

State of the Digital Divide

SANTA BARBARA COUNTY

Access, Affordability, and Digital Inclusion Across the County



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Learn more about the Digital Equity Coalition for Santa Barbara County: sbcddec.org

DEC Steering Committee



Acknowledgements from the Author

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Executive Summary

This study takes a broad and in-depth look at the most common reasons identified in the available data and argues that the prevailing gaps and their causes explain the lack of digital equity in Santa Barbara County. It draws on the relevant literature on this subject, uses existing data, and processes it to provide empirical evidence on current conditions and to argue for what should be done to reduce and remove the obstacles. It conducts a thorough review of access to and affordability of digital services by households and individuals across selected demographic characteristics.

The study shows that approximately 12,000 households in Santa Barbara County lack access to a computer or the internet. Using an average family size of 2.8, we estimate that about 34,000 people lack access to computers or the internet. These are broad estimates, and household sizes in areas without computers or the internet may be larger than 2.8. Applying the estimated number of people without internet or computer access to the total population of Santa Barbara County in 2024 indicates that about 8% of the population lacks access to either.

The research goes beyond what zip codes can offer to identify gaps in the neighborhood. It looked into 102 census tracts across the county. Census tracts bring us much closer to seeing the landscape of possibilities and limitations as prevailing realities. The positive outcome of such a look is the ability to develop a more focused plan to bring about positive change and provide the assistance needed.

The map of census tracts shows the true picture of a landscape marked by stark differences among neighborhoods across the county.

Digital Divide in Santa Barbara County: At a Glance



102
census tracts
analyzed



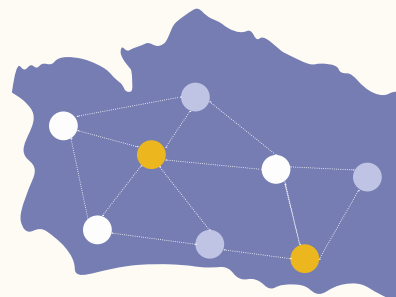
34,000
residents



12,000
households



8%
of the population



The lack of a computer and an internet connection largely depends on how affordable they are. Affordability, by its nature, affects every need of a low-income household. When housing costs are high, the situation becomes even more dire in other essential areas, as housing costs account for a significant share of almost all households' budgets. This can be understood as follows: in the face of affordability constraints, a household prioritizes how to allocate its budget among needs. Housing, food, and transportation may take precedence; for this reason, internet access may be given lower priority unless one's work depends on it.

We estimate that the Santa Barbara Household would need to earn at least \$71,360 to afford the digital devices and internet subscription. We used 2024 Census Data to calculate the number and percentage of households that cannot afford to spend 5% or less of their household income on digital services. We depicted the pattern across all zip codes and census tracts in the county.



Affordability isn't the whole story.

While affordability is a major driver, non-adoption and other barriers—such as infrastructure gaps, and rural challenges—also limit access across Santa Barbara County.

To better understand the relevance and impact of internet and computer access, we compared the lack of affordability with the pattern of not having access to a computer or the internet. The correlation coefficient is 52%, indicating that affordability is an important factor, but other factors are also important. Non-adoption or exceeding a budget limitation may prevail to a large extent, but does not explain every possible reason. This finding prompted us to examine the demographics of various groups by race or ethnicity, educational attainment, employment status, and age.

The pattern of having a computer and an internet connection across the two ethnicities: White alone (not Hispanic or Latino) and Hispanic or Latino (of any race) is mixed and changes across different zip codes. There is also a pattern of non-adoption based on other factors, which this study explores to some extent. We also face potential complications due to a small population and the challenges rural areas may face. Lower-income neighborhoods and remote rural areas frequently lack the necessary fiber-optic or cable infrastructure. Even when lower-income individuals can afford a connection, it may not be available in their area.

A lack of digital connection isolates individuals from the modern, knowledge-based economy. Remote work, which requires stable, high-speed internet, is largely inaccessible to those without adequate home connections. Therefore, a lack of internet or computers plays a lesser role in explaining the inability to obtain jobs due to the digital divide. We should not ignore the negative impact of limited access to the internet, particularly high-speed internet connections, as a barrier to finding jobs and becoming employed.

One of the findings of this study is that the absence of a digital divide, or the presence of devices, has not played a decisive role in allowing or preventing the workforce from finding jobs. However, reaching overarching conclusions should be avoided, and a better conclusion should be left to study further, which can answer some of the pressing questions, such as the availability of a workforce capable of performing jobs that can be performed entirely or partially through virtual connections.

A deduction from this study is that the absence of a digital divide, or the presence of devices, has not played a decisive role in preventing the workforce from finding jobs. In all three segments of the workforce (employed, unemployed, and not in the labor force), one can see the possible impact of a very small population on the pattern of results. For example, the only zip code where unemployed residents

lack computers is 93067, which is in Summerland. Summerland is a very small community with a population of about 1,100 and a median age of over 51 years, which is far higher than the County of Santa Barbara (Santa Barbara County's median age is around 35 years). Similarly, those not in the labor force do not appear to have a high incidence of lacking a computer or internet connection, except in one zip code, 93429 (Casmalia), a community of about 100 people with a median age of 43 and a median income of \$169,063. It is hard to assume that the lack of computers is due to economic hardship.

Our investigation regarding the impact of educational attainment also produced mixed results. In many areas, access to the internet and a computer is high and independent of educational attainment. This draws greater attention to other restrictions or possibilities present in areas shaped by socio-economic or infrastructural factors.

The link between age and the digital divide is very evident. Substantial disparities persist in how younger and older populations access and use computers and the internet. While internet connectivity is nearly ubiquitous among younger people, older adults, particularly those over 75, face a “gray digital gap” shaped by socioeconomic factors, physical limitations, and generational comfort. Some of these factors are not age-related and create considerable disparities, such as socioeconomic and infrastructural differences. In contrast, others are age-related, including physical limitations, generational gaps, and a lack of trust, which play a large role.

Looking into access for children under 18 brings us to an important conclusion. The pattern of lack of computer and internet connection across zip codes shows that almost half of the zip codes either have no problems with internet connection or with computers, or have problems in just one area. Although the proportions are small, this calls for urgent action to remove barriers, as access to a computer and the internet is a prerequisite for succeeding in education and, to a large extent, is essential. Students are increasingly receiving instruction through online resources, and this trend is likely to continue in the age of AI, with far greater development to follow.

We cannot deny our youth the opportunities that can positively impact their present and future. It is important to consider what should be done now as an investment in the lives of our children and, indeed, in the future of our communities. We should also be aware that a lack of investment is nothing but disinvestment.

Younger individuals are “digital natives” who have grown up with computers integrated into schooling and socialization. Older individuals may lack foundational exposure, leading to higher levels of technology anxiety. The important point is that discomfort with computers or the internet does not reduce the need for collectivity and comfort when using such devices. The provision of healthcare, the dissemination of information, and access to needed services all depend on digital connectivity and the ability to use it.

This study went far beyond simply examining internet access and the ability to make the necessary decisions to use the internet effectively and to access opportunities to benefit from the new economy. We created an index called the Digital Access Opportunity Index (DAOI), which includes 14 indicators. These indicators capture several potential constraints to digital access. They are explained in detail in the report. We used the available data for each indicator and normalized them to obtain index values. We also produced 14 maps of these indicators across all zip codes in the county, which can be very useful for planning assistance and for prioritizing efforts across different neighborhoods.



We should recognize that digital connectivity is no longer a luxury but a basic necessity for full participation in modern society.



Recommendations



Affordability



Reaching older
adults and
non-adopters



Rural and
low-density
communities



Digital skills,
confidence,
and support

The findings show that Santa Barbara County faces both challenges and opportunities to pave the way toward a more prosperous society, where prosperity can benefit a much larger proportion of its population and families in a year, emerging in a new economic environment. The Digital Access Opportunity Index (DAOI) presents a more complex pattern that includes high-income coastal communities, agricultural workforce communities, student populations, rural interior areas, and immigrant-serving neighborhoods—all of which create sharp variation in digital opportunity.

The study presented the pattern of affordability across all 102 census tracts in the county. A detailed list of where the challenges are has emerged from bringing the affordability investigation down to the tract level. This investigation drew greater attention to areas with small populations and low population densities, where poverty rates are high, making it difficult to reach these communities and provide the support they need. Access to high-speed internet is an important need for them all. The older population is more likely to be non-adopters, and there is a greater need to reach them and ensure they have access to the new norm, an environment with easy access to online services, fast speeds, and a shift in attitude toward using online services.

The Digital Access Opportunity Index further illuminates the prevailing image and shows a wide range of differences across the country. A relatively large share of the country faces difficult conditions, and a deeper look reveals a correlation between affordability and a lower access index. However, further scrutiny makes it clear that non-adoption goes beyond mere affordability.

The study offers a wide range of recommendations tailored to the needs of different volunteer groups. The details are presented in the report. Affordability is, without a doubt, the core challenge at present and in the near future. However, several other problems may limit the ability and reduce the willingness to join the user population and the new norm's constituents. These issues may, to some extent, be interrelated, such as lower educational attainment, which is often associated with lower income and, in turn, with lower confidence and ability to use digital technologies effectively.

Finally, it is important to make every effort to achieve the Practical Household Affordability Benchmark. A useful benchmark is to keep total annual digital essentials costs (internet + devices + basic phone access) at 5% of household income, with lower-income households needing subsidies to stay within that range. We should recognize that digital connectivity is no longer a luxury but a basic necessity for full participation in modern society. Individuals and families who remain disconnected because of affordability barriers, limited skills, fear, or lack of support face growing social, educational, economic, and civic disadvantages. As our society becomes increasingly dependent on digital systems, allowing these inequities to persist will exact an unacceptable human and community cost in the years ahead.

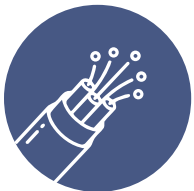
Introduction



Santa Barbara County has a long history dating back 13,000 years, beginning with the indigenous Chumash people, evolving into a Spanish missionary outpost, and becoming a 19th-century American county that now serves as a high-end, environmentally conscious resort destination. It has a large interior that borders several coastal plains along the county's west and south coasts. The largest share of the population lives in the southern coastal plain, known as the "south coast" – the part of the county south of the Santa Ynez Mountains.



Technological changes over the last several decades have fundamentally improved the viability of phones and other mobile devices, enabling people worldwide to access information and engage in other key digital activities. These activities, over a relatively short period, expanded to include remote work, healthcare, and education, and resulted in the growth of business sectors such as e-commerce.



There have been considerable efforts to improve Santa Barbara County and expand high-speed fiber broadband. As of late 2024, California has over 3,000 miles of new broadband network under construction, with significant fiber projects in Santa Barbara County. This includes 136 miles of fiber-optic cable on Highway 166, connecting to a route at Guadalupe.

The Digital Equity Coalition (DEC) in Santa Barbara plays an important role in advancing digital equity in the county. It was formed in 2021 to help close the digital divide in Santa Barbara's diverse community. It was created with the belief that digital access is a basic right in today's world. The Santa Barbara Foundation serves as the lead convener, bringing together community organizations, schools, local governments, and nonprofits. These partners work toward a shared goal: ensuring everyone has access to digital tools and skills—regardless of income or background. As part of broader statewide and national efforts, the DEC identifies opportunities and supports initiatives that expand digital inclusion.



Looking back over the last decade, several reasons explain the gaps in connectivity and access to digital services. A segment of these gaps traces back to the prevailing support for investing in projects that strengthen the existing network. Another, even more important, segment of the gap is due to the inability to purchase devices or pay for services because of a lack of a fast, reliable Internet connection. The importance of digital exclusivity drew considerable attention from the United Nations and other international organizations and entities. There is, however, another pivotal issue that needs to be brought to the fore and addressed with much greater intensity: the reasons for non-adoption. Non-adoption includes a variety of reasons that need further scrutiny and investigation. They include digital literacy and skill gaps, a lack of available opportunities, overreliance on smartphones, a perceived lack of need for a dedicated home broadband subscription, low-speed infrastructure, and, of course, financial inability to pay for services.

¹For more information, see World Economic Forum in Collaboration with Boston Consulting Group (2020), *Accelerating Digital Inclusion in the New Normal*.

²Santa Barbara Association of Governments (2025), *Broadband Projects Ready in Nine Rural Santa Barbara County Communities*; <https://www.sbcag.org/broadband-projects-ready-in-nine-rural-santa-barbara-county-communities/>

³For more information see Digital Equity Coalition for Santa Barbara County, *Empowering Every Community Through Digital Equity Inclusion* <https://sbcddec.org/about-us/>



Back in the midst of the post-COVID-19 period, a study conducted by the World Economic Forum and Boston Consulting Group (2020) indicated that the “new normal” will likely include seeking viable ways to increase speeds, improve access to devices, and allocate budgets so households and businesses can afford access to such services at the needed quality. The recommendation was that connectivity must become the top priority, and stakeholders must aim for United Nations targets: by 2025, broadband Internet penetration should reach 75% worldwide, and broadband should cost no more than 2% of earnings.

The reality is that such targets have been met in middle-income countries (LMICs). The interesting outcome is that by late 2025, the 75% reach goal was achieved, but not the goal of containing costs at around 2% of GDP.

The UN Secretary-General’s Roadmap for Digital Cooperation is very important to include in any action plan. To achieve the goals of the roadmap, stakeholders should aim to drive the adoption of high-speed Internet beyond coverage targets and take a “tech agnostic” approach, where traditional business cases are insufficient – this incorporates terrestrial and non-terrestrial infrastructure options for providing access to high-quality fixed broadband, wireless, and satellite networks.

The California Public Utility Commission (CPUC) regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, and authorizes video franchises. California’s governor appoints its five commissioners, and the organization ensures that consumers have safe, reliable utility service at reasonable rates, are protected against fraud, and that California’s economy is promoted.

⁴For more information see Damooei Global Research (2022), Digital Divide Within Santa Barbara County: Depiction of the Existing Digital Access Within the County and Across Selected Demographic Indicators in Each Zip Code

⁵For more information see International Telecommunication Union (ITU) Connecting the world and beyond (2025) Press Release <https://www.itu.int/en/mediacentre/Pages/PR-2025-11-17-Facts-and-Figures.aspx>

⁶For more information see United Nations (2020), United Nations Secretary Generals’ Roadmap for Digital Cooperation <https://www.un.org/en/content/digital-cooperation-roadmap/>

⁷Ibid.

This study takes a broad, in-depth look at the most common reasons identified in the available data and argues, drawing on the prevailing relevant literature on this subject. It conducts a thorough review of access to and affordability of digital services by households and individuals as a whole, and across selected demographic characteristics. In reaching such objectives, we have used and processed the available information and presented the data in different ways:

We investigate the proportion of households that do not have an Internet connection and/or a computer. This is a measure of an absolute lack of access to digital services. However, we need to remember that having access does not mean that all households can afford it. When a good or service is unaffordable, two possible economic consequences follow: first, they will use less than a sufficient level of service by opting for inadequate access; second, they may bear the expenses and cut back on other necessities to maintain a basic level of consumption. Either of the two possible developments is detrimental to the wellbeing of the household.

We carry out a rigorous exercise of mapping affordability based on meeting the threshold of 5% of household income for having access to a device and internet connectivity.

We investigate Possible Causes of the Divide: Access Based on the Socio-Economic Conditions of the Population.

We take up the subject of non-adoption much further and create an index titled Digital Access Opportunity Index (DAOI). The thematic structure of the index can be used to bring out the argument in creating a pertinent agenda for the emergence of non-adoption and how it can be viewed and possibly confronted.

Where possible, we go to much smaller geographic census location tracts.

The analyses and argument will lead to relevant recommendations and policy implications.

Lack of Connections and Access to Appliances Across Different Geographic Locations



The total population of Santa Barbara reached 442,065 in 2025. Its population declined by 0.5% from 2024. The overall decline from its 2020 population level was about -1.4%. Santa Barbara is a diverse county, with 49.3% of its population Hispanic or Latino and 40.3% White alone. Some 22.2% of its population is under 18 years of age. Some 15.7% of its population is below the poverty line, a figure that has been rising in recent years.



This report includes all zip codes in the county for which we could gather information, based on either household data or population data. They include 23 zip codes: 19 general zip codes and 4 P.O. Boxes. Of the 19 general zip codes, one has a population of fewer than 2,000, and of the 4 zip codes under P.O. Boxes, 3 have a population of fewer than 2,000.

We also used 102 census tracts to present geographic location information, which can provide more pertinent information for neighborhoods with a higher level of pertinence.

We present the findings across zip codes and census tracts. The results are presented through both charts and maps. Within the charts, we present both the actual number of households and the percentages. The numbers can help identify the actual figures, which are of significant importance for understanding the extent of the lack of access.

Countywide Snapshot

 **23**
zip codes

 **102**
census tracts

 **442,065**
county
population



Households with No Computer or Internet Connection Across Zip Codes

The total population of Santa Barbara reached 442,065 in 2025. Its population declined by 0.5% from 2024. The overall decline from its 2020 population level was about -1.4%. Santa Barbara is a diverse county, with 49.3% of its population Hispanic or Latino and 40.3% White alone. Some 22.2% of its population is under 18 years of age. Some 15.7% of its population is below the poverty line, a figure that has been rising in recent years.

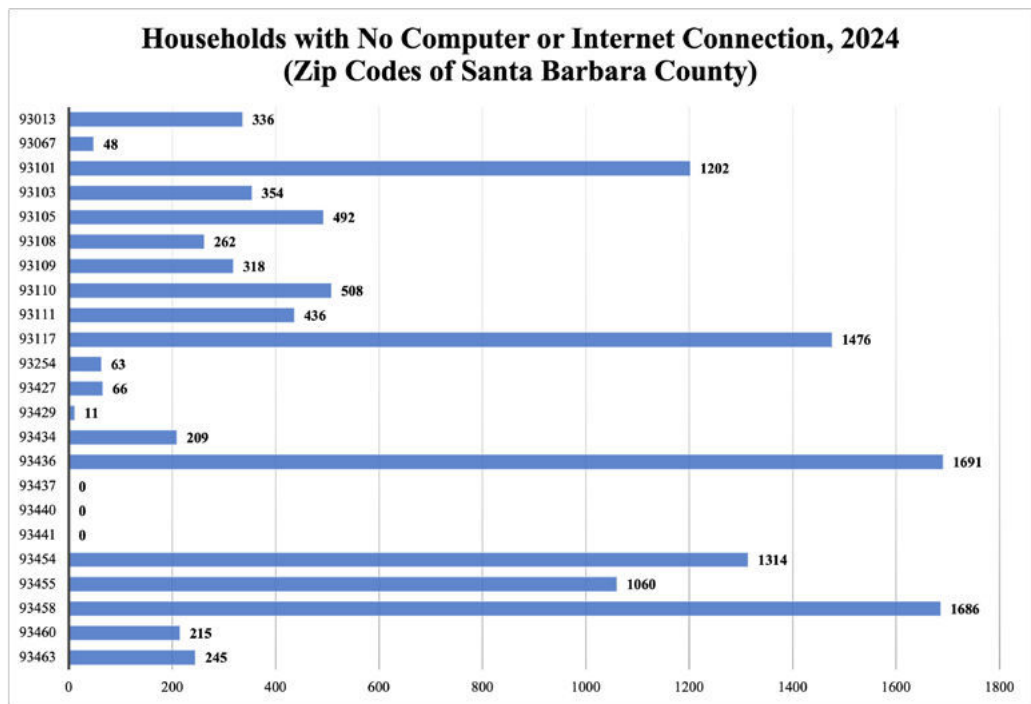
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*See QuickFacts US Census Santa Barbara County <https://www.census.gov/quickfacts/fact/table/santabarbaracountycalifornia/PST045224>

Figure 1: Households with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



Source: U.S. Census, B28003

The chart above shows that approximately 12,000 households in Santa Barbara County lack access to a computer or the internet. Using an average family size of 2.8, we are likely to have some 34,000 people without computers or internet access. These are broad estimates, and household sizes in areas without computers or the internet may be larger than 2.8. Applying the estimated number of people without internet or computer access to the total population of Santa Barbara County in 2024 indicates that about 8% of the population lacks access to either.

We have also gathered information by zip code on the proportion of households without a computer or internet access. The pattern can be seen in the next chart and also on the map. The rates vary significantly across various zip codes. In about half of the zip codes (12 of 23), the rate is lower than the overall average; in the remainder, higher; and in a few, much higher. We will provide more information on the zip codes and reflect on some of the reasons that make the disparity across various zip codes much clearer than a quick observation would suggest.



