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MTI Research Snaps presents

Savings & Safety Concerns: The Evolution of Right Turn on Red Policies

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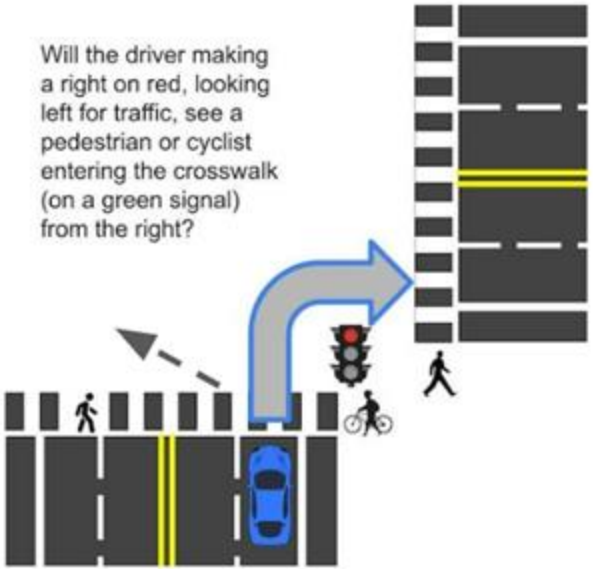
Statewide Policy on Right-turn on Red (RTOR)

- The Energy Policy and Conservation Act of 1975 required states to permit right turns on red (RTOR) as an energy-saving measure

- Most states permit RTOR as a general rule unless otherwise prohibited at specific intersections via guidance from Manual on Uniform Traffic Control Devices (MUTCD)

- The state laws applicable in most jurisdictions of the country require RTOR to remain legal at intersections *unless a sign specifically prohibiting such maneuvers is posted*.

Arguments for Prohibiting



Adapted from Listgarten (2022)

- Drivers making RTOR often look left at oncoming traffic and do not check for pedestrians in the crosswalk before turning.
- This failure to yield is a failure to drive with care and empathy

Arguments for Permitting

- RTOR maneuvers only represent a small proportion of intersection crashes (Lord, 2002)
- Drivers making right turns on red are typically traveling at slow speeds, mitigating injury risk to pedestrians and cyclists (Fleck & Yee, 2002)
- Permitting reduces congestion and improves fuel efficiency (Energy Policy and Conservation Act, 1975)

Total RTOR Collisions Statewide (SWITRS, 2011-2022)

	Right-Turn at Intersections		Yield Violations (CVC) 21453(b)	
	Collisions	**Fatalities**	**Collisions**	**Fatalities**
Pedestrian	10,220	98	477	4
Cyclist	11,428	36	646	6
Vehicle	17,480	83	2,092	5

Failing to yield to pedestrians at a red light constitutes a violation of California Vehicle Code (CVC) 21453(b)

11.1% of cyclist collisions are preceded by right turns, compared to 7.1% of pedestrian collisions

Arguments for Prohibiting

- RTOR disproportionately affects pedestrians and cyclists (Zador 1982; 1984)
- Creates an environment that feels less safe, even if actual crash risk is low
- Recent before and after studies of intersections that have prohibited RTOR demonstrate a safer environment for vulnerable road users
    - Washington, DC and Seattle

City of Los Angeles Case Study

- Characteristics of intersections with highest numbers of right-turn collisions*
  - No protected cycle lane
  - Near transit stops
  - In commercial areas with parking lots
  - Relatively heavy, fast-moving cross traffic
  - Irregular intersection design that could add to driver distraction/confusion

The numbers for failure-to-yield collisions were too small to conduct an intersection analysis

City of Los Angeles Case Study

- Vanowen St at Reseda Blvd
- 6 pedestrian collisions involving right turns (2011-2022)

Vanowen at Reseda Street View

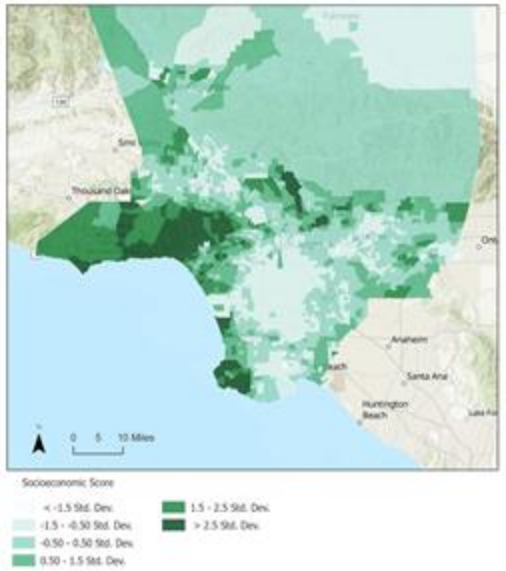
City of Los Angeles Case Study

- La Brea Ave at Sunset Blvd
- 4 bicycle collisions involving right turns (2011-2022)

La Brea Ave at Sunset Blvd

RTOR and SES in LA County

Heat map of right turn pedestrian collisions



SES scores

Each decrease in SES roughly corresponds to a 2.5 % increase in the *chance* of collisions.

