

# Alcohol Outlet Density in California, 2023

California Department of Public Health  
Substance and Addiction Prevention Branch



# Table of Contents

Background .....	2
Methods .....	3
Data Analysis .....	4
Results .....	6
Off-Premises Alcohol Outlet Density per 10,000 Residents .....	6
On-Premises Alcohol Outlet Density per 10,000 Residents .....	7
Total Alcohol Outlet Density per 10,000 Residents .....	8
Off-Premises Alcohol Outlet Density per Square Mile .....	9
On-Premises Alcohol Outlet Density per Square Mile .....	10
Total Alcohol Outlet Density per Square Mile .....	11
Comparing Alcohol Outlet Density Based on Urban-Suburban-Rural Classifications .....	12
Rural Counties .....	12
Suburban Counties .....	12
Urban Counties .....	13
Interpreting Findings Across Alcohol Outlet Density Measures .....	14
Discussion .....	15
Limitations .....	16
Public Health Implications .....	17
About the Alcohol Harms Prevention Initiative .....	17
Technical Notes .....	18
License Status .....	18
License Inclusion and Exclusion .....	18
References .....	19
Funding Source and Acknowledgements .....	20
Appendix: Tables 1, 2a-2c .....	21
Reference Map of California Counties .....	26

## Background

Excessive alcohol use continues to be one of the leading causes of preventable deaths in the United States, with over 178,000 deaths each year during 2020-2021.<sup>1</sup> During 2020-2021, California averaged over 19,000 deaths due to excessive alcohol use per year, marking a 20% increase from the previous two years (2018-2019). These Californians that died had their lives reduced by an average of 25 years.<sup>2</sup> In 2022, there were 573 emergency department (ED) visits per 100,000 California adults aged 18 and older due to alcohol-related causes.<sup>3</sup>

There are several strategies that can be used to reduce excessive alcohol use and related harms.

One such strategy is the control of alcohol outlet density, which refers to the number of alcohol retailers within a defined area, or per population.<sup>4</sup> The state of California licenses and regulates alcohol retail sales and local communities have zoning authority. Licenses are limited based on the ratio of licenses to the population within each county. In California, the ratio is one on-premises general license for

each 2,000 persons in the county in which the premises are situated and one off-premises general license for each 2,500 persons, according to the California Department of Alcoholic Beverage Control (ABC) website.<sup>5</sup> Local governmental bodies can address alcohol outlet density through zoning regulations and ordinances, which may include conditional use permits and deemed approved ordinances.

### What are Alcohol Outlets?

Alcohol outlets are establishments where alcohol is served or purchased and may either be classified as on- or off-premises outlets.

**On-premises** outlets: locations that serve alcoholic beverages directly to their consumer, and the beverage is consumed at that location (e.g., bars, pubs and restaurants)

**Off-premises** outlets: locations that sell alcoholic beverages to the consumer, but the beverages are consumed away from the location (e.g., liquor stores, grocery stores, etc.)

## Why Should Alcohol Outlet Density be Measured?

Current research indicates that greater alcohol outlet density is associated with increased alcohol use and alcohol related harms including injury and violent crimes.

Research that measured various alcohol policies and their impacts on adult binge drinking found that alcohol outlet density had a strong independent association with binge drinking while controlling for all other policies, indicating that reducing alcohol outlet density reduced likelihood of binge drinking.<sup>6</sup> Additional benefits of reduced alcohol outlet density may

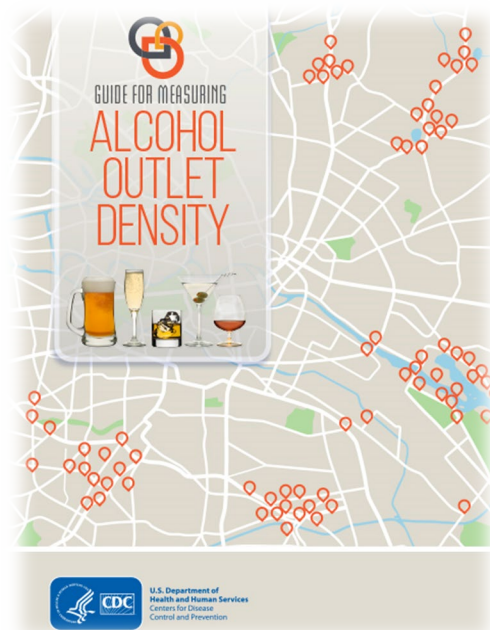
include decreases in public nuisances, loitering, and vandalism.<sup>7</sup>

The aim of this data brief is to provide stakeholders with baseline information on the concentration of alcohol outlets and how accessible alcohol is in their communities. To our knowledge, this is the first statewide alcohol outlet density analysis to be conducted in California. Several other alcohol outlet density analyses have been performed at the local level in California and in other states,<sup>8-10</sup> which were used to inform this analysis.

## Methods

[The CDC Guide for Measuring Alcohol Outlet Density and the CDC Alcohol Outlet Density Surveillance Toolkit](#) served as the framework for the statewide alcohol outlet density analysis conducted by the California Department of Public Health-Substance and Addiction Prevention Branch (CDPH-SAPB).

There are several approaches to measuring alcohol outlet density, each has its own strengths and limitations. There is no single metric to determine what amount or level of alcohol outlet density is dangerous or safe for the public. Alcohol outlet density measurement and interpretation are highly relative and regional. The current analysis is a broad look at alcohol outlet density by county in California.



There are three main approaches for measuring alcohol outlet density – container-based, distance-based, and spatial access-based. Container-based counts are calculated within a set of boundaries such as census tracts, counties, or buffers around an established distance from a school or playground. Distance-based counts use minimum, mean, or median distances as measured from a specified reference point, such as a residential area or university. Spatial access-based measures may use average distances or calculate inverse distance weighting.

This analysis utilized container-based measurements that measure on- or off-premises alcohol outlet density by county using population- and area-based denominators. Strengths of using pre-defined container-based measurements such as population and area are the lower costs to perform the analysis and relative ease of calculations. Limitations include the inability to detect clustering within the county and inability to assess the directly exposed population.

### ***Data Analysis***

Data used to calculate and map alcohol outlet density were obtained via the [ABC website](#). ABC provides a daily data export available for public use that includes information such as license types, license status, and physical address of the establishment. The data used for this analysis are from March 3, 2023. Initial data exploration and cleaning was conducted in Excel before importing to SAS 9.4. The physical address of the retail outlet was used to determine the location of the outlet. Outlets missing addresses were excluded from analysis.



*Credit: Getty Images*

Alcohol outlets were divided into three categories: off-premises, on-premises, and all others. If the license was used for some other purpose (e.g., wholesalers, special events, seasonal, etc.), they were assigned to the “all others” category and were excluded from this analysis. Categorization of on- or off-premises followed ABC’s license classifications. If establishments had multiple license types that allowed both on- and off-premises sales, the premise was counted in both categories, but was only counted as one establishment when calculating total density rates. SAS was used to sort and count by outlet type within each county. For information about the license types included for each outlet categorization in this analysis, please see the technical notes on page 18.

After obtaining final counts for each type of outlet in each county, measures were normalized to compare density across the state. Two rates were used to analyze container-based alcohol outlet density. The first method utilized population-based denominators using 2023 population projections obtained from the Department of Finance,<sup>11</sup> and the second method calculated density based on the area of each county in square miles.

Quintiles were used to categorize county density rates for each measure and had fairly consistent ranges aside from the highest quintiles, which were severely skewed by outliers. Due to heavy right skew (i.e., some counties having very high alcohol outlet density compared to other counties), median values were used in place of mean values.

In an effort to help make more equitable comparisons across counties, California State Association of Counties (CSAC) classifications were used to classify counties into urban (over 700,000 residents), suburban (over 100,000 but less than 700,000 residents), or rural areas (less than 100,000 residents).<sup>12</sup> CSAC designates 14 counties as urban, 17 suburban, and 27 counties as rural. Counties were stratified and compared within their own CSAC classifications to aid density rate interpretations.

Challenges and difficulties exist when interpreting alcohol outlet density results, particularly because standard metrics for comparison do not currently exist. There is not a known threshold of an alcohol outlet density level that is associated with increases in alcohol-related harm. Results can be difficult to interpret since each county has its own unique distinguishing features. For example, counties may be considered rural but be home to a university, meaning that many of the local population may not be counted as “residents” for census purposes, or a county with fewer permanent residents might be home to popular tourist destinations or ski resorts, which may make density rates difficult to interpret without the proper context. Urban counties tend to skew higher than suburban or rural counties when calculating density per square mile. Conversely, rural areas skew higher when calculating outlet density per 10,000 residents.