12,000

households

lack access to a computer or the Internet



34,000

people

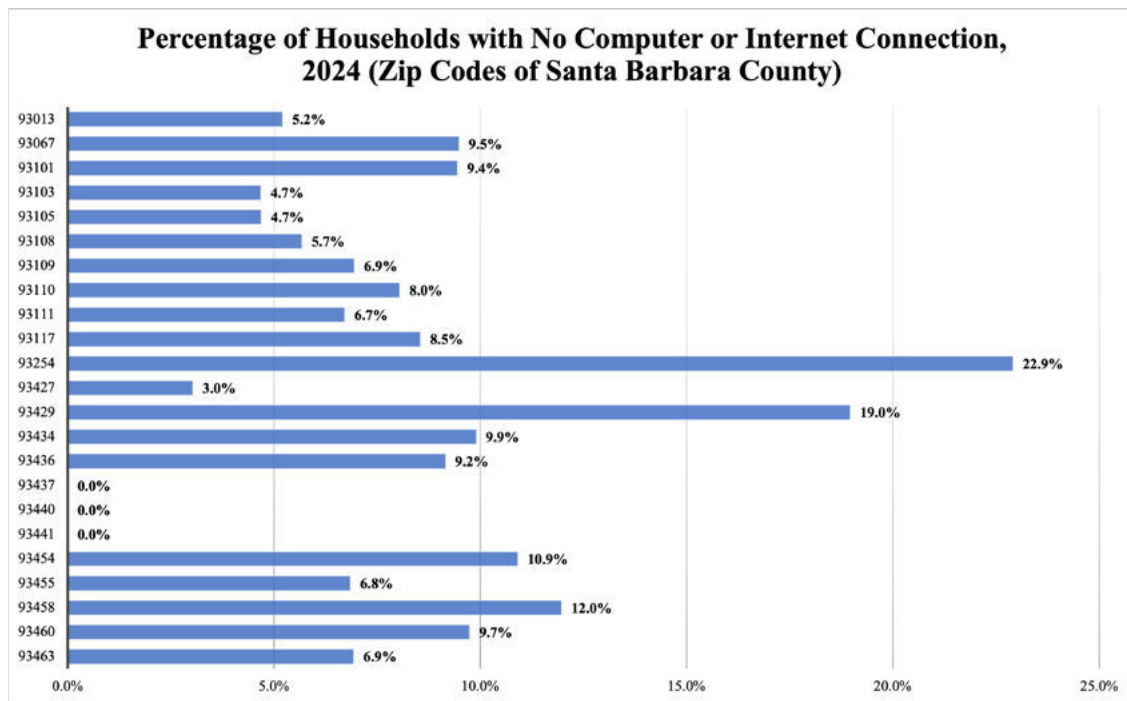
estimated to lack access



8%

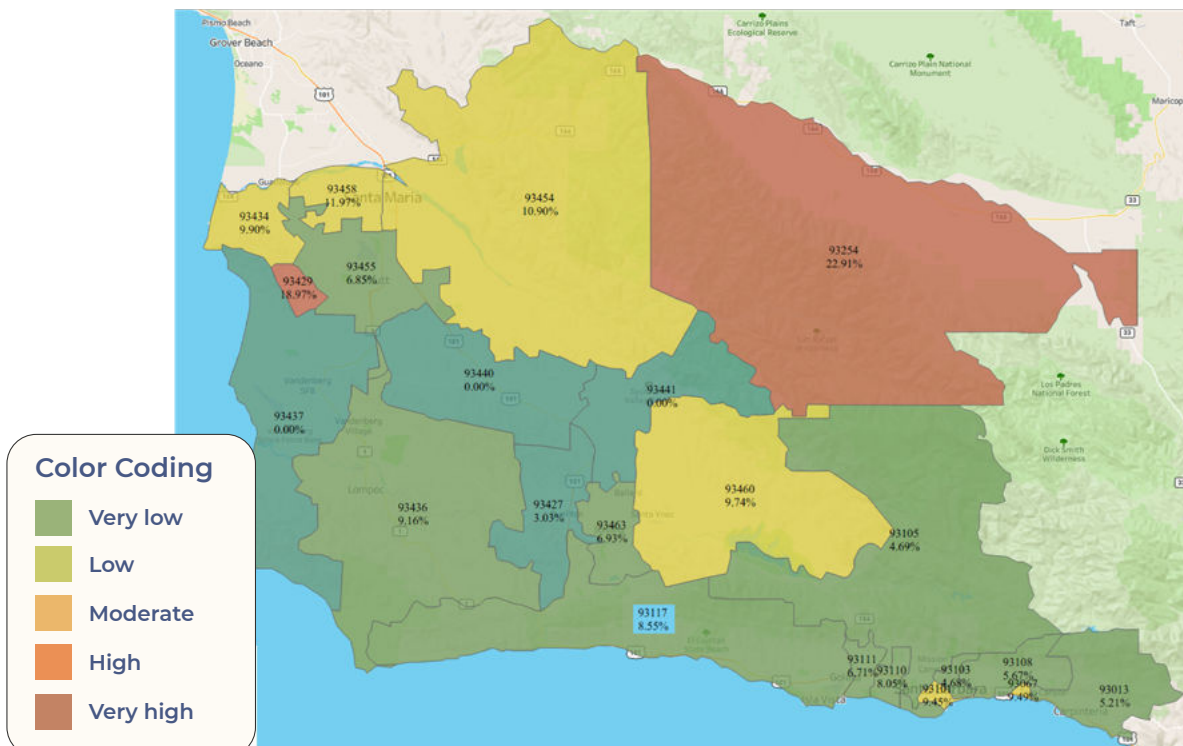
of the total population

Figure 2: Percentage of Households with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



Source: U.S. Census, B28003

Figure 3: Map of the Percentage of Households with No Computer or Internet Connection Across Zip Codes County)

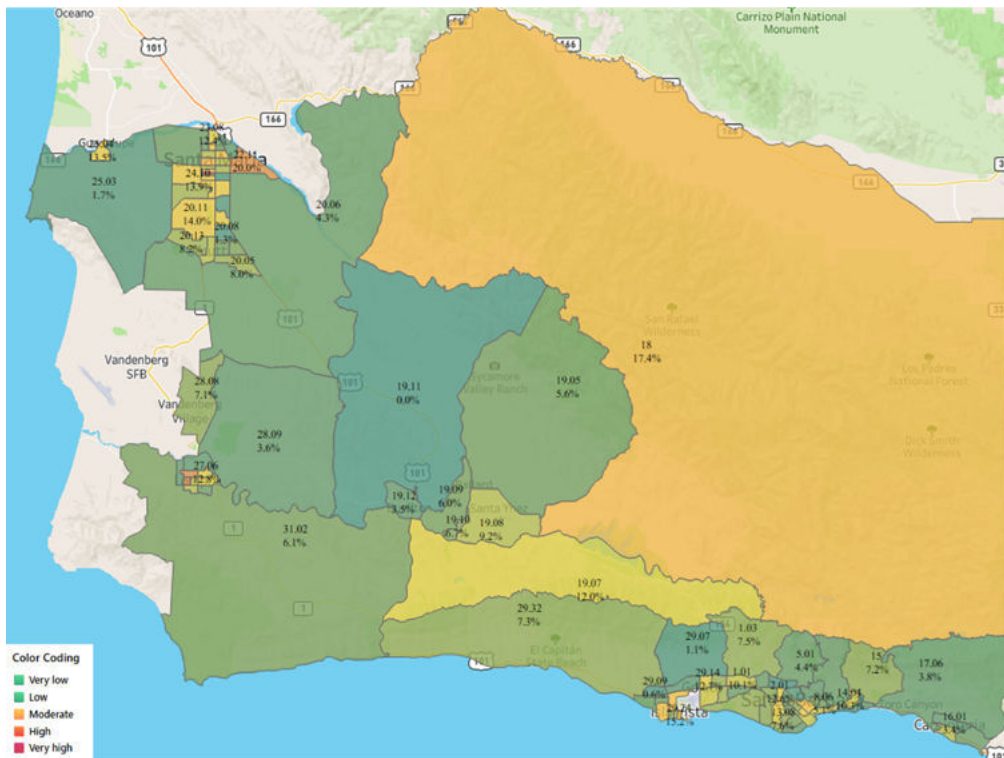


Source: U.S. Census, B28003

Households with No Computer or Internet Connection Across Census Tracts

Census tracts bring us much closer to seeing that landscape of possibilities and limitations as prevailing realities. The positive outcome of such a look is the ability to develop a more focused plan to bring about positive change and provide the assistance needed.

Figure 4: Map of Percentage of Households with No Computer or Internet Connection Across the Census Tracts (102 Tracts)



The challenge of mapping the lack of computers and internet access in census tracts across the county. It shows the true picture of a landscape presenting stark differences among neighborhoods across the county.

Measuring Affordability Across the County

The lack of a computer and an internet connection largely depends on how affordable they are. Affordability, by its nature, affects every need of a low-income household. When housing costs are high, the situation becomes even more dire in other essential areas, as housing costs account for a significant share of almost all households' budgets. This can be understood as follows: in the face of affordability constraints, a household prioritizes how to allocate its budget across needs. Housing, food, and transportation may take precedence; for this reason, internet access may be given lower priority unless one's work depends on it.

Method of Calculating Affordability

We took the following steps to measure affordability across zip codes and census tracts.

- Based on the U.S. Census, the average household size in Santa Barbara County is 2.81, for 2024 Data (5-year Estimates). Because of that, we select the data for 2 adults (both working) with 1 child
- On average, U.S. households spent \$760 in 2024 on acquiring new digital devices
- Let us assume that the cost of internet plus electricity cost used by digital devices would be somewhere around 25% of the monthly utility bill.
- In total, we have the following spending on purchasing digital devices and the cost of internet and electricity associated with them:

Table 1: Spending on Purchasing Digital Devices and the Cost of Internet and Electricity Associated with Them

Item	Annual Cost
Internet and Mobile	\$2,774
Annual costs of acquiring new digital devices	\$760
Electricity cost (25%)	\$34
Total Annual Digital Cost in Santa Barbara	\$3,568



Affordability Benchmark

A practical benchmark is that total annual digital essential costs (Internet + devices + basic phone access) should be kept at

5% of household income

⁹For more information see <https://action.deloitte.com/insight/4258/digital-spending-puts-tech-optimism-in-the-black>
¹⁰For more information see <https://www.directenergy.com/learning-center/what-uses-most-electricity-in-my-home>

We used 2024 Census Data and calculated the number and percentage of households that cannot afford to pay for digital spending as 5% or less than their household income.

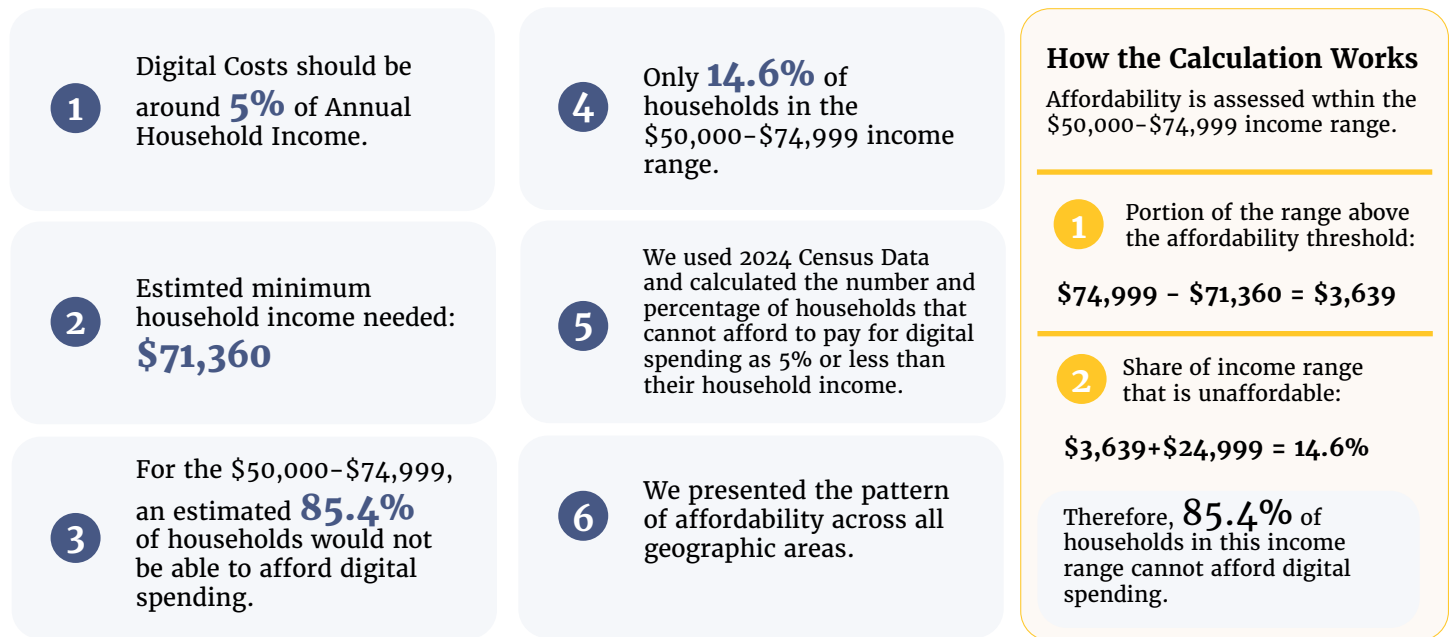


Figure 5: Map of Lack of Affordability Across Zip Codes

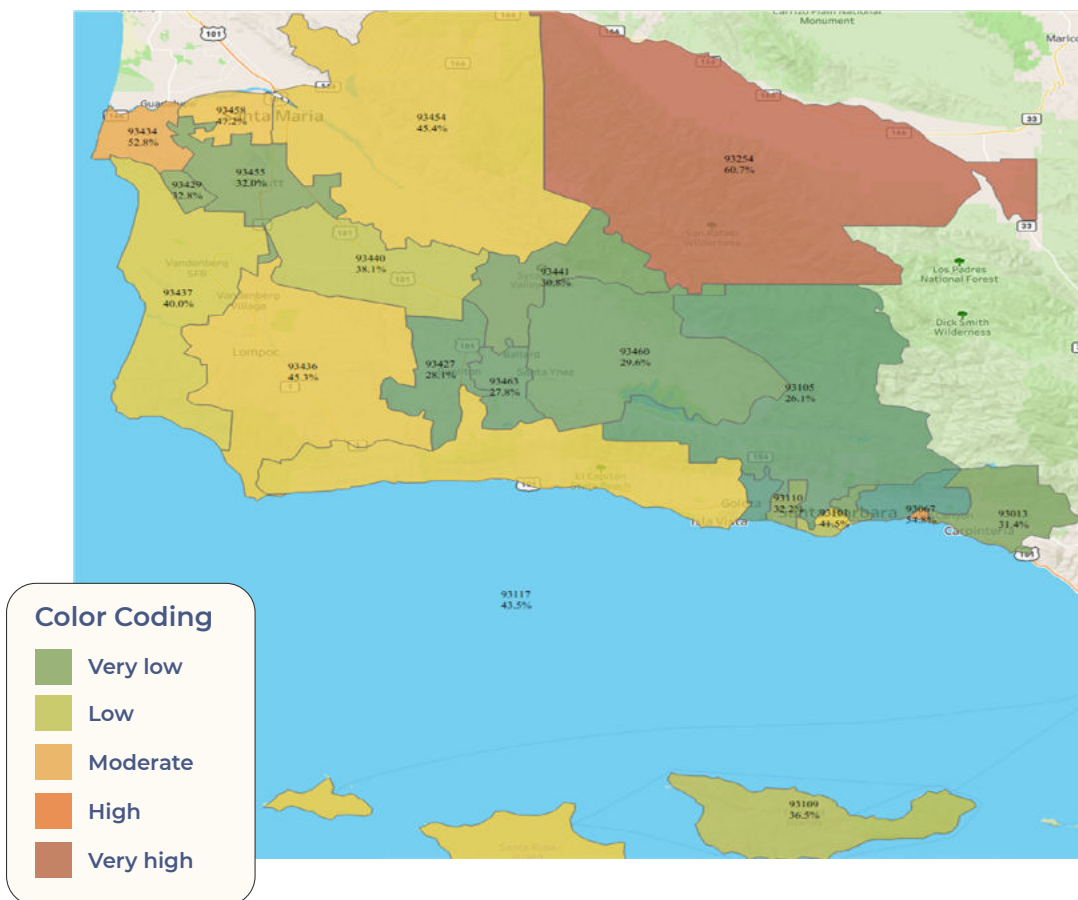
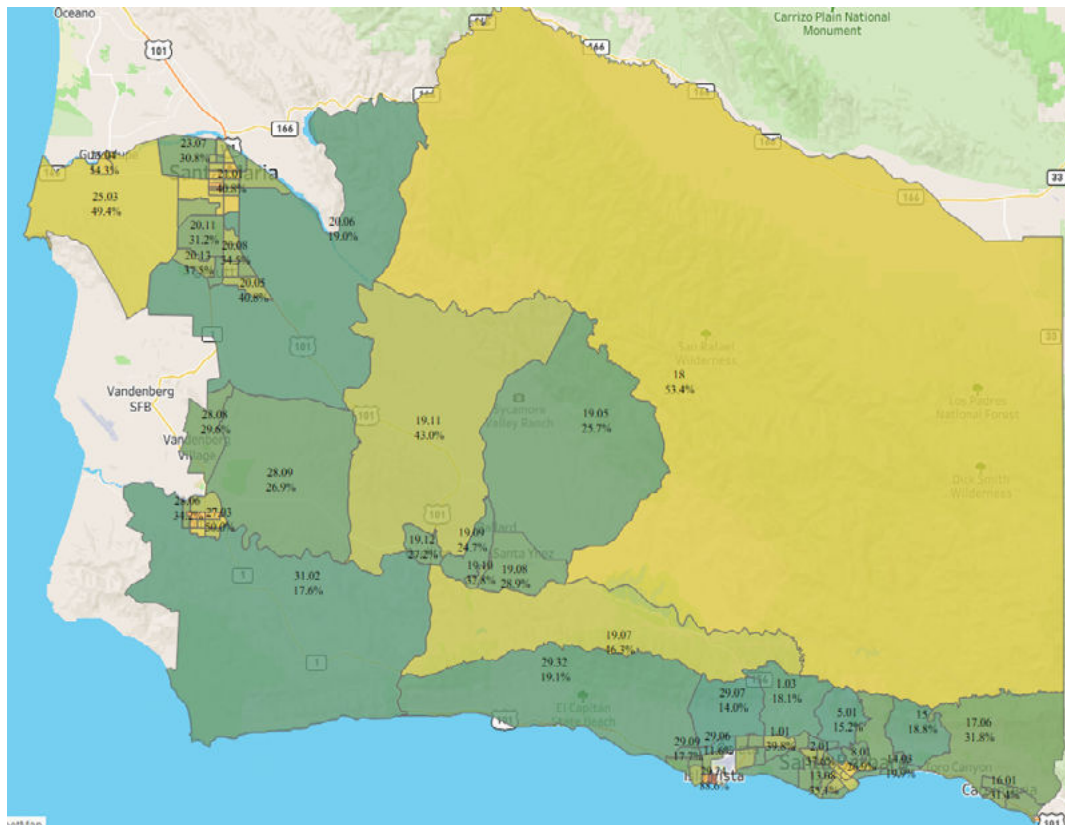


Figure 6: Map of Lack of Affordability Across Tracts



The two maps above show much larger areas facing a lack of affordability. To better understand the relevance and impact of internet and computer access, we compared the lack of affordability with the pattern of not having access to a computer or the internet. The correlation coefficient is 52%, indicating that affordability is an important factor, but other factors are also important. Non-adoption or exceeding a budget limitation may prevail to a large extent.

Access Based on the Socio-Economic Conditions

Access to digital connection is strongly stratified by socio-economic conditions, creating a “digital divide” where lower-income individuals and marginalized communities are disproportionately disconnected from essential services, education, and job opportunities.

The socioeconomic conditions of the population vary across a broad spectrum of economic, social, and cultural factors, and one has to be cautious about both ignoring them and overgeneralizing. As alluded to, disparities exist not only in physical hardware (such as computers and tablets) but also in reliable, high-speed broadband.

The truth is that the new world runs on digital tools: for learning, working, accessing healthcare, and staying connected. Yet despite this reliance, the benefits don’t reach everyone equally. Some communities thrive with high-speed internet and cutting-edge devices, while others struggle with spotty connections and outdated equipment.

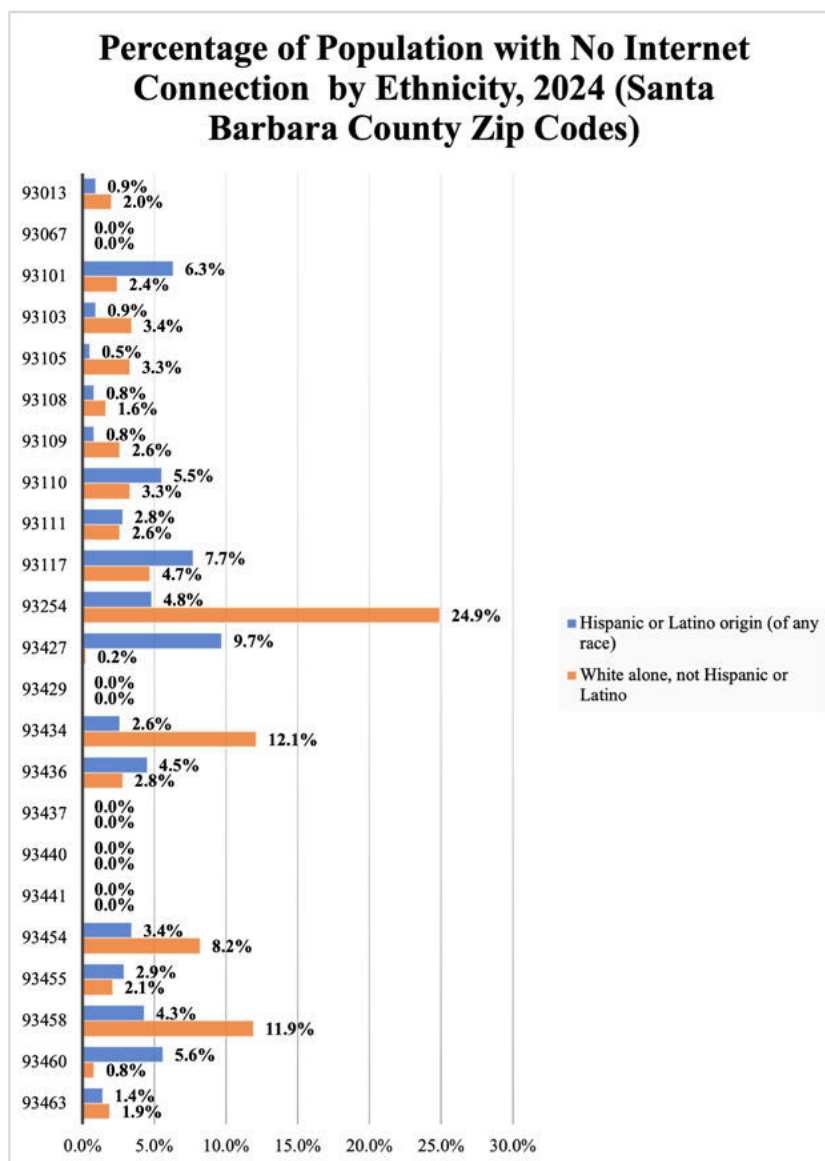
Access to physical connection, based on an individual's or family's economic ability, is an important issue that this study examined. There is, however, another layer of complication: non-adoption based on factors unrelated to the non-adopter's economic condition.

