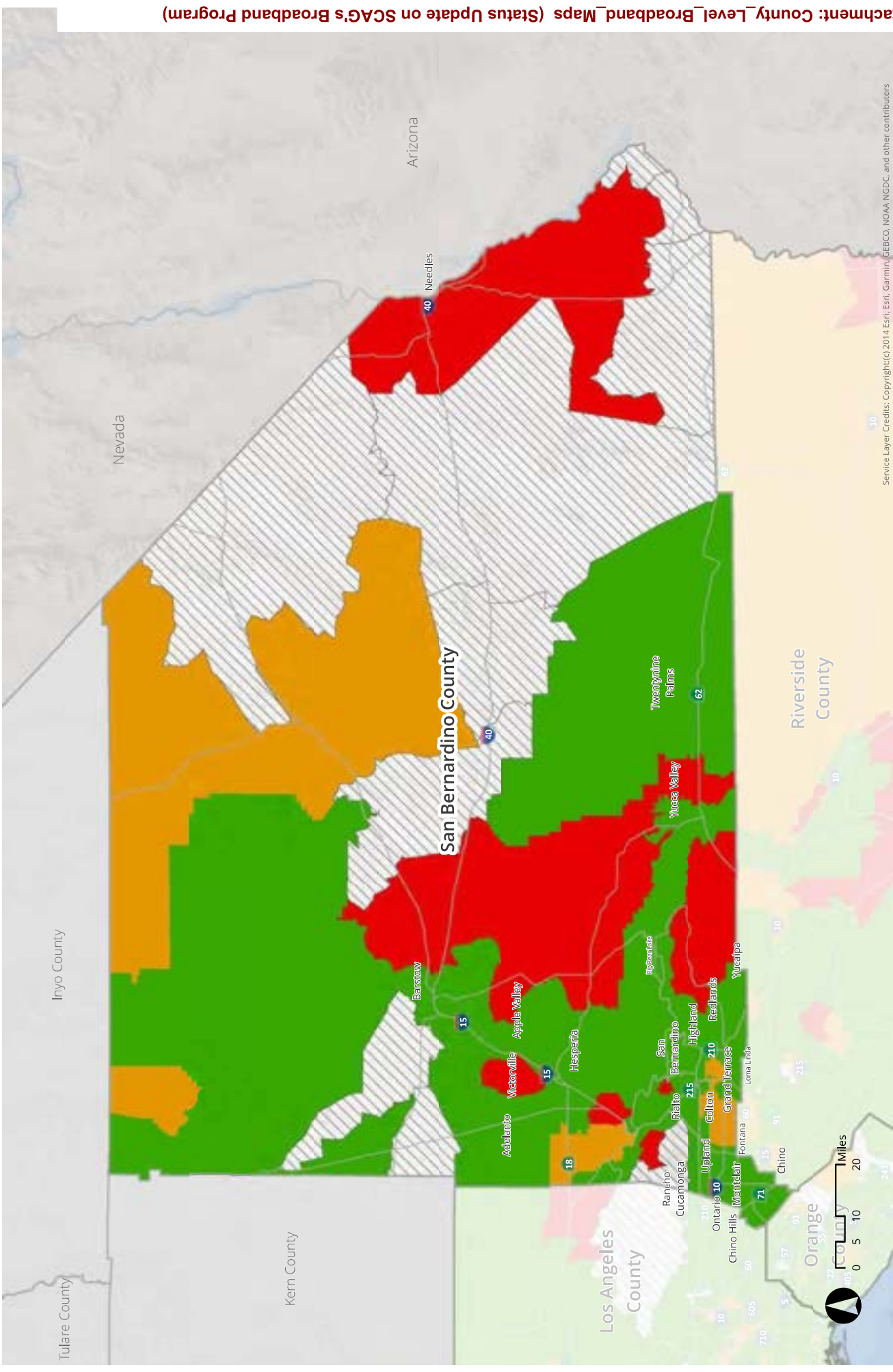
Note: Federal threshold is 25 Mbps download and 3 Mbps upload speeds.

Broadband Speed Test Map by Zip Code for Orange County

Service Layer Credits: Copyright (c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



Source: M-Lab speed

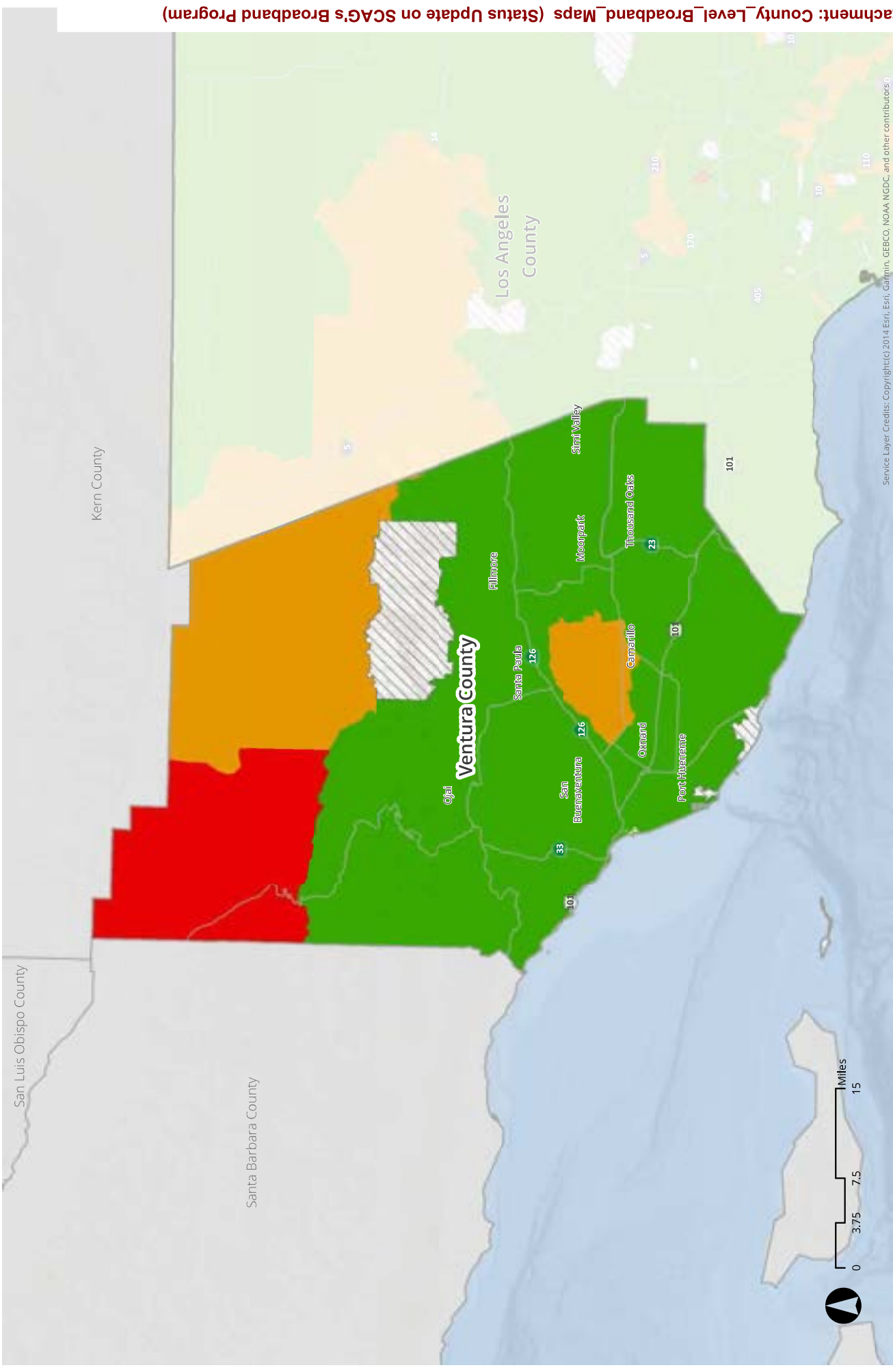


Broadband Speed Test Map by Zip Code for San Bernardino County

- Download/Upload Speeds in Mbps**
- Down 25+ / Up 3+
 - Down 1-25 / Up 3+
 - Down 1-25 / Up 0-3
 - No Data

Note: Federal threshold is 25 Mbps download and 3 Mbps upload speeds.





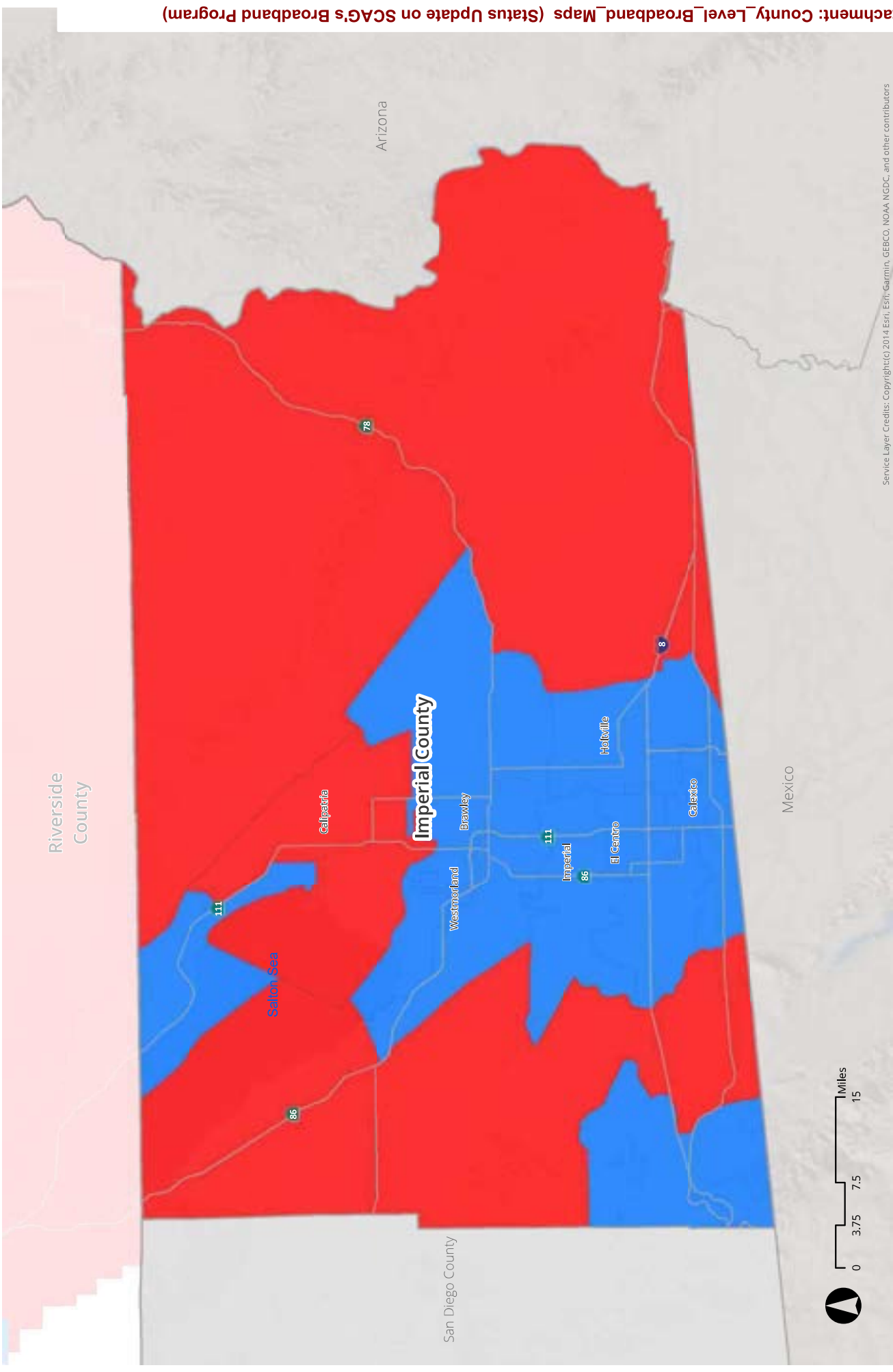
- Download/Upload Speeds in Mbps**
- Down 25+ / Up 3+
 - Down 1-25 / Up 3+
 - Down 1-25 / Up 0-3
 - No Data

Note: Federal threshold is 25 Mbps download and 3 Mbps upload speeds.