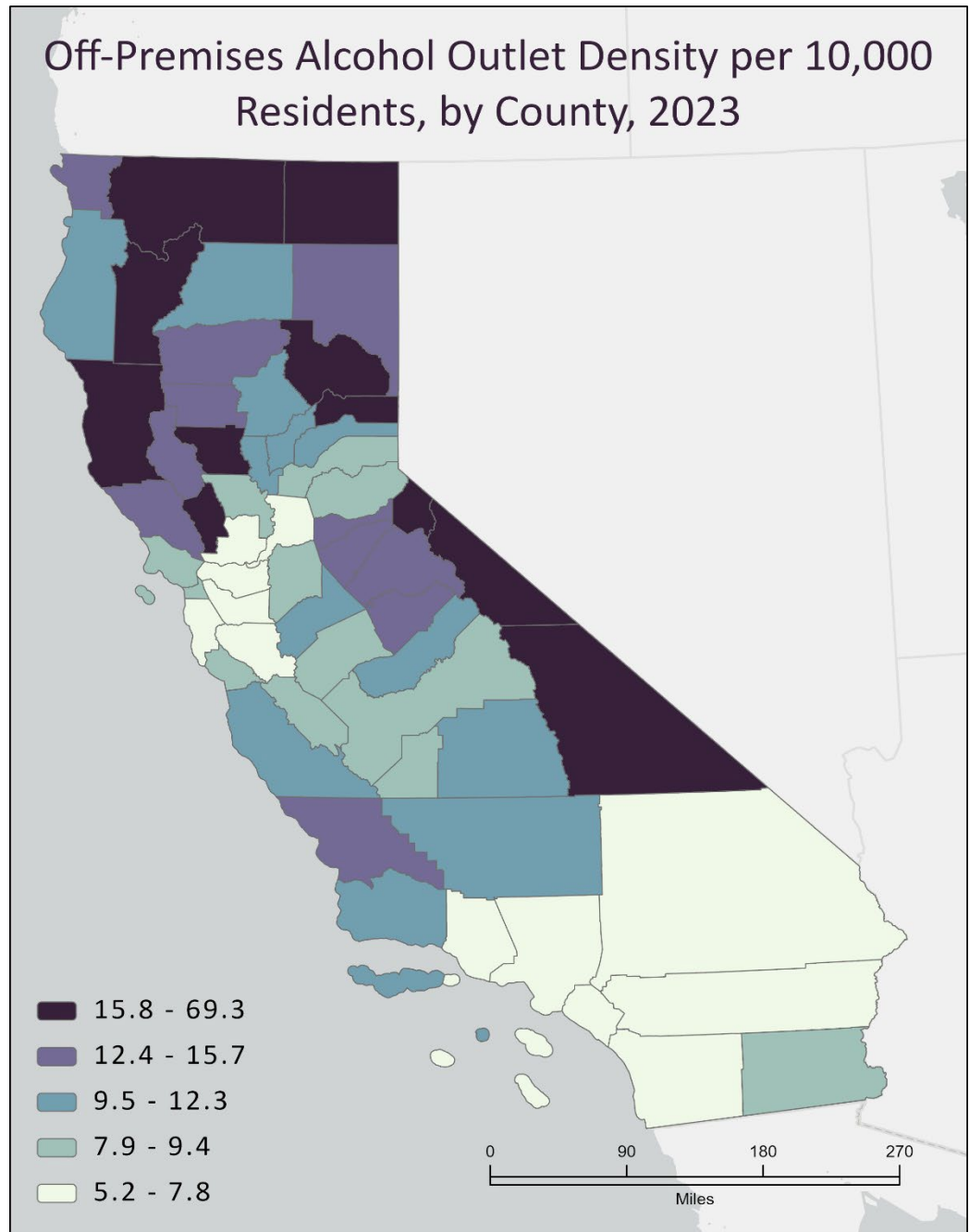
**Fast Fact:** Rural counties tend to have higher outlet density rates per 10,000 residents when compared to suburban and urban counties.

## Results

Initial import of data yielded a total of 123,686 outlets that sell alcohol in California. Outlets may carry multiple types of licenses based on how and what they sell, this results in one outlet being represented several times in the dataset. Duplicate licenses were removed to ensure that each outlet is only counted one time. Duplicates accounted for 7,522 (6%) of the total records, and 'all-other' outlets accounted for 33,767 (27%) of the total records. After duplicate licenses and "all-other" outlets were removed, 82,397 (67%) total on-premises and off-premises outlets (referred to as total outlets for the remainder of this data brief) remained. Please see Table 1 in Appendix to view rates by county.

### ***Off-Premises Alcohol Outlet Density per 10,000 Residents***

Off-premises outlets accounted for 30,438 (37%) of the total outlets statewide. The median alcohol outlet density across counties was ten off-premises outlets per 10,000 residents; off-premises outlet density ranged from a low of five (Santa Clara County) to a high

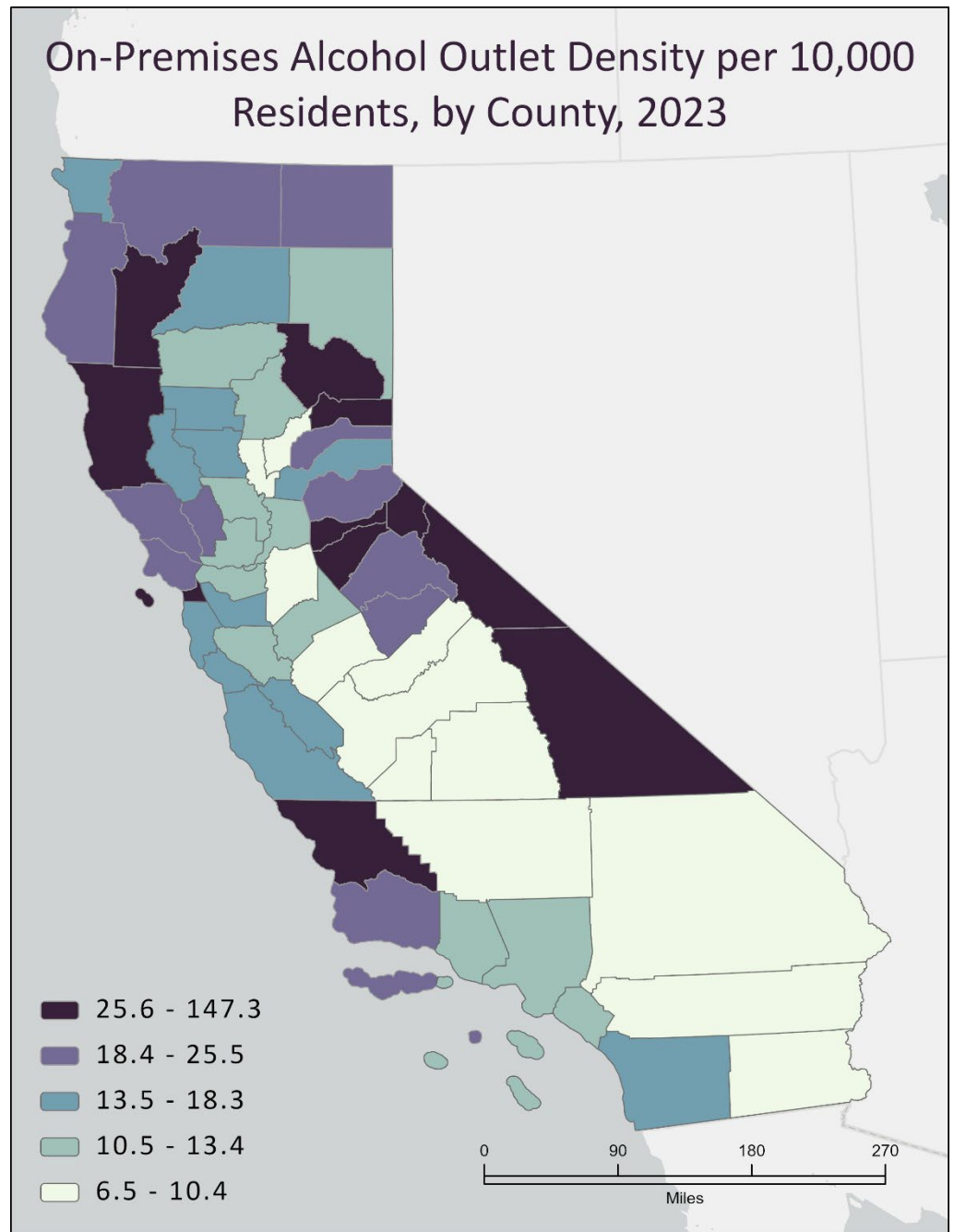


of 69 (Alpine County) outlets per 10,000 residents. The highest off-premises density rates per 10,000 were found mainly in rural counties. Suburban counties above the median included Napa, San Luis Obispo, Shasta, Sonoma, and Tulare counties. No urban counties were found to be above the California median. See Tables 1 and 2 in the appendix for alcohol outlet density rates by county.

***On-Premises Alcohol Outlet Density per 10,000 Residents***

On-premises alcohol outlets numbered 51,961 (63%), nearly double the off-premises alcohol outlets in the state with a median density across counties of 16 per 10,000 residents. On-premises density ranged from a low of seven per 10,000 residents (Kings County) to a high of 147 per 10,000 residents (Alpine County).

