



Designing Road Diet Evaluations: Lessons Learned from San Jose's Lincoln Avenue Road Diet

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This report analyzes traffic impacts from a 2015 “road diet” pilot on Lincoln Avenue, in the City of San Jose, California. Road diets reconfigure streets to reduce the number of travel lanes, usually converting a four-lane, undivided roadway to a three-lane roadway with two through-travel lanes and a two-way center left-turn lane. When road diets work well, they are a low-cost tool to improve safety, multi-modal accessibility, and quality of life. Road diets are not without concerns, however. Travel times may increase along the slimmed road and, depending on the configuration of side streets, some traffic may switch to nearby roads less suited to handle that traffic.

We compared data on traffic volumes and speeds from before and after the Lincoln Avenue road diet was implemented. The analysis looks at impacts on both the road diet location itself and on surrounding streets potentially impacted by traffic diverted off the road diet segment. The results of the data analysis were then used to recommend strategies for designing effective road diet evaluations.

Study Methods

We analyzed traffic volume and speed data collected at 45 different locations on and around Lincoln Avenue. Data was collected in February 2015, several weeks prior to the beginning of the road diet pilot, and one year later, in February 2016. The report explores how the road diet impacted traffic volumes and numbers of speeders for each data collection location, as well as mean impacts for four street types: Lincoln Avenue road diet locations, Lincoln Avenue locations outside the road diet, major streets, and neighborhood streets. The analysis compared all-day impacts to impacts by hour of the day.

Findings

The road diet impacts varied a great deal by location and time of day, as illustrated by the following examples. The most aggregated measures – average all-day impacts for a specific street type – obscured important findings at specific locations, as well as variations in impacts by time of day.

Impacts within the road diet zone: Results within the road diet zone were as expected for all-day data averaged across the two collection points, with volumes and numbers of speeders both falling. For example, the daily number of speeders traveling 10 mph+ over the speed limit fell by an average of 525 per location, a 60% drop. Looking at the two road diet data locations

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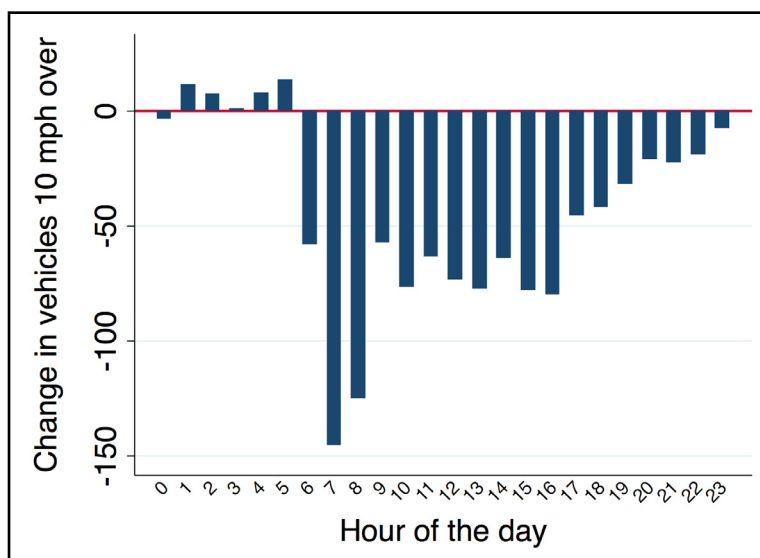
individually, however, shows that one location had a major drop in the number of speeders going 10 mph+ over the limit (65%), while the other location saw a more modest decrease (20%). Finally, analyzing the road diet zone data by time of day revealed that traffic volumes and speeds fell more during the peak hours than for all-day counts.

Impacts on other street types: There were limited negative impacts at locations outside the road diet segment. Traffic volumes fell or, in a few cases, remained essentially flat, suggesting that the road diet did not divert traffic to other neighborhood streets. Of more concern, the number of speeders outside the road diet area rose, with the percentage increases being fairly large, in the double digits. Fortunately, the change was less pronounced on the neighborhood streets. On these streets, the *numbers* of new speeders were low, even if the *percentage* increases were high.

Policy Recommendations

Designing the data collection

plan: Without careful planning, it is easy to spend a great deal of time and money collecting road diet evaluation data that ultimately does not allow evaluators to assess the project impacts with any certainty or nuance. For an effective evaluation, it is important to collect data on enough days to smooth day-to-day traffic variations, conduct a power analysis to determine the minimum amount of data needed for statistical tests, provide analysts with the raw data for every vehicle (instead of packaging the data into categories), and develop a method to compare traffic impacts in the road diet area with changes in other neighborhoods.



Change in speeding vehicles along the Lincoln Avenue road diet, pre- and post-road diet, by hour of the day.

Analyzing the data and presenting findings: The study results suggest that it is important to analyze and present impacts for each data collection location as well as by street types, analyze impacts by time of day as well as by all-day metrics, present findings about changes as both actual counts and percentages, look at the number of “speeders” rather than mean speeds to identify safety outcomes, and design graphics that emphasize the changes between pre and post periods.

About the Authors

Hilary Nixon, PhD, and Asha Weinstein Agrawal, PhD, are both Professor of Urban and Regional Planning at San José State University. Cameron Simons works as a housing market analyst at Trulia.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1629.html

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