



### TRAFFIC SAFETY FACTS

# Motorcycle Safety

—Katherine L. Chen, Bor-Wen Tsai, Garrett Fortin, and Jill F. Cooper—

### PROBLEM IDENTIFICATION AND DATA ANALYSIS

Crashes involving motorcycles are a major traffic safety concern in the United States. Since motorcyclists are susceptible to injury during crashes, they comprise a disproportionate share of all injured and killed vehicle occupants. In 2020, motorcyclists comprised 14.4 percent of all traffic deaths in the US.

The primary countermeasures used to address this problem include motorcycle helmet laws and other helmet-oriented programs, rider training and licensing programs, vehicle enhancements, including anti-lock braking technology, rider conspicuity programs, campaigns to increase other road users' awareness of motorcycles, and campaigns to reduce impaired riding. The United States Department of Transportation uses the Safe System Approach to work towards zero roadway fatalities and serious injuries. The Safe System Approach recognizes that people may make unsafe decisions or may have momentary lapses of attention, and designs a roadway system with redundancies in place to protect everyone. The Federal Highway Administration names safe road users, safe vehicles, safe speeds, safe roads, and post-crash care as key elements of a Safe System. These elements together create multiple layers of protection to improve safety.

The 2020 National Occupant Protection Use Survey (NOPUS) reported that DOT-compliant helmet use among all motorcyclists in the US (riders and passengers) decreased to 64.9 percent in 2021, not statistically different at the 0.05 level from 69.0 percent in 2020. In states with a universal helmet law, which requires all motorcyclists to use a helmet, the known helmet use rate increased to 86.1 percent in 2021, not statistically significant from 84.0 percent in 2020.

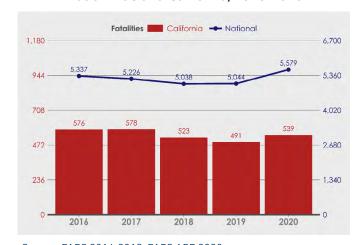
Analyses presented in the motorcycle program area include fatal and serious injuries to drivers and passengers riding two- and three-wheel motorcycles, mopeds, motorized scooters, motorized bicycles, off-road motorcycles, and other motor-driven cycles. Motorcycle crashes are defined as a crash where one or more victims is a motorcycle driver or passenger.

### **KEY FINDINGS**

### **NATIONAL DATA**

- In 2020, there were 5,579 motorcyclist fatalities in the US, an increase of 535 deaths, or 10.6 percent from 2019 (see Figure 1).
- In 2020, drivers of most vehicle types saw increases in the number of alcohol-impaired drivers involved in fatal crashes compared to 2019, including motorcyclists, who saw a 4.4 percent increase.
- In urban areas, motorcyclist deaths increased by 7.8 percent between 2019 and 2020. In rural areas, they increased by 11.0 percent during the same time period. Thirty percent of motorcyclists involved in fatal crashes in 2019 were not properly licensed.

Figure 1: Motorcycle Fatality Trends, Nationwide and California, 2016-2020



Source: FARS 2016-2019, FARS ARF 2020

#### **CALIFORNIA DATA**

- From 2019 to 2020, California also saw an increase in motorcycle fatalities. In 2020, there were 539 deaths, up 9.8 percent from 491 in 2019.
- The figures in this section refer to drivers and passengers of motorcycles fatally and seriously injured in a crash in California in 2020. These numbers are the products of UCB SafeTREC analysis.

# Fatal and Serious Injury Motorcycle Crashes by County

- Los Angeles, San Diego, Riverside, San Bernardino, Orange, and Kern counties in Southern California, as well as Sacramento County in Northern California, had the highest number of fatal injuries among motorcyclists. Similarly, the counties of Los Angeles, San Diego, Riverside, San Bernardino, Orange, Kern, and Sacramento, along with Alameda had the highest number of serious injuries among motorcyclists. (See Figure 4.)
- The rural counties of Lassen, Colusa, Amador, Calaveras, Tuolumne, Napa, San Benito, and Kern had the highest rates of fatal injuries per capita by county. The rural counties of Del Norte, Trinity, Sierra, Alpine, Calaveras, Mono, Mariposa, and Inyo had the highest rates of serious injuries per capita by county.
- Kern County experienced both high numbers and rates per capita of motorcyclist fatalities.