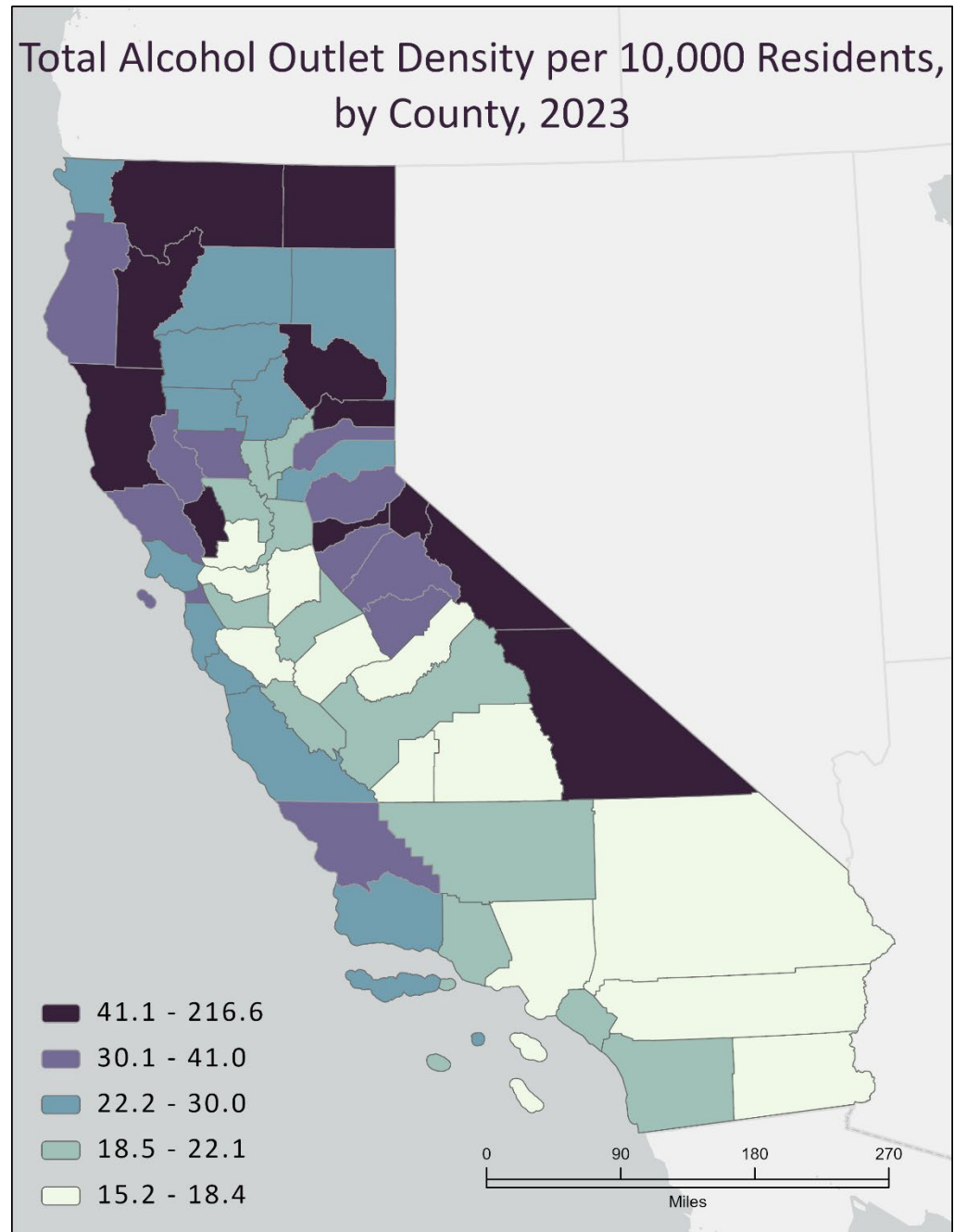
Rural counties again accounted for the majority of the highest density rates per 10,000 residents. A small number of suburban counties exceeded the median density, and urban counties San Francisco and San Mateo were above the median density.



### ***Total Alcohol Outlet Density per 10,000 Residents***

Overall median density across the counties was 26 per 10,000 residents. Alpine County had the highest overall density at 217 outlets per 10,000 residents, over double the density rate of the next highest county, Mono County. Kings County had the lowest overall density rate with 15 total outlets per 10,000 residents.

For nearly all counties, on-premises outlet density was greater than off-premises outlet density with Napa County being the one notable difference. Not only did off-premises density outnumber on-premises density, the rate was doubled at 52 off-premises outlets compared 25 on-premises outlets per 10,000 residents. There were 21 counties that were above the median in both on- and off-premises outlets and included Alpine, Amador, Calaveras, Colusa, Del Norte, Humboldt, Inyo, Lake, Mariposa, Mendocino, Modoc, Mono, Napa, Nevada, Plumas, San Luis Obispo, Sierra, Siskiyou, Sonoma, Trinity, and Tuolumne counties.

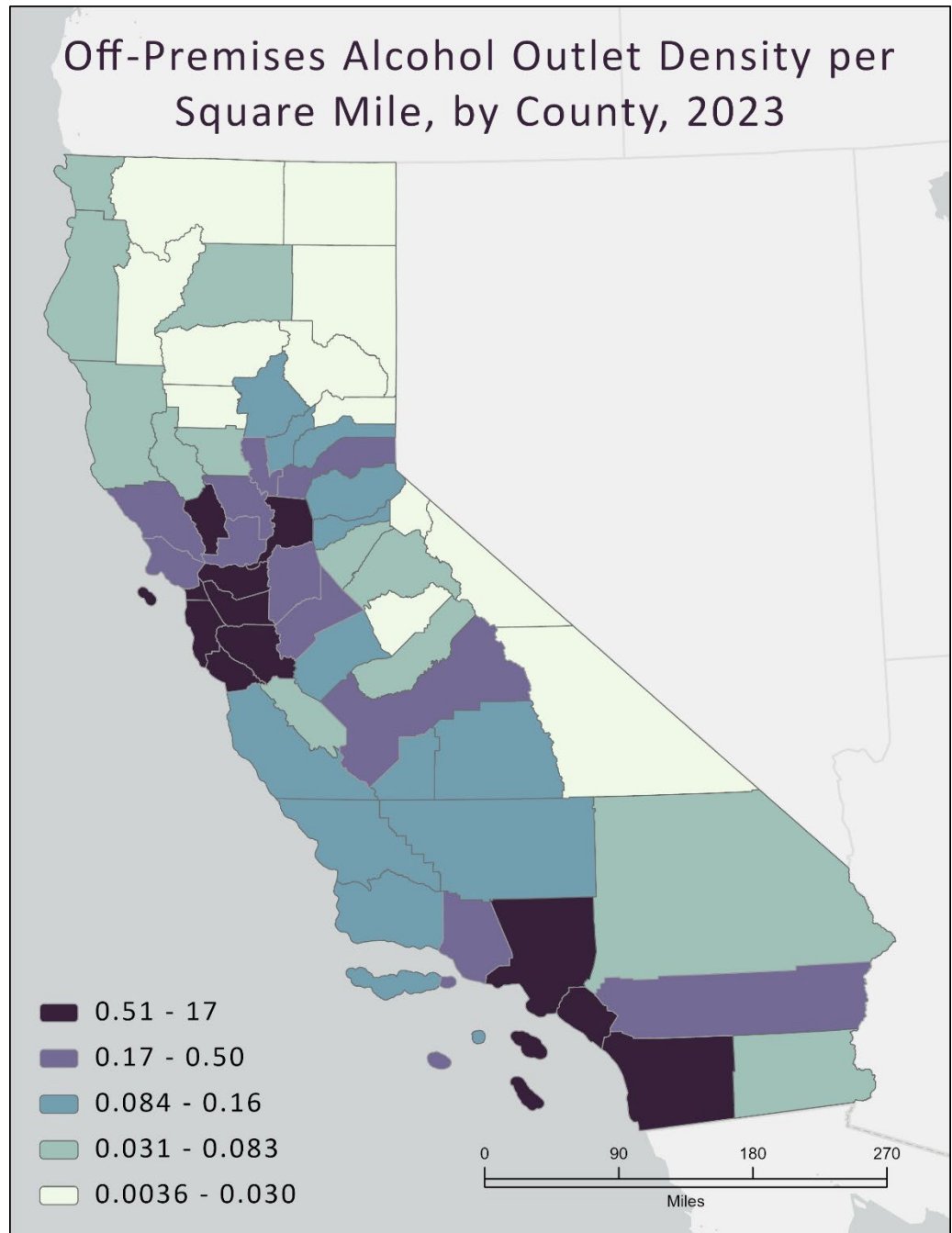


Among the 21 counties that measured above the median density rates in both on- and off-

premises, 18 were rural and three were suburban counties; zero urban counties measured above the median in both rates. Rural counties accounted for the highest density rates per 10,000 residents, with four of the top five counties being rural. Napa County, classified as suburban, was the one exception.

