

Right Turn on Red: Energy-Saving Measure or Unsafe Maneuver?

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Introduction

The Energy Policy and Conservation Act of 1975 required states to permit right turns on red lights (RTOR) as an energy-saving measure, leading all states to allow right turns on a red light as the default since 1980. More research is needed to help jurisdictions make better informed decisions about how RTOR policies affect the safety of vulnerable road users such as cyclists and pedestrians and better assess the energy-saving benefits.

Study Methods

Using existing literature, we explored the safety and emissions impacts of RTOR nationwide. Then, we used data from California traffic collisions from 2011–2022 to better understand the prevalence of RTOR safety impacts. This review revealed that a higher proportion of RTOR collisions were occurring in low socioeconomic status (SES) areas. This led to a deeper set of analyses using linear regression models and a host of built environment, collision, and SES variables. We also conducted a case study in the City of Los Angeles to identify and analyze intersections where high numbers of RTOR collisions were occurring.

Findings

The findings show that RTOR movements are generally unsafe for pedestrians, bicyclists, and drivers, while only marginally beneficial in lowering emissions and only under certain contexts. We generally recommend prohibiting RTOR movements but acknowledge that decisions should consider the specific contexts of cities, as widespread implementation could create a significant signage burden.

Our case study analysis revealed several common characteristics for intersections with the highest numbers of right-turn collisions for pedestrians and cyclists. Most of these intersections were located near transit stops and in commercial zones with large parking lots and relatively heavy cross-traffic. Several intersections had irregular designs that could add to confusion or distraction amongst drivers. The data showed that right-turn collisions at signalized intersections were responsible for over 39,000 collisions and 217 fatalities (involving pedestrians, bicyclists, and drivers) between 2011–2022 in California. Additionally, the marginal emission reduction benefits associated with RTOR have declined over the years and will likely further decline with increased electric vehicle adoption.

Policy Recommendations

Rather than attempting to prohibit RTOR on an intersection-by-intersection basis, the law should allow cities to institute a blanket prohibition (or permission). With this policy, the state would allow cities to elect to ban RTOR as the default and then indicate intersections where the maneuver will be permitted. RTOR prohibition should prompt the implementation of Leading Pedestrian Intervals (LPI)—which give pedestrians a head start before parallel traffic is allowed to turn right—at all signalized intersections to improve safety. LPIs could be used alongside flashing yellow arrows for right turns.

Rather than trying to prohibit RTOR movements on an intersection-by-intersection basis and provide required signage—which could be expensive and logistically challenging—the law should allow cities to institute a blanket prohibition (or permission) of RTOR movements.

About the Authors

Dr. Bruce Appleyard is a Professor of City Planning and Urban Design at San Diego State University (SDSU) where he serves as SDSU's Director of the National Center for Pedestrian and Bicyclist Safety. He is the author of numerous peer-reviewed and professional publications and is a renowned expert on urban quality, binational regional planning, the future of transport, street safety and livability, and designing for pedestrians and bicyclists.

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Dr. Joseph Gibbons is a Professor of Sociology at San Diego State University. His research focuses on how neighborhood demographics influence residents' well-being, with a particular emphasis on the effects of broader structural forces like residential segregation

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2347



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