# Primary Crash Factors of Motorcycle Fatal and Serious Injury Crashes

Unsafe speed (30.9 percent), followed by improper turning (22.2 percent), and right-of-way violations by automobiles (16.1 percent), were the most frequent primary crash factors for fatal and serious injury motorcycle crashes (see Figure 2).

### Crash Types for Motorcycle Fatal and Serious Injury Crashes

Broadside crashes (25.1 percent) and overturned crashes (21.0 percent) were the most frequent crash types for fatal and serious injury motorcycle crashes (see Figure 3).

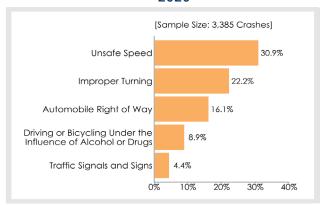
# Time and Day of Motorcycle Crash Fatal and Serious Injuries

- In 2020, the number of fatally and seriously injured motorcyclists was markedly higher between 3pm and 6pm, comprising 21.9 percent of the fatal and 25.5 percent of serious motorcyclist injuries. The time periods noon to 3pm and 6pm to 9pm also had higher numbers with 37.1 percent of fatal and 40.3 percent of serious injuries, respectively.
- Motorcyclist fatalities and serious injuries were elevated during the day on Saturdays and Sundays between 9am and 9pm, accounting for 30.0 percent of fatal and 32.3 percent of serious injuries in 2020.

# Motorcycle Fatal and Serious Injury Crash Victim Demographics

- The vast majority of fatal (93.7 percent) and serious injury (90.5 percent) motorcycle crash victims were males. The age category with the greatest number of victims, men or women, was ages 25 to 34, comprising 26.0 percent of motorcycle fatalities and 28.6 percent of motorcycle serious injury victims.
- Race was not reported for 34.5 percent of the motorcyclist fatalities. Of the 353 fatalities with a known race, 51.2 percent (or 181) were white.

Figure 2: Top Five Primary Crash Factors for Motorcycle Fatal and Serious Injury Crashes, California, 2020



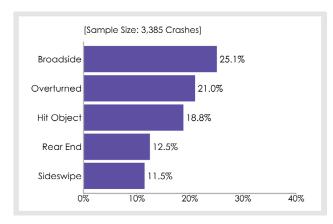
Source: Provisional SWITRS 2020

#### **CALIFORNIA DATA**

### **Crash Location for Motorcycle Crash Victims**

- Over two-thirds (67.2 percent) of motorcycle crash fatal injuries occurred in urban areas, compared to 32.3 percent on rural roads. Approximately 18.5 percent of travel took place on rural roads in 2020.
- Over one-third (39.0 percent) of all motorcycle crash fatalities occurred on non-interstate principal arterials. The next most common locations for motorcycle crash fatalities were non-interstate minor arterials (26.7 percent) and non-interstate collectors (16.9 percent).

Figure 3: Top Five Crash Types for Motorcycle Fatal and Serious Injury Victims, California, 2020



Source: Provisional SWITRS 2020

#### **REFERENCES**

- California Department of Transportation. (2021, December). California Public Road Data 2020.
- National Center for Statistics and Analysis. (2022, March). Motorcycle helmet use in 2021 - Overall results. (Traffic Safety Facts Research Note. Report No. DOT HS 813 270). National Highway Traffic Safety Administration
- National Center for Statistics and Analysis. (2022, March). Overview of motor vehicle crashes in 2020. (Traffic Safety Facts Research Note. Report No. DOT HS 813 266). National Highway Traffic Safety Administration.
- National Center for Statistics and Analysis. (2021, September). 2019 Data Motorcycles. (Traffic Safety Facts DOT HS 813 112). National Highway Traffic Safety Administration.