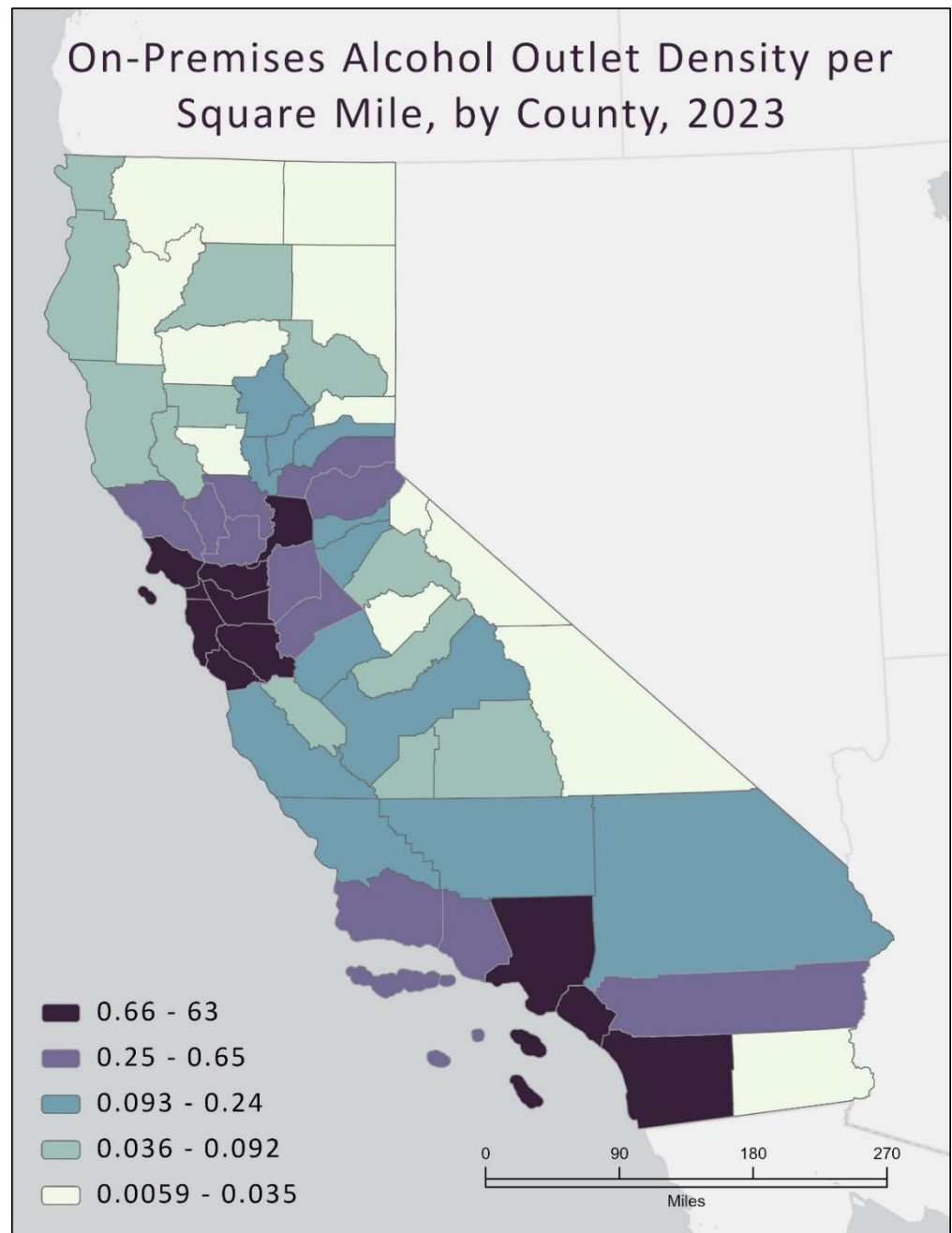
### ***Off-Premises Alcohol Outlet Density per Square Mile***

Off-premises density per square mile had a median across the counties of .104, which equates to less than one outlet per square mile, or about one outlet every ten miles. San Francisco County had the highest off-premises density at 17 outlets per square mile. The next closest counties to San Francisco were Orange, Los Angeles, Alameda, and Sacramento counties, with rates of three, two, two, and one per square mile respectively. The lowest five counties all had rates well under one outlet per square mile, with the lowest being Inyo County at .004, or about one outlet every 250 miles.



### ***On-Premises Alcohol Outlet Density per Square Mile***

On-premises density per square mile had a median across the counties of .142, equivalent to approximately one outlet every seven miles. San Francisco County again had an alcohol outlet density well-above the next closest county with a rate of 63 outlets per square mile, ten times greater than Orange (6), the second highest county in terms of density rates per square mile. Following Orange County was Alameda (3), San Mateo (3), and Los Angeles (3) counties. The lowest five counties in terms of density all had rates well under one and included Modoc, Inyo, Lassen, Trinity, and Sierra counties. The lowest counties each equate to about one outlet every 100 miles.

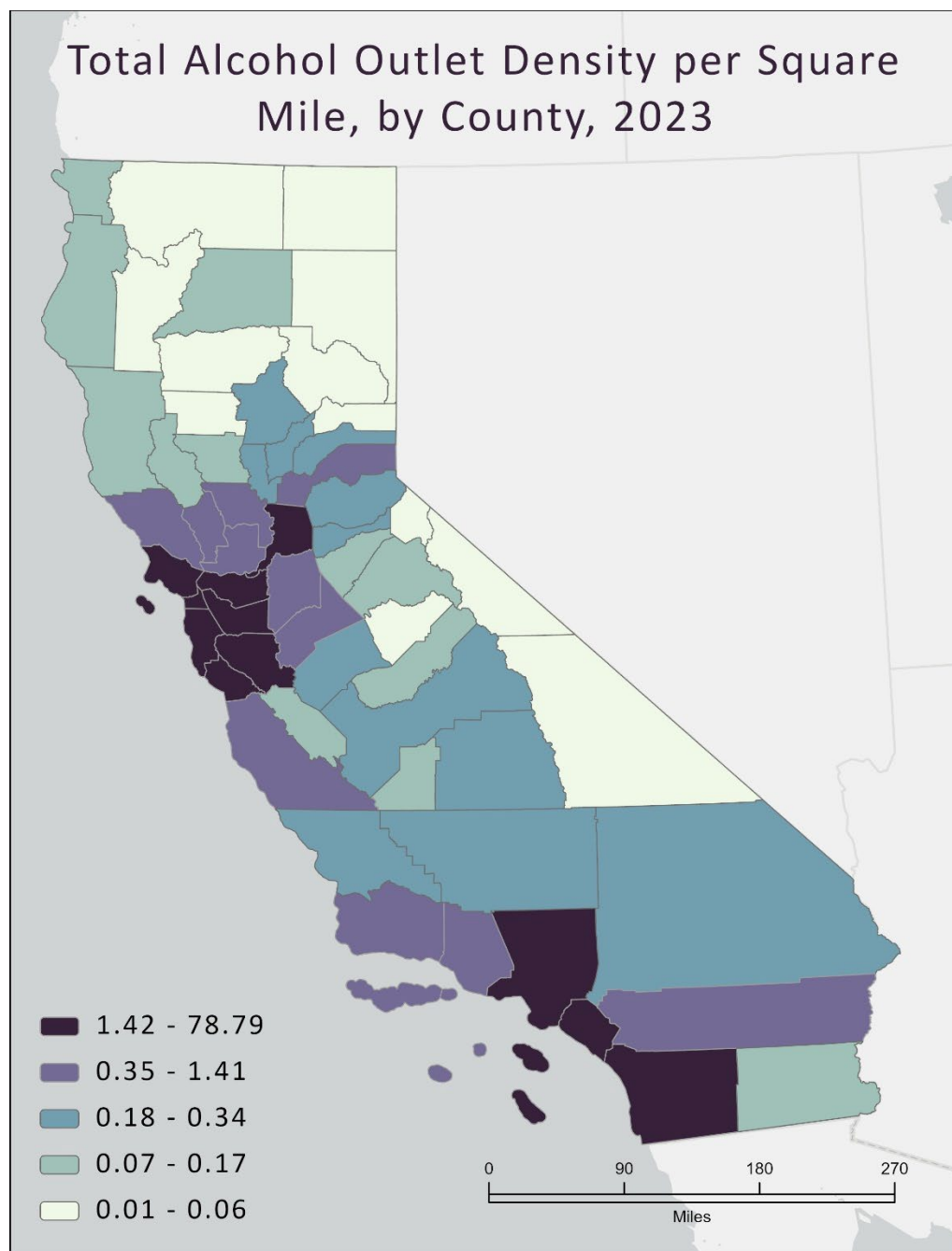


### ***Total Alcohol Outlet Density per Square Mile***

The overall median density per square mile across counties was .269, approximately one outlet every four miles. The highest county in outlet density was San Francisco at 79 outlets per square mile. The next four counties with the highest density per square mile were Orange (8), Alameda (5), Los Angeles (4), and San Mateo (4) counties. Whereas the counties with the highest rates per 10,000 residents were mainly rural counties due to lower population counts, all five of the counties with the highest density rates per square mile were urban counties.

Twenty-five counties were found to be over the

median in both on- and off-premises alcohol outlet density per square mile and included Alameda, Butte, Contra Costa, Fresno, Los Angeles, Marin, Monterey, Napa, Orange, Placer, Riverside, Sacramento, San Diego, San Francisco, San Joaquin, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Sonoma, Stanislaus, Sutter, Ventura, and Yolo counties. Among the counties above the median for both on- and off-premises alcohol outlet density, 13 counties were urban, 11 were suburban, and Sutter County was the lone rural county.



