

# **UCLA**

## **Policy Briefs**

### **Title**

Bicycle Crash Risk: How Does it Vary, and Why?

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# Bicycle Crash Risk: How Does it Vary, and Why?

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## RESEARCH TOPIC

As more people look to bicycling for their commutes and other trips, transportation planners and policymakers must address critical bicycle safety and infrastructure needs. This is especially true in California, where bicycle fatalities were 4.1 percent of total crashes in 2011 — about twice the national average. But how do planners and policymakers know where to prioritize bicycle improvements?

To better understand the relationship between bicycle crash risk, roadway design and operational characteristics, researchers from UCLA compiled data from nearly 500 sites in Los Angeles County. By associating these sites with bicycle count volumes, researchers were able to differentiate between high incidence and high risk sites from high incidence and low risk sites. These findings can help inform planners and policymakers as they prioritize bicycle improvements in their communities.

## MAIN FINDINGS

- **Larger intersections are generally more dangerous for bicycles.** Dedicated right-turn lanes, classification as a primary roadway, transit stops, high vehicle speeds, and roads with more than eight lanes are associated with greater crash incidence and greater crash risk.
- **Wide, busy roads are generally more dangerous for bicycles.** Roadways widths greater than 62 feet, three travel lanes in each direction, center-turn lanes, truck routes, transit stops, and high vehicle volumes are associated with greater crash incidence and greater crash risk.
- **Ethnicity and race matter in bicycling safety.** There is a negative relationship between bicycle crash risk along a road and the percentage of people who are white in the surrounding Census block group. There is a positive relationship between crash risk and the percentage of people who are Latino.

## STUDY APPROACH

This study modeled bicycle crash risk — the relationship between crash incidence and exposure — at 481 location in the Los Angeles area. Researchers calculated crash incidence using data from the Statewide Integrated Traffic Records System (SWITRS). Bicycle exposure was calculated through a convenience sample of bicycle count data aggregated at bikecounts.luskin.ucla.edu. Researchers used a number of methods to standardize these data, resulting in databases that enabled descriptive analysis and statistical modeling of both raw crash incidence and crash risk.

## RECOMMENDATIONS

- **Local, regional, and state transportation agencies should prioritize the collection of bicycle volume data.** Bicycle crash risk cannot be understood without some measure of bicycle activity.
- **Planners should advocate for bicycle infrastructure.** This study reinforces previous findings that bike lanes and bicycle boulevards are safer for cyclists than roads without safety interventions.
- **Policymakers and planners should prioritize bicycle investments where ridership is moderate but risk is high.** High-risk sites may not always be where there is a high number of crashes because locations with a high number of crashes also often have high bicycle ridership, so the risk per cyclist is relatively low.

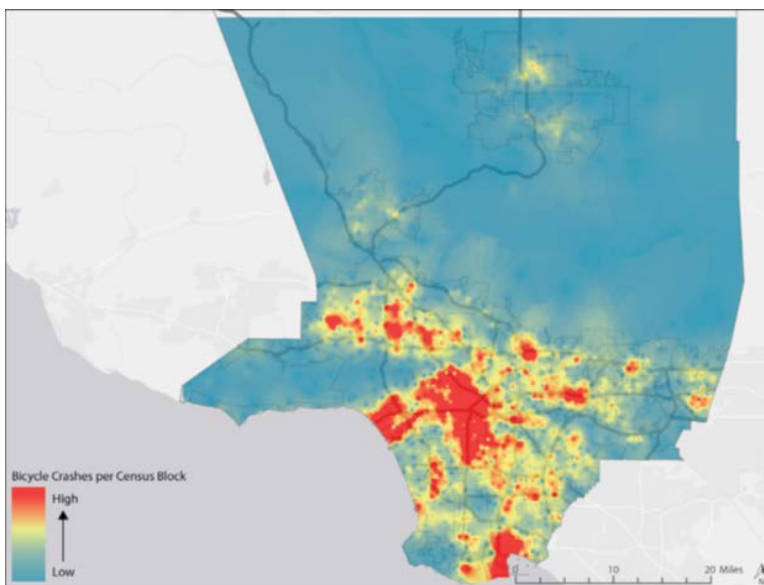


Figure: Heat map of bicyclist-involved crashes resulting in injury in Los Angeles County, 2003-2014 (Source: California Highway Patrol, SWITRS)

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