### **COUNTY TABLE: MOTORCYCLE SAFETY**

Figure 4: Motorcycle Fatalities and Serious Injuries, by Number and Rate, 2020

Alpine         1,199         0         3         3         2502           Amodor         40,506         4         11         15         37.0           Buthe         211,216         7         26         33         15.6           Calaveras         45,277         3         15         18         39.7           Colusa         21,826         2         5         7         32.0           Contra Costa         1,166,669         10         64         74         4.3           Del Norte         27,745         0         11         11         11         39.6           El Dorado         191,282         6         35         41         21.4         21.4           Fresno         1,008,860         17         59         76         7.5         76         7.5           Glenn         28,822         0         4         4         4         13.8         19.0           Humbolott         136,514         3         23         26         19.0         15.6         4           Imperial         178,537         2         8         10         5.5         6         19.0         15.4         14.7         <	County	Population	Fatalities	Serious Injuries	Fatal & Serious Injuries (FSI)	FSI per 100K Population
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Contra Costa         1.166,669         10         64         74         6.3           Del Norte         27,745         0         11         11         39.6           El Dorado         191,282         6         35         41         21.4           Fresno         1,008,860         17         59         76         7.5           Glenn         28,822         0         4         4         13.8           Humboldt         136,514         3         23         26         19.0           Impedial         178,537         2         8         10         5.6           Imyo         18,977         0         14         14         73.7           Kings         153,085         2         13         15         9.8           Loske         68,099         2         21         23         33.7           Lossen         30,025         2         8         10         31.2           Los Angeles         10,012,474         114         702         816         8.1           Macior         156,519         4         14         18         11.5           Macior         17,123         0         17 </td <td>Calaveras</td> <td>45,277</td> <td>3</td> <td>15</td> <td>18</td> <td>39.76</td>	Calaveras	45,277	3	15	18	39.76
Del Norte         27.745         0         11         11         39.6           El Dorado         191,282         6         35         41         21.4           Fresno         1,008,840         17         59         76         7.5           Glenn         28,822         0         4         4         13.8           Humbold†         136,514         3         23         26         19.0           Imperial         178,537         2         8         10         5.6           Inyo         18,977         0         14         14         73.7           Kem         907,021         33         101         134         14.7           Kings         153,085         2         13         15         9.8           Loke         68,099         2         21         23         33.7           Lossen         32,025         2         8         10         312           Lossen         32,025         2         8         10         312           Mardera         156,519         4         14         18         11.5           Mariposa         17,123         0         17         17 <td>Colusa</td> <td>21,826</td> <td>2</td> <td>5</td> <td>7</td> <td>32.07</td>	Colusa	21,826	2	5	7	32.07
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Humboldt	Fresno	1,008,860	17	59	76	7.53
Imperial   178,537   2   8   10   5.66     Inyo   18,977   0   14   14   14   73.7     Kern   907,021   33   101   134   14.7     Kings   153,085   2   13   15   9.8     Lake   68,099   2   21   23   33.7     Lassen   32,025   2   8   10   31.2     Loss Angeles   10,012,474   114   702   816   8.1     Madera   156,519   4   14   18   11.5     Marin   262,410   4   27   31   11.8     Marino   262,410   4   27   31   11.8     Marino   262,410   4   27   31   11.8     Merced   280,873   5   35   40   14.2     Mendocino   91,602   2   15   17   17   19.5     Merced   280,873   5   35   40   14.2     Mono   13,185   0   7   7   53.0     Monterey   439,008   8   39   47   10.7     Napa   138,433   5   21   26   18.7     Nevada   102,392   3   21   24   223,4     Orange   3,184,513   26   127   153   4.8     Placer   405,308   3   27   30   7,4     Plumas   19,666   0   6   6   6   30.5     San Benito   1,585,666   26   140   166   10.4     San Benito   2,181,983   40   178   218   9,9     San Benito   2,181,983   40   178   218   9,9     San Diego   3,303,736   43   219   262   7,9     San Luis Obispo   282,996   3   31   34   12.0     San Santa Barbara   448,659   5   28   33   7,3     Santa Cruz   122,330   10   10   10   300,3     Sikiyou   44,091   0   9   9   9   20.4     Solaria   45,454   0   176   24   32   32     Yolo   216,544   3   13   16   7,3	Glenn	28,822	0	4	4	13.88
Inyo	Humboldt	136,514	3	23	26	19.05
Kem         907.021         33         101         134         14.7           Kings         153.085         2         13         15         9.8           Lose         68.099         2         21         23         33.7           Lossen         32.025         2         8         10         31.2           Los Angeles         10.012.474         114         702         816         8.1           Madera         156.519         4         14         18         11.5           Maria         262.410         4         27         31         11.8           Mariposa         17.123         0         17         17         99.2           Mendocino         91,602         2         15         17         18.5           Merced         280.873         5         35         35         40         14.2           Modoc         8,703         0         1         1         11.1         11.4           Morierey         439.008         8         39         47         10.7           Nevada         102.392         3         21         24         23.4           Orange         13.184,513	Imperial	178,537	2	8	10	5.60