### **Fast Fact**

Urban and suburban coastal counties tend to have higher outlet density rates per square mile compared to other counties in California.

#### ***Comparing Alcohol Outlet Density Based on Urban-Suburban-Rural Classifications***

Because of the size, geographic diversity, and number of counties in California, making comparisons across counties can be difficult. To make more equitable comparisons that help provide more context, counties were stratified according to their urban-suburban-rural classification as defined by CSAC.

#### ***Rural Counties***

For total density, rural counties (n=27) had a median of 35 outlets per 10,000 residents (range: 15-217), much higher than both suburban and urban counties at 26 (range: 16-75) and 19 (range: 16-41) outlets per 10,000 residents, respectively. Alpine County had the highest density per 10,000 residents among rural counties followed by Mono, Sierra, Plumas, and Inyo counties. Kings County had the lowest rate among the rural counties at 15 outlets per 10,000 residents.

Whereas rural counties had the highest alcohol outlet density per 10,000 residents, they were among the lowest density rates per square mile compared to suburban and urban counties. Rural counties had a median of 0.07 outlets per square mile (range: 0.01-0.34), or approximately one outlet every 13 miles. El Dorado, Nevada, and Sutter Counties had the highest density per square mile among rural counties, about one outlet every three miles. Inyo County, Lassen County, and Modoc County had the lowest rates among the rural counties at about one outlet every 100 miles. Please see Appendix Table 2A for rates among rural counties.

#### ***Suburban Counties***

Suburban counties (n=17) had a median of 26 outlets per 10,000 residents (range: 16-75), with Napa County being the lone outlier with a rate of 75 per 10,000 residents. San Luis Obispo (40), Sonoma (35), and Marin (30), counties also had higher density rates compared to other suburban areas. Among suburban counties, Imperial County had the lowest rate at 16 outlets per 10,000 residents.

The median density rate per square mile among suburban counties was 0.46 (range: .07 – 1.61), or about one outlet every two miles. Suburban counties had a much greater variance when looking at rates per square mile, ranging from a high of about one outlet every half mile in Santa Cruz, Marin, and Napa counties, to a low of one outlet approximately every 14 miles in Imperial County. Please see Appendix Table 2B for rates among suburban counties.

### ***Urban Counties***

Compared to suburban and rural counties, urban counties (n=14) had a much lower median density rate at 19 outlets per 10,000 residents. Outlet density in urban counties ranged from a low of 16 (Riverside County) to a high of 41 (San Francisco County) per 10,000 residents. Only San Francisco County had a rate greater than both the suburban and rural county median rates. The rest of the urban counties had similar density rates with minimal variance between the counties. The difference between Riverside County (16) and San Mateo County (23), which had the second highest rate among urban counties, was only seven outlets per 10,000 residents.



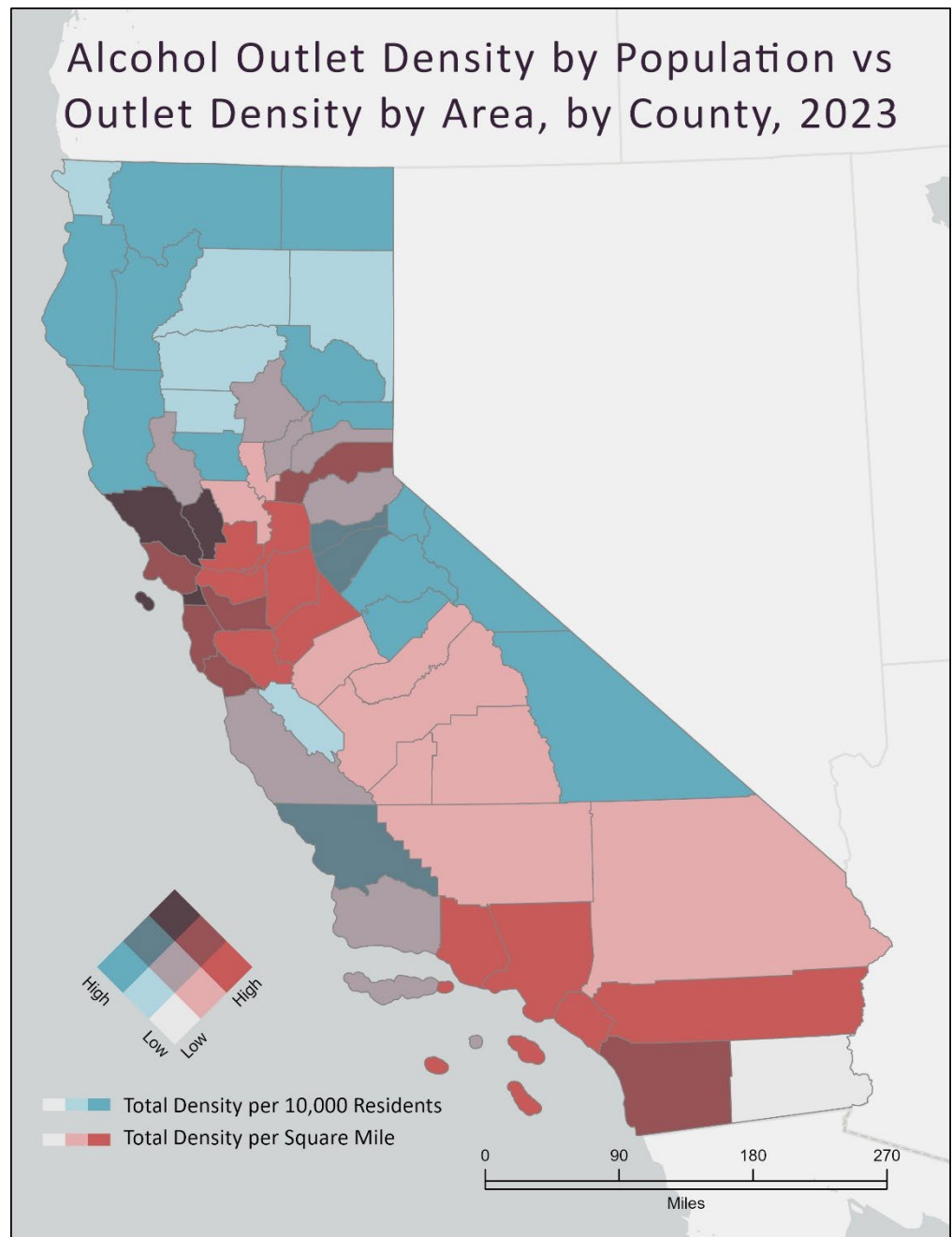
*Credit: Getty Images*

Median outlet density per square mile among urban counties was much higher compared to suburban and rural counties at three outlets per square mile. Density per square mile varied in urban counties from a low of .18 outlets per square mile (San Bernardino County), to a high of 79 outlets per square mile (San Francisco). The county with the second highest outlet density per square mile was Orange County at eight outlets per square mile. Please see Appendix Table 2C for rates among urban counties.

### ***Interpreting Findings Across Alcohol Outlet Density Measures***

There is not a specific known outlet density level that is associated with harms. Thus, alcohol outlet density rates can be interpreted relative to others. We can also use more than one measurement approach to present a more comprehensive picture. Land area calculations did not account for uninhabitable areas such as large lakes, national forests/parks, or other wilderness areas. Urban counties skew higher than suburban and rural counties when calculating density per square mile, whereas rural counties tend to skew higher when calculating density per 10,000 residents.

To better understand alcohol outlet density in California, density per square mile and density per 10,000 residents can be examined jointly. San Francisco, Sonoma, and Napa counties had relatively higher rates of alcohol outlet density in both density calculations as compared to other California counties. San Francisco County is an urban county, while Sonoma and Napa are both suburban counties and are popular tourist destinations widely



known to be part of California's wine country. No rural counties were found to be high in both density measures.

Other counties that had high alcohol outlet density rates relative to the rest of California in at least one measure, and medium rates for the second measure included: Alameda, Calaveras, Contra Costa, Marin, Placer, San Luis Obispo, Santa Cruz, and San Diego counties. Imperial County was the only county in California to have a relatively low density rate per 10,000 residents as well as a relatively low density rate per square mile based on the bivariate analysis.

## Discussion

As excessive alcohol use continues to be a leading cause of preventable deaths, measuring alcohol outlet density is an important surveillance activity for public health professionals. Identifying areas that are higher in density measures relative to other areas in the state, or other states, can help to provide information about a key measure of alcohol exposure in communities. Surveillance of alcohol outlets can be used to compare rates across the state and when paired with other alcohol-related data can be used to identify areas to focus excessive alcohol use prevention programs.

### Fast Fact

If SoFi Stadium in Los Angeles had the same density rate as California per 10,000 people, there would be 181 places that sold alcohol in the stadium.

