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Evaluating the Safety Impacts on High Traffic Volume Road Diets



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Issue

The City of Los Angeles has one of the highest traffic-related fatality rates in the country. For this reason, in 2015, Los Angeles Mayor Eric Garcetti and the Los Angeles Department of Transportation adopted Vision Zero, an internationally known policy which calls for eliminating all traffic fatalities and severe injuries. The city set a goal to achieve a 20% reduction in traffic fatalities by 2017, and to fully eliminate traffic fatalities by 2025. Despite this goal, 2021 marked the highest death toll in Los Angeles in nearly two decades. According to city officials, the continual increase in fatalities is attributed to an increase in speeding and reckless driving, which is likely related, at least in part, to the COVID-19 pandemic.¹ Since there were less people driving, the open roads enticed some people to speed. A 2017 Los Angeles Vision Zero Safety Study found that driving speed is a top contributor to collision fatalities. An increase in driving speed from 20 mph to 40 mph decreases a person's chance of surviving a crash from 80% to 10%.² The Vision Zero study also found that pedestrians are the most vulnerable road users and account for 44% of all collision fatalities despite being involved in only 8% of collisions.

Road diets, also known as lane reconfigurations, consist of converting vehicle travel lanes to serve other uses, such as providing pedestrian or cycling access. These road diets can help achieve the Vision Zero policy goal by

discouraging speeding and reducing risky lane changes to improve road safety. This report studies the safety and travel time impact of road diets on high average daily traffic (ADT) roads in Los Angeles to determine whether the existing 20,000 ADT threshold should be revisited.

Study Approach

This study compared collisions and speeds on five high-ADT road diet corridors to 16 similar, multi-lane, untreated street segments in Los Angeles (Figure 1). The researcher used collision data for the most recent pre-pandemic year, 2019, from the Transportation Injury Mapping System created by the Safe Transportation Research and Education Center at UC Berkeley, along with speed data from StreetLight for 2019.

Research Findings

Corridors treated with road diets performed better with respect to vehicle collisions than other high-traffic corridors in all metrics studied. Road dieted corridors had 44% fewer collisions than comparison corridors. This is even better than the findings reported by the Federal Highway Administration that found road diets can be expected to reduce crashes by about 29%. Furthermore, collisions that resulted in fatal and severe injuries were 200% and 37% lower, respectively.

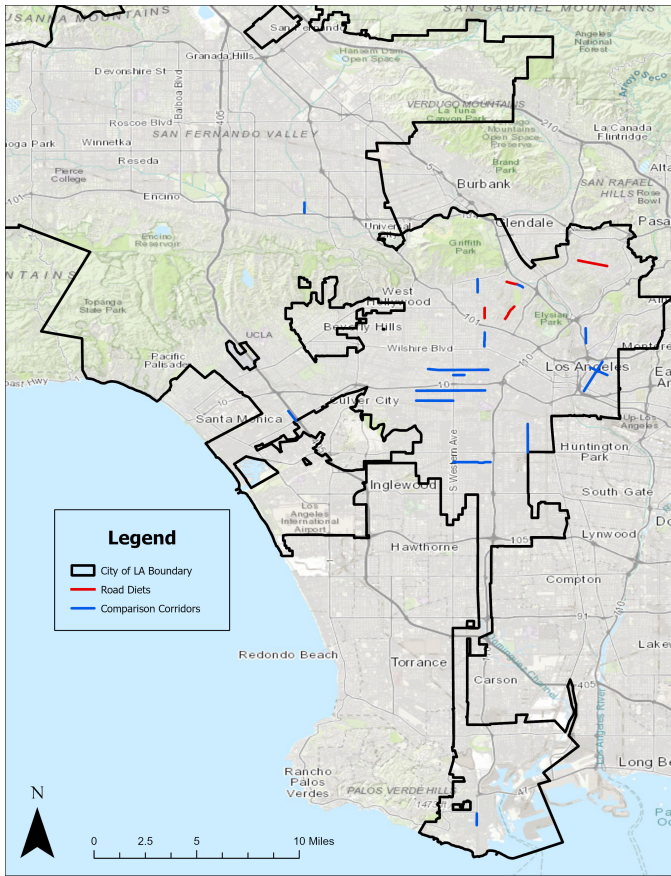


Figure 1. Map of the Road Diets and Comparison Corridors

The reductions in collision, injury, and death rates were much greater than the reduction in average speeds.

While the observed travel times are indeed longer on road diet corridors than on comparison roads, the difference averaged to just 11 seconds per mile. Also, the comparison corridors had an 85th percentile speed that was only about 6% greater, on average, than the high-ADT road diet corridors examined.



¹ Fonseca, R. (2021, January 28). Was The Deadliest Year For LA Crashes In Nearly 20 Years. How Did It Get So Bad? LAist. Retrieved March 27, 2022 from <https://laist.com/news/transportation/traffic-violence-surges-in-los-angeles-2021>.

² Samaro, D. 2018. Presentation. Vision Zero Los Angeles Presentation. Retrieved from https://zerofatalitiesnv.com/wp-content/uploads/2018/10/2018-10-15_LV_Conference_Pdf.

2018 Action Plan + Progress Report. Los Angeles: Vision Zero LA. Retrieved from https://ladot.lacity.org/sites/default/files/documents/vz_2018-action-plan-progress-report.pdf.

Vision Zero Safety Study for Los Angeles (2017). Retrieved from <https://view.joomag.com/vision-zero-safety-study/0065798001485405769?short>.

Venegas, K. (2022). Take the high (volume) road: Analyzing the safety and speed effects of high traffic volume road diets (Master’s capstone, UCLA). Retrieved from <https://escholarship.org/uc/item/53z583bt>.

One of the major concerns that drivers and the officials they help elect express regarding road diets is that they will substantially increase vehicle travel times. My analysis shows that road diets can provide great safety benefits without drastically increasing travel times.

Conclusions

Given these findings, the following recommendations are presented for the city:

- Revisit the ADT threshold guidelines for road diets. Instead of relying on fixed ADT thresholds, develop road diets based on a holistic and context-sensitive design approach that takes into account the city’s transportation, sustainability, and climate goals while balancing and accommodating local conditions.
- Implement more road diets through city initiatives, even on roads with high ADT, to encourage safer driving speeds and increase street space dedicated for alternative modes of travel.

Collect additional data to perform more in-depth analyses of road safety conditions following a high ADT road diet in order to better understand the trade-offs between safety and vehicular throughput. Specifically, analyze the impact of road diets on bicycle and pedestrian collisions — while accounting for increased use of active transportation after the implementation of road diets.