Broadband Speed Test Map by Zip Code for Ventura County



Source: M-Lab speed



Service Layer Credits: Copyright (c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

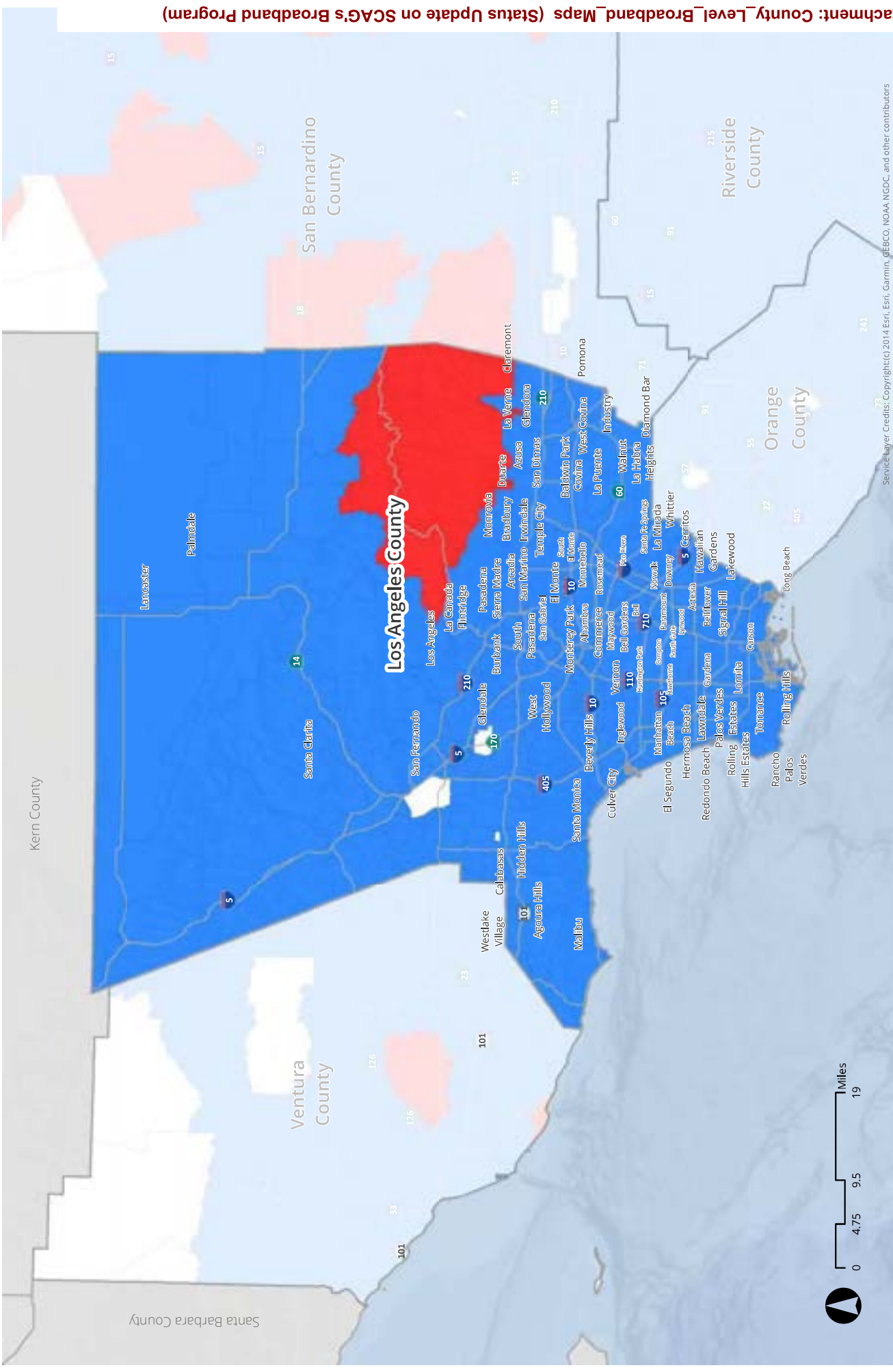
Broadband Low Cost Plans Available by zipcode

- Available
- Not Available
- No Data

Note: Zipcodes highlighted on this map indicate service areas for ISPs (Spectrum, AT&T, Cox) that offer a low cost plan available for qualifying households it is because the internet service provider is accessible to over 50 percent of residents.

Availability of Low Cost Plans for Qualifying Households in Imperial County





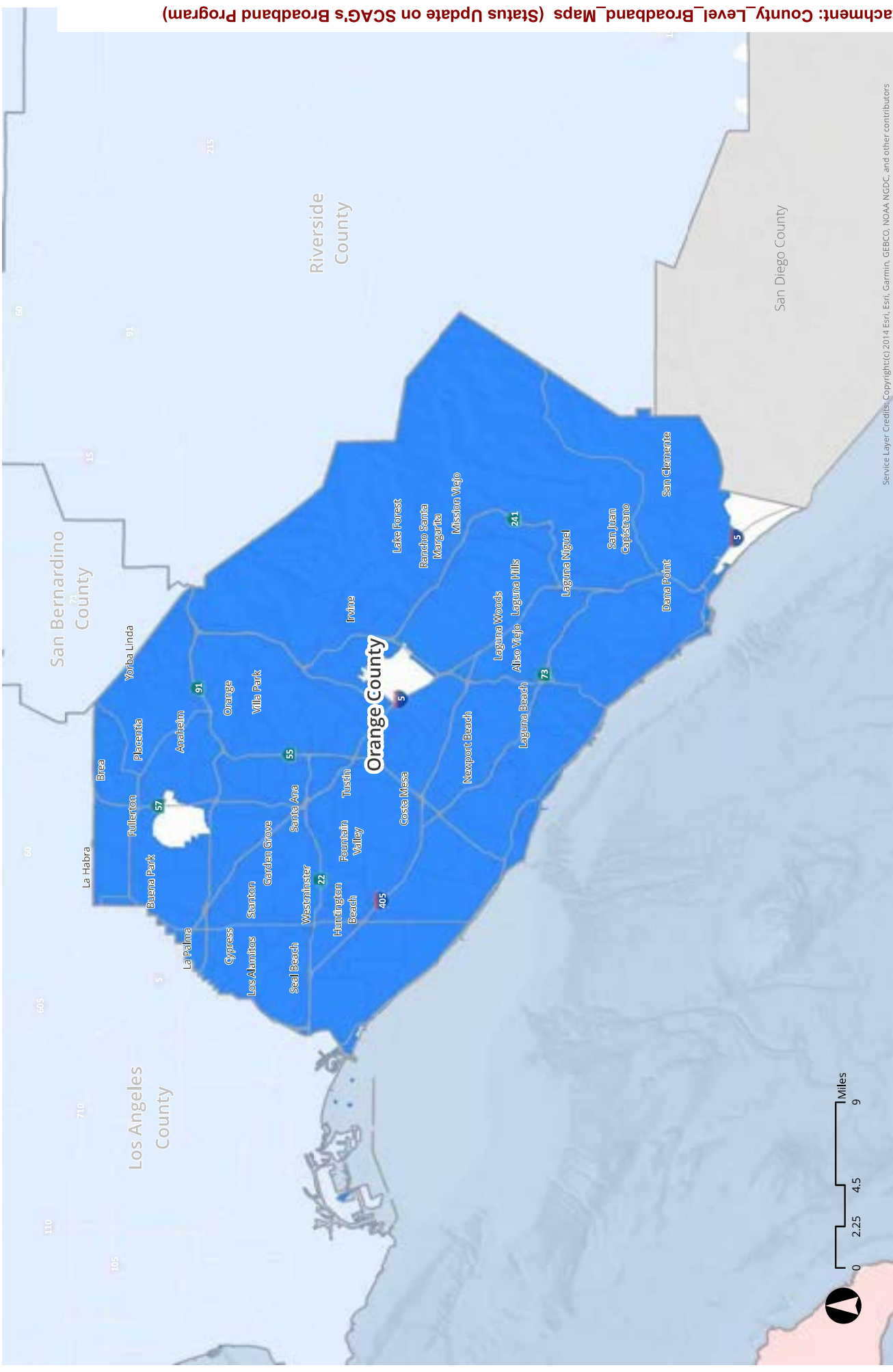
Service Layer Credits: Copyright (c) 2014 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Broadband Low Cost Plans Available by zipcode for Qualifying Households in Los Angeles County

- Available
- Not Available
- No Data

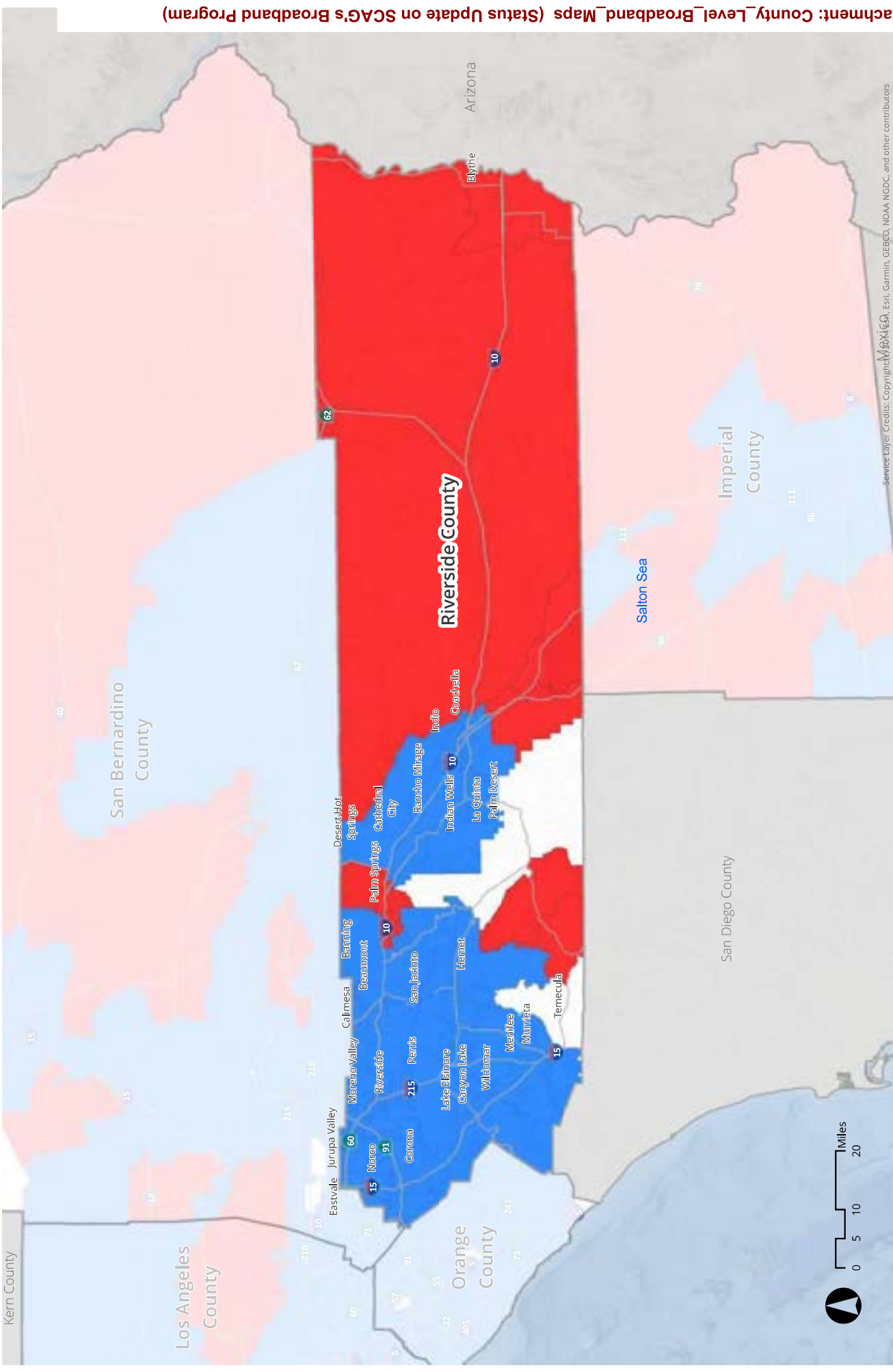
Note: Zipcodes highlighted on this map indicate service areas for ISPs (Spectrum, AT&T, Cox) that offer a low cost plan available for qualifying households it is because the internet service provider is accessible to over 50 percent of residents.





Availability of Low Cost Plans for Qualifying Households in Orange County





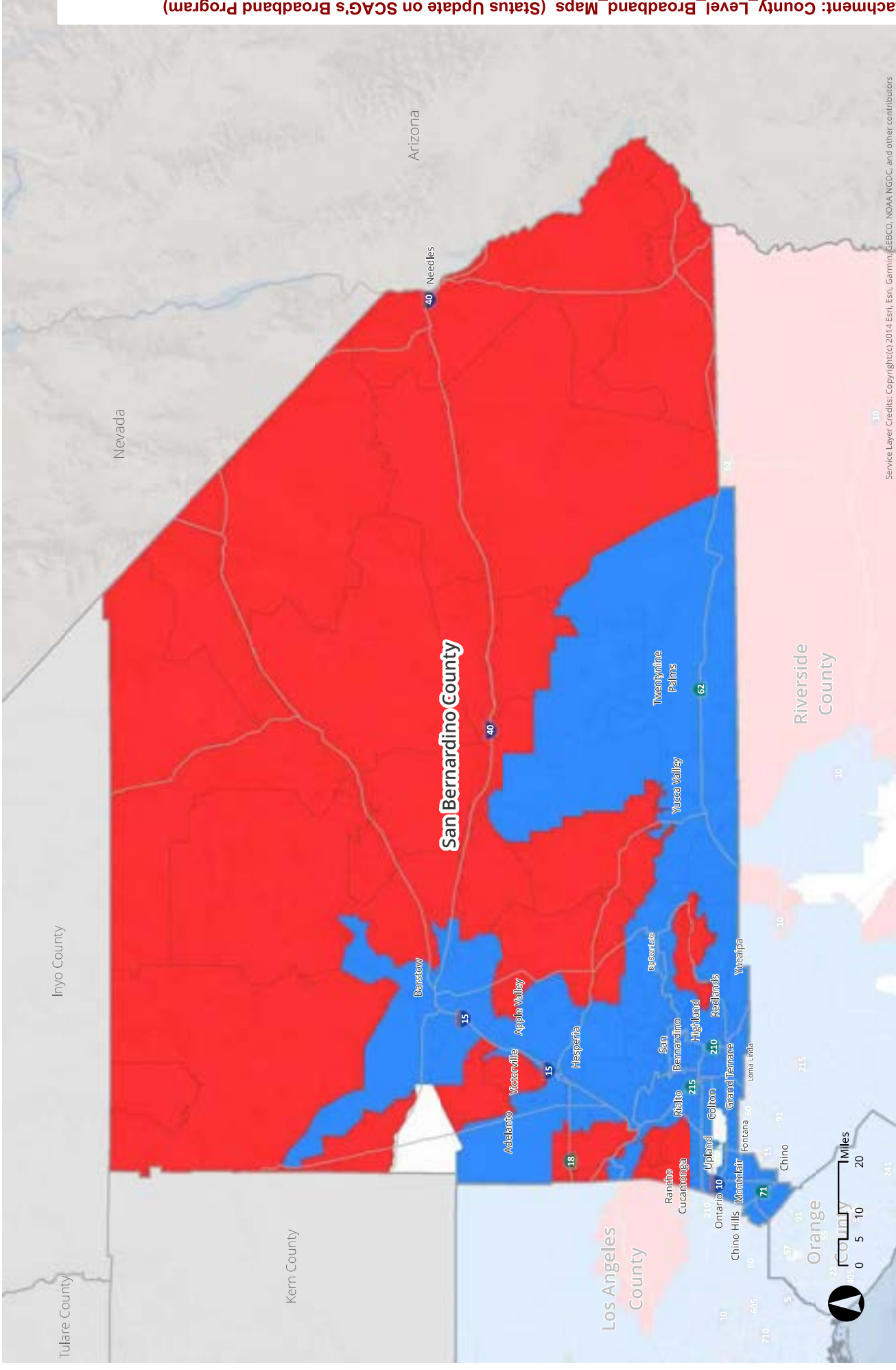
Broadband Low Cost Plans Available by zipcode

- Available
- Not Available
- No Data

Note: Zipcodes highlighted on this map indicate service areas for ISPs (Spectrum, AT&T, Cox) that offer a low cost plan available for qualifying households it is because the internet service provider is accessible to over 50 percent of residents.