Rural counties had the highest rates of outlet density per 10,000 residents, followed by suburban and urban areas. Alcohol outlet density per 10,000 residents was highest in rural counties with lower population counts such as Alpine County, Mono County, and Sierra County. Napa County was the lone county in the top five in terms of highest density per 10,000 residents that is not classified as a rural county by CSAC.

Urban counties had the highest overall density rates per square mile, followed by suburban and rural areas. Density per square mile was highest in coastal urban and suburban counties, with San Francisco having the highest density at 79 outlets per square mile. In both measures, on-premises alcohol outlet density rates were consistently higher across the state compared to off-premises alcohol outlet density rates with Napa County being the primary exception.

Off-premises alcohol outlet density rates more than doubled the on-premises rates for Napa County, a trend not seen anywhere else in the state.

Overall, the findings highlight the benefit of including more than one measure when calculating alcohol outlet density. Although there is utility in using one measure, using multiple measures may help provide additional context, provide multiple indicators to assess changes over time, and make more equitable comparisons across geographic and demographically diverse areas. The most telling findings were counties that were considered high in both density rates relative to the rest of the state. When analyzing alcohol outlet density, context matters. For example, counties with large universities or military bases, may include tens of thousands of additional residents that are not accounted for in population estimates. Accounting for non-permanent residents decreases overall density rates by inflating the population counts; however, these non-permanent residents are exposed to the alcohol outlets in that community.

### ***Limitations***

This analysis did not account for outlets across the state border in neighboring Oregon, Nevada, Arizona, or Mexico. Residents of border counties may seek to purchase alcohol in an area outside of their counties depending on availability, which is not captured in this analysis. Another limitation is present when examining density by square mile. For example, total land area was used to calculate density per square mile, but some counties are home to large national parks, bodies of water, or other areas of uninhabited land. Inclusion of these areas may inflate the denominator and lead to underestimation of density rates in those areas. Local jurisdictions may want to examine and reconsider their area's denominators used in density calculations (i.e., population size and land area) in a more detailed analysis that is not possible at the state level.

Another limitation is that this analysis did not incorporate a hot spot analysis, which could help identify clusters of outlets at a more granular level. Even in counties with relatively low levels of density, cluster analyses may identify areas of high density that may contribute to excessive alcohol use in that community. Calculating density rates per square mile makes assumptions that outlets are evenly dispersed at intervals equal to the density rate, which is not true. Identifying clusters would add another layer of context to better understand alcohol outlet density in each county.

## ***Public Health Implications***

Data on alcohol outlet density provides information on where density rates are higher relative to other areas, in this case other counties. This information, paired with other alcohol-related data can be used by public health practitioners, community advocates, and other stakeholders to inform strategies to reduce alcohol-related harms.

The Community Preventive Services Task Force, an independent, nonfederal body of experts that provide evidence-based recommendations, recommends limits on alcohol outlet density as one of the evidence-based strategies to reduce excessive alcohol use. Evidence suggests that a positive relationship exists between alcohol outlet density and excessive alcohol use, meaning that as alcohol outlet density increases, harms associated with excessive alcohol use also increase.<sup>3,4</sup> This suggests that by reducing alcohol outlet density, excessive alcohol use and its associated harms may also decrease, including injury, violent crimes, public nuisance, loitering, and vandalism around alcohol-serving establishments.<sup>3,4,5</sup>

For more information about limiting alcohol outlet density, please visit the following resources:

- [Community Guide – Outlet Density](#)
- [ChangeLab Solutions Outlet Density Infographic](#)

## ***About the Alcohol Harms Prevention Initiative***

The Alcohol Harms Prevention Initiative (AHPI) raises awareness, conducts research, and provides harm reduction and education to reduce the adverse health effects of alcohol use on individuals, families and communities. AHPI collaborates with partners and stakeholders to support statewide efforts to reduce the negative health and social harms of alcohol use on the lives of Californians. To learn more about the initiative, please visit the [AHPI homepage](#).

## Technical Notes

### *License Status*

License statuses included in the analysis were active, pending, R64B, REVPEN, surrendered, and suspended. These license statuses were included to avoid omitting outlets that are closed temporarily. R64B licenses are issued under Rule 64B of the California Code of Regulations (premise under construction and will be activated once its completed), REVPEN categorizes licenses that have not paid their renewal in the timely phase, the 50% phase, and are now in the REVPEN phase. If the licensee does not pay at the conclusion of this phase, the license will be automatically revoked and deactivated.

### *License Inclusion and Exclusion*

Off-premises exclusion criteria included manufacturers or licenses involved in the manufacturing process, importers, brokers, warehouses or other storage, wholesalers, and any special permits including special events or non-stationary licenses. After excluding all licenses that met the criteria, License Types 20: off-sale beer and wine and 21: off-sale – general, were included for analysis.

On-premises exclusion criteria followed similar criteria. Non-stationary outlets, seasonal licenses, and any kind of special permits were excluded from consideration. Other licenses were excluded due to their ambiguous definitions and sometimes included both on- and off-premises consumption. Eleven license types were included in analyses. This included Types 23: small beer manufacturer, 40: on-sale beer, 41: on-sale beer and wine – eating place, 42: on-sale beer and wine – public premises, 47: on-sale general – eating place, 48: on-sale general – public premises, 50: on-sale general club, 51: club, 52: veteran’s club, 61: on-sale beer – public premises, and 75: brewpub-restaurant.

For this analysis, all outlets that serve alcohol to the general public were included. Some license types that were included in this analysis are not included in the California Business and Professions Code Section 23816 for the purpose of establishing limits on alcohol outlet density; therefore, alcohol outlet density rates included in this report may not align with others reported.

## References

1. Esser MB, Sherk A, Liu Y, Naimi TS. Deaths from Excessive Alcohol Use - United States, 2016-2021., 2016 to 2021. *MMWR Morb Mortal Wkly Rep.* 2024;73(8):154-161. Published 2024 Feb 29. doi:10.15585/mmwr.mm7308a1
2. Jimenez J, Demeter N, Pinsker E. Deaths from Excessive Alcohol Use in California, 2020-2021. *Calif Dep Public Heal.* Published online 2023. Accessed April 11, 2023. [www.cdph.ca.gov/sapb](http://www.cdph.ca.gov/sapb)
3. HCAI - Department of Health Care Access and Information. Accessed March 26, 2024. <https://hcai.ca.gov/>
4. Preventing Excessive Alcohol Use | The Community Guide. Accessed April 18, 2023. <https://www.thecommunityguide.org/topics/excessive-alcohol-consumption.html>
5. Frequently Asked Questions | Alcoholic Beverage Control. Accessed March 26, 2024. <https://www.abc.ca.gov/licensing/frequently-asked-questions/>.
6. Xuan Z, Blanchette J, Nelson TF, Heeren T, Oussayef N. The alcohol policy environment and policy subgroups as predictors of binge drinking measures among US adults. *Am J Public Health.* 2015;105(4):816-822. doi:10.2105/AJPH.2014.302112
7. Task Force on Community Preventive Services T. Recommendations for Reducing Excessive Alcohol Consumption and Alcohol-Related Harms by Limiting Alcohol Outlet Density. Published online 2009. doi:10.1016/j.amepre.2009.09.021
8. Alcohol Outlet Density and Alcohol-Related Consequences. 2020. Accessed July 27, 2023. <http://publichealth.lacounty.gov/sapc/MDU/SpecialReport/AODC2013.pdf>
9. Colorado Alcohol Outlet Density. Colorado Department of Public Health & Environment. Published 2022. Accessed January 8, 2023. <https://cdphe.colorado.gov/alcohol-outlet-density>
10. Alcohol Outlet Density Mapping Tool. Minnesota Department of Health. Published 2023. Accessed August 9, 2023. <https://www.health.state.mn.us/communities/alcohol/data/densitymap.html>
11. Population Projections. Department of Finance. Published 2023. Accessed August 9, 2023. <https://dof.ca.gov/forecasting/demographics/projections/>
12. California State Association of Counties. Accessed May 30, 2023. <https://www.counties.org/>

## Funding Source and Acknowledgements

### Suggested Citation

Alcohol Outlet Density in California, 2023. Sacramento, CA: California Department of Public Health, March 2025.

### Funding Source

This data brief was supported by the Centers for Disease Control and Prevention (CDC) of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling \$500,001 with 100 percent funded by CDC/HHS. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by CDC/HHS, or the U.S. Government.

### Acknowledgements

Thank you to the CDC Alcohol Program Lead, Dr. Marissa Esser, for her guidance and support during the creation of this analysis, and the group of state epidemiologists supported by CDC-RFA-DP21-2105 for their expertise and technical assistance in this alcohol outlet density analysis. Thank you to Vicky Rayle and the CDC Public Health Associate Program (PHAP) for their support and mentorship.