Relevant Guidelines

- Relevant MUTCD guidelines on factors that may warrant consideration of prohibiting RTOR at individual intersections (Section 2B-54)
  - *"…unacceptable number of pedestrian conflicts with right-turn-on-red maneuvers, especially involving children, older pedestrians, or persons with disabilities"*
- In a memo expanding the use of restrictions on RTOR, SFMTA (San Francisco Metropolitan Transportation Agency) noted (July 2023):
  - *"…even if close calls or blocked crosswalks due to vehicular turns on red did not always lead to injury crashes, they degraded the walking environment and the priority that pedestrians should have when crossing a street"*
- For communities that want to promote active travel, it makes sense to create a more welcoming environment for active modes of travel through intersections by prohibiting RTOR

IMPACT OF STATEWIDE POLICY ON COMMUNITIES

- Statewide policies present a barrier to communities that want to prohibit RTOR.

- From the SFMTA memo:
  - *"Under existing California law, turns on red would continue to remain legal unless signed, thereby any citywide approach would require the posting of signs at each of the approaches to San Francisco's over 1,300 traffic signals."*

Emissions Analysis

- Factors determining the emissions impacts of RTOR:
  - Intersection geometry
  - Traffic composition and flow
  - Presence of vulnerable road users
  - Surrounding land use
  - Enforcement of traffic laws
  - Increased adoption of hybrid/electric vehicles (Darma et al, 2005; Pandian et al, 2009; Lin et al, 2016)
- Stop-and-go maneuvers (common for RTOR) may actually increase emissions, especially in urban/high-traffic environments (Rouphail et al, 2001; CT DOT, 2024)

EXISTING CRASH DATA AND SAFE SYSTEMS APPROACH

- In California, right-turn collisions at signalized intersections were responsible for over 39,000 collisions and 217 fatalities (involving pedestrians, bicyclists, and automobile occupants) between 2011-2022

- Over half (21,648) of these collisions and 134 fatalities involved a pedestrian or cyclist and an automobile

- For context, CA has about 200,000 crashes and 4000 traffic fatalities *every year(!)*

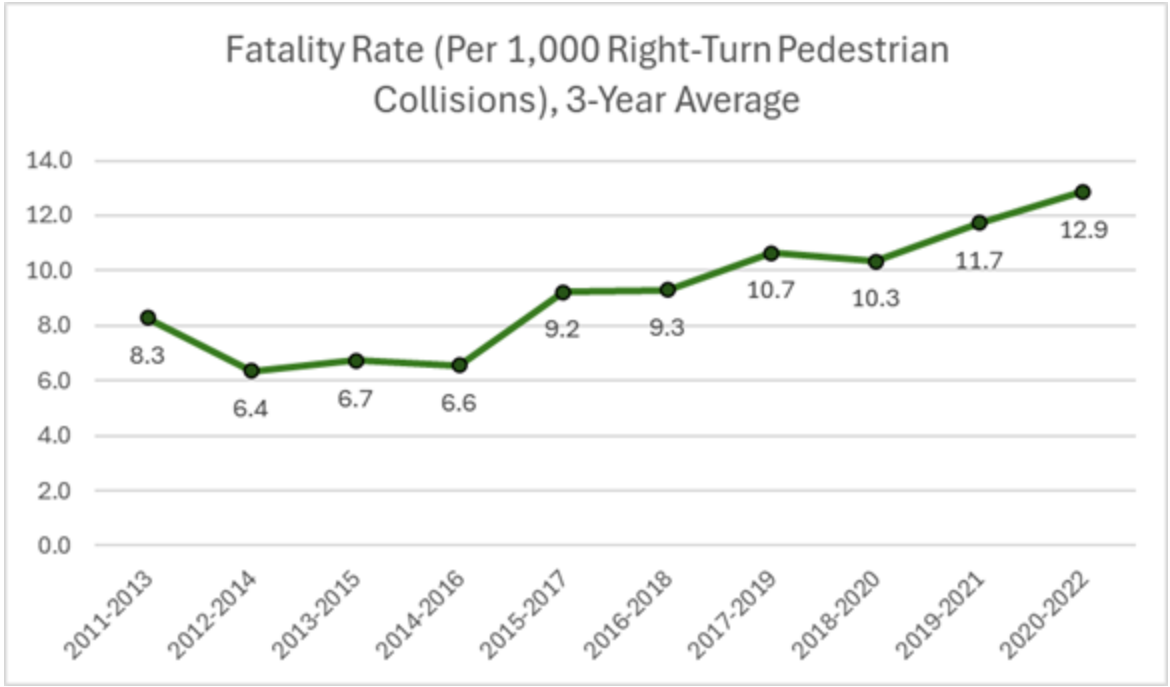
- A key pillar of the Safe Systems approach from FHWA
  - "*Safety is proactive, and therefore, we should identify and mitigate latent risks in the transportation system, rather than waiting for crashes to occur and reacting afterward.*"

Relevant Data

- A recent IIHS (Insurance Institute for Highway Safety) study estimated that the odds of a pedestrian fatality in case of a crash that involved a right turn by an automobile were 89 percent higher for pickups and 63 percent higher for SUVs than for passenger cars (IIHS, 2022).

- Close to 4 out of 5 new personal automobiles (78.5%) sold in the US in the year 2021 were a pickup or an SUV and that number used to be close to half (52.1%) as recently as 2013 (JD Power, 2022).

Does this Show up in CA Collision Data?



Conclusions and Potential Policy Options

- Considering prohibiting RTOR through signalized intersections is consistent with the safe systems approach

- Rather than trying to prohibit (or permit) RTOR movements on an intersection-by-intersection basis, the law should provide the following options:
    - Option A: Allows cities to place blanket bans on RTOR, and permit at selected intersections
    - Option B: Allows cities to ban RTOR at select intersections (high pedestrian/cyclist density, transit priority areas, new or newly designed intersections)
- Such a prohibition should prompt a simultaneous implementation of Leading Pedestrian Intervals (LPI)

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