In this section of the study, we examined several highly relevant demographic characteristics, including race/ethnicity, age, educational attainment, and employment status. The results are presented.

Access Based on Ethnicity

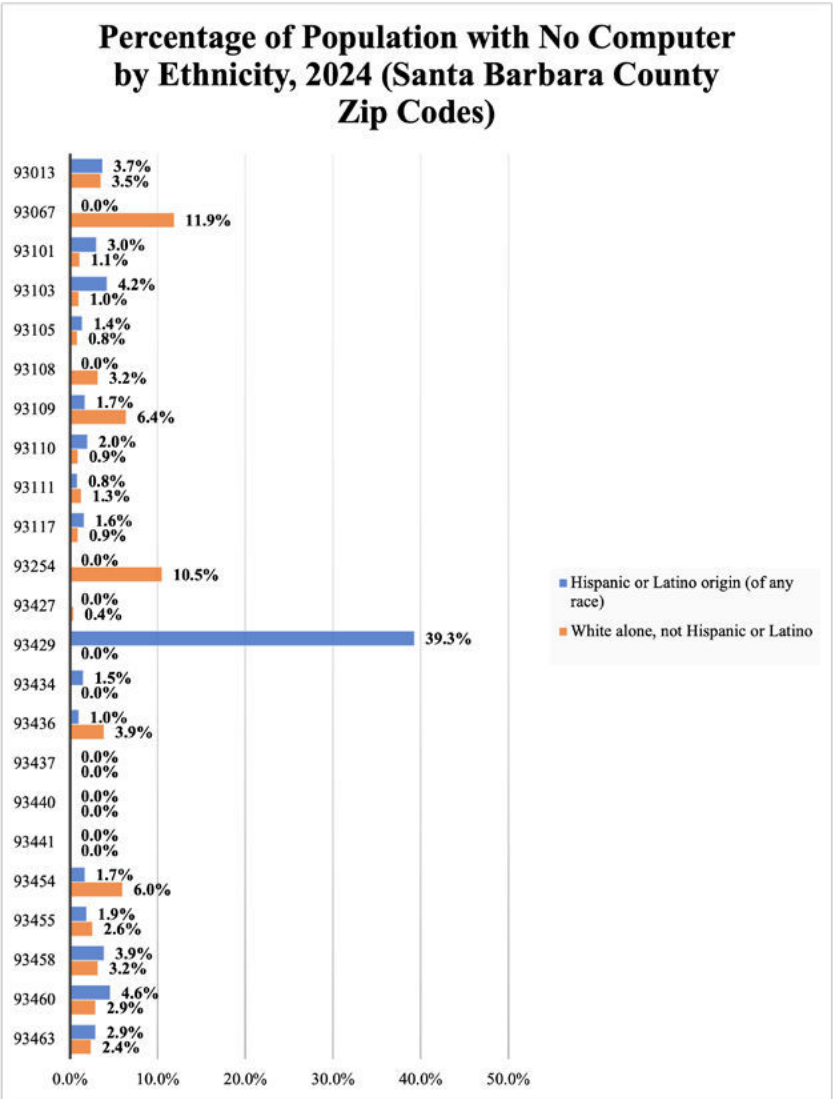
In this section, we examine connectivity and access to computers and other devices across ethnic groups. The results are shown in the following exhibits.

Figure 7: Percentage of Population with No Internet Connection by Ethnicity, 2024 (Santa Barbara County Zip Codes)



Source: U.S. Census, B28002

Figure 8: Percentage of Population with No Computer by Ethnicity, 2024 (Santa Barbara County Zip Codes)



Source: U.S. Census, B28002

The pattern of having a computer and an internet connection across the two ethnicities: White alone (not Hispanic or Latino) and Hispanic or Latino (of any race) is mixed and changes across different zip codes. There is also a pattern of non-adoption based on other factors, which this study explores to some extent.

We also face potential complications due to a small population and the challenges rural areas may face. Lower-income neighborhoods and remote rural areas frequently lack the necessary fiber-optic or cable infrastructure. Even when lower-income individuals can afford a connection, it may not be available in their area.

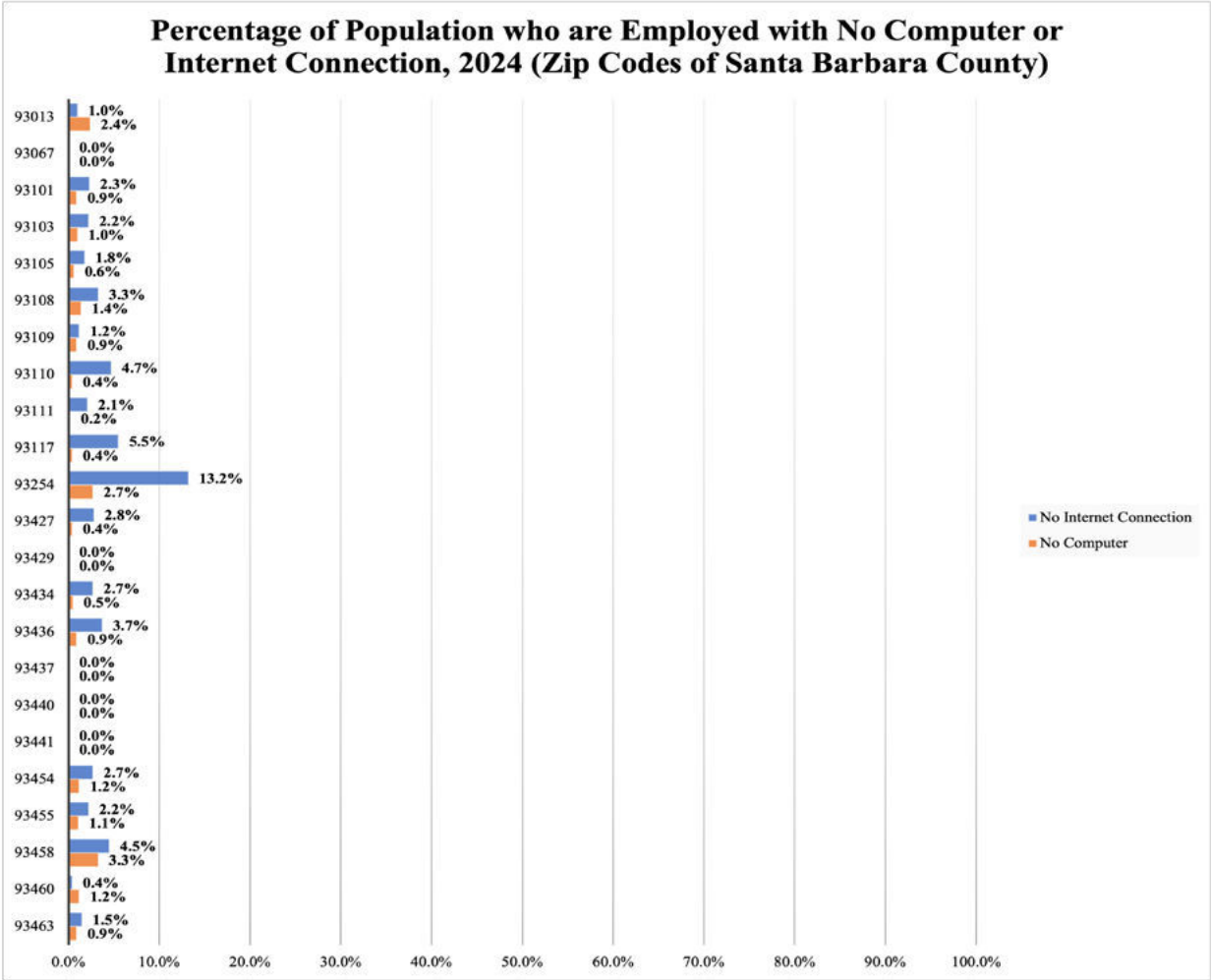
We will explore some of these issues to the extent that the existing data in the ongoing sections of this study can verify.

Population, Employment Status, and Their Access to a Computer or Internet Connection

A lack of digital connection isolates individuals from the modern, knowledge-based economy. Remote work, which requires stable, high-speed internet, is largely inaccessible to those without adequate home connections. There is, however, a pattern of available work in various areas that has its own impact. In some areas, a larger or smaller proportion of workers may be engaged in work that is more amenable to remote work, whereas in others, this may not be the case. A good example of this is geographic areas where most available jobs require physical presence, such as farm work. It can be even more complicated when people work in one area but live in another area. Such complications may be even more present in Santa Barbara, with a high cost of living and, in particular, housing that may force the workforce to live in an area that they cannot afford to live in, and therefore, their place of living is the basis for looking into connections, whereas their workplace is far away.

Here, we looked into three patterns; employed, unemployed, and not in the labor force. The results are presented below.

Figure 9: Percentage of Population who are Employed with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)

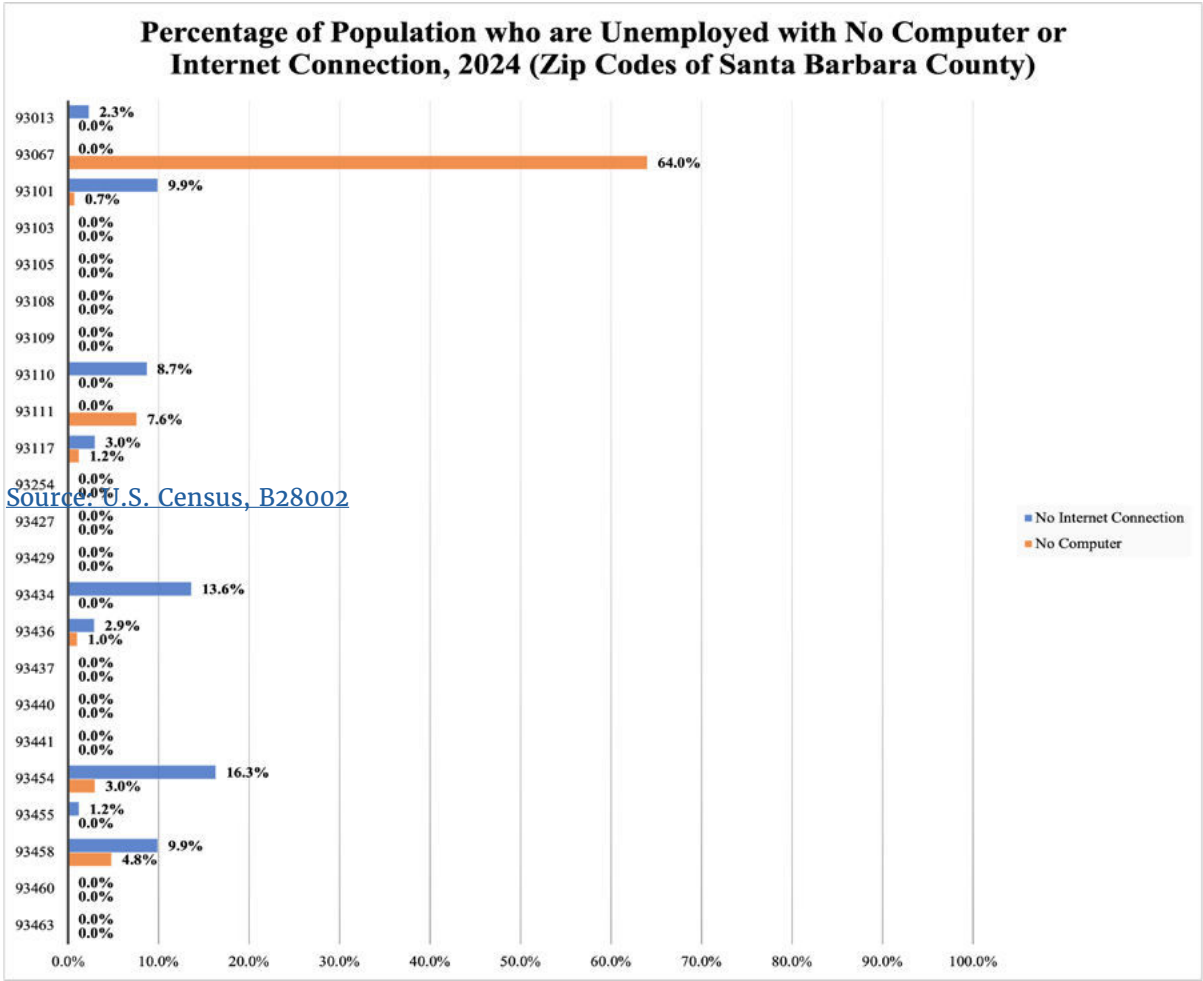


Source: U.S. Census, B28002

The exhibit above shows that both a lack of a computer and a lack of an internet connection prevail in most zip codes. It is hard to reach a concrete conclusion without analyzing the job patterns available to residents of these communities. As mentioned before, in some areas, most jobs available to residents may require in-person work. Therefore, a lack of internet or computers plays a lesser role in explaining the inability to obtain jobs due to the digital divide. However, even in such conditions, we should not ignore the negative impact of access to the internet and, in particular, high-speed internet connections as a barrier to finding jobs and becoming employed.

Reaching overarching conclusions should be avoided, and a better conclusion should be left to study further, which can answer some of the pressing questions, such as the availability of a workforce capable of performing jobs that can be performed entirely or partially through virtual connections. The existing trend makes such an observation even more pressing.

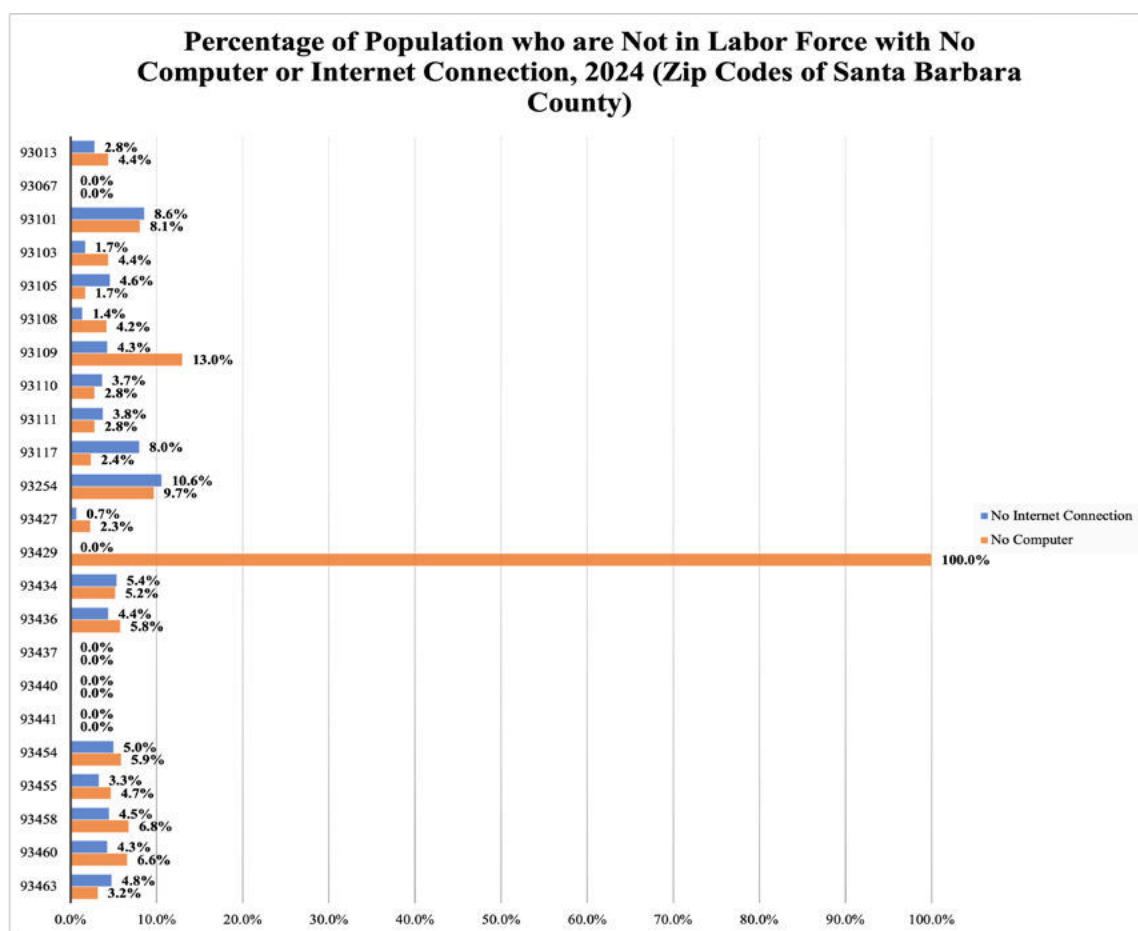
Figure 10: Percentage of Population who are Unemployed with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



Source: U.S. Census, B28002

It is interesting to note that, based on the above exhibit, with a few exceptions, those who are unemployed are, by and large, not constrained. The first deduction is that the absence of a digital divide, or the presence of devices, has not played a decisive role in preventing the workforce from finding jobs. In all three segments of the workforce we have discussed so far, one can see the possible impact of a very small population on the pattern of results. For example, in the exhibit above, the only zip code where unemployed residents lack computers is 93067, which is in Summerland. Summerland is a very small community with a population of about 1,100 and a median age of over 51 years, which is far higher than the County of Santa Barbara (Santa Barbara County's median age is around 35 years) . We can observe a similar impact in other, less-populated zip codes. We will examine the specific demographic characteristics of these communities in the preceding sections of this study.

Figure 11: Percentage of Population who are Not in Labor Force with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



Source: U.S. Census, B28002

Similarly, those not in the labor force do not appear to have a high incidence of lacking a computer or internet connection, except in one zip code, 93429 (Casmalia), a community of about 100 people with a median age of 43 and a median income of \$169,063. It is hard to assume that the lack of computers is due to economic hardship. Can the data be trusted, given the large margin of error, even though we use the American Community Survey (ACS) for the latest 5-year period?

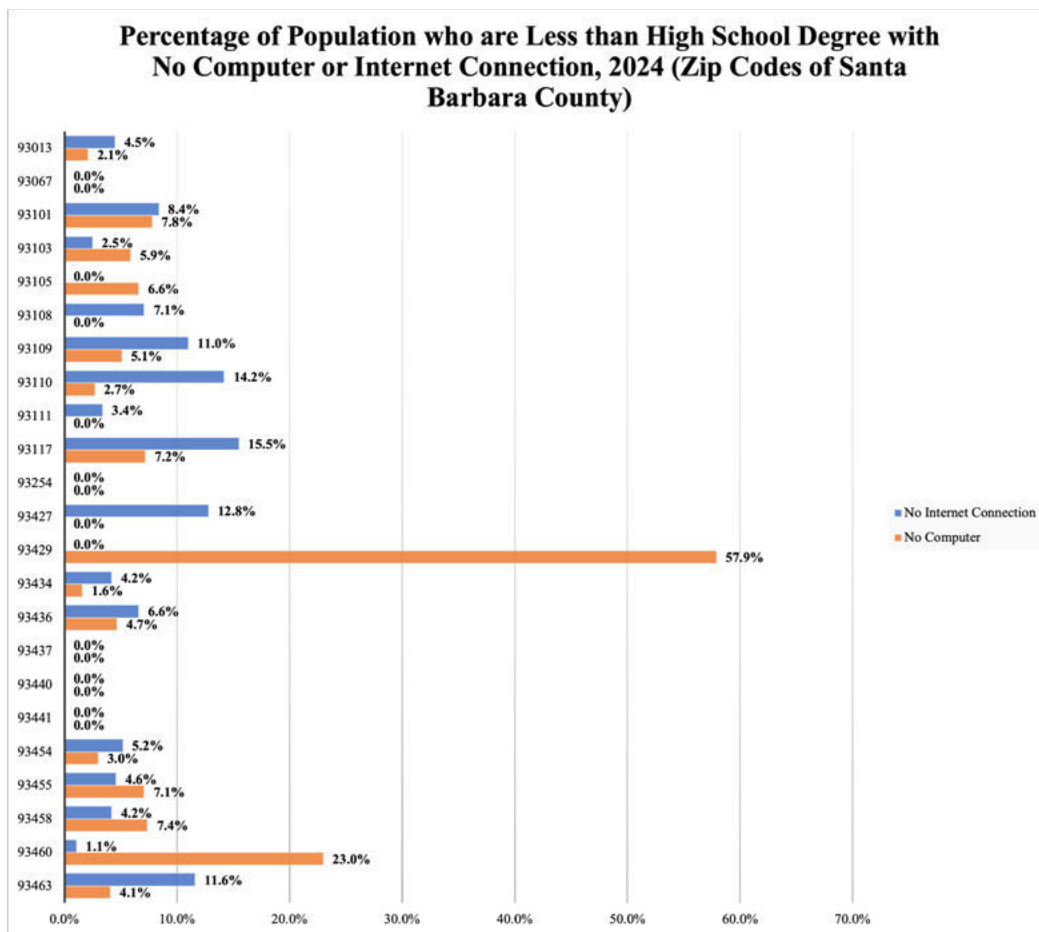
¹¹Santa Barbara Census Reporter; <https://censusreporter.org/profiles/05000US06083-santa-barbara-county-ca/>

As noted before, we should avoid reaching a conclusion about the suture based on today’s observation. Furthermore, non-adoption may not be as bad as being unable to afford it, but it still indicates a constraint that requires careful attention and every effort to resolve.