Availability of Low Cost Plans for Qualifying Households in Riverside County





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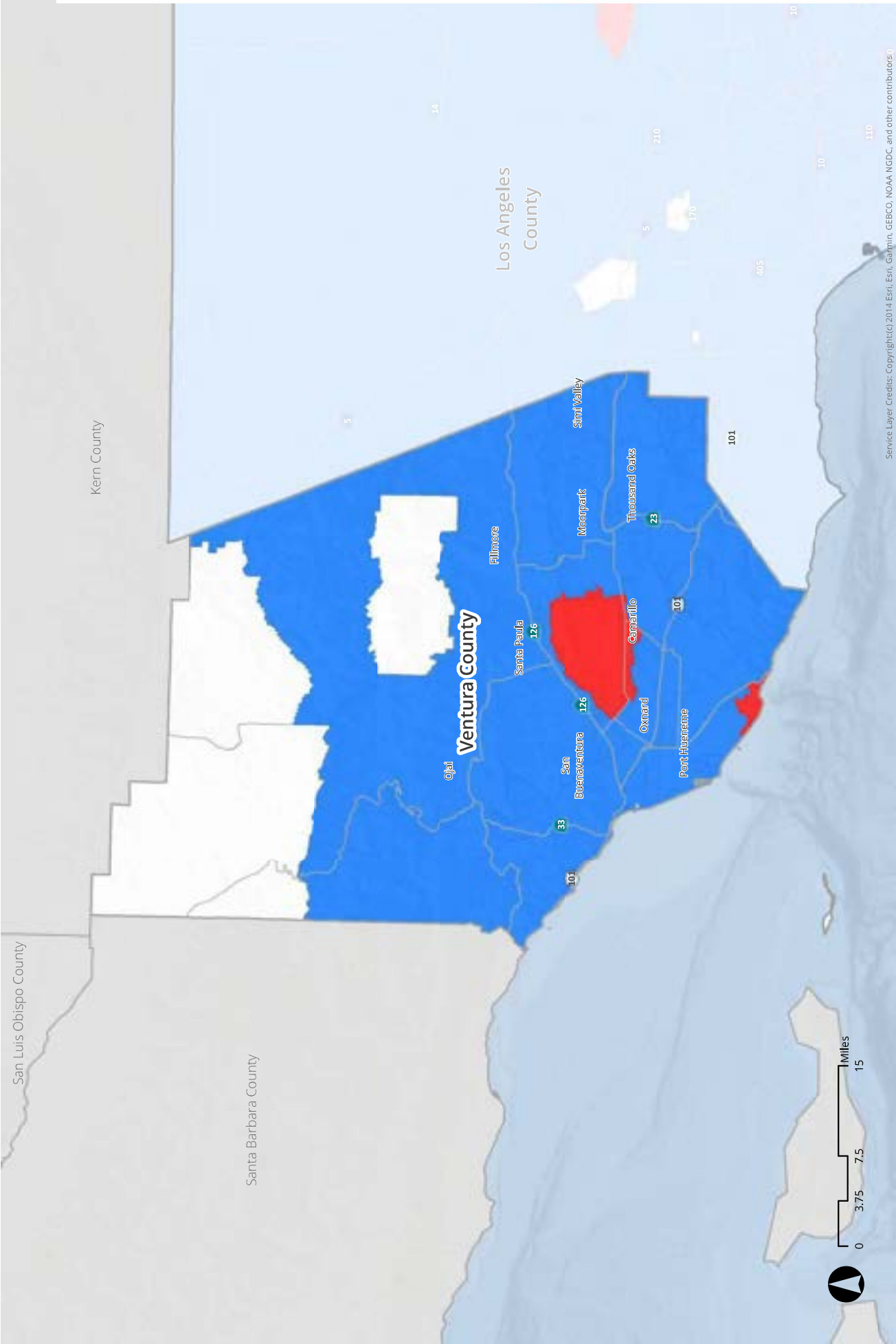
Broadband Low Cost Plans Available by zipcode

Availability of Low Cost Plans for Qualifying Households in San Bernardino County

- Available
- Not Available
- No Data

Note: Zipcodes highlighted on this map indicate service areas for ISPs (Spectrum, AT&T, Cox) that offer a low cost plan available for qualifying households it is because the internet service provider is accessible to over 50 percent of residents.





Service Layer Credits: Copyright (c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

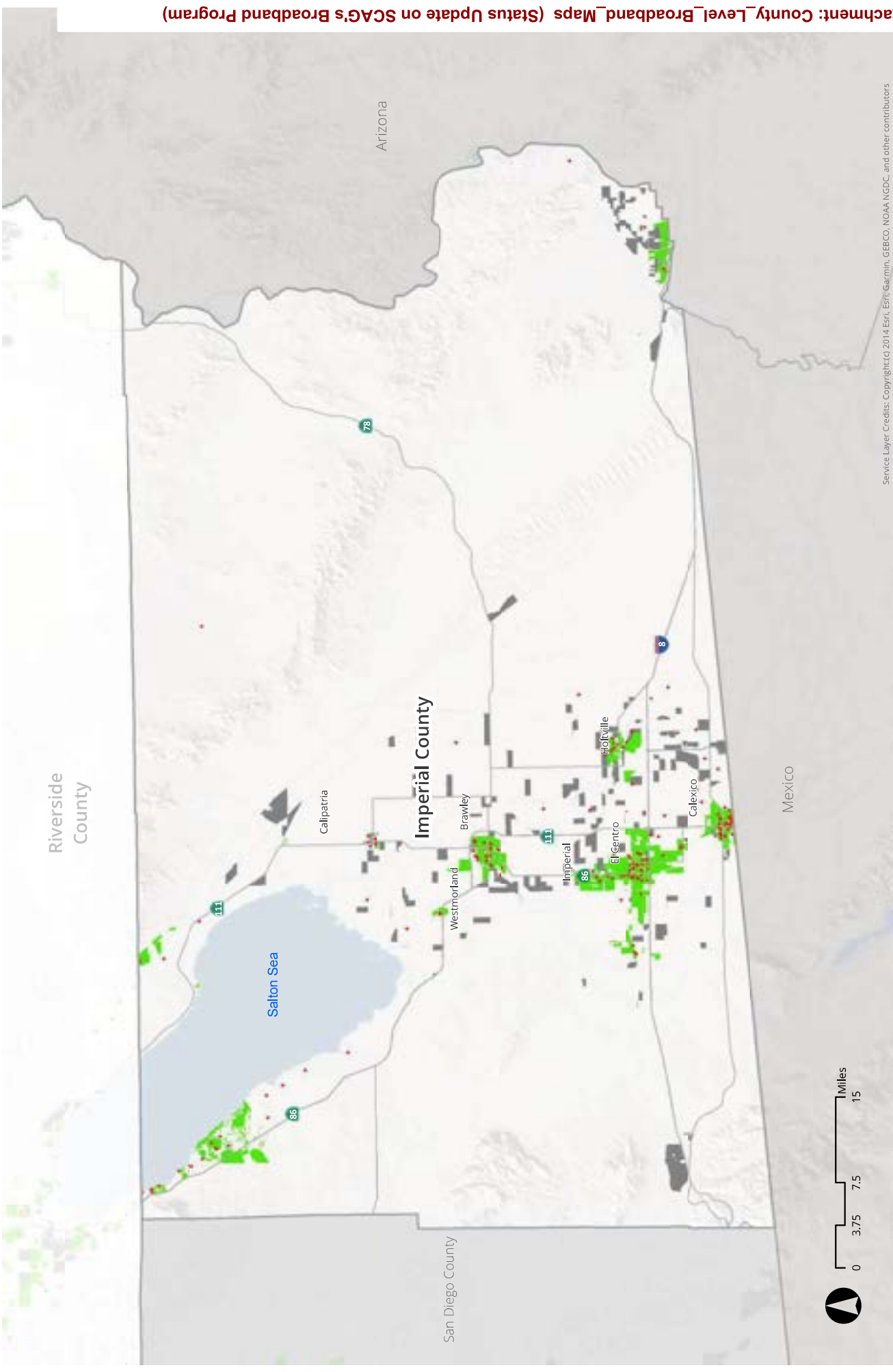
Broadband Low Cost Plans Available by zipcode for Qualifying Households in Ventura County

Broadband Low Cost Plans Available by zipcode

- Available
- Not Available
- No Data

Note: Zipcodes highlighted on this map indicate service areas for ISPs (Spectrum, AT&T, Cox) that offer a low cost plan available for qualifying households it is because the internet service provider is accessible to over 50 percent of residents.





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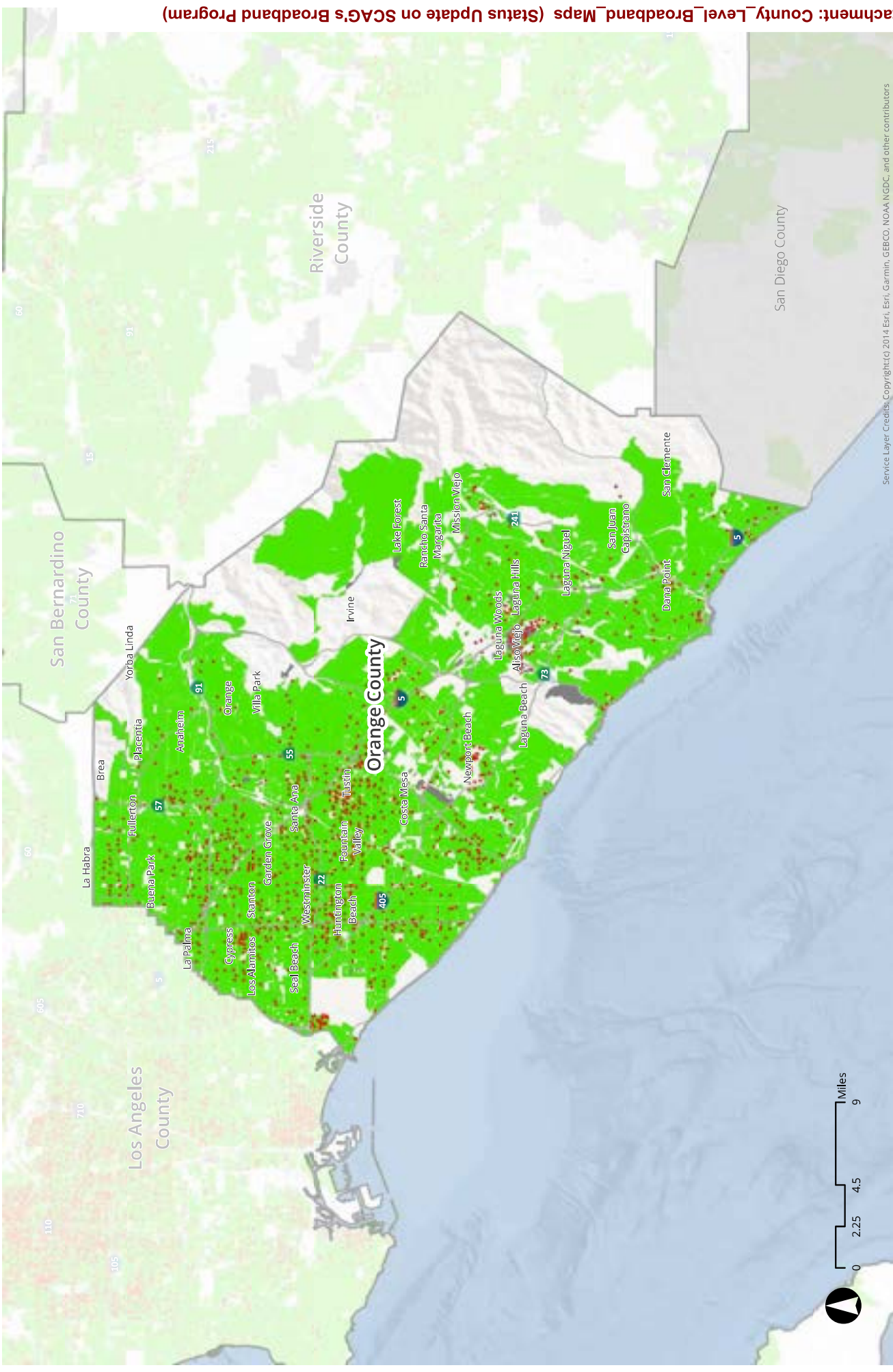
Lower Income Households without Broadband for Imperial County

- Low Income Households without Broadband by Blockgroup
- 1 Dot = 50
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20