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Loke         68.099         2         21         23         33.7           Loss Angeles         32.025         2         8         10         31.2           Los Angeles         10,012,474         114         702         816         8.1.           Marin         262,410         4         27         31         11.8           Merdocin         91,602         2         15         17         18.5           Merdocino         91,602         2         15         17         18.5           Merdocin         91,602         2         15         7         7         53.0           Montered         439,008         8         39         47         10.7         10.7         10.7           Mortered <td>Kern</td> <td>907,021</td> <td>33</td> <td>101</td> <td>134</td> <td>14.77</td>	Kern	907,021	33	101	134	14.77
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Los Angeles         10,012,474         114         702         816         8.1           Madera         156,519         4         14         18         11.5           Marin         262,410         4         27         31         11.8           Mariposa         17,123         0         17         17         99.2           Mendocino         91,602         2         15         17         18.5           Merced         280,873         5         35         40         14.2           Modoc         8,703         0         1         1         11.4           Modoc         8,703         0         1         1         11.4           Modoc         8,703         0         7         7         7         53.0           Monterey         439,008         8         39         47         10.7           Napa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Placer         405,308         3         27         30         7.4           Placer         405,308         3         27	Lake	68,099	2	21	23	33.77
Los Angeles         10,012,474         114         702         816         8.1           Madera         156,519         4         14         18         11.5           Marin         262,410         4         27         31         11.8           Mariposa         17,123         0         17         17         99.2           Mendocino         91,602         2         15         17         18.5           Merced         280,873         5         35         40         14.2           Modoc         8,703         0         1         1         1         11.4           Mono         13,185         0         7         7         53.0         Monterey         439,008         8         39         47         10.7           Napa         138,433         5         21         26         18.7         Nevada         102,392         3         21         24         23.4           Nevada         102,392         3         21         24         23.4         10.7         153         4.8           Placer         405,308         3         27         30         7.4         10.7         10.7         10.7						31.23
Madera         156,519         4         14         18         11.5           Marin         262,410         4         27         31         11.8           Marin         262,410         4         27         31         11.8           Marinosa         17,123         0         17         17         99.2           Merced         280,873         5         35         40         14.2           Merced         280,873         5         35         40         14.2           Modoc         8,703         0         1         1         11.4           Mondoc         13,185         0         7         7         53.0           Monterey         439,008         8         39         47         10.7           Napa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203 <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>8.15</td>		-				8.15
Marin         262,410         4         27         31         11.8           Mariposa         17,123         0         17         17         99.2           Mendocino         91,602         2         15         17         185.5           Merced         280,873         5         35         40         14.2           Modoc         8,703         0         1         1         11.4           Mono         13,185         0         7         7         53.0           Monterey         439,008         8         39         47         10.7           Nopa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Pluas         19,666         0         6         6         300.5           Sieveride         2,421,480         47         203         250         10.3           Scaramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3 <td>-</td> <td></td> <td>4</td> <td>14</td> <td>18</td> <td>11.50</td>	-		4	14	18	11.50
Mariposa         17,123         0         17         17         99.2           Mendocino         91,602         2         15         17         18.5           Merced         280,873         5         35         40         14.2           Modoc         8,703         0         1         1         1         11.1           Monon         13,185         0         7         7         7         53.0           Monterey         439,008         8         39         47         10.7           Napa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           San Benito         64,110         3         3         6         9.3           San Benito <td< td=""><td></td><td></td><td></td><td></td><td></td><td>11.81</td></td<>						11.81