Population with No Computer or Internet Connection Based on Their Level of Educational Attainment

Educational disparities can significantly affect the need for digital connectivity, which in turn increases the likelihood of gainful employment and better economic conditions. Students in underfunded or low-income communities who lack stable internet and laptops often fall far behind their peers, directly affecting their future academic and career trajectories. We can examine the existing pattern of educational attainment and connect it to access to internet connections, computers, and other devices.

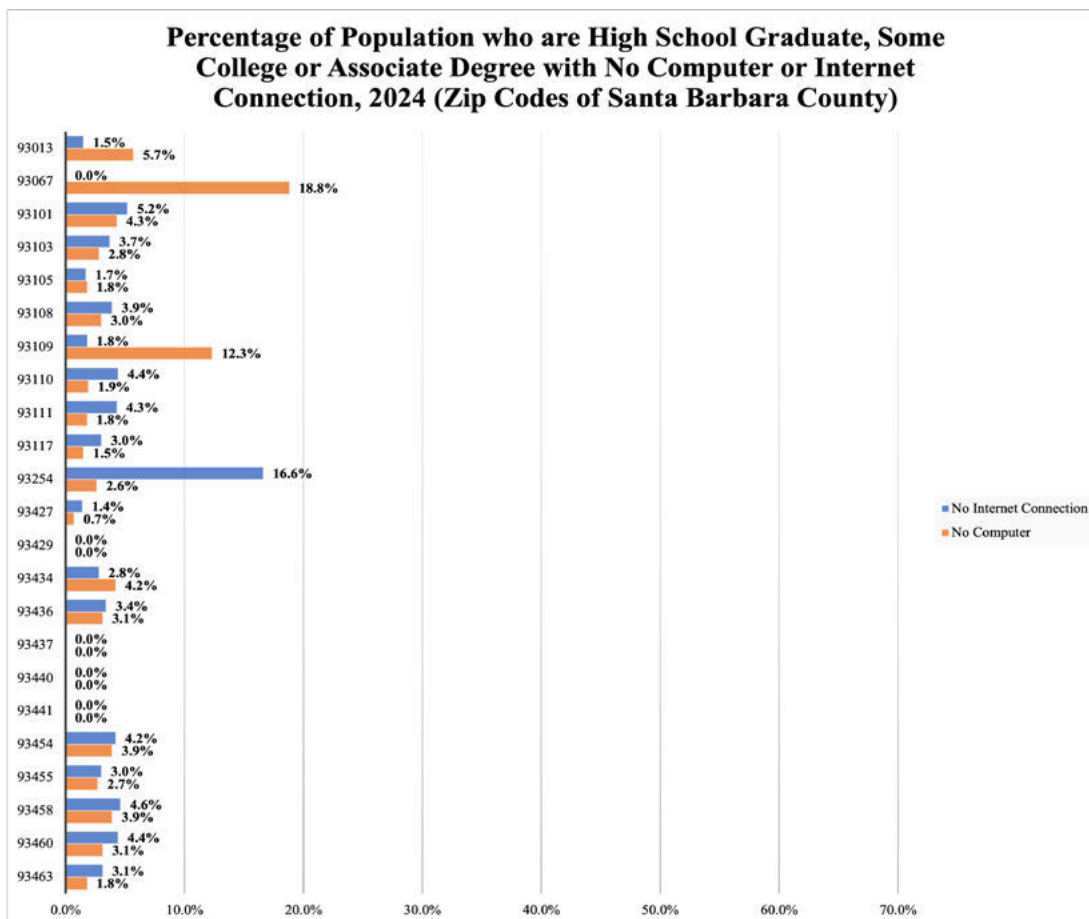
Figure 12: Percentage of Population who are Less than High School Degree with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



Source: U.S. Census, B28002

The above exhibit presents some disparity across the zip codes. However, having less than a high school diploma also varies considerably across locations, which by itself may affect results in certain zip codes, particularly in small-population neighborhoods.

Figure 13: Percentage of Population who are High School Graduate, Some College or Associate Degree with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)

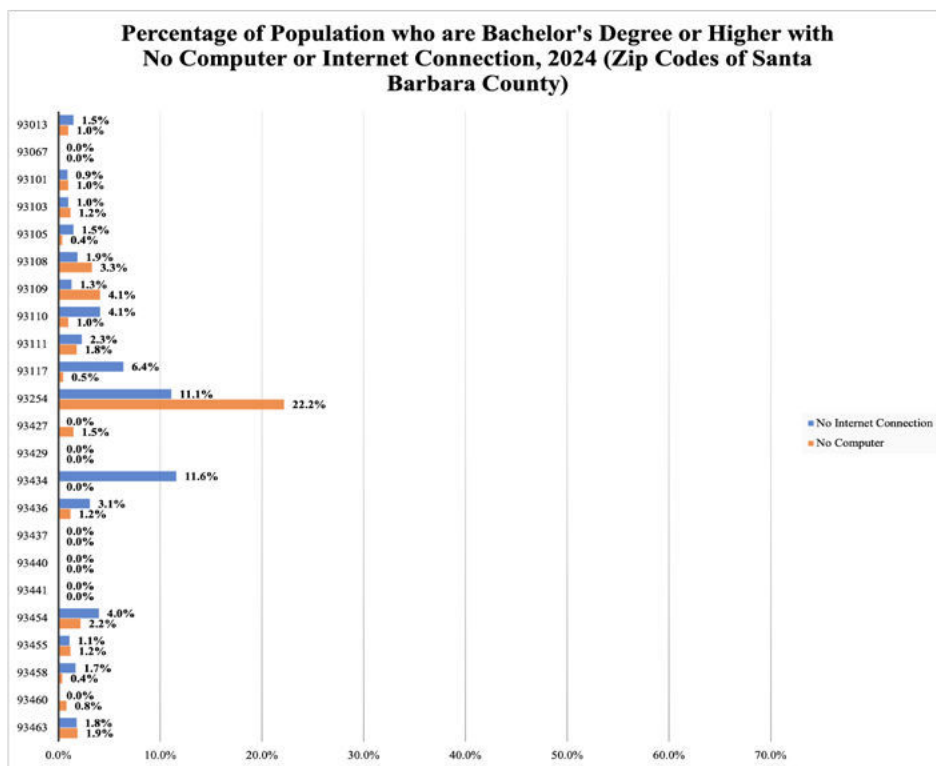


Source: U.S. Census, B28002

Compared with the previous exhibit, we see some improvement in certain zip codes, but not consistently, which suggests that having a high school diploma is consistently associated with greater access to the internet or a computer. We also have the same issue related to a small population in some zip codes.

Finally, we look at internet connectivity and access to devices among those with higher levels of educational attainment, and that pattern is presented in the exhibit below.

Figure 14: Percentage of Population who are Bachelor's Degree or Higher with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



Source: U.S. Census, B28002

The pattern of internet connectivity and computer use shows some improvements compared with previous patterns in some areas. What is important to observe is that in many areas, access to the internet and a computer is high and independent of educational attainment. This draws greater attention to other restrictions or possibilities present in areas shaped by socio-economic or infrastructural factors.

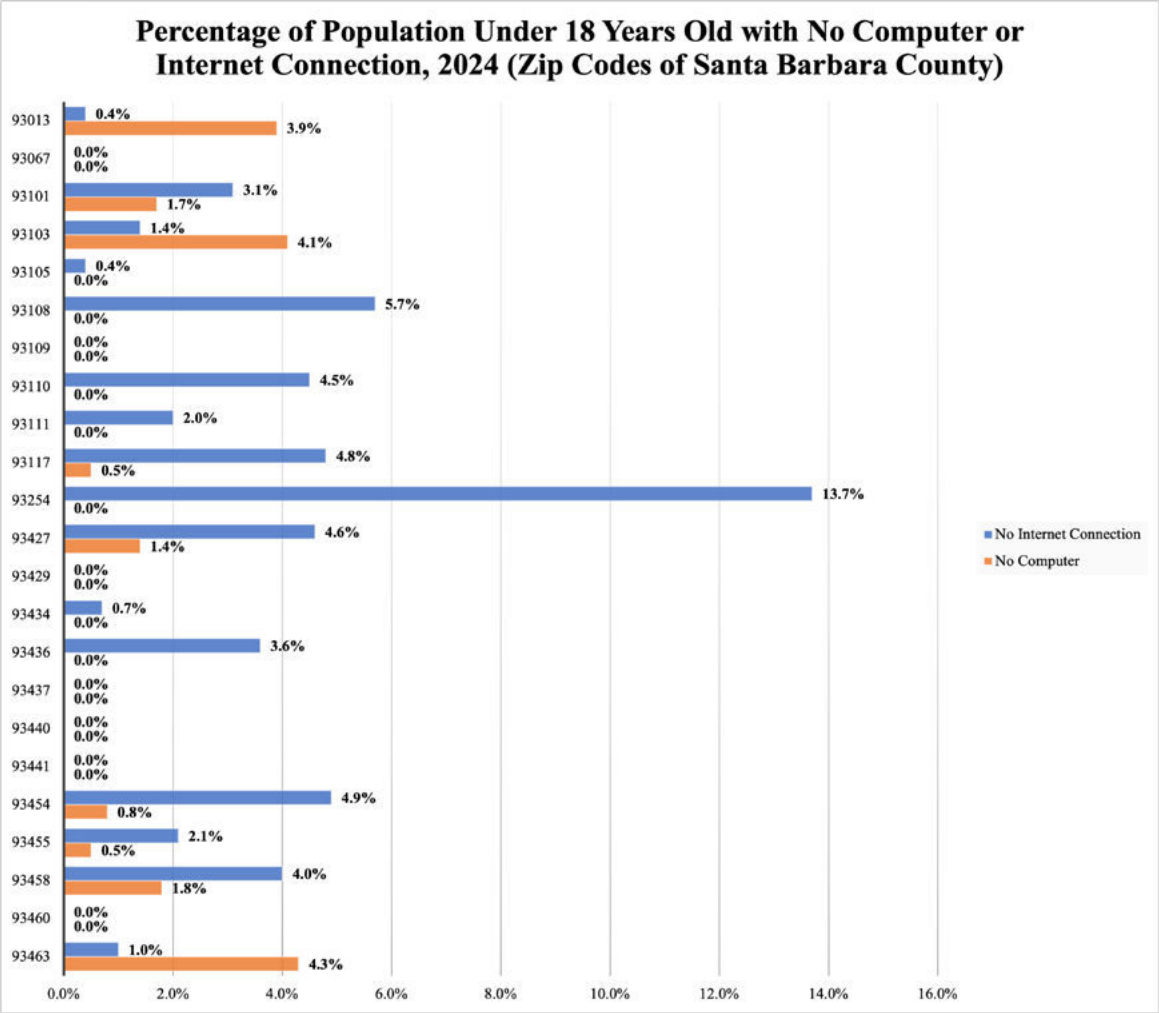
Comparing Access of Younger and Older by Comparison

Substantial disparities persist in how younger and older populations access and use computers and the internet. While internet connectivity is nearly ubiquitous among younger people, older adults, particularly those over 75, face a “gray digital gap” shaped by socioeconomic factors, physical limitations, and generational comfort. Some of these factors are not age-related and create considerable disparities, such as socioeconomic and infrastructural differences. In contrast, others are age-related, including physical limitations, generational gaps, and a lack of trust, which play a large role.

Far removed from the early 2000s, most U.S. adults today report using the internet (95%), having a smartphone (90%), or subscribing to high-speed internet at home (80%), according to a Pew Research Center survey conducted from May 19 to Sept. 5, 2023. The same research shows that there are considerable differences in the use of computers and the internet based on income differences. It also shows that differences also emerge by the type of community that adults live in. About half of those living in urban areas (48%) say they use the internet almost constantly, compared with 43% in suburban communities and 32% in rural settings.

This research examines age differences in access to computers and internet connections across two age categories: under 18 and over 65.

Figure 15: Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



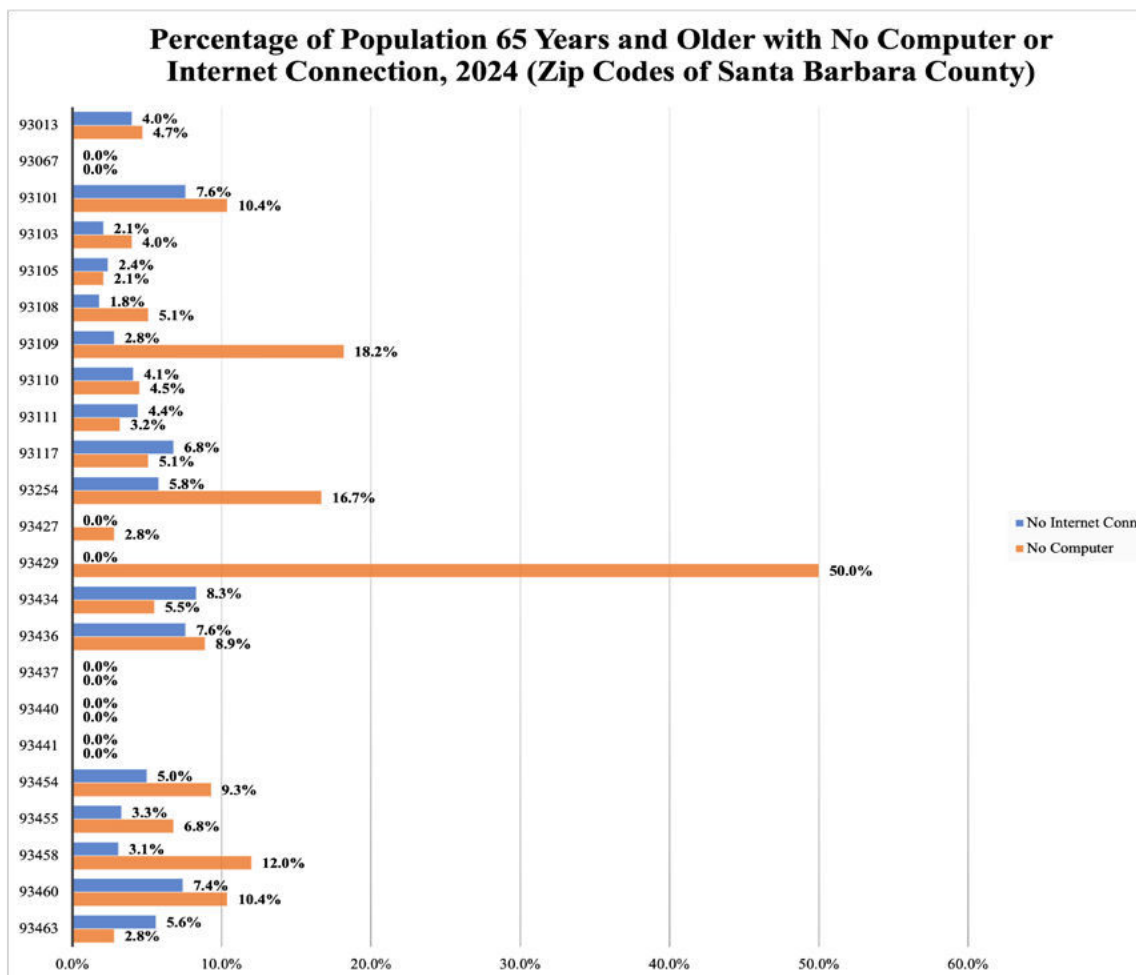
Source: U.S. Census, B28002

The pattern of lack of computer and internet connection across zip codes shows that almost half of the zip codes either have no problems with internet connection or with computers, or have problems in just one area. Although the proportions are small, this calls for urgent action to remove barriers, as access to a computer and the internet is a prerequisite for succeeding in education and, to a large extent, is essential. Students are increasingly receiving instruction through online resources, and this trend is likely to continue in the age of AI, with far greater development to follow.

We cannot deny our youth the opportunities that can positively impact their present and future. It is important to consider what should be done now as an investment in the lives of our children and, indeed, in the future of our communities. We should also be aware that a lack of investment is nothing but disinvestment.

¹²Pew Research Center (2024) Americans’ Use of Mobile Technology and Home Broadband; <https://www.pewresearch.org/internet/2024/01/31/americans-use-of-mobile-technology-and-home-broadband/>

Figure 16: Percentage of Population 65 Years and Older with No Computer or Internet Connection, 2024 (Zip Codes of Santa Barbara County)



Source: U.S. Census, B28002

The rate of no computer or internet access is far higher among older adults, aged 65 and older. Except for four zip codes, all others show some level of lack of access to computers or the internet, which brings the issue of non-adoption to the forefront of our discussion.

Younger individuals are “digital natives” who have grown up with computers integrated into schooling and socialization. Older individuals may lack foundational exposure, leading to higher levels of technology anxiety. The important point is that discomfort with computers or the internet does not reduce the need for collectivity and comfort when using such devices. The provision of healthcare, the dissemination of information, and access to needed services all depend on digital connectivity and the ability to use it.

Digital Access Opportunity Index (DAOI)



We went far beyond just looking at internet access and the ability to make the necessary decisions to use the internet effectively, and to access opportunities to benefit from the new economy through it. This index is designed to capture the following potentials and constraints that impact digital access. The concepts are as follows:

- Economic Constraint
- Digital Access Deficit
- Family Stress/Care Burden
- Health & Disability
- Geographic Isolation

Based on such a plan, we devised and collected the needed data:

DAOI Structure and Relevance of Selected Factors

Economic Capacity

1. Median Income
2. Poverty of Families with Children Under 18
3. SNAP Households with Children
4. Unemployment Rate
5. Rent Burden (35%+ of household income)

Digital Access

6. Population Under 18 with No Computer and/or No Internet

Human Capital & Inclusion

7. English Less Than Very Well
8. Less Than High School Degree
9. Children Age 3–4 Enrolled in Early Childhood Centers

Household Stability/Support Need

10. Female Householder, No Spouse
11. Uninsured Under 19
12. Cognitive Disability
13. Rural Housing Share
14. Foreign-Born Share

We gathered information from all available sources for the 14 indicators presented and categorized above. The information was normalized, and we used the patterns to create maps and tables, which are presented below.





Normalization of Data and Organizing Each Index

We used the available data for each indicator and normalized them to obtain index values.

Finding Outliers

- Transform percentages into numbers
- Transform dollar value to a number
- Find from Min, Q1, Mean, Q3 and Q4, Max for each indicator
- Calculate IQR for each indicator: $IQR = (Q3 - Q1)$
- Calculate IQR for each indicator: $IQR = (Q3 - Q1)$
- Multiply IQR by 1.5
- Find lower and upper fences. Lower fence = $Q1 - 1.5IQR$ Upper fence = $Q3 + 1.5IQR$
- Detect if each indicator contains any min or max outliers. (For Excel purposes, we did it by finding positive values using the following logic: Min outlier exists if $min - lower\ fence = positive\ value$, Max outlier exists if $max - upper\ fence = positive\ value$)

Normalization of Data Without Outliers

- If min outliers exist, replace min with a lower fence value for normalization. If a maximum outlier exists, replace it with the upper fence for normalization purposes.
- By performing step 1, we got new min and new max
- Normalize our data by using the following formula for each value, where each value is x $(x - new\ min) / (new\ max - new\ min) * 100$
- By performing step 3, all our indicators are within the 0 to 100 range
- Adjust outliers by manually replacing values more than 100 with 100 and less than 0 with 0 (replaced values highlighted in brown)

Placing the Values and Setting Them Up According to Color Codes

- Add the following color coding where green colors are good, yellow colors are middle, and red colors are bad
- Calculate the respective Index, where 100 is not vulnerable at risk at all, and 0 is highly vulnerable or at risk
- Calculate the average of all reported indicators for Santa Barbara County.

We can now present them on the map and within a table. We also present the pattern of changes of each indicator across the 14 indicators in the Appendix.