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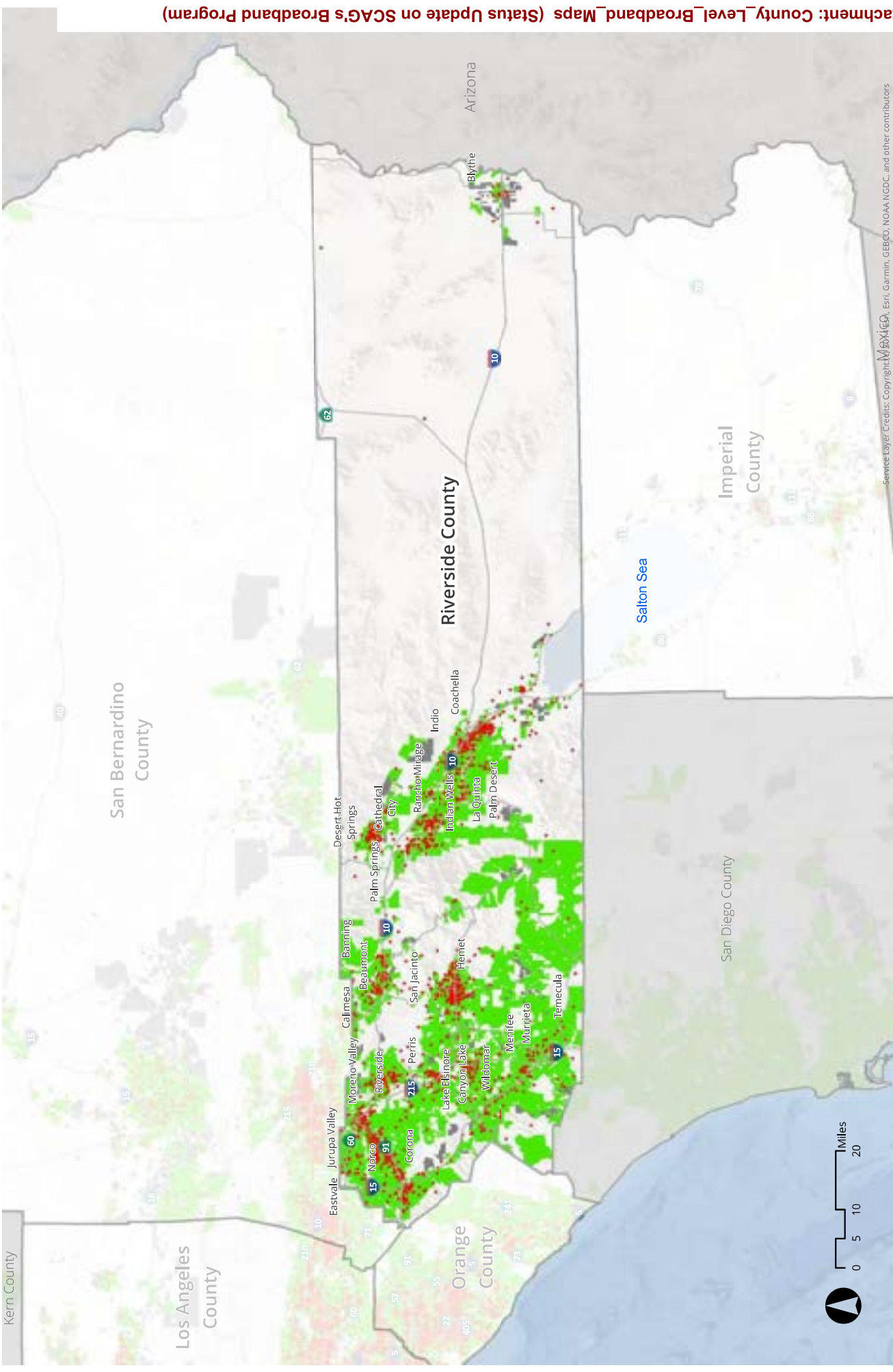


Lower Income Households without Broadband for Orange County

- Low Income Households without Broadband by Blockgroup
- 1 Dot = 50
 - Fixed Broadband That Meets Federal Threshold
 - Fixed Broadband Below Federal Threshold

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20

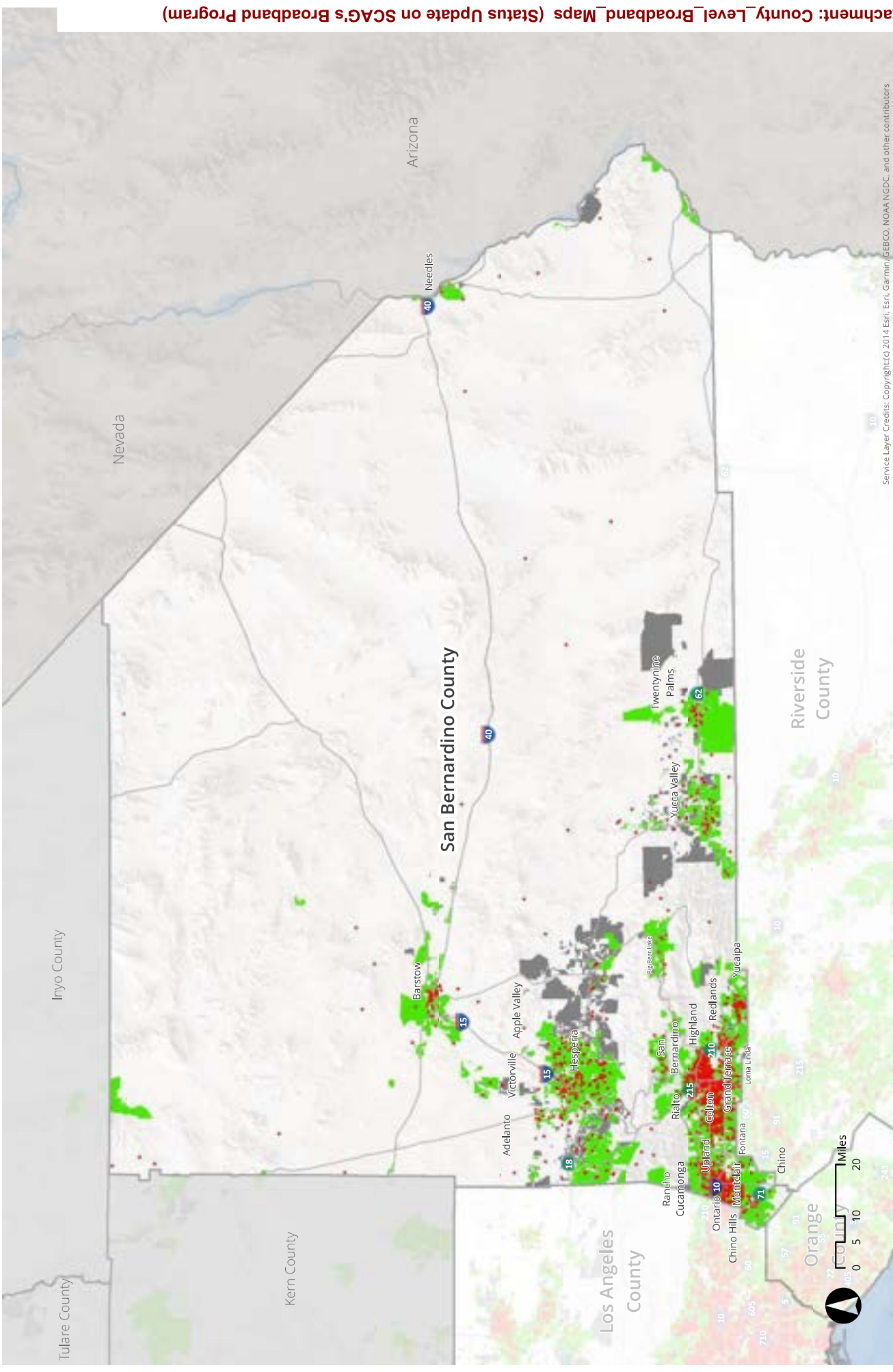


Lower Income Households without Broadband for Riverside County

- Low Income Households without Broadband by Blockgroup
- 1 Dot = 50
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20



Lower Income Households without Broadband for San Bernardino County

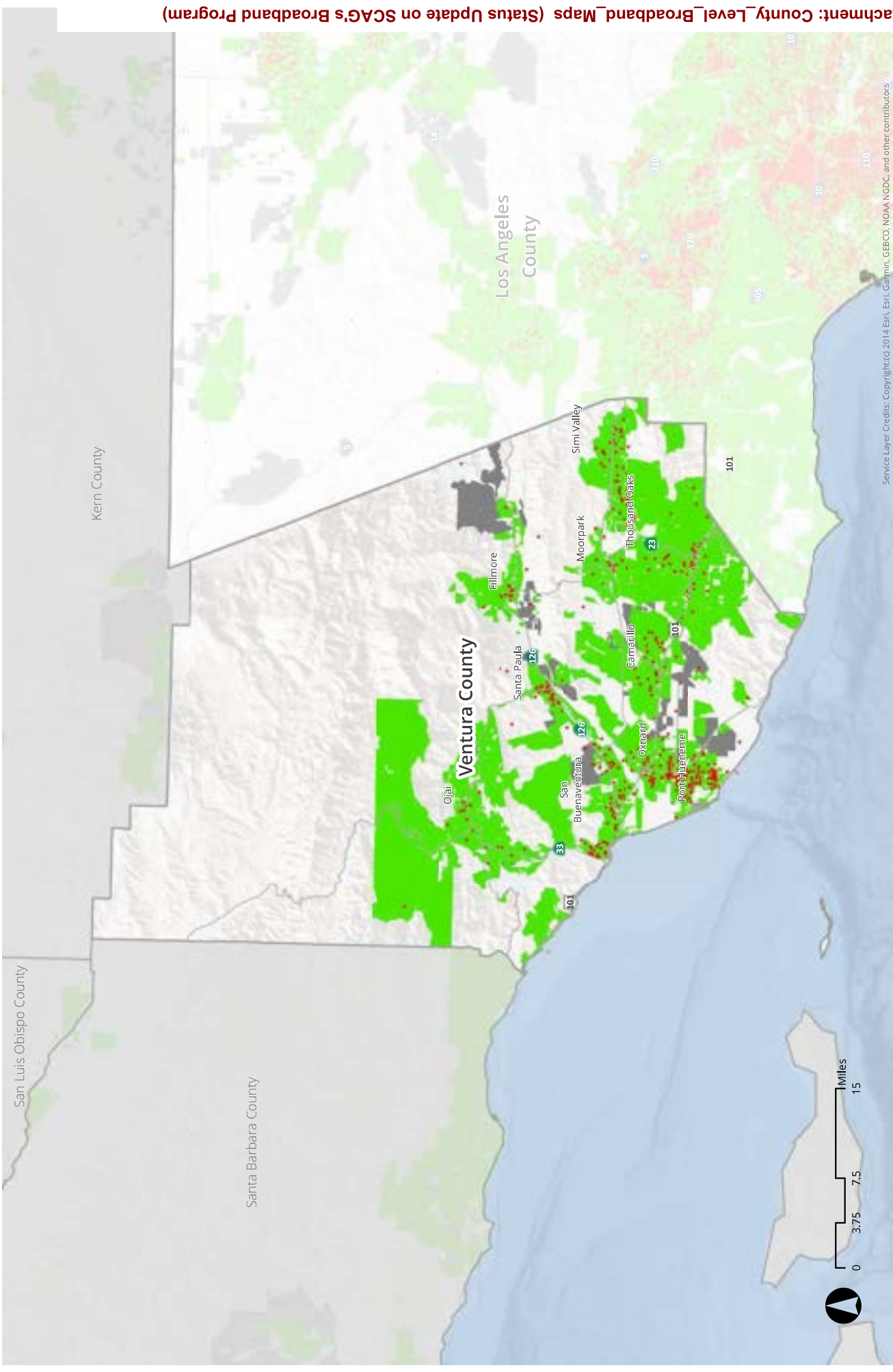
- Low Income Households without Broadband by Blockgroup
- 1 Dot = 50
 - Fixed Broadband That Meets Federal Threshold
 - Fixed Broadband Below Federal Threshold

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-2



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Lower Income Households without Broadband for Ventura County

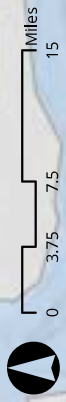
- Low Income Households without Broadband by Blockgroup
- 1 Dot = 50
- Fixed Broadband That Meets Federal Threshold
- Fixed Broadband Below Federal Threshold

