Berkeley SafeTREC
SAFE TRANSPORTATION RESEARCH AND EDUCATION CENTER

OTS CALIFORNIA OFFICE OF TRAFFIC SAFETY

TRAFFIC SAFETY FACTS

Bicycle Safety

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

INTRODUCTION

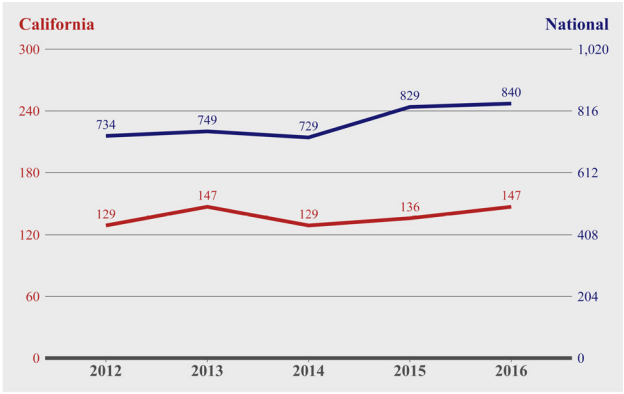
Bicycling is becoming more popular across the country, for commuting, exercise, and leisure. However, in the event of a traffic collision between a motor vehicle and a bicyclist, the bicyclist is the more vulnerable party and is more likely to be injured or killed than motor vehicle passengers. Bicycling fatalities increased 14.4 percent from 734 in 2012 to 840 in 2016 nationwide. Bicyclist fatalities represented 2.2 percent of the total number of traffic fatalities in 2016. Bicycle collisions are defined as crashes where one or more victims is a bicyclist, other cyclist, or bicycling passenger.

CALIFORNIA FACTS

CALIFORNIA DATA

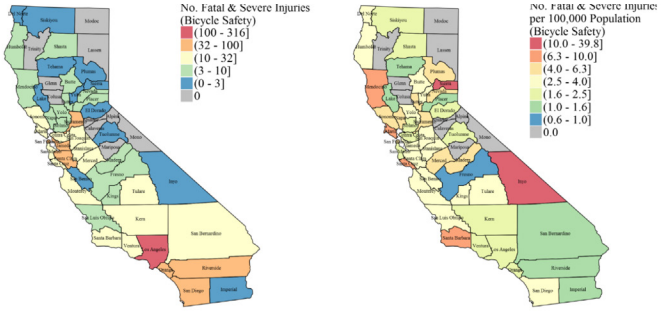
- Bicycle fatalities represented 4.1% of the total number of traffic fatalities in 2016.
- Bicycle fatalities increased 8.1% from 136 fatalities in 2015 to 147 fatalities in 2016.
- The highest numbers of bicycle fatal and severe injuries occurred in densely populated areas of the state. Los Angeles County had the highest number of fatal and severe injuries, while the counties of Sacramento, San Francisco, Alameda, Santa Clara, Riverside, Orange and San Diego also had relatively high numbers.
- Rates of bicycle fatal and severe injuries per population were highest in more rural areas, including Sierra, Inyo, Mendocino, Marin, Santa Cruz, and Santa Barbara counties.
- More male (82.4%) than female (17.6%) bicyclists in every age group incurred fatal and severe injuries in 2016.
- Bicyclists most likely to be fatally or severely injured were ages 55 to 64 (19.7%), followed by those ages 45 to 54 (16.9%) and those ages 15 to 24 (16.%).

Bicycling Fatality Trends, Nationwide and California, 2012-2016



Source: FARS ARF 2012 - 2016

Bicycling Fatal & Severe Injury and Fatal & Severe Injury per 100K Population by County, 2016



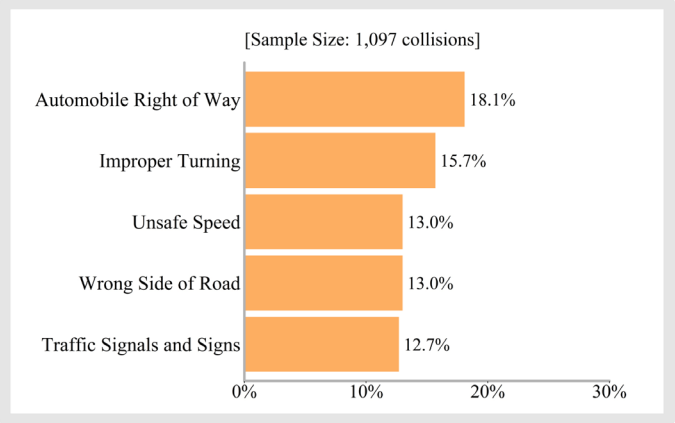
(a) Number of Fatal and Severe Injuries (b) Number of Fatal and Severe Injuries per 100,000 Population