Mendocino         91,602         2         15         17         18.5           Merced         280,873         5         35         40         14.2           Modoc         8,703         0         1         1         11.4           Mono         13,185         0         7         7         53.0           Monterey         439,008         8         39         47         10.7           Napa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Pluma         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985			0			99.28
Merced         280,873         5         35         40         14.2           Modoc         8,703         0         1         1         11.4           Mono         13,185         0         7         7         53.0           Monterey         439,008         8         39         47         10.7           Neyada         102,392         3         21         26         18.7           Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Plocer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Francisco         870,985						18.56
Modoc         8,703         0         1         1         11.4           Mono         13,185         0         7         7         53.0           Monterey         439,008         8         39         47         10.7           Napa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Benito         64,110         3         3         6         9.3           San Francisco         870,985         8         49         57         6.5           San Luis Obispo         282,996						14.24
Mono         13,185         0         7         7         53.0           Monterey         439,008         8         39         47         10.7           Naga         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Benardino         2,181,983         40         178         218         9.9           San Benardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Luis Obispo						11.49
Monterey         439,008         8         39         47         10.7           Napa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Diego         3,303,736         43         219         262         7.9           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo <td></td> <td></td> <td></td> <td></td> <td></td> <td>53.09</td>						53.09
Napa         138,433         5         21         26         18.7           Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Scardamento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara		-			·	10.71
Nevada         102,392         3         21         24         23.4           Orange         3,184,513         26         127         153         4.8           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           Santa Clara         1,933,516         12         70         82         42           Santa		-				18.78
Orange         3,184,513         26         127         153         4.8           Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz	•					23.44
Placer         405,308         3         27         30         7.4           Plumas         19,666         0         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz						
Plumas         19,666         0         6         6         30.5           Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9°           San Diego         3,303,736         43         219         262         7.9°           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2°           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra						7.40
Riverside         2,421,480         47         203         250         10.3           Sacramento         1,585,666         26         140         166         10.4           San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Siskiyou <td></td> <td></td> <td></td> <td></td> <td></td> <td>30.51</td>						30.51
Sacramento         1,585,666         26         140         166         10,4           San Benito         64,110         3         3         6         9,3           San Bernardino         2,181,983         40         178         218         9,9           San Diego         3,303,736         43         219         262         7,9           San Francisco         870,985         8         49         57         6,5           San Joaquin         780,676         10         62         72         9,2           San Luis Obispo         282,996         3         31         34         12,0           San Mateo         763,497         7         37         44         5,7           Santa Barbara         448,659         5         28         33         7,3           Santa Clara         1,933,516         12         70         82         4,2           Santa Cruz         272,360         1         28         29         10,6           Shasta         181,881         3         35         38         20,8           Sierra         3,233         0         10         10         309,3           Siskiyou						
San Benito         64,110         3         3         6         9.3           San Bernardino         2,181,983         40         178         218         9.9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano						10.47
San Bernardino         2,181,983         40         178         218         9,9           San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Sonoma         489,880         7         44         51         10.4           Stanislaus<						9.36
San Diego         3,303,736         43         219         262         7.9           San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6.6           Sonoma         489,880         7         44         51         10.4         6.6						9.99
San Francisco         870,985         8         49         57         6.5           San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6           Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>7.93</td>						7.93