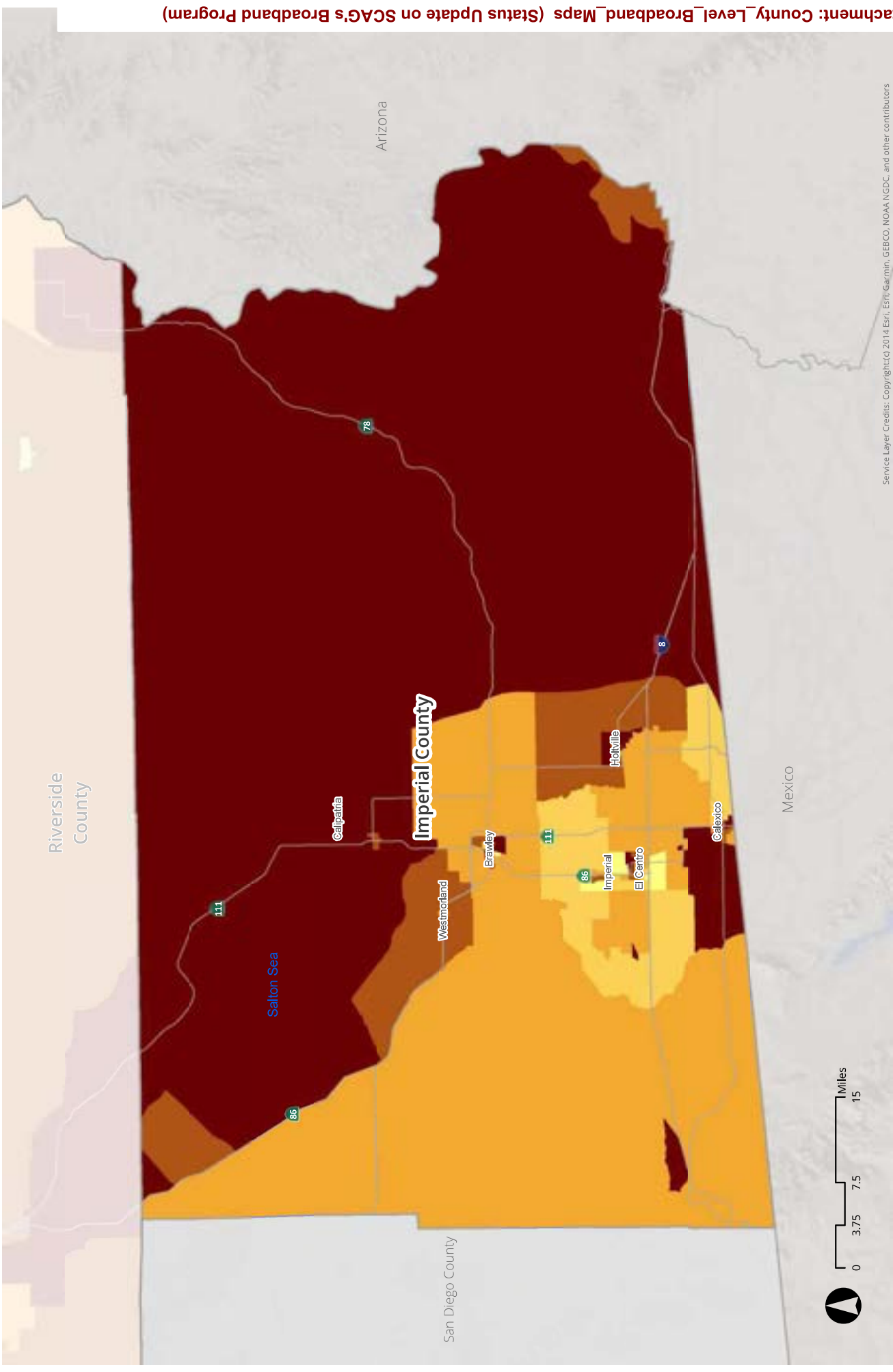
Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20



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Low Income Households without Broadband for Imperial County

% of Low Income Households without Broadband by Blockgroup*

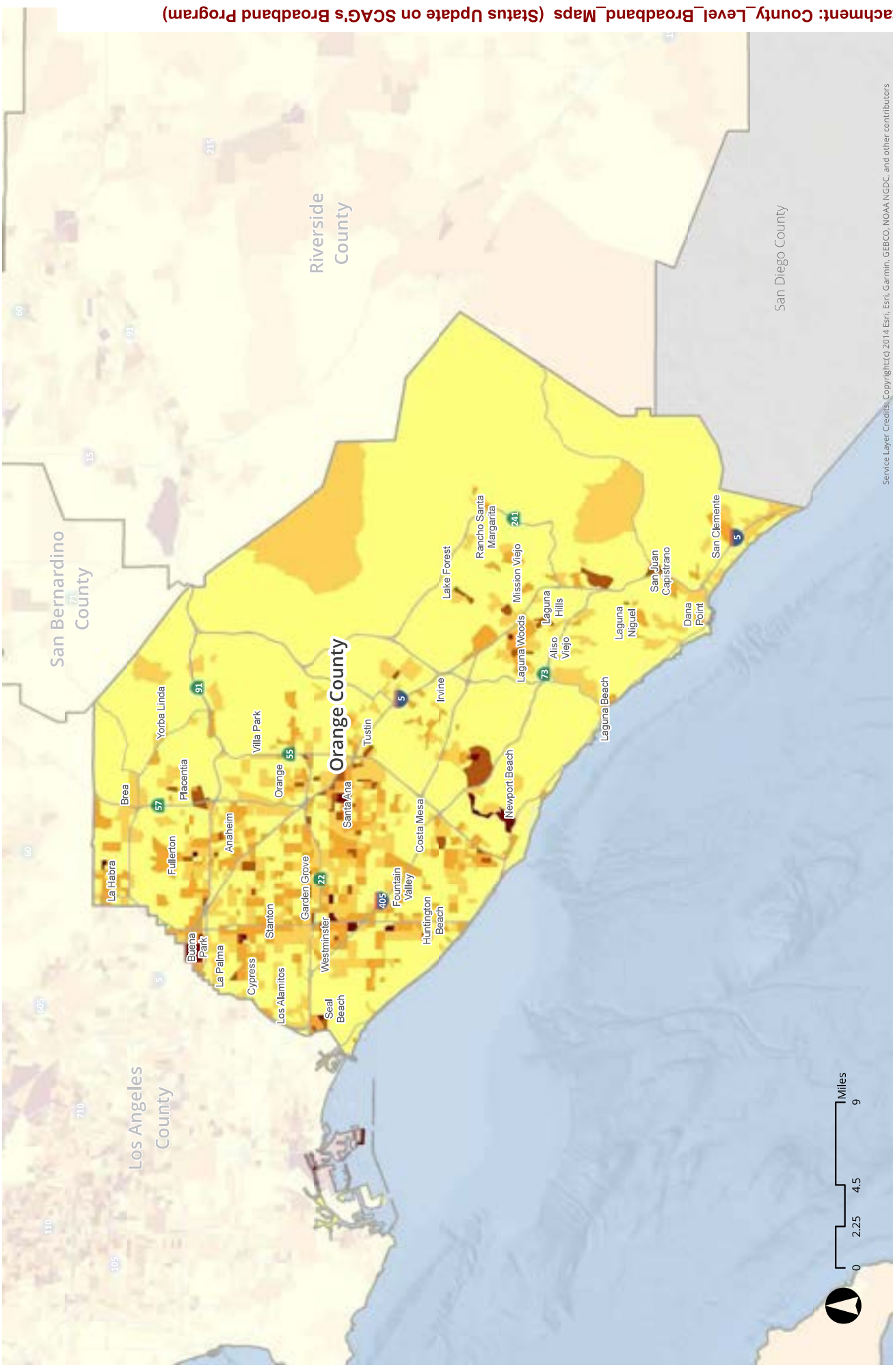
- Less than 5%
- 5 - 10%
- 11 - 20%
- 21 - 30%
- More than 30%

* SCAG region low income households without broadband is 10%.

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20

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% of Low Income Households without Broadband by Blockgroup*

- Less than 5%
- 5 - 10%
- 11 - 20%
- 21 - 30%
- More than 30%

* SCAG region low income households without broadband is 10%.

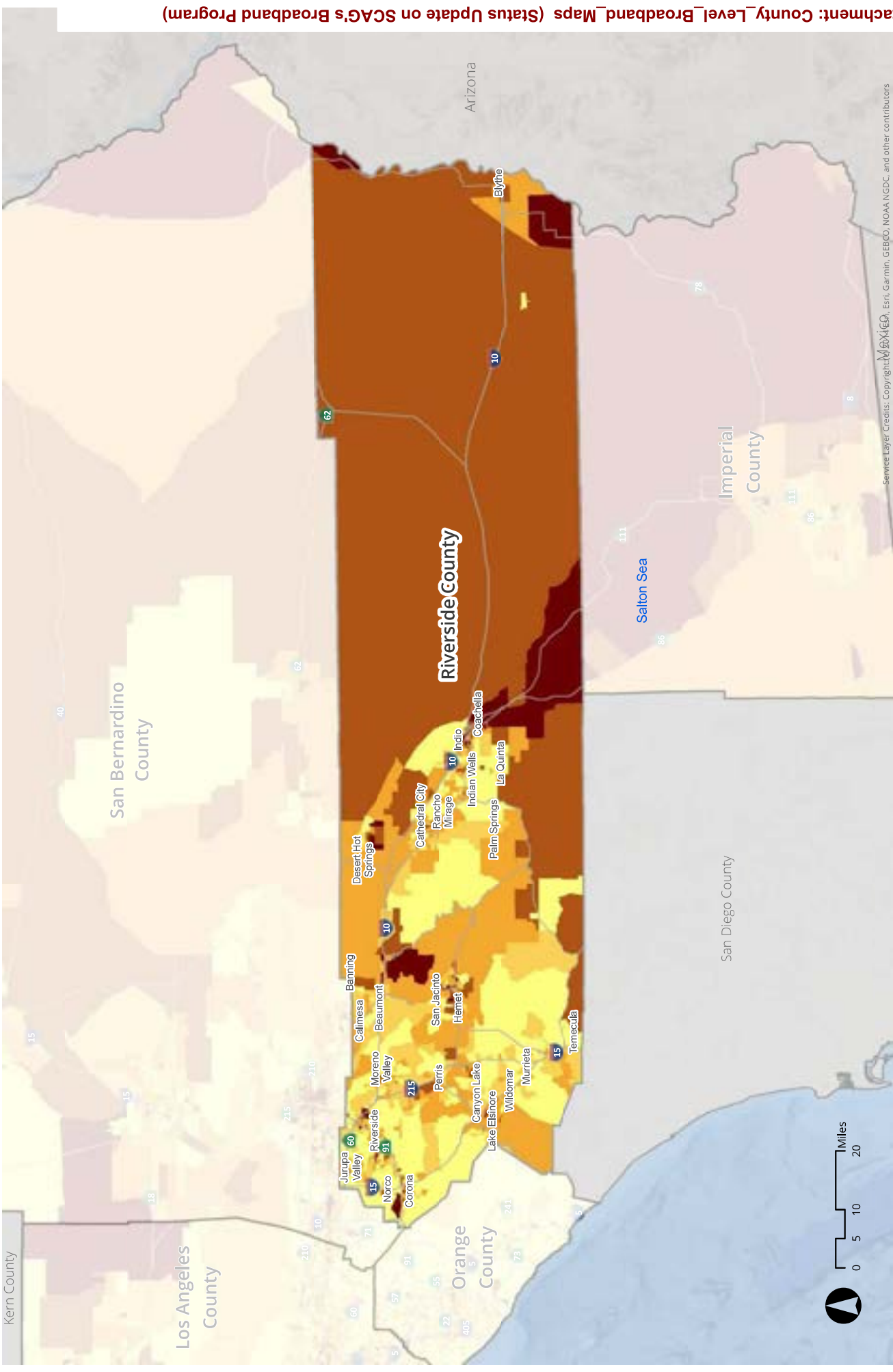
Low Income Households without Broadband for Orange County

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20



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% of Low Income Households without Broadband by Blockgroup*



* SCAG region low income households without broadband is 10%.

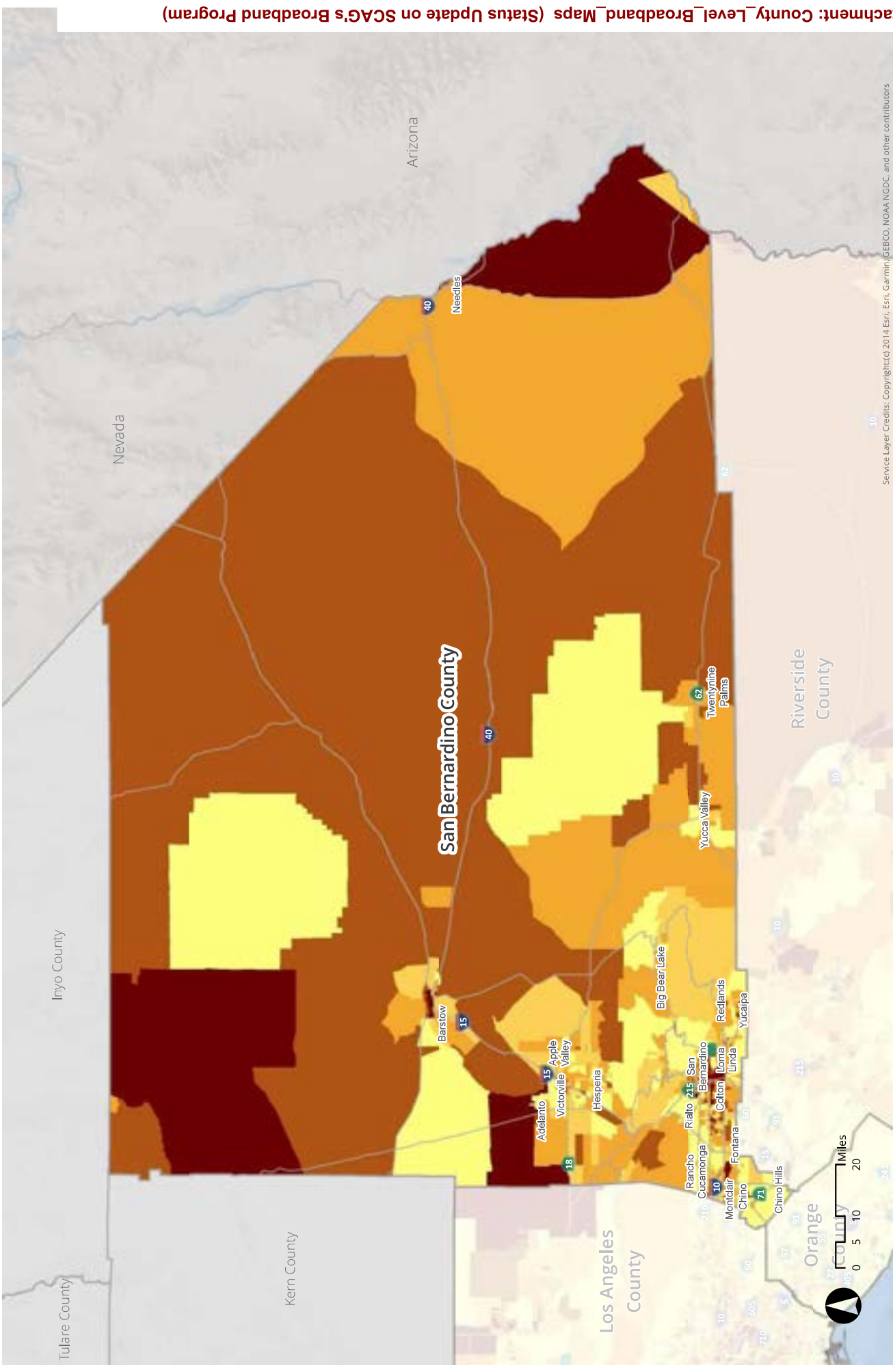
Low Income Households without Broadband for Riverside County

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20



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% of Low Income Households without Broadband by Blockgroup*



* SCAG region low income households without broadband is 10%.