## Appendix: Tables 1, 2a-2c

*Table 1. Median Alcohol Outlet Density Rates by County, 2023*

	Off-Premises per 10k	On-Premises per 10k	Total Density per 10k	Off-Premises per Square Mile	On-Premises per Square Mile	Total Density per Square Mile	Urban- Suburban-Rural Classification
<b>California</b>	<b>9.76</b>	<b>16.26</b>	<b>25.80</b>	<b>0.10</b>	<b>0.15</b>	<b>0.27</b>	
<i>Alameda</i>	6.54	14.10	20.40	<b>1.51</b>	<b>3.24</b>	<b>4.70</b>	<i>Urban</i>
<i>Alpine</i>	<b>69.32</b>	<b>147.31</b>	<b>216.64</b>	0.01	0.02	0.03	<i>Rural</i>
<i>Amador</i>	<b>13.83</b>	<b>28.70</b>	<b>42.01</b>	0.09	<b>0.18</b>	<b>0.27</b>	<i>Rural</i>
<i>Butte</i>	9.62	13.25	22.66	<b>0.13</b>	<b>0.19</b>	<b>0.32</b>	<i>Suburban</i>
<i>Calaveras</i>	<b>13.12</b>	<b>25.78</b>	<b>38.44</b>	0.06	0.11	0.17	<i>Rural</i>
<i>Colusa</i>	<b>18.29</b>	<b>17.42</b>	<b>35.28</b>	0.03	0.03	0.07	<i>Rural</i>
<i>Contra Costa</i>	5.93	11.08	16.80	<b>0.98</b>	<b>1.82</b>	<b>2.76</b>	<i>Urban</i>
<i>Del Norte</i>	<b>12.71</b>	<b>16.82</b>	<b>27.66</b>	0.03	0.04	0.07	<i>Rural</i>
<i>El Dorado</i>	9.21	<b>21.29</b>	<b>30.08</b>	0.10	<b>0.24</b>	<b>0.34</b>	<i>Rural</i>
<i>Fresno</i>	9.35	9.17	18.44	<b>0.16</b>	<b>0.16</b>	<b>0.32</b>	<i>Urban</i>
<i>Glenn</i>	<b>13.31</b>	15.70	<b>28.66</b>	0.03	0.04	0.06	<i>Rural</i>
<i>Humboldt</i>	<b>11.85</b>	<b>21.70</b>	<b>32.80</b>	0.04	0.08	0.12	<i>Rural</i>
<i>Imperial</i>	8.79	7.35	15.89	0.04	0.03	0.07	<i>Suburban</i>
<i>Inyo</i>	<b>20.45</b>	<b>38.13</b>	<b>57.48</b>	0.00	0.01	0.01	<i>Rural</i>
<i>Kern</i>	9.59	9.87	19.40	<b>0.11</b>	0.11	0.22	<i>Suburban</i>
<i>Kings</i>	8.71	6.54	15.19	0.10	0.07	0.17	<i>Rural</i>
<i>Lake</i>	<b>14.35</b>	<b>18.09</b>	<b>32.13</b>	0.07	0.09	0.16	<i>Rural</i>
<i>Lassen</i>	<b>13.12</b>	11.10	23.89	0.01	0.01	0.02	<i>Rural</i>
<i>Los Angeles</i>	6.44	10.91	17.20	<b>1.62</b>	<b>2.75</b>	<b>4.33</b>	<i>Urban</i>
<i>Madera</i>	<b>9.85</b>	8.69	18.36	0.08	0.07	0.14	<i>Rural</i>
<i>Marin</i>	9.24	<b>21.51</b>	<b>30.05</b>	<b>0.46</b>	<b>1.07</b>	<b>1.49</b>	<i>Suburban</i>
<i>Mariposa</i>	<b>14.27</b>	<b>22.62</b>	<b>35.39</b>	0.02	0.03	0.04	<i>Rural</i>
<i>Mendocino</i>	<b>18.54</b>	<b>25.77</b>	<b>42.73</b>	0.05	0.07	0.11	<i>Rural</i>
<i>Merced</i>	9.22	8.30	17.35	<b>0.14</b>	0.13	0.26	<i>Suburban</i>
<i>Modoc</i>	<b>25.60</b>	<b>24.53</b>	<b>45.86</b>	0.01	0.01	0.01	<i>Rural</i>
<i>Mono</i>	<b>33.74</b>	<b>68.92</b>	<b>100.51</b>	0.02	0.03	0.05	<i>Rural</i>
<i>Monterey</i>	9.75	<b>17.14</b>	<b>26.33</b>	<b>0.13</b>	<b>0.23</b>	<b>0.35</b>	<i>Suburban</i>
<i>Napa</i>	<b>51.55</b>	<b>25.03</b>	<b>75.29</b>	<b>0.96</b>	<b>0.47</b>	<b>1.41</b>	<i>Suburban</i>
<i>Nevada</i>	<b>9.85</b>	<b>21.84</b>	<b>30.88</b>	0.10	<b>0.22</b>	<b>0.32</b>	<i>Rural</i>

<i>Orange</i>	<b>6.19</b>	<b>13.43</b>	<b>19.36</b>	2.52	5.48	7.90	<i>Urban</i>
<i>Placer</i>	7.92	<b>18.29</b>	25.72	<b>0.23</b>	<b>0.53</b>	<b>0.74</b>	<i>Suburban</i>
<i>Plumas</i>	<b>26.87</b>	<b>47.95</b>	<b>71.67</b>	0.02	0.04	0.05	<i>Rural</i>
<i>Riverside</i>	6.37	9.30	15.57	<b>0.22</b>	<b>0.33</b>	<b>0.55</b>	<i>Urban</i>
<i>Sacramento</i>	6.69	12.40	18.81	<b>1.10</b>	<b>2.04</b>	<b>3.09</b>	<i>Urban</i>
<i>San Benito</i>	8.00	14.39	22.06	0.04	0.06	0.10	<i>Rural</i>
<i>San Bernardino</i>	7.49	8.41	15.83	0.08	0.09	0.18	<i>Urban</i>
<i>San Diego</i>	6.63	14.05	20.53	<b>0.53</b>	<b>1.13</b>	<b>1.65</b>	<i>Urban</i>
<i>San Francisco</i>	8.65	<b>33.04</b>	<b>41.03</b>	<b>16.62</b>	<b>63.45</b>	<b>78.79</b>	<i>Urban</i>
<i>San Joaquin</i>	8.59	9.09	17.52	<b>0.49</b>	<b>0.52</b>	<b>1.00</b>	<i>Urban</i>
<i>San Luis Obispo</i>	<b>12.31</b>	<b>27.78</b>	<b>39.60</b>	0.10	<b>0.24</b>	<b>0.34</b>	<i>Suburban</i>
<i>San Mateo</i>	6.24	<b>17.59</b>	23.43	<b>1.09</b>	<b>3.06</b>	<b>4.08</b>	<i>Urban</i>
<i>Santa Barbara</i>	9.70	<b>19.61</b>	<b>29.05</b>	<b>0.16</b>	<b>0.33</b>	<b>0.49</b>	<i>Suburban</i>
<i>Santa Clara</i>	5.18	13.13	18.07	<b>0.80</b>	<b>2.04</b>	<b>2.80</b>	<i>Urban</i>
<i>Santa Cruz</i>	8.59	<b>17.76</b>	<b>25.88</b>	<b>0.53</b>	<b>1.11</b>	<b>1.61</b>	<i>Suburban</i>
<i>Shasta</i>	<b>12.26</b>	15.19	<b>26.89</b>	0.06	0.07	0.13	<i>Suburban</i>
<i>Sierra</i>	<b>35.70</b>	<b>48.69</b>	<b>77.90</b>	0.01	0.02	0.03	<i>Rural</i>
<i>Siskiyou</i>	<b>19.27</b>	<b>25.54</b>	<b>43.89</b>	0.01	0.02	0.03	<i>Rural</i>
<i>Solano</i>	7.75	10.54	18.18	<b>0.43</b>	<b>0.58</b>	<b>1.00</b>	<i>Suburban</i>
<i>Sonoma</i>	<b>15.72</b>	<b>20.18</b>	<b>35.41</b>	<b>0.50</b>	<b>0.65</b>	<b>1.14</b>	<i>Suburban</i>
<i>Stanislaus</i>	9.45	11.01	20.20	<b>0.36</b>	<b>0.42</b>	<b>0.77</b>	<i>Suburban</i>
<i>Sutter</i>	<b>9.77</b>	10.37	19.94	<b>0.16</b>	<b>0.17</b>	<b>0.33</b>	<i>Rural</i>
<i>Tehama</i>	<b>12.62</b>	11.38	23.69	0.03	0.02	0.05	<i>Rural</i>
<i>Trinity</i>	<b>25.17</b>	<b>31.28</b>	<b>51.87</b>	0.01	0.01	0.02	<i>Rural</i>
<i>Tulare</i>	<b>10.07</b>	8.27	18.31	0.10	0.08	0.19	<i>Suburban</i>
<i>Tuolumne</i>	<b>14.14</b>	<b>23.24</b>	<b>36.80</b>	0.03	0.05	0.09	<i>Rural</i>
<i>Ventura</i>	7.67	12.24	19.69	<b>0.36</b>	<b>0.57</b>	<b>0.91</b>	<i>Urban</i>
<i>Yolo</i>	7.80	12.52	20.06	<b>0.18</b>	<b>0.28</b>	<b>0.46</b>	<i>Suburban</i>
<i>Yuba</i>	<b>11.87</b>	8.72	20.34	<b>0.15</b>	0.11	0.26	<i>Rural</i>