San Joaquin         780,676         10         62         72         9.2           San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6.6           Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama						
San Luis Obispo         282,996         3         31         34         12.0           San Mateo         763,497         7         37         44         5.7           Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6.6           Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         12         18.2 <t< td=""><td></td><td></td><td></td><td></td><td></td><td>9.22</td></t<>						9.22
San Mateo         763,497         7         37         44         5.7.           Santa Barbara         448,659         5         28         33         7.3.           Santa Clara         1,933,516         12         70         82         4.2.           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6.6           Sonoma         489,880         7         44         51         10.4         51         10.4           Stanislaus         553,995         7         58         65         11.7         11.7         52         11.7         12         12         18.2         12.9         12.9         12         12         18.2         12.9         12.9         12.9         12         12         12         18.2         12.9         12.9         12.9         1						
Santa Barbara         448,659         5         28         33         7.3           Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6.6           Sonoma         489,880         7         44         51         10.4         6.6           Stanislaus         553,995         7         58         65         11.7         10.4           Sutter         100,751         3         10         13         12.9         12.9           Tehama         65,643         0         12         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36		-				
Santa Clara         1,933,516         12         70         82         4.2           Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6.6           Sonoma         489,880         7         44         51         10.4         6.6           Stanislaus         553,995         7         58         65         11.7         10.4           Sutter         100,751         3         10         13         12.9         12.9           Tehama         65,643         0         12         12         18.2         18.2           Trinity         16,135         0         7         7         43.3         7.6           Tuolume         55,500         2         14         16         28.8           Ventura         844,545         10         60						7.36
Santa Cruz         272,360         1         28         29         10.6           Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         20.4           Solano         453,405         6         24         30         6.6           Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         <						4.24
Shasta         181,881         3         35         38         20.8           Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6         6         24         30         6.6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         10         7         10         6         7         7         10         10         10         10         10         10						10.65
Sierra         3,233         0         10         10         309.3           Siskiyou         44,091         0         9         9         9         20.4           Solano         453,405         6         24         30         6.6         6           Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						20.89
Siskiyou         44,091         0         9         9         20.4           Solano         453,405         6         24         30         6.6           Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						309.31
Solano         453,405         6         24         30         6.6           Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						
Sonoma         489,880         7         44         51         10.4           Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						6.62
Stanislaus         553,995         7         58         65         11.7           Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						10.41
Sutter         100,751         3         10         13         12.9           Tehama         65,643         0         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						11.73
Tehama         65,643         0         12         12         18.2           Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.60           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						12.90
Trinity         16,135         0         7         7         43.3           Tulare         473,482         6         30         36         7.6           Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2           Yolo         216,544         3         13         16         7.3						18.28
Tulare     473,482     6     30     36     7.60       Tuolumne     55,500     2     14     16     28.8       Ventura     844,545     10     60     70     8.2°       Yolo     216,544     3     13     16     7.3°						
Tuolumne         55,500         2         14         16         28.8           Ventura         844,545         10         60         70         8.2°           Yolo         216,544         3         13         16         7.3°						
Ventura         844,545         10         60         70         8.2'           Yolo         216,544         3         13         16         7.3'						
Yolo 216,544 3 13 16 7.3						
					-	
1000   81,468   2   15   17   20.8						
						8.83

Source: FARS ARF 2020; Provisional SWITRS 2020; California Department of Finance 2021.