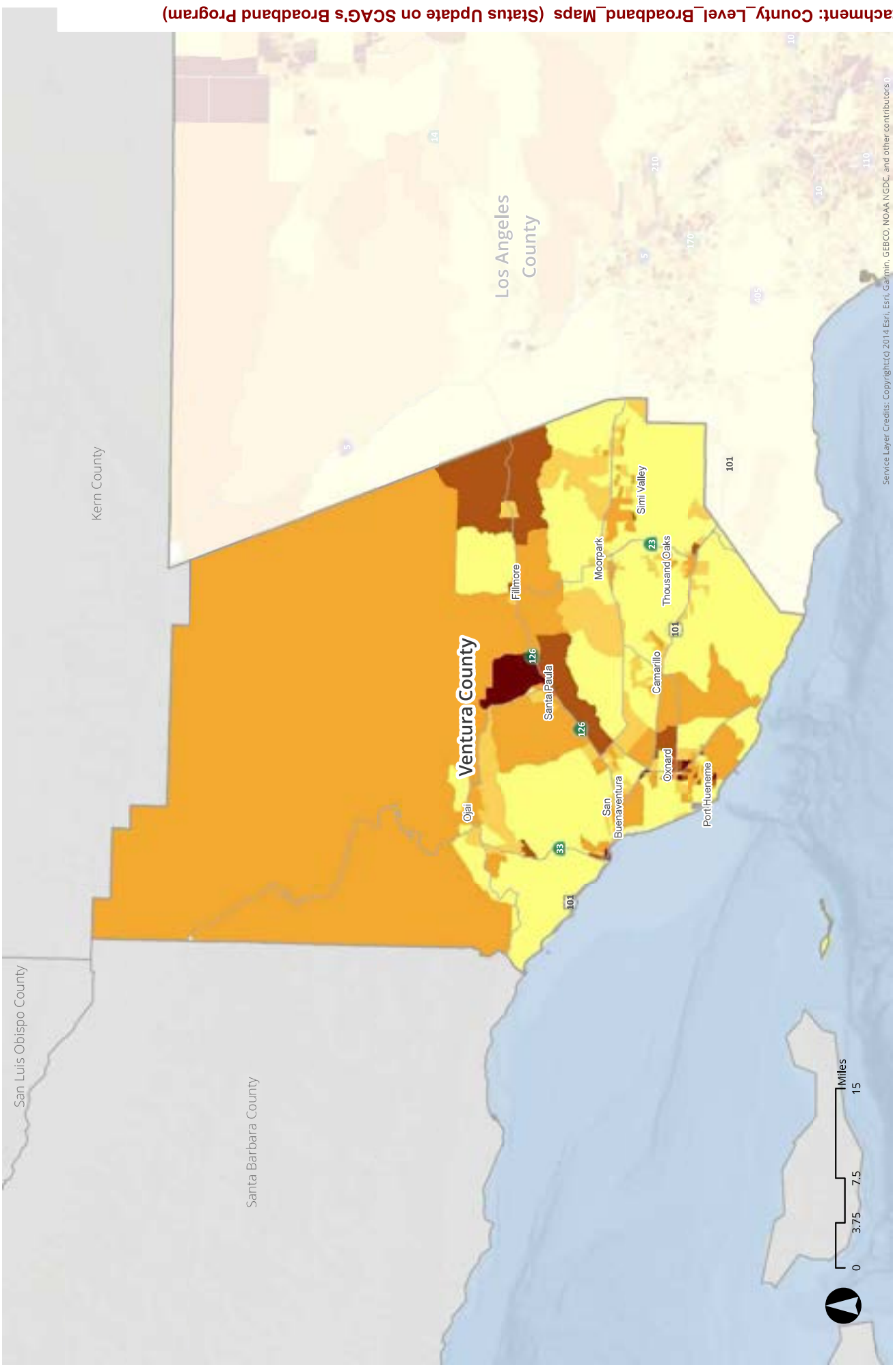
Low Income Households without Broadband for San Bernardino County

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20



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% of Low Income Households without Broadband by Blockgroup*

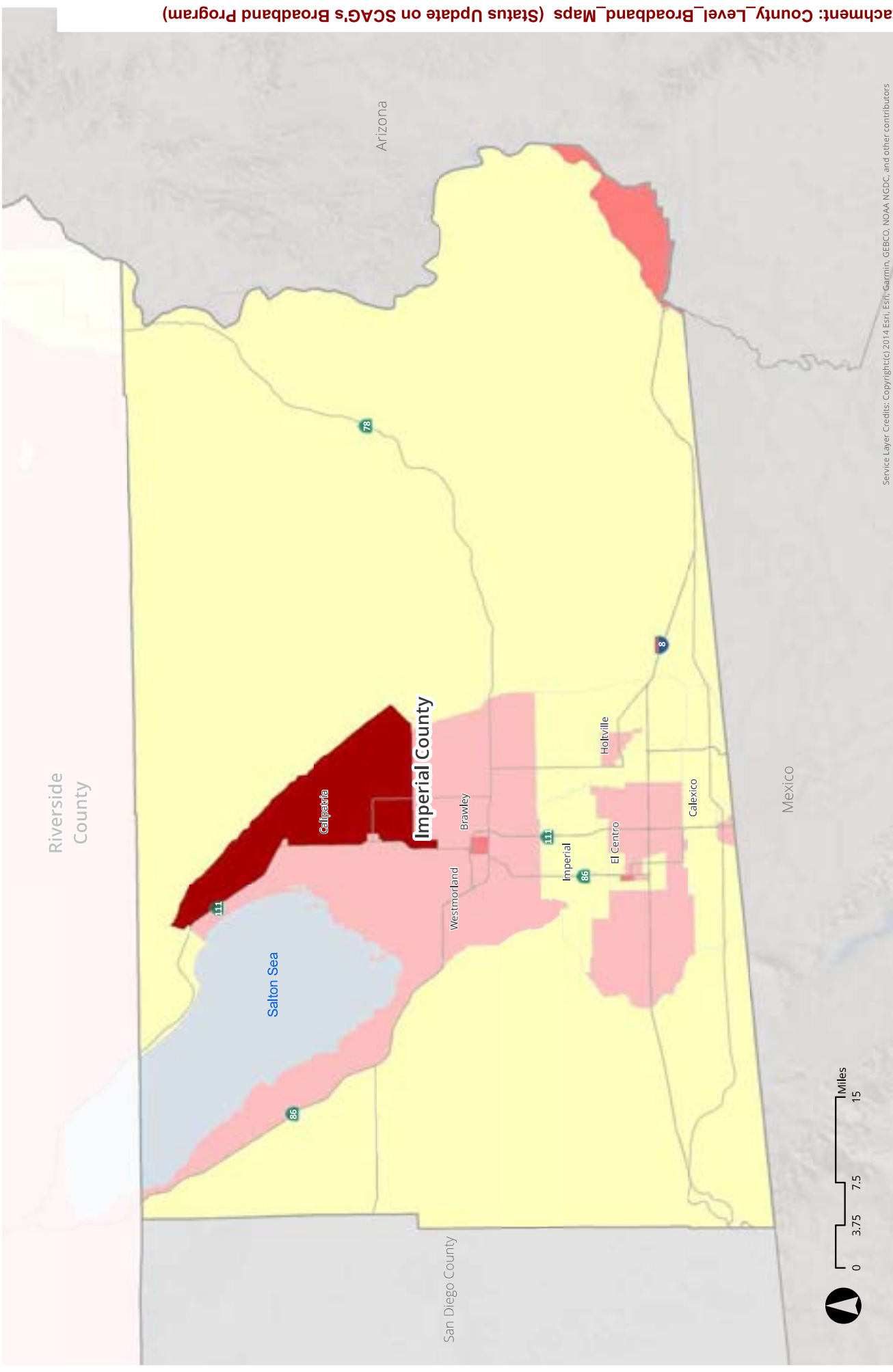
- Less than 5%
- 5 - 10%
- 11 - 20%
- 21 - 30%
- More than 30%

* SCAG region low income households without broadband is 10%.

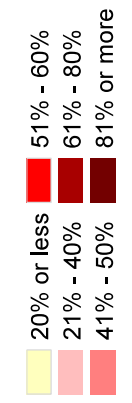
Low Income Households without Broadband for Ventura County

Note: Low Income households are defined by reported annual income (about \$50K) below 200% of federal poverty threshold.

Source: ACS 2015-20



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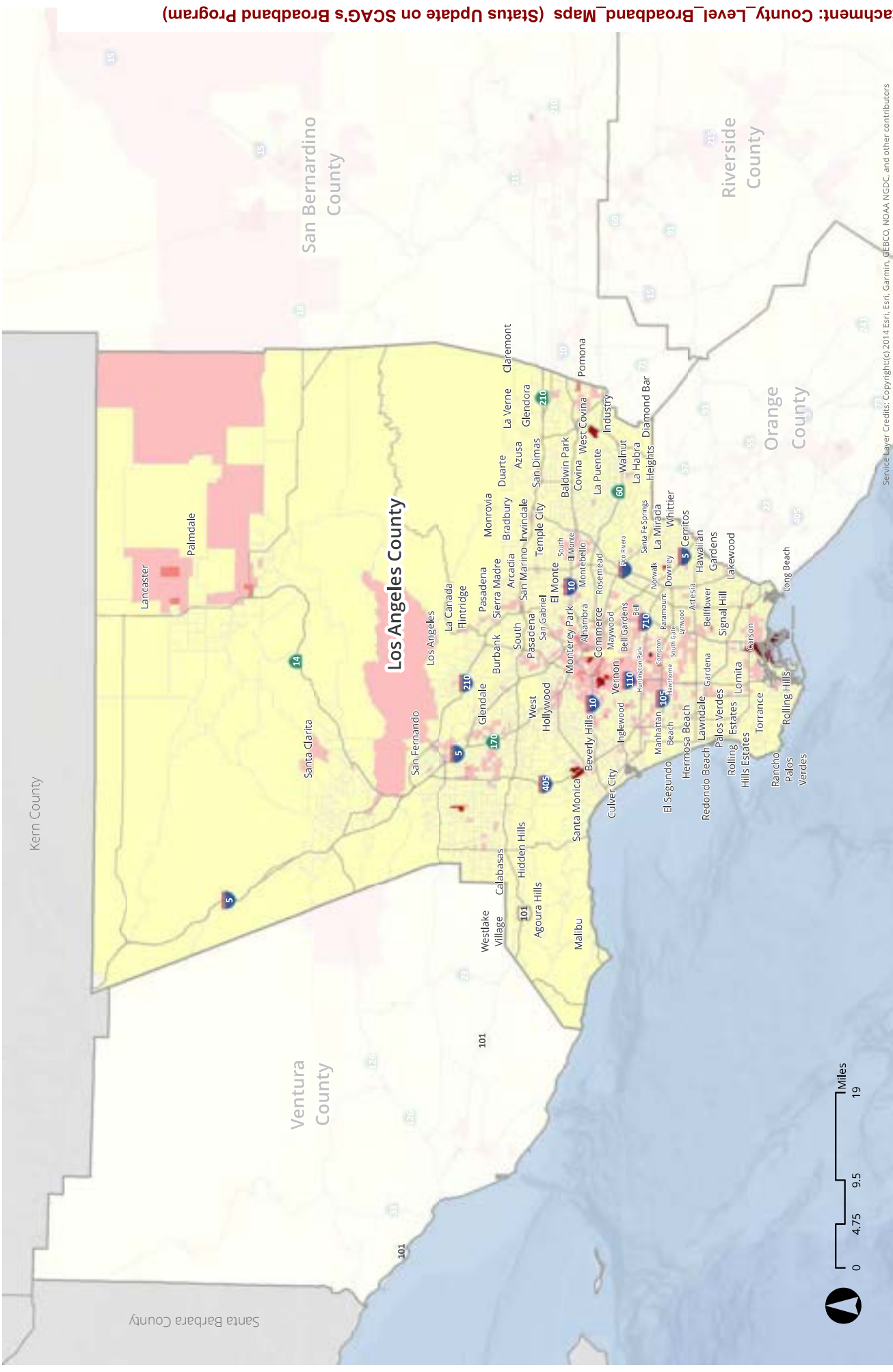


Percentage of Population Whose Income is Below Federal Poverty Level by Tract in Imperial County

