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Evaluating All-Way Stops, Neighborhood Traffic Circles and Mini-Roundabouts in Los Angeles



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Issue

Cut-through traffic is a growing problem in Los Angeles neighborhoods, as navigation apps direct drivers off congested arterials and onto residential streets. This trend, paired with high traffic volumes and inadequate traffic calming, is making local streets more dangerous, especially for people walking, biking, and children playing outside. Despite Los Angeles's Vision Zero initiative, which focuses on major corridors with high crash rates, more than 3,900 miles of residential streets remain at risk. Speeding on these streets poses serious safety threats, as the risk of death or serious injury rises sharply with vehicle speed.

This policy brief summarizes findings from a study that evaluated the effectiveness of three intersection treatments — stop signs on all approaches, neighborhood traffic circles, and mini-roundabouts — in reducing vehicle speeds. Results from more than 25 million vehicle observations reveal that physical design, more so than paint and signage alone, is the most effective way to make local intersections safer.

Study Approach

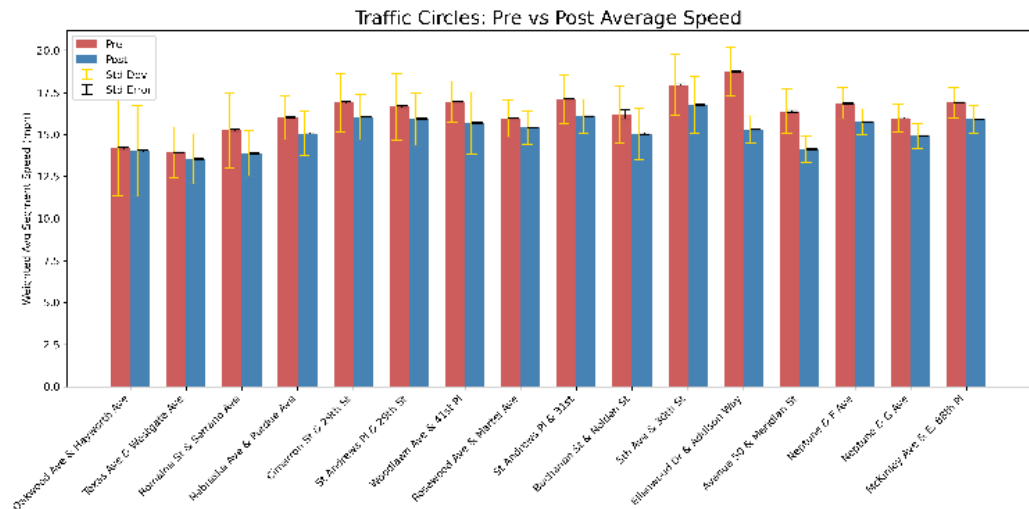
This study combined a literature review of national and international research with an empirical analysis of 33 intersections across Los Angeles. Speed data was collected from StreetLight, a transportation analytics platform that uses anonymized mobile data to measure average vehicle speeds. More than 25 million vehicle observations were

analyzed across three intersection treatment types: 14 all-way stop sign conversions, 16 neighborhood traffic circles, and three mini-roundabouts. To measure effectiveness, the study compared statistical differences in average and fastest-travelling vehicle speeds before and after each treatment was installed.

Key Findings

- **All-way stop signs produced mixed results.** While they can reduce speeds at some intersections, others saw little change or even higher speeds. Drivers often roll through stop signs or accelerate between them, limiting their effectiveness.
- **Neighborhood traffic circles consistently reduce vehicle speeds.** All 16 locations experienced reduction in average speeds, pointing to the effectiveness of traffic circles in changing driver behavior (Figure 1). The strongest results were at intersections that featured a larger center island and tighter curb return radius, forcing drivers to slow down and navigate the circle. These design features also reduced the fastest-traveling vehicles, which are typically most dangerous in a crash. Even quick-build versions of traffic circles using striping and flexible posts were effective when properly designed.
- **Mini-roundabouts demonstrated a modest but promising impact on reducing vehicle speeds.** Of the three sites evaluated, two showed reductions in average vehicle speeds, one of which also showed a

Figure 1. Traffic Circles Average Speed Results



decline in fastest-traveling vehicles. Given the limited number of mini roundabouts, further implementation and evaluation are necessary to confirm their effectiveness across a broader range of conditions.

Conclusions

Traffic fatalities in Los Angeles have increased in recent years, and crashes on residential streets can be underdressed. The evidence from this study is clear: physical street design has a much stronger impact on vehicle speed than signage and paint alone. Addressing safety on neighborhood streets must embrace design-based interventions that reshape how drivers move through local areas. Based on the findings, the following recommendations can help Los Angeles improve safety on neighborhood streets:

First, stop sign conversions should not be relied on as a primary traffic-calming tool. While they are low cost, their effectiveness depends heavily on driver behavior and compliance. In locations with longer blocks, stop signs should be paired with midblock measures such as speed humps or chicanes to reduce acceleration between stops. Without additional treatments, drivers may simply speed up between intersections or ignore signage altogether.

Second, traffic circles should be expanded throughout Los Angeles's most traffic-impacted neighborhoods. These treatments offer consistently strong speed reductions, especially when designed with large center islands and

narrower distances from curbs. The city should prioritize locations where existing all-way stops are underperforming and where high pedestrian activity calls for lower vehicle speeds. Because traffic circles are often smaller and less costly than full roundabouts, they represent an efficient, scalable option for improving safety.

Third, the use of mini-roundabouts on residential collector streets should be expanded. These designs are particularly suited to corridors with higher traffic volumes. Mini-roundabouts can be constructed with quick-build materials such as plastic bollards, curb paint, and signage, providing an opportunity to test interventions before committing to permanent construction.

Lastly, the role of deflection in intersection safety should continue to be evaluated, including opportunities to retrofit existing intersections to encourage slower, more predictable driving. This includes using AB 413, California's daylighting law, to enhance intersection treatments, adding bollards, and narrowing travel paths. As Los Angeles aims to achieve Vision Zero, improving neighborhood intersections is a fundamental element of building safe, accessible, and thriving communities.

For More Information

Giorgio, N. (2025). Intersection Traffic Calming Treatments: A Comparative Analysis (Master's capstone, UCLA). Retrieved from: <https://escholarship.org/uc/item/0895426k>