**Note: Bold values denote rate greater than median**

**Table 2A. Median Alcohol Outlet Density Rates by Rural Classification, 2023**

	Off-Premises per 10k	On-Premises per 10k	Total Density per 10k	Off-Premises per Square Mile	On-Premises per Square Mile	Total Density per Square Mile
<b>Rural Counties</b>	<b>13.83</b>	<b>21.84</b>	<b>35.28</b>	<b>0.03</b>	<b>0.04</b>	<b>0.07</b>
<i>Alpine</i>	<b>69.32</b>	<b>147.31</b>	<b>216.64</b>	0.01	0.02	0.03
<i>Amador</i>	13.83	<b>28.70</b>	<b>42.01</b>	<b>0.09</b>	<b>0.18</b>	<b>0.27</b>
<i>Calaveras</i>	13.12	<b>25.78</b>	<b>38.44</b>	<b>0.06</b>	<b>0.11</b>	<b>0.17</b>
<i>Colusa</i>	<b>18.29</b>	17.42	35.28	0.03	0.03	0.07
<i>Del Norte</i>	12.71	16.82	27.66	0.03	0.04	<b>0.07</b>
<i>El Dorado</i>	9.21	21.29	30.08	<b>0.10</b>	<b>0.24</b>	<b>0.34</b>
<i>Glenn</i>	13.31	15.70	28.66	0.03	0.04	0.06
<i>Humboldt</i>	11.85	21.70	32.80	<b>0.04</b>	<b>0.08</b>	<b>0.12</b>
<i>Inyo</i>	<b>20.45</b>	<b>38.13</b>	<b>57.48</b>	0.00	0.01	0.01
<i>Kings</i>	8.71	6.54	15.19	<b>0.10</b>	<b>0.07</b>	<b>0.17</b>
<i>Lake</i>	<b>14.35</b>	18.09	32.13	<b>0.07</b>	<b>0.09</b>	<b>0.16</b>
<i>Lassen</i>	13.12	11.10	23.89	0.01	0.01	0.02
<i>Madera</i>	9.85	8.69	18.36	<b>0.08</b>	<b>0.07</b>	<b>0.14</b>
<i>Mariposa</i>	<b>14.27</b>	<b>22.62</b>	35.39	0.02	0.03	0.04
<i>Mendocino</i>	<b>18.54</b>	<b>25.77</b>	<b>42.73</b>	<b>0.05</b>	<b>0.07</b>	<b>0.11</b>
<i>Modoc</i>	<b>25.60</b>	<b>24.53</b>	<b>45.86</b>	0.01	0.01	0.01
<i>Mono</i>	<b>33.74</b>	<b>68.92</b>	<b>100.51</b>	0.02	0.03	0.05
<i>Nevada</i>	9.85	21.84	30.88	<b>0.10</b>	<b>0.22</b>	<b>0.32</b>
<i>Plumas</i>	<b>26.87</b>	<b>47.95</b>	<b>71.67</b>	0.02	0.04	0.05
<i>San Benito</i>	8.00	14.39	22.06	<b>0.04</b>	<b>0.06</b>	<b>0.10</b>
<i>Sierra</i>	<b>35.70</b>	<b>48.69</b>	<b>77.90</b>	0.01	0.02	0.03
<i>Siskiyou</i>	<b>19.27</b>	<b>25.54</b>	<b>43.89</b>	0.01	0.02	0.03
<i>Sutter</i>	9.77	10.37	19.94	<b>0.16</b>	<b>0.17</b>	<b>0.33</b>
<i>Tehama</i>	12.62	11.38	23.69	0.03	0.02	0.05
<i>Trinity</i>	<b>25.17</b>	<b>31.28</b>	<b>51.87</b>	0.01	0.01	0.02
<i>Tuolumne</i>	<b>14.14</b>	<b>23.24</b>	<b>36.80</b>	0.03	<b>0.05</b>	<b>0.09</b>
<i>Yuba</i>	11.87	8.72	20.34	<b>0.15</b>	<b>0.11</b>	<b>0.26</b>

**Note: Bold values denote rate greater than median**

**Table 2B. Median Alcohol Outlet Density Rates by Suburban Classification, 2023**

	Off-Premises per 10k	On-Premises per 10k	Total Density per 10k	Off-Premises per Square Mile	On-Premises per Square Mile	Total Density per Square Mile
<b>Suburban Counties</b>	<b>9.59</b>	<b>15.19</b>	<b>25.72</b>	<b>0.16</b>	<b>0.28</b>	<b>0.46</b>
<i>Butte</i>	<b>9.62</b>	13.25	22.66	0.13	0.19	0.32
<i>Imperial</i>	8.79	7.35	15.89	0.04	0.03	0.07
<i>Kern</i>	9.59	9.87	19.40	0.11	0.11	0.22
<i>Marin</i>	9.24	<b>21.51</b>	<b>30.05</b>	<b>0.46</b>	<b>1.07</b>	<b>1.49</b>
<i>Merced</i>	9.22	8.30	17.35	0.14	0.13	0.26
<i>Monterey</i>	<b>9.75</b>	<b>17.14</b>	<b>26.33</b>	0.13	0.23	0.35
<i>Napa</i>	<b>51.55</b>	<b>25.03</b>	<b>75.29</b>	<b>0.96</b>	<b>0.47</b>	<b>1.41</b>
<i>Placer</i>	7.92	<b>18.29</b>	25.72	<b>0.23</b>	<b>0.53</b>	<b>0.74</b>
<i>San Luis Obispo</i>	<b>12.31</b>	<b>27.78</b>	<b>39.60</b>	0.10	0.24	0.34
<i>Santa Barbara</i>	<b>9.70</b>	<b>19.61</b>	<b>29.05</b>	0.16	<b>0.33</b>	<b>0.49</b>
<i>Santa Cruz</i>	8.59	<b>17.76</b>	25.88	<b>0.53</b>	<b>1.11</b>	<b>1.61</b>
<i>Shasta</i>	<b>12.26</b>	15.19	<b>26.89</b>	0.06	0.07	0.13
<i>Solano</i>	7.75	10.54	18.18	<b>0.43</b>	<b>0.58</b>	<b>1.00</b>
<i>Sonoma</i>	<b>15.72</b>	<b>20.18</b>	<b>35.41</b>	<b>0.50</b>	<b>0.65</b>	<b>1.14</b>
<i>Stanislaus</i>	9.45	11.01	20.20	<b>0.36</b>	<b>0.42</b>	<b>0.77</b>
<i>Tulare</i>	<b>10.07</b>	8.27	18.31	0.10	0.08	0.19
<i>Yolo</i>	7.80	12.52	20.06	<b>0.18</b>	0.28	0.46

**Note: Bold values denote rate greater than median**

*Table 2C. Median Alcohol Outlet Density Rates by Urban Classification, 2023*

	Off-Premises per 10k	On-Premises per 10k	Total Density per 10k	Off-Premises per Square Mile	On-Premises per Square Mile	Total Density per Square Mile
<i><b>Urban Counties</b></i>	<b>6.59</b>	<b>12.32</b>	<b>18.63</b>	<b>0.89</b>	<b>1.93</b>	<b>2.78</b>
<i>Alameda</i>	6.54	<b>14.10</b>	<b>20.40</b>	<b>1.51</b>	<b>3.24</b>	<b>4.70</b>
<i>Contra Costa</i>	5.93	11.08	16.80	<b>0.98</b>	1.82	2.76
<i>Fresno</i>	<b>9.35</b>	9.17	18.44	0.16	0.16	0.32
<i>Los Angeles</i>	6.44	10.91	17.20	<b>1.62</b>	<b>2.75</b>	<b>4.33</b>
<i>Orange</i>	6.19	<b>13.43</b>	<b>19.36</b>	<b>2.52</b>	<b>5.48</b>	<b>7.90</b>
<i>Riverside</i>	6.37	9.30	15.57	0.22	0.33	0.55
<i>Sacramento</i>	<b>6.69</b>	<b>12.40</b>	<b>18.81</b>	<b>1.10</b>	<b>2.04</b>	<b>3.09</b>
<i>San Bernardino</i>	<b>7.49</b>	8.41	15.83	0.08	0.09	0.18
<i>San Diego</i>	<b>6.63</b>	<b>14.05</b>	<b>20.53</b>	0.53	1.13	1.65
<i>San Francisco</i>	<b>8.65</b>	<b>33.04</b>	<b>41.03</b>	<b>16.62</b>	<b>63.45</b>	<b>78.79</b>
<i>San Joaquin</i>	<b>8.59</b>	9.09	17.52	0.49	0.52	1.00
<i>San Mateo</i>	6.24	<b>17.59</b>	<b>23.43</b>	<b>1.09</b>	<b>3.06</b>	<b>4.08</b>
<i>Santa Clara</i>	5.18	<b>13.13</b>	18.07	0.80	<b>2.04</b>	2.80
<i>Ventura</i>	<b>7.67</b>	12.24	<b>19.69</b>	0.36	0.57	0.91

**Note: Values in bold denote rate greater than median**

## Reference Map of California Counties