Table 2: Digital Access Opportunity Index (DAOI)

Indicator	Location	Digital Access Opportunity Index (DAOI)	Median Income	Poverty of Families with Related Children Under 18	Food Stamps Recipients with Children Under 18	Population Under 18 with No Computer and/or No Internet	Unemployment Rate	Gross Rent as 35 Percent or More of Household Income	Percent of Population Who Speak English Less Than Very Well	Less Than High School Degree	Percent of Female Householders with No Spouse Present	Lack of Health Insurance for Population Under 19 Years Old	Percent of Population with Cognitive Disability	Percentage of 3 and 4 Years Old Children Enrolled in Private or Public Schools	Percentage of Rural Housing Units Among All Housing Units	Percentage of Foreign Born to Total Population
93108	Santa Barbara (Monterey area)	74.5	100.0	52.9	62.9	57.8	69.0	59.2	90.6	94.6	61.6	84.6	53.8	83.7	87.6	47.3
93067	Summerland	74.3	7.6	100.0	100.0	100.0	0.0	0.0	100.0	72.9	100.0	100.0	77.7	100.0	91.2	91.3
93111	Santa Barbara	72.0	62.5	92.8	52.0	85.2	70.7	68.8	76.1	83.4	86.7	78.2	33.1	64.9	100.0	38.9
93105	Santa Barbara	69.4	57.9	70.3	55.6	97.0	50.3	57.4	81.9	80.3	81.3	73.1	49.3	50.0	99.3	31.3
93429	Casmalia	67.3	81.0	100.0	100.0	100.0	100.0	85.8	59.8	34.9	100.0	100.0	0.0	0.0	92.1	74.3
93440	Los Alamos	66.3	13.7	100.0	29.8	100.0	46.8	93.0	95.3	67.8	100.0	100.0	32.0	100.0	90.4	81.7
93109	Santa Barbara	66.2	46.7	78.7	59.5	100.0	43.2	44.3	87.3	88.5	70.8	0.0	37.0	86.0	100.0	84.2
93427	Buellton	64.6	31.4	83.7	17.1	55.6	83.1	80.1	55.8	71.5	53.3	100.0	49.3	82.0	94.2	63.3
93441	Los Olivos	64.3	61.3	100.0	100.0	100.0	69.8	33.5	91.0	94.6	56.8	100.0	4.7	0.0	93.7	59.3
93437	Lompoc (includes Vandenberg area)	63.2	17.4	90.9	0.0	100.0	45.9	24.3	93.8	100.0	68.5	100.0	100.0	44.0	95.6	54.5

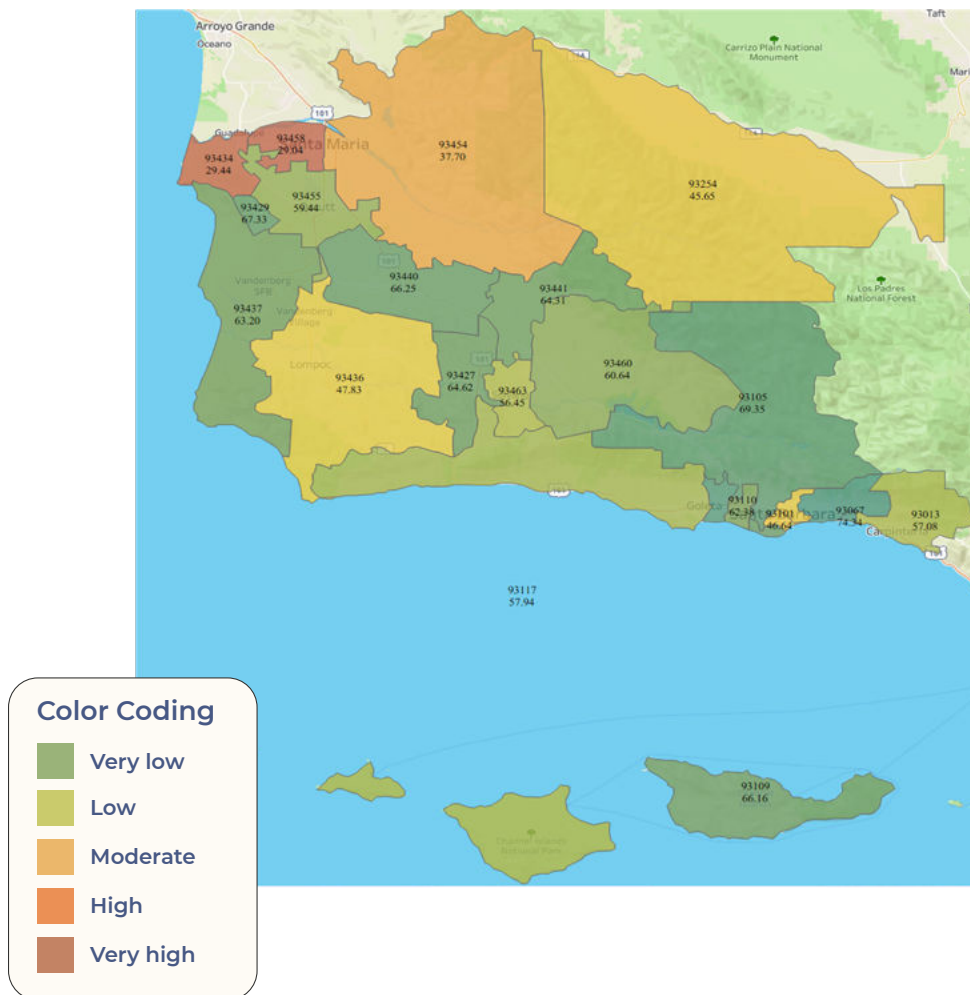
93110	Santa Barbara	62.4	51.1	67.3	65.0	66.7	56.5	83.7	72.5	73.2	48.8	39.7	51.0	40.3	0.0	73.5
93460	Santa Ynez	60.6	39.8	46.4	43.6	100.0	60.1	61.2	71.8	64.4	72.7	83.3	20.9	69.0	81.9	60.0
93455	Santa Maria (includes Orcutt area)	59.4	37.2	66.5	53.1	80.7	59.2	58.8	66.0	56.9	60.6	46.2	38.2	40.0	0.0	81.1
93117	Goleta	57.9	21.8	71.9	80.8	60.7	21.1	37.4	67.1	65.8	54.6	60.3	63.2	56.4	98.6	19.7
93013	Carpinteria	57.1	37.0	70.7	36.7	68.1	68.1	48.6	56.6	53.2	69.3	53.8	61.0	41.0	92.8	45.9
93463	Solvang	56.5	43.1	55.9	60.5	60.7	67.2	67.0	70.3	77.3	45.0	30.8	36.5	44.3	0.0	100.0
93103	Santa Barbara	48.0	45.8	24.3	28.3	59.3	61.0	64.2	33.4	55.6	34.5	21.8	52.1	61.0	0.0	49.2
93436	Lompoc	47.8	14.3	34.2	40.9	73.3	39.7	61.2	35.9	24.1	50.5	66.7	31.5	58.6	0.0	88.6
93101	Santa Barbara	46.6	21.9	40.7	71.3	64.4	41.5	53.4	45.7	43.4	0.0	44.9	43.2	43.8	93.3	31.1
93254	New Cuyama	45.6	0.0	39.2	46.2	0.0	38.8	100.0	56.6	51.2	81.6	100.0	7.5	44.6	97.7	71.0
93454	Santa Maria	37.7	15.4	26.6	44.0	57.8	42.4	51.0	5.2	6.1	45.0	46.2	28.7	35.2	99.5	0.0
93434	Guadalupe	29.4	4.7	0.0	25.7	94.8	0.0	32.2	0.0	0.0	55.1	19.2	62.1	0.0	44.4	71.3
93458	Santa Maria	29.0	10.7	24.0	32.8	57.0	31.7	50.0	0.0	0.0	29.8	9.0	51.5	10.4	71.7	60.0

Note:

The zip codes highlighted in red may be false positives; they appear at the top of the list because they have a lot of missing data. We decided not to remove them despite a questionable pattern in the data.

We also present them on the county map.

Figure 17: Digital Access Opportunity Index (DAOI)



What the Study Brings Forward and Where to Go from There



This study identified a wide range of economic and social factors that impact access to and use of digital services within Santa Barbara County. Santa Barbara County faces challenges and opportunities to pave the way toward a more prosperous society, where prosperity can benefit a much larger proportion of its population and families in a year, emerging in a new economic environment. The Digital Access Opportunity Index (DAOI) presents a more complex pattern that contains high-income coastal communities, agricultural workforce communities, student populations, rural interior areas, and immigrant-serving neighborhoods—all of which create sharp variation in digital opportunity.



Value of DAOI Across the County

Where to go from here, in many respects, depends on how we can determine and, if possible, measure the gaps and devise a plan of action to remove or reduce the constraints and bottlenecks. Here are the digital opportunities across the neighborhood based on zip codes in Santa Barbara County.



Table 3: Value of DAOI Across the County

Opportunity Level	DAOI Range	ZIP Code	Community	DAOI Score
Very High Opportunity	70.0 – 100	93108	Santa Barbara (Montecito area)	74.5
		93067	Summerland	74.3
		93111	Santa Barbara	72.0
High Opportunity	60.0 – 69.9	93105	Santa Barbara	69.4
		93429	Casmalia	67.3
		93440	Los Alamos	66.3
		93109	Santa Barbara	66.2
		93427	Buellton	64.6
		93441	Los Olivos	64.3
		93437	Lompoc (including Vandenberg area)	63.2
		93110	Santa Barbara	62.4
		93460	Santa Ynez	60.6
Moderate Opportunity	50.0 – 59.9	93455	Santa Maria (including Orcutt area)	59.4
		93117	Goleta	57.9
		93013	Carpinteria	57.1
		93463	Solvang	56.5
Low Opportunity	40.0 – 49.9	93103	Santa Barbara	48.0
		93436	Lompoc	47.8
		93101	Santa Barbara	46.6
		93254	New Cuyama	45.6
Very Low Opportunity	0 – 39.9	93454	Santa Maria	37.7
		93434	Guadalupe	29.4
		93458	Santa Maria	29.0

Note:

Three zip codes have been removed from the list because we could not find information for many indicators. Including them would cause confusion and errors. They are Summerland (zip code 93067), Casmalia (zip code 93429), and Los Olivos (zip code 93441). We should note that we have additional indicators for these zip codes that shed light on their socioeconomic conditions, affordability, and other relevant information.

Setting aside any questions about the three counties, it is very important to examine the index value, identify the individual factors that determine the index's overall value in each area, and be prepared to set policy and take actions to help reduce barriers within a set time period. To identify a more pertinent pathway, we also examined the affordability pattern using zip codes and census tracts to determine what it can teach us.

Value of Affordability Index Across Zip Codes in Santa Barbara County

Table 4: Value of Affordability Index Across Zip Codes in Santa Barbara County

Affordability Level	ZIP Code	Community	Percentage of Households Unable to Afford the Digital New Normal	Population
Very high affordability	93108	Montecito	20.7%	11526
Very high affordability	93111	Goleta/Noleta	22.4%	18274
Very high affordability	93105	Santa Barbara, Mission/San Roque	26.1%	24437
Very high affordability	93463	Solvang	27.8%	8130
High affordability	93427	Buellton	28.1%	5737
High affordability	93460	Santa Ynez	29.6%	6039
High affordability	93103	Santa Barbara, Eastside/Riviera	30.6%	19382
High affordability	93441	Los Olivos	30.8%	1134
High affordability	93013	Carpinteria	31.4%	16317
Moderate affordability	93455	Orcutt/Santa Maria	32.0%	44611
Moderate affordability	93110	Santa Barbara/Noleta/Hope Ranch	32.2%	15436
Moderate affordability	93429	Casmalia	32.8%	99
Moderate affordability	93109	Santa Barbara, Mesa	36.5%	10915
Lower affordability	93440	Los Alamos	38.1%	1185
Lower affordability	93437	Vandenberg Space Force Base	40.0%	3477
Lower affordability	93101	Santa Barbara, Downtown/Westside	41.5%	31554
Lower affordability	93117	Goleta/Isla Vista/UCSB	43.5%	52934
Lower affordability	93436	Lompoc	45.3%	55820
Much lower affordability	93454	Santa Maria	45.4%	41896
Much lower affordability	93458	Santa Maria	47.2%	59148
Much lower affordability	93434	Guadalupe	52.8%	8603
Much lower affordability	93067	Summerland	54.8%	1101
Much lower affordability	93254	Cuyama/New Cuyama	60.7%	707

The table above shows that we need to focus on areas identified by ZIP code as having low or very low affordability. Organizing assistance and positive interventions by ZIP code is practical, and there are still many differences within each ZIP code. There are stark differences between different neighborhoods within a zip code.

We often use median income as a good indicator of income levels within a geographic area. However, there can still be wide variation within a zip code, and comparing zip codes for determining the level of needs within each and between them may be imprecise. Two zip codes with similar median incomes do not necessarily have the same level of need across households, given the actual distribution of income. In one zip code, the upper 50% of income may be much higher than in the other, and we have several such cases within Santa Barbara County.

Using census tracts can be more useful, but we need to keep in mind that tracts do not necessarily align with ZIP codes and may include or exclude other geographic areas. The key issue is that identifying the precise locations of households in need is essential for planning and providing assistance.

To bring more focused attention to the communities in need, we have used the same categorization based on Census Tracts, as shown below.

Table 5: Value of Affordability Index Across Census Tracts in Santa Barbara County

Affordability Level	Census Tract	Community	Percentage of Households Unable to Afford the Digital New Normal	Population
Very high affordability	Census Tract 29.06	Goleta	11.6%	4,206
Very high affordability	Census Tract 29.07	Goleta	14.0%	4,096
Very high affordability	Census Tract 5.01	Santa Barbara, West-side	15.2%	3,168
Very high affordability	Census Tract 4	Santa Barbara, Downtown	15.2%	5,221
Very high affordability	Census Tract 31.02	Cuyama/New Cuyama	17.6%	3,019
Very high affordability	Census Tract 29.09	Goleta	17.7%	5,309
Very high affordability	Census Tract 1.03	Eastern Goleta Valley/Montecito area	18.1%	3,990
Very high affordability	Census Tract 5.02	Santa Barbara, West-side	18.5%	5,352
Very high affordability	Census Tract 15	Goleta/Western Goleta	18.8%	2,683
Very high affordability	Census Tract 20.14	Santa Maria	18.9%	6,509
Very high affordability	Census Tract 20.06	Santa Maria	19.0%	2,895
Very high affordability	Census Tract 29.32	Goleta/UCSB area	19.1%	2,342

Very high affordability	Census Tract 14.03	Goleta/ Western Goleta	19.9%	1,853
Very high affordability	Census Tract 8.05	Santa Bar- bara, San Roque/Sa- markand	22.2%	1,263
Very high affordability	Census Tract 30.07	Santa Ynez/ Los Olivos	22.4%	3,166
Very high affordability	Census Tract 30.05	Buellton	23.6%	4,121
Very high affordability	Census Tract 30.04	Solvang	23.7%	4,734
Very high affordability	Census Tract 14.04	Goleta/ Western Goleta	23.9%	1,621
Very high affordability	Census Tract 19.09	Lompoc	24.7%	3,870
Very high affordability	Census Tract 20.12	Santa Maria	24.8%	2,858
High affordability	Census Tract 6	Santa Bar- bara, Mesa	24.9%	4,824
High affordability	Census Tract 19.05	Lompoc	25.7%	3,108
High affordability	Census Tract 12.08	Goleta	26.7%	4,270
High affordability	Census Tract 11.01	Eastern Go- leta Valley/ Noleta	26.8%	4,872
High affordability	Census Tract 8.01	Santa Bar- bara, San Roque/Sa- markand	26.9%	4,120
High affordability	Census Tract 28.09	Los Alamos	26.9%	5,239
High affordability	Census Tract 19.12	Vandenberg Village/Mis- sion Hills	27.2%	5,074
High affordability	Census Tract 29.34	Goleta/UCSB area	27.3%	3,290
High affordability	Census Tract 7	Santa Bar- bara, Mis- sion/Upper East	28.7%	6,546
High affordability	Census Tract 19.08	Lompoc	28.9%	5,087

High affordability	Census Tract 22.10	Orcutt/Santa Maria	28.9%	6,626
High affordability	Census Tract 13.06	Goleta	29.2%	3,247
High affordability	Census Tract 13.07	Goleta	29.6%	3,362
High affordability	Census Tract 28.08	Santa Ynez Valley	29.6%	6,776
High affordability	Census Tract 29.35	Goleta/UCSB area	30.4%	3,644
High affordability	Census Tract 1.02	Eastern Goleta Valley/Montecito area	30.4%	4,830
High affordability	Census Tract 23.07	Santa Maria	30.8%	5,330
High affordability	Census Tract 20.11	Santa Maria	31.2%	6,017
High affordability	Census Tract 29.13	Goleta	31.2%	4,167
High affordability	Census Tract 16.01	Goleta/Western Goleta	31.4%	6,095
Moderate affordability	Census Tract 17.04	Carpinteria/Summerland	31.5%	3,081
Moderate affordability	Census Tract 29.14	Goleta	31.7%	3,088
Moderate affordability	Census Tract 17.06	Carpinteria/Summerland	31.8%	4,522
Moderate affordability	Census Tract 23.10	Santa Maria	31.9%	3,849
Moderate affordability	Census Tract 19.10	Lompoc	32.8%	2,762
Moderate affordability	Census Tract 3.02	Santa Barbara, East-side/Riviera	33.0%	3,946
Moderate affordability	Census Tract 20.10	Santa Maria	33.3%	4,333
Moderate affordability	Census Tract 16.04	Goleta/Western Goleta	33.4%	4,264
Moderate affordability	Census Tract 29.33	Goleta/UCSB area	33.5%	7,693
Moderate affordability	Census Tract 28.06	Santa Ynez/Solvang	34.2%	2,866

Moderate affordability	Census Tract 20.08	Santa Maria	34.5%	6,869
Moderate affordability	Census Tract 13.08	Goleta	35.1%	3,465
Moderate affordability	Census Tract 24.09	Santa Maria	35.2%	10,076
Moderate affordability	Census Tract 22.11	Orcutt/Santa Maria	36.9%	5,894
Moderate affordability	Census Tract 20.13	Santa Maria	37.5%	2,548
Moderate affordability	Census Tract 2.01	Santa Barbara, East-side/Riviera	37.6%	2,616
Moderate affordability	Census Tract 30.01	Santa Ynez Valley	37.8%	6,254
Moderate affordability	Census Tract 29.37	Isla Vista	38.4%	2,937
Moderate affordability	Census Tract 21.02	Santa Maria	38.9%	1,920
Moderate affordability	Census Tract 23.09	Santa Maria	39.4%	3,627
Moderate affordability	Census Tract 2.02	Santa Barbara, East-side/Riviera	39.7%	2,028
Lower affordability	Census Tract 1.01	Eastern Goleta Valley/Montecito area	39.8%	5,769
Lower affordability	Census Tract 21.01	Santa Maria	40.8%	5,102
Lower affordability	Census Tract 20.05	Santa Maria	40.8%	5,231
Lower affordability	Census Tract 28.02	Buellton/Solvang	41.0%	7,405
Lower affordability	Census Tract 20.15	Santa Maria	41.1%	3,801
Lower affordability	Census Tract 20.09	Santa Maria	41.4%	4,128
Lower affordability	Census Tract 23.08	Santa Maria	41.8%	3,023
Lower affordability	Census Tract 12.03	Goleta	42.1%	3,249
Lower affordability	Census Tract 19.11	Lompoc	43.0%	1,802

Lower affordability	Census Tract 27.08	Lompoc	43.1%	2,769
Lower affordability	Census Tract 3.01	Santa Barbara, East-side/Riviera	43.5%	3,440
Lower affordability	Census Tract 23.03	Santa Maria	43.9%	5,953
Lower affordability	Census Tract 12.06	Goleta	45.4%	3,573
Lower affordability	Census Tract 10.02	Santa Barbara/Noleta	45.5%	2,879
Lower affordability	Census Tract 19.07	Lompoc	46.3%	808
Lower affordability	Census Tract 8.06	Santa Barbara, San Roque/Sa-markand	47.8%	5,628
Lower affordability	Census Tract 10.01	Santa Barbara/Noleta	48.4%	3,523
Lower affordability	Census Tract 22.09	Orcutt/Santa Maria	48.9%	3,989
Lower affordability	Census Tract 25.03	Guadalupe	49.4%	2,409
Lower affordability	Census Tract 11.02	Eastern Goleta Valley/Noleta	49.6%	4,387
Much lower affordability	Census Tract 27.03	Lompoc	50.0%	3,320
Much lower affordability	Census Tract 22.06	Orcutt/Santa Maria	52.2%	5,712
Much lower affordability	Census Tract 24.05	Santa Maria	52.2%	3,647
Much lower affordability	Census Tract 27.07	Lompoc	52.8%	2,603
Much lower affordability	Census Tract 24.10	Santa Maria	53.1%	5,676
Much lower affordability	Census Tract 18	Cuyama/New Cuyama	53.4%	964
Much lower affordability	Census Tract 27.10	Lompoc	53.7%	4,764
Much lower affordability	Census Tract 25.04	Guadalupe	54.3%	6,519
Much lower affordability	Census Tract 21.03	Santa Maria	57.3%	6,048

Much lower affordability	Census Tract 9	Santa Barbara, Hope/ La Cumbre	57.5%	3,533
Much lower affordability	Census Tract 23.04	Santa Maria	58.4%	6,869
Much lower affordability	Census Tract 24.08	Santa Maria	59.4%	2,355
Much lower affordability	Census Tract 22.05	Orcutt/Santa Maria	60.6%	5,420
Much lower affordability	Census Tract 27.06	Lompoc	61.7%	6,025
Much lower affordability	Census Tract 27.09	Lompoc	65.9%	4,157
Much lower affordability	Census Tract 24.06	Santa Maria	66.5%	4,028
Much lower affordability	Census Tract 27.05	Lompoc	70.6%	4,322
Much lower affordability	Census Tract 29.36	Isla Vista	71.1%	3,154
Much lower affordability	Census Tract 24.07	Santa Maria	73.6%	4,729
Much lower affordability	Census Tract 29.24	Isla Vista	88.6%	6,072
Much lower affordability	Census Tract 29.26	Isla Vista	88.9%	4,694

Table 6: Summary of Census Tracts Affordability Index in Santa Barbara County

Category	Number of Tracts	Avg. Affordability %	Min Affordability %	Max Affordability %
Very high affordability	20	80.6%	75.2%	88.4%
High affordability	20	71.4%	68.6%	75.1%
Moderate affordability	21	64.9%	60.3%	68.5%
Lower affordability	20	55.8%	50.4%	60.2%
Much lower affordability	21	38.0%	11.1%	50.0%

The table for Census Tracts provides a much better indicator of where the gaps are and where help is more urgent. The important reminder here is not to mix up the titles of zip codes and census tracts. A good example is the use of two census tracts for Cuyama/New Cuyama. We have one zip code with

this title and two tracts. Census Tract 31.02, Cuyama/New Cuyama, with a population of 3,019, is among the locations/tracts with a very high affordability rate, with only 17.7% of its households unable to afford digital connectivity and services. If we look at the other census tract in the same area, or its adjacent Census Tract 18, Cuyama/New Cuyama, with a population of 964, the rate of inability to afford is 53.4%, which is one of the areas with much lower affordability. Tracts are much better indicators of what is going on in one neighborhood and should be used effectively.