Note: Poverty status is based on income in past 12 months of ACS survey

Source: 2015-2019 ACS





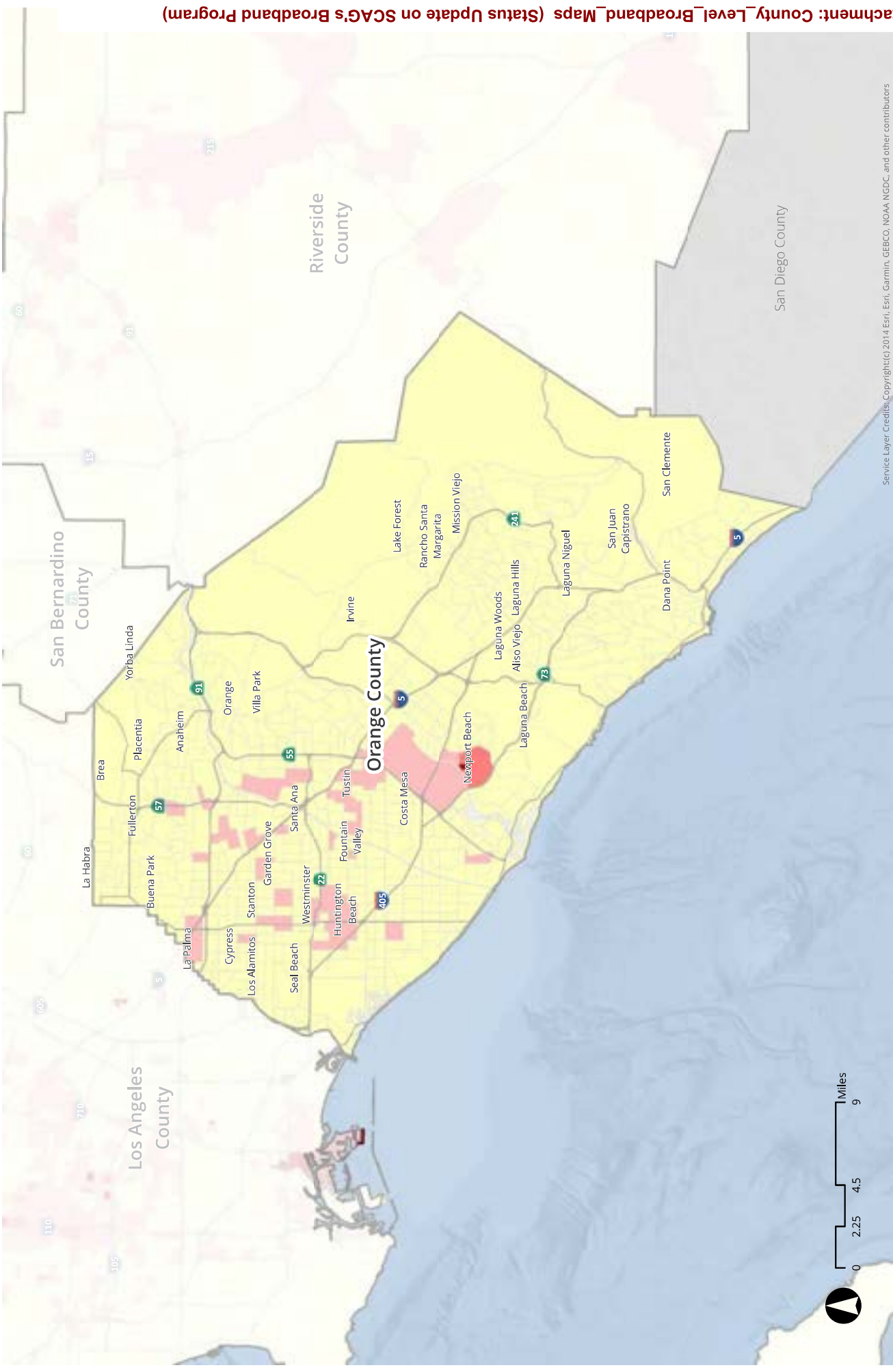
Percentage of Population Whose Income is Below Federal Poverty Level by Tract in Los Angeles County



Note: Poverty status is based on income in past 12 months of ACS survey

Source: 2015-2019 ACS

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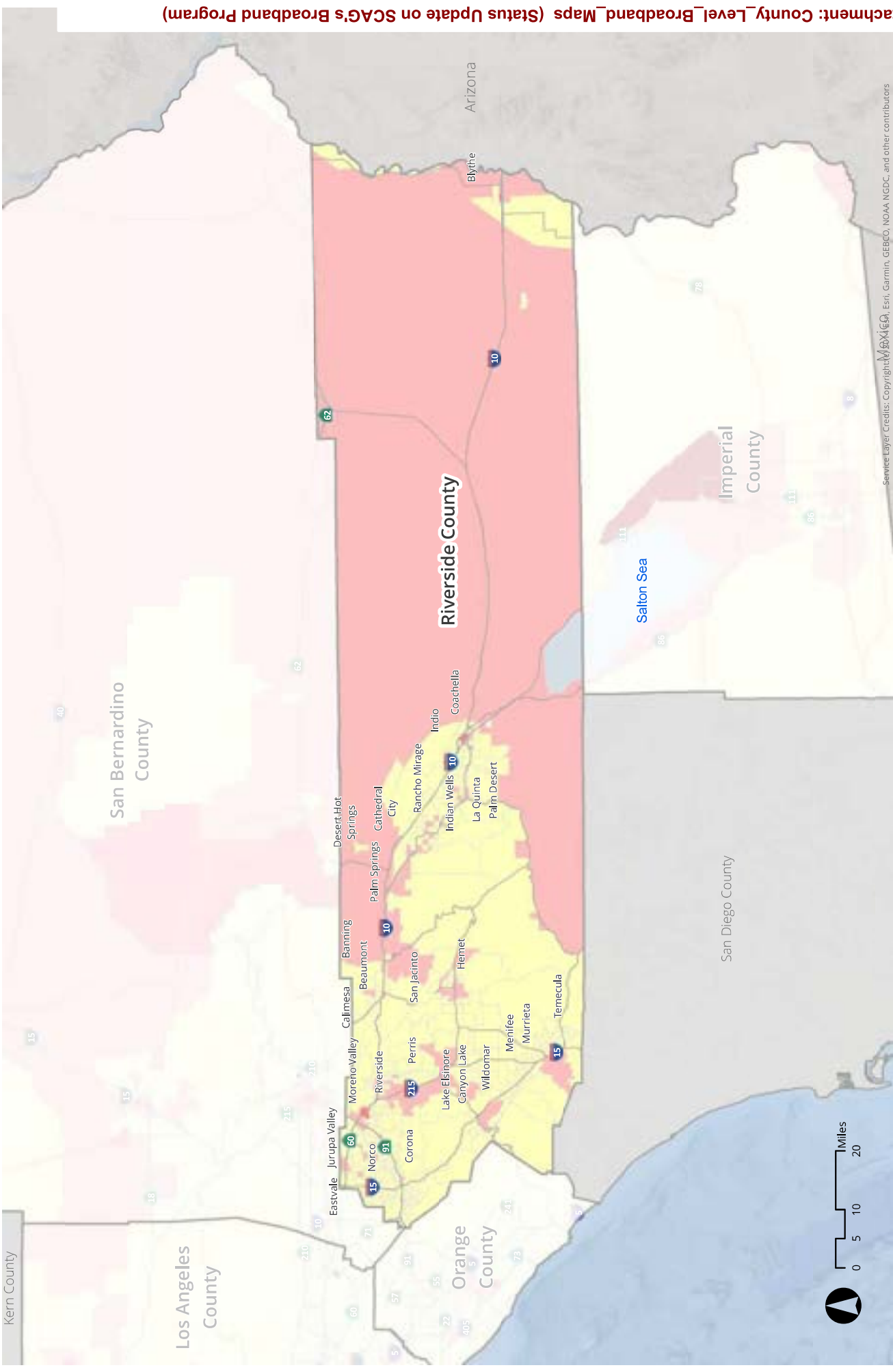
Percentage of Population Whose Income is Below Federal Poverty Level by Tract in Orange County

- 20% or less
- 21% - 40%
- 41% - 50%
- 51% - 60%
- 61% - 80%
- 81% or more

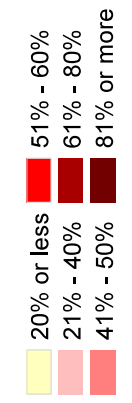
Note: Poverty status is based on income in past 12 months of ACS survey

Source: 2015-2019 ACS





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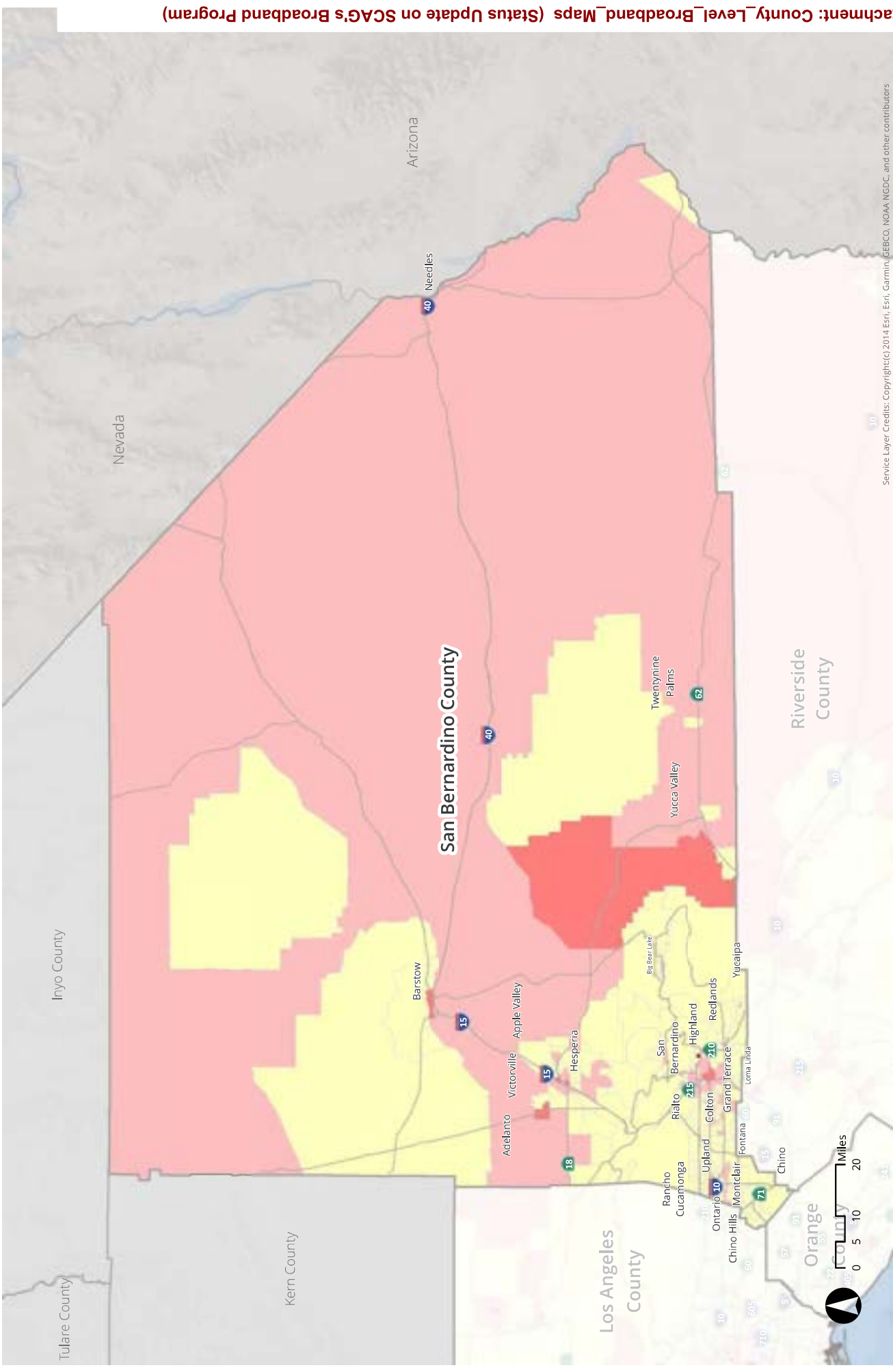


Percentage of Population Whose Income is Below Federal Poverty Level by Tract in Riverside County



Note: Poverty status is based on income in past 12 months of ACS survey

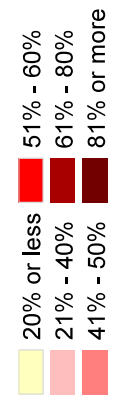
Source: 2015-2019 ACS



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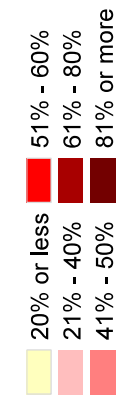
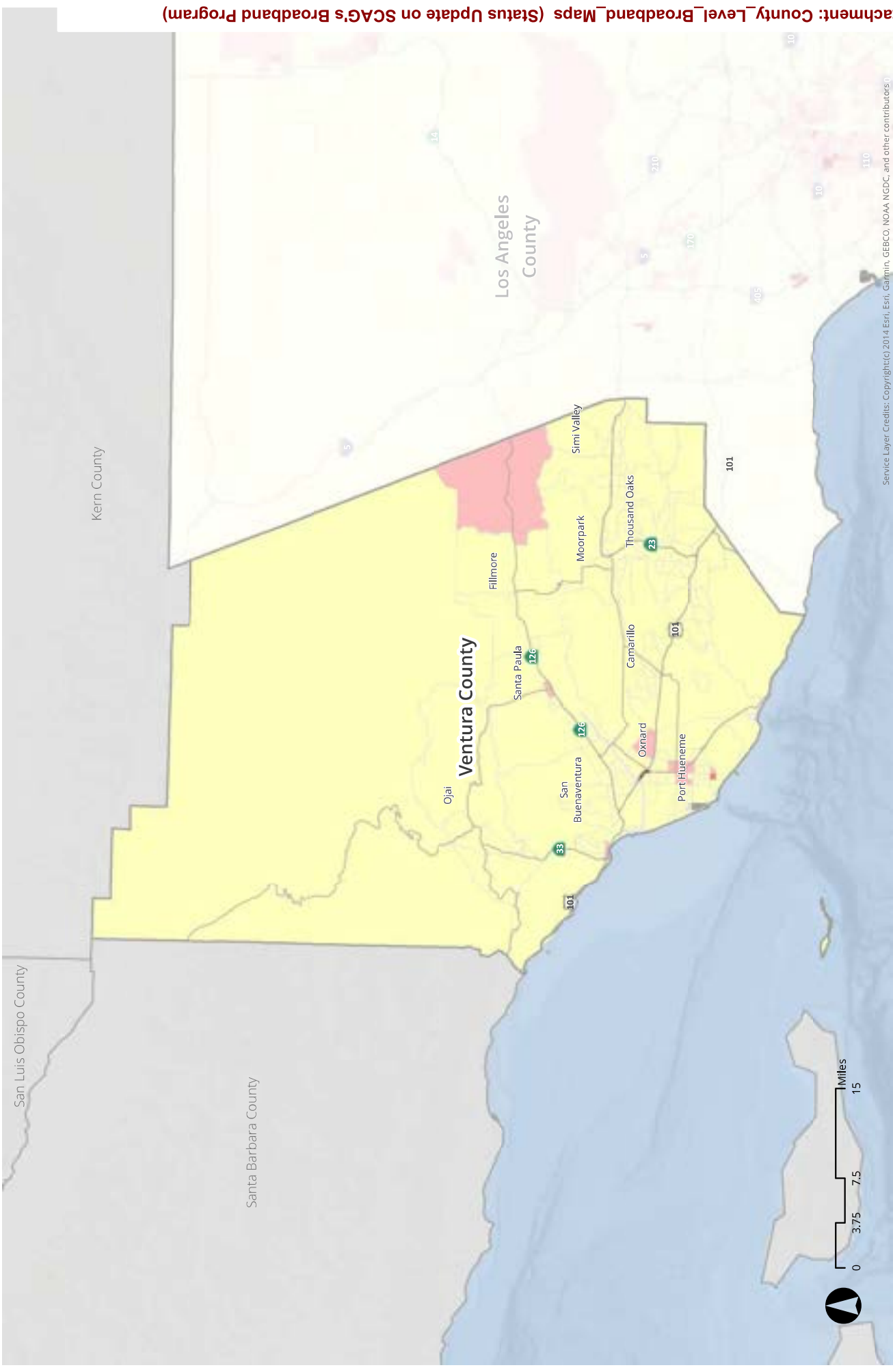