Source: FARS ARF 2016; Provisional SWITRS 2016; California Department of Finance 2016

CALIFORNIA DATA *(continued)*

- The two top primary collision factors for bicycling fatal and severe injury collisions were automobile right-of-way at 18.1% and improper turning at 15.7%. Unsafe speed, wrong side of road, and traffic signals and signs were clustered between 12.7% and 13.0%.
- The time of day when the highest number of bicycle fatal and severe injury collisions occurred was between 3pm and 9pm on weekdays and between 9am and 9pm on weekends.
- Over three-quarters (78.8%) of bicycle fatalities occurred in urban areas compared with 21.2% on rural roads.
- Nearly half (48.3%) of all bicycle fatalities occurred on principal arterials (high-capacity urban roads), followed by minor arterials and collectors (low-to-moderate-capacity roads which serves to move traffic from residential streets to arterial roads).

Top Five Primary Collision Factors, Fatal & Severe Injury Bicycle Collisions, California, 2016



Source: Provisional SWITRS 2016

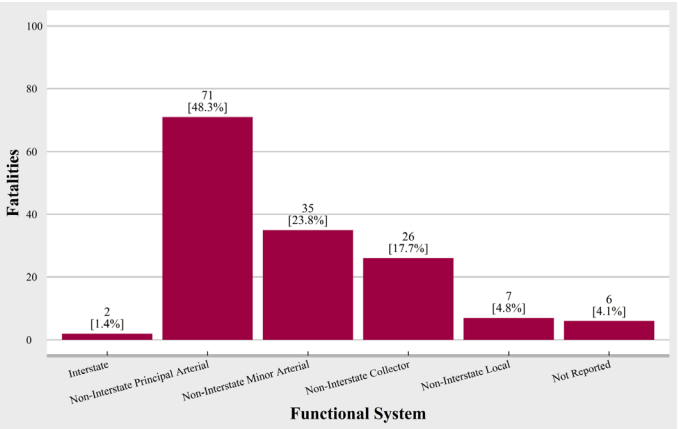
Time and Day of Week for Bicycle Fatal & Severe Injury, California, 2016

	MON	TUE	WED	THU	FRI	SAT	SUN	TOTAL
Midnight-3AM	5	5	7	4	6	8	11	46 [4.3%]
3-6AM	1	5	5	4	6	9	2	32 [3.0%]
6-9AM	14	28	24	17	17	11	5	116 [10.7%]
9AM-Noon	21	13	21	12	26	57	31	181 [16.7%]
Noon-3PM	18	19	22	20	23	33	19	154 [14.2%]
3-6PM	28	40	40	29	34	29	28	228 [21.1%]
6-9PM	37	30	33	37	33	34	26	230 [21.3%]
9PM-Midnight	8	12	20	11	16	10	15	92 [8.5%]
Unknown	0	0	0	0	2	0	0	2 [0.2%]
TOTAL	132 [12.2%]	152 [14.1%]	172 [15.9%]	134 [12.4%]	163 [15.1%]	191 [17.7%]	137 [12.7%]	1,081 [100.0%]

FSI Num+% 0 1 - 5 6 - 11 12 - 20 21 - 29 30 - 57

Source: FARS ARF 2016; Provisional SWITRS 2016

Roadway Type for Bicycle Fatal Injury, California, 2016



Source: FARS ARF 2016

REFERENCES

- Statewide Integrated Traffic Records System (Provisional 2016).
- National Center for Statistics and Analysis. (2017). 2016 Fatal Motor Vehicle Crashes: Overview. (Report No. DOT HS 812 451). Washington, DC: National Highway Traffic Safety Administration.
- National Center for Statistics and Analysis. (2017, March). Bicyclists and other cyclists: 2015 data. (Traffic Safety Facts. Report No. DOT HS 812 382). Washington, DC: National Highway Traffic Safety Administration.
- State Traffic Safety Information (STSI). Traffic Safety Performance (Core Outcome) Measures for California. Washington, DC: National Highway Traffic Safety Administration. https://cdan.nhtsa.gov/STSI.htm
- Chonga, S., Poulosb, R., Olivier, J., Watsona, W.L., Grzebietaa, R. Relative injury severity among vulnerable non-motorised road users: Comparative analysis of injury arising from bicycle–motor vehicle and bicycle–pedestrian collisions. Accident Analysis and Prevention. 42 (2010) 290–296

Funding for this program was provided by a grant from the California Office of Traffic Safety, through the National Highway Traffic Safety Administration.