The following note provides greater clarity on how these estimates were conducted and should help readers better understand the data presented and the conclusions reached.

Methodological Note

The census tracts used in this analysis should not be interpreted as equivalent to ZIP codes. A single ZIP code may include several census tracts, and a single census tract may overlap with more than one ZIP code. Therefore, caution is warranted when comparing or matching census tracts and ZIP codes based solely on place names or geographic labels.

Census tract data may be especially useful for policy analysis and targeted interventions because it provides a more detailed view of conditions within specific neighborhoods. In contrast, ZIP codes often combine multiple communities or areas with different socioeconomic characteristics. As a result, advantaged and disadvantaged areas within the same ZIP code may offset one another, making it more difficult to identify localized areas of need.

In assessing affordability, this analysis focused on households with annual incomes below \$71,360 and did not directly account for very high-income households. As a result, some census tracts may appear higher in the affordability ranking because of the income distribution among lower-income households, even when the broader ZIP code has a relatively high median income due to a substantial share of high-income households. We observe a number of such cases in which ZIP codes and census tracts dominate the affordability ranking.

Looking at census tracts and counting the population in areas with lower and much lower affordability, we find that some 174,000, or almost 40%, of the population lives in such areas. Looking at the number and proportion of those with a moderate level of affordability, we find 89,000, which accounts for around 20% of the Santa Barbara population. Taken together, some 60% of the county's population can be moderately or extremely burdened by the cost of digital connectivity in the new normal.

A List of Takeaways Based on Findings of the Study

- 1** Age plays a role in ability and willingness to adopt, and in both younger and older populations, it has important and far-reaching impacts. We looked at both the younger population under 18 and the older population aged 65 and older.
- 2** There are a significant number of ZIP codes where children under 18 either do not have a computer or an internet connection. This has important implications for achieving the goal of expanding their access.

3

There is also a considerable lack of access among the population aged 65 or older. When compared within the same zip codes, the results are somewhat similar, but with considerable differences. Lack of access for the older population is amplified by a much higher tendency to avoid using computers or to be unwilling to use online options for their needs, which provides a good reason for non-adoption.

4

We also looked into zip codes with much smaller populations and selected five zip codes, four of which are in rural areas. In general, access to computers and the internet is limited. However, the demographics of these places reveal other aspects of their ability or desire to adapt to the new norm and to have digital connectivity in their lives.

This can be seen in the following chart.

Table 7: Selected Demographic Characteristics of Smaller Zip Codes (Mostly Rural) in Santa Barbara County

Characteristic	93067 Summerland	93254 Cuyama	93429 Casmalia	93440 Los Alamos	93441 Los Olivos
Population	1,101	707	99	1,185	1,134
Household Median Income	\$71,134	\$60,938	\$169,063	\$79,167	\$142,760
Median Age	51.4	39.5	43.3	58.1	58.9
Race Ethnicity					
White	36.6%	42.9%	71.7%	93.4%	81.9%
Black or African American	0.0%	0.0%	0.0%	1.3%	0.0%
American Indian and Alaska Native	7.4%	0.0%	0.0%	0.0%	0.0%
Asian	18.0%	0.8%	0.0%	0.9%	1.2%
Native Hawaiian and Other Pacific Islander	0.0%	2.4%	0.0%	0.0%	0.0%
Some other race	13.5%	17.0%	11.1%	0.6%	2.7%
Two or more races	24.5%	36.9%	17.2%	3.8%	14.1%
Hispanic or Latino origin (of any race)	43.5%	47.5%	28.3%	4.9%	8.6%
White alone, not Hispanic or Latino	36.6%	40.3%	71.7%	92.9%	80.7%

Gender					
Male	55.5%	49.5%	47.5%	44.6%	54.2%
Female	44.5%	50.5%	52.5%	55.4%	45.8%
Households with one or more people under 18 years	25.5%	34.2%	0.0%	21.8%	19.6%
Percent of Population Below Poverty Level	14.9%	12.9%	20.2%	4.1%	9.8%
Percentage of Rural Housing Units among All Housing Units	7%	100%	100%	100%	100%
Area (Land, in square meters)	1,504,039	520,380,968	17,874,173	114,192,177	100,020,231
Population Density (per square mile)	1,896	4	14	27	29
Presence of Medical Facilities (closest hospital by miles)	7.2	34.6	10.3	11.5	4.4

- Several important demographic and geographic features warrant attention. All are areas with much smaller populations, ranging from about 100 to under 1,200. The median income varies significantly. In two of these areas, the median income is far higher than the county median. They are Casmalia and Los Olivos. In four of these places, the median age is much higher than the county median age, with Los Alamos and Los Olivos particularly high, while Cuyama is much lower.
- One of the distinct geographic features of this group, particularly in four of these areas (all rural except Summerland), is its low population density. In Cuyama, population density is only 4 per square mile. In the same area, the nearest hospital is 34.6 miles away, and the area has the lowest median income. Another distinct feature of these areas is their relatively high rates of poverty, despite high median incomes in some. In three out of five areas, the proportion of White alone is higher than 70%, and in Los Alamos, it is more than 90%.
- Small population size and low population density, together with a high rate of poverty, present challenges in reaching these populations with the help many in these communities need. Having access to high-speed internet is an important need for them all. The older population presents a likelihood of non-adoption and again a greater urge to reach the population and make sure that they have access to the new norm, an environment with easy access to online services, fast speed, and a change of attitude in using the online services.
- The Digital Access Opportunity Index further illuminates the prevailing image and presents a picture indicating a wide degree of differences across the country.
- A relatively wide area scattered across the county shows a difficult condition, and a deeper look into this area shows some correlation between affordability and a lower access index number. However, further scrutiny makes it clear that non-adoption goes beyond mere affordability.

Possible Policy Implications

Affordability is, without a doubt, the core challenge at present and in the near future. However, several other problems may limit the ability and reduce the willingness to join the user population and the new norm's constituents. These issues may, to some extent, be interrelated, such as lower educational attainment, which is often associated with lower income and, in turn, with lower confidence and ability to use digital technologies effectively.

This study presented evidence and argued not only for the factors that may affect the inability or willingness to adopt but also for their geographic distribution across the country. We used a good number of such factors to build our index. Here are some of the most effective factors that can create or heighten non-adoption:



- **Affordability Barriers:** Households cannot afford broadband subscriptions, devices, maintenance, or data plans.
- **Income Barriers:** Financial instability forces families to prioritize housing, food, transportation, and healthcare over digital services.
- **Lack of Devices:** No computer, tablet, or adequate smartphone for school, work, or telehealth.
- **Low Digital Literacy:** Individuals lack the skills needed to navigate online systems, applications, and platforms.
- **Educational Barriers:** Lower educational attainment often reduces confidence and ability to use digital technologies effectively.
- **Language Barriers:** Limited English proficiency restricts navigation of digital systems and online services.
- **Rural Infrastructure Limitations:** Rural communities may lack reliable broadband infrastructure or face slower internet speeds.
- **Housing Instability:** Frequent moves, overcrowding, or homelessness disrupt stable connectivity.
- **Age-Related Barriers:** Older adults may face lower digital familiarity and higher technology anxiety.
- **Disability and Accessibility Challenges:** Cognitive, visual, hearing, or physical disabilities can limit digital engagement without accessible technologies.
- **Distrust or Privacy Concerns:** Fear of surveillance, fraud, scams, or misuse of personal information discourages adoption.
- **Immigration and Documentation Concerns:** Some immigrant households avoid online systems due to fear of data sharing or institutional distrust.
- **Limited Technical Support:** Lack of local assistance for troubleshooting devices and connectivity problems.
- **High Cost of Living:** In high-cost regions like Santa Barbara County, the rent burden reduces disposable income available for digital access.

We need to bring all parties' concerns to the group, let it seek solutions, and collectively develop the ways and means. Building a strong coalition of collaborators is one of the most important factors in overcoming digital gaps and non-adoption. In reality, no single institution, such as schools, nonprofits, governments, libraries, or internet providers, can solve digital exclusion alone because the causes are multidimensional: affordability, literacy, devices, trust, language, infrastructure, and social vulnerability all overlap.

Santa Barbara County already has the beginnings of a highly significant regional model through the Santa Barbara County Digital Equity Coalition (DEC), convened by the Santa Barbara Foundation. The coalition was created specifically to align countywide efforts in organizations, funding, outreach, infrastructure, and digital literacy.

The DEC explicitly states that one purpose of the coalition is to position Santa Barbara County competitively for state and federal digital equity funding.

Steps for Reducing the Problems and Lowering Non-Adoption Barriers

Tech Support

- Residents may be able to afford a computer or internet access, but are unsure how to set up their computer, connect to the internet, or access and use the apps they need, or are afraid of being taken advantage of.

Training Programs

- The California State Digital Equity Plan (SDEP), run by the California Department of Technology (CDT), identified strong demand for training courses and noted digital literacy as a major barrier. They include several variables, many of which are present in the formulation of the index we constructed. They include:
 - Older populations
 - Low educational attainment
 - Immigrant households unfamiliar with U.S. systems
 - Renters
 - Retired residents
 - Isolated rural seniors
 - Communities with strong in-person social networks
 - Fear of scams and identity theft concerns
 - Mistrust of corporations/government
 - Concerns about children online

Ways to overcome these barriers exist and have been used in many places.

Here are some of the steps that need to be taken in Santa Barbara County:

- The percentage of unaffordability in Santa Barbara is relatively high and present in every zip code. They vary from the lowest of 22% to the highest rate of 58%.
- The rate is relatively significant across all categories of the demographic structure and working conditions (employment conditions). Here are some things that can be done in every category:
 - Provide a computer free of charge for children without one through schools.
 - Create a reduction in the cost of electricity or an internet connection based on MAI (Median Area Income).
 - Employ such cost reduction or provide a computer regardless of family or individual immigration status.
- Reach underserved and immigrant communities through existing community organizing institutions in the area.
- Create special classes scattered across the county for training seniors not only on how to use

¹³California Department of Technology (2024). The California State Digital Equity Plan (SDEP) <https://broadbandforall.cdt.ca.gov/wp-content/uploads/sites/19/2024/04/California-State-Digital-Equity-Plan-04.04.2024-Remediated-Version.pdf>

a computer and the internet, but also to help them navigate the system and, in doing so, take advantage of the existing provisions.

- Bring together ways and means of reaching seniors in rural areas. Being able to use online services in healthcare, education, and other necessities, and to access government provisions to which this population is entitled, requires online access, and this is the new normal.

Elements of Santa Barbara County Digital Adoption Strategy

We have several issues that may take priority over other intervention plans. Here are some of these plans.

Steps for reducing digital non-adoption among residents aged 65¹⁴

 Internet affordability	 Device Access	 Skills/confidence	 Ongoing support	 Password help
 Smartphone basics	 Telehealth	 Scam awareness	 Video calls with family	 Email/text setup

Steps for Helping Those Who Cannot Afford

- Low-cost broadband plans
- Public housing bulk internet agreements
- The school district negotiated home internet options
- Free or low-cost refurbished laptops
- Basic tablets for school/telehealth
- Family device lending programs through libraries/schools
- Device grants or vouchers
- Low-cost repair/replacement programs
- Multilingual sign-up help
- Use this study to identify priority neighborhoods with high unmet needs

Affordability is not just one issue; it affects the lives of individuals in many ways. Any positive steps for reducing the lack of affordability in housing, childcare, and much more have an important overall impact

Finally, it is important to make every effort to achieve the Practical Household Affordability Benchmark. A useful benchmark is to keep total annual digital essentials costs (internet + devices + basic phone access) at 5% of household income, with lower-income households needing subsidies to stay within that range. We should recognize that digital connectivity is no longer a luxury but a basic necessity for full participation in modern society. Individuals and families who remain disconnected because of affordability barriers, limited skills, fear, or lack of support face growing social, educational, economic, and civic disadvantages. As our society becomes increasingly dependent on digital systems, allowing these inequities to persist will exact an unacceptable human and community cost in the years ahead.

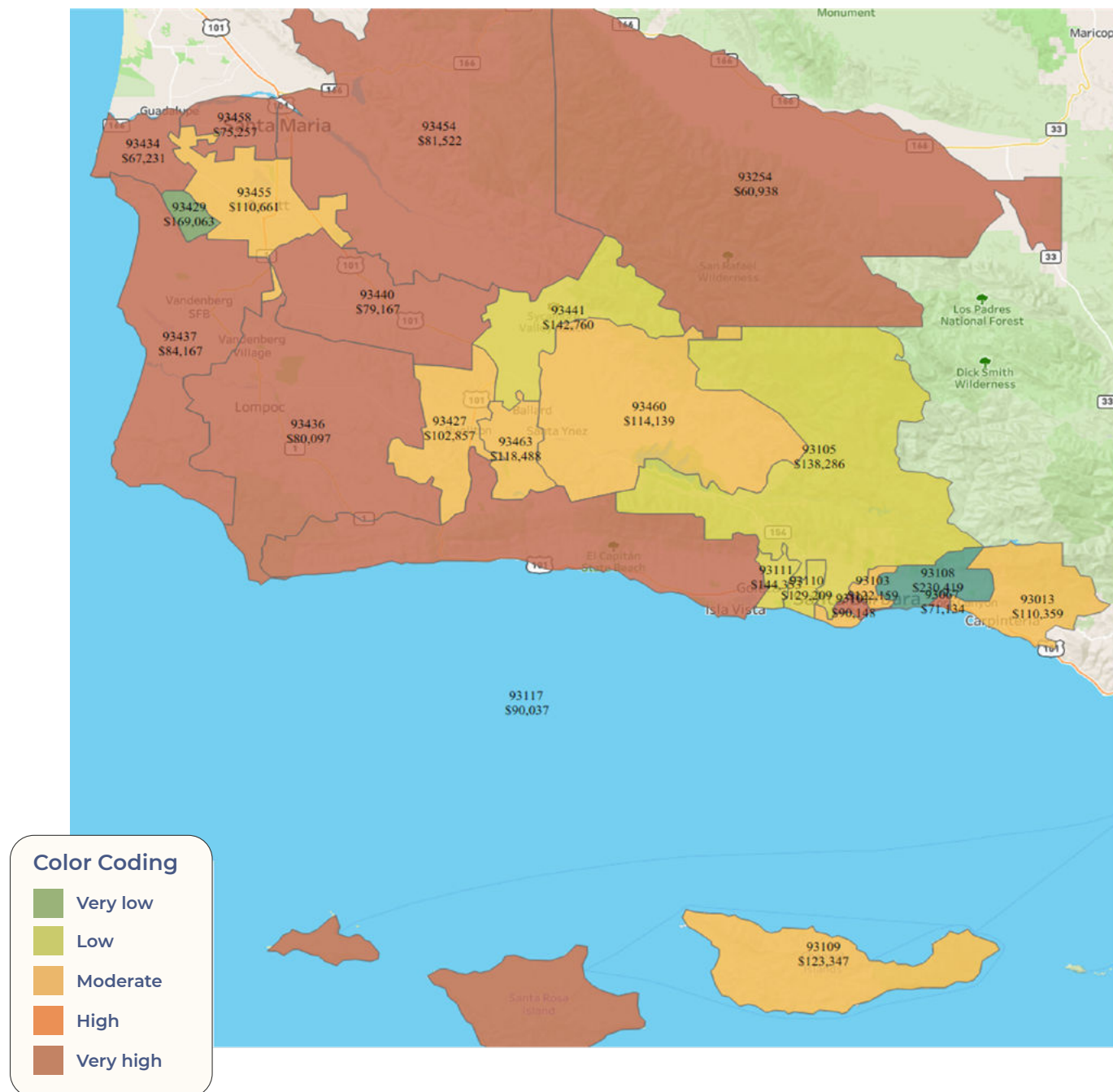
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¹⁴Keya Sen et.al (2022) The use of digital technology for social wellbeing reduces social isolation in older adults: A systematic review; Social Science Medicine (SSM) Population Health; <https://www.sciencedirect.com/science/article/pii/S2352827321002950>

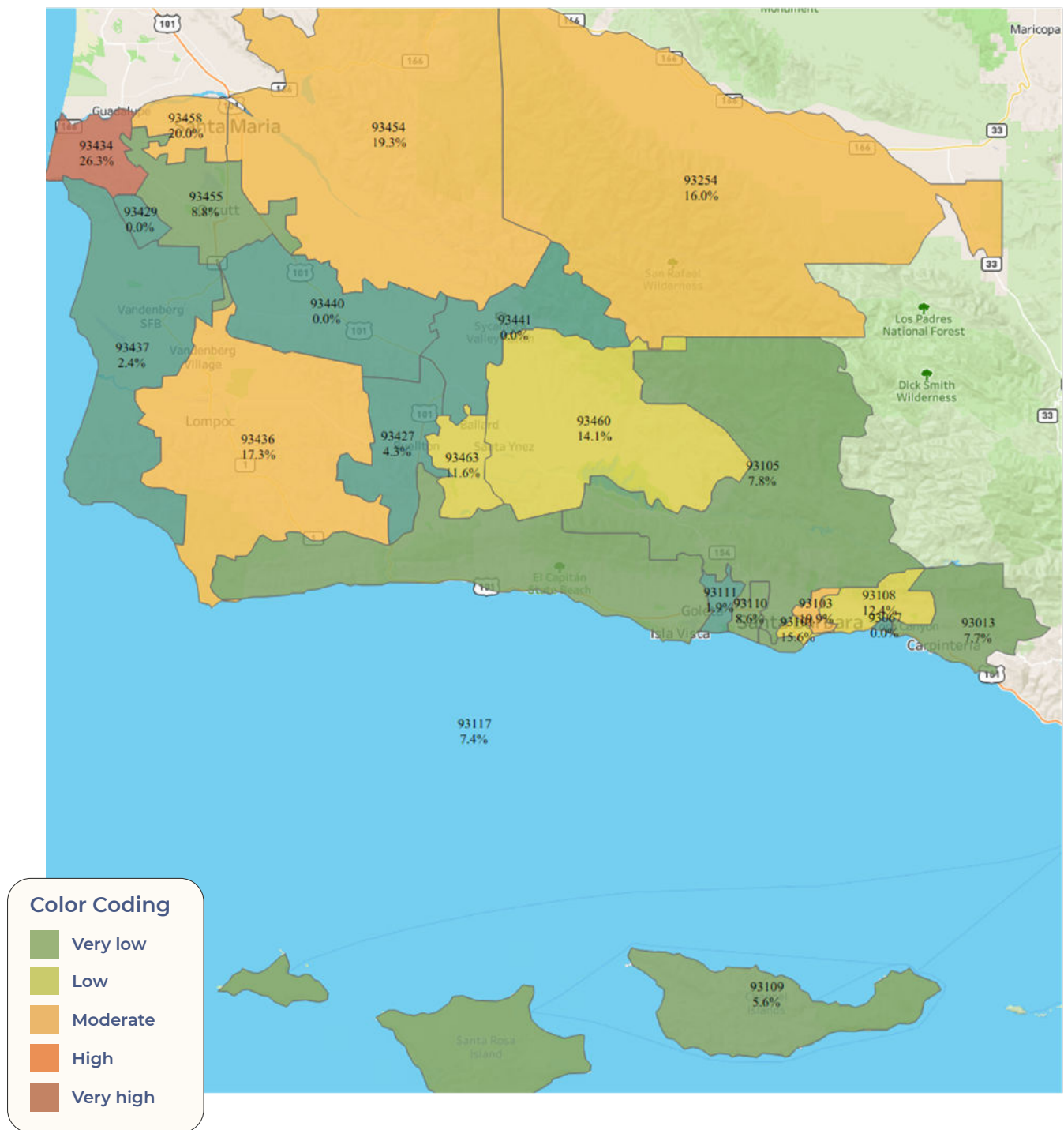
Appendix A

In this appendix, we present maps of indicators used in the formation of the index (DAOI):