Percentage of Population Whose Income is Below Federal Poverty Level by Tract in San Bernardino County



Note: Poverty status is based on income in past 12 months of ACS survey

Source: 2015-2019 ACS



Percentage of Population Whose Income is Below Federal Poverty Level by Tract in Ventura County



Note: Poverty status is based on income in past 12 months of ACS survey

Source: 2015-2019 ACS

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Attachment: County_Level_Broadband_Maps (Status Update on SCAG's Broadband Program)

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Status Update on SCAG's Broadband Program

Southern California Association of Governments

September 2, 2021



Work efforts



- Resolution No. 21-629-2
 - Adopted on February 2, 2021
- County Level Resolutions
 - All six counties have adopted
- Broadband Survey and Interviews
- GIS Analysis
- Broadband Funding
- Strategic and Technical Studies

Broadband Survey and Interviews



- Survey and Interviews with Local Jurisdictions and ISPs still in progress
- Too early to quantify data
- Some general findings:
 - Staffing and resource constraints for local jurisdictions
 - Lack of granular data for accurate broadband mapping
 - Inconsistencies in permitting and implementation practices between jurisdictions
 - Lack of standards for micro trenching and Dig Once policies
 - Inconsistent fair share or cost sharing practices
 - NIMBYism

Data Sources available or needed



	Data Source	Geography	Year
Self Reported Data	FCC Form 477/CPUC	Census Blocks	2020
	American Community Survey	Census Block Groups, Zip Codes	2015-2019
Observed Data	Broadband Now	Zip Codes	2020
	M-Lab	Zip Codes	2020
Data needed	ISP Data	TBD	2021
	Local Jurisdiction Data	TBD	2021
	Ookla	TBD	2021
	ESRI	TBD	2021

Data Limitations



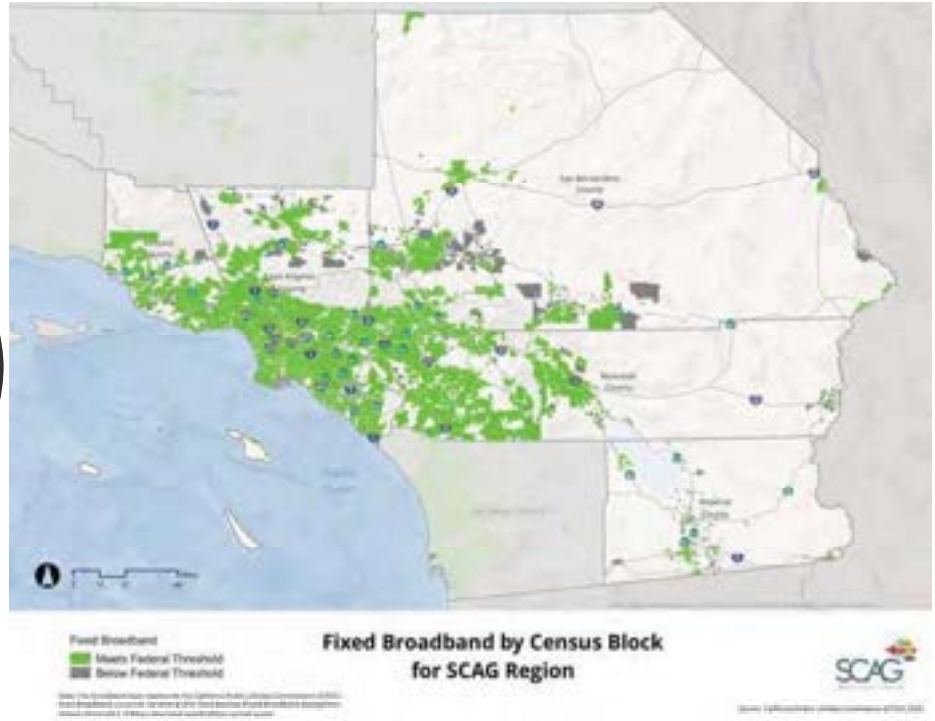
- Data sources at the federal and state level are too “high-level” and may be outdated
- Granular level data is proprietary
- Organizations (public and private sector) tackling the digital divide are in the same situation
- SCAG is coordinating with ISPs, ESRI, Local Jurisdictions and others to gather additional data
- Current data still provides us valuable insight

Digital Divide in the SCAG Region

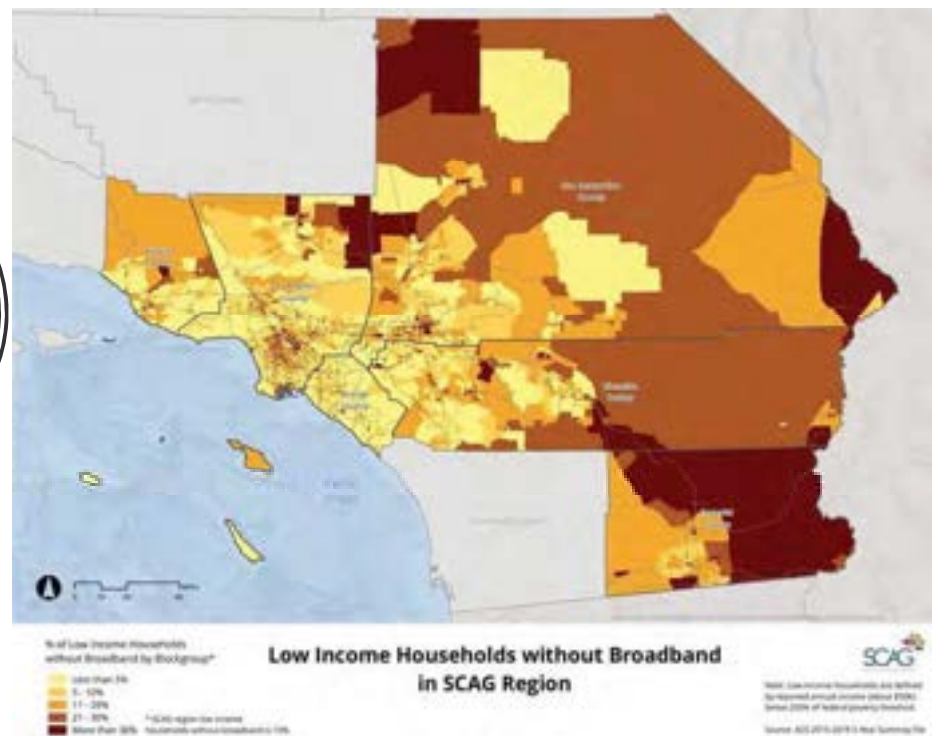


- 15% of the population households do not have access to adequate internet speeds or a computer
- 27% of households earning less than \$50,000/year do not have broadband subscriptions
- 22% of seniors age 65+ do not have a computer and/or broadband subscription
- 10% of students under age 18 do not have a computer or broadband subscription
- 16% of the region are below the federal threshold (25/3 Mbps)
- Rural areas – broadband speed is lower but more expensive

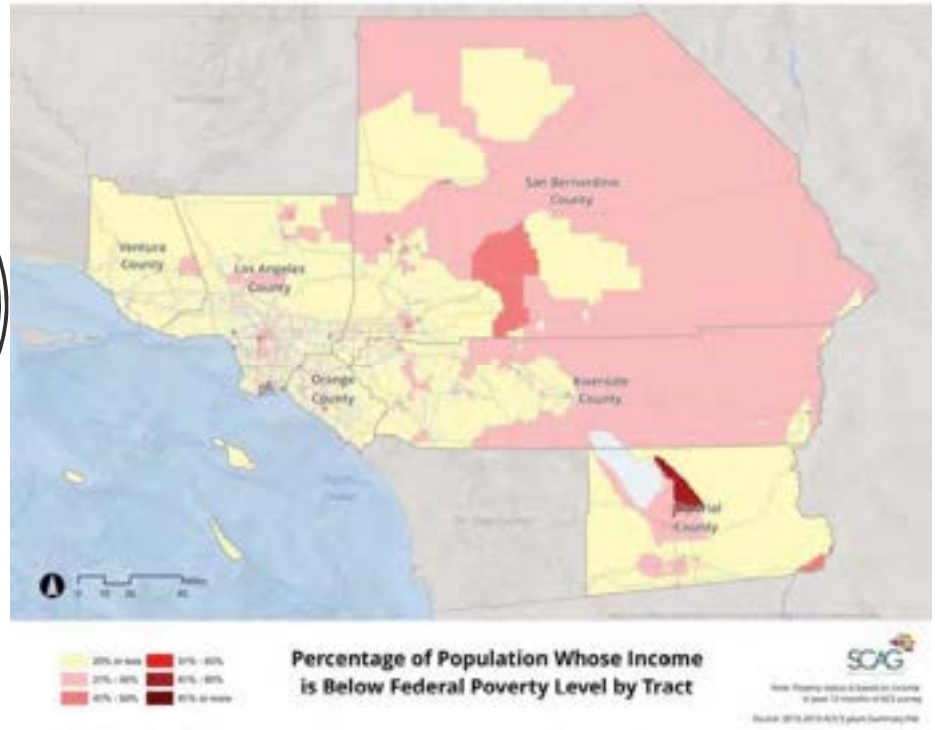
Fixed
Broadband
in the SCAG
Region



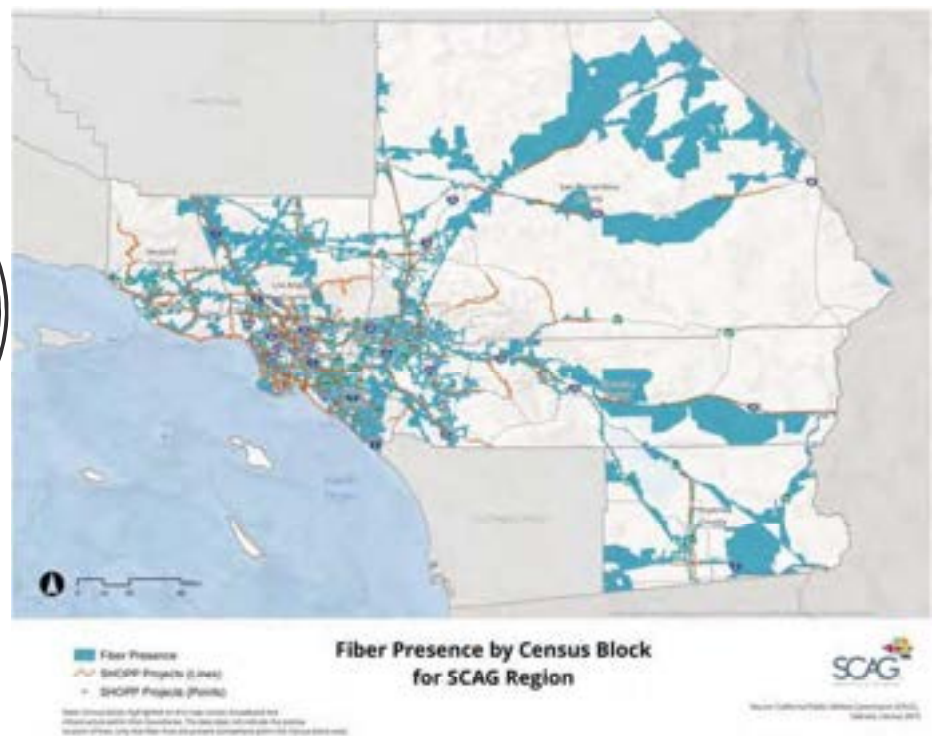
Low Income
Households
without
Broadband



Population below Federal Poverty Level



Fiber Presence



Broadband Funding



- Southern California (SCAG and SANDAG regions) needs approximately \$8 billion in broadband investments
- SCAG currently working with stakeholders requesting \$8 billion from the Federal and State government
- Primary sources – California Broadband Budget Bill and Federal Infrastructure Bill
- Other sources – Coronavirus State and Local Fiscal Recovery Funds and Connecting Minority Communities Pilot Program
- SANDAG and SCAG are proposing a joint “Request for Partnerships” and develop a “bench” to pursue funding

Strategic and Technical Studies



- Strategic Studies
 - Advocate expansion of middle mile fiber
 - Develop regionally consistent broadband policies, permitting practices, advocate local broadband plans
 - Support policy and legislative initiatives that establish higher speed thresholds and affordability standards
- Technical Studies
 - Determining internet infrastructure within the SCAG region
 - VMT and GHG impacts of increased broadband adoption
 - Support Connect SoCal (2024 RTP/SCS)



Thank You

Please feel free to send additional questions to Roland Ok at:
Ok@scag.ca.gov