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# Three Lanes Good, Two Lanes Better? An Analysis of Unconventional Road Diet Typology in Los Angeles



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## Issue

In 2015, then-Mayor Eric Garcetti signed Executive Directive 10, launching Los Angeles's Vision Zero initiative and setting the goal of reducing traffic fatalities to zero by the year 2025. While Los Angeles still has time to reach this goal, it appears near-impossible today: Last year, traffic fatalities hit their highest mark in the last two decades (Smith, 2023). Given the lack of concrete results from Vision Zero to date, this capstone considers one of the primary tools that the Los Angeles Department of Transportation (LADOT) has at its disposal for improving safety outcomes: the traditional road diet.

Traditional road diets, which consist of converting a four-lane road to a three-lane road with a center turn lane, are widely regarded as a safety-enhancing solution across a wide variety of road contexts (Burden and Lagerwey, 1999). Even high-volume streets benefit from the presence of a traditional road diet, bucking conventional wisdom that they were most useful on low-volume streets (Venegas, 2022). While traditional road diets are generally considered beneficial, there are concerns within certain sectors of LADOT that they've been excessively applied. Specifically, center turn lanes have been added seemingly without proper assessment, solely based on the availability of extra space and without consideration if the treatment was suitable for the specific streets in question.

This study looked at streets that previously featured a center turn lane as part of a traditional road diet but later underwent modifications that involved removing that center turn lane and reducing capacity to two total travel lanes (one lane in each direction). This treatment — a three-to-two road diet — was usually paired with the addition of two bicycle lanes after the center turn lane was removed.

## Approach

The researcher analyzed five streets that implemented a three-to-two road diet, referred to as "treatment streets," along with 4.5 times the number of "comparison streets." These comparison streets had a traditional road diet and similar average annual daily traffic (AADT) as the treatment streets.

Two methods of analysis were employed: a like-to-like comparison and a before-and-after analysis. Because of data and sample size limitations, the before-and-after analysis did not produce statistically significant effects, so the report relies on the like-to-like analysis for the bulk of its conclusions.

The like-to-like analysis involved taking each of the five treatment-comparison pair groups and recording the number of crashes following the removal of the treatment street's center turn lane.

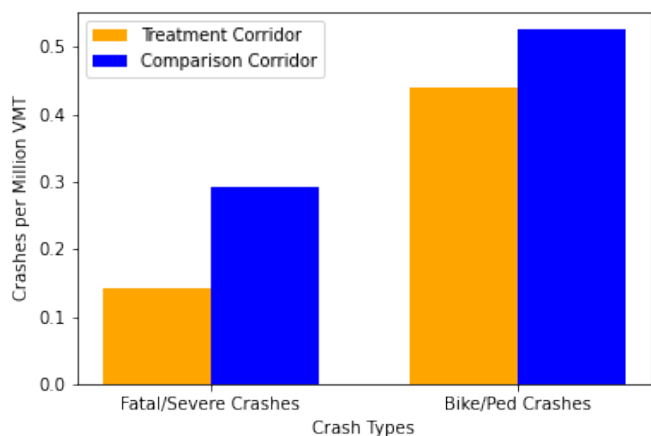


Figure 1. Comparison of severe and fatal collisions and pedestrian and bicycle collisions between treatment and control corridors

- Even after removing one comparison street from the analysis because it had significantly more crashes than any of the other treatment or comparison streets, the results still held up: Treatment corridors recorded about 32% fewer crashes after center turn lane removal than their comparison corridors over the same period of time. For fatal and severe crashes, comparison streets still recorded 53% more crashes than the study streets, and 9% more for bicycle and pedestrian collisions.
- The before-and-after analysis revealed that some of the treatment corridors had fewer crashes on average prior to center turn lane removal relative to our comparison corridors; despite this, there were still observed decreases in crashes for the treatment streets after the removal of the center turn lane, lending further support to the findings.

## Research Findings

- The comparison streets — those that retained their center turn lanes — had on average 42% higher crash rates than the treatment streets where the center turn lanes were removed.
- Comparison streets had 104% more fatal and severe crashes per million vehicle miles traveled compared to the treatment streets. It should be noted, however, that the overall volume of severe crashes was significantly lower compared to the total volume of crashes, which reduced the sample size and consequently affects the reliability of the results.
- For crashes involving bicycles and pedestrians, comparison streets had 19% more incidents than treatment streets that went from three to two traffic lanes (Figure 1).

## Conclusions

The findings revealed scant evidence that removing a street’s center turn lane hinders safety outcomes or impedes Vision Zero goals, especially if the resulting two-lane street includes a protected bike lane. Given this, LADOT should continue to remove center turn lanes across the city where appropriate, replace them with bike lanes, and continue to collect before-and-after data to document the changes.

In light of a growing number of city policies that aim to curb transportation emissions, it’s time to start thinking about alternative ways to use road space to support more sustainable and efficient modes of travel that do not pollute and occupy less space. By repurposing street space as described in this research, Los Angeles has a better chance of meeting its Vision Zero and climate goals.



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