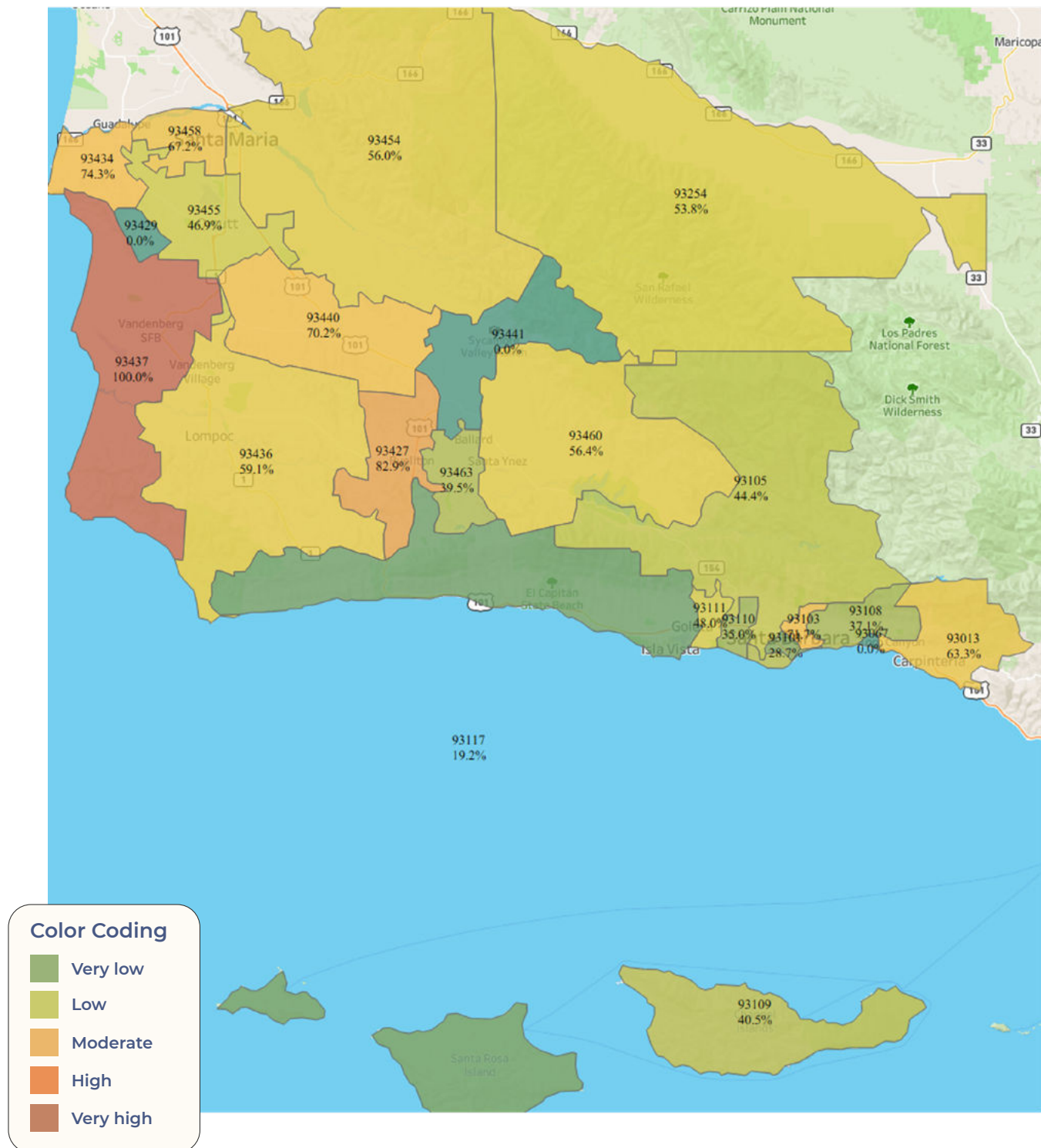
Median Income



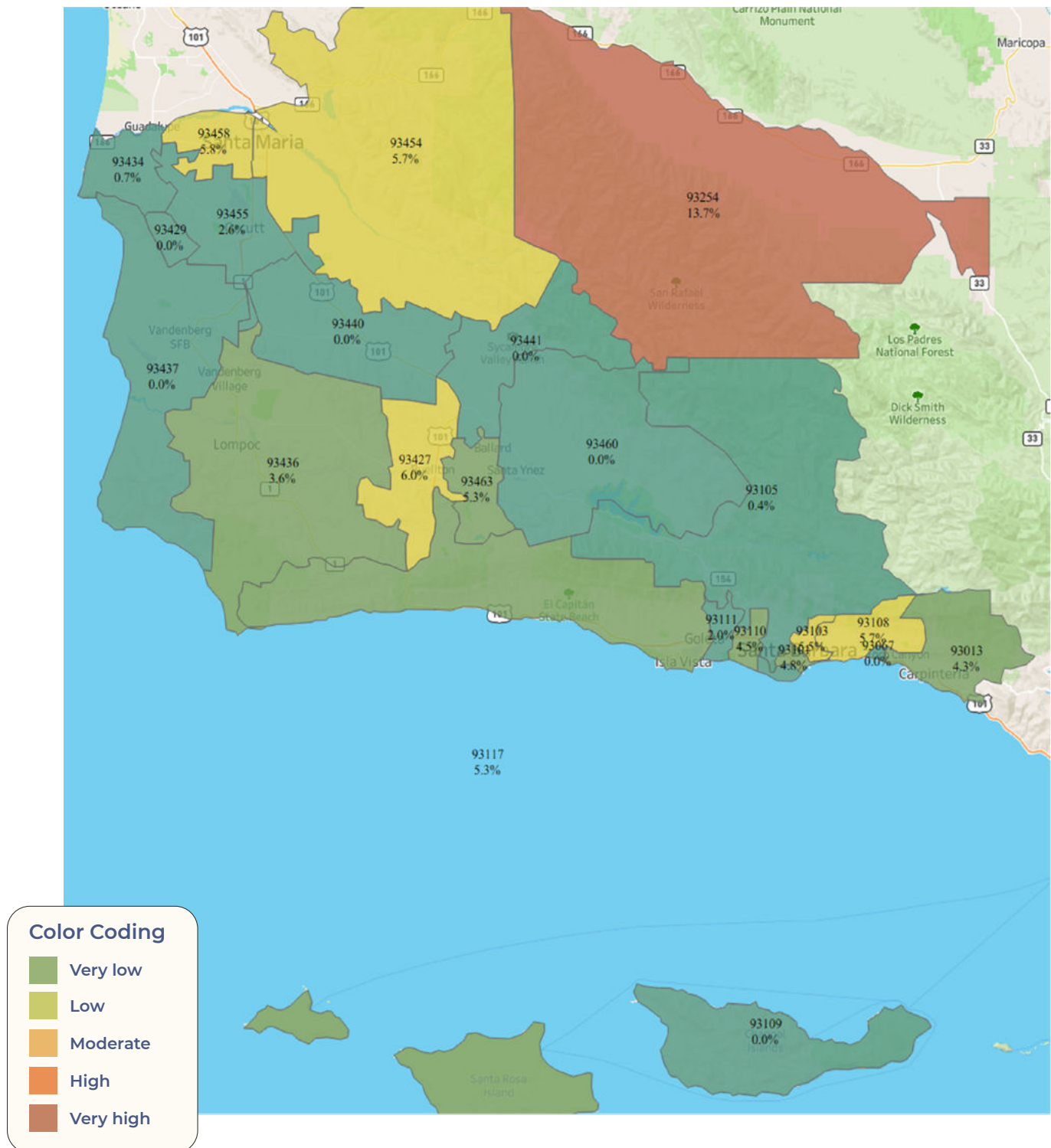
Poverty of Families with Related Children Under 18



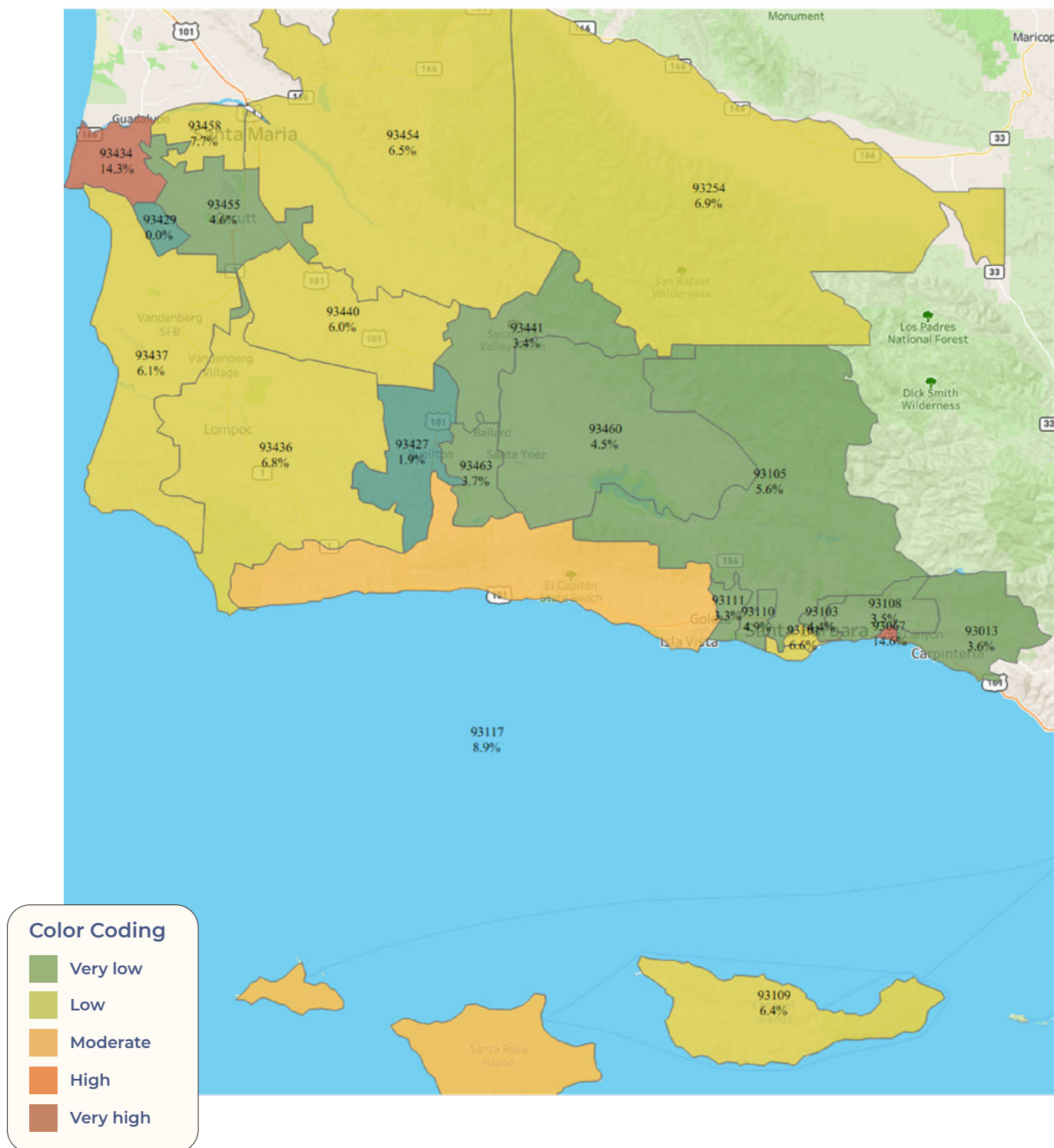
Food Stamps Recipients Households with Children Under 18



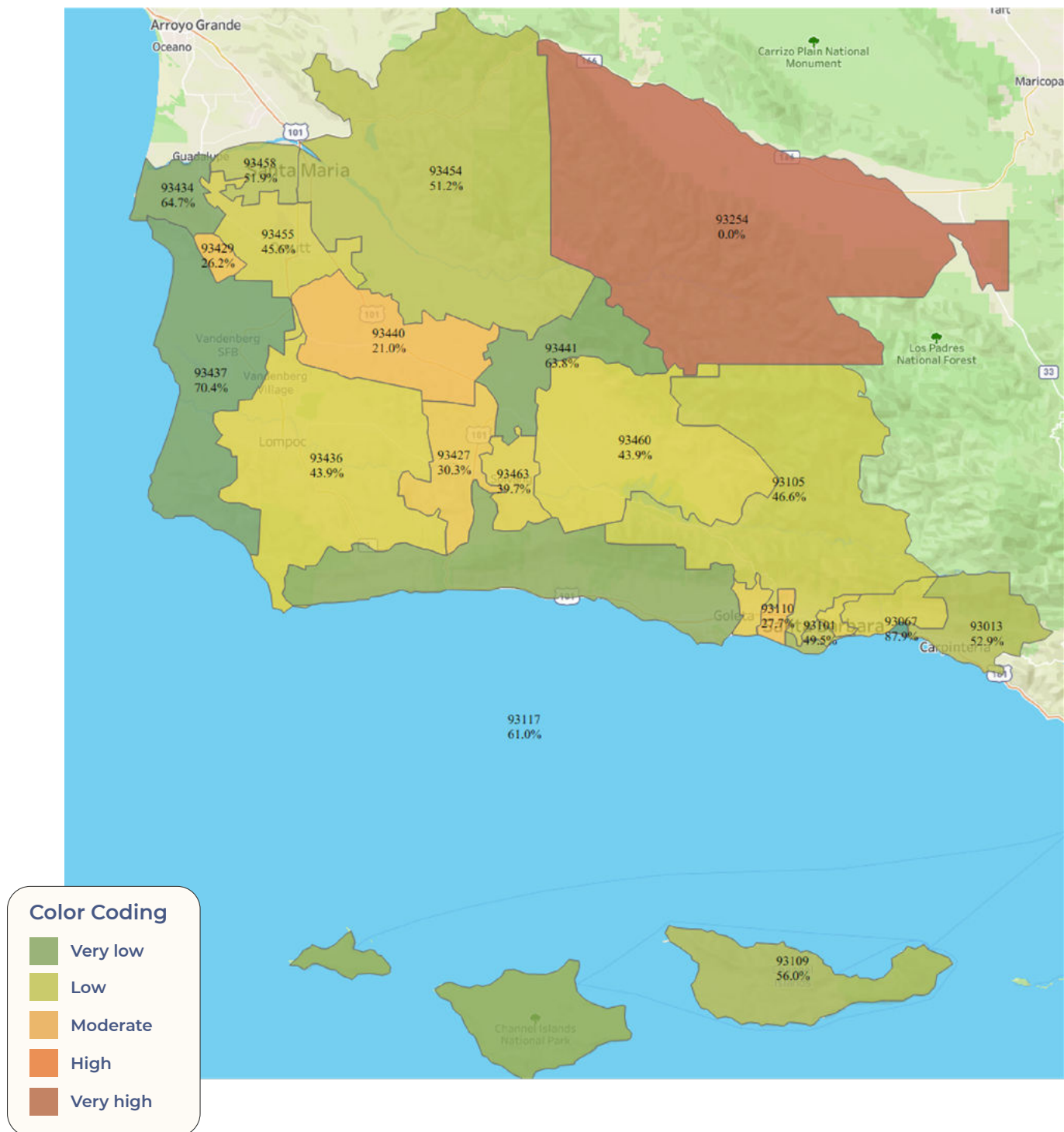
Population under 18 with no Computer and/or no Internet



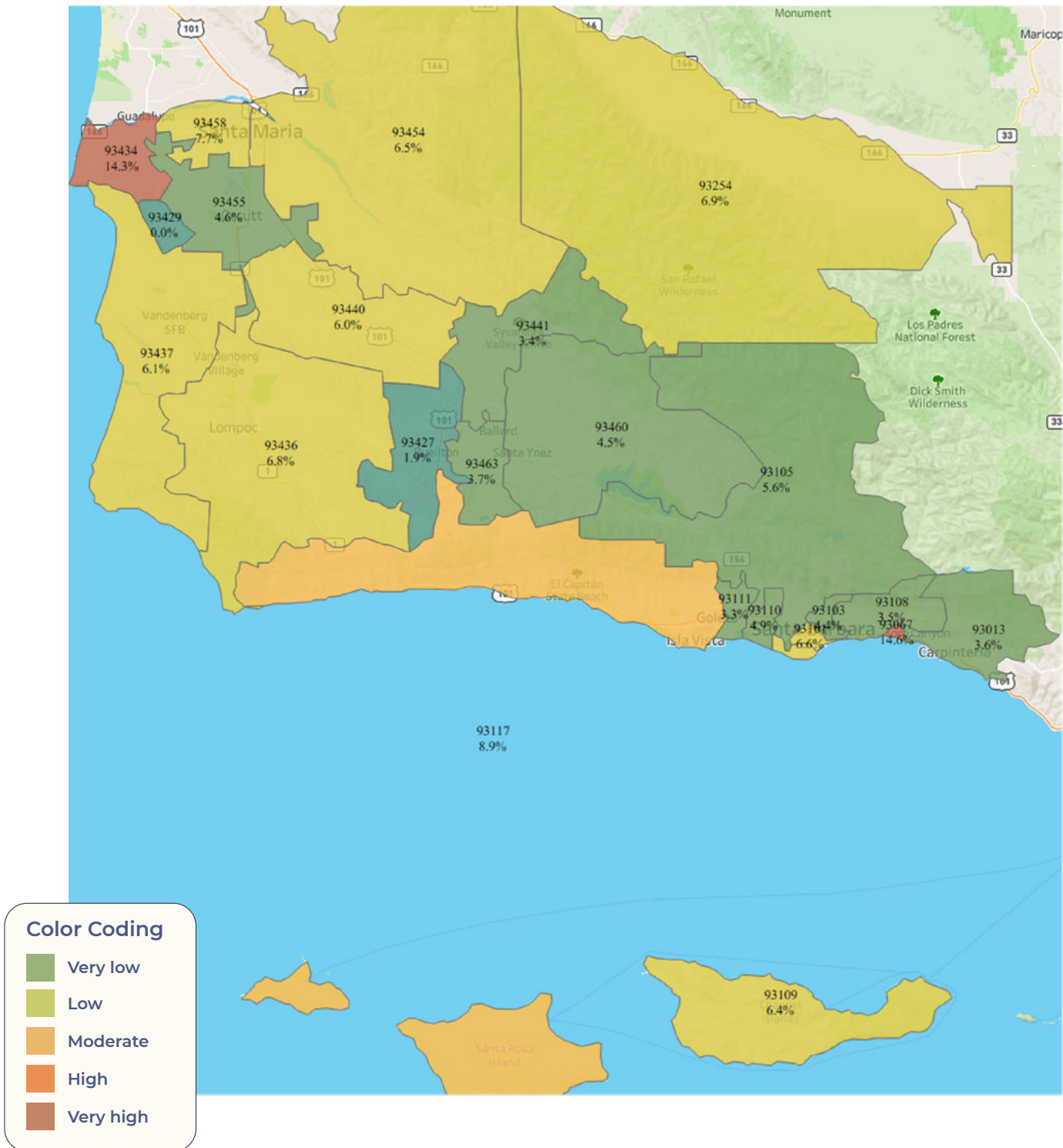
Unemployment Rate



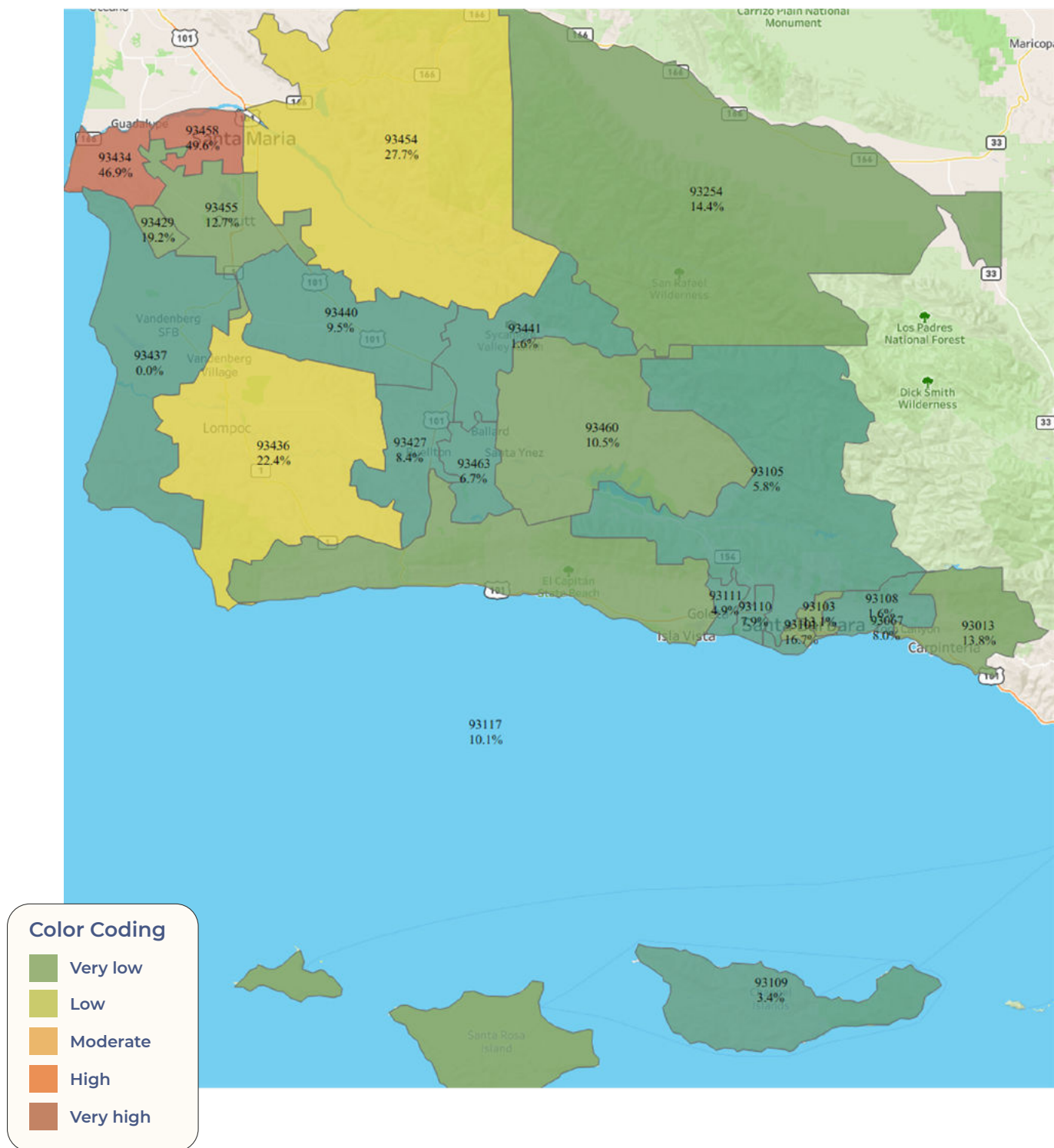
Gross Rent is 35 percent or more of household Income



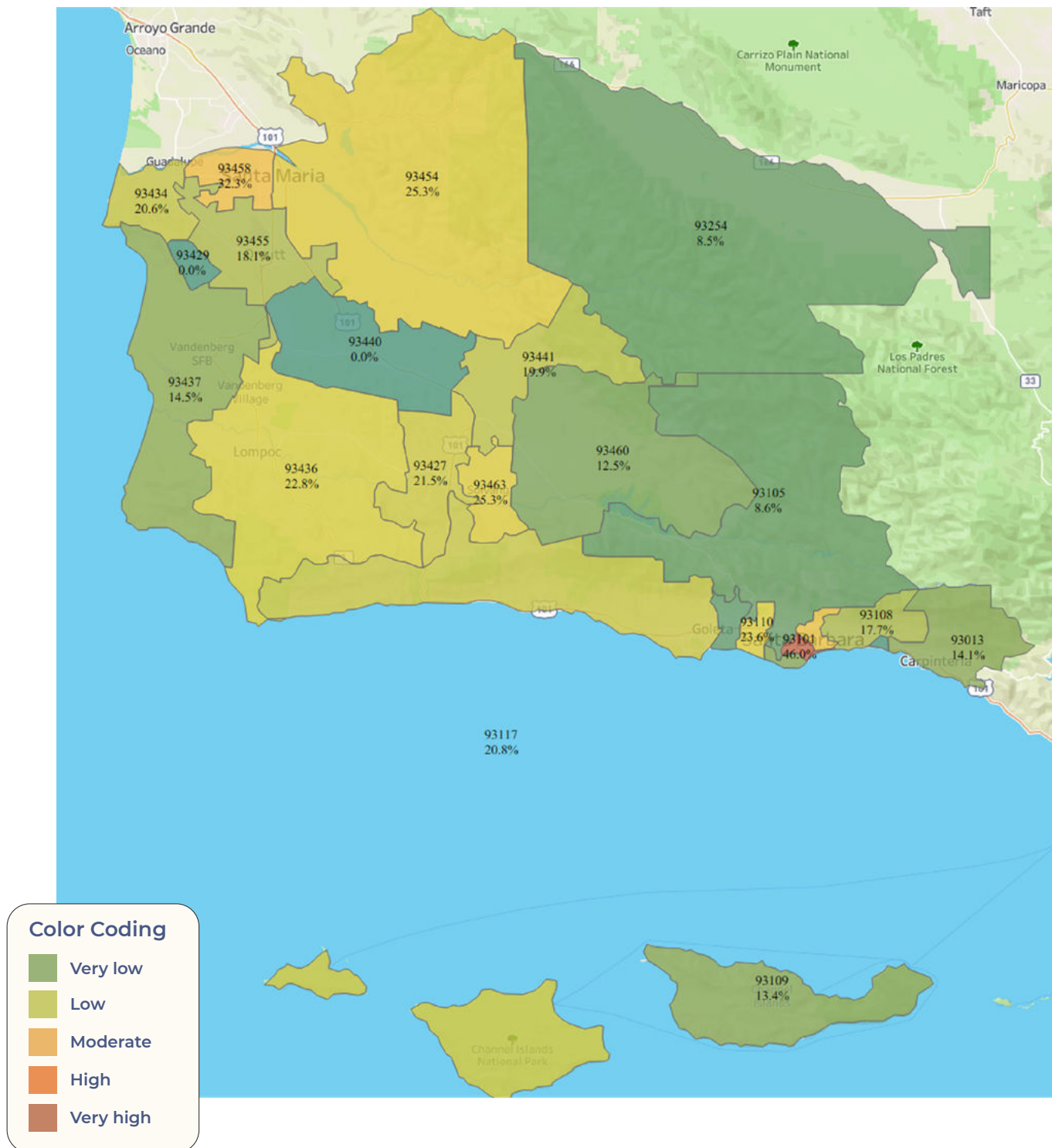
Percent of Population who Speak English Less than Very Well



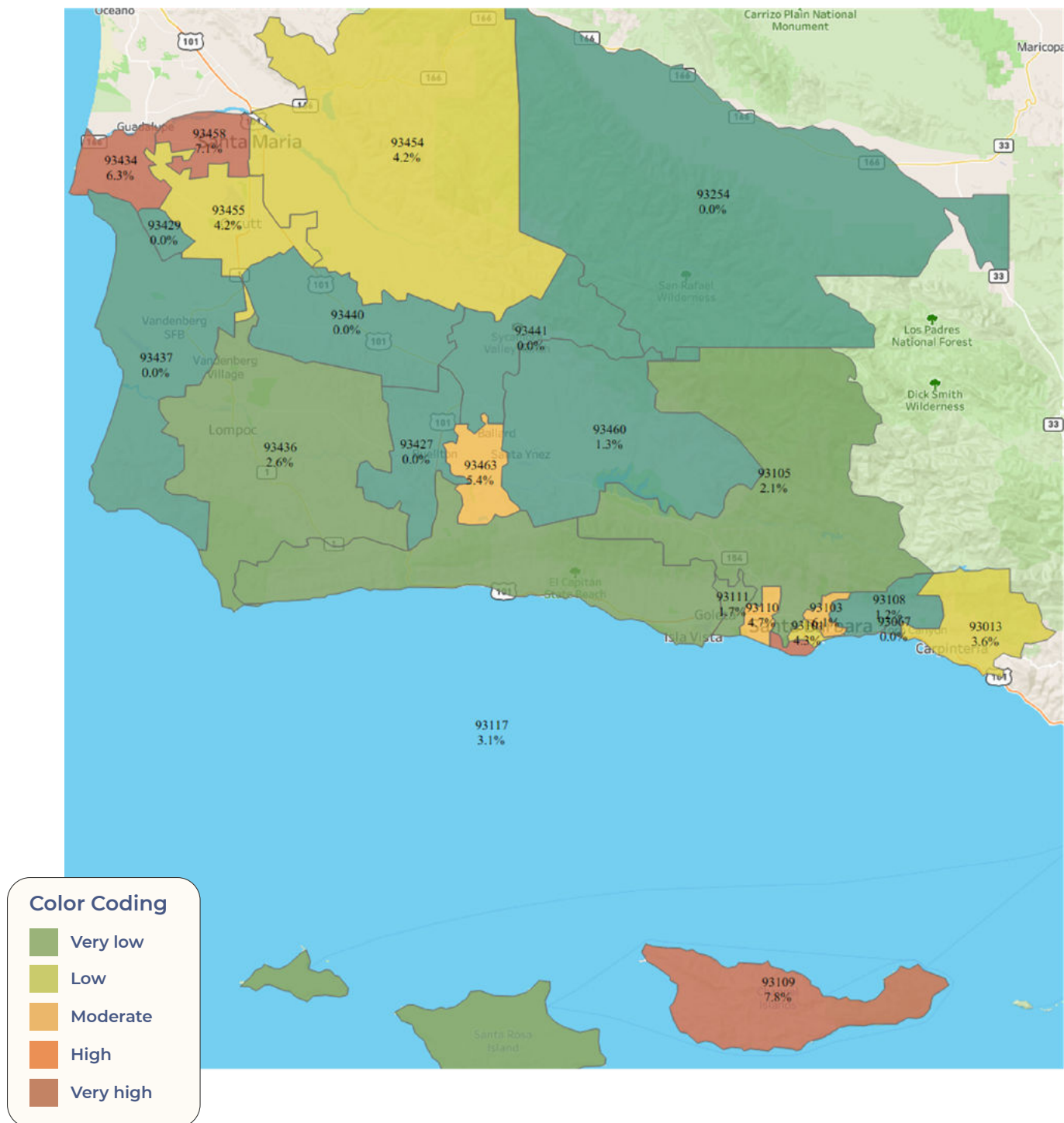
Less than a high school degree



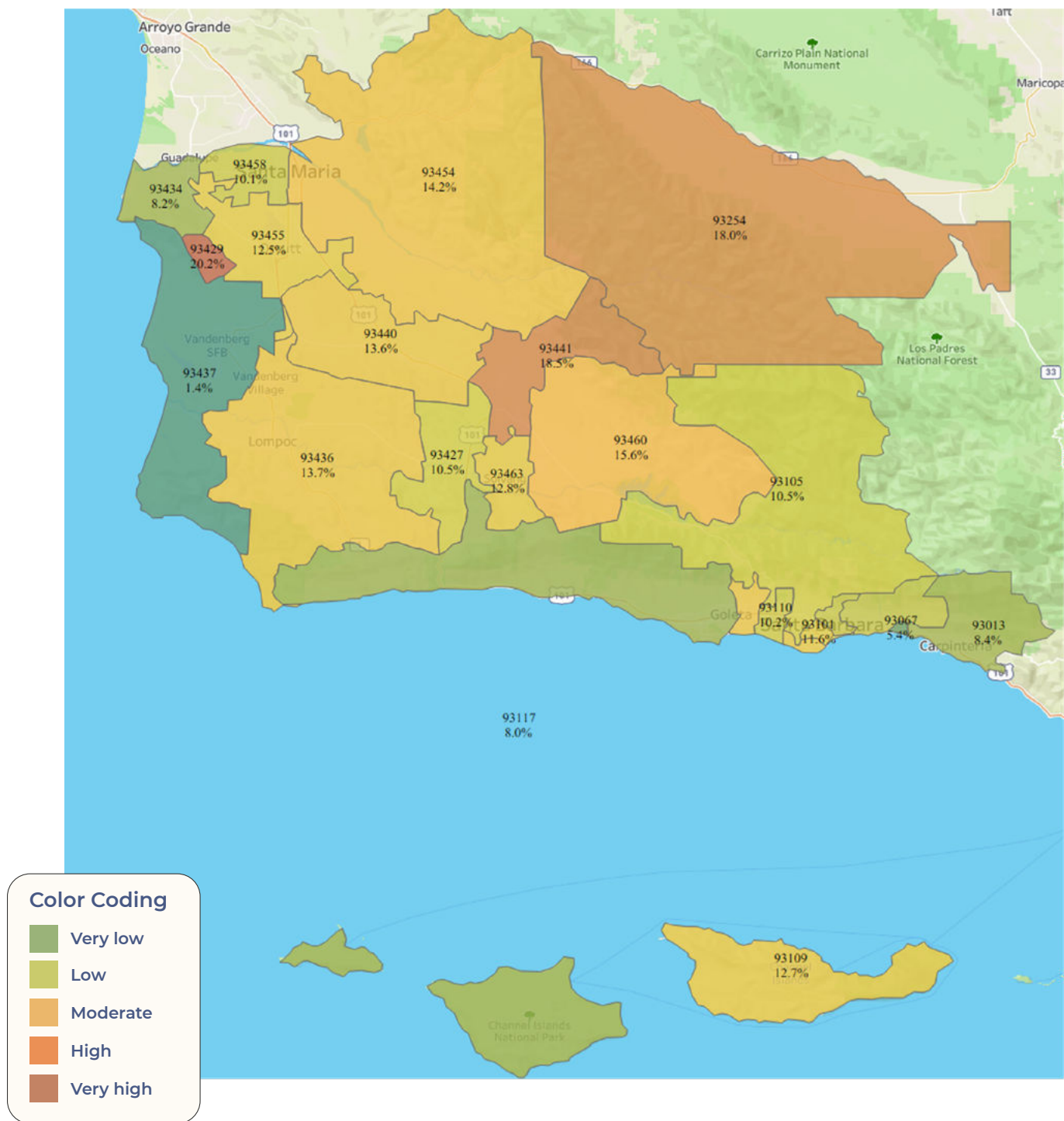
Percent of Female Householders with No Spouse Present



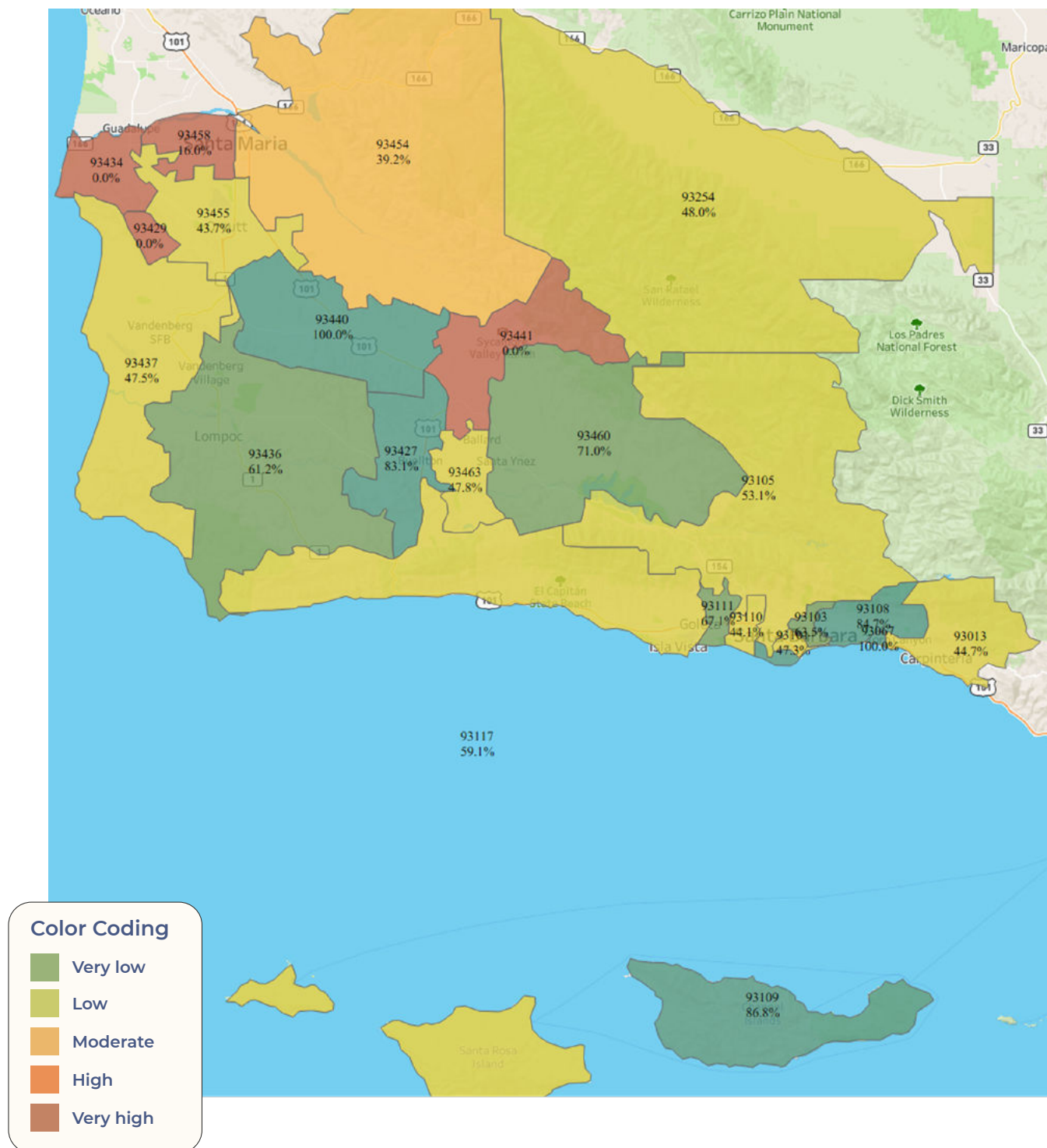
Lack of Health Insurance for the Population Under 19 Years



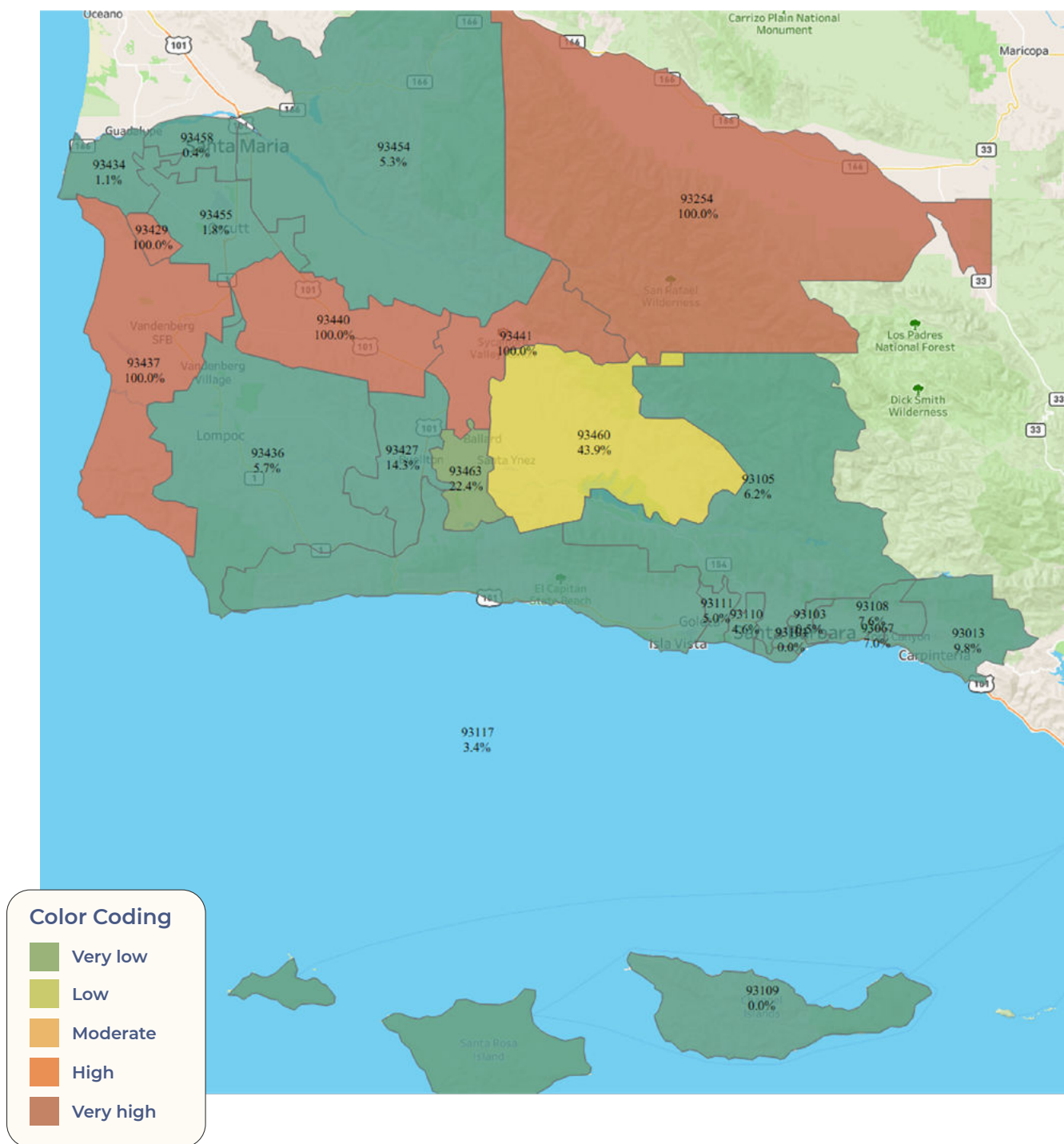
Percent of Population with Cognitive Disability



Percentage of 3- and 4-Year-Old Children Enrolled in Private or Public Schools



Percentage of Rural Housing Units among All Housing Units



Percentage of Foreign Born to Total Population

